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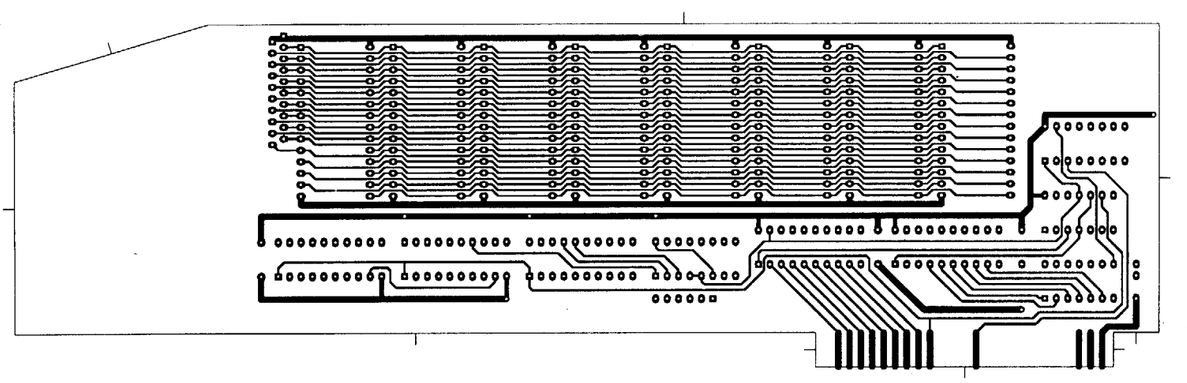

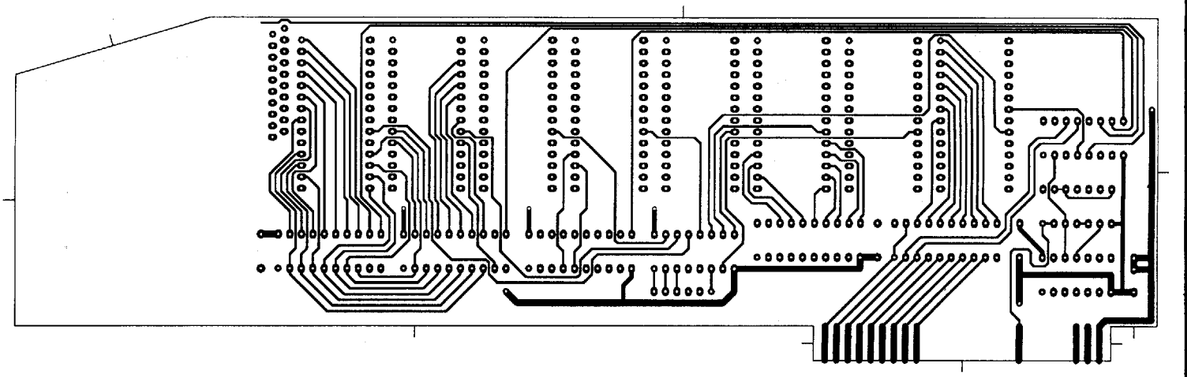

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59 Features •Boot IIc Utilities on any compatible •Help with Ultima V •Convert Printmaster graphics into Print Shop graphics •The Invincible Bard (III) •The Deprotection Game •Patching ProDOS 1.1.1 •The Product Monitor •AppleWorks and the ImageWriter II Softkeys •APBA Major League Players Baseball •Better Working: Spreadsheet •Better Working: Word Processor •Beyond Pinball •BoulderDash Construction Kit •Calendar •Calendar Crafter •California Games •Championship Baseball •Clip Art Collection vol 1 •Cours Et Gagne v1.0 •Dazzle Draw •Everbody's Planner •GATO v1.3 •GoldFinger •Jumpman •King's Quest •Management Edge •Movie Monster Game •MultiScribe v3.0 •Negotiation Edge •Nightmare Gallery •Patchworks •Picture Phonics •Printographer •Reader's Treasure Chest •Real Math •Sea Strike •Shifty Sam •Simulation Construction Kit •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Snoopy to the Rescue •SongWriter •Spell It! •Stickybear Reading Comprehension •Super BoulderDash APTs •Bard's Tale III •Super BoulderDash •Ultima V Playing Tips •Alternate Reality •Auto Duel •Ultima V •Where in the World is Carmen Sandiego **IBM** Softkey •Chartmaster v6.04 •Clout v1.0 •Copywrit •Graphwriter •Signmaster v5.04

COMPUTIST

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Hardware Corner Notes

We are delaying part2 of the Display Card article to allow more time for the circuit board quotes to come back.

If you just can't wait and want to assemble the project yourself on perf board, write to us and request the complete Display Card Notes. Send 50¢ to cover postage. We'll send you the complete schematic, net list (for wire wrap), parts list and circuit board layouts (2X).

COMPUTIST

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Readers Data EXchange

New COMPUTIST readers using Apple IIs are advised to read this page carefully to avoid frustration when attempting to follow a softkey or 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 backup copy can usually be copied by the normal copy programs (for example: COPYA, on the DOS 3.3 System Master disk).

Commands and control keys

Commands which a reader is required to perform are set apart by being in boldface and on a separate line. The **return** key must be pressed at the end of every such command unless otherwise specified. Control characters are preceeded by "**ctrl**". An example of both is:

6 ctrl P

Type **6**. Next, place one finger on the **ctrl** key and then press **P**. Don't forget to press the return key.

Other special combination keypresses include **ctrl reset** and **open-apple ctrl reset**. In the former, press and hold down the **ctrl** key then press the **reset** key. In the latter, press and hold down both **ctrl** and **open-apple** then press **reset** .

Software recommendations

The Starter Kit contains most of the programs that you need to "Get started". In addition, we recommend that you acquire the following:

- Applesoft program editor such as "Global Program Line Editor (GPLE)".
- Assembler such as "Merlin/Big Mac".
- Bit-copy program such as "Copy II Plus", "Locksmith" or "Essential Data Duplicator".
- Word-processor (such as AppleWorks).
- "COPYA", "FID" and "MUFFIN" from the DOS 3.3 System Master disk.

Super IOB and Controllers

This powerful deprotection utility (in the COMPUTIST Starter Kit) and its various Controllers are used in many softkeys. (It is also 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 II+, //e, 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 II+, 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, //c: Install a modified CD ROM on the computer's motherboard that changes the open-apple ctrl reset vector to point to the monitor. *(This will void an Apple //c warranty since you must open the case to install it.)*

Apple //gs: If you have the 2.x ROM, there is a hidden classic desk accessory (CDA) that allows you to enter the monitor. In order to install the new CDA, you should enter the monitor (**CALL -151**) before running any protected programs and press **# return** . This will turn on two hidden CDAs, Memory Peeker and Visit Monitor. Thereafter press **open-apple ctrl esc** to go to the Desk Accessories menu. Select Visit Monitor and there you are. Use **ctrl Y** to exit.

Recommended literature

- Apple II Reference Manual (or IIe, IIc, etc.)
- DOS 3.3 or ProDOS manual
- Beneath Apple DOS & Beneath Apple ProDOS, by Don Worth and Pieter Lechner, from Quality Software

Typing Applesoft programs

BASIC programs are printed 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
```

Applesoft inserts spaces into a program listing before and after every command word or mathematical operator. These spaces don't pose a problem except when they are inside of quotes or after a DATA command. There are two types of spaces: those that have to be keyed and those that don't. Spaces that must be typed appear in COMPUTIST as special characters (◊). All other spaces are there for easier reading.

NOTE: If you want your checksums to match, only type spaces within quotes or after DATA statements if they are shown as (◊) charactors. **SAVE** the program at periodic intervals using the name given in the article. All characters after a REM are not checked by the checksum program so typing them is optional.

Typing Hexdumps

Machine language programs are printed in COMPUTIST as hexdumps, sometimes also as source code.

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 ($ and four digits) at the end of each line. When finished, return to BASIC with:

3D0G

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

Typing Source Code

The source code is printed to help explain a program's operation. To enter it, you need an "Assembler". Most of the source code in older issues is in S-C Assembler format. If you use a different assembler, you will have to translate portions of the source code into something your assembler will understand.

Computing checksums

Checksums are 4-digit hexadecimal numbers which tell if you typed a program correctly and help you locate any errors. 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 are on the "Starter Kit".

If your checksums do not match the published checksums then the line where the first checksum differs is incorrect.

CHECKSOFT instructions: Install Checksoft (BRUN CHECKSOFT) then LOAD your program. Press & to get the checksums. Correct the program line where the checksums first differ.

CHECKBIN instructions: Enter the monitor (CALL -151), install Checkbin at some out of the way place (BRUN CHECKBIN, A$6000), and then LOAD your program. Get the checksums by typing the Starting address, a period and the Ending address of the file followed by a **ctrl Y** .

SSSS.EEEE ctrl Y

Correct the lines where the checksums differ.

Writing to the RDEX editor

RDEX (are-decks) stands for: **R**eader's **D**ata **EX**change. We print what you write. When you send in articles, softkeys, APTs, etc., you are submitting them for *free* publication in this magazine. RDEX does *not* purchase submissions nor do we verify data submitted by readers. If you discover any errors, please let us know so that we may inform our other readers.

Remember that your letters or parts of them may be used in RDEX even if not addressed to the RDEX editor. Correspondence that gets published may be edited for clarity, grammar and space requirements.

Because of the great number of letters we receive and the ephemeral and unpredictable appearance of our volunteer staff, any response to your queries will appear only in RDEX, so it would be more appropriate for you to present technical questions to the readers and ask for their responses which will then be placed in the Apple-RDEX.

How to get a free library disk

Whenever possible, send everything on Apple format (5.25" - DOS/ProDOS or 3.5" - ProDOS) or IBM format (3.5") disks. Other formats are acceptable but there may be some delay as we look for someone to translate it for us. *(If you use a 5.25" disk, when we print your letter, we will return your disk with the current library disk copied onto it .)* Use whatever text editor you like, but tell us which one. Put a label on the disk with your name (or pseudonym) and address (if you want to receive mail). Don't reformat any programs or include them in the text of your letter. Send Applesoft programs as normal Applesoft files and machine language programs as normal binary files. We have programs to convert them to the proper format for printing. If you are sending source code files, and you are not using the S-C Assembler, send them as normal text files.

When to include a printed letter

Don't include hardcopy (printout) unless:

a. You are writing about a bug or other printing error.
b. You are writing to ask for help.
c. You are answering another readers help request.
d. You are writing about your subscription or sending an order for back issues or software.

Bugs, requests for help and answers to requests for help are bumped to the head of the line and go in the very next issue. All other letters are printed in the order that we receive them.

Writing to get help

When writing to request help, be sure to include ALL relevent information. The more information you include, the easier it is to find a solution. There's an old saying that goes "A properly framed question includes 90% of the answer".

How to get mail

If you are interested in receiving mail from other readers, be sure that we have a current address. If you use a pen name and want to receive mail, we need to have your address. Our readers privacy is important, so we will not print your address unless you specifically say too.

How to write to RDEX authors

When writing to one of the RDEX authors. Write your letter and seal it in an envelope. Put your return address, the authors name (as it appears in RDEX) and *the correct postage* on the envelope. Put this envelope into another and send it to RDEX. We will put the correct address on your letter and mail it for you.

Help Line

These readers have volunteered their time to help you. Please call only within the given time frames (corrected for your time zone). No collect calls.

Bud Myers (General info, 5-9 PM EST) .....(207) 862-2750
Jack Nissel (Disk Protection, 7-10PM EST) .....(215) 365-2905

You have a LEGAL RIGHT to an unlocked backup copy of your commercial software.

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.

Furthermore, the copyright laws guarantee your right to such a DEPROTECTED backup copy:

..."It is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner."

United States Code title 17, §117

Editorial Notes

Charles R. Haight _____ WA

Software Pirates?

I ran across a MAC BULLETIN note in MACWORLD magazine that was very interesting. It said that the Software Publishers Association (SPA) has a toll-free number for you to call and turn in anyone you see copying software so that the SPA can sue them (or whatever).

Gee! What a wonderful idea! These are, obviously, nice people. I think each and every one of us should take time to call this free 800 number (800-388-7478) and chat a while on their nickle.

But seriously, it seems to me that they are only going to get calls from people with a grudge against someone else. You could waste a lot of time on nothing.

Sysop anyone?

We have found a local Sysop (he found us) for the COMPUTIST BBS. We're in the process of sorting thru the equipment that we have to put together a working system. As soon as we have the system debugged, we will print the phone number and how to get a password. Computist Club members are will receive a password automatically.

Computist Club News

As of January 1 1990, the charter member offer for Computist Club membership is closed. New members will be assessed a yearly membership fee of $10. Sorry, but we kept the offer open as long as we could. I think all of the hardcore Computists have already joined.

Where's my club Certificate? This one goes along with the BBS. We have about 1000 people who joined the COMPUTIST Club to show their support. They are the primary reason that our creditors didn't shut us down. Since First Class postage for 1000 letters comes to $250 we decided to wait until we had the BBS up and running so that we could mail the passwords out at the same time. And, of course, everything takes longer than you think it will. Hang on and watch for the BBS.

Staying on schedule?

This issue has only 24 pages because we had to get this issue out before the Christmas rush started, and there may be more spelling/grammar errors than usual. I only had 2 weeks to complete the editing, formatting and pasteup. Whew!

Help Letters

Just a reminder to those of you who write for help or are answering a help letter. Send your letter on disk but, also, enclose a written/printed copy. Help letters and answers to help letters are put into the very next issue (if I know that they are help letters). Regular submissions are printed in cronological order (first in - first out). We are running several months behind on our regular input. That's one of the reasons that we started using the tabloid format, to double the amount of material that we could print in each issue, so we could catch up.

Free disks?

Some people are mis-reading the Data page where it talks about the free library disk. Here is how it works. We want you to send your letters (short or long) on disk. It is the only way that a part-time editor can possibly edit enough material to get this newsletter out each month. Typing each letter into the computer would take too much time, so we came up with this incentive. If you send your letter on disk, when we print your letter, we will return your disk with the current library disk copied onto it. That's the free disk offer. We have to receive a disk from you with "printable info" on it, first, then we can go on from there. If you're writing to Karen about your subscription, DON'T put your letter on disk, just send a printed copy. There's nothing like transfering a file from ProDOS to DOS, loading it into the editor and discovering it is a request for a renewal that's been in the Input file for two months. Oops! And you thought your issue was lost in the mail.

Help questions & free Library disks

I've gotten a couple of letters asking why I send a free library disk to someone who is only asking for help. After all, they say, it's a question and not information that was sent.

You're right, it is a question that was sent and not more information. But I look at it this way; if someone writes to ask a question, chances are that a handful of others are also stuck with the same question. And of the 4000 or so COMPUTIST readers, someone has the answer and will write to RDEX when they might not have, otherwise. So questions generate answers and that means more information in each issue.

Other than that, the free library disk copied onto the readers disk is my bribe to get more readers to send their letters on disk, and it's working...

Library Disks Plus

Speaking of Library disks, I had a idea the other night and I wanted to see what you thought of it. I have programs that I've written or that I'm working on, that are not ready to be published or that are too large to print the listings for. I was wondering if some of you have some programs like that floating around your computer desk too. My idea is to put these programs on the library disk along with a small text file describing the program, as a sort of bonus for when I return your disks to you. What do you think? Will it fly? Do you have some programs to donate? Write and let me know.

Free Software?

A couple of you have written to ask what happened to the free software mentioned in the flyer. Well, I think that the idea is still a good one, but the majority of readers responded by saying, 'keep the money and spend it on more issues/yr or larger issues'. And only a handful of readers have requested the info flyer (where you get points for finding new subscribers). Most of the readers seem more concerned with keeping the issues coming on a regular or more frequent basis and that's where we have been concentrating our efforts.

There is some interest in setting up prizes/point systems for the best article/program per issue. If you think that we should, please write and let me know how you think it should be done.

More on help lines

Some readers have responded to the suggestion for help lines. If you feel that you could help other readers by answering questions by phone, please let me know. Write a separate letter, direct to me, care of Computist. Include the topics that you are willing to talk about, the times that you are available, your time zone and your phone number (with area code).

If I missed anyone's letter, volunteering to be in the Help Line listing, please write again, direct to me.

Jeff Hurlburt _____ TX

The PRODUCT MONITOR

RATINGS

☆☆☆☆☆	SUPERB
☆☆☆☆	EXCELLENT
☆☆☆	VERY GOOD
☆☆	GOOD
☆	FAIR
?	POOR
??	BAD
X	DEFECTIVE

Deck us all with Boston Charlie
walla, walla, wash and Kalamazoo.
Nora's freezin' on the trolley
swallar dollar, collar flower, allagaroo!

(1951 version from Walt Kelley's "Pogo")

Another Yule season is here and you are, once again, in a computer goodies quandary. What to give? What to ask for? AND, possibly, most important, what to play on those long winter evenings?! Below, I have, at least, gotten started on a 'list' of prospects for Apple owners (and, with few exceptions, IBM owners too). Next time, I'll try to wrap up 1989 entertainment wares + just in time for those after-Christmas sales!

Arkanoid II: Revenge of Doh

☆☆☆

$34.95, for 512K IIgs — Taito

Wouldn't you know that, just when you thought it was safe to colonize the universe, Doh returns! This time, however, there are 67 levels of cleverly arranged Energy Blocks (i.e. the bricks) for your trusty VAUS2 fighter (a.k.a. the paddle) to blast with deflectable Energy Balls (-). In fairness to the scenario, Taito's "Arkanoid II" does include a unique "Brain Level", wildly gyrating critters you can Poof with energy balls, and a chance to actually confront Doh (in Level 34). As in the first "Arkanoid", your VAUS2 can also intercept valuable 'special powers' capsules. Thirteen types confer such useful advantages as slowed play, expanded paddle size, "sticky paddle", multiple balls, and an extra life. One tips your paddle with button-activated lasers, another opens a shortcut to another level, etc.. Doh may be tough; but you are not exactly helpless.

Offering brilliantly colored displays, smooth, realistic physics, and lively sound, Taito's new version of super-brickout doesn't miss a trick— even to maintaining a Top Ten Scores roster AND adding a Construction Set utility. With the later, you can LOAD, edit, and test levels in any set, create new levels from scratch, and SAVE your new set (in the LEVELS directory) for later replay. (When the game boots, you have a Select Set option.) Supplied with a crisp, information-packed manual, "Arkanoid II" is SUPER brickout at its best; and, for the doh, a great entertainment value.

Rocket Ranger

☆

$49.95 for 768K IIgs — Cinemaware

Like its popular "Defender of the Crown", Cinemaware's excursion into WW II nostalgia offers a strategy challenge spiced with extensive super-res action sequences. As the hero, your mission is to see that the Nazis do not turn the discovery of a powerful new fuel (Lunarium!) into victory. To this end you 1. direct the information gathering/ resistance efforts of five agents on a "Risk"-type map; and 2. armed with a radium pistol and wearing your rocket pack, engage in air battles, rescues, and raids. For victory, Rocket Ranger must obtain the fuel and rocket parts to assault the Nazi's main base located (where else?) on the Moon!

While you can look forward to a fairly absorbing strategy challenge, entertaining joystick-controlled arcades, good sound, and excellent artwork; you can also expect LONG, frustrating delays between each game segment. Losing everything in one of the arcades is all too easy; yet, there is no separate 'Practice' option, no 'Save/Restore', and restart is very slow. Playable, but just barely, "Rocket Ranger" is too many pretty pictures, not enough game.

King of Chicago

☆☆☆☆

$49.95 for 768K IIgs — Cinemaware

(Note: To avoid program malfunction, set Max RAM Disk to 0K.)

Evidently, the guys at Cinemaware love to produce artwork, but feel somewhat put-upon by the requirement that their stuff fit a gaming format. If this is the 'problem', then something like "King of Chicago" is the 'solution' (i.e. you make a movie!). Rendered in partial-animation super-res, "King' " delivers frame after beautiful frame, with dialogue balloons, sound effects, and background music to tell the story of Pinky Callahan, an ambitious young mobster who aims to become the Big Boss of post-Capone, pre-repeal Chicago. This movie, however, is not necessarily 'in the can'. You can 'Start the Projector' and just watch— Pinky probably won't last long— OR you can become Pinky and make decisions which change the storyline— movie runtime will multiply; and Pinky may even win!

On numerous occasions, Cinemaware's "interactive movie" shows Pinky with several dialogue balloon choices (e.g. "I've got to plug him now", "Better play along", etc.) which represent storyline branches. (If you don't click one, the program decides.) Control is easily 'close' enough for realistic involvement, and will usually allow recovery from ill-considered gambits (e.g. when sounding out the mob's #2 man about the Boss's health). Which is not to say a slipup won't leave Pinky 'walking on eggshells' for a few frames.

Once Pinky is Boss of the North Side, 'you got responsibilities'; and the game adds a strategic component in the form of a monthly "Pinky's Desk" display. Here you make Ledger decisions (hire new boys, set salaries and bribes, etc.). You can also meet your #2 man (to discuss gromming territory, fixing elections, and the on-going war with Santucci, the South Side Boss); OR you can visit your main squeeze, Lola!

Happily, the game's few action sequences are either easily mastered— you have plenty of time to aim and fire when a hit man appears— or they are optional shortcuts. (Successfully tossing a bomb into Santucci's hangout isn't easy; but it can save a lot of bother.) You have just a few years (i.e. until repeal) to wrap things up; so extreme caution can leave you out in the cold. Carelessness, of course, will leave YOU cold, permanently. (Know what I mean?!) According to the documentation, there are at least three main winning lines; and, with randomized character responses, all sorts of minor variations. Play it smart, and you can own the whole ball of wax, keep little Lola in shoes, and have hours of full-length feature fun!

Gamma Force #1: Pit of a Thousand Screams

☆

Zork Quest #1: Assault on Egreth Castle

☆☆

$12, for 128K II — Infocom

As InfoComics fans can attest, there is more than one reel movie maker in the business. Infocom's movies rely upon simple hires artwork, with background tunes, partial animation, pans, and zooms to squeeze the maximum mileage from every frame. Put a copy of Side 2 in a second drive, boot the program, and a 'Comics presentation's main line will run 25-30 minutes with no user action required.

You can't change the story; but, thanks to VCR-type options (Start/Stop, Fast Forward, Rewind), you can control just about everything else about the presentation. In fact, YOU decide whether and when to explore any of the numerous opportunities— you see a turned-down 'page' corner— for "branching" away from (or back to) the main storyline. Branches let you fill-in a character's background, follow someone who departs on a dangerous mission, 'tune-in' on the doings of an evil wizard,...in short, you find out what's REALLY going on in the story and why.

As a Marvel-type "origins" issue, the "Pit of a Thousand Screams" episode is your standard quest against the evil alien druglord usurper who wants to marry the princess. Mainly, the idea is to explain how a princess, a rocket pilot, and a water beast acquire special powers and become the Gamma Force. Well, now that it's explained, GF #2 should be better.

In the first Zork Quest, a silk merchant leaves town with just a guard and a pretty girl passenger, but is soon joined by a fumbling old wizard, his apprentice, and a secretive youth wearing an amulet. When the party camps a bit too close to an abandoned castle, you know 1. the castle isn't abandoned; and 2. they are in for a rough night! Hobgoblins, trolls, night gaunts, magic, mystery, and romance: you'll find them all in "Assault on Egreth Castle". ($12 each. Note: Though Infocom labels the packages "128K Apple", both stories run just fine on 64K machines.)

Jack Nicklaus' Greatest 18 Holes of Major Championship Golf

☆☆

$49.95, for 512K IIgs — Accolade

When "Jack Nicklaus' 'Golf" first arrived, I had to check the box twice. (From Accolade?) Why, with "Mean 18" crushing all comers would Accolade release yet another super-res golf simulation?

JNG both looks and plays very much like "Mean 18". Your golfer is on the course with a nearly full-screen 3-D perspective view from current ball position; and, located to the left is the same three-click "Power Bar" for realtime simulation of your swing's power and accuracy. Among the few new 'wrinkles', your currently selected club's range is displayed, a small wind gauge has been added— wind affects the shots of "Expert" players—, and aim is adjusted via a top-of-screen "aiming dot".

Probably, the game's most controversial innovation is elimination of a separate putting display. Instead, JNG simply changes the wind gauge to a lie indicator. Clever; but, the result seems to be a considerable toning-down of competition on the greens. Rather than frustrate players with impossible putts— level of detail isn't nearly good enough for accurate shot placement— the program holes any putt that is remotely close.

While the new program boasts realistic sound effects, its scenery seems to lack "Mean 18"'s crispness. Certainly, the drawing routines are different; JNG needs almost 20 seconds to present a screen. For player changes, changes in ball placement, returning from the overhead course view, etc., you must wait as the program laboriously fills in a blank display. Incidentally, on the overhead course view, JNG does not display players' shots. It does, at the end of each hole, automatically, display player stats along with all scores.

The new golf will not load "Mean 18" courses. Too bad, because JNG includes no on-disk Course Designer utility. The game comes with "Jack Nicklaus' Greatest 18", a nice selection of holes from U.S. and British Isle courses, plus "Castle Pines" and "Desert Mountain". For $19.95, you can get "Kemper Lakes", "Royal Troon", and "Oak Hill" in the "'Courses of 1989" package. Lest unbelievable performances be unbelieved, the top seven scores on each course are maintained on diskette.

For 1-4 players, JNG offers setups for stroke play or "skins" (match play for money), plus an opportunity to take on one or more of nine computer players (including Jack!). To sharpen your

game— a good idea if Jack is in your foursome— driving, putting, and individual hole practice facilities are ready and waiting.

All in all, Accolade's new golf has to rate "contender" status. Due chiefly to the absence of a Course Designer, slow screen updating, and the way putting is handled, I continue to prefer "Mean 18". However, the wind factor option, computer players, and Jack Nicklaus pizazz (tips, pictures, voice intro!, etc.) are strong pluses which could make "Jack Nicklaus' 'Golf" your favorite.

Battle Chess

☆

$44.95, for 512K IIgs — Interplay Productions

Of the many reasons for playing chess on a computer, watching the pieces move is probably somewhere near the bottom; but, that was before "Battle Chess"! At rest, what you see is a Renaissance-style piece set in 3-D perspective super-res on a marble board. Colorful, pretty, but, otherwise, 'standard stuff'. Then, you move a pawn, and, instead of sliding forward, he MARCHES to his assigned square amid the clank and rattle of armor! Move a rook, and the castle molds itself into a hulking Thing figure, and clomps along ready to clobber anything in its path. QxP: The queen slinks up to the pawn, faces forward (attacking pieces always face you during captures), and casts a spell. Zap! To his amazement, the pawn's sword vaporizes. The queen weaves another spell, and Pop! There's a flash at the pawn's feet and he hops back with a yelp. Then, Zappo!!, and the poor pawn is finished.

Rooks laugh evilly and smash their victims, except for queens, whom they swallow kicking and screaming ("Eeek!"). Bishops usually rely upon their bladed staffs. Pawns and knights prefer the sword; but employ other tactics against the queen. (e.g. the knight's shield reflects a spell which transforms the queen into a gargoyle, which then vanishes.) The king, of course, wields a mean scepter, but has been known to pull a revolver and blow away some opponents! (THIS is chess??!) Except for the king (who cannot attack his opposite number), each piece can participate in twelve different, expertly animated and soundtracked, combat sequences!

As you may have guessed, Interplay aims to sell a good chess show, not a good player. At 1 min/move strength, "Battle Chess" will roll over rank beginners; but, I doubt if the program is within a rook of the typical USCF "B" player. Fair enough; just watching the pieces move around and fight IS loads of fun.

Regrettably, "Battle Chess" SHOULD (and, easily, could) be a good deal more fun than the current version allows. As "chess show", this program does only what it absolutely must and little more. You can set playing strength, select human or computer opponent (or computer vs. computer), easily set up positions, and switch to and from a 2-D (non-animated) Stauton piece set display— good, because visualizing a position on the 3-D screen is nearly impossible. Incredibly, though you can SAVE the current position, you cannot SAVE moves! You cannot LOAD a game and watch the replay, nor get a replay of a game just concluded. Even take-backs are limited to six half-moves. (As to such obvious features as LOAD and replay of "Chessmaster 2100" games, forget it.) ONLY during play, at the time a move is made, do you get animated movement and combat. Unbelievable.

AWARD NOTICE!!! (Ta-ta-taaa-ta-taaa)

I hereby present the Product Monitor Programming Anomaly of the Year Award (also known as "The Thexder No-Joystick Control Memorial Trophy") to the "Battle Chess" project team and beta testers, if any. Seldom has this distinction (a lovely topedo-shaped monolith) been more richly deserved.

(WARNING: Should a subsequent revision remove the cited anomaly and evidence of such tampering reach PM offices, this award will be withdrawn, notice published, and all rights and privileges accruing to said award forfeited.)

Altair Trilogy

☆

$49.95, for 64K or better Apple II — DAR Systems

Need a respite from the glitz of modern super-res, super-sound adventuring? Well, DAR System's recently trilogized "Altair" TEXT adventures are just what the game doctor ordered. Your quest begins, for the most part, as a mystery; but, you do know that it has something to do with the ancient sword you carry, and that some great destiny awaits! Pursuing clues, treasure, and arcane artifacts, you range across deserts and through forests, journey down rivers, and explore cities, ruins and mazes. Dragons, banshees, (etc.), evil magicians, and assorted traps are part of the challenge; yet, almost never, do hazards exceed your character's current capabilities. ("Almost"?!, of course, explains why each game includes a speedy, ten-position Save/Restore.) Mapping is easy; and even just 'taking in the scenery' is okay, since "Altair" is very good about not drenching the gamescape with monsters.

Granted, DAR's elementary Eamon/Scott Adams-class parsing takes some getting used to; but, once you catch on, few situations actually stress program smarts. (Conversely, to 'work', the games settle for rather simple challenges.) Using phrases like "Bribe Dragon", "Search Wall", etc., I've made it through most of the second adventure and encountered just one instance where communication posed real problems.

You want 'simple'?; you got 'simple'. Supplied on 3.5" media, "Gem of Zephyrr", "Sword of Altair", and "Quest for Varsa" are good for at least 3-6 hours of 'old time computer adventuring' fun apiece.

Tangled Tales

☆☆☆☆

$29.95, for 64K Apple II — Origin

Were someone to ask the Games Guru: "Oh, great Guru, what game shall I play on my Apple (or IBM), when the wind is cold and TV isn't showing my school's team in a bowl game?", his answer would almost surely be "Oh, grasshopper, TV will NEVER show Rice in a bowl game." But, then he would say "Try 'Tangled Tales'! It's the best game ever from Origin."

Sound advice! "Tangled Tales" is spread across four Ultima-style maps, positively loaded with puzzles, and packed with castles, towers, pyramids, islands, caves, dungeons, and other neat places to explore.

Better yet, in the process of completing three major quests, you (a young apprentice wizard) will meet and recruit all sorts of interesting characters (like Alvin the adventurer, Jennifer the explorer, Gnu Gnu the elevator fixer, Jenny the poet, Goldilocks the thief, ...). In fact, though filling your Book with juicy spells is important, the real key to progress in this game is having the right people in your party at the right time. For instance, how are you going to get to the Giant's castle without the magic carpet that your genie (whose bottle was dug up by Gnu Gnu) wins by knocking down the imp who's been dropping eggs on you? Which is to say nothing of going back in time without a Timelord's help; or taking on an arch demon without good old Igmatz the demon hunter!

The game displays both a map view AND either a 3-D perspective view (in dungeons and caves) or a picture representative of current surroundings. When you meet someone, his or her picture appears. Encounter monsters, and there they are!, in beautifully drawn, partially animated hires. Challenging, absorbing, long-playing fun, "Tangled Tales" comes with manuals and play card on two 5.25" diskettes. (Note: Origin's protection for TT has been known to bomb its own diskettes. Back up your characters regularly; and do not hesitate to request replacements for bombed diskettes from Origin.)

Fast Frames, Updates, etc.

Dragon Wars Survivors

How many new guys have YOU lost in Interplay's "Dragon Wars"? Well, that's too many! Before you send in another bunch of doomed weakies, (if you are playing on a IIgs) send your characters through the Computist Enhanced Experience Environment.

C3E Directions: Install a monitor entry CDA (e.g. "Diversi Hack") in the Desktop and boot the game. Once you have four characters, do an OPEN APPLE-CTRL-ESC to get to the Desktop; and enter the monitor. Character data blocks begin at $4000, $4200, $4400, and $4600. Just enter $7F at byte $3B in each block (e.g. $463B: 7F, etc.). Return to the game and go to the Experience displays. Now, instead of only 50 points to spend on each character's attributes and displays, you will have 127!

Purgatory Lore Flyer (FREE! Please Take One): On a map of Purgatory (with X-Y coordinates of 0-31, 0-31), you begin at 19,12. Purgatory has five "towers" and is surrounded by two walls. Visit the small shop along the NW wall to acquire Low Magic scrolls. Volunteers hang out at a bar in the NE. Black marketeers sell weapons and armor in a North wall shop. When you need a Magic Power recharge, check out a pool in the South Tower. Don't overlook hidden doors in some of the other towers. If you reach the gap in the SE outer wall, USE your Swim skill to get out.

An ELITE Craft

Okay, gaining Elite combateer status and finding the mysterious planet Raxxla isn't supposed to be easy. (That's why they call the game "Elite".) On the other hand, anything which can make your quest a bit less difficult is worth serious consideration. The Thargoid invaders certainly don't hesitate to implement every advantage their bug brains can contrive; why should YOU settle for less than the best in human technology?!

Every combateer is well acquainted with the Mk III Cobra's major limitation: in galaxies where planetary distances can exceed 100 light years, your fighter/trader craft carries only about seven light years worth of hyperspace jump fuel. Nearly as bothersome, the standard Xexor/Hikan Ltd. intergalactic hyperdrive is good for only one hop; whereupon you must locate a new supplier AND shell out another 5000 credits! Happily, thanks to advanced research at Computist Corp.'s Turdnil Labs, BOTH of the above barriers have been shattered!!!

Specifications

CC/TL Super Jump: exclusive Tardis-pack for 25.5 LY range on standard fuel

CC/TL Multi-Galactic: new Dura-Wolfram core for unlimited repeat G-hops

Installation and Operation

To implement the new designs, you must be able to RESET or NMI into the Apple monitor while "Elite" is running. For the many readers who have added special "$F8xx " PROMS or are using an OLD, pre-autostart, Apple II, this should be no problem. (Our II+ is equipped with home-brew firmware to allow forcing a "RESET into monitor". Unfortunately, "Elite"'s combat displays do not work correctly on the IIgs; and, besides, the OA-CTRL-ESC interrupt is defeated.) The best time to break in is when docked and viewing one of the game's text displays.

For Super Jump enter the following at $6F0C: A9 FF. This mod increases fuel top-off level (i.e. you can buy more). It does not affect fuel received should you use your Escape Pod or the amount which can be 'sun-skimmed'.

To have access to multi-galactic jump capability, you must own a "Galactic Hyperspace" drive. (If you do not own one, installing the MG mod will allow multi-jumping as soon as you do.) Enter $6BAE: A2 FF 8E BC 02 E8 EA EA EA 8E C3 02. The new code makes sure that, when you do a "G" hop, your inter-galactic drive is restored and legal status resets to "Clean".

Once the enhancements are in place, entering $6E87G restarts the program. You will be docked at the current system's trading station. First, buy some fuel. Your status display will show "Fuel: 25.5 light years"! Switch to the Galaxy Display (i.e. "5" key) to see your new 'range circle'. (WOW!) To try out Multi-Jump, blast off and do a "G". Zavoom! You're in the next galaxy; AND you still have a Galactic Hyperspace drive ready for another hop! To be sure, a very challenging quest remains; but, now, you are at the helm of a Cobra Mk III PLUS!

Checking out the Lemon Tree - and —

To paraphrase a WW II flick Sidney Greenstreet character: "Everyone gets at least one chance to really screw up; and he/she always makes it good." In the software entertainment biz, you get lots of chances; and, sure enough, the branches are bending on the old lemon tree.

SSI's Ultima-type contribution, **"Demon's Winter"** ($29.95, for 64K Apple II), comes from the same team which, scarcely a year ago, unloaded "Shards of Spring". Aside from dismal landscapes, a boring scenario, and hard-to-read text, "Demon's'" commits the one truly unforgivable sin of adventure game design: you can, rather easily, be dead lost without knowing there is no way to win; yet the program lets you play on (and on, and on, ...).

Messy displays, slowness, bugs, glitchy controls, ... ; take your pick. The main question about **"A Question of Scruples"** ($too much, for 48K Apple II) is how "The Computer Edition" ever got past the Electronic Arts Init-Me-Please desk. Happily, EA is just the distributor (Ve know notzeeng, notzeeng!). The producer, Leisure Games, is HQ'ed in England, safely beyond the wrath of any American purchasers.

Origin, at least, supplies some warning via an insipid title. **"Times of Lore"** (for 64K Apple II) offers good graphics and promises some interesting mini-quests; but effectively bombs everywhere else. In this Ultima-format adventure, you can expect meager provisions for character development, a gamescape drenched with fast-moving non-descript monsters, and impossible-to-map, teleport-sprinkled mazes (also knee-deep in pissant monsters). If you've wondered how being "nibbled to death by ducks" actually feels, plop down $39.95 and go for it.

M&M II Finale

From Gorbash, Goo-Goo, Igmo, ... (i.e. my dad) comes a pair of hints that could save your "Might and Magic II" party a bunch of grief as you near ultimate victory:

1. The last puzzle requires you to translate an eight-letter word into its coded version using a famous document excerpt (in code) as your guide. So, if the word is "Freedoms" (it isn't), you might reasonably win with something like "XJKKAHLV", right? No way! "Xjkkahlv" is a better try.

2. If you've been playing on a speeded IIe or IIgs set to FAST, then beware. The last puzzle is timed via a program software loop. At FAST, the ten minutes normally allowed shrinks to about four! Before booting the game for the 'big push' (i.e. you know the password and are ready to tackle The Island), setting speed to NORMAL could make all the difference.

A Space Rogue's Jottings

Stardate 2330.04.15: "Raided a merchant trader today. This didn't exactly 'put me in solid' with the Guild (my standing went to Neutral); but now, at least, Sir Gut is willing to talk to a 'fellow pirate'."

Stardate 2330.11.22: "Located that robot's 'girlfriend' in a 'ruti cantina. What a disguise! (Still, the liquor business was a dead giveaway.) Also, what a repair droid! I hope she's not too anxious to get back.

Stardate 2330.01.10: "Now that he's got the 'mutation coil, maybe that weirdo on Micon IV really can come up with a true hyperspace drive. He'd better! I've 'borrowed' my last component from a Navy carrier. (Darn good thing I had those alien lens 'plants!)

Stardate 2331.03.05: "After months of looking for some trick to get past the monster on the mining station, I finally just landed and 'went for it'. That sucker is MEAN, but not especially bright. Found the neurostabilizers in the safe and got out FAST!

IIgs Note

Following still more rumors of a IIgs clone, I checked once again with Laser. "No", the Laser person insisted, "we do not have a IIgs-clone." ... Meanwhile, I'll try to put together a fairly specific proposal for an upgrade— something to spark experimentation, provoke comment, etc.. So far, a single, do-it-all, plug-in board looks like the way to go. Your IIgs + board (call it a IIgsx) would run current stuff as usual; but, in the "IIgsx" mode would be a 'new machine', faster, with better graphics, and easy for developers to 'get into'. Once IIgsx software begins to appear, a 'from scratch', pure "x" machine would make sense; and the branch away from Apple (if, indeed, it becomes necessary) would be complete. If you have any comments or suggestions you would like to pass along, send them to me at the PM address listed under Vendors.

Best New Stuff Results

Here are the results of the voting for best new game, utility, etc. over the period (roughly) late 1987 through early 1989. I scored 5 points for every 1st, 3 for every 2nd, and 1 for every third. (So, a product receiving a few 1st's and lots of 2nd's could place ahead of one receiving more 1st's, etc..) The number in parentheses is the approximate percentage of 1st place votes cast in a category which a product received.

Best Game		Best Adventure	
1st. Zany Golf	(26%)	1st. Dungeon Master	(31%)
2nd. Arkanoid	(11%)	2nd. Bard's Tale	(15%)
3rd. Shanghai	(21%)	3rd. Beyond Zork	(7%)
		Ultima V	tie (7%)
Best Sports Simulation		**Best Music**	
1st. World Games	(44%)	1st. Diversi Tune	(33%)
Mean 18	tie (27%)	2nd. Music Studio	(22%)
3rd. Hardball	(9%)	3rd. Music Con. Set	(22%)
Cal. Games	(9%)		
'Ice Hockey	tie (9%)		
Best Productivity		**Best Utility**	
1st. Apple Works 2.0	(47%)	1st. Copy II Plus	(82%)
2nd, Apple Works GS	(21%)	2nd. Prosel	(12%)
3rd. Paintworks Gold	(11%)	3rd. GS.OS	(5%)

Vendors

Accolade: 20813 Stevens Creek Blvd., Cupertino, CA 95014 (408-446-5757)

Cinamaware: 4165 Thousand Oaks Blvd., West Lake Village, CA 91362 (805-495-6515)

Dar Systems: P.O. BOX 16-4933, Miami, FL 33116-4933 (305-529-3572)

Electronic Arts: 1820 Gateway Drive, San Mateo, CA 94404 (415-571-7171)

Infocom: 125 Cambridge Park Drive, Cambridge, MA 02140 (800-262-6868)

Interplay Productions: 1575 Corporate Drive, Costa Mesa, CA 92626 (714-545-9001; orders: 800-227-6900)

Origin Systems: 136 Harvey Road, Building B, Londonderry, NH 03053 (603-644-3360)

PM: 7814 Santa Elena, Houston, TX 77061

Strategic Simulations Inc.: 1046 North Rengstorff Ave., Mountain View, CA 94043 (415-964-1353)

Taito: 267 West Esplanade, North Vancover, BC, Canada V7M 1A5 (604-984-6623)

Everett B. Young — CA

For Bud Myers (Computist #66, page 9), Graphic Exchange for Apple IIGS from Roger Warner Publishing converts any format to any format. It accesses and saves to either ProDOS or DOS 3.3, as appropriate. I used it to convert Print Magic Fantasy Art Gallery graphics to Newsroom clipart. Also, some graphics scanned by a Mac to Beagle Bros TimeOut SuperFonts. The Fantasy Art Gallery graphics work directly with Print Shop.

Thomas V. Rapheld — CA

The Super Human Character

Taking a Plunge in the Pool of Radiance

Advanced Playing Technique for...

Pool of Radiance

SSI

Finally, SSI's Dungeons & Dragons game, Pool of Radiance, is out. The graphics are poor and the battles are so drawn out that one can accomplish a near infinite number of other tasks, such as reading a book, while waiting for a victory. However, the game is well thought out and is faithful to the D & D rules. The Quest/Commissions your adventurers are given and the layout of both the town and the wilderness are excellent. With future offerings improving on the games drawbacks, SSI's Dungeons & Dragons series should provide one of the best CRPG series available.

Although SSI provides four copyable disks (two sides per disk) they also provide a 'Translation Wheel' which is needed to determine various secret code words to play the game. Although this is the method all software companies should use in protecting their programs, it takes all the fun out of deprotecting a disk. Oh well! There is still the challenge of creating the so called superhuman character and SSI made this a more difficult challenge. You'll need a good sector editor. Although the following work is not as thorough as my previous efforts provided to the COMPUTIST, the effort exerted is about equal.

The areas that are of concern in creating a superhuman character can be found on tracks 2 & 3 of your Saved Game disk. The initial characters, which you create, are found on track 2/sector 2 through track 3/sector 0. If you modify these initial characters before you start playing a game you will probably find the modifications easier. However, as you play the game and need to add back hit points, bring a character back to life or just give your character more gold, you will need to make modifications in a different location of the Saved Game disk.

Once you've saved a game to the Saved Game disk you will find your war battered saved characters on track 3/sector 1 through track 3/sector 8. Your original, pre-saved characters still can be found unchanged on track 2 (see above).

The sectors upon which the character's main attributes are found have the character's name (read in ASCII) located in the first 16 bytes. The following table lists the byte locations of the most important attributes needed to create a superhuman character. Unless otherwise stated, all numbers are in Hex

Byte	Characteristic	Variables
00-0F	Name	Type in ASCII
14	Strength	Max is 12 (18 decimal) unless non-human
15	Intelligence	Same as byte 14
16	Wisdom	Same as byte 14
17	Dexterity	Same as byte 14
18	Constitution	Same as byte 14
19	Charisma	Same as byte 14
72	Race	07 = Human
74	Age	15 in Hex is age 21 (If you change Race remember to change age because your character can die of old age)
76	Max Hit Points	Max is FF
C0	Electrum	Max is FF
C1	Gold	Max is FF
E8	Low EXP Pts.	Max is FF
E9	Med. EXP Pts.	See below
EA	Hi EXP Pts.	See Below

When making changes to the above attributes on a Saved Game you will find two extra sectors (track 3/sectors 1 and 2) that have copied one of your characters on twice. Both of these sectors will have the first letter of the character's name missing at the top of the sector. The character listed in these extra sectors will change with each Save. I not sure, but I believe these sectors were created to make it harder to create a superhuman character. No matter which character you are changing, if the character on these two extra sectors is the one you are modifying then modify the extra sectors too.

Hit Point (HP) and Experience Point (EXP) modification can cause some confusion. If you set the character's HP and EXP to maximum and then go in for Level Advancement Training your character's HP's will cycle from FF, the maximum Hex capability, back through 00. At this time you would have to remodify your character's HP's. In addition, if you set your character's EXP past the maximum shown on page 36 of your 'Adventurers Journal' the boot program will not be able to locate your saved game. Also, remember if you have an extremely high EXP, the battles you win continue to add to your EXP which could push your character's EXP past the maximum recognizable by the program. A safe level to keep each of your characters at is:

CLASS	byte E8 lo byte	byte E9 med byte	byte EA hi byte	(decimal)
Fighter	4A	E8	01	125,001
Thief	B2	AD	01	110,001
Magic-U	42	9C	00	40,001
Cleric	6E	6B	00	27,502

The Hit Points that are found at byte 76 in each of the sectors with the character's name starting at the top of the sector is the maximum Hit Points available at for that character. As battles are fought and injuries accumulate the characters remaining Hit Points will be less than the maximum Hit points found at this byte, byte 76. When you save a character the 'current' Hit Points are stored on track 4/sector F at bytes 19/39/59/79/99/B9 (one byte location for each character). It is the 'current' Hit Points that you will need to constantly change back to FF to bring your character back to health. If your character dies, is poisoned, or just plain gone (created by old age) setting Bytes 00/20/40/60/80/A0 on track 4/sector F back to 01 will save the day.

I did not spend a lot of time trying to discover the code for the different weapons that are available, however for the more energetic person the weapons can be found on track 4 on the following sectors 5/6/7/8/9/A/B/C. sectors 5 & 6 are the repeat of one of the other six sectors (repeated similar to track 3/sectors 1 and 2). Each of the weapon codes are quite complicated and take up 16 bytes. Any additional help you can provide in decoding the Pool of Radiance will make easier the decoding of the next D & D game by SSI.

How to Change Your Sex and Other Attributes in Might and Magic II

Advanced Playing Technique for...

Might and Magic II

New World Computing

New World Computing, Inc. surprised the CRPG industry when in came out of nowhere with Might and Magic (M&M). Now, even better than before Might and Magic II, "Gates to Another World" (MMII). Graphics and game play have been improved on an already excellent game. To make your character invincible all you need to do is use a good sector Editor. All the changes needed are on track 1/sectors D, E & F of your saved game on Disk B. Each of these three sectors is divided into two halves providing space for all six of your characters. One starting at byte 00 the second character starting at byte 80. The following is a listing of these bytes and the attribute associated with that byte. Modifications should be made in Hexadecimal with 00 being the lowest ranking and FF being the highest ranking of an attribute.

Byte	Attribute
00/80	(thru 0B/8B) Name of Character
0C/8C	Sex (00=Male, 01=Female, 02=Neutral)
0D/8D	Original Alignment (00=Good, 01=Neutral, 02=Evil)
0E/8E	Race (00=Human, 01=Elf, 02=Dwarf, 03=Gnome, 04=Half-Orc)
0F/8F	Class (00=Knight, 01=Paladin, 02=Archer, 03=Cleric, 04=Sorcerer, 05=Robber, 06=Ninja, 07=Barbarian)
10/90	Original Might (These attributes should
11/91	Original Intelligence always equal or exceed
12/92	Original Personality those of the 'Current'
13/93	Original Speed attributes found at
14/94	Original Accuracy locations 22/2B/2C/23/
15/95	Original Luck 24/2D listed below)
1E/9E	Thievery 0% - 100% (Hex 0 - 64)
20/A0	Hit Points - lo byte (0/255 equals 00/FF in Hex)
21/A1	Hit Points - hi byte (256/65535 is 00/FF in Hex)
22/A2	Current Might
23/A3	Current Speed
24/A4	Current Accuracy
25/A5	Current Alignment (see Bytes 0D/8D)
26/A6	Current Level (2E/AE is Original Level)
27/A7	Current Spell Level (37/B7 is Original Spell Level)
28/A8	Current Spell Points - lo byte (see 20/A0)
29/A9	Current Spell Points - hi byte (see 21/A1)
2A/AA	Current Endurance
2B/AB	Current Intelligence
2C/AC	Current Personality
2D/AD	Current Luck
2E/AE	Original Level (see 26/A6)
2F/AF	Age
31/B1	Experience - lo byte (see 20/A0)
32/B2	Experience - lo/medium byte (see 21/A1)
33/B3	Experience - hi/medium byte (65535/16,777,215 is 00/FF in Hex)
34/B4	Experience - hi byte (etc.)
35/B5	Spell Point Maximum - lo byte (see 20/A0)
36/B6	Spell point Maximum - hi byte (see 21/A1)
37/B7	Original Spell Level (27/A7 is Current Spell Level)
38/B8	Gems - lo byte (see 20/A0)
39/B9	Gems - hi byte (see 21/A1)
3A/BA	Hit Points Maximum - lo byte (see 20/A0)
3B/BB	Hit Points Maximum - hi byte (see 21/A1)
3C/BC	Original Hit Points - lo byte (see 20/A0)
3D/BD	Original Hit Points - hi byte (see 21/A0)
3E/BE	Gold - lo byte
3F/BF	Gold - medium byte
40/C0	Gold - hi byte
41/C1	Armor Class
42/C2	Food
43/C3	Condition (00=Good/01=Cursed/02=Silenced)
44/C4	Original Endurance

Those attributes that are listed as having both an Original and Current or a Maximum and Current level should always have the Original or Maximum level set equal to or greater than the Current level. The Current level is a description of the characters attribute after losing a portion of the particular attribute due to some action taken during the game play.

Weapons are easily obtained with a sector Editor. They are either currently Equipped or in the character's Back Pack. A maximum of six weapons can be Equipped and an additional six weapons can be in the Back Pack. These weapons can be magically enhanced shown by a "+" after the weapon. The location for these twelve weapons and the location for magically enhancing these weapons is also found on track 1/sectors D, E & F.

Weapon	byte location	enhancement location
Equipped	45/C5	5D/DD
	46/C6	5E/DE
	47/C7	5F/DF
	48/C8	60/E0
	49/C9	61/E1
	4A/CA	62/E2
Back Pack	4B/CB	63/E3
	4C/CC	64/E4
	4D/CD	65/E5
	4E/CE	66/E6
	4F/CF	67/E7
	50/D0	68/E

In the byte locations for enhancing a particular weapon write a Hex number from 00 to FF (0 to 255) for the amount of enhancing you desire. For a weapon choose one of the following by inserting the proper Hex number in the above location.

Weapons

00 No Weapon	01 Small Club	02 Small Knife
03 Large Club	04 Dagger	05 Large Knife
06 Hand Axe	07 Cudgel	08 Spiked Club
09 Bull Whip	0A Long Dagger	0B Maul
0C Short Sword	0D Nunchakas	0E Mace
0F Spear	10 Cutlass	11 Flail
12 Sabre	13 Long Sword	14 Wakizashi
15 Scimitar	16 Battle Axe	17 Broad Sword
18 Katana	19 Slumber Club	1A Power Club
1B Lucky Knife	1C Looter Knife	1D Power Cudgel
1E Energy Whip	1F Sonic Whip	20 Mighty Whip
21 Scorch Maul	22 Mauler Mace	23 Exacto Spear
24 Fiery Spear	25 Fast Cutlass	26 Quick Flail
27 Shock Elait	28 Sharp Sabre	29 Ego Scimitar
2A True Axe	2B Blazing Axe	2C Electric Axe
2D Rapid Katana	2E Accurate Sword	2F Chance Sword
30 Speedy Sword	31 Flash Sword	32 Flaming Sword
33 Electric Sword	34 Acidic Sword	35 Cold Blade
36 Sage Dagger	37 Holy Cudgel	38 Divine Mace
39 Ice Scimitar	3A Grand Axe	3B Swift Axe
3C Dyno Katana	3D Force Sword	3E Magic Sword
3F Thundo Sword	40 Energy Blade	41 Photon Blade
42 Staff	43 Sickle	44 Scythe
45 Glaive	46 War Hammer	47 Trident
48 Pike	49 Naginata	4A Bardiche
4B Great Hammer	4C Halberd	4D Great Axe
4E Flamberge	4F Wind Staff	50 Tri-Sickle
51 Ice Sickle	52 Fire Glaive	53 Harsh Hammer
54 Stone Hammer	55 Genius Staff	56 Wizard Staff
57 Soul Scythe	58 Dark Trident	59 Titan's Pike
5A Moon Halberd	5B Sun Naginata	5C Blowpipe
5D Sling	5E Short Bow	5F Crossbow
60 Long Bow	61 Great Bow	62 Shaman Pipe
63 Cinder Pipe	64 Quiet Sling	65 Pirates xBow
66 Burning xBow	67 Fireball Bow	68 Voltage Bow
69 Giant Sling	6A Energy Bow	6B Death Bow
6C Star Bow	6D Meteor Bow	6E Ancient Bow
6F Green Key	70 Yellow Key	71 Red Key
72 Black Key	73 Small Shield	74 Large Shield
75 Great Shield	76 Fire Shield	77 Electric Shld
78 Acid Shield	79 Cold Shield	7A Silver Shield
7B Bronze Shield	7C Iron Shield	7D Magic Shield
7E Gold Shield	7F Padded Armor	80 Leather Suit
81 Scale Armor	82 Ring Mail	83 Chain Mail
84 Splint Mail	85 Plate Mail	86 Plate Armor
87 I Scale Mail	88 B Scale Mail	89 S Scale Mail
8A I Ring Mail	8B B Ring Mail	8C S Ring Mail
8D I Chain Mail	8E B Chain Mail	8F S Chain Mail
90 I Splint Mail	91 B Splint Mail	92 S Splint Mail
93 I Plate Mail	94 B Plate Mail	95 S Plate Mail
96 G Scale Mail	97 G Ring Mail	98 G Chain Mail
99 G Splint Mail	9A G Plate Mail	9B Helm
9C Iron Helm	9D Bronze Helm	9E Silver Helm
9F Gold Held	A0 Magic Herb	A1 Torch
A2 Lantern	A3 Thief's Pick	A4 Rope 'n Hooks
A5 Wakeup Horn	A6 Compass	A7 Sextant
A8 Force Potion	A9 Skill Potion	AA Max HP Potion
AB Holy Charm	AC Herbal Patch	AD Hero Medal
AE Silent Horn	AF Magic Meal	B0 Antidote Ale
B1 Super Flare	B2 Dove's Blood	B3 Ray Gun
B4 Magic Charm	B5 Witch Broom	B6 Invisocloak
B7 Storm Wand	B8 Lava Grenade	B9 Hourglass
BA Instant Keep	BB Teleport Orb	BC Skeleton Key
BD Defense Ring	BE Mgt. Gauntlet	BF Acy. Gauntlet
C0 Stealth Cape	C1 Admit 8 Pass	C2 Speed Boots
C3 Cureall Wand	C4 Moon Rock	C5 Ruby Ankh
C6 Disruptor	C7 Lich Hand	C8 Phaser
C9 Freeze Hand	CA Energizer	CB Magic Mirror
CC Elver Cloak	CD Elven Boots	CE Sage Robe
CF Enchanted Id	D0 Green Ticket	D1 Yellow Ticket
D2 Red Ticket	D3 Black Ticket	D4 Fe Farthing
D5 Castle Key	D6 Mark's Key	D7 Dog Whistle
D8 Web Caster	D9 Minster Tome	DA Cupie Doll
DB Water Talon	DC Air Talon	DD Fire Talon
DE Earth Talon	DF Element Orb	E0 Gold Goblet
E1 +7 Lion Cloth	E2 Valor Sword	E3 Honor Sword
E4 Noble Sword	E5 Corak's Soul	E6 Emerald Ring
E7 Water Disc	E8 Air Disc	E9 Fire Disc
EA Earth Disc	EB Sapphire Pin	EC Amethyst Box
ED Coral Broach	EE Lapis Scarab	EF Amber Skull
F0 Quartz Skull	F1 Agate Grail	F2 Opal Pendent
F3 Crystal Vial	F4 Ruby Amulet	F5 Ivory Cameo
F6 Ruby Tiara	F7 Onyx Effigy	F8 Pearl Choker
F9 Topaz Shard	FA Sun Crown	FB J-26 Fluxer
FC M-27 Radicon	FD A-1 Todilor	FE N-19 Capitor
FF Useless Item		

Finally, bytes 6D/ED are the location where the Secondary Skills are recorded. Because there are fifteen separate Secondary Skills and each character can have a total of two, there are 150 possible combinations. Since this article is already to long, I will start the Hex Code listing and you will have to finish it. The Skills and corresponding Hex Code repeats itself and, therefore, should be easy to complete.

Hex Code	First Skill Trait	Second Skill Trait
01	Arms Master	None
02	Athlete	None
03	Cartographer	None
04	Crusader	None
05	Diplomat	None
06	Gambler	None
07	Gladiator	None
08	Hero/Heroine	None
09	Linguist	None
0A	Merchant	None
0B	Mountaineer	None
0C	Navigator	None
0D	Pathfinder	None
0E	Pickpocket	None
0F	Soldier	None
10	None	Arms Master
11	Arms Master	Arms Master
12	Athlete	Arms Master
13	Cartographer	Arms Master
20	None	Athlete
30	None	Cartographer
etc.	etc.	etc.

Remember, to much of a good thing can turn sour. Only edit your characters if needed and only moderately. Also, you must realize that not all the weapons can be used by all your characters. You have to choose weapons that make sense and then by trial and error. Good Luck!

Zeno Kopecky Jr _____ IL

Softkey for...

LA Crackdown

Infocom

This softkey is based upon the crack for Dive Bomber which appeared in COMPUTIST #66 on page 24. Copy both sides of the original disk with a fast copy program that ignores checksum and epilog errors. Use a sector editor, such as Copy II Plus patched, to change the bytes.

Trk	Sct	Byte(s)	From	To
00	05	10-2B	A6 2B BD 89 C0 BD	A9 E7 85 F8 A9 FC
			8E C0 A9 80 85 FD	85 F9 85 FF A9 EE
			C6 FD F0 71 20 AF	85 FA 85 FD 85 FE
			5F B0 6C A5 F9 C9	A9 F3 85 FB A9 70
			0F DO F1 A0	85 FC D0 50

Manual Bit Copy

For Infocom games with 128K such as Border Zone and Zork Zero, I have been able to make backup copies using Copy 2 Plus using the Manual Bit Copy. What I do is watch the display as the copy program attempts to read each track. If I do not see the sequence of inverse FF's and then D5 AA AD etc, I make note of that track. After all tracks have been copied I will repeat the Manual Bit Copy for the weird track until they are read properly as indicated by the inverse FF and D5 AA AD.

Some tracks are very difficult for the copy program to read so I will repeat the attempt several times. Since the Infocom games have a built in check routine (dollar sign immediately followed by verify) I can tell when a perfect copy has been made or must again try to copy the tough tracks.

Paul A. Johnson _____ IA

First of all, thank you for answering my letter. I wasn't really expecting an answer, and besides, my next issue of Computist came a few days after I mailed the letter, and it had all of the answers in it.

The real purpose of this letter is to comment on your editorial in issue #66. I will comment on the options in order, and make a few suggestions as well.

Option 1 - raise the rates

If you were to raise the rates to $48 per year, I personally would find a way to scrape up the money to continue my subscription, but I don't think others would. The increase in revenue per person would be offset by the decline in subscriptions, and I think the money problems would remain, or even get worse.

Option 2 - Increase the paid subscriptions

Of course this is the best idea, and I think that the readers could help out with this. The only comment I have on this is that subscribers that live in small towns (like me) with few, if any, other Apple Computer owners might feel guilty about not being able to help out the magazine. This is a good option, but I don't think it should be the only option implemented.

Option 2a - The readers wish list

This is a good idea, but I think that you should include the idea you presented in the club flyer. I think that the readers should vote on the best letters in different categories, and the winners could get a certain number of points determined upon the number of votes. If you don't have enough volunteers to count and process the votes, then you could have the readers send their votes to me and I will count them and give you the winners with their totals. I could also come up with a point system is you like.

Option 3 - Lower the rates

I am all for lowering the subscription rates, but I am hesitant about the reduced number of issues per year. I can barely wait one month for the next Computist, how am I going to be able to wait 1.5 months? I like the suggestions about the reduced print and new layout (only printing back issues list a couple of times a year). If it would not cost too much, you could put the back issue order form on a small card and send it with the library disks sent to contributors and with all back issue orders. Also, if a reader wanted information on back issues, all he/she has to do is send in a letter to Computist.

Option 3a - 8 issue subscription / 1 per month

This option doesn't sound too bad, especially if it is combined with the tabloid format and the smaller print. The yearly cost would be $36, which is only slightly higher than before. Each issue would hold more information, though, and the cost of each tidbit of information would be less.

Option 4 - Tabloid and Book

I like the tabloid because it is bigger and there is more to read. However, the tabloid is more fragile than the other form. I received my copy of issue #66 and it had a large tear across the cover. It wasn't serious, a few inches of tape healed it up nicely, but I wonder if sometime in the future a big hunk might be missing. I know the cost of envelopes or plastic covering would raise the cost of mailing, but how much would the increase be? Another way to solve the problem is to put all of the information into a book like the one suggested in the editorial. The only problem with this is that I would go crazy waiting for the end of the year so I could find out what I missed. The "end-of-year" book could also be in the loose sheet form. The cost of printing would be cheaper, and I am sure that the readers wouldn't mind having to get their own binder. Suggestion: If you continue to print in the tabloid format, then split up the table of contents. Put the Computist banner right above where the fold will be and put the features above the banner and the softkeys below. This way, when the tabloid is folded, the issue number will be in the upper, left corner, which makes it easy for the people who put their issues vertically on a shelf to find a particular issue.

Option 5 - More frequent issues

Naturally, I like this option the best. I agree that the tabloid format needs to go with this option, and if the concerns I made in the previous section were dealt with, then I would be extremely happy. As for sending in the letters on disk, maybe there is a reader who would take on the responsibility of typing in SHORT letters onto disks and then sending them to you. The author of the letter could send a one (or possibly two) page letter to the volunteer, and the volunteer could type in the letters and send a disk full of letters to you every month. The authors of the letters would not get library disks, the disk would go to the volunteer (who had to pay the postage to send the disk). The authors and the volunteer could work out some way of distributing the library disk if the author wanted it. This system would allow authors who don't want to send their submissions on disk to write for the magazine, and at the same time, another reader could have the satisfaction of knowing that he/she is helping to put out the magazine, even though he/she does not live in the Tacoma area.

I also like the idea of the best BASIC program and the help lines. Maybe we could get ALL of the subscribers to fill out a short survey on their strengths and weaknesses concerning the Apple. They could include times to call, and their address if they wouldn't mind a letter. All of this information, along with time zone differences, could be put into a database and sent to all subscribers. This way, every subscriber could help out. Who knows, somebody might even find out that they have a neighbor who reads Computist.

My Wish List

Appleworks version 2	(Apple)	200 points
Battletech	(Infocom)	50 points
Certificate Maker	(Broderbund)	25 points
Copy II Plus Version 8.??	(Central Point)	25 points
Dazzle Draw	(Broderbund)	50 points
Print Shop Lover's Utility (Plus)	(Big Red)	40 points
(Any) Stickybear Title	(Optimum Resource)	25 points
(Any) TimeOut Title	(Beagle Bros.)	50 points
(Any) Where in the ... Carmen?	(Broderbund)	30 points
Tangles Tales	(Origin)	30 points
Times of Lore	(Origin)	?? points
Earl Weaver Baseball	(Electronic Arts)	40 points
Word Bench	(Addison-Wesley)	150 points

I know that Appleworks and Word Bench are expensive, but a person who brings in 40 new subscribers should be rewarded with a really good piece of software.

Please send me a copy of the Computist Info Flyer. Who knows, maybe someone else in this small town is sick of copy protection, too.

I am sorry this letter is so long, but I wanted you to know my opinions and suggestions.

Sunnie Dinnel _____ CA

More Appleworks Printer Control Codes

Thank you for printing my letter in COMPUTIST #64. My reference to a possible error turned out to be a real case of "open mouth, insert foot" because on page 21 of that same issue, Mr. Phillip Romine hit the nail on the head about "01" and "02" as being used by Appleworks to decide that "one" byte or "two" bytes need to be decoded and sent to the printer.

I decided to renew my investigations about my Epson MX80 III F/T w/Graftrax+ which is connected to my Apple IIc with an Orange Micro Grappler C/Mac/GS Universal Parallel Interface. The switch settings are A B C ON, D OFF.

The first thing I did was to print out Ver. 2.0 SEG.PR using Copy II +, VIEW FILES, VALUES and counted the bytes given by Dr. Lowney in COMPUTIST #59. For my printer, Boldface Begin and End were 1B 47 and 1B 48 which is Escape G and Escape H. After reading the Control Codes listed in the Epson Manual, I decided upon "Enable Paper Out Sensor", 1B 39, which is Escape 9, for the equivalent of Dr. Lowneys' "Forward Line Feeding"

Without going to the Options Menu, I am now able to Boldface, Emphasize, Italicize, Underline (use Control L), set line spacing to 7/72", 1/8", or 1/6", Subscript or ANY combination of the above except Scripting with Emphasize.

Apple Works will recognize almost any value for C.I. from the Options menu, but my MX 80 will only respond to 5, 8, 10, and 17 which gives me Double Wide, Double Compressed, Pica, and Compressed, respectively and since the values for these, in SEG.PR are not "escape codes", I haven't been able to figure out how to change C.I. in the middle of a sentence.

Here is a list of codes and what they can do.

	Begin	End
Boldface	^G^	^H^
Emphasize	^E^	^F^
Italics	^4^	^5^
Subscript	^S1^	^H^
Underline	ctrl L	ctrl L
Underline	^-1^	????
Line Spacing	(stays on until changed)	
7/72"	^1^	
1/8"	^0^	
1/6"	^2^	

For Ver. 2.0: Make a copy of your AW program disk and use it for the changes. Get out your favorite sector editor (I use Copy II +) and read Track 22 Sector 9. At byte $4A you should see something like this on your screen:

