74 COMPUTIST

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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.

Laser 128: Your ROM includes a forced jump to the monitor. Press **ctrl return reset**.

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 **openapple 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 & 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. Check to the right of the authors name to see if the author is writing from a foreign country and includ the proper postage.

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.

Jack Nissel (Disk Protection, 7-10PM EST)
(215) 365-8160

Electronic Bulletin Board System (BBS)

Dave Goforth is the sysop for the Computist BBS. The number is: (206) 581-9292. If you already have a User ID# and password, sign-on using the User ID#. If you are a new user, it may take a day or so to validate your new ID# and password.

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

COMPUTIST

74

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Features, Notes and such:

Editorial Message

At last! Issue #74 has finally arrived. Real late, but it did arrive. I took a much needed (several week) vacation, but I guess you noticed.

So what's new? Well, I'm looking for someone who is going to be at ApFest as an exhibitor and who would be willing to pass out some sample copies of Computist. Let me know if you're that person/ company or if you know of someone who fits the bill.

Also, I've worked out a plan to pay back our creditors. The timetable requires that Computist go monthly. (I can hear the cheers already.)

In case anyone hasn't noticed, we have moved Computist to Eatonville so that I can spend more time working on the issues and less time commuting. If you write to us, use the new address:

Computist
33821 E Orville Rd
Eatonville, WA 98328

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The PRODUCT MONITOR

RATINGS

Superb	★★★★★
Excellent	★★★★
Very Good	★★★
Good	★★
Fair	★
Poor	☹
Bad	☹☹
Defective	💣

When the great wheel of the small computing universe takes a major turn, wobbles, and settles into a new plane, there are bound to be many users who will doubt the evidence of their senses. ("Did the earth tremble? Did the stars shift? WHAT happened?!") Hence, the 'last minute' decision to compress this month's reviews and issue the "Report".

Report from the Computer Wars

I. Tsunami

What promised just last summer to be a PC wave has become a rolling tsunami. One minute you're strolling down a city street, considerately stepping over and around islands of PC hardware; the next, you're running for your life in the shadow of a churning skyscraper-high wall of machines and circuit boards. Something important has happened in Computerville; a milestone has been reached. When? Sometime between last fall and this spring. What? Nothing less than the end of Computer Wars I!

II. Myth

During some fifteen years of competition among names like Altair, Southwest Technical, Imsai, (Ohio Scientific, Tandy, Atari, Apple, Commodore, ...), it became an article of faith that the outcome would be THE dominant computer maker. Presumably, the manufacturer of the best machines would attract the overwhelming majority of users and that would be that.

Much to the delight of TRS-80, Apple II, and Atari 800 makers, the Microcomputer Club soon gave way to product-specific groups of true believers determined to expand membership and win immortality ("II Forever!", etc.) for their machines. It was entertaining; but, of course, it was mainly hype. Even were users willing and able to flit from machine to machine like butterflies, no major manufacturer was particularly attracted to anything so intangible as Computer Wars "victory". The corporations (believe it or not) were aiming to maximize profits, not user numbers! Both Apple and Commodore built up large, enthusiastic home user bases, then neglected them in favor of the lower volume, higher profit business market. So much for "winning the world".

III. Sluff-off

For home users, developers, software publishers— for everyone, in fact, with a stake in the "low end" machine— such half-hearted support has always been as puzzling as it is frustrating. We invest hard cash in an Apple computer, join Apple clubs, subscribe to Apple publications, (slap Apple stickers on binders, use an Apple key ring, ...), fill shelves with Apple software, and buy Apple peripherals. Apple, in return, drags out development of a IIgs operating system, pours money into its business machine, and adopts a 'dog in the manger' position which all but kills any chance of a timely third party upgrade needed to maintain IIgs performance parity with the competition.

To be fair, Apple has behaved no worse— indeed, on the whole, much better— than other home user 'flagships'. Each new II model has preserved broad downward compatibility; and documentation, from early manuals through the current Addison Wesley series, has been among the best. Finally, both the IIgs and its operating system benefitted from recent minor upgrades. It's no wonder home users are confused. If Apple is at all concerned about its II series, why isn't concerned enough?

After the near brush with collapse in '85, we reasoned that Apple (now also "Big Green" the business machine maker) would forever regard holding onto its II home user base as a high priority. Surely, Apple had learned its lesson. So it had, though not the lesson we supposed. IIgs revenues were a help in those troubled times; but the more important contribution was an industry-wide confidence that "Apple is back". Stock values rose, capital rolled in, the Mac II was launched, and viola!, Apple WAS back! The lesson for Apple was clear enough: 'everyone' still equated corporate health with II prosperity. It had become captive to its low end, low profit product line.

There are several reasons why Apple might view this situation with alarm. Of these, the popular notion that a IIgs resulting from a series of forced upgrades might impact Mac sales is probably the most over-rated. As Apple's own marketing people have adroitly demonstrated, it is entirely possible to render a product "business invisible". Your ads merely assert that the IIgs is a home/school computer and that the Mac is for business. Once the systems are bundled with appropriate software and the price tags slapped on, few IS managers would consider filling an office with IIgs's.

No, the simplest explanation for Apple's concern is also the one which best fits the facts. Well before the '85 crisis, Apple had decided that costs of its II series were beginning to outweigh rewards. Selling all of those computers, disk drives, and printers to create a large home user base was great fun. Customer service, support R&D, and selling upgrades to maintain it was not nearly so profitable. Apple wished to be free to deal with its II series on its own terms. Most certainly, the Lords of Cupertino were determined to be rid of a situation which allowed home user complaints, doomsday editorials, or expressions of teacher dissatisfaction to rock corporate pylons at the foundation.

By 1988, an aggressive ad campaign and expanding Mac II sales had solved the problem. Apple shed its "home computer maker" skin and became "Apple, the maker of pricey, high class business computers". Whether the II line is spun-off, sold, or merely "supported" at current low levels, one thing seems clear. The odds are very slim that II users will ever again be an important part of Apple's empire. Consider yourself sluffed.

IV. IBM: Grud-maker

IBM's first PC was chiefly remarkable for what it was not. It was not a closed-box, highly complex machine packed with proprietary hardware. Featuring an out-of-the-Intel-manual design with slots for peripheral boards, it was virtually Apple's II+ 'done in business grey'.

From the start, PC's simple, straightforward profile proved both a blessing and a curse. The blessing was that flocks of third party manufacturers quickly began to fill the machine with performance-enhancing boards and peripherals. The curse, from IBM's point of view, is that it proved impossible to protect PC from hordes of grud-like cloners.

[Note: In case you missed playing "Dark Forest" or a sequel, gruds are short, green, swarthy, fast-multiplying reptiles— sort of a one-horned ninja turtle without the shell.]

Anybody could make a "PC compatible" and, from AT&T to one-garage assembly shops, 'anybody' did. Worse still, as IBM moved first to the XT and then the AT, it encountered successively more cloners taking progressively less time to develop better copies at lower prices! When, at last, Big Blue moved to its supposedly less clonable PS/2 platform, it was already widely understood that the best grud AT's were at least as good as the IBM original AND cheaper.

Had the Mainframe Moguls set out purposefully to create a dangerously competitive computer making sub-culture, they could hardly have improved upon the course followed. Faced with such inept meddling, the Apple Lords must have felt a bit like the old Sorcerer watching his Apprentice chop the animated broom into a million pieces. Naturally, by the time Big Blue ran for the hills, the small computing landscape was knee-deep in gruds. (Even today, it is said, Apple's Consummate Enlightened One will awaken in the dead of night, sit up bolt straight in his bed, and scream "Why must I lose to such idiots!")

For good or ill, IBM had delivered big manufacturer technology and the market to go with it into the hands of countless small manufacturing free enterprise fanatics. Here the "big names" appear on metallic stickers slapped into square indentations thoughtfully provided by PC case manufacturers; and you're only as good as your prices are low. Though, in this maze of interlocking board makers, assemblers, and sellers, each component may come from almost anywhere, by 1988 the cloners had managed a 'stock' AT featuring VGA color. Soon there followed compatible '386 models, low cost Ad Lib sound; and (barely months after the chip became available) the first '486 machines were ready. Incredibly, the no-name gruds had moved beyond mere clone-making without missing a beat.