```
          01 00 02 1B 47 02 1B 48   ....G..H
          03 1B 53 00 04 1B 54 1B   ..S...T.
          48 03 1B 53 31 03 1B 2D   H..S1..-
          31 03 1B 2D 00 02 1B 32   1..-...2
          02 1B 30 02 1B 40 02 12   ..0..@..
          0E 02 0F 0E 02 12 14 02   ........
          14 0F.................50   .......P
Original: 01 00 02 1B 47 02 1B 48   ....G..H
Modified: 01 00 01 1B 47 02 1B 39   ....G..9
```

Make the changes and write the sector back out to your disk copy. Put a label on the disk to show that SEG.PR has been changed. Boot up AW and use your new program disk to select a printer. I picked the EPSON MX/GRAFTRAX+ as listed, for printer of choice for Open Apple H and called it EP3 and wrote that on the AW Program Disk label

If you have a printer that isn't supported by Appleworks and you know the Ecape codes for it that Appleworks does support then I suppose that a person could substitute his/her codes into one of the other Printer code areas given by Dr.Lowney in COMPUTIST #59 and modify Boldface Begin and End to explore the limits of their printer.

If you are reading COMPUTIST for the first time, do not hesitate in subscribing NOW and be sure to order ALL the available back issues. You will be glad you did. Apple II's FOREVER!

Mr Memory Dump _____ NY

Softkey for...

Impossible Mission II

Epyx

I noticed IMPOSSIBLE MISSION II on the most wanted list last month and I thought I'd take a "crack" at it since it is a program that I have. I followed rule number one while working on it and that rule is 'most software companies will use the same protection on more than one disk'. With that I pulled out all of my old Computists and started working. Thanks to Jack R. Nissel and Computist #56 I found what I was looking for. It was a little different from the softkey I got it from but the results are a totally de-copyprotected disk. Here we go:

1. Boot your DOS 3.3 system disk.
2. Tell DOS to ignore checksum and epilog errors and use COPYA to copy both sides of the disk.

```
POKE 47426,24
RUN COPYA
```

3. Make the following sector edits to side A of the copy you just made.

Trk	Sct	Byte(s)	From	To
$00	$05	$43-$44	D0 F4	EA EA
		$4C-$4D	D0 4A	EA EA
		$55-$56	D0 41	EA EA
		$68-$69	D0 F4	EA EA
		$6C-$79	A0 07 BD 8C C0	EA EA A9 FC 85
			10 FB 99 F0 00	F0 85 F3 A9 EE
			EA 88 10 F4	85 F1 85 F2

Side 2 has no copy-protecton so you are ready to go!

? Does anyone know how to totally de-protect Wings of Fury? I tried the APT in Computist #65 but I couldn't get past track 1 sector $0F. I used the softkeys for it but they only produce bit copies. I'll keep working on it but some help would be appreciated.

John L. Moore _____ OR

At long last I got off "dead center" and will submit a little material. The peeks, pokes, and calls are my collection over the past years and they sometimes come in very handy when you are trying to figure out some one's handy work. Also, my students think they are great.

? Some information that I needed the other day and didn't have, does anyone have the codes that the IIe self test generates? I figured out where my trouble lay but it would have been comforting to know exactly what "*RAM 10000000" meant before I plunked down the cash for a new RAM chip.

In April the "Appleugene" newsletter had a review of Apple oriented magazines and "COMPUTIST" was left out. I wrote a letter and apparently a number of others did so, such that the May issue had a real nice little review. Our local newsletter will have one in the next mailing and I'll route you a copy. (I didn't get my review submitted in time for this issue.)

I don't know whether you can get 8000 readers, but we will give it a try down this way.

COPYA Notes

I used a system similar to that which Michele Jackson uses (Computist 63, p. 17) but instead of altering the DOS on a disk, I use the following as a "hello" program:

```
1 POKE 47397,24:POKE 47398,96:POKE
  47496,24:POKE 47497,96
2 POKE 48712,24:POKE47426,24
3 POKE 47786,00
4 PRINT CHR$ (4);"RUN COPYA"
```

Line #4 could just as easily run a menu program or "catalog". This can replace, or be added to, the "hello" on most any copy program disk.

Caution: Some of the CALLs are to RAM locations and may not work on your system unless you have the same programs in RAM. ..... *RDEXed*

Apple POKEs, PEEKs and CALLs

POKE 32,X ($20): Sets left side of text window. (0-39, normal=0)
POKE 33,X ($21): Sets width of text window (1-40, normal=40)
POKE 34,X ($22): Sets top of text window (0-23, normal=0)
POKE 35,X ($23): Sets bottom of text window (0-23, normal=23)
POKE 36,X ($24): Sets cursor horizontal position
POKE 37,X ($25): Sets cursor vertical position
POKE 48,X ($30): Sets colors for Lores graphics
POKE 50,X ($32): Sets mode (63=inverse, 127=flash, 255=normal,128=video non-print)
POKE 51,0 ($33): Defeat "Not Direct Command" (sometimes)
POKE 54,7:POKE55,195:CALL 1002: Goes to 80 column without clearing screen
POKE 72,0 ($39): Resets the Status register
POKE 82,128 ($): Makes cassette program auto-run when loaded
POKE 109,PEEK (107)($):POKE 110,PEEK(108): Deletes all arrays. allows redimension of any or all arrays without error
POKE 214,128 ($D6): Turns Applesoft into "Run Only Mode"
POKE 214,0 ($D6): Cancels "Run Only" Mode
POKE 216,0 ($D8): Resets error flag. Disable "Onerr Goto"
POKE 230,X ( ): Draw on screen (32=screen 1, 64=screen 2)
POKE 241,X ($): Sets Speed. X = 256-Speed
POKE 243,X ($F3): Where X=1 TO 255, will usually make listings unreadable, except 64 and 192. (X=63 is all ?'s.
POKE 1010,102:POKE 1011,213:POKE 1012,112 ($F2/$F3/$F4) Reset run
POKE 1013,76:POKE 1014,26:POKE 1015,252: Makes "&" move cursor up one line
POKE 1013,76:POKE 1014,58:POKE 1015,255: Makes "&" ring bell

POKE 1013,76:POKE 1014,66:POKE 1015,252: Makes "&" clear to end of page
POKE 1013,76:POKE 1014,88:POKE 1015,252: Makes "&" = home
POKE 1013,76:POKE 1014,156:POKE 1015,252: Makes "&" clear to end of line
POKE 1014,165 ($3F6): POKE 1015,214 ($3F7): Will make "&" list
POKE 1014,10 ($3F6): POKE 1015,165 ($3F7): Will make "&" CATALOG
POKE 2049,1 ($): Prevents a program from being listed once its been run
POKE 40286,35:POKE 40287,216: Prevent ctrl-C and Reset
POKE 40514,N ($9E42): Changes "HELLO" Command (RUN: N=6, BRUN:N=52, EXEC:N=20)
POKE 42344,76 ($A568): Prevents SAVE of "HELLO" (32 Normal)
POKE 43273,65 ($A909): Allows INIT without "HELLO" name (33 normal)
POKE 43624,X ($AA68): Where X = 1 or 2. Will Set/Change current drive to X (Same as ADR-21912)
POKE 43626,X ($AA6A): Where X = 0 TO 7. Will Set/Change current slot to X. (Same as ADR-21910)
POKE 43698,X ($AAB2): Where X = ASCII of DOS command character. (IE. POKE 43698,64 makes @ = <CTRL-D> [Same as addr. -21838]
POKE 44452,22:POKE 44605,21: Controls number of files displayed in Catalog. The first poke is always 1 more than second poke
POKE 44457,88:POKE 44458,252: Clears screen before catalog
POKE 44505,234 ($ADD9): Show the deleted file when catalog
POKE 44506,234 ($ADDA): Normalize with 48 and 74 in same locs
POKE 44507,16:POKE44508,54: Omits file type and sector length from catalog in DOS 3.3 (normal 160) (Same as -21031 & -21030)
POKE 44509,76:POKE 44510,19:POKE 44511,174: Omits file type and sector length (normal 189,200,180)
POKE 44545,169:POKE 44546,X:POKE 44547,234: Where X=0 to 255 shows sector length to be "X" length (normal 189,231,180)
POKE 44611,1: Changes catalog sector number from 3 to 5 digits
POKE 44617,234:POKE 44618,234:POKE 44619,234: Makes volume and sector numbers appear as 000 (normal: 217,164,179)
POKE 44723,4 ($AEB3): Marks tracks 1 & 2 as free (12 normal)
POKE 44793,11 ($AEF9): Prevents save of DOS (5 normal)
POKE 45620,234:POKE 45621,234: Keeps repeating first line in catalog (normal 105,35)
POKE 47617,12 ($BA01): Speeds disk access (same as addr. -17919)
POKE 49232,0 ($C050): Shows current graphic screen
POKE 49233,0 ($C051): Shows current text screen
POKE 49234,0 ($C052): Shows full screen graphics
POKE 49235,0 ($C053): Shows split graphics and 4 text lines
POKE 49236,0 ($C054): Shows page 1
POKE 49237,0 ($C055): Shows page 2
POKE 49238,0 ($C056): Lo-Res
POKE 49239,0 ($C057): Hi-Res
POKE 49384,0 ($C0EB): Stops drive
POKE 49385,0 ($C0E9): Spins disk without reading, writing or error
POKE 49386,0: Changes to drive #1
POKE 49387,0: Changes to drive #2
POKE -25250,105:POKE -25249,0: Traps and disables ctrl-C
POKE -21912,X ($AA68): To select disk drive on 48K system without actually executing a command
POKE -21503,0: Prevents catalog (normal = 17)
POKE -20940,96 ($AE34): To omit page pause for a catalog
POKE -16299,0: Display screen two
POKE -16300,0: Display screen one
POKE -16368,0 ($C010): Clear keyboard
POKE -16336,0 ($C030): Toggle speaker
POKE -16304,0 ($C050): Sets color GR mode
POKE -16303,0 ($C051): Sets TEXT mode
POKE -16302,0 ($C052): Clears Mixed TEXT mode
POKE -16301,0 ($C053): Sets TEXT mode
POKE -16300,0 ($C054): Clear page 2
POKE -16299,0 ($C055): Sets display to page 2
POKE -16298,0 ($C056): Clear Hires GR mode
POKE -16297,0 ($C057): Sets Hires GR mode
POKE -16296,1: turns AN0 OFF (Game port pin 15)
POKE -16295,0: turns AN0 ON (Game port pin 15)
POKE -16294,1: turns AN1 OFF (Game port pin 14)
POKE -16293,0: turns AN1 ON (Game port pin 14)
POKE -16292,1: turns AN2 OFF (Game port pin 13)
POKE -16291,0: turns AN2 ON (Game port pin 13)
POKE -16290,1: turns AN3 OFF (Game port pin 12)
POKE -16289,0: turns AN3 ON (Game port pin 12)
Note: "Off" condition is TTL open-collector high (3.5 volts) &"On" is TTL low (.3 volts) 1.6 ma max. I.
POKE -16152,0 ($C0E8): Slot 6 motor OFF
POKE -16151,0 ($C0E9): turns ON slot 6, disk motor only
POKE -16136,0 ($C0F8): Slot 7 motor OFF
POKE -16135,0 ($C0F9): Turns ON slot 7, disk motor only

PEEKS

PEEK (43)($2B): Boot slot number * 16 (after boot)
PEEK (44)($2C): Lo-Res line end point
PEEK (48)($30): Lo-Res color * 17
PEEK (74/$4A)+PEEK (75/$4B) * 256: Current LOMEM
PEEK (76/$4C)+PEEK (77/$4D) * 256: Current Integer HIMEM
RND(PEEK (78/$4E)+PEEK (79/$4F) * 256: Provide "True" Random number generation in Applesoft
PEEK (115/$73)+PEEK (116/$74)*256: Current Applesoft HIMEM
PEEK (175/$AF)+PEEK (176/$B0)*256: Pointer to Applesoft program
PEEK (202/$CA)+PEEK (203/$CB)*256: Returns memory location of 1st line of Integer program
PEEK (218/$DA)+PEEK(219/$DB)*256: Applesoft line number where error occurred if an ONERR was taken
PEEK (222/$DE): Returns error code which identifys the error which caused an ONERR to be taken
PEEK (36/$24): Read cursor horizontal position (values 0-39)
PEEK (37/$25): Read cursor vertical position (values 0-23)
PEEK (-21902/$AA72)+PEEK (-21901/$AA73)*256: To find starting address of last BLOADed program or data
PEEK (43702/$AAB6): Returns the language that is active. (0=INT 64=FP on tape or disk) (Same as ADR -21834)
PEEK (46063/): Returns the number of tracks on disk currently being used. (35 normal)
PEEK (46064/$B3F0): Returns the number of sectors on disk currently being used. (16=DOS 3.3 13=DOS 3.2) (Same as ADR-19472)
PEEK (-18070/$B96A): If 150 is returned then you are using DOS 3.3. This peek works for both Applesoft and Integer
PEEK (-16384/$C000): Reads keyboard. If value is >127 then a key was pressed. This peek should be followed by a POKE-16368,0
PEEK (-16352/$C020): Toggles the cassette output port
PEEK (-16336/$C030): Toggle speaker once for every two PEEKS
PEEK (-16287/$C061): Read PDL(0) switch. If value >127 = switch ON
PEEK (-16286/$C062): Read PDL(1) switch. If value >127 = switch ON
PEEK (-16285/$C063): Read PDL(2) switch. If value >127 = switch ON

CALLS

CALL 768 ($300): Often used to clear ONERR problems
CALL 976 ($3D0): Reconnect DOS
CALL 979 ($3D3): DOS cold start
CALL 1002 ($3EA): To reconnect DOS I/O hooks
CALL 3314 ($CF2): ROM to RAM
CALL 11246 ($2BEE): Clears HGR2 screen to black
CALL 11250 ($2BF2): Clears HGR2 screen to the HCOLOR last HPLOTted
CALL 42350 ($ A56E): CATALOG
CALL 54514 ($D4F2): RAM to ROM
CALL 54915 ($D683): Cleans stack. Does away with "Out Of Memory" error when you really have memory left. (Same as ADR -10621)
CALL 62450 ($F3F2): Clear current Hires screen to black. (Same as -3086)
CALL 62454 ($F3F6): Clear current Hires screen to the HCOLOR last PLOTted. Must be preceded by a HPLOT (Same as -3082)
CALL -41881: SAVE
CALL -23186 ($A56E): To catalog disk
CALL -25153 ($9DBF): Reconnect DOS 3.3
CALL -9477 ($DAFB): Output a carriage return
CALL -8192: END and clear
CALL -8117 ($E04B): List Integer BASIC
CALL -7036 ($E484): Do Applesoft garbage collection routine
CALL -6090 ($E836): Run Integer BASIC
CALL -3727 ($F171): Turn ON Integer BASIC Trace
CALL -3722 ($F176): Turn OFF Integer BASIC Trace
CALL -3318 ($F30A): EXEC Integer BASIC "CON" cmd
CALL -3305 ($0CE9): Resume from Applesoft ONERR
CALL -3100 ($F3E4): Reveal Hi-res page 1
CALL -3116: HGR2
CALL -3106: HGR
CALL -3086 ($F3F2): Clear Hi-res screen to black
CALL -3082 ($F3F6): Clear Hi-res to last color HPLOTted
CALL -2613: Hi-res cursor coordinates to 224-225
CALL -2458 ($F666): Enter mini-assembler
CALL -1998 ($F832): Clears Lo-res screen to black
CALL -1994 ($F836): Clear top 20 lines to @ if in text mode. If in Lo-res clears screen to black
CALL -1953 ($F85F): Increment Lo-res color by three
CALL -1728: Prints Hex of X and Y registers
CALL -1438 ($FA62): Pseudo-reset
CALL -1401: Warm boot
CALL -1370 ($FAA6): Re-boots disk system
CALL -1321 ($FAD7): Display all registers
CALL -1233: TEXT
CALL -1216: GR
CALL -1184 ($FB60): Clears screen (HOME) and print "APPLE]["
CALL -1052 ($FBE4): Beep speaker for 1/10 second
CALL -1036 ($FBF4): Move cursor forward (right) one space
CALL -1008 ($FC10): Move cursor backward (left) one space
CALL -998 ($FC1A): Move cursor up one line
CALL -958 ($FC42): Clear screen from cursor to lower right corner of screen
CALL -936 ($FC59): Clear screen (HOME)
CALL -926 ($FC62): Send carriage return and linefeed to screen
CALL -922 ($FC66): Move cursor down one line without changing horizontal position
CALL -912 ($FC70): Move all text in window up one line
CALL -875: Clears entire line
CALL -868 ($FC9C): Clear cursor to end of line
CALL -856 ($FCA8): Time delay. POKE 69,XX to set amount of delay
CALL -756 ($FD0C): Wait for keypress
CALL -678 ($FD5A): Wait for return keypress
CALL -676: Rings bell and waits for carriage return
CALL -665: LF prompt and wait for input
CALL -662: Prompt and wait for input
CALL -657 ($FD6F): Better input. Commas/colons OK
CALL -550: Prints hex value of A-register
CALL -415 ($FE61): Disassembler.note POKE start address at locations 58-59 before CALL
CALL -384 ($FE80): Set inverse video mode
CALL -380 ($FE84): Set normal video mode
CALL -321 ($FEBF): Display A,X,Y,P and S registers
CALL -211 ($FF2D): Print err msg and beep speaker
CALL -198 ($FF3A): Beep speaker
CALL -167 ($FF59): Enter monitor and set text mode. Functions the same as reset
CALL -155 ($FF65): Enter monitor with bell
CALL -151 ($FF69): Enter monitor without bell
CALL -144 ($FF70): Scan and execute contents of keyboard buffer at $200. Note: If using Applesoft do not use this call within a GOSUB

Bob Igo — PA

First, I would like to applaud the format of Computist #66. Almost twice the information for less cost is an idea which should have been adopted from the start. I think you should keep it this way forever, even if you get enough money to switch back to the magazine format because there is no sure way of telling that you will continue to have enough money for a magazine format. The present way is certainly not the most physically attractive way to produce Computist, but it is by far the most information-packed.

As for the the Computist information flyer, I would like a copy to show around and accumulate new subscription points. I visit a computer club monthly and there are always people asking how to subscribe and what the magazine is about. I estimate that I can get at least five new subscribers.

I don't really want people calling me from out of state, but anyone local can look up my phone number in the phone book and call me from about 1:00 P.M. to 4:00 P.M. If I'm not available, leave your number and I'll get back to you. I can be helpful on Appleworks, minimal cracking, intermediate game editing for the Apple //e, and I'm sure there's more, but I can't think of it at this moment. If I don't know how to solve your problem, I'll make a few calls of my own to find the solution. If you would like to write, just write to:

Bob Igo
136 Garlow Drive
Pittsburgh, PA 15235

Keep up the good work. If you need anything, write to me or call me. That goes for readers and Computist staff.

Advanced Playing Technique for...

Pharaoh's Revenge

?

Extra Lives

Trk	Sct	Byte(s)	From	To
07	$0B	$D2	$04	any number up to $64

Starbuck — OH

Many Thanks to "Dan Halfwit" in issue 64. His input was invaluable. He mentioned in his softkey that he was in a hurry and some one else could send in an explanation. I can only expand a little upon what he submitted.

Softkey for...

4th & Inches

Accolade

Copy the program using any copy program that will ignore errors. I used Copy II+ ver8.3. I personally prefer Fast Copy captured from Locksmith. (Unfortunately, I have not been successful capturing it for the GS. I would like to correspond with someone who has.) Then use a sector editor such as the one in Copy II+, and change the Following Bytes:

Blk	Byte(s)	From	To
$CF	$D2	20 C1 EC	EA EA EA
	$DF	20 C1 EC	EA EA EA
	$F3	2A	00
	$FF	1E	00

If you don't find these bytes at this address scan the disk for 20 C1 EC, and check to see if there is a 90 2A and a B0 1E shortly after it and you will have found your disk check.

Softkey for...

4th & Inches Team Construction Disk

Accolade

This disk had a rather odd form of protection. Rather than doing a signature check on itself it performed a siganture check on the 4th & Inches GAME disk!!! And would go no further until you "Put 4th & Inches Game Disk In Any Drive". Even if the check had been disabled using the procedure above. Well I reasoned a couple things: First, since the disk copied with no errors using a whole disk copier then it seemed a safe bet that the whole protection was on the Game disk and not on the Team disk. So there appeared to be only one signature check and not two. Second, I reasoned that since the same area on the Game disk was being checked by another program and I were the programmer I would save myself a bunch of trouble and simply use the same routine to read the disk that I had already written. So it seemed that all I had to do was scan the Team disk for a JSR to the same point on the Game disk (20 C1 EC) and I would have my "critter caged".

Unfortunately Mr.Halfwit in his softkey in issue 64 only had ?? ?? for the addresses, and I had not written down what the originals were before I changed them on my copy. So I gingerly put an original in the drive and dumped that sector out on the printer. Once I had the correct code it wasn't too bad. I scanned the Team disk for 20 C1 EC and found not just the 2 occurrences but actually 6 different occurrences of that code on the disk. After using the List command in the Copy II+ sector editor I was able to quickly find the spot I was looking for. A few edits later and Whoopee! a COPYA backup of my original.

Cookbook Method

Copy the disk using any whole disk copier. I used CopyII+ and then use the sector editor to make the following changes. Don't forget to write them back to disk.

Blk	Byte(s)	From	To
$01BC	$72	20 C1 EC	EA EA EA
	$7F	20 C1 EC	EA EA EA
	$92	90 2A	90 00
	$9E	B0 1E	B0 00

Again many thanks to Dan Halfwit. He really deserves the credit because he found the protection in the first place. I just used his info.

By the way I would really be interested in seeing a couple articles that show you step by step how to locate a nibble check on the disk. Its easy to bypass a check once you have it but its the finding that is tricky!! Anyone out there ready to rise to the occasion?

On another note, I recently received the notice of the change in publication from 4 weeks to 6 weeks. I am unhappy and disappointed in the change. It reflects a raise in price and a drop in frequency. If the money situation is that severe I am more than willing to have the per issue price raised from the current $2.50 to $3.00 or even $3.50! I pay MORE for other magazines and recieve LESS. Let's keep COMPUTIST rolling on a MONTHLY basis. No, I do not have a lot of money but I am convinced that quality is worth paying for. And if my subscription were raised from $32 to $40 I would smile and write the check. I saved MORE than that

from the info in just ONE issue. Enclosed you will find my check to become a member of the COMPUTIST user group.

Softkey for...

Ski Crazed

Broderbund

Copy the program using any copy program that will ignore errors, then use a sector editor such as the one in Copy][+, and change the following bytes:

Trk	Sct	Byte(s)	From	To
00	$6	$11-12	D0 F7	EA EA
		$2E-2F	D0 F7	EA EA
00	$F	$08	D0 F7	EA EA

And ski your heart out!

Softkey for...

Summer Games GS

Epyx

The softkey in issue #64 did not work on my copy of California Games. It would go through the boot and just before the title screen it crashes and drops into the monitor. The problem seemed to be the bytes inserted at $09C. After trying unsuccessfully to fix this error I realized that it would be easier just to avoid the subroutine that performs the nibble count. Since the person who wrote the article was kind enough to include an explanation it was apparent that the nibble count routine was on block $0FC. So I used the sector editor in Copy][+ and Dissasembled ("listed") the sector and dumped it to the Printer. I looked/searched back up till I found an RTS indicating the end of the previous subroutine and the beginning of the routine that did the nibble count. I found it at address byte $3F. The next byte I reasoned should be the first byte of the nibble count. So I simply put a RTS (return from subroutine) and effectively negated the nibble count altogether and Whoopee! a COPYA version of California Games. If Epyx moves the routine, search the disk for A2 20 A0 01. And then follow the same procedure of backtracking and inserting an RTS and you should be successful.

Blk	Byte(s)	From	To
$0FC	$040	20	60

I have several Electronic Arts Games I would like to back up. Strike Fleet, Wasteland, Chuck Yeager's Advanced Flight Simulator. Also a Mindscape Game: Into the Eagles Nest. Certainly someone out there has the crack for these. They all seem to use the same method. So how about it guys!

Softkey for...

Arkanoid

Taito

Copy the program using any copy program that will ignore errors. Then use a sector editor such as the one in Copy II+, and change the following bytes:

Blk	Byte(s)	From	To
$020C	$05B	22 73 09 00	AF 73 09 00
	$063	22 A3 09 00	AF A3 09 00
$0253	$09D	22 89 0C 00	AF 89 0C 00
	$0A3	2A 2A 85 66	18 EA 64 66
$03FD	$0AF	0C 07 03 09	04 04 04 00

Softkey for...

Impossible Mission

Epyx

I am not certain how complete this softkey is, as I have not played the game very far. Any replies would be appreciated. Also, you may find that you have to press ctrl-R after the game has booted to start at a different tower. It always seems to start at the same point on boot-up.

Blk	Byte(s)	From	To
$04A3	$046	A2 20 A0 01	A2 FF A0 FF
	$063	A2 21 A0 01	A2 FF A0 FF

Vincent Andrews — WA

I would like to express my thanks to Mountain Man for his outstanding job on "A Better Bootable Thexder" in Computist #62. To show my appreciation, I would like to share a small program with him and everyone else. This program modifies the Thexder file on a 3.5" diskette so that you may have normal or unlimited energy in Thexder without going through the trouble of having two diskettes or constantly BLOADing and BSAVEing the thexder file.

To use this program, you must have a ProDOS diskette. Copy to it the files ProDOS and Basic.System. Go into the basic by executing Basic.System and then type in the Applesoft program. Save this program: SAVE THEX.ENERGY.MOD

Whenever you want normal or unlimited energy in Thexder, just run this program before you boot your Thexder diskette.

Thank you Computist for an excellent computer magazine.

THEX.ENERGY.MOD

```
10 REM THEXDER ENERGY MODIFIER
20 REM BY: VINCENT ANDREWS
30 REM WRITTEN: 24 MAY 89
40 REM
50 TEXT : HOME :A$ = "----------" :
   REM 40 CHARS
60 PRINT A$;: PRINT : HTAB 9: PRINT
   "THEXDER◊ENERGY◊EDITOR" : HTAB 11: PRINT
   "BY◊VINCENT◊ANDREWS" : PRINT A$: POKE 34,5:
   VTAB 16: PRINT A$: POKE 35,15
70 REM MAIN MENU
80 HOME : VTAB 9: PRINT TAB( 5)
   "(1)◊UNLIMITED◊ENERGY"
90 PRINT TAB( 5) "(2)◊NORMAL◊ENERGY"
100 PRINT : PRINT TAB( 5) "(3)◊QUIT"
110 POKE - 16368,0
120 K = PEEK ( - 16384): IF K < 128 THEN 120
130 POKE - 16368,0
140 IF K = 177 THEN X = 128: GOTO 180
150 IF K = 178 THEN X = 240: GOTO 180
160 IF K = 179 THEN TEXT : END
170 GOTO 120
180 REM TYPE OF THEXDER FILE
190 HOME : VTAB 7: PRINT TAB( 3)
   "WHICH◊TYPE◊OF◊FILE◊DO◊YOU◊HAVE?"
200 PRINT : PRINT TAB( 5) "(1)◊THEXDER"
210 PRINT TAB( 5) "(2)◊THEXDER.SYS16"
220 PRINT TAB( 5) "(3)◊PREVIOUS◊MENU"
230 POKE - 16368,0
240 K = PEEK ( - 16384): IF K < 128 THEN 240
250 POKE - 16368,0
260 IF K = 177 THEN N$ =
   "THEXDER,A$1000,L$1,B$522C,T$B3" : GOTO 290
270 IF K = 178 THEN N$ =
   "THEXDER.SYS16,A$1000,L$1,B$522C,T$B3" :
   GOTO 290
280 IF K = 179 THEN GOTO 70
290 REM BLOAD/MODIFY/BSAVE
300 ONERR GOTO 370
310 D$ = CHR$ (4)
320 PRINT D$ "PREFIX/THEXDER,D1,S5"
330 PRINT D$ "BLOAD◊" ;N$
340 POKE 4096,X
350 PRINT D$ "BSAVE◊" ;N$
360 GOTO 70
370 REM ERROR ROUTINE
380 PRINT : PRINT "◊PLEASE◊INSERT◊THEXDER◊DISK"
390 PRINT "◊IN◊DRIVE◊1,◊SLOT◊5:◊UNLOCKED"
400 POKE - 16368,0
410 IF PEEK ( - 16384) < 128 THEN 410
420 POKE - 16368,0: GOTO 70
```

Checksums

```
10-$BADD    150-$A322    290-$B82F
20-$9B13    160-$83FB    300-$1DAA
30-$4D3B    170-$7136    310-$5860
40-$AD92    180-$0432    320-$58CD
50-$29CB    190-$2357    330-$DD96
60-$C685    200-$2EFC    340-$C936
70-$0BA2    210-$20CB    350-$AD1E
80-$4E67    220-$62DE    360-$74B4
90-$272B    230-$E77D    370-$BCC9
100-$1752   240-$4386    380-$6DB5
110-$1300   250-$27AE    390-$925F
120-$716A   260-$B32C    400-$0859
130-$CB20   270-$CF8F    410-$BD20
140-$9455   280-$2A90    420-$4E72
```

Gary Rohr — AZ

Softkey Enhancement for...

Broadsides v2.0

Strategic Simulations Inc.

Requirements:
Original Broadsides v2.0 diskette
An initialized diskette with the hello program deleted that contains SUPER IOB, swap controller, standard controller, DISKEDIT and DOS ALTERER
Broadsides v2.0 softkey (from COMPUTIST #66)

If you do not have access to a WILDCARD, or similar method to force a hardware interrupt, you may not be able to capture the RWTS. This is due to the fact that the RESET vectors are pointed to a memory wipe routine, prior to loading the RWTS from disk.

This enhancement to my softkey will allow you to create an artificial Broadsides RWTS by using the DOS ALTERER, which is on the COMPUTIST Starter Diskette.

Step by Step

1. Boot the utilities diskette listed in the requirements section, and run DOS ALTERER
2. Select option #1 (Altered Address Markers)
3. Alter D5AA96 to AAD5AB
4. Alter DEAA to DEAB
5. Select option #2 (Altered Data Markers)
6. Alter D5AAAD to AAD5EB
7. Alter DEAA to EDAA
8. Select option #3 (Ignore Read Errors)
9. Select I (To Ignore read error)
10. Select option #6 (Ignore Address Checksum)
11. Select I (To Ignore address checksum)
12. Select option #8 (Create Text File)
13. Use BS.ALTERED.RWTS for Filename
14. Exit DOS ALTERER with Ctrl/Reset or re-boot the utilities diskette then:

```
EXEC BS.ALTERED.RWTS
1900<B800.BFFFM          move to a safe location
C600G                    Boot utilities diskette
BSAVE RWTS.BROADSIDES, A$1900, L$800
```

15. Continue de-protection with my original softkey at step #6

Bud Myers — ME

You and the volunteers should give yourselves a long overdue and richly deserved pat on the back for keeping the best Apple-specific (well, almost; and up to a few months ago) magazine around afloat as long as you have. I thought I appreciated the effort and expense which went into a monthly publication. After reading your detailed explanation, it became apparent that I did not begin to appreciate it. Thanks for the education.

Record my vote for the tabloid format. I remember when Computer Shopper was a collection of classified advertisements for the TRS-80, printed on cheap yellow paper, and just look at it today. Unfortunately, it seems that copy protection is slowly and finally disappearing from the Apple scene, which seems inevitably to sound the death knell of a publication dedicated to defeating it. Since there are still a good many of the copy protected ones kicking around, there will be a need for Computist for awhile yet.

Send me an Info Flyer. I'll do what I can to drum up new subscribers, with or without incentives, and I hereby volunteer to help with any writing, rewriting, or editing chores you feel I can handle. Although I have been a computer user for a long, long time and once upon a time a pretty fair BASIC programmer, I'm very much a neophyte when it comes to the sort of stuff you print in every issue.

A suggestion: perhaps those hardy souls whose names appear regularly in the list of contributors could be persuaded to offer their services to those of us less skilled. I for one would be willing to pay a modest fee (and provide an original disk if necessary) in return for a deprotected and copyable program. If and when I ever learn enough to help someone else, I would gladly enter into such a service, and cheerfully donate any monies earned to Computist. I'm not sure you'd make enough to offset the hassle of administering it, but it's a thought.

How about an Advertiser of the Month (Quarter? Year?) voted on by the readers, winner to receive one free ad. Something like this might draw a little much-needed revenue, both from advertisers and subscribers.

Right now my most-wanted hardware is for the IBM family. I would kill (time) for a Logitech Scanman or a DFI Handy Scanner. If that's over budget, then I'd be most grateful for the latest version of Locksmith for the Apple.

I believe that intermediate-level computists like myself are like mice: if you see (or hear from) one, there are at least ten more unseen (and unheard) in the shadows. What you are doing, and have done for the past six years, is much appreciated by everyone, and it's to our eternal shame that we've neglected to express that gratitude often enough.

Good Luck!

Seymour Joseph — NJ

Softkey for...

816 Paint v3.1

Baudville

Working from Alex Gehrt's softkey of version 2.0 in Computist #48 I was able to find and remove the protection from this newer version. The edits are the same, only the locations have changed.

Copy the disk with any copier that can continue after a bad block (there are several early on the disk) and then make the following two block edits.

To deprotect the Paint 320 program:

Blk	Byte(s)	From	To
$2A2	$124	30 03 0E	80 03 0E

To deprotect the Paint 640 program:

Blk	Byte(s)	From	To
$30A	$E6	30 03 0E	80 03 0E

All Done!

Stingray — Canada

This is my first time writing, and the first thing I'll talk about is the newsletter I just recieved from COMPUTIST. I have only been a subscriber since COMPUTIST #59, but it is definitely the best magazine I have ever seen, and I don't want it to go down, so I am writing.

One thing I think would really boost subscription would be more programming tips, in addition to cracking tips. Deprotecting disks is great, but how many hackers are there compared to programmers? I mean, I just read that Borland sold 1 million copies of Turbo PASCAL (Read that, one million potential subscribers, if there was a good section on programming tips). The best part is that with languages like C, you wouldn't even have to be programming on the same type of computer to make use of a tip. C is pretty much the same on all computers. This could open up a large market of programmers on Apple, Macintosh, IBM, Commodore, etc.

There could be kind of a question-answer format, with people writing in with a programming problem and other programmers, who might have already solved a similar problem, could write in to help. For example, in a program I was writing, I wanted to enter a mathematical formula through an INPUT statement and then DEF FN it to graph it. As far as I know, this can't be done from BASIC, but luckily I had a program that did just this. After a few hours looking through the listing, I found the solution: write the string, along with a line number, a <CR>, and a GOTO line number statement to a text file and EXEC it from within the program. A few drawbacks to this are you must include in your text file program line statements redefining all your variables, since the EXEC MUST be followed by an END statement, which kills all your variables. An alternative to this would be to use ProDOS and simply STORE all your variables before EXECing. The program would look something like this:

```
10 PRINT CHR$(4)"STORE VARS"
20 X$="30 HOME:?CHR$(7)"+CHR$(13)+"GOTO 30"
21 write X$ to a text file
25 PRINT CHR$(4)"EXEC textfile"
26 END
30  will be EXECed in
35 PRINT CHR$(4) "RESTORE VARS": PRINT CHR$(4)
   "CLOSE textfile"
40 PRINT "SCREEN CLEARED": END
```

This isn't exactly the most elegant solution, but it works.

A question-answer format would probably work better on a BBS, but I would like to see a magazine format for two reasons: 1) For all the people, like me, who don't have a modem, and 2) a magazine can be kept for reference, but a tip on a BBS can be lost if you don't make a hardcopy. The magazine could be sort of a compilation of all the tips on the BBS over six weeks. Maybe the users who don't have modems could send in tips or questions on disk and RDEXed could upload them.

This could also generate some money if a COMPUTIST shareware collection, somewhat similar to the Super-IOB collection, could be set up. Amateur programmers could send in programs to be put into a collection, but instead of sending money to the author, send it to COMPUTIST.

Anyway, that's my bright idea for today. If you like it, write in and say so, include any programming tips you have. If you don't, write in with a better idea, also preferably including some tips.

(?) I have a question. I have heard of Print Shop Companion, PS Lover's Utility, PS Graphics Libraries, but what is the PS Sup-

plementary Disk? No one I asked knows. I am asking because if you search the PS disk for AD F6 95 29 02 F0 12 (on my disk track 4 sector 6) and NOP the F0 12, the Greeting Card program gives you an extra option. You get to choose a border FROM OTHER DISK. When you try this option, though, it asks you to insert PS Supplementary Disk. Was it something they were using during development but not included in the final version or what?

That's about all I can think of to say for now, but one last thing I want to say is: WRITE! Even if you just have a question, send it in. As RDEXed says, this is a newsletter for users, so if you have some news, let's print it.

I just recieved COMPUTIST 66, and the tabloid format is AWESOME!!! Twice the info per issue is a definite plus, and maybe with the increased volume, answers to questions and spotted bugs will come through quicker now. As you said, two months waiting in the file is way too long, especially if you are submitting an opinion or suggestion about a timely topic like the current format changes in COMPUTIST. I sent my first letter a few weeks ago (right after I got the urgent newsletter), so hopefully it will be in the next tabloid. I wrote something similar to Mr Gary Verbuch, and how I would like to see other topics besides deprotection covered. One idea I thought of since is to divide the issue into sections covering different topics. For example, a section for softkeys, one for programming tips, a separate section just for bugs and questions, for quick reference, and a section for hardware tips. (Speaking of hardware, what exactly are you working on that you mentioned at the beginning of issue 63? I joined at issue 62, so I don't know.) Dividing the tabloid into sections would make it more readable. Each section would be consolidated, instead of having softkeys, APTs, bugs, and questions all jumbled together. If it was like a newspaper, there could be four ten-page sections, each separate. This would be handy for those who really hate the IBM section. Each month, they could remove the one or two page insert and trash it, solving all their problems. Sectioning might make COMPUTIST more attractive to advertisers, too. They could place their ad in a section dealing with their product, so more interested people would be likely to read the ad than if it was with other, unrelated ads.

As far as free software goes, I think it should be awarded as a prize for programming contests. I used to subscribe to COMPUTE! magazine, BEFORE they stopped printing program listings. They had some pretty awesome user-written software in their mag, including the word processor I'm writing this on. Nothing extremely fancy, but quite functional, and you've got the listing right there if you want to modify it, which I did with this word processor. When they stopped printing the programs, there were a lot of very ticked off people, who might want to subscribe to this publication if it printed user-written software. Instead of purchasing the programs, as COMPUTE! did, points could be awarded. Computists could let their point totals accumulate to whatever level they wanted, so hardware such as Trakstar would not be out of reach, although I can't see anybody holding onto their points long enough to buy anything much bigger than $200. Since the Computist Shopper only orders products, not stocks them, the points could be used to buy something not listed, or maybe even not related to computers at all, like just a money order for so many points, if the person so desired. The point system could be like money in the bank, maybe up to a limit of 200 points or so.

I told a friend about COMPUTIST, and he was impressed, to say the least, and he's thinking about subscribing. How do I register a subscriber for points? Should I get him to add a note with my name in with his subscription, or will you add a line on the subscription form, or what?

One last idea, although it is not exactly optimistic. If worst comes to worst, and COMPUTIST can't afford to print a magazine, or even a tabloid, well, those Xeroxed back issues don't REALLY look all THAT bad. If Xeroxed COMPUTIST was the only way, I could live with it. I haven't done detailed calculations, but Xeroxed magazines shouldn't cost all that much. An Apple // e, Multiscribe, and an NLQ printer should put out a reasonably decent looking production, at an affordable cost. On the optimistic side, all we have to do is drum up some support. If everyone gets one new subscriber, we have doubled the subscription, and the problem will be solved.

Softkey for...

Ogre

?

I first got this game a few years ago. I tried to deprotect it, but not knowing anything about the process, I was unable. After my second issue of Computist, I tried again, and had a copy in about 15 minutes.

The protection itself is fairly simple. The address epilogues were sync FF's, and the address header had been changed on every other track, from D5 AA 96 to D4 AA 96. Two simple mods to DOS and COPYA will take care of everything. First boot a DOS 3.3 disk with COPYA on it.

CALL -151
B942:18
B954:29 00
RUN COPYA

So easy, once you know what you're doing.

Softkey for...

World Games

Epyx

This was a little harder, but not much. Here, the epilogues are changed, and there is a signature check on track zero. Use COPYA on all four sides. First boot a DOS 3.3 disk with COPYA on it.

CALL -151
B942:18
RUN COPYA

Now for the check. The routine is a single entry, single exit, so we can just jump right around it. Since it doesn't place anything in memory, we don't even have to write any code. Take your copy and search for 85 F7 A9 80 85 F5 C6 F5 F0 76 (track 0, sector E on my disk) and change the 85 F5 to D0 5E. Write it back to the disk and you're done.

Hi-res Hacking

A Nondestructive HPLOT

Here's an interesting routine for all you hi-res hackers. It involves modifying the HPLOT code so it is "non-destructive".

Normally, HPLOT simply AND's a line onto the screen. This is fine for most purposes, but if you want to move the line over a static background, for example, the "rubber-band" effect in drawing programs, you need a different routine. Replotting the line in black won't work, because it will destroy what you've already drawn. The fix involves altering the plotting routine in ROM.

First of all, we must get the ROM into RAM so we can modify it.

C081
D000<D000.FFFFM
C083 N C083

The actual draw routine starts at F530. Follow the routine down to F58D, the code that plots the dot on the screen.