V. Outcome

Computer Wars I did not pick a winning manufacturer; it did pick a winning, standard platform: the "PC AT or compatible". Just look at unit sales, the quantity, quality, and range of software releases, peripherals variety, and newspaper/magazine advertising. The clincher is a pattern of plummeting prices, increasing performance, and rapid adoption of cutting-edge technology. It all adds up to the same thing: a 'standard computer'. Today, when you say "computer", everyone knows you mean "PC".

As of summer 1990, the 'typical PC' is an 8-16MHz '286-based machine with 640K-1MB (zero wait state) RAM, 1.2 MB 5.25" floppy, and 40-60MB hard disk. Featuring VGA color and Ad Lib sound, the system also includes "enhanced keyboard", VGA monitor, and cards for serial & parallel I/O, disk controllers, clock, and joystick ports— all for about $1400. (33MHz '386 versions sell for roughly $2000). If current trends persist, by late fall prices will have dropped 10-15%.

Where does this leave II users? As of this spring, IIgs users sat atop a large, divers software base. As of summer, very little has been added. While you can reasonably expect continued releases in such areas as utilities, languages, and education, the outlook for productivity wares is rather poor. As for major vendor entertainment releases, don't ask! Just take last summer's predictions and slap on a "You are Here" sticker.

Though loyal, literally, to a fault, II users are not likely to long tolerate a situation which not only saddles them with sub-par performance, but also shuts them out of the major vendor software stream. Mainly, you 'won't take it any more' because you don't have to. Look at the economics: As a IIgs owner you are probably looking forward to a speed/graphics upgrade and the addition of a 40-60MB hard disk. Well, at normal Apple stuff prices (and assuming a graphics upgrade becomes available) your planned outlay comes painfully close to the total cost of the "typical PC AT"! This much seems clear, by next summer many (perhaps most) II owners will also be PC users.

Doom? Gloom? The 'end of forever'? Not at all. In fact, the gruds may have delivered what Apple only promised: practically unlimited II continuance. One of the ironies of the present situation is that the very forces which make taking the PC plunge so appealing (e.g. low prices) also make dumping your IIgs stuff unattractive. Even as the junior partner in a two-machine installation, your IIgs is worth vastly more to you than it is likely to sell for. (Besides, all of your records are in Appleworks files; little Suzy just started "Dungeon Master", etc., etc..) So long as II's remain in the hands of skilled users there will be no lack of interest in performance enhancements, peripherals, and new software.

The gruds may be dancing in the streets, but the biggest winner in Computer Wars I is the computer user. Proprietary fiefdoms and semi-monopolistic pricing are being swept away; and, for the first time, we can look forward to a unified software base spanning home, school, and business users. Granted, this was a conflict that ended, not with the clash of cymbals, but the toot of a kazoo. The big name manufacturers, assorted publications, and many others will, naturally, try to pretend that it's 'business as usual'. It isn't. Computer Wars I is history. Computer Wars II is a whole new ball game!

Populous

Electronic Arts

★★★★★

$49.95 for 512K PC

Having observed the relish with which computer wargamers take to their god-like powers, the guys at Bullfrog Software decided "What the heck. Why not stop beating around the bush and go for the Real Thing!" Right, in EA's "Populous" YOU are a god. Like the gods of Greece, Rome, etc., your power depends upon the numbers and prosperity of worshipers (i.e. the number of map squares they've settled). Since, regrettably, there's just so much 'map' to go around on any given planet, your arrival on another god's world always sparks a no-holds-barred contest with each side's followers squarely in the middle.

Each of the five hundred worlds is different. Aside from the map, a world will offer one of four 'stock' terrains: Forest and grass, Volcanic rock, Snow and ice, or Desert with palm trees. Other major variables determine starting numbers and location(s) of followers, limitations on building structures (by followers), the hazard presented by water, deadliness of any swamps which may be created, the adeptness (i.e. speed and smarts) of the opposing god, and the powers each god is permitted to invoke. For instance, only the enemy god may be allowed to create berserker "Knights" (who immediately head for your territory and carve a path of destruction until killed); whereas only you may have access to the awesomely destructive Volcano power.

At any given time the arena of conflict is a much-magnified square slice you've selected from the world map. Here, as on a papermache model, you see hills, shorelines, mountain cliffs, plains, etc. along with huts, lodges, and other structures, up through elaborate castles. People are visible too— usually, scurrying about looking for land to settle. Depending upon current power level and scenario limits, you may visit destruction on enemy followers via earthquakes (everything shakes and buildings collapse), swamps, volcanoes, or flooding. To help good followers you might create a knight or relocate the Papal Magnet to guide followers to new areas for building and/or conquest. (When opposite side followers meet, they fight to the death.) By far, your most important contribution is the creation and reshaping of land for settlement. This you do (via point and click) by scalloping out and filling as appropriate. (Landscaping, by the way, turns out to be an inherently pleasurable activity, like popping monsters in an arcade.) Ultimately, your goal is to rid the world of all but your own believers; whereupon you win!

Wow! Even 'red ants versus black ants' was never so much fun! To observe that the game's graphics and animation are spectacular almost qualifies as understatement. Add full-range Ad Lib (or Roland) sound effects and Electronic Arts chalks up a wargaming masterpiece.

The Magic Candle

Mindcraft

★★★★

$49.95 for 64K Apple II

In this major Ultima-look adventure, your real problems start when the Dwarves won't give you the Hoyam essence needed to attract the White Wolf (who, you have heard, has an amulet needed to get into the Sudogur maze, where 'the book' is said to be) until you recover the Great Hammer of Thorin, which (alas) was stolen by some orcs. Then, someone (?!) has to deal with the Ogre Lord; the Queen of Crystal Castle says no crystal dust until you've cleared her dungeons of enemies; the Elves want their Magic Cloak returned, and ... . Well, it's small wonder that most of Deruvia's inhabitants halfway expect the Great Candle (the one you're trying to save) to finish melting and release a dreaded demon lord!

Offering a multi-continent, multi-island gamescape dotted with cities, villages, and castles, plus ten challenging multi-level mazes, " 'Candle" is, in fact, a much larger undertaking than even its considerable real estate suggests. Each city, village, etc. is inhabited by numerous personages. These are real people, with occupations and schedules; and, usually, each possesses one or more bits of valuable information. (e.g. "You'll find old Ferrin at the Inn early in the morning", "Seek the Mad Wizard's help", etc..) Keeping track of who said what, PLUS where and when (in case you need to return for follow-up questioning), AND, once you have the 'pieces', putting them together... all amount to a decent test of organizational skill. Meanwhile, you are managing the affairs of six fighters and/or magic users, whom you may disperse and follow individually or in smaller groups for training, to earn gold in shops, or explorations. Good systems for weapons/armor and magic plus entertaining tactical combats guarantee that maze and countryside explorations are fully as engrossing as your contacts with friendlier inhabitants.

When I finally wrapped up "Magic Candle", it was only a minor shock to discover that an entire 8 x 11 tablet had been filled with maps, chants, teleporter combinations, assorted legends, and other notes. Three or four weeks enmeshed in the intricate, colorful, humor-laced quest had simply flown by. Aside from the near-invulnerability your party acquires toward the latter third of the game, this is expertly crafted, smooth-running adventuring with the graphics, sound support, and long-play fun you expect in a genuine classic.

Grand Prix Circuit

Accolade

★★★★

$44.95 for 512K Apple IIgs

Since, by now, everyone's had a taste of the road roasting realism of Accolade's "Test Drive II", the implications of putting this sort of power on a super-res, super-sound Grand Prix track won't take a lot of elaboration. Depending upon choice of Formula One racing team, you pilot a road-hugging V-12 Ferrari, a versatile V-8 Renault, or a Honda Turbo 6-speed bomb; and, as in " 'Drive II", you'll be able to see, hear, and feel each car's distinctive 'signature'.

Of course, in "'Circuit", the 'enemy' isn't just the twisting track you tackle in eight Grand prix cities, it's that pack of nine roaring monsters you see in the rearview mirrors, crowding you on the turns, and trying to box you in on the straightaways. To even the odds a bit, 'instrumentation' (along with tach and speedometer) shows your location on a track map insert, damage taken (for planning pitstops), current lap, and position. (There must be something this program doesn't do right— like, maybe the scenery could be prettier...) For now, you can practice, pick a race and go for the track record, or take on the whole circuit in a quest for the World Driving Championship. Neato!

Windwalker

Origin

★★★★

$39.95 for 128K Apple II

It was bad enough when the warlord Zhurong usurped the throne of Khantun; but, when his henchman, the wizard Shen Jang, began gating in evil spirits to pollute the shrines... !!! At last, Mobius has called upon his most loyal disciple (i.e. you) to travel the islands and seas of the kingdom, perfect your powers, and restore correct order to Khantun.

Nominally the sequel to "Mobius", "Windwalker" sports the same kung-fu theme and motifs; and, once again, you will engage in arcade-action one-on-one ninja-style combats against variously armed opponents. (Not too long ago, this expertly animated fight arcade could easily have qualified as a game in itself.) Otherwise, "Windwalker" is a very different kind of adventure— one boasting a more complex scenario which makes exploration and problem solving at least as critical to success as combat. Since exceptional arcade expertise can substitute for magical assistance and vice-versa, the actual balance is up to you.

The lot of a would-be Windwalker (the highest of twenty-five ranks) is not an easy one. Aside from battling the occasional thief, ninja, guard, or other troublemaker, you must obtain food and supplies, find a boat to explore distant islands, exorcise temples of life-draining demons, earn your monk's robe and staff, search out magical potions and artifacts, and, somehow, get rid of the usurper and his cronies. Thanks to helpful "Kingdom Map" and "bird's eye-view" displays, map-making, at least, entails little more than simple drawings to serve as reminders of what's where.

Showcasing a unique 'over-the-horizon' simulated 3-D adventuring display, "Windwalker" 's beautiful double-hires scenery, sound effects, entertaining combat, and clever scenario will have you hooked in no time. From thence onward, the only way out is the way of the Windwalker. Expect several long afternoons of first-rate questing.

Space Rogue

Origin

★★★

$49.95 for 64K Apple II

Everyone knows the insectoid Manchi are raiding human space, but nobody seems to know why. Maybe it's poetic justice that you, the lone survivor of a bug strike on a trader, suddenly find yourself in the service of the Empire, charged with unraveling the mystery before it unravels Far Arm Cluster civilization.

Take "Elite" 's arcade combat and trading challenges, add Ultima-type maplets for stations in each of the eight Far Arm systems, and wrap everything in an involved scenario: that's "Space Rogue". Your job is to acquire a small fortune, improve your Sunracer's shields and weapons, build your combat rating, and follow a trail of conspiracy as twisted as the wormhole paths that link each star system. Love struck robots, mutant monsters, pirates, priestesses, ... they're all here, and more (even a nifty little video game called "Hive"). Supplied with manuals and fold-out map, "Space Rouge" offers a colorful, well-planned mix of moderately easy combat action and fast-paced adventure.

Powerdrome

Electronic Arts

☹

$49.95 for 512K PC

There's a good reason the PC took so long to win enthusiastic home user support. Only last year did quality, low-cost Ad Lib sound become the recognized standard. Very, very few action games are worth playing without decent sound effects. "Powerdrome", a futuristic 3-D aircar racing challenge featuring fast, smooth, beautiful VGA displays and responsive controls is very attractive; but it is not among the exceptions. Everyone knows 25th-century racers are supposed to "Zavooom" or "Whoosh" or something!— not sail along in ghostlike 'old sound' near-silence.

Dragon Strike

SSI

★

$49.95 for 512K PC (6Mhz min. AT)

Set in the days of the great "War of the Lance" (ref. "The DragonLance Chronicles"), this Dragon Combat Simulator starts you as a low-ranking knight, plops you on the back of a bronze dragon, and says "go get 'em". Your first mission (code name: "Snow Blind") takes you over the western mountains to intercept and knock down an enemy scout (riding a small white dragon), lest he report recent critical moves of the Good armies.

From the saddle, beyond the tip of your lance, your dragon's head, and its slowly beating wings, you have a half-screen view of the landscape and sky. Arranged around the view insert are a radar-like enemy locator sphere, compass, pictures of special items carried, and indicators for hitpoints plus dragon altitude, speed, power, and breath readiness. (i.e. the D&D version of a jet cockpit view.) Once the enemy is sighted, you can guide your mount to the attack (swoop down from above, etc.) and inflict damage with a well-place lance strike and/or a blast of dragon fire. Successful completion of a mission— there are 22 in all— yields a boost in rank, a tougher, deadlier mount, and, sometimes, the chance to acquire magical artifacts.

Supplied with manual and eight 'enemy identifier' cards, "Dragon Strike" is somewhat more clever in concept than execution. Between-mission pictures, Ad Lib music, and speedy Save-Restore are solid plusses; but they do not compensate for the weak sound effects and poor animation you encounter in combat.

Champions of Krynn

SSI

★★★

$49.95 for 64K Apple IIe (65C02) or IIgs
$12.95 for Clue Book

(The compatibility specification is a bit confusing. The box label includes the II+; but, inside, "65C02" is specified. Evidently, since the program bombed on a II+ using a 65C02 speedup card, your Apple II must have a 65C02 or equivalent on the motherboard. The game runs fine on a IIgs. Naturally, a PC version is available.)

Third of SSI's full-scale D&D adventures, " 'Krynn" (Vol. I of a new series) retains the format of earlier releases with just a few changes. (Mazes are still 3-D forward view; tactical combat is handled on a scrollable top-down view display; etc..) The most obvious change is the single-screen map of N.E. Ansalon upon which the party moves (as a dot) between major cities and outposts. A more subtle change is the move to a more involved, better thought-out scenario leading to a for-real conclusion and appropriately meaningful accolades (i.e. if you win).

Your goal in post-War (of the Lance) Ansalon is to thwart "The Plan", an evil arch-mage's ambitious plot to secretly renew the vanquished draconian hordes and exterminate the complacent forces of Good. As you encounter well-developed good, neutral, and evil personages (including some Evil henchmen you'll love to despise), you will have opportunities to make valuable alliances, solve puzzles, and acquire powerful artifacts. Though you will, if you live, arrive at the site of the big showdown in time to aid the good armies, your chances of victory here, and along the way, will depend upon numerous earlier choices. You do not, in short, face the dreary prospect of a 'lock step' scenario.

While 'getting into' the story is much of the fun, the game's star achievement is a series of expertly-designed tactical encounters. Among the, generally, improved combats are 10-15 especially challenging, highly entertaining battles which entail (besides a pre-conflict game save) special planning and preparation. These, once won, are 'the stuff of legends'!

Supplied with manual, journal (including the usual key "paragraphs" and "Tavern Tales"), and directions card, "Champions of Krynn" is the first of SSI's D&D productions for which the cluebook is not absolutely essential. This is the SSI game D&D veterans have been waiting for.

Solitaire Royale

Spectrum HoloByte

★★★

$34.95 for 512K Apple IIgs

Spectrum's solitaire collection delivers super-res, super-sound table top realism and the convenience of no-fumble mouse-click 'card handling'. " 'Royale" offerings include Pyramid, Golf, Klondike, Canfield, Three Shuffles and a Draw, Calculation, and Reno. A separate "Children's Menu" offers three simple 'concentration' and matching games.

Arrangement options let you select and play a single game, play all eight games in sequence (i.e. play a "Tour"), and set up a single game or Tour tournament involving any number of players. The top five scores are maintained for the non-tournament Tour and current tournament. For some reason, perhaps to be "fair", the program insists upon dealing identical hands to tournament participants— not, of course, especially fair if other players happen to be watching.

Offering a choice of several card sets and the option to set table color, "Solitaire Royale" comes with an attractive, well-written rules/instructions manual guaranteed to launch even a rank beginner in minutes. This is a gem of a package good for many hours of solitary entertainment.

Knights of Legend

Origin

☹

$49.95 for 384K PC

Supplied with fold-out command card and handsomely-illustrated 142-page manual, "Knights' " spans six (6) 360K diskettes! Clearly, this is an ambitious project— one for which, according to a card in the box, "further region and adventuring modules are in development". Too bad. Whereas the Apple II version is so slow, hobbled by disk swapping, and cumbersome as to be unplayable; the PC version, running on hard disk, is merely mildly punishing. Somehow, "Knights' " seems to delight in making mundane operations (e.g. viewing a character's inventory) as clumsy and bothersome as possible. Experiments with tactical combats only confirmed this impression. Despite attractive, smooth-scrolling EGA maps and the hints of a promising quest offered by town personages, this is an adventure cursed by its own user-hating interface. With luck, Origin's first "Knights' " adventuring module will turn out to be a thoroughly reworked, play-tested "Knights of Legend" re-release.