```
F58D    LDA (26),Y
        EOR 1C
        AND 30
        EOR (26),Y
        STA (26),Y
```

Impressive, eh?

OK. So how's it work? Let's run through an example. Say on the screen we have the following pattern of dots: "•••••••". There are only seven dots, because that's how many are stored in every byte in memory. The most significant bit holds color info. Also, the bits are stored backward from how they are displayed, so this byte would be $53(reverse the pattern and put a zero in the MSB). This is stored at (26),Y.

Next, we EOR 1C. This byte contains all the valid bits. For example, if HCOLOR=1, only every other pixel can be lit, so only every other bit is on, and the value is 2A, the bit pattern is "•••••••". Say we are plotting in HCOLOR=1. EOR 1C would give us 79. (EOR is a logical operator. It means compare the corresponding bits in two bytes. If they are the same, set the result bit to zero. If they are different, set it to one.)

Next, we AND 30. This is the bit position byte, calculated by the HPLOT routine earlier. It tells which bit, or pixel, we are working on. If we were plotting the fourth pixel, the byte would hold 08(bit pattern "••••••"). ANDing, we get 08. (AND is like EOR, except the result is one only if both test bits are on. Otherwise it is zero.)

Finally, we EOR with the original byte 53 and get 5B. The bit pattern is now "•••••••". Notice the fourth pixel is now lit. STA (26),Y puts the byte into memory and the pixel is plotted.

Now we are going to change all this. Starting at F58F, enter this code: 45 30 49 80 EA EA. This disassembles to:

```
F58F    EOR 30
        EOR #80
        NOP
        NOP
```

What this does is it flips the state of the position bit. If we plot to position 5, $30 holds 10. EOR 30 has the effect of turning this bit on in the screen byte if it is off, or off if it is on. Next, we EOR #80. This returns the MSB to its original state, because it too was flipped. The last two NOP's simply fill up the extra space.

Now try some plotting in BASIC. Load a picture on the screen and plot over it. To draw, simply HPLOT a line. To erase, HPLOT again using the same coordinates. With some colors, a dot will remain at one end of the erased line, but this is a minor problem. That's all for now, folks. Until next time, keep programming.

Harvey Blanchet — NY

It was with great distress that I read your news release describing your financial difficulties and the necessity to reduce the number of yearly issues. Your publication is highly technical and requires a considerable amount of knowledge, above the average Apple II owners, to use it. The only effective way to increase new and greater renewals of subscriptions is to publish a greater amount aimed at the beginner. There are few good sources of information other than your magazine itself that the beginner has.

I realize that what you present is dependent on what you receive, so this is an appeal to those of your contributors to devote as much as they can to the beginner. What many of your contributors may feel is just general knowledge that everyone knows, may be to the beginner, real "pearls". I ask that you, the contributors, try to explain in the greatest detail, leaving nothing to be assumed. No where in any issue that I have read has there been expressed the idea that what is presented has been on too elementary of a level.

Finally I would be happy to have an increase in the cost of subscriptions to return to the 12 issues per year format. The cost of $40 dollars or more is still a great deal, but where else can I find the information necessary to back up my protected disks, or even more important, the pleasure in developing a method to do it.

Softkey for...

Pirates IIgs

Microprose

The Apple IIgs version of the game Pirates by Microprose is a excellent adventure game with both good graphics and sound. The game requires that you spend a certain amount of time in building a base of ships and crew before you can successfully go out and capture a Silver Train or take on the Treasure Fleet. The program allows you to save four different games in progress to a data disk, with a little sector editing you can easily customize your saved games.

Game	block
1	$F (15)
2	$13 (19)
3	$17 (23)
4	$1B (27)

Byte($)	purpose
3	Amount of personal gold that you have—$FF = 653260 pieces
4	Reputation value—$00 = promising, $05 = well known, $09 = famous, $0D = notorious, $11 = infamous
5	Land—$FF = 12750 acres
6	# of members of family rescued value—$00 = none, $01 = 1, $02 = 2, etc.
7	Crew value—$00 = pleased, $01 = unhappy, $0E = angry
D	Spanish rank
E	English rank
F	French rank
10	Dutch rank
	Values for $00D-010—$00 = Hostile, $05 = Admiral, $01 = Ensign, $06 = Baron, $02 = Captian, $07 = Count, $03 = Major, $08 = Marquis, $04 = Colonel, $09 = Duke
14	Marriage value—$00 = Single, $01 = Shrew and pestersome, $02 = Friendly and attractive, $03 = Lovely and cheerful, $04 Exciting and Beautiful
19	What Port you are in
023-24	# of crew (written with low byte first, A200 = 00A2 = 162 crew members
25	Cannon value—$FF = 256
29	Food value—$FF = 256
02A	Goods value—$FF = 256
2B	Hides value—$FF = 256
2F	# of ships (max 7) Value = 01 thru 07
34-3A	Type of ship

value	type	damaged
00	Pinnale	08
01	Sloop	09
02	Barque	0A
03	Cargo fluyt	0B
04	Merchantman	0C
05	Fast Galleon	0D
06	War Galleon	0E
07	Galleon	0F

50	? YOUR NAME

I hope that the above helps in setting up some interesting scenarios.

I also request that Bank Street Writer Plus, and Where in the World is Carmen Sandiego be added to the Most Wanted list.

Sandy Lapp — NY

I received my letter from you today and I must say I was very disappointed to learn that COMPUTIST will now be published every six weeks instead of monthly. But in all sincerity, better late than not at all. I feel that it is about time that I contribute to a publication that has taught me so much. I do not have fancy explanations for all my cracks and sometimes it is by sheer luck and perseverance that I succeed. But mostly it is from reading and rereading your articles.

Here is a softkey for two games that use exactly the same protection. Using a nibble editor you will find that the normal epilogs have been changed from DE AA to FF EB. It seems to be a form of the Pro-Lok protection that a lot of companies are now using.

Softkey for...

LA Crackdown

Epyx

Softkey for...

Soko Ban

Spectrum Holobyte

Requirements:
Apple IIe
DOS 3.3 System Disk
Sector Editor such as Copy II+

1. Boot your DOS 3.3 system disk.

2. Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

3. Make the following sector edits to the copy.

Trk	Sct	Byte(s)	From	To
00	05	0C-29	A9 0A 85 FC A6	A9 E7 85 F8 85
			2B BD 89 C0 BD	FB A9 FC 85 F9
			8E C0 A9 80 85	85 FC 85 FF A9
			FD C6 FD F0 74	EE 85 FA 85 FD
			20 A6 25 B0 6F	85 FE A6 2B BD
			A5 F9 C9 0F D0	89 C0 18 90 52

If you don't have COPYA, Super IOB with Fast.Con can be used by inserting line 1011 POKE 47426,24 into Fast.Con and copying your disks.

Softkey for...

Writing and Publishing Center

Pelican Software

Requirements:
Apple IIe
DOS 3.3 System Master disk

1. Boot your DOS 3.3 system disk.

2. Tell DOS to ignore checksum and epilog errors and use COPYA to copy the front side of Disk #1 (the other disks in the set are unprotected. No sector edits are neccesary.)

POKE 47426,24
RUN COPYA

Franklin Ace 1200 with ProDOS

I own a Franklin Ace 1200 Apple+ compatible besides an Apple IIe. I have a hunch there are still a few Franklin Computers going strong out there somewhere. (they're as strong as workhorses) Here is a tip on fixing ProDOS to work on a Franklin. With a sector editor, search for the bytes (69 0B D0 03) usually found on track one. Change D0 03 to EA EA and it should now work.

For ProDOS 8 v1.2

Trk	Sct	Byte(s)	From	To
01	07	0C-0D	D0 03	EA EA

For ProDOS 8 v1.4

Trk	Sct	Byte(s)	From	To
01	07	2B-2C	D0 03	EA EA

Be sure to write the changes back to the disk.

? I now would like to ask a favor. If anyone has cracked or even copied Darklord by Datasoft, please forward the information to Computist. My cat Lucy mutilated the jacket on my original. It is still playable but I don't know how much longer it will work. Any help will be appreciated.

Bob Thanski — FL

Softkey for...

Dungeon Master

FTL Games

Requirements:
Apple II GS with 1 Meg
3.5" Disk Copier (Copy II+)
3.5" Disk Block Editor (BC3.System from Copy II+)

Dungeon Master is a fantasy role-playing game with outstanding graphics and sound. The grating noise of the doors opening as you enter the dungeon adds an almost believable aspect to this real time adventure.

On the disk label are the words "Copy Protected Disk." That message saved a little time. I used Copy II+ to catalog the disk and discovered that it used GS/OS. It was possible to view all the files, so maybe, the protection was not too involved.

Using Copy II+ (Version 8.3) enabled me to copy the program disk with a Read Error for Block $17. I cataloged the copy and was able to read the directory. In the main directory was a file called BAD.BLOCKS. It was located on Block #17. I decided from this information that Block #17 would be the starting point to crack the disk.

The first thing to do was to find the code that loaded Block #17. Brian Troha's article in Computist #65 gave me an idea where to start. Since Block #17 was questionable why not search for an LDA#17? In hexadecimal that was A9 17 00 (LDA $00 17). I used BC3.System from Copy II+ as the sector editor and searched for these 3 bytes.

There were several instances but two locations for this instruction on blocks $045 and $0DA appeared to have some sort of check associated with the LDA #17.

The disassembly of the code on Block $045 was:

```
00/11E1  A9 17 00   LDA  #0017
00/11E4  A2 00 80   LDX  #8000
00/11E7  20 F7 03   JSR  03F7
00/11EA  90 01      BCC  11ED (+01)
00/11EC  60         RTS
```

After loading Block #17 into the accumulator (LDA #17) there is a JSR 03F7. At this address is CPX #4C. The CPX command affects the N, Z and C flags. By changing the BCC (Branch on Condition that the carry flag is clear) to BRA (Branch Always) the conditional response to a set flag is bypassed. The program then continues past this address.

Look for the string A9 17 00 A2 00 B0 20 F7 03 90 01. Change the 90 (BCC) to 80 (BRA). Write this block back to disk. The disk failed to boot after this change. A notice that the Dungeon Master disk is damaged appeared on the screen.

I found, on block $0DA, that there is a second LDA #17. The disassembly from that instruction is:

```
00/1153  A9 17 00      LDA  #0017
00/1156  48            PHA
00/1157  8A            TXA
00/1158  8F E0 2F 04   STA  042FE0
00/115C  68            PLA
00/115D  8F DE 2F 04   STA  042FDE
00/1161  A9 00 02      LDA  #0200
00/1164  8F E2 2F 04   STA  042FE2
00/1168  F4 2F 20      PEA  202F
00/116B  F4 D2 2F      PEA  2FD2
00/116E  F4 D2 2F      PEA  2FD2
00/1171  22 15 08 00   JSL  00815
00/1175  AD 02 00      LDA  0002
00/1178  C9 00 00      CMP  #0000
00/117B  F0            BEQ  ...
```

At the address 1175 is LDA 0002. Associated with this instruction is a CMP (Compare with #0000). The CMP instruction compares a byte in memory with a byte in the accumulator. What would happen if we changed the value in the accumulator to the value that the CMP is looking for, that is, 00?

On block $0DA search for the string AD 02 00 C9 00 and change the 02 to 00 and write the block back to the disk.

After this change was made the game disk booted and the program loaded.

Fast Method

1. Copy Dungeon Master with a 3.5 Copier. I used Copy II+ v8.3.
2. Ignore the read error on block $17.
3. Use a sector editor and scan the disk for A9 17 00 A2 00 80 20 F7 03 90 01. This string was on block $045. Change the 90 to 80. Write the block back to the disk.
4. On block $0DA search for the bytes 22 15 08 00 AD 02 00. Change the 02 to 00 and write this block back to disk. Put your original in a safe place

Softkey for...

Bank Street Writer Plus

Broderbund

Eric W. Taylor's softkey in Computist #47 for Bank Street Writer III (Scholastic) will also crack Bank Street Writer Plus by Broderbund.

Ronald E. Riggs — NV

I, like many others was disappointed to hear that financial difficulties have forced a cut back in the number of issues per year. Enclosed is my $10 Computist Club dues and an extension of my subscription. I hope it helps. I urge all readers to join in and keep our favorite magazine alive. I subscribe to Nibble and inCider, but the magazine I most look forward to receiving each month is Computist. Incidentally I did subscribe to Computist through the ad in Nibble. Speaking of Nibble, congratulations to long time Computist contributor Bill Jetzer on becoming a "One-And Two-Liners" winner in the Dec. 88 issue. Bill, I would like to see more on ProDOS IOB 5.25. I converted the HELLO program on the Computist Starter Disk to ProDOS and with minor modification adapted it to run ProDOS IOB or one of the two utilities I put on the disk. I would be glad (with the permission of RDEXed) to send a listing to anyone interested. One more question for Bill, is Mike Jetzer your brother? I have seen his name published somewhere.

I read the IBM softkeys although I do not own an IBM. They offer insight to other operating systems and may come in handy someday.

I am continually amazed at the ability of some of your contributors to find and eradicate copy protection. I have tried to no avail on many programs to develop a softkey and am then bewildered at the simplicity of it when I read it in Computist. I will keep trying and someday I will make a meaningful contribution.

(?) Does any one know how to modify Copy II+ version 7.2 to not show the copyright warning and to not ask for the slot number when running BITCOPY.SYSTEM ?

Here is a little AppleWorks tip: requires an Apple II computer and AppleWorks.

If when trying to load a file a "Getting errors..." message comes up, try loading the file as an ASCII file. The document will have to be reformatted (imbedded printer codes, paragraphs etc.) but this is better than retyping the whole thing.

The Tuck — CA

Advanced Playing Technique for...

The Magic Candle vol 1

Mindcraft Software, Inc.

Requirements:
sector editor

Scorpia says of The Magic Candle, "...in the Ultima style: there is much more to do here than simply hacking monsters. Definitely recommended; a well-balanced CRPG with several good and original features." (Computer Gaming World, April 1989, No.58).

One more success for the COMPUTIST: There is no on-disk copy protection. Copy protection is accomplished by referring to particular page, column and word number in an accompanying manual. Make a copy of all four disk then put the original disk away in a safe place. All changes that are needed to create a Super Hero are to be done on the copy of Disk 4.

The game allows four positions to be saved to Disk 4. If you wish to save more than four positions, you need to make extra copies of Disk 4. These four positions are found at the following locations on Disk 4:

Saved position	Track	Sectors
A	20	8,7,6,5
B	21	F,E,D,C
C	21	6,5,4,3
D	22	F,E,D,C

For the sake of simplicity, I will only describe how to alter Saved Position A. However, it is easy to apply the same changes to the other positions because the byte locations do not change.

Those changes which need to have a specific hex number will be indicated. All other changes should be a hex number from 00 to 63, where the hex number 63 is the maximum allowable number equaling 99 items. The hex number for Maximum Status should always equal or exceed the hex number for Current Status.

Sector 8

Characteristic	Current Status	Maximum Status
Strength	04 - 09	4C - 51
Stamina	0A - 0F	52 - 57
Energy	10 - 15	58 - 5D
Sword	16 - 1B	5E - 63
Bow	1C - 21	64 - 69
Agility	22 - 27	6A - 6F
Magic	28 - 2D	70 - 75
Charisma	2E - 33	76 - 7B
Hunt	34 - 39	7C - 81
Learn	3A - 3F	82 - 87
Dexterity	40 - 45	88 - 8D
Speed	46 - 4B	8E - 93

Byte	Purpose
94 - 99	Gold (x 100)
9A - 9F	Gold (x 1)
A0 - A5	Food
A6 - AB	# of Arrows
B2 - B7	Ready Weapon (do not alter)
B8 - BD	Weapon 1 (see Weapon Description below)
BE - C3	Weapon 2 (see Weapon Description below)
C4 - C9	Weapon 1 W-T (Wear & Tear should be 0)
CA - CF	Weapon 2 W-T (Wear & Tear should be 0)
D0 - D5	Armor (see Armor Description below)
DC - E1	Potion
E2 - E7	Gonshii
E8 - ED	Sermin
EE - F3	Pyramid
F4 - F9	Sphere
FA - FF	Crater Dust

Weapon Description

00 - None	06 - Brennix
01 - Sort Sword	07 - Light Axe
02 - Scimitar	08 - Battleaxe
03 - Long Sword	09 - Great Axe
04 - Broad Sword	0A - Ash Bow
05 - Grand Sword	0B - Brom Bow

Armor Description

00 - None	03 - Chain Mail
01 - Leather	04 - Steel Plate
02 - Ring Mail	05 - Methreal Armor

Sector 7

bytes	item	bytes	item
00 - 05	Cube	5A - 5F	Diamond
06 - 0B	S. Ash	60 - 65	Hammer
0C - 11	Amulet	66 - 6B	Dr. Dust
12 - 17	Hoyam	6C - 71	Cloak
18 - 1D	Mirget	72 - 77	Blanket
1E - 23	Nift	78 - 7D	Circlet
24 - 29	Luffin	7E - 83	Pick
2A - 2F	Rope	84 - 89	Boot
30 - 35	Loka	8A - 8F	Shovel
36 - 3B	Drelin	90 - 95	Lens
3C - 41	Star	96 - 9B	Medicin
42 - 47	Pearl	9C - A1	Pass
48 - 4D	Topaz	A2 - A7	B. Ring
4E - 53	Ruby	A8 - AD	G. Ring
54 - 59	Emerald		

Sector 6

4F - 54 Name of Magic Books carried (see list below for hex)

- 01 - Sabano
- 02 - Ishban
- 03 - Sabano + Ishban
- 04 - Demaro
- 05 - Sabano + Demaro
- 06 - Ishban + Demaro
- 07 - Sabano + Ishban + Demaro
- 08 - Zoxinn
- 09 - Sabano + Zoxinn
- 0A - Ishban + Zoxinn
- 0B - Sabano + Ishban + Zoxinn
- 0C - Demaro + Zoxinn
- 0D - Sabano + Demaro + Zoxinn
- 0E - Ishban + Demaro + Zoxinn
- 0F - Sabano + Ishban + Demaro + Zoxinn

6D - 72 Shield Strength

# of Times Each Spell Memorized

Sabano

A4 - A9	Fear
AA - AF	Confuse
B0 - B5	Shatter
B6 - BB	Repel
BC - C1	Locate
C2 - C7	Assess

Ishban

C8 - CD	Fireball
CE - D3	Teleport
D4 - D9	Heal
DA - DF	Weaken
E0 - E5	Vision
E6 - EB	Freeze

Demaro

EC - F1	Energy
F2 - F7	Pierce
F8 - FD	Disapear
FE - FF	Walkwater (cont. on sec. 5)

Sector 5

Demaro (cont. from sector 6)

00 - 03	Walkwater
04 - 09	Shield
0A - 0F	Resurrect

Zoxinn

10 - 15	Zofir
16 - 1B	Zapall
1C - 21	Zengrl
22 - 27	Zishoxe
28 - 2D	Zefoar
2E - 33	Zutyun

Remember, you purchased the game for the enjoyment of the play. If you simply change all the byte locations to the maximum allowable the game will offer no challenge and, therefore, you've wasted your money. Modify your character in moderation. Use the above information only when you are in a tight spot.
May the light shine forever.

Robert Phillis — Australia

Softkey for...

Bumble Games

The Learning Company

Requirements:
DOS 3.3 disk
FID

Preliminary Survey

Using Copy 2+, with the sector editor patched, it was possible to read all information on tracks 0-2 and 5-35. Tracks 3 & 4 were somewhat difficult, having only some sectors which contained valid data.

On track 3, only sectors 3, 4, 5, 6, 7, A, B, C, D, and E appeared to contain valid data.

On track 4, only sectors 1, 2, 8, 9 and F appeared to have valid data.

The programs making up Bumble Games are written in BASIC. On booting the disk some binary data necessary for the games is loaded by the modified DOS, viz;

- a sound routine at $300
- a memory move routine at $32F-$34A
- a shape table (containing 2 shapes) at $4301-$43B2
- some lo-res screen data from $C00-$1FFF
- two character generators from $4000-$5D3F
- a hi-res title screen at $2000

Also, the shape table pointers at $E8 & $E9 are conditioned properly, and the start of BASIC pointers at $67 and $68 are set to $5D41 to ensure this data is not overwritten by the programs themselves.

Steps

1. Boot the DOS 3.3 disk then insert a blank disk and initialize it. When the drive stops, delete the hello program. This is your copy disk.

```
INIT HELLO
DELETE HELLO
```

2. Capture the BASIC programs. First, we tell DOS to forget to check a couple of things then we use FID to copy the programs to the copy disk.

```
CALL -151
B925:18 60 N B988:18 60 N 3D0G
BRUN FID
```

3. Capture the binary data loaded during boot. After booting the original disk, wait until the menu appears and RESET into the monitor. Then:

```
1800<800.1FFFM
1000<300.34BM
```

4. Boot the copy disk, move the code back and save it to the copy disk.

```
6 ctrl P
CALL-151
800<1800.2FFFM
300<1000.104BM
BSAVE BUMBLE1, A$800, L$1800
BSAVE BUMBLE2, A$4000, L$1D41
BSAVE SOUND & MOVE, A$300, L$4B
```

5. The hi-res picture comes next. Boot the original and wait until the title is finished loading, then RESET into the monitor quickly. I didn't want to chase down the routine that did the drawing, so I basically just got the title screen as a static display. Boot your copy disk, again, then:

```
BSAVE SCREEN, A$2000, L$1FFF
```

6. Write these programs to the copy disk:

Program 1

This program resets the start of BASIC program pointers, and then RUNS Program 2.

```
10 POKE 103,65 : POKE 104,93 : POKE 23872,0
20 PRINT CHR$(4);"RUN STARTUP"
SAVE HELLO
```

Program 2

This program loads the title screen, the SOUND & MOVE routine, the lo-res data, the shape generators, and resets the shape table pointers at $E8 and $E9, finally it RUNs the MENU program.

```
10 HGR : POKE -16302,0
20 PRINT CHR$(4);"BLOAD SCREEN,A$2000"
30 PRINT CHR$(4);"BLOAD SOUND & MOVE,A$300"
40 PRINT CHR$(4);"BLOAD BUMBLE1,A$800"
50 PRINT CHR$(4);"BLOAD BUMBLE2,A$4000"
60 POKE 232,1 :POKE 233,67
70 PRINT CHR$(4);"RUN MENU"
SAVE STARTUP
```

All done.

Softkey for...

Moptown Parade

Advanced Learning Technologies

Preliminary Survey

On booting this disk, the BASIC prompt "]" appeared, indicating that a modified DOS was being used. Being lazy, I decided that I really didn't want to follow the tortuous path of sorting out just what had been done to the DOS. Instead, since most of the games are written in BASIC, I decided to let it boot its abnormal DOS and then drop into the monitor and see what I could do with it from there.

First, I reset the autorun flag at $D6, since some kind person had set it so that BASIC commands would RUN whatever program was in memory. Then I tried the command `A65EG from the monitor, to try for a CATALOG. This had the effect of dropping me into BASIC. The good news is that it also allowed me to get a CATALOG by the usual means. I then tried to boot a normal DOS, and from the monitor made these changes:

```
B925:18 60      ;Kill End of Data Marks
B988:18 60      ;Kill End of Address Marks
BE48:18         ;Clear Errors
B8FB:29 00      ;Kill last byte of Data Mark
```

Then, I tried using FID to transfer the programs from the protected disk to my normal disk. No Luck! Apparently, the people who protected this disk, decided to play games with the Track/Sector lists, as well as modify a few other things.

Second attempts were more fruitful. As in BUMBLE GAMES, all the BASIC programs loaded above the Hi-res screens and a couple of machine language routines and binary data found themselves being moved into this area. The start of BASIC program pointers at $67 & $68 now pointed to $6000. The job then became a tedious task of booting the protected disk, dropping into the monitor, fixing the autorun flag, loading each one of the programs, determining the absolute starting and ending addresses and finally capturing them by booting a disk that had a very small STARTUP program, which simply set the start of BASIC program pointers to point to $6000 and ended.

Procedure

1. Initialize a disk with the hello program name of STARTUP. Boot this disk, and type in the following program:

```
10 POKE 103,1 : POKE 104,96 : POKE 24576,0
```

Save this program with the name STARTUP, that way, when you boot this disk it will POKE the start of program pointers to $6001 for you.

2. Next capture the BASIC programs as follows:

   a. Boot the protected disk, wait until the main menu appears, then drop into the monitor.

   b. Set the autorun flag at $D6 to 0 to avoid nasty surprises.

   c. From the monitor type A56EG (it won't work, but it seems to reconnect DOS) and wait until you get the] prompt.

   d. CATALOG the disk, just to make sure you've got DOS.

   e. Start by LOADing each one of the BASIC programs and from the monitor, find the END address by examining $AF and $B0. Here's what I found:

Program Name	Start Address	End Address
HELLO	$6001	$65B0
MENU	$6001	$6431
MAKE MY TWIN	$6001	$71A0
WHO'S DIFFERENT?	$6001	$80BF
WHAT'S THE SAME?	$6001	$7F1D
WHO COMES NEXT?	$6001	$791F
MOPTOWN PARADE	$6001	$7BF3
WHO'S NEXT DOOR?	$6001	$7A51
SECRET PAL	$6001	$7211
CHANGE ME	$6001	$7F12
CLUBHOUSE	$6001	$7E39
MOPTOWN MAP	$6001	$7C3D
MOPTOWN HOTEL	$6001	$84BC

The procedure is the same for each of these. LOAD a program. Boot your initialized disk. Enter the monitor. Change $AF and $B0 to point to the end of the program. Save the program with the same name it had on the protected disk.

3. Examining the HELLO program gives you some indication of what to do next. It checks a few things (unimportant!) then BLOADS MUSICRESETSHAPE at $300 (needs to be captured as above), BLOADS UNSCRAM.ERR (not needed), moves a routine from $9240-$9371 to $5ECE (needs to be captured, I called it SUB1), sets the shape table pointers at $E8 and $E9 to point to $34C, BLOADS PRINTER12$800CRAM at $4000 (needs to be captured), and finally moves some data from $2000-$3700 to $800 (needs to be captured, I called it SUB2)

   NOTE: The loading address and length of Binary files can be found at $AA72-$AA73 and $AA60-$AA61 respectively in Low/High format. Reverse the values you find to get the correct values for the length and address.

   Alter the HELLO program so that it doesn't load UNSCRAM.ERR or perform the memory moves and simply BLOADs SUB1 and SUB2 to the correct locations on startup.

4. Capture the Hi-res and Lo-res pictures. The Hi-res pictures load at $4000, end/start details are:

PIC.MAPCRAM	$4000-$52EF
PIC.HOTELCRAM	$4000-$5B42
PIC.MOPTOWNCRAM	$4000-$57D3

These are captured exactly the same way as the BASIC programs were.

The Lo-res pictures were loaded to $4000-$47FF, moved after booting the normal disk, back down to $400-$47F and BSAVED with the correct name. For the move use something like the routine below, which I put at $300, and called from BASIC.

```
LDY  #$00   ;Y-reg must be set to 0
LDA  #$00   ;lo-byte source start
STA  $3C    ;pointer for move
LDA  #$40   ;hi-byte source start
STA  $3D    ;pointer for move
LDA  #$FF   ;lo-byte source end
STA  $3E    ;pointer for move
LDA  #$47   ;hi-byte source end
STA  $3F    ;pointer for move
LDA  #$00   ;lo-byte destination start
STA  $42    ;pointer for move
LDA  #$04   ;hi-byte destination start
STA  $43    ;pointer for move
JSR  $FE2C  ;monitor MOVE subroutine
RTS         ;finished, so return
```

The BASIC program goes something like this;

```
10 GR
20 CALL 768
30 PRINT CHR$(4);"BSAVE picturename.LPIC"
40 GOTO 40 :REM Admire picture until bored!
```

There are only 2 Lo-res pictures to be captured;

HOME SWEET HOME.LPIC
MOPTOWN PARADE.LPIC

Final Note

All programs should now work, although for some strange reason the shape table pointers got erased when CLUBHOUSE executed, so I added a line to fix this

```
2 POKE 232,76 : POKE 233,3
```

Now it all seems to work perfectly.

Oh yes, either add the line:

```
20 PRINT CHR$(4);"RUN HELLO"
```

to your startup program, or else change the boot program to HELLO and delete STARTUP

Prologic Protection Scheme

Softkey for...

Standing Room Only?

?

Requirements:
A sector editor (Copy 2 Plus)
A whole disk copier capable of ignoring errors
A sector editor (Copy 2 Plus)
A way into the monitor (modified ROMS etc.) - optional
Printer (optional)
Approximately 45 - 60 minutes

The program is one of many put out by an Australian company, based in Victoria. A friend of mine asked if I could look into making an unprotected version of this educational program - it is essentially a demographic modelling simulator. Thinking that this would not be a necessarily difficult task, I agreed. Before I knew it, I had a disk which, although it was an original, would not behave. The program did a disk check & re-booted anyway, result being a disk that didn't belong to me that no longer worked (he—& d:mnation!). I might add that at the time all I had done was boot it once to see how it worked. It worked fine the first time, and therafter was a complete bust.

My first thought was that if it was reasonably normal in format I could just copy the files across to a good disk and change the DOS to something faster. Nope, it seems that not only was the disk flawed, but the protectors were using a very strange, highly modified DOS - Normal catalog, but nearly all sectors were allocated, even though they were not assigned specifically to a particular file [clue #1].

The boot program was called MAIN.OBJ which was responsible for loading in the first (extremely visible) disk checking module, running the disk check and then using RWTS to load the main driving program from specific tracks & sectors. If the disk check thought everything was O.K., a 00 was stored at location $0, otherwise an $FF was stored there and then returned to MAIN.OBJ.

So, first I patched the module to jump over the disk check to the section that stored a $0 at location $0, and sat back to see if (hopefully) this would be the end of the story. Basically the check consists of trying to read sectors off Track $3, which has a non standard address prologue of B5FFAA. These sectors were read into page $2, where they couldn't mess anything up, since they didn't contain any valuable data (at least I haven't found any from them). I suppose the idea is that if the sectors could be read then it was an original disk, otherwise it was a copy.

Everything went O.K. up to the prompt to press RETURN to continue, then the sneaky people who wrote this protection materialised a second disk check in a location in memory that previously contained reasonably harmless code. The second check was almost an identical copy of the one found earlier, except that it is pieced together from memory and/or loaded from disk, not in any easily found sequence of instructions though, so searching the disk for this code proved fruitless. D:mn, the only thing left was to try and work out how the program worked and trace it up to this point and remove or re-direct the call to this particular section of nastiness.

Thus passed the next two weeks of examining assembly language listings which used indirect jumps via pointers at $0-$1 and $8-$9. Also, there were indexes to indexes to calculations of the next jump address to be placed in one of these pairs of pointers for the indirect jumps. This way lies madness, I am only curious as to how the programmers kept track of where they were, to be sure, I got lost so many times that I despaired of ever finding the way to defeat this disk check. I couldn't even follow the program past the first 10 or so jumps.

Desperation is the mother of invention. I started by fixing the changes the program made to the RESET vector, either NOP the alterations to $3F2, $3F3 & $3F4 or make it so that on RESET the machine jumps to the BREAK handler at $FA59. Next, I booted the disk and played with interrupting the program just before it went to re-boot after the disk check. Examining $0-$1 and $8-$9 after jumping into the monitor I found the following-

at $0-$1 was a vector to $62BA,
at $62BA was a JSR $62C0
at $62C0 was a JMP ($0008)
at $8-$9 was a vector to $A800 (YIPPEE....I had caught it red-handed)

Lastly, I had to carefully write a routine which checked to see if the protection was in place, and if it was cause the program to jump over the disk check and store $0 in location $0, finally returning to the calling code (wherever that was. I still couldn't find where it was initiated from). Locations $8 & $9 were used for other reasons, as well as directing the disk check, so I just couldn't alter their contents without making sure that legitimate indirect jumps went to where they were supposed to. Below is the program I wrote to handle this (it ain't elegant but it woirks!)

Firstly, I patched $62BA to JSR $100E. $100E was in the original disk check, which, if you'll recall, had already been bypassed and so this code would not be needed anymore for its original purpose. Poetic justice that I should be able to use it to a much better purpose.

At $100E I placed the following code;

```
100E  AD 01 A8  LDA   $A801  ;will contain a $B5 if the disk check is
                             in place
1011  C9 B5     CMP   #$B5   ;check to see it's there
1013  D0 03     BNE   $1018  ;not there, so do what was originally
                             intended
1015  4C 63 A8  JMP   $A863  ;jump over disk check, and store $0
                             at $0
1018  4C C0 62  JMP   $62C0  ;here if for a legitimate reason.
...             ;miscellaneous remnants of the original disk check.
```

Step by Step

1. Copy disk with disk copier that ignores errors on track $3 & $4

2. Search for the first bytes in the disk check module (MOVEDOS) - I found it at T$1C, S$E

3. Change the instruction A9 B5 8D to 4C 6E 10 - this defeats the first disk check.

4. Continuing on from there type in the program above i.e. AD 01 A8 C9 B5 D0 03 4C 63 A8 4C C0 62

5. Make sure you write the sector back to the disk!

6. Search for the bytes 20 C0 62, this is going to be replaced with a JSR $100E i.e. 20 0E 10 (I found it at track $9, sector $A, bytes $BB & $BC.

End of story. (Gotcha you stupid people who waste time protecting disks. Maybe you should think about not using such a mistake prone protection scheme.)

Softkey for...

Super Print!

Ashton Scholastic

Background

This program came on 3.5" format and operates under ProDOS. It copies with no errors, using any whole disk copier e.g. Copy 2+. The fact that it copies so easily is pretty suspicious and any misgivings you might have about this are soon confirmed when the copy re-boots almost straight after loading ProDOS. Ah ha! you say...obviously a disk check of some sort, maybe a nibble count? Who can say? I cracked it, and I still don't know what was being checked.

Softkey

I really hate this one, because I still dunno how I did it. Oh well! First, make a backup to work with - we all know what happens when you start playing around with originals, don't we!!?

Secondly, break out a good block editor (e.g. Glen Bredon's Prosel Block Editor). You'll need to change a few things in the file called SP.SYSTEM.

The nasty code responsible for causing the re-boot lives at $2703 in this system file and since the disk check will fail with any copy, we need to make sure that all the obvious JMPs and Branches to this code are disabled. When you've fired up your disk editor, have it 'Follow files' for /SP/SP.SYSTEM.

In the edit mode, track down and change all JMP $2703's to EA EA EA (this code looks like 4C 03 27). There are about 6 of these nasty little thingies in the system file.

$2026- 4C 03 27 relative byte will be $26, $27 & $28
$2033- 4C 03 27 relative byte will be $33, $34 & $35
$2064- 4C 03 27 relative byte will be $64, $65 & $66

(Sorry, didn't make notes of where the other 3 were, but they are pretty obvious and easy to find - besides which they are all

together in one spot. Pretty hard to miss 'em)

Also, NOP all the relative branches to these locations. Let's not have the program waste time branching to something that won't work anymore - and besides, like I said before I don't know why this works, but it does, so don't argue. All right!

$20A6- 90 BC relative bytes $A6 & $A7 : BCC $2064

$20AD- B0 B5 relative bytes $AD & $AE : BCS $2064

Next, to be really confusing, change the legitimate branches to $20BC where the program will JSR to $220A (the real starting address of the program) to NOPs;

$2099- B0 21 relative bytes $99 & $9A : BCS $20BC

$20B4- B0 06 relative bytes $B4 & $B5 : BCS $20BC

We're nearly finished mixing things up. All that remains is to change the re-boot code, so that it will jump to the start of the program. I found this by accident, when I changed the JMP $0000 to JMP $6000 because I figured this was a likely place for the program to start. No, I was wrong! but just trying out a $220AG when the computer dumped me in the monitor when it couldn't find anything to execute at $6000, resulted in the drive whirring and the program working. Pretty lucky huh!

Well, here's what to do. For some reason, just replacing the JMP $0000 with a JMP $220A puts the computer to sleep. Find the section of code I'm talking about with your block editor.

```
78          SEI          ;set enable interrupts
A0 00       LDY  #$00    ;y-reg = 0
B9 14 27    LDA  $2714,Y ;load A-reg from $2714 + Y
99 00 00    STA  $0000,Y ;store A-reg at $0000 + Y
C8          INY          ;Y = Y + 1
C0 18       CPY  #$18    ;have we moved 24 bytes yet?
D0 F5       BNE  $2706   ;No, well keep 'em moving
4C 00 00    JMP  $0000   ;go and re-boot the disk!
A9 02       LDA  #$02    ;Start of data to be moved
85 FF       STA  $FF
A9 00       LDA  #$00
.....
```

Change the 6 bytes starting at the LDA #$02, to the following;

```
20 58 FC- JSR  $FC58  ;Give the computer time to catch up,
                      $FC58 is where HOME lives
4C 0A 22- JMP  $220A  ;enough of this foolin' around let's start the
                      program.
```

That's it, all done. Another case of just dumb luck!!

Softkey for...

Taipan

Avalanche

Requirements:
2 Blank disks
Super IOB

The Protection

Basically, TAIPAN uses a modified DOS 3.2. This can be seen by looking at the disk with a nibble editor. There are a lot of garbage tracks and sectors on the disk - thankfully, none of them contain valid data (whew!).

After the Avalanche title is loaded and shown, the hello program then runs a MENU program which further loads and runs the Instructions or the Game, depending on your response. The Instructions and the game are really BASIC programs which have been saved with a binary loader to fix the pointers for start of program etc. The logo is loaded via direct calls to RWTS and the file manager (not a problem). Also the CATALOG track has been moved to track $1A.

The Softkey

1. Using Super IOB with the SWAP controller (no need to change anything in it, except the last sector to read as 13) copy the original TAIPAN disk. Answer yes to the format disk question.
2. Boot a normal DOS 3.3 disk. Enter the monitor and change the track for the CATALOG.
   CALL-151
   AC01: 1A.
3. Place your second blank disk in drive 1 and type INIT HELLO. This will give you a normal disk with the catalog track on $1A.
4. Use Super IOB again, this time with the STANDARD controller. Set the Starting track to track 3 and copy the disk you made in step 1 onto the disk you made in steps 2 & 3.
5. Boot the disk and when DOS has finished loading, (remember there will be a dummy HELLO on it), DELETE the following files:

   HELLO (MCC) - you may have to ESCAPE edit the file name, since I think it contains an invisible CTRL somewhere.

   A
   MENU
   APPLESOFT

6. Type in and save the following HELLO program:

TAIPAN HELLO

```
10 D$ = CHR$ (4)
20 PRINT D$ "BRUN◊AVALANCHE◊LOGO"
30 FOR I = 1 TO 2000: NEXT I
40 TEXT : HOME
50 VTAB 2: HTAB 1: PRINT "T◊A◊I◊P◊A◊N"
60 PRINT "-----------"
70 VTAB 6: HTAB 1: PRINT "TAIPAN,◊YOU◊MAY◊
   SELECT"
80 PRINT "FROM◊THE◊FOLLOWING"
90 VTAB 9: HTAB 1: PRINT "THE◊(I)NSTRUCTIONS◊
   TO◊THE◊GAME,◊OR"
100 PRINT "THE◊(G)AME◊OF◊TAIPAN."
110 VTAB 13: HTAB 1: PRINT "WHICH◊DO◊YOU◊
   SELECT◊(I/G)?" ;: GET A$
120 IF A$ = "I" THEN PRINT : PRINT D$ "BRUN◊
   TAIPAN◊INSTRUCTIONS"
130 IF A$ = "G" THEN PRINT : PRINT D$ "BRUN◊
   TAIPAN"
140 GOTO 110
```

Checksums

10-$9E93	**60-$FCEF**	**110-$5D4E**
20-$CCEE	**70-$EC10**	**120-$B82B**
30-$3F94	**80-$8890**	**130-$EB50**
40-$69B0	**90-$EC35**	**140-$4B14**
50-$B8AD	**100-$84F7**	

7. Optional step - you can get a sector editor and copy the catalog track to its correct position, sector by sector. I don't think that track $11 was used for anything, so this should work. This will allow you to have a completely de-protected disk.
   That's it....All done

Softkey for...

Mastertype's Writer

Scarborough

Requirements:
A disk copier like Copy 2 plus that ignores errors.
A later version of the ProDOS file. (optional)
A blank disk.
A block editor (can use sector editor if you want to calculate the correct sector numbers)

Background

This program is a graphics wordprocessor, requiring an enhanced Apple //e with 128K or //c. The operating system used is ProDOS and the protection is a rather simple case of misdirection using ProDOS's READ_BLOCK MLI call.

This particular program was my first foray into de-protecting a ProDOS protection scheme, and without the help of Gary Little's book 'Apple ProDOS: Advanced Features for Programmers' I wouldn't have been able to track down the particular scheme being used (I highly recommend this book as a source book in any programmer's library, since it explains things a lot more clearly than some other books on ProDOS).

Anyway, on with the story. Since this was a first, I copied the disk with a disk copier (either Copy 2 plus or Super IOB will do it) and tried to boot (I think I discarded the ProDOS file that came with program and placed a clean version on the disk). Not too surprisingly, after the title screen had been loaded and displayed, the disk drive kept spinning but not much else was happening (the dreaded disk check had occurred).

The next step was a complete disassembly of the SYSTEM file which always (?) loads to $2000 and then executes under ProDOS. To follow this explanation, you will need some way of jumping into the monitor (optional, if you don't want to then just skip to the method at the end and forget about the rest of this). The program then moved itself around in memory, roughly half going into low memory page $0C - this section contained the necessary calls to the MLI for reading & writing blocks, setting prefixes etc. The rest went to high memory, page $A8 onwards - this contained the necessary data for the MLI calls and the code for loading the rest of the program.

The essence of the scheme was to have 3 blocks which were loaded into page $AA. The first block contained valid code with the exception of the necessary information for a successful execution of the final stages. This block also had a rather obvious error in that one of the filenames referenced had an invalid character - SYS,MACS.OBJ - the comma is illegal under ProDOS. The program finishes the initial loading of blocks, setting up vectors etc. and then loads a second block into page $AA. This second block contains the disk check in encoded form. It decodes itself, performs the disk check and if all goes well, loads a third block into page $AA. This third block is the correct one for the program to execute successfully.

What to do

1. Copy the original disk.
2. Replace the ProDOS on the disk with your latest version. If memory serves me correctly, the version on the original is ProDOS 1.1.1 which had some nasty bugs, so get rid of it with a later version.
3. Using a block editor, make these changes:

Blk	Byte(s)	From	To
$115	$00	??	A9 17 8D E5 AA A9 01 8D ED AA A9 9C 8D 77 AB A9 AA 8D 01 AC A9 89 8D 09 AC A9 89 8D 11 AC 60

Here's what you're entering, looks like, disassembled:

```
LDA  #$17    ;L.S.B of block to read.
STA  $AAE5   ;store in memory for MLI call.
LDA  #$01    ;M.S.B of block to read.
STA  $AAED   ;store in memory for MLI call.
LDA  #$9C    ;value used in calculating
STA  $AB77   ;number of blocks to read
LDA  #$AA    ;page to read block into memory.
STA  $AC01   ;store in memory for MLI.
LDA  #$89    ;value used in block calculation.
STA  $AC09   ;store it where its needed.
LDA  #$89
STA  $AC11
RTS          ;all finished, continue program
```

The first byte in this block should be a $60 or RTS, and whatever comes after this is part of the code for decoding the disk check, so overwriting it will not matter, since this will not happen after you've re-written the block. The above code is what happens if the disk check was successful, only I've taken the liberty of moving it up over the disk check/decode routine. Just enter the hexadecimal values listed above in order and write the block back to the disk.

If all has gone well, this should now be an unprotected program.

Softkey for...

Alphabet Circus

D.L.M.

Requirements:
2 blank disks.
Super IOB with a controller similar to that given in Computist #61, p24.
A fast DOS such as PRONTO DOS, which will also give you the additional free space you will need to have for all the files on Alphabet Circus. (optional)
A sector editor.
DOS 3.3 file transfer program (FID)

In Computist #44, there was a softkey for Alphabet Circus. Needless, to say the version I had was different in the method used to protect it. The protection was alternating address headers of D5 AA 96 and D4 AA 96, normal Data prologues and altered epilogues. In addition to these, the files occupied extra disk space on track $2.

Step-By-Step

1. Use Super IOB to copy the original disk. You must copy from Track $2 onwards, since part of this track is used for file storage.
2. Initialize a blank disk, using a DOS like Pronto DOS, which gives you most of Track $2 for file storage. Alternately, you could modify the VTOC of a normal DOS 3.3 disk, by sector editing Track $11, Sector $0 bytes $40 & $41 from 00 00 to FF E0. A fast DOS is preferable, though, since the program is blindingly slow.
3. Use FID to transfer all the files from the disk you made in step 1 onto the disk you made in step 2.
   That's it, all finished.

Softkey for...

Monsters & Make Believe

Pelican Software

Requirements:
A blank disk
Super IOB with a controller similar to the one in Computist #61, p24.
A fast DOS, like Pronto DOS (optional).

The protection used was alternating address prologues, even tracks used D5 AA 96, odd tracks used D4 AA 96, with altered epilogues.

-Step-By-Step

1. Initialize both sides of your blank disk with your fast DOS.
2. Copy both sides of the original disk.

Softkey for...

How To Weigh An Elephant

Advanced Learning Technologies.

Requirements:
2 Blank disks.
A sector editor.
A DOS 3.3 file transfer program e.g. FID
A whole disk copier (Locksmith fast copy, etc).
A fast DOS (optional).

The protection used here was not altered formats with strange disk markers, but involved splitting the catalog track, so that the file entries were on track $3, sectors $C to $F.

Step-by-Step

1. Copy the original onto one of your blank disks.
2. Use your sector editor to transfer sectors $C, $D, $E and $F from track $3 to the same sectors on track $11.
3. Initialize your second blank disk with DOS 3.3, or a fast DOS.
4. Use FID to transfer all the files from the disk you made in step 1 & 2.
   That's it!

Softkey for...

Graphics Bank

Ashton Scholastic

Requirements:
An Original Graphics Bank disk
An initialized disk (preferably with a fast DOS) - no HELLO program
NMI capability

The Protection

Graphics Bank by Ashton Scholastic is a program for loading and printing Hi-Res pictures which have been stored in a packed format requiring only 17 sectors, as opposed to 33 sectors which is the normal format. Naturally, since the pictures only require a little more than half the normal number of sectors to save, twice as many hi-res pictures can be stored on the library disks. Also naturally, you do not get the program which converts hi-res pictures to the packed format and of course the disk is protected.

The friend who asked me to have a look at this disk, had tried unsuccessfully to copy it with every program at his disposal. Unfortunately, he had no luck at all. I inspected the disk with a nibble editor and from the look of it, it seemed a pretty straight forward application of Super IOB was needed, with the Checksum and Epilog checks turned off. Sure enough, Super IOB copied the disk (you also have to set Super IOB to ignore unreadable sectors by inserting the line ONERR GOTO 550 at the start). Predictably, the disk wouldn't boot.

Oh well, I didn't expect it to anyway. Next I tried to catalog the disk. Copy 2 Plus spat out its dummy - complaining that it was neither a DOS 3.3 or ProDOS disk. The only way to see the catalog track seemed to be through the sector editor and reading Track $11, Sectors $F, $E and $D. I knew the general format of the catalog, having interrupted the original and trying $A56EG. The people at Scholastic are aware of this however, and had moved the catalog routine to $A516 and also made sure that 3D0G wouldn't work from the monitor to allow you to restore DOS.

The garbage that I saw on the catalog track did have some resemblance to a catalog, i.e. there were things there that looked like filenames, but unfortunately they have been altered by using a EOR encryption formula (I don't know what it was but if you tried EORing the values with $B9 you generally got the correct hexadecimal values, except for some cases where the value you had to use for EOR was $66). My next idea was to use EOR MAKER from Computist #60 and modify Super IOB to read each byte from the disk I had made and EOR it with $B9 before writing. Because $B9 was only part of the formula, I was only partly successful in decrypting the names. Also I saw that the DOS was enough different to know that attempts at capturing the RWTS was not going to work.

The Deprotection

We need to capture the necessary programs by allowing the original to boot and judiciously interrupting the normal execution of programs, moving data out of the sensitive areas to avoid having them trampled on by our slave disk's boot. Once the slave disk is booted, either move the programs and data back to their correct position using the monitor move command and then either SAVE or BSAVE the necessary programs. Below is a list of the programs, sizes and types that need to be captured by this method.

```
A 004 HELLO                L$27C
A 037 GB                   L$2592
A 014 SETUP                L$C56
A 006 GB1                  L$43F
B 007 THELOT               A$803,L$50B
B 020 APEX                 A$E00,L$1200
B 006 PRINTER              A$803,L$400
B 004 AUTOICE.EPSON        A$900,L$27B
B 004 SSC.EPSON            A$900,L$273
B 004 SSC.IMAGE            A$900,L$1B4
B 004 GRAPPLER.EPSON       A$900,L$250
B 004 EPSON.EPSON          A$900,L$240
```

Important locations to examine when doing the program capture:

$67-$68 Location of start of BASIC program in memory
$AF-$B0 Location of end of BASIC program in memory
$AA60-$AA61 Length of last BLOAD
$AA72-$AA73 Address of last BLOADed file (not always used in this system)

1. Capturing the Applesoft programs:

HELLO is the first program to capture. This program checks for the ESCAPE key being held down on startup. If ESCAPE is being pressed, then the SETUP (Configuration) program is loaded, else GB1 will be loaded. Interrupt the boot as soon as you see the message 'Please wait a moment'. From the monitor examine the BASIC program pointers and write down the values you see there so that you can restore them later. Move the program out of the road of a DOS boot by using a monitor move e.g. 4003<803.end addressM.

Boot your slave disk, or disk which doesn't have a HELLO program, and enter the monitor with a CALL -151. Move the program back to where it belongs and restore the pointers at $67-$68 and $AF-$B0. SAVE program with a name (not HELLO).

SETUP loads APEX, PRINTER and an appropriate printer driver. It then BSAVES the PRINTER with the driver attached as PRINTER and re-runs HELLO. Once more boot your original and hold down the ESCAPE key. When the setup menu appears, interrupt again and follow a similar procedure to that outlined for HELLO.

GB1 BRUNs the PRINTER file, loads APEX, a binary picture loader & unpacker. It then loads a packed title screen, unpacks it and finally runs GB. Capturing this program is as outlined above. You won't be using the binary picture loader & unpacker, so delete the lines that refer to loading and running these and SAVE GB1.

GB is captured exactly the same way. You'll want to modify this later, so for the time being just capture it and fix it up later.

At this point you will want to capture the title screen. It is called GRAPHICS.BANK.PAC on the disk and loads to hi-res page two A$4000, and is unpacked and displayed while the main program is loading. Wait until this picture appears and then interrupt and boot your slave disk. BSAVE GRAPHICS.BANK,A$4000,L$1FF8.

Modify GB1 so that it will load this picture and display it.

2. Capturing the binary files:

APEX and THELOT can be captured by the method set out above, except that you will have to move PRINTER out of the road and move it back before BSAVEing it to the slave disk. wait until the Main Menu appears before interrupting your computer.

The five printer drivers can be captured by booting the original disk (with the write protect notch covered) and holding down ESCAPE. From the SETUP menu, choose one of them and then EXIT from the menu. Wait for the error message and then interrupt. Capture all five the same way. The length of each one is displayed at $AA60-$AA61 in LO/HI order, however the correct starting address is not updated at $AA72-$AA73. For all of these, the correct address is $900.

3. The final stages:

You'll have to add statements to the program GB to display the menus cleanly. Firstly remove the statements which say PRINT CHR$(4)"NORM" and CALL ZAPPO. Also the display menu and print menu need to be modified lines 800-1400 and 1800-1900 approximately. Change all CALL S1 and CALL S2 statement in these lines to HOME:PRINT CLR$. I'll leave it as an exercise to you work out the other changes. The Border drawing routine starts at line 30 and I think the string centering routine is at line 90. Anyway, a little experimentation and creative programming will finish the job.

Rename the previously captured HELLO program to HELLO and that should be it. Oh one final point, when the program initialize a blank disk, it uses the command INIT HELLO. You might want to add a line DELETE HELLO somewhere after this so that you can have more space on your data disks or write your own HELLO program. Since DOS uses the program in memory as the HELLO program you'll find a copy of GB being written to the disk otherwise.

All done

Advanced Playing Technique for...

Wizardry V: Heart of the Maelstrom

Sir Tech

Character Data

Use a block editor such as Prosel Block Warden - Blocks 24 to ??

Byte	purpose
01	Length of name
02-15	Character's name
16	Length of password
17-31	Password
32	Race (01 = Human, 02 = Elf, 03 = Dwarf, 04 = Gnome, 05 = Hobbit)
34	Class (00 = Fighter, 01 = Mage, 02 = Priest, 03 = Thief, 04 = Bishop, 05 = Samurai, 06 = Lord, 07 = Ninja)
36	Alignment (01 = Good, 02 = Neutral, 03 = Evil)
42-43	Age
44-47	Attributes (52 4A 52 4A is perfect)
48-51	Experience ?
52-56	Gold ?
58	Number of items carried
56-90	Items and equipped/not equipped/cursed, 1st byte = item number, 3rd byte = equipped/not equipped/cursed
98-100	Level
102-104	Current H.P/Maximum H.P.
106-109	Mage Spells known
110-113	Priest Spells known
114-120	# of mage spells
121-127	# of priest spells

Equipment

01	Torch	02	Lantern
03	Rubber Duck	04	Dagger
05	Staff	06	Short Sword
07	Long Sword	08	Mace
09	Battle Axe	0A	Pike
0B	War Hammer	0C	Holy Basher
0D	Long Bow	0E	Thieves Bow
0F	Robes	10	Leather Armor
11	Chain Mail	12	Scale Mail
13	Plate Mail	14	Target Shield
15	Heater Shield	16	Leather Sallet
17	Leather Gloves	18	Short Sword + 1
19	Long Sword + 1	1A	Blackblade
1B	Katana	1C	Battle Axe + 1
1D	Morningstar	1E	Runed Flail
1F	Halberd	20	Lt. Crossbow
21	Leather + 1	22	Chain Mail +1
23	Scale Mail + 1	24	Plate Mail + 1
25	Silver Mail	26	Target + 1
27	Heater + 1	28	Crested Shield
29	Brass Sallet	2A	Iron Gloves
2B	Bracers	2C	Long Sword + 2
2D	Robinsword	2E	Sword of Fire
2F	Master Katana	30	Soulstealer
31	Battle Axe + 2	32	Axe of Death
33	Sacred Basher	34	Faust Halberd
35	Silver Hammer	36	Mages Yew Bow
37	Hv. Crossbow	38	Leather + 2
39	Chain Mail + 2	3A	Scale Mail + 2
3B	Plate Mail + 2	3C	Scarlet Robes
3D	Emerald Robes	3E	Heater + 2
3F	Bacinet	40	Cone of Fire
41	Silver Gloves	42	Bracers + 1
43	Long Sword + 3	44	Plate Mail + 3
45	Shield Pro Magi	46	Jeweled Armet
47	Wizard's Cap	48	Gloves of Myrdall
49	Cloak of Capricorn	4A	Sylvan Bow
4B	Muramasa Katana	4C	Odinsword
4D	Gold Plate + 5	4E	Ring of Frozz
4F	Ring of Skulls	50	Ring of Madi
51	Ring of Jade	52	Ring of Solitude
53	Ankh of Wonder	54	Ankh of Power
55	Ankh of Life	56	Ankh of Intellect
57	Ankh of Sanctity	58	Ankh of Youth
59	Staff of Summoning	5A	Staff of Death
5B	Scroll of Katino	5C	Scroll of Stoning
5D	Scroll of Fire	5E	Scroll of Conjuring
5F	Potion of Dios	60	Potion of Charming
61	Potion of Latumofis	62	Potion of Dialko
63	Potion of Wounding	64	Potion of Madi
65	King of Diamonds	66	Queen of Hearts
67	Jack of Spades	68	Ace of Clubs
69	Munke Wand	6A	Lightning Rod
6B	Lark in a Cage	6C	Staff of Water
6D	Staff of Fire	6E	Staff of Air
6F	Staff of Earth	70	Potion of Demon-Out
71	Gold Medallion	72	Ice Key
73	Ticket Stubs	74	Tickets
75	Skeleton Key	76	Pocket Watch
77	Battery	78	Petrified Demon
79	Gold Key	7A	Blue Candle
7B	Jeweled Sceptre	7C	Potion of Spirit-Away
7D	Hacksaw	7E	Bottle of Rum
7F	Silver Key	80	Bag of Tokens
81	Brass Key	82	Orb of Llylgamen
83	Heart of Abriel	84	Holy Talisman
85	Amulet of Rainbows	86	Amulet of Screens
87	Amulet of Flames		

Troy Helphrey — LA

I hope that this helps the most informative APPLE magazine ever. Like most people I saw the ads in the other magazines and thought that it might be interesting but, never got around to subscibing. That is until I saw a friend's back issues and saw how much information that there is in every issue of your magazine. I have just recently gotten a slow slow slow 300 baud modem with the hope of upgrading soon. I am very pleased to hear that you are going to start up a bulletin board. Here in Baton Rouge, like most other large cities there are dozens of bulletin boards. Most of these are run by high school students who have nothing better to do and have substantial capital. I have yet to find a BBS that has any APPLE II programs to download. I can't wait until you get yours up and running. Is there any way to put it on a 1-800 line as I like most people can not afford to be spending lots of money on long distance telephone calls (especially at 300 baud).

? I have looked through almost every back issue of a friend's trying to find a softkey for King's Quest I. I have one of the original versions and none of the softkeys for I, II, or III have worked on mine. Does anyone have a softkey for the ORIGINAL version. I also need a softkey for ULTIMA III. I tried the one in issue no.11 page 27, using the suggestion in issue no.14 page 5 of skipping steps 9,10,and 11. It works fine until you try to BSAVE RWTS.EXODUS,A$2400,L$C00 while still in the monitor. All I get is a BEEP and nothing happens. Without the RWTS saved on a disk I can't use the controller listed. Am I doing something wrong or did I miss something? I have also tried all of the softkeys for Wizardry I and II without success. These were for the same date as was listed on my disks but still did not work. Please help as my originals are getting very worn.

I hope that you can get another chance to make a complete index of all the back issues again. It would save a lot of time thumbing through old issues. I have thought about doing it myself this summer (after the fall semester ends at LSU, GO TIGERS). The only issues that I don't have access to are 1-5,7,9. I can either use your old index for these issues or order them as back issues, which I intend to do sooner or later. If I do get around to doing this index I will be sure to send you a copy of it so that it can be printed to help everyone else.

? I am also very interested in any articles about putting games onto hard disks as I plan to get one very soon. Is it possible to put multi-disk access games such as ULTIMA or WIZARDRY onto a hard disk. I realize this would entail a lot of code changing to make it look for a file instead of a track and sector on a disk but it should be able to be done, shouldn't it?

? I am hopefully going to take advantage of your article in issue no.38 page 10 on making an enhanced/unenhanced IIe. Has anyone found any problems in the procedure or any additional suggestions to add to it. This is also the only place I have been able to find anything on how to boot from drive 2. The local APPLE dealers tech. said it was impossible.

Would it be possible to print a voluntary address and phone directory of all your subscribers? We could call others in our area to possibly get help and maybe start local COMPUTIST CLUBS.

If anyone can help, please write me at:

P.O. Box 17132
Baton Rouge, LA 70893

Sven Swanson — MN

Softkey for...

Microzine 14

Scholastic

Requirements:
4 blank disks
COPYA
A file copier

B. Dudley Brett did the actual cracking of the program in Computist #47. I just added a few things to make the disk fully DOS 3.3 compatible.

1. Use DOS 3.3 to initialize two disks with the file name HELLO, then delete HELLO on both disks. Label these disks Disk A and Disk B.

2. Next run a nifty little program called FreeUp on Disk B. The listing is at the end of this article.

3. Boot a DOS 3.3 disk and tell DOS to ignore end marks.
POKE 47426,24
RUN COPYA

4. Write protect the original Microzine 14 and copy it to two disks. Label these disks Disk 1 and Disk 2. Put away the original Microzine 14.

5. Using your file copier copy all the files from Disk 1 to Disk A. We're now done with Disk A and Disk 1.

6 Use your file copier again to copy all the files from Disk 2 to Disk B except CONTENTS, BASE.SPC, PUZZLER.SPC, and PRECAR.SPC. We're now done with Disk 2.

7 Boot Disk B. Rename some files.
RENAME BASE,BASE.SPC
RENAME PUZZLER,PUZZLER.SPC
RENAME PRECAR,PRECAR.SPC

8. Load BASE.SPC and make a change.
LOAD BASE.SPC
226 TEXT:HOME:PRINT "PLEASE TURN DISK OVER":GET SV$:PRINT: PRINT CHR$(4)"RUN CONTENTS"
SAVE BASE.SPC

9. Load PUZZLER.SPC and make a change.
LOAD PUZZLER.SPC
130 POKE -16368,0:IF X=155 THEN TEXT:HOME:PRINT "PLEASE TURN THE DISK OVER":GET SV$:PRINT:PRINT CHR$(4)"RUN CONTENTS"
SAVE PUZZLER.SPC

10. Load PRECAR.SPC and make some changes.
LOAD PRECAR.SPC
69 TEXT:HOME:PRINT "PLEASE TURN THE DISK OVER":GET SV$:PRINT: PRINT CHR$(4)"RUN CONTENTS"
SAVE PRECAR.SPC

11. Type in a short HELLO program.
NEW
10 TEXT:HOME:PRINT "PLEASE TURN THE DISK OVER":GET SV$:PRINT: PRINT CHR$(4)"RUN HELLO"
SAVE HELLO

You now have a fully functional version of Microzine 14. Side 2 of the original had a shortened DOS and the files used every available sector. To get a completely workable copy I had to take out the flashy title pages on side 2. I also had to leave out the program called CONTENTS on side 2 for extra space. Since CONTENTS is no longer on side 2, we have to turn the disk over more often.

FREEUP to 11 sectors

It is a short program that you may want to add to your collection of utilities. It adds eleven sectors of space to a standard DOS 3.3 disk by freeing up the unused sectors of DOS 3.3.

FREEUP

```
10 LOMEM: 3200
20 FOR I = 768 TO 796:READ S: POKE I,S: NEXT I
30 DATA 0169,3,160,8,32,217,3,96,1,96,1,0,0,0,
   25,3,0,16,0,0,1,0,0,96,1,0,1,239,216
40 TEXT : HOME : PRINT "PLEASE0INSERT0THE0
   DISK0WHICH0SPACE0IS0TO0BE0ADDED0TO" : PRINT
   "PRESS0RETURN0TO0UPDATE" : INPUT A$
50 POKE 785,14: POKE 780,17: POKE 781,0: POKE
   788,1: CALL 768
60 IF PEEK (3648) < > 0 OR PEEK (3649) < > 0
```

```
   THEN PRINT "UNSUCCESSFUL-CHECK◊DISK" : END
70 POKE 3648,255: POKE 3649,224
80 PRINT "SUCCESSFUL"
90 PRINT "DO◊YOU◊WANT◊TO◊RUN◊IT◊AGAIN◊(Y/N)" :
   GET A$: PRINT A$: IF A$ < > "N" AND A$ < >
   "Y" THEN 90
95 IF A$ = "N" THEN END
100 GOTO 20
```

Checksums

10-$09F6	50-$C8ED	90-$21AE
20-$A303	60-$1CF5	95-$CDC1
30-$88B1	70-$E3EC	100-$2BD2
40-$022C	80-$277F	

Print Your Own Graph Paper

Now for all you adventurers. Here's a short program to allow you to print your own graph paper. It can be used to print both square and hexagonal graph paper. You may ask "What do you use hexagonal graph paper for?" Well, in Dungeons & Dragons you can use it to map wilderness terrain. The square graph paper is commonly used to map dungeons.

GRAPH PAPER

```
0 REM THE VARIABLE A IS THE GRID TYPE
1 REM THE VARIABLE P IS THE # OF PAGES
2 REM LINES 76-77 PRINT TOP LINE
3 REM IN LINE 78 THE VALUE AFTER TO IS THE
   NUMBER OF LINES TO PRINT
4 REM THE VARIABLE X IS THE WIDTH TO PRINT
10 HOME : PRINT : PRINT "WHAT◊TYPE◊OF◊GRID◊
   DESIGN◊DO◊YOU◊WANT"
20 PRINT : PRINT : PRINT
30 PRINT : PRINT "1◊HEXAGONAL"
40 PRINT : PRINT "2◊SQUARE"
50 PRINT "WHAT◊IS◊YOUR◊CHOICE" : INPUT A
51 IF A < 1 OR A > 2 THEN 50
55 PRINT "HOW◊MANY◊PAGES◊DO◊YOU◊WANT◊TO◊PRINT"
   : INPUT P
56 IF P < 1 THEN 55
60 IF A = 2 THEN A$ = "|_" :X = 38
70 IF A = 1 THEN A$ = "/◊\_" :X = 19
71 HOME : PRINT "PLEASE◊MAKE◊SURE◊YOUR◊
   PRINTER◊IS◊ON" : VTAB 20: PRINT "PRESS◊ANY◊
   KEY◊TO◊CONTINUE" : GET D$
72 PR# 1
74 FOR K = 1 TO P
75 IF K > 1 THEN PR# 0: HOME : VTAB 12: PRINT
   "PLEASE◊LINE◊FEED◊YOUR◊PAPER◊TO◊THE◊TOP◊OF◊
   THE◊FORM" : PRINT : PRINT "PRESS◊ANY◊KEY◊
   TO◊CONTINUE" : GET D$: PR# 1
76 IF A = 2 THEN FOR L = 1 TO 38: PRINT "◊_"
   ;: NEXT L: PRINT
77 IF A = 1 THEN FOR L = 1 TO 19: PRINT "◊_◊◊"
   ;: NEXT L: PRINT
78 FOR J = 1 TO 56
80 FOR I = 1 TO X
85 IF A = 2 THEN 94
90 IF J / 2 = INT (J / 2) THEN PRINT "\_/◊" ;:
   GOTO 96
91 IF I / 2 < > INT (I / 2) THEN PRINT A$;:
   GOTO 96
94 PRINT A$;: IF I = X AND A = 2 THEN PRINT
   "|" ;
96 NEXT I: PRINT
110 NEXT J
115 NEXT K
120 PR# 0
130 PRINT "DO◊YOU◊WANT◊TO◊RUN◊THIS◊AGAIN(Y/N)"
   : GET Z$: IF Z$ = "N" THEN END
140 GOTO 10
```

Checksums

0-$92CC	55-$7392	80-$E364
1-$DB99	56-$95DB	85-$E311
2-$9F59	60-$4289	90-$C6A3
3-$7A8F	70-$E4ED	91-$47FE
4-$C15F	71-$3C37	94-$32EF
10-$EA14	72-$20B9	96-$3FBE
20-$CC97	74-$3746	110-$57A1
30-$3799	75-$D97A	115-$38F7
40-$D58A	76-$3910	120-$8D99
50-$0B5B	77-$6472	130-$E51D
51-$ACE0	78-$337A	140-$78DD

Jan Recourt — The Netherlands

? I cannot finish MOEBIUS, what must I do to complete it. I have everything, I am in the realm of fire but cannot get the good monk. I see him but when I try to get him he disappears.

? I am unable to pass the 6th level of Myraglen Tower. What do I have to do when I am at the stairs to the 7th level?

I will be very greatful for any solutions.

I thank Zorro for his answer about Ultima on a 3.5" diskette. I think the problem is too big for me.

Michel "J" Roy — Canada

Advanced Playing Technique for...

Pool of Radiance

Strategic Simulations Inc.

This game is not copy protected except for a translation wheel and has a built-in utility for copying itself as well. The rules are almost identical to the fantasy role playing game on which it is based.

The use of the translation wheel is necessary throughout the course of the adventure and it isn't too difficult unless your color monitor has poor resolution (like mine). Once you've made copies of the four double-sided discs and write protected them, you must endure a senseless and tedious series of disc swaps (one of the only two faults I found with this product). Finally you will be guided through the creation of a save game disc. Here is where you can get creative.

Make at least one extra copy of your save game disc. Designate one of these copies as a scrap disc. Whenever you find a useful and/or unique item (such as that +3 platemail or the +5 longsword) you can replicate it endlessly by:

1. Save Current Game to your normal save game disc.
2. Remove all the characters from the party (this saves the characters on an individual basis to your normal save game disc).
3. Load Saved Game.
4. View the character with the item.
5. Trade it to the next character or whomever.
6. Replace your normal save game disc with your scrap disk.
7. Remove the character who no longer has the item from the party.
8. Replace your scrap disc with your normal save game disc.
9. Add the newly removed character to the party.
10. Repeat steps 4-9 as often as you like, but when you get tired remember to Save Current Game. You might want to save all the characters on an individual basis as well. You can sell extra items to finance your training.

All this must be done from the Party Creation Menu, which is available only at the start of every game session, or from the Training Menu (my favorite), available at any time during the game session at the Guild.

If you find yourself chafing at your lot in life, you can try instant karmic relief with a sector editor. My copy of this game's save game disc had some interesting info at track 2, sectors 3-A. These sectors seem to contain the Current Saved Game character data.

Byte(s)	Effect(s)
00-0F	Name
14	Strength
15	Intelligence
16	Wisdom
17	Dexterity
18	Constitution
19	Charisma
1A	Exceptional Strength
20-34	Magic Spells
72	Race
74	Age
A0	Highest Level
C3,C4	Platinum pieces
C9	Mage Level
CA	Cleric Level
CB	Thief Level
CC	Fighter Level

The most reliable way I found to boost a character's hit points was to reduce their level(s) by one, and run them through training repeatedly.

The second fault I found with this product was: while travelling in the wilderness the game suffered a fatal crash every time I selected Area as my point of view.

On a scale of 1 to 10, I rate this game 3 for difficulty, and 6 for just plain fun.

Toshikazu Yamamoto — Japan

Unlock Lode Runner 150 Boards

Requirements:
Starter Kit
A blank disk
The controller from COMPUTIST #28, p27
A sector editor

1. Boot your starter kit disk. When the drive stops, press ctrl-Reset and insert the blank disk.

```
FP
INIT HELLO
DELETE HELLO
```

2. Transfer the game board to the above INITed disk using Super IOB with the controller from Computist #28.

Steve Marvin's revised softkey, originally developed by Tom Phelps in Computist #22, page 11-12, moves game boards found on tracks $03-$0C of the original to the same place on your new disk. This "COPYA-ables" the tracks but not unlock the game boards for edit from inside the program's own editor. Either controller moves the boards, however, it's better to work with Marvin's controller if you want to save other programs to the disk along with the LR data. His controller has a feature that automatically corrects the VTOC to show track $03-$0C as used.

3. Run any sector editor (in my case ZAP from Bag of Tricks) and rewrite byte $FF of track $0C, sector $0F from $FF to $00.

Trk	Sct	Byte(s)	From	To
$0C	$0F	$FF	FF	00

That's all. You can now enjoy editing LR boards as you like. You also have free 336 setors for DOS 3.3 files on the disk.

Lode Runner Enthusiasts in Japan

By the way, anyone who knows about a Lode Runner enthusiasts' club in the U.S. to exchange experience and created game boards, let me know.

Toshikazu Yamamoto
#706 Minami-Ikebukuro
Jutaku, 1-13-21
Minami-Ikebukuro
Toshima-Ku, Tokyo 171
Japan

In Japan, several years ago, a "Lode Runner Fan Club" was organized by a Broderbund's associate Systemsoft Corporation. (2-4-8 Watanabe-Dori, Chuo-Ku, Fukuoka City 810, Japan) Systemsoft is a Japanese software company which distributed licenced LR game disks for Japanese computers. The fan club had released a news letter titled "Lode Runner Fan Club News" from #1 to #3 which are full of contributed game board ideas from their 1,000 members, however, the club is inactive for long. Besides archived those news letters, Fan Club's precious legacy is a 142 page book "Rode Runner Fan Book" sold for 8$ by Systemsoft and illustrates 51 selected new LR boards for your own key-in. Some of the boards are for Apple II and the most is for Japanese computers, but the slightest change will make all of them work on your Apple II. And more, the Fan Book created the concept of 'checkmate Lode Runner board' which is a small LR game board without enemies but with a gold or golds hanging or placed in the complexity of walls to break. Successfully breaking walls and on acquiring gold, the runner can advance to the next checkmate stage through the hidden ladder unless he is left behind the re-emerging wall. For your reference, 'fan' came from English 'fanatic' and means enthusiast in Japan.

Another Japanese LR enthusiasts' aid is an Apple II computer store "Fujionkyo"'s shop manager in Tokyo. He created and sells a fantastic LR data disk "100 Option Boards". (As expensive as 40$, and LOCKed!!) He said, one day he found a secret to lock LR game boards of his own creation, which brought him the idea to make a collection of selected hardest boards.

There is another tip. A small book titled "Super Lode Runner" which illustrates 70 new boards in color. The book has no relationship with 'Championship Lode Runner' but licenced by Broderbund. The nature of the book is a kind of hint book for Japan's Nintendo family computer (Famicon - we call it. But Famicon may be sold in the U.S. by another name) software of the same name. A book for kids though, it will give you a plenty of 'hints' to create your own pictures. (The booklet is published from Tokuma Shoten 4-10-1 Shinbashi, Minato-Ku, Tokyo 105 Japan)

Disk Muncher Versions

David Hopkins's Computist Super Index which I acquired through the ad on Computist #57 is a real fun. It really increased the value of my Computist magazine back issue collection through #1 to #65 (actually several early versions are missing though). Whenever you want to review related articles on a specific software or topic, the Index is a great help! And sometimes it makes possible to find a small but amusing articles buried between lines.

One of my recent finding of this kind on the Computist back issue is a question by Tim Stahmer about Disk Muncher publisher. (Computist #22 page 4, the first column) Editor answered he also has no idea about the publisher. It's a mystery. And the second mystery is 'Complete' Super Index looks to have missed listing this interesting article. Anyhow, when I visited Seoul this January, I saw the latest version (I believe) of Disk Muncher. On the boot, it is marked version 8.0. But the program wasn't for sale itself and as usual a file consists of some 20 sectors within an integrated 'copy-tool'. Over there, this quick copy program is popular at the great concentration of small computer shops on the 4th floor of Seun Electric and Electronics Market which is a exciting place to stroll around for a day peeping into small workshop busy in soldering dear old 64k (switchable to 48k) Apple II+ compatible logic boards and popular peripheral cards such as Disk II type controller, CP/M, auto 80 column for II+ (How does it work?), 128k RAM, NMI card, stereo music board and etc. Disk Munchers are used in the small Apple II software copy shops (There are Apple II shops and IBM PC shops separately. Such copy shops are illegal in the U.S. and of course in Japan also) to do their easy and instant job copying AppleWorks Version 2.0 and Ultima V for 5$.

I've never acquired a copy or a copied copy of commercial softwares. Just lookin' around is fun, but I've seen many versions of Disk Muncher in Seoul for these 2-3 years. The following is the list of versions and their respective features which I've known of.

Disk Muncher versions

Vers	Sec	Cat1	Cat2	Cpy	MaxTr	View	Boot	Edit	TrCpy	Parm	Date
1.0	18	+	+	+	$22		+				07/83
1.1	19	+	+	+	$22		+				08/83
3.3	26	+	+	+	$22				+		12/83
5.0	22	+	+	+	$27	+	+			+	10/84
Plus	22	+	+	+	$27	+	+			+	07/85
6.0	21	+	+	+	$22					+	
6.1	22	+	+	+	$27	+	+			+	03/86
8.0	25	+	+	+	$22		+	+		+	

Legend: Vers -version #, Sec -number of sectors, Cat1 -catalog drive 1 and show disk map, Cat2 -catalog drive 2 and show disk map, Cpy -disk copy 1-2/2-1, MaxTr -maximum copyable track #, View -view track dump, Boot -boot another disk on exit or reboot the disk. (When 'VERIFY BOOT' letter appears on the screen, key in 'Y' simply reboots the disk. Use of this feature may to verify copied disk if it simply boots), Edit -sector edit, TrCpy -partial track copy, Parm -parameters changeable such as start/end track, half track, VOTC location, headers etc, Date -month and year written in the title screen, + -feature equipped, Blank -feature not equipped

? Would someone be inclined to patch and supplement the list and do a further investigation about the origin of Disk Muncher breaking into the Munching Dungeon and wish no return? Or have an encounter with newer version and finally get to the real publisher? I'll join.

Apple II Shops in Tokyo

In Tokyo, in 1984, about 20 independent Apple II shops deal in Apple computers, peripheral hardwares and of course imported softwares. At the time, Apple IIc was sold for 2,300$. A package price for IIe with a Disk II drive and Apple color monitor was 3,400$. Softwares were also expensive. Locksmith V5.0 230$, Bag of Tricks 100$, CIA 115$ and 50-100$ for the most of Apple II games. But there were surely certain number of Apple II enthusiasts of Japanese nationality and some of them still survive, I believe.

However, in 1989, as far as I know, only 2 shops (Fujionkyo and Oak Village) sell newly released softwares for Apple II/+/e/c/GS. No IIc+ nor 128k IIe are imported now. Nor Laser 128s. Most of 20 Apple shops were eventually closed. When they close the shops, they used to offer good bargain for a bargain hunter like me. Softwares are sold for 10$ a package. Some of Apple II shops were converted to Mac shops like Ike Shop, ADO Electronics and Media Sales Japan (Media Sales Japan sells Computist magazine), and looks successful for the moment, but be careful! Japanese are diversified.

Junk shops and second hand computer shops in Akihabara (the largest electric and elsctronics market in Tokyo) are sometimes gold mine for Apple II hardware hunters. My recent buy were used pair of Apple genuine Disk II drives for 150$, Apple IIe mouse 40$ (with card) and a brand new fully socketed II+ compatible board (with full of chips) for 30$. 80 column, disk controller, CP/M and 128k RAM (without RAM chips but sometimes with) cards are sold for 10$ each, but you don't need tens of them. Unused Taiwan made Apple II+ clone was sold for 80$ last week. My regret is missing a chance to buy a used C-VIEW for my IIc for 100$ and a real Apple II (with power supply broken and two three keys were missing from keyboard but with full slot of cards) for 25$.

Ringo Club - Apple II Users Group in Tokyo

Why are Apple II computers so quickly losing once a firm ground here in Japan? One of the reasons may be expensiveness of imported items as I mentioned above (Japanese government's policy?). But the recent models of popular Japanese computers like NEC 8801s or 9801s (not IBM PC compatible) are sold for students here between 1,000$ and 3,000$ and they can pay for them. Why can't they buy Apple IIc+ or Laser 128s for 400-600$ instead of paying thousands of dollars for NECs if Apple IIs and compatibles are imported more and properly priced here? I personally joined the Apple II world for the first time in 1986 to play chess games with computer acquiring second hand unenhanced IIe with two Disk II drives. Speaking of hardware, Japanese computers do more in handling Japanese contexts and equipped more with built in peripherals like recent Laser 128EX/2 than my Apple IIe, though, Apple II's software world is far more affluent with gems and treasures as compared to second crop Japanese softwaredom.

Glenn Barbee, former president of Ringo Club (Tokyo Apple II Users Group. Ringo means apple in Japanese) says in his 'Information about Ringo Club' that 'The Apple II has been a "bread and butter" product for Apple Computer Company in the past 10 years, and it remains so today with the staying power of the IIe, IIc and with the introduction and acceptance of IIGS. We should mention there are still some Apple II+ computers around, and even with technology of 1977 vintage, they are still work horses and are used by many people every day. Unfortunately, Apple (Japan) has forsaken the Apple II family and has almost forgotten they exist.' He continues 'We try to correct this flawed conception within Ringo Club'.

Thus, Ringo Club was established in Tokyo several years ago with the initiative of American gentlemen who worked here. The membership was once a high of around 90 and the current member is about 30 including some Japanese who speak good English. They have a meeting attended by 10-15 people each month at a comfortable meeting room of the Tokyo Metropolitan Festival Hall which is known as a world famous classical music hall. Their meetings are none of formal, just friendly. Members just come on time and be able to make presentation as they like or listen to others presenting and chatting each other exchanging experiences. Topics there seem somewhat far from copying unCOPYAbles but temporarily concentrated on AppleWorks and RingoNet communication technology.

Speaking of AppleWorks, Mr.Barbee is also the Regional Representative in Japan for TAWUG (The AppleWorks User Group in Denver) and he provides public domain TAWUG AppleWorks files for the cost of disk to the club member.

Ringo club also reorganizing club's library of public domain softwares and will soon have a listing available. RingoNet is their own BBS which started in December, 1987. The BBS is available 24 hours a day every day to Ringo members, however, generous access opportunity is offered to non-members. (If interested, write to Glenn Barbee 1-17-22 Higashigaoka, Meguro-ku, Tokyo 152 Japan)

Japanese Born Apple II Games

You may know or don't know that PAC-MAN, SPACE INVADERS and GALAXIAN were Japanese game software trilogy of the era from late '70s to early '80s, good old days of Apple II and Apple II+.

Douglas G. Carlston, Broderbund's president, wrote in his 'Software People' (Simon & Schuster,1985) about these facts. "The breakthrough of Japanese arcade games into the international market came in 1978, with Space Invaders, ... after they brought out Space Invaders, they brought out Galaxians which had even more variations on the 'shoot the invaders' theme, and then Pac-Man, which created the 'munch-'em-up' genre".

The word 'pac' came from an Japanese onomatopoeia 'pacpac' which means to repeatedly wide open and close mouth and used adverbially such as 'to eat pacpac'.

When Apple II version of Space Invaders was born, it was black and white game with only one stage. In Japan, later version of Space Invaders for Japanese computers was developed into a colored multiple stage game. But now, the game is a history. But Pac-Man for Apple II came out from Atarisoft seems still on the U.S. mail order market (A+ April 1989, page 78 ad.)

Soko Ban

Soko Ban - a Japanese classic but still popular computer game from the casset tape age showed up recently in the U.S. for Apple IIe and GS from Sphere,Inc. Soko Ban is a multiple stage puzzle game which means warehouse keeper. You, as a warehouse keeper, have to put in order scattered boxes all over the floor of a warehouse into an assigned small space in the corner. When done, you advance to the next more complicated stage.

You can only push boxes forward or horizontally, never can pull them behind nor can get back to your previous moves. You have to think the most suitable order to push boxes, however, it's not all simple. You don't need to have any rapid reflection nerves system, but cool head. However, 'non get back policy' of the game forced you to re-start a stage from the beginning even if you push a box by mistake and this happens often when you have auto repeat keys. You can re-start from any stage though, this rather strict (rather stoic) policy which was established by the programmer of the game Hiroyuki Imabayashi was often irritating and time consuming and the most of Japanese Soko Ban enthusiasts thought this point as defective.

The casset tape version of the game was first released in Japan in 1982 with 20 stages and most recently, improved to 150 stage Nintendo Family Computer version with error correction option which allows you unlimited retroactive movement. You can also create your own stages using built in Lode Runner type editor, but less complicated. I regret that I've not yet seen Apple II version of the game, but I hope it is fully equipped with the state of art utilities.

Japanese Apple II Softwares (Domestic Circulation)

1. ASSIST 16 V1.0 (Canon) DOS 3.3 Japanese language word processor exclusively for IIc use. Not copy protected.

2. BIO-GRAPH Ver.2.0 (Pineapple 6502) To compute biorhythm, the first commercial computer program was developed. The programmer of Bio-Graph well knows about this, but his enthusiasm for the fatalism finally led him to create his own version of proDOS based biorhythm program for Apple IIe/c using up almost 2/3 of the blocks of a 5.25 disk. However, Bio-graph version 2.0 offers no complexity to the users. Once you save your birthday file (you can also create your family or friends' birthday files) on the disk using built in birthday manipulator, thereafter, main program will instantly shows you your biorhythm chart on the screen or to the printer anytime upon request. Not copy protected.

3. MIYAKO-BALL (Pineapple 6502) Original pinball boards for 64k Apple II created by Akiji Miyaura using Bill Budge's Pinball Construction Set (Electronic Art). You can select one from 3 pinball machines, namely, MIYAKO-BALL, TAO SHOCK! and DOCTOR GOTTLIEB.

4. GO! GO! GO! (Pineapple 6502) The second volume of MIYAKO-BALL includes three original pinball boards created by Akiji Miyaura - OCARINAN LOVE, OPUS 5 and ANCIENT ACE.

Miyako-Ball and Go! Go! Go! - two pinball game disks which are well designed with fantastic title screens and selectable imaginative pinball machines; not copy protected - will present to computer pinball game lovers in the States a Japanese dexterity on the use of Bill Budge's classical electronics tool to construct original pinball boards. Totally 6 boards are there with oriental mixture of fantastic color and with exotic names and unique designs. Good collection items. Pineapple 6502 may still have storage of discounted pieces for about 10$ each. (Pineapple's address is at the back of Computist #23 and they are still there as of May 1989)

5. WIZ-EDIT (Pineapple 6502) Wiz-Edit by Y.Sato strengthens your Wizardry characters as other character editors do. You can also print out your characters' names and attributes. Special feature of this program is the ITEM MOVER option which moves any items (including SPECIAL ones) between scenario #1-2-3.

6. RAMLOCK (Art Gallery) Ramlock transfers Locksmith 5.0 program to two 16k RAM cards in any slot. If you have one 16k RAM card, Locksmith program is partly transferred. Saturn 64k or 128k RAM card can be used. The disk is copy protected using synchronized half spiral tracks and bitslip protection.

7. SHOUGI (Art Gallery) Japanese chess-type game. It moves but no more than that.

8. LOCK'N ROLL Version 1.2 (Art Gallery) Bit copier which can copy half and quarter tracks down to track $23. So far, nothing special. A bonus program on the flip side seems more useful. A sector copy program titled 'YOS COPY 1.1' copies track to track, sector to sector down to track $23. You can even change the values of address and data field headers and trailers when you read and write. You can transfer this 17 sectored binary program file to your DOS 3.3 utility disk. (Art Gallery's ad with their address is on the Computist #23 page 31)

9. SOKO BAN - Phantom Version (Thinking Rabbit) This 130 stage Apple II version of Soko Ban (warehouse keeper) game was prepared for export to the States by Thinking Rabbit Japan which is the distributor of Soko Ban for Japanese computers. But unknown reason (Japan bashing? But this game is for pushing) stopped the plan and the program went to the warehouse. This phantom version may differ from Sphere's Soko Ban to some extent.

Korean Apple II Softwares

1. URI-KUR Version 1.0 (Apuroman) A korean language word processor which was released in 1987. 64k memory and at least one disk drive is required. Compatible with Epson, Star and PT-80T printers. Not copy protected.

2. LODE RUNNER (Apuroman) I have no idea whether this hard box packaged and department store sold product is properly licenced or not by Broderbund U.S.A. and Systemsoft Japan. But at least, I believe, you have the right to know about what exist in the world. The system of the game is dear old Lode Runner itself, however, after the boot in your normal way, you'll be prompted to key in password. At this point, press SPACE BAR four times, then familiar Lode Runner logo appears on the screen. The game has only 51 picture boards which came from Systemsoft's "Lode Runner Fan Club" book. The disk is not copy protected and the boards are not locked.

Edward M. Moore — AK

Softkey for...

The King of Chicago

Cinemaware

King of Chicago, a product by Cinemaware, is a revolutionary new gaming system. It is programed in GS/OS and requires 768K. If you just copy the disk, it will appear to work, but will crash a little ways into the program.

First of all, Copy the disk with any normal disk copier (I used Copy][+). Then make the following edits to the copy of Reel 1:

Blk	Byte(s)	From	To
$0573	$129	A9 20 00	EA EA EA
$0573	$147	A9 21 00	EA EA EA

Now you have a deprotected copy. Enjoy!
Thanks for the general copy protection article, Brian.

Jim Ross — NH

Softkey for...

Monsters & Make Believe Plus

Pelican Software

Requirements:
Apple IIgs
Original Monsters & Make Believe Plus 5.25" disk
2 blank 5.25" disks
1 blank 3.5" disk (optional)

This program uses ProDOS 8 and is copy protected on one side only. Track 0 has changed epilogs from DE AA to FF FF. The rest of the tracks on side 1 are very strangely formatted. The big gap is filled with non-sync random values. The only sync bytes are between the address and data fields of each sector. The address field begins with multiple D5 AA AB followed by random values. The final D5 AA AB is followed by a field which skips the volume number and then lists track and sector then a repeat of the sector instead of the checksum; and finally FF FF. However, some sectors have FF xx, where xx is random.

The program boots sounding like an unprotected disk, very smooth. Side 2 of the disk is normal format and the program reads this just fine. Borrowing from the information in COMPUTIST #61 softkey for PIRATES, I booted the protected disk and pressed Apple-Control-Esc on my IIGS as soon as the ProDOS 8 copyright screen came up. I then removed the original disk and inserted a disk with COPY II+ UTIL.SYSTEM on it. I then selected QUIT and pressed RETURN and let the boot continue until COPY II+ came up. It was then easy to copy the protected files to a blank formatted disk with normal ProDOS 8 on it.This is a sneaky way of letting COPY II+ use their own modified ProDOS to read the protected files and write them back out unprotected.

1. Format a blank 5.25" disk ProDOS naming it "MONSTER.PROGRAM".
2. Copy UTIL.SYSTEM from Copy II+ to this disk.
3. Format the second 5.25" disk ProDOS naming it "X".
4. Copy a normal ProDOS 8 to this disk (I used the one on Copy II+).
5. Write protect the original disk and boot it.
6. As soon as the ProDOS 8 copyright screen appears, press Apple-Control-Esc. You should now be at the screen that displays "CONTROL PANEL ALTERNATE DISPLAY MODE QUIT" with quit in inverse.
7. Remove the original disk and insert the 5.25" disk named MONSTER.PROGRAM with UTIL.SYSTEM on it.
8. With quit in inverse, press return and the boot will continue and the familiar "DO YOU WANT 80 COLUMNS Y/N" from Copy II+ should appear. Press Y for the Copy II+ Main Menu.
9. Using Copy II+ Copy Files, copy all files except ProDOS to your second 5.25" disk named "X".
10. Rename "X" to MONSTER.PROGRAM.
11. Copy side 2 normally.

You're done. Enjoy.

If you want this on 3.5" disk:

A. Format a blank 3.5" disk ProDOS and name it "X".

B. Copy files from side 2 of original 5.25" disk to this disk. The side 2 files must be first in the directory or the 3.5" disk won't work.

C. Copy a normal ProDOS 8 to this disk.

D. Using steps 5 thru 9 above, copy the protected files except for ProDOS and ZINFOZ to this disk. ZINFOZ is a file of zeros which appears on both sides of the original 5.25" disk.

E. Rename "X" to MONSTER.PROGRAM.

Softkey for...

The Children's Writing & Publishing Center

The Learning Company

Requirements:
Apple IIgs
Copy II+
Original 3.5 disk
Blank 3.5 disk

A copy disk w/format copy from Copy II+ would fail to a screen of "DISK ERROR". Using Copy II+ sector editor, I found this twice on the disk. From "Beneath Apple ProDOS" Chapter 4, I determined these were in BIN file "RDOS.SYSTEM" which loads at $2000, and BIN file "STARTUP" which loads at $1040.

Booting my copy, I found that I could use Visit Monitor from CDA's after it failed to "DISK ERROR". Using Pattern Search from within the Monitor, I found text "DISK ERROR" at $12A0.This was in "STARTUP". I backed up from $12A0 to the first 60 (RTS) at $128F. I then entered the next location, 1290G and I got "DISK ERROR". I booted the copy again, got into the Monitor, put in the original disk, and entered 1040G. The program ran, so I knew I had the file with the checks in it.

Just above $1290 (which outputs "DISK ERROR" to the screen), I found:

```
00/128C:  60        RTS
00/128D:  B0 01     BCS  1290 {+01}
00/128F:  60        RTS
00/1290:  20 1C 17  JSR  171C
```

I put in my copy disk, entered 128D:EA EA (this NOPed the BCS), and entered 1040G. My copy then ran.

It was then a simple matter to use Copy II+ to search for 60 B0 01 60 20 1C 17 , and change B0 01 to EA EA. My copy then booted and ran fine.

1. Copy original using copy disk w/format from the main menu of Copy II+. Ignore read error on block $0007.
2. Using 3.5" sector editor from Copy II+, search for 60 B0 01 60 20 1C 17 and change B0 01 to EA EA

Blk	Byte(s)	From	To
$03DA	$4D-4E	B0 01	EA EA

That's it. Enjoy!

Softkey for...

Tic-Tac-Show

Advanced Ideas

Requirements:
Apple II
Original Tic-Tac-Show 5.25 disk
Blank 5.25 disk
Super IOB 1.5

The disk is protected on tracks $0 to $10 by epilogs for address and data of FF FF and each track is marked in the address field as AA AA (track $0).There is a second catalog for the protected tracks on track $10 as well as a normal catalog on track $11. To deprotect it copy the disk with Copy II+ (copy disk w/format). You will get $10 tracks of track $0 followed by normal tracks $11 to $22. Type in the modifications to the STANDARD CONTROLLER, run SUPER IOB, and select N when asked if you want to format copy.On my IIgs the deprotected copy runs fine except that returning to the game from the change subject option crashes into the MONITOR, but so does the original disk. This appears to be a IIgs compatibility problem.

Lines to change in Standard Controller:

```
1010 TK=0:ST=0:LT=17:CD=WR
1020 T1=TK:GOSUB 490:RESTORE:GOSUB 170:GOSUB
   270
```

```
1060 GOSUB 230:GOSUB 490:TK=T1:ST=0
5000 DATA 255,255,255,255
```

Softkey for...

Math Word Problems

Optimum Resource

This program is put out by the same people as Stickybears, so the break listed in COMPUTIST #51 page #17 and COMPUTIST #26 page #28 will work. Track $02 sector $06 has 60 A2 00 A0 00 and track $02 sector $05 has 01 60 01 00 01 0F 40 04 00 12. The first two bytes after 01 60 01 00 are the track and sector of the encoded sector (track $01, sector $0F), skip the next two bytes, then the memory address in low-high format (address $1200).

Softkey for...

Stickybears Opposites (ProDOS 1.5) Numbers (ProDOS 1.4) Shapes (ProDOS 1.4)

Optimum Resource

Requirements:
Apple II
Original Stickybear disks
Blank 5.25" disks
Sector editor such as Copy II+

All three programs copy with an error on track $07 sector $0F (ProDOS block $03F). Using Gary Verbuch's article in COMPUTIST #61 pages 22 and 23, I entered the MONITOR and searched for 20 00 BF 80. This is the MLI call for Block Read. I then looked at the parameter block to verify it was reading block $03F. For each program, I noted the address of the MLI call and then searched for a JSR to this address. Each JSR was followed by a BNE to a hang address. Changing the BNE (branch not equal) to BRA (branch always) deprotects the programs.

NUMBERS: Search the disk for 20 38 21 D0 03 4C 2E 20 and change the D0 to 80. I found it on track $00 sector $01 at byte $2C. For information; 20 00 BF 80 was at address $2138 and 4C 2E 20 was at address $202E which makes it a JMP to itself(a neat hang).

OPPOSITES: Search the disk for 20 36 21 D0 03 4C 00 00 and change the D0 to 80.Track $00 sector $01 byte $2C.

SHAPES:Search the disk for 20 33 21 D0 03 4C 00 00 and change the D0 to 80. Track $00 sector $01 byte $2C.

Jake Angerman _____ OH

Well, you asked everyone to write, so here's my letter.

I am virulently opposed to the tabloid format. Although a newspaper format may contain more information, it is impossible to store. Issues get mangled in the mail, and the thin paper tears and fades easily. I have been storing my issues using plastic, three-ring "holders" purchased at a local dimestore. The issue slides into the plastic slot which in turn is put into a three-ring binder. Although this little system is nice, it would be nicer if the issues came with holes already punched in them (like Tom Weirshaar's magazine, A2-Central, does).

Please don't axe the "Back Issue" section. Many readers use this section to find softkeys and articles in their back issues. Also, you mentioned that the average reader spends $60 on back issues and library disks. By removing this section, you limit a reader's opportunity to send money to Computist because he doesn't know what to order.

I have a radical idea that I haven't seen discussed yet. Why not publish Computist on disk? That's right, on disk. This would solve all of these printing problems that keep arising. All of the RDEX columns could be presented as text files that would be read by a special text-reader program. Also, all the programs in the issue would already be there on the disk, without the need to key-in all those controllers and Applesoft programs (bye bye, checksums!). Is this economically feasible?

Only if you don't mind paying about $120/year for the 12 disks. And it would have to go out on 3.5" disks so everyone would have to own a 3.5" drive. Also certain graphics would not be viewable on an Apple II screen due to it's lack of real hi-resolution. Printing is still the least expensive way to distribute loads of info. ..... RDEXed

Another thing that should be considered is Computist's advertising. It has been mentioned that the ads aren't working. When you look at the ads, they always begin in a technical manner such as, "Disk Cracking Techniques" or "Join the Underground Apple Info Net." You must keep in mind that many of the readers of the magazines which contain Computist ads are not technically oriented. Many of them may have just purchased their computers and may be a bit overwhelmed by these ads. Also, many Puritans may be immediately turned-off by the idea of "subversive" computer acts such as deprotection. What if the ads read, "Tired of paying for backups? ... Each month, Computist magazine helps you make legitimate archival backups of your software." A more down-to-earth approach would encourage people to take the time to carefully read the entire ad. Another idea would be to limit the number of type styles to make things smoother and easier to read. These changes would encourage more people to subscribe.

Now that my oratory is over, how about a softkey:

Softkey for...

Computer Preparation for the ACT

NAASP

Requirements:
Super IOB
RWTS Worm (COMPUTIST #61, p35)
9 blank initialized disks (17 disk sides, one side will be unused)

Computer Preparation for the ACT is a series of disks designed to hone skills in the ACT's four areas of testing: Mathematics, English, Social Studies, and Science. Each of these areas is covered by 4 disks, and a management disk is included in each package for teachers' evaluations (storing scores, finding percentages, etc), although you only need one of these management disks, not four.

The protection is the same for all of the disks. I used Bag of Tricks' TRAX program to scan the disks and noticed they had a modified DOS. So, I used RWTS WORM written by Jim S. Hart to capture ACT's RWTS for use with Super IOB (I find RWTS Worm to be an excellent program for this purpose). I wrote a little Applesoft program that helps me use RWTS Worm so I don't have to refer back to the article every time I use it. I called the Applesoft program "RWTS WORM" and changed the machine language program to "RWTS WORM.OBJ" so everything would work all right.

Step by step:

1. Boot a normal DOS disk and type-in RWTS WORM.

RWTS WORM

```
10 TEXT : HOME : SPEED= 255:D$ = CHR$ (13) +
   CHR$ (4):Q$ = CHR$ (34): PRINT D$ "MON◊CIO"
15 INVERSE : PRINT "◊RWTS◊WORM◊" ;: NORMAL :
   PRINT "◊◊APPEARED◊IN◊COMPUTIST◊#61" : PRINT
   SPC( 23) "PG◊35.1"
20 PRINT D$ "BLOAD◊RWTS◊WORM.OBJ,A$9500"
25 PRINT : PRINT "DISK'S◊RWTS◊WILL◊RESIDE◊AT◊
   $1900◊AND◊IS◊$800◊IN◊LENGTH:" : PRINT : PRINT
   Q$ "BSAVE◊XXX.RWTS,◊A$1900,◊L$800" Q$
30 VTAB 14: PRINT "INSERT◊DISK◊TO◊CAPTURE◊
   AND◊PRESS◊A◊KEY" : PRINT SPC( 13) "<ESC>◊
   EXITS" ;: GET A$: PRINT A$
35 IF A$ < > CHR$ (27) THEN CALL 38144
40 END
```

Checksums

```
10-$ED5C    25-$D196    40-$021E
15-$7C8A    30-$1070
20-$95E9    35-$367A
```

SAVE RWTS WORM

2. Enter the monitor, type-in RWTS.WORM.OBJ, and save it.

CALL-151

RWTS WORM.OBJ

```
9500: 20 E0 9E A2 00 BD 00 9D   $05E4
9508: 9D 00 6D E8 D0 F7 EE 07   $1E10
9510: 95 EE 0A 95 AD 07 95 C9   $12AF
9518: C0 D0 E8 A2 00 BD 00 C6   $D75D
9520: 9D 00 96 E8 D0 F7 A9 33   $BA6B
9528: 8D F9 96 A9 95 8D FA 96   $8BD6
9530: 4C 00 96 A9 90 8D 0E 08   $F51A
9538: A9 4C 8D 4A 08 A9 4C 8D   $DDB9
9540: 4B 08 A9 95 8D 4C 08 A2   $3F59
9548: 60 4C 01 08 2C E8 C0 A2   $D90B
9550: 00 BD 00 B8 9D 00 19 E8   $A813
9558: D0 F7 EE 53 95 EE 56 95   $5133
9560: AD 53 95 C9 C0 D0 E8 A2   $D5C5
9568: 00 BD 00 6D 9D 00 9D E8   $AF53
9570: D0 F7 EE 6B 95 EE 6E 95   $3267
9578: AD 6E 95 C9 C0 D0 E8 4C   $F97A
9580: BF 9D   $D5F9
```

BSAVE RWTS WORM.OBJ, A$9500, L$82

(See Computist #61 pg 35 for more info on what this program does)

3. Run the program.

RUN

4. Insert any one of the ACT disks at the prompt and press a key. The disk will appear to reboot and the cursor will appear. The ACT's RWTS has been captured.

5. Remove the ACT disk and insert your Super IOB disk. Save ACT's RWTS.

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

6. Reboot your Super IOB disk. Load Super IOB and prepare the SWAP controller.

LOAD SUPER IOB
EXEC SWAP.CON

7. Change line #10010 so it will bload "ACT.RWTS" at $1900.

8. Copy all of the disks, including a Management Disk, using Super IOB. Do not choose to format the target disk when Super IOB asks you.

I suggest you copy a fast-DOS onto the deprotected copies of the ACT disks (the boot program is "HELLO") because the programs use text files to store questions, causing loading time to be VERY slow. Although a fast-DOS may not necessarily speed-up the loading of the text files, it will certainly speed up the loading of the menus.

(?) I need help copying Infocom's new, 128K version of Planetfall. Side two is unprotected, but the boot side is a bugger. It seems to me someone else also wrote-in about Infocom's "Solid Gold" series, but no one replied. Any help, please?

Henry Kornhauser _____ TX

(?) I need some help. I have a IIgs with a 3.5" Laser drive and a 5.25" Laser drive (left over from my old Laser computer). All of my software, both 3.5" and 5.25", old and new work fine (and I have quite a collection), except for the 4.0 Apple IIgs System Disk! A few seconds after the new loader bar screen comes on it crashes. The disk works fine on the dealers machine, so I know its good. — The dealer doesn't seem to know as much now as he did before sale.— Help!

Playing Tip for...

Leisure Suit Larry

Sierra On Line

If you want to avoid those questions that are asked at the start of Leisure suit Larry (which you must get right or the system reboots). Press the option key and the "X" key when the first question is asked.

Mr. Memory Dump _____ NY

Softkey for...

Techno Cop

Epyx/US Gold

I recently got the game Techno-Cop. It isn't a bad game but I noticed two major problems with it. One, it is copy-protected and two, every time you complete a level you have to flip the disk. This can mean flipping the disk more than 20 times in a single game. Well, I removed the copy-protection and I am hoping that someone out there who has some more machine language experience than I do could take care of it so us two drive users could do just that, use two drives. Jim S. Hart and Computist #57 did most of the hard work for me. The protection was almost the same as in The Boulderdash Construction Set. The only thing I had a problem with was finding just where the protection routine resided in memory. I ended up finding that it was at $F700. Here is the cookbook method I used.

1. Use Super COPYA and choose "I" (ignore) when it asks for a letter. (Or POKE 47426,24 and use COPYA.)

2. Copy both sides of the disk.

3. Make the following changes to side A of the disk you just made.

Trk	Sct	Byte(s)	From	To
$00	$0C	$00-$22	A9 00 A2 F0 9A	A9 FC 85 F0 A9
			95 00 E8 D0 FB	EE 85 F1 A9 EE
			A9 0A 85 FC A6	85 F2 A9 FC 85
			2B BD 89 C0 BD	F3 A9 E7 85 F4
			8E C0 A9 80 85	A9 EE 85 F5 A9
			FD C6 FD F0 7A	FC 85 F6 A9 E7
			20 A5 F7 B0 75	85 F7 4C 7A F7

Beneath Apple DOS found?

Also, anyone who wants to save a couple bucks can get a copy of Beneath Apple DOS from Silicon Express for $12.95. Their address is:

Silicon Express
Box 850
Pataskala, Ohio 43062

The book is number 1640105 in their catalog. Thanks for the great magazine and let's all join the CLUB!

(?) In your AD in NIBBLE I always see Vol 1-3 of disk cracking techniques but I have never seen them offered in Computist. What are they?

The Book of Softkeys, volume 1 thru 3, are compilations of the softkeys and other info from the early issues. If you have a complete collection of COMPUTIST you really don't need the books. ..... RDEXed

Softkey for...

Into the Eagle's Nest

Mindscape

This is an improvement to the softkey that Zorro had printed in Computist #66. With his version the softkey wouldn't work if I had copied the disk with COPYA but it would work if I used a Bit Copier. Also, with that version of the softkey the APT from Computist #64 wouldn't work, all it would do was scramble all of the data on the high score screen. With my version (actually I only changed one byte) the APT will work and you can copy the disk using COPYA. Here is the cookbook method including the sector edit by Zorro:

1. Boot your DOS 3.3 system disk.

2.Tell DOS to ignore checksum and epilog errors and use COPYA to copy the disk.

POKE 47426,24
RUN COPYA

3.Make the following sector edits to the copy.

Trk	Sct	Byte(s)	From	To
$00	$08	$63-$65	BD 88 C0	EA EA 60
$00	$07	$C1	$38	$18

That's it! If your version is different, search for C9 AA F0 5C 38 60. That is the $38 (set carry flag) that I changed to $18 (clear carry flag). The only way I found this was through determination and dumb luck. I wanted to be able to use COPYA on it and tried about everything I could think of to do it when I stumbled upon the code. The code looks like it is looking for normal DOS header bytes but I think they threw that in to confuse us.

Well, I am throwing in this paragraph at the last minute. I thought that I might review the game quickly. When you first start playing, it isn't too bad, you are shooting the enemy and trying to rescue prisoners along with trying to save as much stolen property as possible. The main drawback, with the game, is that you tend to lose interest quickly because it is too easy. I used the A.P.T. from Computist #64 to try and spice the game up but the only difference was the rooms that you are in, it was still just as easy. One other drawback I found is, after you have rescued all three of the prisoners and activated all four of the detonators (which can take well over an hour) you leave the castle, I was hoping at least for an explosion, instead the text just said, "Congratulations, you have blown up the castle" and I was returned to the high score board. I doubt that I will ever play the game to the end again because the reward just isn't there.

To the editor: I don't mind the new format one bit. Sure the paper doesn't hold up quite as well but we are getting almost twice the info for the money. I am behind you in any decisions you have to make to keep Computist going. If it means higher prices I guess it's something we'll have to live with but spreading the payments out would help. Computist is too great a magazine to lose. I just wanted to let you know that I am behind you on any decisions that you make.

(?) On the AppleWorks cursor modification, does anybody remember AppleWorks version 1.0? Well that is the version I am stuck with and the modification doesn't work, neither do any of the other enhancements that you can buy. Could anyone help me out.

Fast Load for Master Word

If anyone has Master Word by Load 'N' Go Software, which is a word processor that I found for around $6.00 and is quite handy, I have found that by copying it with a sector editor and then reskewing the disk with Bag of Tricks 2 and a skew factor of 9, you can cut the boot time down from 47 seconds to 28 seconds.

Also, if anyone is interested in talking COMPUTIST and trading info, etc. Please get hold of me through Computist. I am in the Air Force and am stationed in England and the software selections here are very, very poor to say the least.

M.M. McFadden **CA**

Converting SSI's non-RDOS Disks

Requirements:
ProDOS
5.25" disk drive in slot 6
This works for:
Germany 1985
RDF 1985
Baltic 1985
Norway 1985
Reach for the Stars (original version)

Back in COMPUTIST #18, I wrote an article explaining how to quickly duplicate SSI (Strategic Simulations, Inc) games that didn't use the proprietary operating system RDOS. Since all of the games that fell into this category are written by Roger Keating, an Australian wargame author, I called the program "RKCopy."

Unfortunately, the procedure had several difficulties. For one, a nibble copier was still required to copy block 0. For another, the target disk had to be initialized with the game's own "init disk" function. After looking over the code for a while, I determined that it should be possible to rewrite the RWTS to use ProDOS MLI file read commands.

Overview of RKDOS

The disk is formatted as 35 tracks of 10 sectors each, using 4+4 encoding (four bits of each data byte are stored in each 8-bit disk byte. DOS 3.3 and ProDOS use 6+2 encoding, which is more efficient but more difficult to decode). This means there are 350 sectors, or 175 ProDOS blocks, which will easily fit on a 5.25" disk.

The RWTS routines (Read/Write a Track/Sector) occupy three pages (3 * 256 bytes = 768 bytes) from $BD00 to $BFFF. There are no files or high-level routines; just simple block reads. The following memory locations are used:
$00 Page number of buffer start
$01 Page number of buffer end
$03 Command (1 = read, 2 = write)
$04 Track to start reading from
$05 Sector to start reading from
$3D0 RWTS entry point
$3D3 Slot number * 16 (slot 6 = $60 = 96)
$3D4 Drive number (slot 1 = $01 = 1)

So, if you wanted to load a hires picture from track 3, sector 5, into a buffer at $2000 you would just

POKE 0,32 : POKE 1,63 : POKE 3,1 : POKE 4,3 : POKE 5,5 : CALL 976

Note that there is no built-in format command; the format routines are loaded separately during program execution.

How to Convert RKDOS to ProDOS

It's really rather simple: put a routine at $BD00 that will translate the track/sector numbers for RWTS calls to a byte offset within a file, and then perform a ProDOS MLI call. The only hurdle remaining is to copy an image of the disk into a ProDOS file.

About a year ago I came up with the assembly code to replace the RKDOS routines, and proceeded to translate the RKDOS disks, the hard way. I'd load a segment, boot up a disk, BSAVE it, repeat the process three more times, and then combine the segments into a working program. This was too obnoxious to send in to COMPUTIST, so I just set it aside.

Boredom is a terrible thing.

A fairly quick BASIC program, RKXFER, uses RKDOS's own routines to transfer the game to a ProDOS file. The whole process takes less than a minute.

The ProDOS replacement for RKDOS RWTS is called RKLOAD. It supports the ProDOS startup protocol (a way for programs calling SYS files to indicate that a certain file should be used, which is how program selectors like ProSEL run BASIC programs), so you can either run the games with something like ProSel or Davex, or by BLOADing the SYS file and POKEing in the filename (an example of this, called RKEXEC, is listed below).

Limitations of the Process

Because RKDOS uses low-level disk access routines that only consider slot and drive numbers, it will read whatever disk is in the drive. ProDOS, however, gets upset if you start switching disks around. This can create problems if you want to save your games.

To make it possible to switch disks at all, I wrote the routines so that they open and close the file with every disk access. This makes it possible to insert a different disk if the disk volume name and the filename are exactly the same. It also slows down disk access considerably, because ProDOS has to re-open the file with each read (but that's a small price to pay for having it as a standard ProDOS file).

So that COMPUTIST readers wouldn't have to type in all of RKDOS, I wrote a fairly brief (112 byte) assembly routine which automatically boot-traces an RKDOS disk (this is essentially the same routine that appeared back in COMPUTIST #18). You will need this routine only once, in order to get the DOS from one of the RKDOS disks (they're all the same). Because of differences in the boot 0 code (located at $C600 if your 5.25" drive is in slot 6), I had to use different patches for Apple IIgs disk port firmware.

Getting Ready - Step by Step

1. Format a new ProDOS disk. Put ProDOS and BASIC.SYSTEM on it.

2. Enter the monitor, type in the "RKBOOT" hex dump and save it.

RKBOOT

CALL-151

```
2000: 20 84 FE 20 2F FB 20 93   $62D3
2008: FE 20 89 FE A9 00 85 FB   $CA80
2010: 85 FD A9 C6 A0 16 A2 01   $150A
2018: 20 5B 20 A2 38 A0 20 AD   $8796
2020: F8 16 C9 20 F0 09 8E F9   $B2A4
2028: 16 8C FA 16 18 90 06 8E   $CF46
2030: FC 16 8C FD 16 4C 00 16   $5F92
2038: A9 45 8D 8D 08 A9 20 8D   $5B6C
2040: 8E 08 4C 01 08 A9 4C 8D   $CD40
2048: DA 10 A9 57 8D DB 10 A9   $6F60
2050: 20 8D DC 10 4C 00 10 AD   $5BA6
2058: E8 C0 60 85 FC 84 FE A0   $ABB0
2060: 00 B1 FB 91 FD C8 D0 F9   $BFC8
2068: E6 FC E6 FE CA D0 F2 60   $8D81
```

BSAVE RKBOOT, A$2000, L112

3. Unhook the ProDOS I/O routines. We're about to boot the RKDOS disk, and the code that gets loaded will overwrite the I/O routines in BASIC.SYSTEM.

0ctrlP 0ctrlK

Note that this is equivalent to typing ": PR#0 : IN#0" from BASIC. The leading colon is necessary to prevent BASIC.SYSTEM from interpreting it as a ProDOS command.

4. Insert the RKDOS disk into slot 6, drive 1, and run the auto-boot program.

2000G

The disk will whir, and you will be left in the monitor. RKDOS should now reside from $BD00-BFFF.

5. Move RKDOS to a location that won't be overwritten by booting ProDOS.

7D00<BD00.BFFFM

6. Insert the ProDOS disk and boot it. If you're using a disk in slot 6, you would type

6ctrlP

7. From ProDOS, save RKDOS.

BSAVE RKDOS, A$7D00, L768

8. Enter the RKLOAD program and save it.

RKLOAD.SYSTEM

```
2000: 4C 46 20 EE EE 40 00 00   $8310
2008: 00 00 00 00 00 00 00 00   $7390
2010: 00 00 00 00 00 00 00 00   $8310
2018: 00 00 00 00 00 00 00 00   $7390
2020: 00 00 00 00 00 00 00 00   $8310
2028: 00 00 00 00 00 00 00 00   $7390
2030: 00 00 00 00 00 00 00 00   $8310
2038: 00 00 00 00 00 00 00 00   $7390
2040: 00 00 00 00 00 00 A0 00   $93B0
2048: B9 B5 20 99 00 BD C8 D0   $E229
2050: F7 A0 3F B9 06 20 99 A9   $01D2
2058: BD 88 10 F7 A2 17 A9 07   $BD9F
2060: 9D 58 BF CA A9 00 9D 58   $446C
2068: BF CA 10 FA A9 00 8D 58   $F145
2070: BF AD 82 C0 AD 10 C0 8D   $05C9
2078: 00 C0 8D 0C C0 A9 4C 8D   $ABD2
2080: D0 03 A9 00 8D D1 03 A9   $0914
2088: BD 8D D2 03 A9 60 8D D3   $FB5F
2090: 03 A9 01 8D D4 03 A9 BA   $2388
2098: 85 00 A9 BC 85 01 A9 01   $9B9C
20A0: 85 03 A9 00 85 04 A9 06   $1C76
20A8: 85 05 20 D0 03 A9 00 8D   $1A62
20B0: 00 08 4C 00 BA D8 A5 01   $7C9B
20B8: 38 E5 00 90 5F 8D 9F BD   $B313
20C0: EE 9F BD A5 00 8D 9D BD   $C47A
20C8: 18 A5 05 8D A7 BD A9 00   $14FD
20D0: 8D A8 BD A4 04 F0 14 18   $DAEB
20D8: AD A7 BD 69 0A 8D A7 BD   $A803
20E0: AD A8 BD 69 00 8D A8 BD   $F3D9
20E8: 88 D0 EC A5 01 C9 3F F0   $5CCB
20F0: 03 A9 30 2C A9 41 8D 98   $6584
20F8: BD 20 00 BF C8 94 BD B0   $F079
2100: 1D AD 99 BD 8D 9B BD 8D   $FA1A
2108: A5 BD 20 00 BF CE A4 BD   $ADAB
2110: B0 0C A5 03 C9 01 F0 0F   $AC81
2118: C9 02 F0 16 A9 FF 20 DA   $7DDF
2120: FD 20 88 BD 4C 59 FF 20   $84A9
2128: 00 BF CA 9A BD B0 EF 4C   $31F3
2130: 88 BD 20 00 BF CB 9A BD   $9675
2138: B0 E4 4C 88 BD 20 00 BF   $11D5
2140: CC A2 BD A5 01 85 00 18   $2F5E
2148: 60 03 A9 BD 00 00 00 04   $A53C
2150: 00 00 00 00 00 00 00 01   $B47C
2158: 00 02 00 00 00 00 00 00   $74ED
2160: 00 00 00 00 00 00 00 00   $B47D
2168: 00 00 00 00 00 00 00 00   $74ED
2170: 00 00 00 00 00 00 00 00   $B47D
2178: 00 00 00 00 00 00 00 00   $74ED
2180: 00 00 00 00 00 00 00 00   $B47D
2188: 00 00 00 00 00 00 00 00   $74ED
2190: 00 00 00 00 00 00 00 00   $B47D
2198: 00 00 00 00 00 00 EA      $87DB
```

CREATE RKLOAD.SYSTEM, TSYS
BSAVE RKLOAD.SYSTEM, TSYS, A$2000, L415

9. Get into BASIC and type in the two BASIC files, RKXFER and RKEXEC. RKXFER is the program which actually copies the disk into a ProDOS file; RKEXEC is a sample program which will execute the RKLOAD system file. Save them.

RKXFER