Fast Frames, Updates, Etc.

Copy II Plus 9.2?

As promised Central Point has sent out version 9.1 (the free fix for 9.0) to registered owners. The Sort Catalog function works, 5.25" Auto Copy parms are now in a single convenient file, and an option has been added to facilitate restarting from ProDOS /8 or GSOS. Unfortunately, one fairly significant glitch has slipped through: if you have a RAM disk, some Bit Copy functions (notably Manual Sector Copy and Auto Copy) tend to bomb. (With RAM Disk set to zero everything seems to work fine.) Central Point has been notified.

Too Old to Turbo Mouse

In the favorable review of Kensington's "Turbo Mouse ADB" trackball I noted that the "chording" and acceleration detection features did not work when TM was used with a Woz (early release) IIgs. Kensington explained that the product had been developed and tested on later IIgs models which had undergone a fix (unannounced by Apple) of the ADB controller. They "hoped" to have a model which would work with all IIgs's, but made no promises. Good thing. A recently tested current model exhibited the same old problems when connected to a Woz IIgs. (TM, by the way, is not the only product which has Woz problems.) For now, any fancy Turbo Mousing is best left to younger IIgs's.

Vendors

ACCOLADE
Attn: Melinda Mongelluzzo
550 S. Winchester Blvd., Suite 200
San Jose, CA 95128
(408) 985-1700

ADDISON-WESLEY PUBLISHING
Attn: Abigail Genuth
Route 128
Reading, MA 01867
(617) 944-3700

AD LIB
Attn: Jill Carette
220 Grand-Allee East, Suite 960
Quebec, QC G1R 2J1
Canada
(800) 463-2686

CENTRAL POINT SOFTWARE
Attn: Copy II+ Mkt.
15220 N.W. Greenbrier Parkway #200
Beaverton, OR 97006-9937
(503) 690-8090

ELECTRONIC ARTS
Attn: Lisa Higgins
1820 Gateway Drive
San Mateo, CA 94404
(415) 571-7171

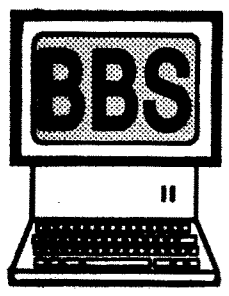
KENSINGTON MICROWARE
Attn: Carol Andreuzzi
251 Park Avenue South
New York, NY 10010
(800) 535-4242
in NY call (212) 475-5200

MINDCRAFT
Attn: PR Coordinator
2341 - 205th Street, Suite 102
Torrance, CA 90501
(213) 320-5215

ORIGIN SYSTEMS
Attn: Greg Malone
110 Wild Basin Road, Suite 330
Austin, TX 78746
(512) 328-0282

SPECTRUM-HOLOBYTE
Attn: Rita Harrington
2061 Challenger Dr.
Alameda, CA 94501
(415) 522-3584

STRATEGIC SIMULATIONS INC.
Attn: Linda Blanchard
1046 North Rengstorff Ave.
Mountain View, CA 94043
(415-964-1353)



NEWS

David L. Goforth WA

Well the BBS is doing pretty good. I've been working on several mods that people have requested, they are:

Autolog - Accessed from the Main menu, prior to starting it will ask if you wish to include the file bases, bulletins, and on-line sections (select the ones you want). It will then display all new messages in all accessible bases without pausing for any key strokes. If you selected to include files, it will then display the current file list in all file areas. Including bulletins will display all bulletins and if the on-line section was included it will show a list of the available on-line features. Upon completion, it will automatically log you off. This feature was added to reduce the connect time for long distance callers. Prior to displaying the first message, you will be asked if your copy buffer is on. Answer "Y"es and you need not press another key (BE SURE THAT YOU HAVE AVAILABLE DISK SPACE OR MEMORY TO HOLD ALL THE SELECTED INFO). If you answer "N"o to this question, you will be asked if you wish to continue anyway. A "N"o response will return you to the Main Menu. The ONLY three keys that will function once this

has started are the **ctrl S** (to stop the listing, any key will start it up again) and **ctrl Q** or **ESC** (these will abort the selected feature and return you to the Main menu without logging you off).

Quicklog - Works the same as Autolog except that rather than logging off, it will automatically return to the main menu so that you may stay on line to upload or download files, write messages, etc.

Note: Both Autolog and Quicklog will automatically update your message pointers so if you return to the message base after either of these, it will indicate that there are no new messages (because you just read them).

Post Office - A real private mail system! This will take the place of the E-Mail message base. It will also tell you when logging on if you have mail and give you the option of reading it then (you can also get to it from the Main menu). After reading your mail, you must choose to Delete, Reply, or Save it. After you reply (if you selected this), you must again choose to Delete or Save the original message. Saved mail will NOT show up at logon.

User setup - currently the Personal Data section will include an option for full (as currently seen), abbreviated (command letters only), or no menus (only a command prompt).

The message base will have the submenu command defaulted to "N"ext when reading messages (so you can press return rather than "N").

File bases ALREADY have separate sections for DOS 3.3, ProDOS, and GS. When the system expands to a larger hard drive a graphics section will be added. There will also be an EAMON section and new upload section. The new upload section will be where all newly uploaded files go until they are transferred to another section. As previously stated, all new bases are restricted to BBS members only...

Zoom description - New feature for the Files area. This will allow viewing a more detailed file description (10 lines max) that can be edited by the uploader.

Read ASCII text file - New feature for the files area. Allow reading ASCII text files. This can currently be done by selecting "**D**"ownload and then selecting "**A**"SCII transfer (rather than Xmodem).

Other coming features include a VERY large change to the Personal Data section (which will be changing to "**U**"ser setup). Some coming features include: Setting which message bases and file bases will be displayed with the autolog and quicklog feature. If you wish to make your REAL name or address or phone number and other data viewable in the user list (default is no, only user # and Handle will be shown).

Most of these changes are the result of user suggestions. I hope they help and you find them useful. If you have any other features you'd like to see on the BBS please let me know. Also, the winners of the software I mentioned in issue #72 will be listed in the next issue.

General (Public)

User #922

Subj: GIF Graphics

I am looking for individuals interested in exchanging GIF files. I have a large library available to offer. If you are interested, leave E-Mail for user #922. Also, I have an APW database showing the entire GIF listing that is available.

User #695

Subj: BBS

Call the only Apple II BBS in Colorado Springs - Mile HI Apple Pie 719-632-9126 Tell 'em Ober Drache sent you! :)

User #1062

Rumors & Propaganda

- GS System Disk v6.0 is in beta testing right now as is Hypercard GS. The new system disk will have many improved tool sets including a brand new one for sound. The sound tool (#35 I think) can play top quality sound without using up lots of disk/memory space. Hypercard GS will be able to directly read the Mac Hypercard stacks off of Mac disks. This seems to hint that a HFS FST will be included, either with the new system disk or the GS Hypercard package.

- Video Technologies, the folks who put out the Laser 128 line of computers (great computers BTW), are close to finishing a GS clone. The prototype has already been shown to developers.

- ZipTechnologies (ZipChip [illegible]) are working on their own GS accelerator. Word has it that it runs at 12 Mhz to start with and can be upgraded easily. The problem with it not being out yet has to do with marketing, not engineering.

- The rumored upcoming low cost Mac supposedly has 640x400 resolution, Apple // compatibility, 8 bit color (256 or so colors on screen), among other things. This to me sounds like the long awaited GS+ to me (let's hope!).

- Mac Inc. (everyone else calls them Apple Inc.) has a Mac Plus board that plugs into a slot in the current GS and allows it to run Mac Plus software (128K ROMs, HFS, etc).

User #1064

Subj: Ace Detective by Mindscape

Does anyone know how to crack Ace Detective? Any help would be appreciated . Disk can be copied but won't boot up.

User #750

Subj: Ace Detective

Try this technique to deprotect Ace Detective. It works for Ace Reporter and it might work for Ace Detective.

1. Copy disk with program that will ignore errors.

Trk	Sct	Byte	From	To
$01	$01	$00	A2	60

Sysop (User #937)

Subj: Archived Programs

Bugs in ShrinkIt 3.01

ShrinkIt 3.01 has a few bugs. ShrinkIt 3.02 is now available for downloading in the public file base. It is an Executable text file that will automatically unshrink itself "-ShrinkIt" from BASIC or launch from the Finder. It will now work with the system 5.0x resource forks so no more shrinking disks for system 5.0x files.

User #15

Subj: Archived Programs

Does anyone know what the various file types and extensions are for programs archived with other than Shrinkit? The Shrinkit Docs. say it is file type $E0 with an extension $8002. I'm looking for ACU BLU BNY etc. Any help would be appreciated.

SYSOP (User #937)

Subj: Archived Programs (reply)

Going through the Apple tech notes: These should all be $E0 with the following Aux types:

$0001 - Apple single file format
$0002 - Apple double header
$0003 - Apple double data
$8000 - Binary II
$8002 - NuFx (ShrinkIt)

ACU, QQ (squeezed), DDD.PRO, & DD.Deluxe were not listed as of the March 1990 revision to the Apple Tech notes. ACU should however follow the same guidelines as ShrinkIt. The other unlisted ones (as well as Binary II) are not true archival, data compression routines & are used more for telecommunications transfers (multiple files into a single file - as stated for Binary II in the tech notes).

User #1064

Subj: Tetris IIe

Does anyone know how to crack Tetris. The parm for it on CopyII v9.0 doesn't seem to work and I've tried several other methods and can't come up with anything. thanks my user Id is 1064.

User #1061

Subj: Call Here

Here are some GREAT boards for you to call...

Byte Bastards .....(201) 697-7001
Silver Tongue .....(708) 759-1916
Apple Connection .....(714) 557-9138

User #1064

Subj: Easy Graph II by Grolier

Does anyone know how to crack Easy Graph II? When I sector edit the original, I find it to be written in Pascal, version 1.

User #1054

Subj: Tetris IIe (reply)

A crack for Tetris can be found in Computist #62 page 23. I used this crack to deprotect my Tetris game. The one thing I did find out is that the sector edits for the 128K version are at track 00 sector 02 and the one for the 48K was at track 00 sector 05 for my version of the game.

I found the same thing with one exception. The II+ side would kill itself if it was not write protected (meaning that scores could not be kept) but other than that & the change in location (sectors) it worked fine. (sysop)

User #1100

Subj: Task Force (gs)

Anybody know or have the crack to this great GS game? It's been on the pirate boards for about a month now. It uses a bad block check. I tried my hand at it but it is very different than all the rest of Britannicas software protection schemes. The code is hiding from me and I cant find it.

User #543

Subj: Issue #72

To Keith B. Reed: Your apt for Pirates GS does eliminate the program asking for data about the Silver Train or Treasure fleet, but in my version it also wiped out all the towns too!

To Zorro: your article about putting Autoduel on a 3 1/2 disk was close but no cigar! Copy II plus, by the way, does not recognize UniDos. (I know you had no way of knowing this.) Also, I had a couple more edits for the file names to perform and still it didn't fly. Oh well, maybe later I'll give it another shot.

To Daniel Bashford: The apt for Wings of Fury (Hit esc type 'ask') didn't work on my disk. Is yours an original, if so what version?

User #1094

Subj: ProDOS Cracks

I am not sure if this will work on all PRODOS disks, but it worked for me on three - Curious George, Pow Bam Kerplunk and Weatherschool.

All three disks had ONE item in common. When you quit the original program, the PRODOS program comes on and asks you to state where you want to find the next application.

Here are the steps....please report any successes and failures:

1) Copy COPY II PLUS or CAT DOCTOR to RAM
2) Boot the original disk
3) Terminate the program and get to the copy program
4) Copy all files except PRODOS into RAM
5) Copy all files from RAM onto a freshly formatted PRODOS disk
6) Add a nice GOOD ProDOS to the copied files disk

This should work. Contact me at the Silicon Shed (505) 293-5538 and report what programs it worked on for YOU.

For those of you who wish to contact people closer to home, call my board, The Silicon Shed, in Albq., NM. (505) 293-5538.

User #457

Subj: GS Graphic Artist

I'm in need of a graphic artist on the GS (super-hi-res screens) if you think you can do artistic work and can follow guide lines please get in touch with me. I'd love to see some work. If you can I would need to know your address (real name) & phone # Thanks,

User #1082

Subj: Easy Graph II by Grolier (reply)

Most of the Pascal protections that I've run into have a check something like:

```
BD 8C C0
10 FB
C9 XX   Where xx is not D5 AA AD DE or 96
D0 F4   Branch to somewhere if the compare is wrong
18 60
```

What to do is put an 18 60 EA at the first BD 8C C0 that has the protection code in it.

User #790

Subj: Centauri Alliance

Help!! I am looking for some help to the following area's.

When in Zentek's Fortress, what is the password the computer is looking for? What about the Magic Mouth. What is the title I need to use for Tonka's place? What are some of the special items used for: Black Box, Cig Butt, etc.

User #17

Subj: Senior Prom

Is it still possible to order the Senior Prom? I called a telephone number listed in back issues, but they can no longer supply this product. Several cracks require a way into the monitor and this is the only product that I have seen mentioned that will be of assistance when using an Apple IIc. I hope someone can help me obtain information on this product's availability.

On another note, this BBS is great. I'm not surprised, since the magazine is so good. Would it help the magazine if products were advertised in it? Maybe this is easier said than done, but all magazines need advertising revenue to remain solvent.

Well, keep up the good work.

User #601

Subj: Deluxe Paint II

A friend of mine just changed from GSOS v4 to v5.02 and now finds that her version of D.P. does not work. I read somewhere that a file needed to be copyed under a different name but not having D.P. I did not write the name down. Does anybody Know how to get it to work under Sys.5?

User #1147

Subj: Certificates & More Help

I recently purchased Certificates & More from Mindscape for the Apple IIe with 128K of memory. The program is written to run under ProDOS but so far I haven't been able to copy it. It comes with a backup disk but the backup wouldn't boot due to the copy protection. If any one has any ideas on how to deprotect it, the information would be greatly appreciated.

User #1054

Subj: Dinosaur Days & Strike Fleet

Does anyone out there have a crack for Dinosaur Days by Pelican Software, Inc. other than the one in Computist #71 which I have tried repeatedly. I have found out that the speed at which the drive was set to write to the disk is approx. 195.5. Also does anyone have a crack for Strike Fleet by Electronic Arts? The only thing that I have been able to find is off my bit copy which doesn't work by changing the last jump (4C) to EA EA EA at track $00 sector $00 that I can look at the code. Also by tracing the jumps through after the bit copy breaks out into machine language that I come to a jump that jumps to an address of which it looks at the second hex bit and the hex bit of the next address and then hits a RTS (60). A really weird jump but it does take time to find it. I would appreciate any help that anyone can give me. I will soon upload a deprotect scheme for Practicalc II, and Neverending Story.

User #1094

Subj: National Inspirer

I am trying to de-protect a Tom Snyder program for classroom use. It is called National Inspirer, and although it is a Tom Snyder program, there is copy-protection that I cannot alter. I have tried what "cracks" have appeared in previous Computist magazines without help. If you can assist me, please leave E-Mail

User #543

Subj: Easter Egg

Try hitting option-shift when in the desktop and pulling down on your Apple. Instead of 'About The Finder', it should say 'About The System'. Then click on the icons in the box.

User #1137

Subj: Gradebusters 1,2,3

Does anyone out there have a "crack" for this program? I would VERY much appreciate any help that anyone can give. I would even be willing to send my registered back-up copy to anyone who feels they could handle the protection scheme. If you would rather contact me directly, leave E-Mail on the BBS for user #1137.

User #1141

Subj: Gradebusters 1,2,3,

I'd be interested in knowing what you find out about a crack for that program. I called the outfit several months ago to find out if they had a protection-free copy for installation on a Hard Drive. Come to think of it, I wrote them a letter. They DID respond, but the answer was a big fat, "No!". So I opted to stay with what I'm currently using, which is a modified version of GradeCalc, by Tamarac (Minnesota, I think).