```
10 REM RKXFER
100 TEXT : NORMAL : HOME
110 D$ = CHR$ (4): PRINT CHR$ (21)
120 PRINT D$ "BLOADRKDOS,A$7D00"
130 FOR A = 768 TO 806: READ B: POKE A,B: NEXT
140 BS = 0:BE = 1:CMD = 3:TRK = 4:SEC = 5: REM
  LOCATIONS OF BUFFER START, BUFFER END,
  COMMAND, TRACK, SECTOR FOR RKDOS
150 DIM IOSAV(4): FOR I = 0 TO 3:IOSAV(I) =
  PEEK (54 + I): NEXT : REM SAVE $36-$39
160 RKDOS = 976: POKE RKDOS,76: POKE RKDOS +
  1,0: POKE RKDOS + 2,189: REM $3D0: JMP $BD00
170 SRC$ = ">>>◊INSERT◊SOURCE◊(RKDOS)◊DISK"
  :DEST$ = ">>>◊INSERT◊DESTINATION◊(PRODOS)◊
  DISK"
180 BU = 24: REM $1800 - $7BFF (100 PAGES)
195 REM *** GET INFO
200 PRINT "RKCRACK◊BY◊M.M.◊MCFADDEN"
210 PRINT : PRINT : PRINT "READ◊FROM◊DISK◊IN◊
  SLOT◊6?" CHR$ (8);
220 GET A$: IF A$ = CHR$ (13) THEN A$ = "6"
225 IF A$ = CHR$ (27) THEN PRINT : END
230 A = VAL (A$): IF A < 1 OR A > 7 THEN PRINT
  CHR$ (7);: GOTO 220
240 PRINT CHR$ (8)A "◊" : POKE RKDOS + 3,A *
  16: REM SET SLOT #
250 PRINT TAB( 18) "DRIVE◊1?" CHR$ (8);
260 GET A$: IF A$ = CHR$ (13) THEN A$ = "1"
270 A = VAL (A$): IF A < 1 OR A > 2 THEN PRINT
  CHR$ (7);: GOTO 260
280 PRINT CHR$ (8)A "◊" : POKE RKDOS + 4,A:
  REM SET DRIVE #
282 PRINT : PRINT "USING◊MORE◊THAN◊ONE◊DRIVE?◊
  Y" CHR$ (8);
284 GET A$: IF A$ < > "N" AND A$ < > "n" THEN
  A$ = "Y"
286 PRINT A$:SWAP = 0: IF A$ < > "Y" THEN SWAP
  = 1
300 PRINT : IF SWAP THEN PRINT DEST$: GOSUB
  1000: PRINT
305 INPUT "PATHNAME◊TO◊SAVE◊AS:◊" ;F$: IF F$ =
  "" THEN END
310 ONERR GOTO 400
320 PRINT D$ "VERIFY" F$: PRINT "FILE◊EXISTS,
  ◊OVERWRITE◊IT?◊Y" CHR$ (8);
330 GET A$: IF A$ = "N" OR A$ = "n" OR A$ =
  CHR$ (3) THEN PRINT A$: END
340 PRINT "Y" : ONERR GOTO 360
350 PRINT D$ "DELETE" F$: GOTO 400
360 PRINT "UNABLE◊TO◊DELETE◊OLD◊FILE" : STOP
400 ONERR GOTO 420
410 PRINT D$ "CREATE" F$ ",TBIN" : GOTO 500
420 PRINT "UNABLE◊TO◊CREATE◊FILE" : STOP
499 REM *** NEW FILE CREATED; READY TO GO
500 POKE 216,0: REM TURN ONERR OFF
510 PRINT : PRINT "MAKE◊SURE◊YOUR◊RKDOS-BASED◊
  DISK◊IS◊IN" : PRINT "SLOT◊" PEEK (RKDOS + 3)
  / 16 ",◊DRIVE◊" PEEK (RKDOS + 4) ",◊AND◊
  PRESS◊A◊KEY" : GOSUB 1000
520 TMP = SWAP:SWAP = 0: GOSUB 1100:SWAP =
  TMP: REM SWAP IN RKDOS QUIETLY
530 POKE CMD,1: POKE BS,BU + 2: POKE BE,BU +
  8: POKE TRK,0: POKE SEC,2: GOSUB 1300
540 POKE BS,BU + 10: POKE BE,BU + 99: POKE
  TRK,1: POKE SEC,0: GOSUB 1300: REM READ THE
  REST OF THE FIRST 100 BLOCKS
550 GOSUB 1200: REM SWAP IN PRODOS
560 PART = 1: GOSUB 1400: REM SAVE FIRST PART
600 GOSUB 1100: POKE BS,BU: POKE BE,BU + 99:
  POKE TRK,10: POKE SEC,0: GOSUB 1300
610 GOSUB 1200:PART = 2: GOSUB 1400: REM SAVE
  2ND PART
620 GOSUB 1100: POKE BS,BU: POKE BE,BU + 99:
  POKE TRK,20: POKE SEC,0: GOSUB 1300
630 GOSUB 1200:PART = 3: GOSUB 1400: REM SAVE
  3RD PART
640 GOSUB 1100: POKE BS,BU: POKE BE,BU + 49:
  POKE TRK,30: POKE SEC,0: GOSUB 1300
650 GOSUB 1200:PART = 4: GOSUB 1400: REM SAVE
  LAST PART
660 PRINT : PRINT "TRANSFER◊COMPLETE" CHR$ (7)
670 END
995 END
999 REM *** SUBROUTINES
1000 REM WAIT FOR KEY
1010 FOR A = 1 TO 5:QQ = PEEK ( - 16336) +
  PEEK ( - 16336): NEXT
1020 POKE - 16368,0: WAIT - 16384,128: POKE -
  16368,0: IF PEEK ( - 16384) = 27 THEN END
1030 RETURN
1100 REM *** SWAP IN RKDOS
1105 IF SWAP THEN PRINT : PRINT SRC$: GOSUB
  1000
1110 IN# 0: PR# 0: NOTRACE : CALL 768
1120 FOR A = 1 TO 6: PRINT CHR$ (8);: NEXT :
  CALL - 868: REM COVER UP PRODOS TRACE
  GLITCHES...
1130 RETURN
1200 REM *** SWAP IN PRODOS
1210 CALL 768: FOR A = 0 TO 3: POKE (54 + A),
  IOSAV(A): NEXT : REM RESTORE PRODOS I/O
  HOOKS
1215 IF SWAP THEN PRINT : PRINT DEST$: GOSUB
  1000
1220 RETURN
1300 REM *** READ FROM RKDOS DISK
1310 SZ = PEEK (BE) - PEEK (BS): IF SZ < 0
  THEN PRINT "BAD◊READ" : STOP
1320 X = PEEK (TRK) * 10 + PEEK (SEC):Y = X +
  SZ:DT = INT (Y / 10):DS = Y - (DT * 10): REM
  CALCULATE ENDING TRACK, SECTOR
1330 PRINT : PRINT "---◊READING◊FROM◊TRACK◊"
  PEEK (TRK) ",◊SECTOR◊" PEEK (SEC)
1340 PRINT TAB( 15) "TO◊TRACK◊" DT ",◊SECTOR◊"
  DS
1350 CALL RKDOS: RETURN
1400 REM *** SAVE FILE TO PRODOS
1410 PRINT : PRINT "+++◊SAVING◊PART◊" PART "◊OF
  ◊4◊TO◊" F$
1420 PRINT D$ "BSAVE" F$ ",A" BU * 256 ",L" (
  PEEK (BE) - BU + 1) * 256 ",B" (PART - 1) *
  (100 * 256)
1430 RETURN
9999 REM *** DATA
10000 REM SWAP $7000-72FF WITH $BD00-$BFFF
10010 DATA 160,0,132,252,132,254,169,125,133,
  253,169,189,133,255,162,3,177,252,133,251,
  177,254,145,252,165,251,145,254,200,208,241,
  230,253,230,255,202,208,234,96
```

Checksums

10-$BADD	320-$E537	1010-$00BD
100-$62E3	330-$87A0	1020-$1A61
110-$F33B	340-$3475	1030-$96E3
120-$5EC1	350-$12E3	1100-$576B
130-$879A	360-$D48B	1105-$3B9C
140-$BFBE	400-$ECF8	1110-$26CB
150-$8C45	410-$1918	1120-$DB95
160-$7B7B	420-$7054	1130-$0A20
170-$2F54	499-$F95F	1200-$8887
180-$C084	500-$75D8	1210-$17B0
195-$2BF6	510-$874E	1215-$93E8
200-$F1F7	520-$88F2	1220-$7BB9
210-$1FD6	530-$DFBD	1300-$6F1B

220-$47AF	540-$D0E1	1310-$385A
225-$4B14	550-$4D78	1320-$9E34
230-$5866	560-$ECD7	1330-$F246
240-$6CF8	600-$6765	1340-$247D
250-$0000	610-$1C2A	1350-$477D
260-$B0C8	620-$BBCC	1400-$EBB1
270-$61DA	630-$095B	1410-$9506
280-$666B	640-$986D	1420-$9D36
282-$CF2B	650-$9107	1430-$E7BF
284-$24C8	660-$B420	9999-$A9E2
286-$73BE	670-$FD15	10000-$8D1F
300-$F826	995-$A3D7	10010-$C68E
305-$1438	999-$BBE6	
310-$2A9F	1000-$B3E5	

Don't forget to SAVE RKXFER, now, before you start to enter RKEXEC.

RKEXEC

```
10 REM RKEXEC
100 TEXT : NORMAL : HOME
110 D$ = CHR$ (4)
120 PRINT : PRINT "RUN◊CRACKED◊RKDOS◊PROGRAM" :
  PRINT
130 INPUT "FILE◊TO◊RUN?◊" ;F$: IF F$ = "" THEN
  END
140 IF F$ = "CAT" THEN PRINT D$ "CAT" : GOTO
  130
200 PRINT D$ "BLOADRKLOAD.SYSTEM,A$2000,TSYS"
210 FS = 8198: POKE FS, LEN (F$): FOR A = 1 TO
  LEN (F$): POKE FS + A, ASC ( MID$ (F$,A,1)):
  NEXT
220 HOME : CALL 8192
```

Checksums

10-$BADD	120-$D978	200-$6467
100-$62E3	130-$DA1C	210-$5A50
110-$8712	140-$B21B	220-$9D73

SAVE RKEXEC and you now have everything you need to transfer the programs.

Transferring Programs - Step by Step

1. Start up the RKXFER program. Make sure the RKDOS file is in the same directory.

RUN RKXFER

2. Follow the prompts. If you are using a single drive system (reading from the RKDOS disk and writing to the ProDOS disk with the same disk drive), answer "no" to the "more than one drive?" prompt. Make sure that the disk you will be writing to has at least 175 blocks free.

   The program will first copy track 0, sectors 2-8. Sectors 0, 1, and 9 are stepped on by a DOS 3.3 compatible boot sector (the boot 0 loader needs a 6+2 encoded sector to boot the disk). It will then copy through track 9, sector 9, and write the buffer to disk. After three more reads, the procedure will be complete.

3. The whole process should have taken less than a minute, and the message "Transfer complete" should appear. If everything went well, test the transfer with

RUN RKEXEC

Type the name of the file you created at the prompt. The disk should whir, and the program should start up. If the program seemed to have problems reading the RKDOS disk, then the transfer will probably not work (RKDOS doesn't really return an error code if it fails, so there's no way to tell.)

Notes on Saving Games

If you want a save game disk, do NOT try to use the "Initialize save game disk" option from the game menu. This will do two things: 1) initialize the disk in the current slot and drive, and 2) try to write information to the newly formatted disk. Since it is actually writing to a ProDOS pathname, it will instead end up either crashing (if it can't find it) or destroying your copy of the game.

I recommend the following procedure. Boot up the original game and make a save disk as your normally would. Then, transfer that disk to ProDOS, giving it the same filename and storing it on a disk with the same volume name as the game.

Now when you play the game, just insert the transferred save game disk when prompted. ProDOS will see the save volume and file name, and will open that file instead. Since the file is opened and closed with each disk access, you can swap disks whenever the drive isn't running.

Note that the Reach for the Stars "save to game disk" option WILL work without a hitch. If you don't plan to use this feature, I strongly recommend that you lock files to prevent accidents (RKLOAD respects ProDOS file access attributes).

There does not appear to be any secondary copy protection on any of the RKDOS games (i.e., no nibble counts or synchronized tracks). These programs, combined with ProDOS RDOS, should enable you to remove the protection from any of SSI's games.

RKBOOT.SOURCE

```
********************************
*   RKCrack auto boot-tracer   *
*   M.M. McFadden  11-Jun-89   *
*   - Merlin Pro Assembler     *
********************************
FROM    EQU $FB
TO      EQU $FD
        ORG $2000
START   JSR $FE84     ;Setnorm
        JSR $FB2F     ;Init
        JSR $FE93     ;Setvid
        JSR $FE89     ;Setkbd
        LDA #$00
        STA FROM      ;Set LSB to zero
        STA TO
*
* Move boot code to a place where we can
* modify it
*
        LDA #$C6      ;Assume slot 6...
        LDY #$16      ;Move one page to $1600
        LDX #$01
        JSR MOVE
*
* Modify boot0 to jump to our code
*
        LDX #<PROG1
        LDY #>PROG1
        LDA $16F8     ;Old or new boot ROMs?
        CMP #$20      ;New?
        BEQ NEW_ROM
        STX $16F9     ;Old ROMs (][+ //E //C?)
        STY $16FA
        CLC
        BCC BOOTZ
NEW_ROM STX $16FC     ;New ROMs (//GS)
        STY $16FD
BOOTZ   JMP $1600     ;Execute boot 0
*
* Modify boot1 to jump to our code
*
PROG1   LDA #<PROG2
        STA $088D
        LDA #>PROG2
        STA $088E
        JMP $0801     ;Execute boot 1
*
* Modify boot2 to return after loading RKDOS
*
PROG2   LDA #$4C
        STA $10DA
        LDA #<PROG3
        STA $10DB
        LDA #>PROG3
        STA $10DC
        JMP $1000     ;Execute boot 2
*
* Clean up & exit
*
PROG3   LDA $C0E8  ;Turn off drive in slot 6
        RTS
*
* Memory move routine
*
MOVE    STA FROM+1
        STY TO+1
        LDY #$00
MOVE1   LDA (FROM),Y
        STA (TO),Y
        INY
        BNE MOVE1
        INC FROM+1
        INC TO+1
        DEX
        BNE MOVE1
        RTS
```

RKLOAD.SOURCE

```
********************************
*   RKCrack OpSys Substitute   *
*   M.M. McFadden  15-Dec-87   *
*   Revised  11-Jun-89         *
*   - Merlin Pro Assembler     *
********************************
BUFSTART EQU $00
BUFEND   EQU $01
CMD      EQU $03
TRK      EQU $04        ;0-34
SEC      EQU $05        ;0-9
SSGIO    EQU $3D0
NOSTOR80 EQU $C000
KILL80   EQU $C00C
CLRKBD   EQU $C010
ROM      EQU $C082
PRODOS   EQU $BF00
BITMAP   EQU $BF58
PREBYTE  EQU $FDDA
MON      EQU $FF59
BUFSIZ   EQU $40        ;size of filename buffer
         ORG $2000
*
* Initialization
*
         JMP START
         HEX EEEE   ;startup protocol signature
         DFB BUFSIZ
STNAME   DS  BUFSIZ ;buffer space for filename
START    LDY #$00
RELOCATE LDA RELOC,Y  ;relocate main program
         STA RKDOS,Y
         INY
         BNE RELOCATE
         LDY #$3F
RELOCAT1 LDA STNAME,Y ;relocate filename
         STA FNAME,Y
         DEY
         BPL RELOCAT1
         LDX #$17      ;clear ProDOS bitmap
         LDA #$07      ;BD-BF
         STA BITMAP,X
         DEX
         LDA #$00
CLRBITS  STA BITMAP,X
         DEX
         BPL CLRBITS
         LDA #$00      ;FORMERLY $CF (0-2, 4-7)
         STA BITMAP
         LDA ROM       ;kill 80-cols, etc
         LDA CLRKBD
         STA NOSTOR80
         STA KILL80
         LDA #$4C      ;set RKDOS jump vector
         STA SSGIO
         LDA #<RKDOS
         STA SSGIO+1
         LDA #>RKDOS
         STA SSGIO+2
         LDA #$60      ;set trk,sec to 6,1
         STA SSGIO+3
         LDA #$01
         STA SSGIO+4
         LDA #$BA      ;program init segment
         STA $00       ;bufstart
         LDA #$BC
         STA $01       ;bufend
         LDA #$01
         STA $03       ;command = read
         LDA #$00
         STA $04       ;track 0
         LDA #$06
         STA $05       ;sector 6
         JSR SSGIO     ;load it
         LDA #$00      ;clear $800
         STA $800
         JMP $BA00     ;start up the program
RELOC    EQU *         ;assemble at $bd00
         ORG $BD00
*
* Start of "real" code
*
RKDOS    CLD
         LDA BUFEND
         SEC
         SBC BUFSTART
         BLT CRASH
         STA RDWR_P+5
         INC RDWR_P+5
         LDA BUFSTART
         STA RDWR_P+3
         CLC
*
         LDA SEC
         STA SETMARK_P+3
         LDA #$00
         STA SETMARK_P+4
         LDY TRK
         BEQ DOIT
MUL1     CLC        ;calculate offset into file
         LDA SETMARK_P+3
         ADC #$0A
         STA SETMARK_P+3
         LDA SETMARK_P+4
         ADC #$00
         STA SETMARK_P+4
         DEY
         BNE MUL1
*
* Perform operation on file
*
DOIT     LDA BUFEND    ;address of file buffer.
         CMP #$3F      ;loading hires segment?
         BEQ DOIT1     ;yes, use $4100
         LDA #$30      ;no; halfway thru hires
         DFB $2C       ;skip next instruction
DOIT1    LDA #$41      ;allow hires load
         STA OPEN_P+4
         JSR PRODOS
         DFB $C8       ;open
         DW  OPEN_P
         BCS ERROR
         LDA OPEN_P+5 ;copy ref#
         STA RDWR_P+1
         STA SETMARK_P+1
         JSR PRODOS
         DFB $CE       ;set mark
         DW  SETMARK_P
         BCS ERROR
         LDA CMD       ;read or write?
         CMP #$01
         BEQ READ
         CMP #$02
         BEQ WRITE
CRASH    LDA #$FF      ;bad cmd, crash
ERROR    JSR PREBYTE
         JSR CLOSE
         JMP MON
READ     JSR PRODOS    ;read from the file
         DFB $CA       ;Read
         DW  RDWR_P
         BCS ERROR
         JMP CLOSE
WRITE    JSR PRODOS    ;write to the file
         DFB $CB       ;write
         DW  RDWR_P
         BCS ERROR
         JMP CLOSE
CLOSE    JSR PRODOS    ;close all open files
         DFB $CC
         DW  CLOSE_P
         LDA BUFEND    ;keep consistent
         STA BUFSTART

* should have code here to set the track and
* sector to the last track and sector
* accessed.  But this hasn't been a problem,
* and is a pain to do...