User #1062

Subj: Vote for Apple //

Free CD-ROM disk

I called up this week and 'voted for the Apple //' by getting the free CD-ROM disk from Apple. If you haven't called yet, the number is 1-800-441-3001 extension 200. Ask for the free CD-ROM disk. They will ask you several questions like what your title is, what business you work for, etc. Of importance is the computer you use. MAKE SURE to tell them it is an Apple // (//e, IIgs, whatever). Maybe if enough of us call, we can make a difference. The call is free. All you

have to do is spend about two (2) minutes of your time. Come on Computist readers, let's go to it!!!!

User #1047

Subj: D/L Files

I'm am having a problem with downloaded files. I'm using a Mac IIcx, with Smartcom II. The problem is that I can't get any file to run. I can access the file with a word processor, but the utility files won't run. I don't think the problem is the software or the protocol settings. Possibly, I need an application to run it on? I don't know. Any help will be great. Do you know if anyone has this problem? Or if anyone has this kind of setup, you could ask him.

About 95% of all software on BBS's is in some sort of archived format, this is to reduce disk space taken by the program & also allows for compacting several files or entire disks to a single file. These are usually suffixed with a SHK, BQY, BNY or other extension to tell the caller what compaction method was used so that they can uncompress the file(s) to their original format. You really need SHRINKIT to uncompress nearly ALL files on any system. Shrinkit will uncompress SHK ($EO), BXY (Binary), BQY (Binary Squeezed), QQ (Squeezed) and perhaps a couple others, including ACU files. As for the TEXT file type, ALL files transferred with XModem will change to a file type of TEXT. ShrinkIt will still recognize the file as a compressed file & uncompress it. If you download ANY file that is not compressed and not text you MUST use XModem-ProDOS (or YModem or ZModem if the BBS supports them) or the file will be converted to a text file & be totally useless!

If you are trying to run files downloaded from the Computist BBS then you need an Apple II series computer (no Mac files here, yet) or (2) if you've downloaded Mac files from other BBS's, they usually need to be un-archived (these files are usually compressed so as to save room on the disk, reduce transfer time when up/downloading, and combine several files into one). You will need a program that will un-arc these files back to their original format. (sysop)

User #1082

Subj: Bad Block Maker

I've uploaded a file called Bad Block Maker. I places a bad block on a 3.5" disk that uses that as copy protection. If you're copying a protected 3.5" disk and the copy program encounters an error or bad block, make a note of the hex number of the bad block. After you've made your copy, run BAD.BLOCK.MAKER and put the bad block back on the disk. This program only runs on a // GS from slot 5.....sorry //e owners. It at least gives you the opportunity of copying a protected disk that probably wouldn't run otherwise.

User #1142

Subj: Electronic Arts

Does anyone have any idea how to crack either Legacy of the Ancients or Strike Fleet? I've tried the procedure on Deathlord in Computist 62. I got it to read track F of every track but that is all. Please, anyone I am desperate.

User #622

Subj: CRACKS

Can you please add Might & Magic II to your crack list. Its a great game but they have a new protection that I haven't seen before. You can copy the disk and start up the game and even play but when you quit and try to save your gold etc., it doesn't save the game and you are back to square one. Hope someone out there can crack this one soon.

User #1062

Subj: Cracks

If anyone around here gets Might & Magic II then I will have a chance to look at it. I can't find it in the store, and I don't want to get it via mail order because I'm an Ultima fanatic.

Speaking of being an Ultima fanatic, did you know that Ultima VI: The False Prophet is probably not going to come out for the Apple //? Origin gives a load of reasons with most of them sounding like lazy excuses. Heck, the game is even coming out for the COMMODORE 64! I'm embarrassed. I saw the box for the MessyDOS machines at the software store yesterday. The game itself looks good.

On another note, Here is something we Computist subscribers can do to help our (Apple //) cause. Call this number 1-800-441-3001 ext. 200 and ask for the free CD-ROM demo. Tell them you have an Apple IIGS (or //e even) and an Apple CDsc CD-ROM drive. Just think: you're making Apple waste money for the free (to you) call and for the CD-ROM disk. You also get to 'vote' that there are a lot of Apple // users out there. Maybe if enough of us call up and get the CD-ROM disk, Apple will take notice of us!!!

Other notes: ShrinkIt v3.0 is now out. Pangea (the same folks who put out Xenocide) has a new game ready to be put out call NEXOS GS. It's like Operation Wolf (arcade game). Their only problem now is finding a publisher for the game.

User #622

Subj: Wasteland Crack

Don't know if this will help but the only way I could get a copy of Wasteland was using Essential Data Duplicator Plus 4. I have a IIgs with a EDD PLUS 4 board. If you have it or know someone that does, set sync (Yes) Bit Copy (Yes) Copy Side 1 (Don't forget to write protect after copying). Then copy sides 1-4 using Wasteland copy program. Use these to play with (Don't write protect this copy of side 1). Hope this helps.

User #1137

Subj: Security Card

This BBS is great! Greetings from Canada! I saw a card advertised in a local monthly that provided pass-code security for an IBM-type computer. How about the same for a IIe? I'm a school teacher and I get really tired of others (teachers and students) using my computer when I'm not looking - usually it is because their ribbon is worn out so they want to wear out mine! Those of you who are hardware hackers would get my eternal praise if you could come up with a card, chip, or anything that would secure my system with password access. God bless the Computist! I can't begin to explain (especially at long distance rates!) the incredible help that you have provided for me. Thanks a million!!

The problem with a card or chip for this function is that you'd never be able to change the password. A friend had a cheaper & easier solution on his machine. He'd replaced the power switch on his system with an ignition type switch (requiring a key). I'll see about making up some drawings on how to do this (it's better if done to a multi-outlet strip. That way it controls everything & no warranties are voided). (sysop)

User #1047

Subj: Suggestion

I would like to make a suggestion for this BBS. I am new to the modem world, I've only had one for a few months. So I don't know the time and expense that go's into maintaining a BBS. I due know a good board from a boring one. I think the addition of a multi-line system would greatly enhance this board. Users from all over the country could discuss there mutual concerns face to face (computer to computer)

Undoubtedly this would cost $$$ to incorporate into the system, I for one would be willing to pay a one time fee to see this become a reality... Why not put out a general message on this matter and see what kind of response we get...Also you may want to print this in the next issue...

I have a second suggestion, How about dividing up the message area into CATEGORIES.

General Messages
A.P.T.s
Softkeys
IBM Stuff
...etc...

That way the user can post his or her messages under the category that it applies to.

I hope my suggestions are realistic, and help improve this fine BBS.

We've considered more phone lines. The main problem right now is cost. I've also suggested to Mr. Haight that we might consider getting a section on America OnLine (this would greatly reduce the long distance cost to users). What we're basically waiting for is to see how much use the BBS actually gets & how many people join & actually use it (so far it's looking pretty good).

There are now three new file areas. DOS 3.3, ProDOS, & IIGS for all those that requested it. It may be a little before there is much there so be patient & let me know what you'd like. (sysop)

RDEX INPUTS

Jack Moravetz — User #1082

Softkey for...

Reading Comprehension: Finding the Main Idea

Morning Star Inc.

The protection was found in a file called CHECKDSK.OVR on the two disks that booted. I used BLOCK.WARDEN from ProSEL to follow this file. I found a 20 00 BF and changed it to EA EA EA and further in the file I found a BD 8C C0 with some C9 FF's after it. I changed the BD 8C C0 to 18 60 EA and wrote the block back and it worked.

Softkey for...

Mathosaurus

Micrograms

This four disk set uses a single load format, so it probably could be captured with a copy card. I used Copy II Plus to format 4 blank disks. I then used the manual sector copy in the bit copy section to copy all the tracks except track $01. Super IOB, with a controller to copy all the tracks except $01, would also work.

PHANTOM — User #794

Ultima 5 Editors

These are my Ultima 5 editors which I created 2 yrs. ago and let sit around for that time until now. They are all fixed. They run under ProDOS. If you're getting this from the BBS all you have to do is unshrink them. If you are typing them, be sure to use the right names when you save the 3 programs. STARTUP is the menu/hello program. Have fun!

STARTUP

```
10 HOME : PRINT : PRINT : PRINT : PRINT
20 PRINT "1)◊Character◊Editor"
30 PRINT "2)◊Miscellaneous◊Editor"
40 PRINT : INPUT "WHICH◊(1-2)" ;A
45 PRINT CHR$ (4) "PREFIX/ULTIMA5.EDIT"
50 IF A = 1 THEN PRINT CHR$ (4) "RUN◊ULT5.
   CHAR.EDIT"
60 IF A = 2 THEN PRINT CHR$ (4) "RUN◊ULT5.
   MISC.EDIT"
70 END
```

Checksums

```
10-$3777    40-$5247    60-$213A
20-$D423    45-$8949    70-$423E
30-$4ECD    50-$ECD9
```

ULT5.CHAR.EDIT

```
10 REM
20 REM  Ultima V
30 REM  Character Editor
40 REM  By Kevin Lynch
50 REM
60 REM  (c) 1988 |
70 REM  By: The Byte Zappers
80 REM
90 REM
100 CLEAR : NOTRACE : ONERR GOTO 1740
110 DIM D(16),A$(17):D$ = CHR$ (4): PRINT D$
    "PR#3" : FOR R = 1 TO 16:D(R) = 0: NEXT R
120 P = 1:B = 1
130 REM
140 REM Set variables for title screen
150 REM
160 A$(17) = "Save◊and◊Quit◊to◊Main◊Menu"
170 HOME : PRINT :A$ = "Ultima◊V" :V = 12:
    GOSUB 260:A$ = "Character◊Editor" :V = 13:
    GOSUB 260:A$ = "By" :V = 15: GOSUB 260:A$
    = "◊The◊Phantom" :V = 17: GOSUB 260:A$ =
    "◊◊Insert◊Britannia◊Disk◊ And◊Press◊a◊Key"
    :V = 22: GOSUB 260
180 REM
190 REM Load in character information
200 REM
210 GET A$: PRINT CHR$ (4); "PREFIX/BRITAN
    NIA" : PRINT CHR$ (4); "BLOAD◊ROSTER"
220 GOTO 300
230 REM
240 REM A$ placement on screen
250 REM
260 H = (80 - LEN (A$)) / 2: VTAB V: HTAB H:
    PRINT A$;: RETURN
270 REM
280 REM Main Menu
290 REM
300 HOME :I = 0
310 C$ = "Ultima◊V◊Character◊Editor◊-" :
    NORMAL
320 C$ = "◊" + C$:Z$ = C$ + MID$ (C$,1,8)
330 S = 17
340 PRINT : VTAB 1: INVERSE : PRINT SPC( 80):
    VTAB S + 6: PRINT SPC( 80): FOR A = 2 TO S
    + 5: VTAB A: INVERSE : PRINT "◊" ;: NORMAL
    : PRINT SPC( 78);: INVERSE : PRINT "◊" :
    NORMAL : NEXT
350 INVERSE:V = 1:A$ = "Character◊Stats.◊Menu"
    : GOSUB 260: NORMAL :V = 2:A$ = "Rememb
    er...◊Only◊6◊Characters◊In◊the◊Party" :
    GOSUB 260:V = 7:A$ = "◊◊◊◊◊◊◊◊◊Characters
    ◊in◊Party" : GOSUB 260:C = 32768
360 REM
370 REM Read name from memory
380 REM
390 FOR B = 1 TO 16:A$(B) = "" : NEXT B:B = 1
400 FOR E = C TO C + 7: IF PEEK (E) < > 0 AND E
    < > 32775 THEN A$(B) = A$(B) + CHR$ ( PEEK
    (E)): NEXT E
410 REM
420 REM placement of character name on screen
430 REM
440 VTAB 3 + B: HTAB 3: PRINT "[◊]◊" ;A$(B);: IF
    D(B) = 1 THEN HTAB 25: INVERSE : PRINT "*"
    : NORMAL
450 REM
460 REM Advance B and C to read in next
    character name
470 REM
480 B = B + 1:C = C + 8: IF B > 16 THEN 530
490 GOTO 400
500 REM
510 REM Check to see if character is in party
520 REM
530 G = 5:M = 5:Q = 32896
540 IF PEEK (Q) = 00 THEN K = Q - (((G - 4) * 8) +
    120): FOR L = K TO K + 7: GOTO 560
550 GOTO 580
560 IF PEEK (L) < > 0 AND L < > 32775 THEN I$ =
    I$ + CHR$ ( PEEK (L)): NEXT
570 VTAB M + 4:M = M + 1: HTAB 41: PRINT I$
580 G = G + 1:Q = Q + 16: IF Q > 33136 THEN
    GOTO 600
590 I$ = "" : GOTO 540
600 VTAB 3 + B: HTAB 3: PRINT "[◊]◊" ;A$(17)
610 B = 1
620 VTAB 3 + B: HTAB 4: INVERSE : PRINT CHR$
    (27);: PRINT "E" ;: NORMAL : PRINT CHR$
    (24);: PRINT
630 VTAB 24: HTAB 1: PRINT "[" ;: INVERSE :
    PRINT "Ultima◊V" ;: NORMAL : PRINT "]:" ;:
    INVERSE : PRINT CHR$ (27); "FG" ;: NORMAL
    : PRINT CHR$ (24);
640 K$ = MID$ (Z$,P,8): VTAB 24: HTAB 2:
    INVERSE : PRINT K$;: NORMAL : FOR Z = 1
    TO 30: NEXT Z:P = P + 1: IF P > LEN (Z$) - 8
    THEN P = 1
650 O = PEEK ( - 16384): IF O < 128 THEN GOTO
    640
660 O = O - 128: POKE - 16368,0: IF O = 13 THEN
    GOTO 720
670 IF O = 21 OR O = 8 OR O = 10 OR O = 11
    THEN VTAB 3 + B: HTAB 4: PRINT "◊" ;: GOTO
    690
680 GOTO 650
690 Y = PEEK (49200):Y = PEEK (49200): IF O = 8
    OR O = 11 THEN B = B - 1: IF B < 1 THEN B =
    S: GOTO 620
700 IF O = 21 OR O = 10 THEN B = B + 1: IF B > S
    THEN B = 1: GOTO 620
710 GOTO 620
720 Q$ = A$(B): VTAB 23: HTAB 1: PRINT : PRINT
    "[" ;: INVERSE : PRINT "Have◊fun" ;: NORMAL
    : PRINT "]:" ;:T = 1
730 V$ = Q$ + "....." :J$ = MID$ (V$,T,1): VTAB
    24: HTAB T + 11: PRINT J$;: INVERSE : PRINT
    CHR$ (27); "FG" ;: NORMAL : PRINT CHR$
    (24);:T = T + 1: IF T > LEN (Q$) + 8 THEN
    GOTO 750
740 GOTO 730
750 IF B > 0 OR B < 17 THEN S = B * 8:N = S +
    32760:F = S + 120
760 IF B = 17 THEN GOTO 1440
770 FOR R = 1 TO 16: IF B = R AND D(R) = 1
    THEN GOTO 800
780 NEXT
790 GOTO 850
800 INPUT "You◊have◊already◊edited◊this◊person
    .◊Do◊you◊want◊to◊edit◊him/her◊again◊(Y/N):"
    ;H$: IF H$ = "Y" THEN GOTO 850
810 GOTO 300
820 REM
830 REM Start of character statistics
840 REM
850 G$ = "" : FOR E = N TO N + 7: IF PEEK (E) < >
    0 AND E < > 32775 THEN G$ = G$ + CHR$ (
    PEEK (E)): NEXT
860 HOME :V = 2:A$ = "Character◊Stats." :
    GOSUB 260
870 PRINT : VTAB 10: PRINT "Name:" ;G$;: HTAB
    6: INPUT "" ;A$: IF A$ = "" THEN N = N + F:
    GOTO 900
880 IF LEN (A$) > 8 THEN GOTO 870
890 FOR W = 0 TO LEN (A$) - 1: POKE N + W,
    ASC ( MID$ (A$,W + 1,1)) + 128: NEXT : FOR X
    = W TO 7: POKE N + X,0: NEXT :N = N + F
900 IF PEEK (N) = 00 THEN F$ = "Y" : GOTO 920
910 F$ = "N"
920 PRINT : VTAB 10: PRINT "In◊Party◊(Y/N):"
    ;F$; CHR$ (8);: INPUT "" ;A$: IF A$ = "Y" THEN
    FOR Q = 32896 TO 33136 STEP 16: IF PEEK
    (Q) = 00 THEN I = I + 1