         CLC
         RTS
*
* PRODOS MLI parameter blocks
*
OPEN_P   DFB $03
         DW  FNAME
         DW  $0000
         DFB $00       ;REF#
RDWR_P   DFB $04
         DFB $00       ;REF#
         DW  $0000
         DW  $0000
         DW  $0000
CLOSE_P  DFB $01
         DFB $00       ;ref# = close all
SETMARK_P DFB $02
         DFB $00       ;ref#
         DFB $00       ;mark_lo
         DW  $0000     ;mark_hi
*
* Buffer for filename
*
FNAME    DS  BUFSIZ
         NOP
```

IBM RDEX IBM RDEX IBM RDEX

These softkeys were sent to us on disk. They are from a BBS. The names were removed before we got them so we are unable to give the authors proper credit. If you recognize a procedure, please let us know. We would like to receive the info direct from you next time. ..... RDEXed

IBM Softkey for...

The Last Ninja

Activision

The copy protection used by Activision resides in three separate EXE files on disk A. If you only plan to run this program on one type of display monitor, then only one program needs to be deprotected. The separate EXE files accomodate the three types of graphics it supports. Theprotection is in each file, however, this deprotect works identically for all three files.

E.EXE - EGA display
C.EXE - CGA display
T.EXE - Special Tandy display

I will use E.EXE for this example.

1 Make a copy of the NINJA A disk using DISKCOPY.

2. Use Debug to examine the file.
RENAME E.EXE E.ZAP
DEBUG E.ZAP

3. Activision uses the return codes from DOS interrupt 13 to determine if the original disk is being used. Therefore, you must first find all occurances of interrupt 13. To do this, use the DEBUG search command:
S CS:100 9999 CD 13

The results of this command should look like:
1229:0579
1229:0588
1229:05AB

4. The first address displayed is where the program is checking the boot record. This one can be ignored. The second address is the interrupt which checks the hidden file, XEMAG.SYS. XEMAG.SYS resides on track number nine. If you unassemble the statements just prior to the interrupt, you should be able to see where '09' is moved to the CH register. This is the one in which you are interested in.
U 1229:0588

This should produce results that look like:

1229:0028	INT	13	
1229:002A	JNB	0032	(this address may vary)
1229:002C	MOV	AX,000A	
1229:002F	JMP	0081	(this address may also vary)

5. The JNB instruction is the branch which is taken when the program receives a wrong return code from the interrupt. The address that is branched to contains the display which tells you to insert your original disk. The JMP instruction is the branch that is taked when everything is fine. Therefore, to deprotect NINJA, you simply replace the JNB instruction with the JMP instruction. To do this, enter:
A 1229:0028
You will then get the following prompt:
1229:0028

On this line, simply enter an unconditional jump.
1229:0028 JMP 0081

At the next prompt, simply hit the enter key. This should return the DOS DEBUG prompt.

6. Write the altered code back to disk, exit and rename the file.
W
Q
RENAME E.ZAP E.EXE

The copy protection has now been removed from disk A and you can make as many backup copies as you wish. As far as disk B is comcerned, there is no copy protection and it can be copied using DISKCOPY.

The reason that programs such as DISKCOPY and even COPYIIPC do not effectively copy disk A is very simple yet hard to detect. In actuality, Activision has changed the boot record on the original disk so that it will receive an invalid return code from the interrupt 13 (this is the first occurance of CD13 found when doing the DEBUG search). The above mentioned programs cannot effectively copy the boot record from disk A. Therefore, when a copy is made, the programs still won't execute.

IBM Softkey for...

Jack's Greatest 18

Accolade.

Copy DEBUG to your disk or to the same directory.
RENAME GOLFE.EXE GOLFE
DEBUG GOLFE
E E11 90 90 90
W
Q
RENAME GOLFE GOLFE.EXE

RENAME GOLFC.EXE GOLFC
DEBUG GOLFC
E DF7 90 90 90
W
Q
RENAME GOLFC GOLFC.EXE

RENAME GOLFT.EXE GOLFT
DEBUG GOLFT
E E11 90 90 90
W
Q
RENAME GOLFT GOLFT.EXE

That's it! Throw away that obnoxious red paper.

IBM Softkey for...

The Games: Winter Edition

Epyx

To deprotect The Games: Winter Edition, follow these steps:
RENAME GAMES.EXE GAMES.XXX
DEBUG GAMES.XXX
S 0000 FFFF 0B C0 74 01 to search for the protection pattern

The computer should respond with only one address. If none or more than one is given, this deprotection scheme may not work. Sorry!

Take the address given (in the form of XXXX:YYYY) and subtract 5 from the YYYY address. The numbers are in hexadecimal. *Do not attempt this patch if you do not understand hex.* Use the subtracted number (ZZZZ) and enter it in DEBUG.
E ZZZZ EB 03 90 90 90 31 C0 NOP the protection scheme
W Save the modified file
Q to exit to DOS
RENAME GAMES.XXX GAMES.EXE.

IBM Softkey for...

F-19 Stealth Fighter

Microprose Simulation Software

Make a copy of DISK A (the master disk). Put the copy of DISK A in drive A:
REN SU.EXE SU.ZAP
B:DEBUG SU.ZAP
E 2E9E EE EF 6B 8E
E 2F61 F9 42 43
E 2F81 F1 F2 DB 64 65
E 2F91 E1 E2
E 2FA1 11 12
E 2F11 61 62
E 2F19 12 F2
W
Q

This will deprotect the version of SU.EXE that's dated 10-15-88, but probably won't work for other versions.

IBM Softkey for...

Defender of the Crown

Mindscape/Cinemaware

Use DEBUG for this one.
RENAME DOC.EXE DOC.XXX
DEBUG DOC.XXX
S 0 FFFF B8 00 A0 50 FF 36 0A 45 ;search for routine
xxxx:3BCC ;addresses may be different
xxxx:3BF2
A3BCC ;assemble at first address
xxxx:3BCC **JMP 3BF2** ;jump to second address
xxxx:3BCE
W ;write the edited file back to disk
Writing 11600 bytes
Q ;quit, return to DOS
RENAME DOC.XXX DOC.EXE

It's deprotected.

IBM Softkey for...

Infiltrator

Mindscape

Use a disk editor and change all EXE files (except INSTALL)! Search for: 31 C0 19 CD and replace it with: EB 33 19 CD.

IBM Softkey for...

Perfect College

Mindscape

This deprotection scheme is very similar to that of deprotection scheme #1, the Accolade schemes. However, the program places a RETF (far return) instruction instead of the normal RET. So, ready COLLEGE.EXE (rename it as college.xxx for example) for edit. Search for: 55 56 57 06 1E and replace with: 31 C0 CB 06 1E, then rename it back to an 'EXE' file.

IBM Softkey for...

Dallas Quest

Datasoft

This deprotection scheme allows the resulting diskette to be copied with diskcopy and skips all the copy protection and copy protection validation.

1. Make a diskcopy of the Dallas Quest diskette. Expect DOS to report errors on tracks 23 and 39. The diskcopy is a one sided copy.

2. On the backup diskette, there are two areas that require modification so the copy protection validation is ignored.

Trk	Sct	Offset	From	To
$18	1	3B	CD B3 30	9D 25 25
25	1	20	58 58 5A E3 EA	5A 53 44 AF A4

The diskcopy disk now has the copy protection validation removed. Enjoy!

IBM Softkey for...

Gold Rush!

Sierra

To avoid the 80-page manual for the keywords, prepare the file GRDIR for DEBUG (rename it) and enter the following lines:
E 28C CC
E 28D 7A
W
Q

Change the filename back back to what it was.

IBM Softkey for...

Leisure Suit Larry II

Sierra

Leisure Suit Larry II is arguably Sierra Online's best interactive graphic adventure game. It is protected by the singularly obnoxious "answer a question from the manual" trick. When you start the game, you must fill in the last four digits of a girl's telephone number. The pictures of these girls appear throughout the manual.

This deprotect requires changing four bytes in the file SIERRA.EXE, found on diskette #1. However, this deprotect is not as perfect as I'd like it to be. I set out to make the deprotect completely bypass the "Type in Phone Number" screen. Well, as I traced the code I found that to do so would be considerably difficult and would require the modification of extensive amounts of code.

Instead, the modification we will make will cause the same girl's picture to appear every time you start the program. This means that you will be able to enter the same phone number every time you start the program. The phone number will be 7448.

This deprotect requires a file utility such as PC-TOOLS DELUXE or NORTON's.

Search for 8B C2 EB F4 and replace it with B8 02 00 90.

Write the changes and you're done. The phone number will always be 7448!

For people familiar with Debug, the location of these bytes is 8BBD through 8BC0.

IBM Softkey for...

Police Quest II: The Vengeance

Sierra

The new line of Sierra software, protected with the documentation check, have almost identical patches to the main EXE file.
RENAME SIERRA.EXE SIERRA.XXX
DEBUG SIERRA.XXX
E 0394 74
E 7FDB 05 1F
E 9E9B B8 08 35 CD 21 89 1E 38 13 8C 06 3A 13 B8 24 35
E 9EAB CD 21 89 1E 3C 13 8C 06 3E 13 B8 24 35 CD 21 89
E 9EBB 1E 40 13 8C 06 42 13 07 1E 0E 1F BA E9 9C B8 23
E 9ECB 25 CD 21 BA EA 9C B8 24 35 CD 21 1F E8 5A 00 C7
E 9EDB 06 36 13 01 00 C3 90 57 51 B9 38 00 BF B8 AB C6
E 9EEB 05 00 47 E2 FA 2E C7 06 DB 7C 5B 01 59 5F E9 DE
E 9EFB E0 90 90 90 90 90 90 90 90 90 90 90 90 90 83
E 9F0B 3E 36 13 00 75 01 C3 1E 07
W
Q
RENAME SIERRA.XXX SIERRA.EXE

Your deprotection is complete.

IBM Softkey for...

Apollo 18

Accolade

Search for 9A 29 00 and replace with EB 1B 00.

Briggs

IBM Softkey for...

Mean 18

Accolade

Caution: Do not modify your original disk.

Copy all your files to another disk or to a subdirectory on your hard disk and put the original disk away in a safe place.

Mean 18 does not indicate a version number but the file size for GOLF.EXE should be 89375 bytes. The copy protection scheme looks for a bad sector on drive A. We will patch 4 calls to this routine with NOP's (no operation) and patch 1 JUMP to an early exit with a NOP.

Put DEBUG.COM (from your DOS disk) in the same directory or make sure it is in the DOS path. Type the following commands:
REN GOLF.EXE GOLF.XXX Rename program for debug
DEBUG GOLF.XXX Start debug
RCS Check contents of cs register

Retype the 4 digits shown, but add 1 to the left digit first. The code that we want to change is beyond the current 64K segment.
E CS:4FE3 90 90 90 NOP the first call
E CS:4FEC 90 90 90 NOP the second call
E CS:500A 90 90 90 NOP the third call
E CS:5019 90 90 90 NOP the fourth call
E CS:5058 90 90 NOP the early exit jump
RCS Check cs register again

Retype the 4 digits shown, but subtract 1 from the left digit first. Restore the cs register to its original state.
W Write file back to the disk
Q Quit debug
REN GOLF.XXX GOLF.EXE Restore file name

Now run GOLF and confirm that the patch works.

The Course Architect program (ARCH.EXE) is also copy protected with an identical scheme. The size of ARCH.EXE should be 49631 bytes. No segment registers have to be altered since all the code will fit into 1 segment.
REN ARCH.EXE ARCH.XXX Rename program for Debug
DEBUG ARCH.XXX Load Debug
E BD9A 90 90 90 NOP the first call
E BDA3 90 90 90 NOP the second call
E BDC1 90 90 90 NOP the third call
E BDD0 90 90 90 NOP the fourth call
E BE0F 90 90 NOP the early exit jump
W Write file back to the disk
Q Quit Debug
REN ARCH.XXX ARCH.EXE Restore file name

Now run ARCH and confirm that the patch works.

unClassifieds

How to place an UnClassified Ad

If possible, send text on a 5 1/4 inch Apple formated disk, include a typed sample copy with appropriate instructions. Use up to 40 characters per line, we will adjust word wrap. The Computist club member charge is $4 (for processing) plus 50 cents per line. For non-members, the charge is $4 plus $1 per line. Multiple insertions of the same ad are charged only for the line rate, unless changes are made to the copy.

Special Graphics Instructions: The first three words of the first line are printed in bold for free. If you want other words bolded, use 5 characters less per line. Use 10 characters less per line if you have a lot of uppercase bold letters. Bold letters are wider than normal. Circle the words you want bolded. If you want a line centered, write **CENTER** next to that line. There is no charge for centering any line.

You must check your ad for errors, the first time it runs. Errors on our part will be corrected, then, for free. Errors or changes on your part will be charged the $4 processing fee.

Our liability for errors or omissions is limited to the cost of the ad.

We reserve the right to refuse any ad.

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Send a check or money order (funds drawn on US bank only) for the entire amount to:

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505-293-5538 BBS system

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RDEX Contributors:

Vincent	Andrews	10
Jake	Angerman	18
Harvey	Blanchet	11
	Briggs	21
Sunnie	Dinnel	8
Mr Memory	Dump	8, 18
Troy	Helphrey	15
Jeff	Hurlburt	5
Bob	Igo	9
Paul A.	Johnson	8
Seymour	Joseph	10
Zeno	Kopecky Jr	8
Henry	Kornhauser	18
Sandy	Lapp	11
M. M.	McFadden	19
John L.	Moore	8
Edward M.	Moore	17
Bud	Myers	10
Robert	Phillis	12
Thomas V.	Rapheld	7
Jan	Recourt	16
Ronald E.	Riggs	11
Gary	Rohr	10
Jim	Ross	17
Michel "J"	Roy	16
	Starbuck	9
	Stingray	10
Sven	Swanson	15
Bob	Thanski	12
The	Tuck	12
Toshikazu	Yamamoto	16
Everett B.	Young	7

Most Wanted

Airheart	Broderbund
Alcon	Taito
Alien Mind	PBI Software
Apple Panic	Broderbund
Aquatron	Sierra
Arkanoid	Taito
Arkanoid II	Taito
Bad Street Brawler	Mindscape
Bank Street Writer Plus	Broderbund
Beyond Zork	Infocom
Bilestoad	Datamost
Border Zone	Infocom
Borg	Sirius
Bouncing Kamungas	Penguin
Boxing	?
Bubble Bobble	Taito
Bubble Ghost IIgs	Accolade
Bureaucracy	Infocom
Centauri Alliance	Broderbund
Chuck Yeager's Advanced Flight Trainer	Electronic Arts
C'est La Vie	Adventure International
Comics	Accolade
Cosmic Relief	Datasoft
Crime & Punishment	Imagic
Crossword Magic v4.0	?
Darklord	Datasoft
Deathlord	Electronic Arts
Desecration	Mind Games
Designasaurus 128K	Britanica
Dig Dug	Thunder Mountain
Disk Optimizer System	Nibble Notch
Dondra	Spectrum Holobyte
The Duel: Test Drive II (IIgs)	Accolade
D&D Master Assitant vol2	SSI
Dungeon Master (IIgs)	FTL
DROL	Broderbund
Eliminator	Adventure International
Epoch	Sirius
Explore-Australia	Dataflow Computer Service
Evolution	Sydney
Falcons	Piccadilly
Factastics Trivia	Daystar
Force 7	Datasoft
Frogger	Main Street
GEOS	Berkley Softworks
Geometry GS	Broderbund
Gladiator	Taito
Goldrush	Sierra On Line
Gorgon	Sirius
GradeBuster 1 2 3	Grade Buster
Gutenbery Sr.	Micromation LTD.
Halls of Montezuma	Electronic Arts
High Orbit	Softsmith
Horizon V	Softsmith
Ice Demons	Morningstar
Indoor Sports	Mindscape
Infocomics	Infocom
Jack Nicholson: Greatest 18 Holes	Accolade
Jane	?
Joker Poker	Mindscape
Kingdom of Facts	Santa Barbara/Thunder Mountain
Lancaster	SVS
Legacy of the Ancients	?
Lost Tomb	Datasoft
Manhunter New York IIgs	Sierra On Line
Math Blaster Plus 3.5	Davidson
Mavis Beacon Teaches Typing (gs)	Software Toolworks
Microwave	Cavalier
Might and Magic II	Activision
Modem MGR	MGR Software
Mr. Pixel's Cartoon Kit	Mindscape/Thunder Mountain
Mr. Pixel's Programming Paint Kit	Mindscape/Thunder Mountain
National Inspirer	Tom Snyder Productions
Observatory (The)	Mindscape/Lightspeed Software
Odin	Odessta
Operation Wolf	Taito
Pensate	Datasoft/Softdisk
Phantoms 5	Sirius
Pig Pen	Datamost
Platoon	Data East
Project: Space Station	Avantage
Pulsar II	Sirius
Pure Stat Basketball	?
Quadratic Equations II	Olympus Educational Software
Questron II	Electronic Arts
Rails West	SSI
Rastan	Taito
Read n' Roll	Davidson
Rear Guard	Adventure International
Renegade	Taito
Rescue Raiders	Sir Tech
Rings of Saturn	Level 10
Risk	Leisure Games
Rocket Ranger (IIgs)	Cinemaware
S.D.I. (IIgs)	Cinemaware
Sailing Trough Story Problems	DLM/Neosoft
Sea Stalker	Broderbund
Serpentine	Broderbund
Skeletal System	Brainbank
Sky Shark	Taito
Soko-Ban	Spectrum Holobyte
Sound Song & Vision	Advanced Software
Space Ark	Datamost
Spare Change	Broderbund
Spectre	Datamost
Speedy Spides	Readers Digest
Star Cruiser	Sirius
Star Maze	Sir Tech
StickyBear Math: Add & Subtract	Optimum Resources
Stickybear GS Versions 3.5	Xerox
Strike Fleet	Electronic Arts
Succession	Piccadilly
Superstar Ice Hockey	Mindscape
Superstar Indoor Sports	Mindscape
Talking Text Writer GS	Scholastic
Tangled Tales	Origin Systems
Test Drive	Accolade
Tetris (IIe)	Spectrum Holobyte
The Three Stooges (IIgs)	Cinemaware
Thunder Chopper	?
Ticket to Washington D.C.	Blue Lion Software
Tomahawk	Electronic Arts
Tomahawk (IIgs)	Datasoft
Triad	AI/Thunder Mountain
Trinity	Infocom
Ultima Trilogy	Origin Systems
Volcanoes v1.8	Earthware Comp. Services
War in the Middle Earth	Melbourne
Wasteland	Electronic Arts
Wayout	Sirius
Wings of Fury	Broderbund
Wizardry:Return of Werda	Sir-Tech.
Word Attack Plus (IIgs)	Davidson
Works (the)	First Star Software
Zenith	Softsmith
ZorkQuest	Infocom

IBM Most Wanted

Graphitti	George Best Phillips Academy
Gunship	Microprose
Heros of the Lance	SSI

58 ✱Features •Mixing ProDOS with Thexder •Infocom Decoder Revisited •Cracking on the IIe •Might & Magic Revisited •Might & Magic Character Editor •An indepth guide to Ultima IV •Computing for 1-3 year olds •The Product Monitor ✱Softkeys •A.I. •BoulderDash •BoulderDash Construction Set •DeathSword •Design Your Own Home: Architecture •Design Your Own Home: Interior •Design Your Own Home: Landscape •Facemaker •Gauntlet •Kings Quest II •Mastery Arithmetic •Microzine #26 •Muppet Slate v1.0 •PFS: Graph •Polywriter 1.2 •Rad Warrior •Rings of Zilfin •Seaspeller •Smart Eyes •Spell It! •Wings of Fury ✱APTs •Castle Wolfenstein •Marble Madness IIgs •Might & Magic •Ultima IV •Ultima V ✱Playing Tips •Coveted Mirror •Deathlord •Might & Magic •Oo-Topos •Ultima IV ✱Notes •A better way to print Starter Kit DOC's •Curing Fatal System Error #0911 •Realtime Situation Control using CDAs •Chuck Yeager's Advanced Flight Trainer **IBM** Notes •Help Wanted!

57 ✱Features •Electronic Art's Protection Language •How to find hidden code with EOR DiskScan •Here's another look at •Lower Case & Infocom Games •Monsters of Might & Magic •A Character Editor for Rings of Zilfin •A Single Data Disk for all your Print Shop Graphics •The Product Monitor ✱Softkeys •American Challenge •Arctic Fox •Bard's Tale II •BoulderDash Construction Set •California Games •Championship Wrestling •Chief of Detectives/Drawing Conclusions •Deep Space •Dome Simplified Bookkeeping System •Dr. Ruth's Computer Game of Good Sex •Earth Orbit Stations •Factory •Galaxy Search/Predicting Outcomes •Game Maker •Hacker II •Hardball IIgs •Ikari Warriors •Labyrinth •Marble Madness •Master Diagnostics IIe •Math Blaster •Mickey's Space Adventure •Micro-Computer Learning Games •Microzine #14 •Microzine #24 •Milliken Math Series •Mind Prober •M-ss-ng L-nks •Morning Star Spelling •Mountain Climbing/Cause and Effect •Movie Monster Game •Pond •Race Track/Reading for Detail •Reading Comprehension Main Idea & Details •Rings of Zilfin •Roadwar 2000 •School Days/Inference •Ski Crazed •Softswitch •Sub Mission •Time Capsule/Reading Skills •Tuesday Morning Quarterback •Typewriter •Where in Europe is Carmen Sandiego •Wortgefecht •Xevious ✱APTs •Deep Space •H.E.R.O. •Moebius •Rings of Zilfin •Roadwar 2000 ✱Playing Tips •Arcticfox •Castle Wolfenstein •Conan •Donkey Kong •Ultima IV **IBM** Softkeys •Symphony v1.00 •TK!

56 ✱Features •Apple IIgs Secret Weapon •5 second fastboot into Locksmith 6.0 Fastcopy •The Product Monitor •Taking the grind out of Championship Wrestling •Making some improvements to The Nibbler ✱Softkeys •2400 AD •40' Graphics Studio •Accolade Comics •Aesop's Fables •American People •Animal Hotel •Applewriter IIe •Arcade Album #1 •Arctic Antics •Ballblazer •Bard's Tale II: The Destiny Knight •Bard's Tale IIgs •Cat'n Mouse •Championship Wrestling •Charlie Brown's 1,2,3's •Cobra Cavern •Color Me •Create With Garfield •David Winfield's Batter Up! •Destroyer •Disk Optimizer II •Dragonworld •Electronic Arts Software •En Vacances •En Ville •Fantavision gs •Fight Night •Forbidden Castle •G.I. Joe •Garfield Double Dares •General Manager •Goonies •GraphicWriter 2.0 •Gutenberg, Sr. •Hacker II •Hardball •Hardball gs •Infiltrator •James Bond 007: A View to a Kill •Keyboard Kadet •Kids on Keys •Lazer Maze •Le Demenagement •Le Francais par Ordinateur: •Leisure Suit Larry in the Land of the Lounge Lizards •Les Sports •Lion's Workshop •Microzine #21 •Microzine #22 •Milliken Word Processor •Millionair II •Multiscribe v2.0 •Multiscribe v3.0 •Multiscribe IIgs v3.01c •Paris En Metro •Pitfall II •Racter •Railroad Works •Rambo: First Blood Part II •Realm of Impossibility •Same or Different •Sea Dragon •Sea Strike •Shanghai •ShowOff •Shutterbug •Silent Service IIgs •Snoopy to the Rescue •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Space Quest I •Space Station •Spy Hunter •Spy's Adventures in Europe •Spy's Adventures in North America •Stephen King: The Mist •Story Maker •Street Sports Basketball •Sub Battle Simulator •Super Sunday Football •Talking Text Writer •Type! •Un Repas Francais •Voodoo Island •Where in Europe is Carmen Sandiego •Winnie the Pooh •Winter Games •Winter Games gs •Wordzzzearch •World Games gs ✱APTs •2400 AD •Kung-Fu Master •Lady Tut •Ultima V ✱Playing Tips •2400 AD •Deathlord •Space Quest •Ultima IV •Ultima V •Wrath of Denethenor **IBM** Softkeys •Execu-Vision •MS Word •PC-Draw •Zork I & II ✱Notes •Not too happy with Copy II Plus v8.1 •Data disks cause Appleworks crash

55 ✱Features •A Utility to Save the Lower 8 Pages of Memory •Bard's Tale Effects Locator •How to Capture Phantasie Screen Maps •Alternate Reality Character Editor •Updating the ProDOS Block Editor •Loading Flashcalc onto your RAMcard •A Copy-protection Scheme for ProDOS •The Product Monitor •Autoduel Car Editor ✱Softkeys •Alphabet Sequencing •Animal Alphabets and Other Things •Arctic Antics •The Boars' Store •The Boars Tell Time •Career Focus •Castle Wolfenstein •Charlie Brown's 123's •Charlie Brown's ABC's •City Country Opposites •Coveted Mirror •Create With Garfield •Crypt of Medea •Customized Alphabet Drill •Customized Flash Spelling •Dig Dug •Digital Paintbrush System •Estimation •Fay: Word Hunter •Fix It •Focusing on Language Arts •Fundamental Capitalization •Fundamental Punctuation Practice •Fundamental Spelling Words in Context •The Hobbit •Homonyms in Context •Individualized Study Master •Inside Outside Shapes •Inside Outside Opposites •Leisure Suit Larry in the Land of the Lounge Lizards •Master Diagnostics II & II+ •Mastertype v2.1 •Mathematics Series •Mr. and Mrs. Potato Head •Paper Models - The Christmas Kit •Peanuts Math Matcher •Peanuts Maze Marathon •Peanuts Picture Puzzlers •Perry Mason: The Case of the Mandarin Murder •Railroad Works •Random House Library •Management Programs •Rocky's Boots v.4 •Sensible Speller •Snoopy's Reading Machine •Snoopy's Skywriter Scrambler •Snoopy to the Rescue •Snoopy Writer •Spelling Demons •Stock Market Simulation •Story Builder •Story Starter •Studio II •Test Maker •Think Quick v1.0 •Tournament Bridge •Tutorial Comprehension •Typing is a Ball, Charlie Brown •Under Fire •Word Blaster •Word Count •Word Mount •Your Personal Net Worth ✱APTs •Under Fire **IBM** Feature: •Flight Simulator RGB Modifications

54 ✱Features •Picture Loader •How To Make DEMUFFIN PLUS •Convert Print Shop graphics into Print Master graphics •lower case letters For Your Apple II Plus •The Product Monitor •Apple IIc Paddle Fix •Softkey for Daisy Professional "Most-Protected" Award •DOS EOR Maker ✱Softkeys A2-PB1 Pinball •Animate •Bank Street Music Writer •Boulderdash Construction Kit •California Games •Countdown to Shutdown •Coveted Mirror •Create with Garfield •Daisy Professional •Destroyer •Donkey Kong •Expedition Amazon •General Chemistry Disk #8 •Graphics Studio •Green Globs & Graphic Equations •Kalamazoo Teacher's Record Book 2.0 •Kids on Keys •Marble Madness •Math Blaster •Maxwell Manor •Peanut's Maze Marathon •Petro-Calc •Police Artist •Practical Grammar •Rendezvous •Ring Quest •Roadwar Europa •Roadwar 2000 •Rocky Horror Show •Sesame Street Electric Coloring Book Series •Sesame Street Letters for You •Sesame Street Numbers •Seven Cities of Gold •Snoopy's Reading Machine •Spy's Adventures In Europe •Spy's Demise •Super Sunday Football •Talisman •Tellstar II •Top Draw v1.01A •The American Challenge •The Dam Busters •The Science Professor •Tubeway •Vocabulary Adventure I •Winter Games •Wizards' Crown •Zero-Gravity Pinball ✱APTs •Expedition Amazon •Might and Magic ✱Playing Tips •Beauracracy •King's Quest II •Lurking Horror •Maniac Mansion •Stationfall **IBM** Feature •Introduction to **IBM** Disk Format, Access; and Copy-protection •Putting Sargon III on harddisk **IBM** Softkeys •Prokey 3.0 •R:base 400 •Time Manager

53 ✱Features •Modify Super IOB to read/write every other track •APT for Rings Of Zilfin: Turn yourself into a lean, mean fighting Machine •More Softkeys for M.E.C.C. software (1987) •How To Use The Electronic Art's RWTS •APT for Realms Of Darkness: Realm's Wrecker! •Putting Super Boulder Dash onto a hard disk ✱Softkeys •2400 A.D. •Age Of Adventure •Apple's Core II •Arcade Boot Camp •Arctic Fox •Aztec •Ballblazer •Bard's Tale IIgs •Blue Powder Gray Smoke •California Games •Championship Wrestling •Colonial Conquest •Comprehension Skills I,II •Conquering Whole Numbers •Coordinate Math •Countdown To Shutdown •Dataquest: The World Community •Destroyer •Dream House •Dream Zone •Earth Orbit Station •Equation Math •Forecast: Your At-Home Weather Station •Fraction Concepts Inc •Fraction Munchers •Fraction Practice Unlimited •GBA Championship Basketball •Genesis •GFL Football •Ghost Rider •Goonies •Grade Manager v2.3 •Great American Cross-country Road Race •Hardball IIgs •Ikari Warrior •Jenny's Journeys •Kid Niki Radical Ninja •Kung-Fu Master •Learning To Tell Time •Leisure Suit Larry •Let's Learn About Money •Let's Learn about the Library •Letters For You •Lords Of Conquest •Magic Spells •Math Blaster •Money Works •Maps & Globes: Latitude & Longitude •Marble Madness •Microzine 18,19,20,21,22,23 •Mist •Morning Star Math •Movie Monster Game •Multiplication Puzzles •Multiscribe v3.0c •Murder On The Mississippi •Music Made Easy •Mystery Sentences •Number Munchers •Numbers Count •Odell Lake •Operation Frog •Opposites Attract •Oregon Trail v1.4 •Phonics Prime Time: Blends & Digraphs •Phonics Prime Time: Vowels I, II •Puzzles & Posters •Quotient Quest •Reader Rabbit •Reading Style Inventory •Realm Of Impossibility •Sesame Street "Crayon" series •Shanghai •Sons Of Liberty •Space Quest v2.2 •Story Book: Pixelworks •Story Tree •Subtraction Puzzles •Super Huey •Super Wordfind •Tass Times In Tonetown •Those Amazing Reading Machines III, IV •Timothy Leary's Mind Mirror •To Preserve, Protect and Defend •Tower Of Myraglen •Troll's "MicroCoarseware" series •Webster: The Word Game •Word Munchers •Words At Work: Compound It •Words At Work: Suffix Sense •World Games •World's Greatest Baseball Game •World Karate Championship •Writer Rabbit •Zoyon Patrol ✱APTs •Buck Rogers •Ikari Warrior •Kung-Fu Master •Leisure Suit Larry IIgs •Marble Madness •Realm Of Darkness •Rings Of Zilfin •Space Quest IIgs •Super Boulder Dash ✱Playing Tips •2400 A.D. •Donkey Kong •Infiltrator •Space Quest IIgs •Spy Hunter •Swashbuckler •Thexder •Ultima II • **IBM** Softkeys: •EasyWriter 1.0, II •Zork III

52 ✱Features •The Product Monitor •Unprotecting The Unprotectable: MacIntosh Softkeys! •A.P.T. Cornucopia •APT:Alternate Reality-Dungeon: Create A Super-human •Softkey for SSI's RDOS disks: 1.ProDOS RDOS, 2.RDOS Transfer Utility •Making Cracked II Plus Disks Work On The IIc ✱Softkeys •Apple Gradebook v2.6 •Award Maker Plus •Black Cauldron •Black Magic •California Games •Car Builder •Color Print Shop •Computer Ambush •Concepts In Science •Disney's Comic Strip Maker •Elite •Empire I, II •European Nations & Locations •Fooblitsky •Grid Designer •H.E.R.O. •Ikari Warriors •Infiltrator II •Le Francais par Ordinateur •Little Computer People's House on a Disk •(Mac)Main Street Filer •Master Diagnostics IIe •(Mac)MegaFiler •(Mac)MegaMerge •Microzine 23 •Might & Magic •(Mac)Millionaire •Mindplay software •Music Construction Set •Nibbler •Operation Market Garden •Phantasie •(Mac)Planetfall •PrintMaster Plus •Print Shop •Questron •Regatta •Ring Quest •Ringside Seat •Rings Of Zilfin •Shanghai •Silent Service •Snooper Troops •Spy's Adventure in N. America •Super Print •Tass Times In Tonetown •Think Quick •(Mac)Transylvania •Ultima I re-release •Where in the USA is Carmen Sandiego •World Games •(Mac)Zork I ✱APTs Alternate Reality: The Dungeon •Arctic Fox •Bard's Tale II •Beyond Zork •Black Magic •Cavern Creatures •Drol •Goonies •Ikari Warriors •Zorro ✱Playing Tips •Beyond Castle Wolfenstein •Championship Lode Runner •Conan •King's Queen II •Lode Runner •Lurking Horror •Station Fall •Ultima IV •Zork **IBM** Softkeys: •Lotus 1-2-3 •Flight Simulator •PFS Report **IBM** APTs •Bard's Tale

51 Features •The Crypt-arithmetic Helper •Using EDD IV to Modify Tracks And Sectors •Bard's Tale APT: Dungeon Mapper Revisited •RAMfactor mod for Laser 128 •Ultima IV APT edit-tables •The Product Monitor •Get Better Sound by using the cassette jacks •Making A Fast Boot Disk •Might & Magic APT edit-tables Softkeys •2400 AD •Aliens •Alphabet Zoo •Amnesia •Bag Of Tricks •Bard's Tale I •Bard's Tale II •Battle Cruiser •Beach-head II •Below The Root •Black Magic •Body Awareness •Bridge 4.0 •Carriers At War •Catalyst 3.0 •Centipede •Championship Boxing •Championship Wrestling •Chessmaster 2000 •Combining The Elements •Commando •Creative Contraptions •Einstein Compiler •Fat City •Fight Night •Flight Simulator v2.0 •Fun with Direction •GBA 2-0n-2 Championship Basketball •GraphicWriter v1.1RA •Growing Up Small •House-on-a-disk •Intrigue •Jet •Jungle Hunt •Kindercomp •Knowing Numbers •Kung-fu Master •Law Of The West •Learning Well series •Letters And Words •Little Computer People •Make Your Own Murder Party •Manic Mansion •Master Diagnostics •Movie Maker •Music Construction Set •Pinball Construction Set •Pitstop •Print Shop Graphics Library Holiday •Print Shop IIgs •Rendezvous •Shapes And Patterns •Silent Service •Sorcerer •Spy vs Spy I & II •Stargate •Stellar 7 •Stickybear ABCs •Stickybear Drawing •Stickybear Numbers •Stickybear Printer •Stickybear Printer Library I & II •Stickybear Townbuilder •Super Boulderdash •Temple Of Apshai Trilogy •Tomahawk •Thexder •Walt Disney's Card And Party Shop •Walt Disney's Cartoon Maker •Wings Of Fury •Word Maze •World's Greatest Baseball Game •Zork III APTs Bard's Tale •Lode Runner •Might & Magic •Ultima IV •W. Disney's Card And Party Shop •Wizardry III •Wizardry IV Playing Tips •Autoduel •King's Quest •Manic Mansion •Summer Games •Tass Times In Tonetown •Thexder •Where In the World is Carmen Sandiego?

50 Features •Super Boulderdash APT-writer •Softkeys to Activision/ MECC/ and PFS ProDOS/ software •Double F-8 ROM space w/o motherboard surgery •Ace-Apple bimodal Switch •Using Sider hard drives 3 1/ 2 inch, 800K drives, & 5 1/4 inch drives in DOS 3.3 Softkeys •Aliens •Alter Ego •Alternate Reality •Amazing Reading Machines •Amazon •American Challenge •Arcade Album #1 •Arithmetic Critters •Award Maker •Baseball Database •Bard's Tale II: Destiny Knight •BC's Quest for Tires •Bop & Wrestle •Champ. Boxing •Champ. Wrestling •Clock Works •Commando •Computer Prep for SAT •Conflict In Vietnam •Counting Critters •Crisis Mountain •Dataquest 50 States •Deluxe Paint II •Dino Eggs •Disney Card & Party Shop •Disney Comic Strip Maker •Draw Plus •Eidolon •Electric Crayon ABCs •Expedition Amazon •Facemaker •First Letter Fun •Fish Scales •Fun From A—Z •Game Maker •GBA Champ. Basketball •GFL Champ. Football •Graphicwriter 1.0R/1.1R •Great Road Race •Hacker II •Hardball •Infiltrator II •Instant Music •James Bond 007: A View To A Kill •Jenny's Journeys •Kung Fu Master •Little People •List Handler •Manic Mansion •Mastery Arithmetic Games •Market Place •Master of Lamp •Math Rabbit •Microzine #17 •Might and Magic •Mission In Solar System •Moebius •Music Construction Set •Music Studio •Number Munchers •Paint With Words •Paintworks Plus •Path Tactics •pfs:File •pfs:Graph •pfs:Plan •pfs:Report •pfs:Write •Phonics Prime Time •Portal •Principal's Assistant •Print Shop ProDOS 8 v1.4 •Print Shop Holiday Edition •Quickflash! •Reader Rabbit •Realm of Impossibility •Robot Odyssey I v.2.0 •Rocky Horror Show •Rocky's Boots v4.0 •Saracen •Shanghai •Silent Service •Skylab •Sound Tracks •Speedy Math •Spindizzy •Street Sports Baseball •Sub-Mission •Super Boulderdash •Tass Times in Tonetown •Thexder •Top Fuel Eliminator •Word Handler •Word Munchers •Words at Work •World Karate Champ. •Writer's Choice: Elite •Zardax v5.2.1

49 Features •Eliminate some ProDOS erroneous error messages •Date/ time without a clock card •Sector surgery: recover lost files •Generating Applesoft programs "on-the-fly" •Product Monitor reviews •How to convert List Handler files into standard text files •How to make GRAPHIC.GRABBERv3 run on the IIgs •Laser 128 "absolute" Reset Playing Tips •Bard's Tale II •Conan •Donkey Kong •Hacker I •Hard Hat Mack •Orbitron •Print Shop Companion •Spellbreaker •Spy Hunter •Ultima 4 APTs Infiltrator •Lode Runner •Montezuma's Revenge •Swordthrust series Softkeys •Addition Logician •Animate •Arcade Boot Camp •Arctic Fox •Bard's Tale II •Cat'n Mouse •Counting Critters •Dam Busters •Destroyer •Draw Plus v1.0 •Dr. Ruth's Comp. Game Of Good Sex •Echo 1.0 •E.D.D. 4 •Gamemaker •Hard Ball •Infiltrator •List Handler •Locksmith 6.0 Fastcopy •Magic Slate •Math Critters •Millionaire •Mind Mirror •One On One •Paintworks Plus v1.0 •Paintworks Plus v1.1 •PHM Pegasus •Portal •Quotient Quest •Reader Rabbit •Saunder's Chemistry CAI •Science Toolkit •Shanghai •Strip Poker •Super Bunny •Super Sunday •Swordthrust series •Term Paper Writer •Thief •Top Fuel Eliminator •Typing! •Up-n-Down •Willy Byte •Writer's Choice Elite v1.0 •Writing A Character Sketch •Writing A Narative

48 Features •Dungeon Editor & Encounter Editor for Ultima III Softkeys •816 Paint GS •Amnesia •Apple Business Graphics •Arctic Fox •Award Maker Plus •Bard's Tale II •Betterworking Word Processor •Beyond Castle Wolfenstein •Black Magic •Bookends Extended •Bop & Wrestle •Chess 7.0 •Chessmaster 2000 •Deluxe Paint GS •Destroyer •Hacker II •Hacker II GS •Hardball •Infiltrator •Instant Music GS •J-Bird •Mabel's Mansion •Marble Madness •Mean 18 GS Golf •Megabots •Might & Magic •Miner 2049er II •Mouse Word •Music Construction Set GS •Music Studio GS •New Oregon Trail •Paintworks Plus 1.0 GS •Paintworks Plus 1.0 GS •Paul Whitehead Teaches Chess •PHM Pegasus •Poetry Express •Print Shop color version •Rambo: First Blood part II •Rocky Horror Show •Sargon III* •Shadowkeep •Shanghai GS •Spindizzy •TelePorter •Temple Of Apshai trilogy •Top Draw GS •Transylvania •Ultima I •World's Greatest Baseball Game APTs •Shadowkeep

47 Features •Infocom-text Reader Enhancement •Color Ultimapper mod to Ultimapper IV •Towne Mapper for Ultima IV •Dungeon Mapper for Bard's Tale •Hardware Corner Interrupting Your Apple •Softkey for Charlie Brown's 1,2,3s Softkeys •Guitar Wizard •Gemstone Warrior •Notable Phantom •Micro Wine Companion •Stickybear Printer •Note Card Maker •Starcross •Wishbringer •Dinosaur Dig •Dam Busters •Pirate Adventure •Infiltrator •MECC software •Banner Catch •Turtle Tracks •PFS File •Microzine #12, #13, #14 •Marble Madness •Writer Rabbit •Arcticfox •Age Of Adventure •Might And Magic •Space Station •Alternate Reality •Mindshadow •Gemstone Warrior •Strip Poker •Lucifer's Realm •Manuscript Manager •Bank Street Writer III •Kids On Keys •The Missing Ring •Graphic Solution •Empire I, II •Champ. Golf

46 Softkeys •Advanced Microsystems Technology programs •Word Attack •Star Blazer •Science Toolkit •The Color Enhanced Print Shop •Video Vegas •The Handlers •K.C. Deals On Wheels •Law Of The West •Break The Bank Blackjack •Foundation Course In Spanish •OGRE •Puzzles And Posters Features •The Shift Key/Lower Case Option For II+ •Amazing Computer Facts •Shape Magic utility Review: Multiscribe

45 Softkeys •Mouse Calc •Sands of Egypt •Number Farm •Agent U.S.A. •Wavy Navy •Kindercomp •Flight Simulator Update •Raid over Moscow •Crime Stopper •Key Perfect 5. •The Final Conflict •Miss Mouse •Snoggle Features •Write Protecting the Microsoft RAM Card •Keys to Success on the Franklin Ace •Modified F8 ROMs on the Apple /// Core •Owner's Review of Copy Master II

44 Softkeys •Arcade Boot Camp •Goonies •Zorro •Coveted Mirror •Crimson Crown •Compubridge •Fleet System 3 •Microwave •Escape •Catalyst 3.0 •Number Farm •Alphabet Circus •Joe Theisman's Pro Football •Black Cauldron •Intern. Gran Prix Features •Making DOSless Utilities •Pixit Printer Drivers Review Z-RAM Memory Expansion Board •Reading the Joystick

43 Softkeys •Graphics Expander •Information Master •Certificate Maker •Elite •Catalyst 2.0 and 3.0 •Murder On The Mississippi •Temple Of Apshai Trilogy •Troll Associates programs •Spell It •Regatta •Cdex Training programs •Think Fast Features •How to Write-Protect your Slot Zero •Capturing Locksmith 6.0 Fast Copy •Revisiting DOS to ProDOS and Back Core •Computer Eyes / 2: a Review APTs •Sword of Kadash & Rescue Raiders •Ultimaker IV

42 Softkeys •Light Simulator •Beach-Head •Monty Plays Scrabble •Racter •Winnie the Pooh •Infocom Stuff, Kabul Spy, Prisoner II •Wizardry 1 & 2 •Lucifer's Realm •The PFS Series •Dollars and Sense •Strip Poker •Coveted Mirror •Wizard's Crown •The Swordthrust Series •Axis Assassin •Manuscript Manager •The Crown of Arthain •Address Book •Decimals 3.0 •Dragonfire •Features •Auto Duel Editor •Wizard's Crown Editor •Questron Mapper Core •The Games of 1986 in Review Adventure Tips •Ultima IV

41 Softkeys •The Periodic Table •Gemstone Warrior •Inferno •Frogger •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 •E-Z Learner •Mychess II •Raster Blaster •Cranston Manor •Ghostbusters •Designer's Pencil •The American Challenge •Encyclopedia Britannica Programs •Crime Wave Features •Taking the Wiz out of Wizardry •Adding a Printer Card Driver to Newsroom Core Games of 1986

39 Softkeys •MIDI/8+ •Homeword v2.1 •Borrowed Time •Amazon •Speed Reader][•Discovery! •M-ss-ng L-nks series •Donald Ducks's Playground •Mastering the SAT •Copy][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

38 Softkeys •Cyclod •Alternate Realty •Boulder Dash I & II •Hard Hat Mack (Revisited) •The Other Side •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][•Take 1 (revisited) •Flight Simulator II v1.05 (part 2) •Magic Slate •Alter Ego •Rendezvous •Quicken •Story Tree •Assembly Language Tutor •Avalon Hill games •Dark Crystal Features •Playing Karateka on a IIc •Track Finder •Sylk to Dif Core •Breaking In: tips for beginners •Copy][Plus 6.0: a review •The DOS Alterer

36 Softkeys •Flight Simulator II v 1.05 •AutoDuel •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 APT •Championship Lode Runner

35 Softkeys •Olympic Decathlon •Hi-res Cribbage •Revisiting F-15 Strike Eagle •Masquerade •The Hobbit •Pooyan •The Perfect Score •Alice in Wonderland •The Money Manager •Good Thinking •Rescue Raiders Feature Putting a New F8 on Your Language Card Core •Exploring ProDOS by installng a CPS Clock Driver

34 Softkeys •Crisis Mountain •Terripin Logo •Apple Logo II •Fishies 1.0 •SpellWorks •Gumball •Rescue at Rigel •Crazey Mazey •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 •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

32 Softkeys •Revisiting Music Construction Set •Cubit •Baudville Software •Hartley Software •Bridge •Early Games for Young Children •Tawala's Last Redoubt •Print Shop Companion •Kracking Vol II •Moebius •Mouse Budget, Mouse Word & Mouse Desk •Adventure Construction Set Feature •Using Data Disks With Microzines Core •Super IOB v1.5 a Reprint

31 Softkeys •Trivia Fever •The Original Boston Computer Diet •Lifesaver •Synergistic Software •Blazing Paddles •Zardax •Time Zone •Tycoon •Earthly Delights •Jingle Disk •Crystal Caverns •Karate Champ Feature •A Little Help With The Bard's Tale Core •Black Box •Unrestricted Ampersand

30 Softkeys •Millionaire •SSI's RDOS •Fantavision •Spy vs. Spy •Dragonworld •King's Quest •Mastering the SAT •Easy as ABC •Space Shuttle •The Factory •Visidex 1.1E •Sherlock Holmes •The Bards Tale •Feature •Increasing Your Disk Capacity •Core •Ultimaker IV, an Ultima IV Character Editor

29 Softkeys •Threshold •Checkers v2.1 •Microtype •Gen. & Organic Chemistry Series •Uptown Trivia •Murder by the Dozen •Windham's Classics •Batter Up •Evelyn Wood's Dynamic Reader •Jenny of the Prairie •Learn About Sounds in Reading •Winter Games •Feature •Customizing the Monitor by Adding 65C02 Disassembly •Core •The Animator

28 Softkeys •Ultima IV •Robot Odyssey •Rendezvous •Word Attack & Classmate •Three from Mindscape •Alphabetic Keyboarding •Hacker •Disk Director •Lode Runner •MIDI/4 •Algebra Series •Time is Money •Pitstop II •Apventure to Atlantis •Feature •Capturing the Hidden Archon Editor •Core •Fingerprint Plus: A Review •Beneath Beyond Castle Wolfenstein (part 2)

27 Softkeys •Microzines 1-5 •Microzines 7-9 •Microzines (alternate method) •Phi Beta Filer •Sword of Kadash •Another Miner 2049er •Learning With Fuzzywomp •Bookends •Apple Logo II •Murder on the Zinderneuf •Features •Daleks: Exploring Artificial Intelligence •Making 32K or 16K Slave Disks •Core •The Games of 1985: part II

26 Softkeys •Cannonball Blitz •Instant Recall •Gessler Spanish Software •More Stickybears •Financial Cookbook •Super Zaxxon •Wizardry •Preschool Fun •Holy Grail •Inca •128K Zaxxon •Feature •ProEdit •Core •Games of 1985 part I

25 Softkeys •DB Master 4.2 •Business Writer •Barron's Computer SAT •Take 1 •Bank Street Speller •Where In The World Is Carmen Sandiego •Bank Street Writer 128K •Word Challenge •Spy's Demise •Mind Prober •BC's Quest For Tires •Early Games •Homeword Speller •Feature •Adding IF THEN ELSE To Applesoft •Core •DOS To ProDOS And Back

24 Softkeys •Electronic Arts software •Grolier software •Xyphus •F-15 Strike Eagle •Injured Engine •Mr. Robot And His Robot Factory •Applecillin II •Alphabet Zoo •Fathoms 40 •Story Maker •Early Games Matchmaker •Robots Of Dawn •Feature •Essential Data Duplicator copy parms •Core •DOS-Direct Sector Access

22 Softkeys •Miner 2049er •Lode Runner •A2-PB1 Pinball •The Heist •Old Ironsides •Grandma's House •In Search of the Most Amazing Thing •Morloc's Tower •Marauder •Sargon III •Features •Customized Drive Speed Control •Super IOB version 1.5 •Core •The Macro System

20 Softkeys •Sargon III •Wizardry: Proving Grounds of the Mad Overlord and Knight of Diamonds •The Report Card V1.1 •Kidwriter •Feature •Apple][Boot ROM Disassembly •Core •The Graphic Grabber v3.0 •Copy II+ 5.0: A Review •The Know-Drive: A Hardware Evaluation •An Improved BASIC/Binary Combo

19 Softkeys •Rendezvous With Rama •Peachtree's Back To Basics Accounting System •HSD Statistics Series •Arithmetickle •Arithmekicks and Early Games for Children •Features •Double Your ROM Space •Towards a Better F8 ROM •The Nibbler: A Utility Program to Examine Raw Nibbles From Disk •Core •The Games of 1984: In Review-part II

16 Softkeys •Sensible Speller for ProDOS •Sideways •Rescue Raiders •Sheila •Basic Building Blocks •Artsci Programs •Crossfire •Feature •Secret Weapon: RAMcard •Core •The Controller Writer •A Fix For The Beyond Castle Wolfenstein Softkey •The Lone Catalog Arranger Part 1

1 Softkeys •Data Reporter •Multiplan •Zork •Features •PARMS for Copy II Plus •No More Bugs •APT's for Choplifter & Cannonball Blitz •"Copycard' Reviews •Replay •Crackshot •Snapshot •Wildcard

Out-of print Back Issues

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23 •Softkeys •Choplifter •Mufplot •Flashcalc •Karateka •Newsroom •E-Z Draw •Gato •Dino Eggs •Pinball Construction Set •TAC •The Print Shop: Graphics Library •Death In The Caribbean •Features •Using A.R.D. To Softkey Mars Cars •How To Be The Writemaster •Core •Wheel Of Money

21 •Softkeys •DB Master version 4+ •Dazzle Draw •Archon •Twerps •Advanced Blackjack •Megaworks •Summer Games •College Entrance Exam Prep •Applewriter revisited •Features •Demystifying The Quarter Track •Core •Proshadow: A ProDOS Disk Monitor

18 •Softkeys •Scholastic Version of Bank Street Writer •Applewriter IIe •SSI's Non-RDOS Disks •BPI Accounting Programs and DesignWare Programs •Features •Installing a Free Sector Patch Into Applewriter IIe •Simple Copy Protection •Core •The Games of 1984: In Review •65C02 Chips Now Available •Checksoft v2

17 •Softkeys •The Print Shop •Crossword Magic •The Standing Stones •Beer Run •Skyfox •and Random House Disks •Features •A Tutorial For Disk Inspection and the Use Of Super IOB •S-C Macro Assembler Directives (reprint) •Core •The Graphic Grabber For The Print Shop •The Lone Catalog Arranger Part Two

15 •Softkeys •Mastertype •Stickybear BOP •Tic Tac Show •The Financial Cookbook •Escape from Rungistan •Alien Munchies •Millionaire •Plato •Features •MREAD/MWRT Update •Core •A Boot from Drive 2 •DB Master's Data Compression Techniques •Whiz Kid •DOS and the Drive - Part One •Adventure Tips •Time Zone •Mission Asteroid •Enchanter •Zork I •Ultima • Ultima II •Death in the Caribbean •Gruds in Space •Zork III •Starcross

14 •Features •Super IOB v1.2 Update •Putting Locksmith 5.0 Fast Copy Into a Normal Binary File •Batman Decoder Ring •A fix for DiskEdit •Softkeys •Seadragon •Rocky's Boots •Knoware •PFS Software •Computer Preparation SAT •MatheMagic •Review •Boulder Dash

13 •Softkeys •Laf Pak •Beyond Castle Wolfenstein •Transylvania •The Quest •Electronic Arts •Snooper Troops (Case 2) •DLM Software •Learning With Leeper •TellStar •Core •CSaver: The Advanced Way to Store Super IOB Controllers •Adding New Commands to DOS 3.3 •Fixing ProDOS 1.0.1 BSAVE Bug •Review •Enhancing Your Apple •Feature •Locksmith 5.0 and Locksmith Programming Language.

12 •Softkeys •Zoom Graphix •Flip Out •Lion's Share •Music Construction Set •Hi-Res Computer Golf II •Suicide •Sabatage •Millionaire •Time is Money •Type Attack •FeaturesPseudo-ROMs on the Franklin Ace •Core •Psychedelic Symphony •The CORE Disk Searcher •The Armonitor •Adventure Tips •Cranston Manor • Enchanter •Kabul Spy •Colossal Caves •The Witness •Pirate Adventure •Ultima III-Exodus •Adventureland

11 •Softkeys •Sensible Speller •Exodus: Ultima III •SoftPorn Adventure •The Einstein Compiler v5.3 •Mask of The Sun •Features •Copy II Plus v4.4C: Update Of An Old Friend •Parameter List For Essential Data Duplicator •Core •Ultimaker III •The Mapping of Ultima III •Ultima II...The Rest Of The Picture

10 •Softkeys •Arcade Machine •Bank Street Writer •Minit Man •Senible Speller IV •EDD IV •*Krell LOGO •Canyon Climber •Features •The Controller Saver •Examining Protected Applesoft BASIC Programs •Crunchlist II •Core •Applear - Voice Aynthesis •Introducing the 65SC802 and 65SC816 Chips •Review - Dino Eggs •Adventure Tips •Cranston Manor •Zork I •Planetfall •Mission Asteroid •Time Zone •Suspended •Critical Mass •Zork II •Castle Wolfenstein

9 •Softkeys •Sensible Speller •Sierra-On-Line Software •The Visible Computer: 6502 •Visidex •Music Construction Set •Gold Rush •Visiterm •Cosmic Combat {ca}Features •Super IOB •Adventure Tips •Pirate Adventure •Mask of the Sun •Colossal Caves •Transylvania •Death in the Caribbean •Zork II {ca}Core •Word Search Generator •ProDOS to DOS •ProDOS on a Franklin Ace

8 •Softkeys •Robotron •Legacy of Llylgamyn •The Artist •Data Factory v5.0 • EDD IV •Spy Strikes Back •Hayden Software •Apple LOGO •Features •Review of the Bit Copiers •Core •COREfiler •ProDOS Data Encryptor •Adventure Tips •Ulysses and The Golden Fleece •Serpentine •Ultima II •Castle Wolfenstein •Death in the Caribbean •Zork I •Zork II •Gruds in Space •Enchanter •Infidel •Serpent's Star •Whiz Kid •How Data is Stored on Disk

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4 •Features Ultima II Character Editor •Softkeys •Ultima II •Witness •Prisoner II •Pest Patrol •Adventure Tips •Ultima II & III •Copy II Plus Parms Update

3 •Softkeys •Bag of Tricks •Multiplan •Visiplot /Visitrend •Sneakers •Wizardry •Features •No More Bugs: The Sequel •Hidden Locations Revealed •Map Maker •APTs •Choplifter •Adventure Tips •Cranston Manor •Strange Odyssey

2 •Softkeys •Magic Window II •Multiplan •Features •Parameters for Locksmith 4.1 •Page Flipper •String Plotter •Three-D Wall Draw •Core Checksums •Input •Reviews of unprotected commercial software

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Issue	Mag	Disk	Both	Issue	Mag	Disk	Both	Issue	Mag	Disk	Both
69	❑	❑	❑	44	❑	❑	❑	19☆	❑	❑	❑
68	❑	❑	❑	43	❑	❑	❑	18	○	❑	○
67	❑	❑	❑	42	❑	❑	❑	17	○	❑	○
66	●	❑	●	41	❑	❑	❑	16☆	❑	❑	❑
65	❑	❑	❑	40	❑	❑	❑	15	○	❑	○
64	❑	❑	❑	39	❑	❑	❑	14	○	❑	○
63	❑	❑	❑	38	❑	❑	❑	13	○	❑	○
62	❑	❑	❑	37	❑	❑	❑	12	○	❑	○
61	❑	❑	❑	36	❑	❑	❑	11	○	❑	○
60	❑	❑	❑	35	❑	❑	❑	10	○	❑	○
59	❑	❑	❑	34	❑	❑	❑	9	○	❑	○
58	❑	❑	❑	33	❑	❑	❑	8	○	❑	○
57	❑	❑	❑	32	❑	❑	❑	7	○	❑	○
56	❑	❑	❑	31	❑	❑	❑	Core 3	❑	❑	❑
55	❑	❑	❑	30	❑	❑	❑	6	○	❑	○
54	❑	❑	❑	29	❑	❑	❑	5	○	●	●
53	❑	❑	❑	28☆	❑	❑	❑	4	○	❑	○
52	❑	❑	❑	27	❑	❑	❑	3	○	❑	○
51	❑	❑	❑	26	❑	❑	❑	Core 2	❑	❑	❑
50	❑	❑	❑	25	❑	❑	❑	2	○	❑	○
49	❑	❑	❑	24	❑	❑	❑	1	❑	❑	❑
48	❑	❑	❑	23	○	❑	○	Core 1	❑	❑	❑
47	❑	❑	❑	22	❑	❑	❑				
46	❑	❑	❑	21	○	❑	○				
45	❑	❑	❑	20	❑	❑	❑				

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