930 IF I > 5 THEN PRINT : PRINT "You◊can't◊have
    ◊any◊more◊characters◊in◊your◊party." ;: GET
    B$: GOTO 300
940 IF A$ = "N" THEN POKE N,255: GOTO 970
950 IF A$ = "" THEN GOTO 970
960 NEXT : IF A$ = "Y" THEN POKE N,0
970 F$ = CHR$ ( PEEK (N + 2))
980 VTAB 10: PRINT CHR$ (11); "Avatar,◊Fighter◊
    Bard,◊Mage:" ;F$; CHR$ (8);: INPUT "" ;A$
990 IF A$ = "" THEN GOTO 1040
1000 IF A$ = "A" THEN POKE N + 2,193
1010 IF A$ = "F" THEN POKE N + 2,198
```

```
1020 IF A$ = "B" THEN POKE N + 2,194
1030 IF A$ = "M" THEN POKE N + 2,205
1040 IF PEEK (N + 1) = 62 THEN F$ = "M" : GOTO
     1060
1050 F$ = "F"
1060 VTAB 10: PRINT CHR$ (11); "Sex◊(M/F):"
     ;F$; CHR$ (8);: INPUT "" ;A$: IF A$ = "" THEN
     GOTO 1090
1070 IF A$ = "M" THEN POKE N + 1,62
1080 IF A$ = "F" THEN POKE N + 1,63
1090 IF PEEK (N + 3) = 199 THEN F$ = "G" :
     GOTO 1120
1100 IF PEEK (N + 3) = 196 THEN F$ = "D" :
     GOTO 1120
1110 F$ = "P"
1120 VTAB 10: PRINT CHR$ (11); "Health◊(G/D/
     P):" ;F$; CHR$ (8);: INPUT "" ;A$: IF A$ = ""
     THEN GOTO 1160
1130 IF A$ = "G" THEN POKE N + 3,199
1140 IF A$ = "D" THEN POKE N + 3,196
1150 IF A$ = "P" THEN POKE N + 3,208
1160 PRINT :E$ = "Strength" :D = LEN (E$) + 2:N =
     N + 4: GOSUB 1500: PRINT :E$ = "Intelligence"
     :D = LEN (E$) + 2:N = N + 1: GOSUB 1500:
     PRINT :E$ = "Dexterity" :D = LEN (E$) + 2:N =
     N + 1: GOSUB 1500
1170 PRINT :E$ = "Magic" :D = LEN (E$) + 2:N = N
     + 1: GOSUB 1500: PRINT :E$ = "Current◊Hit
     ◊Points" :D = LEN (E$) + 2:N = N + 1: GOSUB
     1600: PRINT :E$ = "Maximum◊Hit◊Points" :D =
     LEN (E$) + 2:N = N + 2
1180 GOSUB 1600: PRINT :E$ = "Experience◊
     Points" :D = LEN (E$) + 2:N = N + 2: GOSUB
     1600
1190 PRINT : VTAB 10: PRINT CHR$ (11): VTAB
     10: HTAB 25: PRINT "(0-9)" : VTAB 10: HTAB 1:
     PRINT "Level:" ;:D = 7:N = N + 2: GOSUB 1560:
     HTAB 7: INPUT "" ;A$: IF A$ = "" THEN GOTO
     1220
1200 A = VAL (A$): IF A > 9 OR A < 0 THEN GOTO
     1190
1210 GOSUB 1420
1220 IF N = 32910 THEN D(1) = 1
1230 IF N = 32926 THEN D(2) = 1
1240 IF N = 32942 THEN D(3) = 1
1250 IF N = 32958 THEN D(4) = 1
1260 IF N = 32974 THEN D(5) = 1
1270 IF N = 32990 THEN D(6) = 1
1280 IF N = 33006 THEN D(7) = 1
1290 IF N = 33022 THEN D(8) = 1
1300 IF N = 33038 THEN D(9) = 1
1310 IF N = 33054 THEN D(10) = 1
1320 IF N = 33070 THEN D(11) = 1
1330 IF N = 33086 THEN D(12) = 1
1340 IF N = 33102 THEN D(13) = 1
1350 IF N = 33118 THEN D(14) = 1
1360 IF N = 33134 THEN D(15) = 1
1370 IF N = 33150 THEN D(16) = 1
1380 GOTO 300
1390 REM
1400 REM Poke value into Buffer
1410 REM
1420 POKE N,( INT (A / 10) * 16) + (A - INT (A / 10)
     * 10): RETURN
1430 REM
1440 REM Save Updated Information
1450 REM
1460 PRINT CHR$ (4)
     "BSAVE◊ROSTER,A$8000,L$3FF" : HOME :
     PRINT CHR$ (4) "PREFIX/ULTIMA5.EDIT" :
     PRINT CHR$ (4) "RUN◊STARTUP"
1470 REM
1480 REM Print Prompt for items of 0-99 value
1490 REM
1500 VTAB 10: PRINT CHR$ (11): VTAB 10: HTAB
     25: PRINT "(0-99)" : VTAB 10: HTAB 1: PRINT
     E$; ":" ;: HTAB D: GOSUB 1560: HTAB D:
     INPUT "" ;A$: IF A$ = "" THEN RETURN
1510 A = VAL (A$): IF A > 99 OR A < 0 THEN
     GOTO 1500
1520 GOSUB 1420: RETURN
1530 REM
1540 REM Print actual amount of item
1550 REM
1560 VTAB 10: HTAB D: PRINT INT ( PEEK (N) /
     16) * 10 + ( PEEK (N) - INT ( PEEK (N) / 16) *
     16);: RETURN
1570 REM
1580 REM Print Prompt for items of 0-9999 value
1590 REM
1600 VTAB 10: PRINT CHR$ (11): VTAB 10: HTAB
     25: PRINT "(0-9999)" ;: PRINT : VTAB 10:
     PRINT E$; ":" ;: HTAB D: GOSUB 1700: HTAB
     D: INPUT "" ;A$: IF A$ = "" THEN RETURN
1610 A = VAL (A$): IF A > 9999 OR A < 0 THEN
     1600
1620 GOSUB 1660: RETURN
1630 REM
1640 REM Poke value into buffer
1650 REM
1660 POKE N, INT ( INT (A / 100) / 10) * 16 + INT
     (A / 100) - ( INT ( INT (A / 100) / 10) * 10):
     POKE N + 1,( INT ((A - ( INT (A / 100) * 100)) /
     10) * 16) + (A - ( INT (A / 100) * 100) - INT ((A -
     INT (A / 100) * 100) / 10) * 10): RETURN
1670 REM
1680 REM Print actual amount of item
1690 REM
1700 U = INT ( PEEK (N) / 16) * 10 + ( PEEK (N) -
     INT ( PEEK (N) / 16) * 16):J = ( INT ( PEEK (N +
     1) / 16) * 10) + ( PEEK (N + 1) - ( INT ( PEEK (N
     + 1) / 16) * 16)): PRINT U * 100 + J;: RETURN
1710 REM
1720 REM Error Checking
1730 REM
1740 PRINT : PRINT "Error..◊make◊sure◊the◊Brit
     annia◊disk◊is◊in◊the◊drive" : GET A$:
     RESTORE : CLEAR : GOTO 100
```

Checksums

```
 10-$BADD   590-$CD2B  1170-$FFB3
 20-$9B13   600-$9CE3  1180-$4D8D
 30-$4D3B   610-$C1B4  1190-$3556
 40-$AD92   620-$4A81  1200-$5C31
 50-$C899   630-$121E  1210-$9E72
 60-$FF65   640-$1307  1220-$B266
 70-$A3BF   650-$1540  1230-$6913
 80-$A900   660-$98DF  1240-$7035
 90-$924D   670-$E91A  1250-$2D2C
100-$B8B0   680-$BAEA  1260-$4C22
110-$5F0B   690-$A2ED  1270-$CBF4
120-$581E   700-$BDAF  1280-$A4B3
130-$1C98   710-$EE7A  1290-$D4B5
140-$9ADB   720-$4AF7  1300-$60CF
150-$8DFA   730-$DDED  1310-$E73E
160-$7CEC   740-$0CD1  1320-$B072
170-$B37A   750-$82D3  1330-$28CB
180-$6860   760-$508E  1340-$B441
190-$EAF2   770-$A05D  1350-$3AD0
200-$F88B   780-$9CC6  1360-$588A
210-$7BA2   790-$A581  1370-$71D7
220-$DD7A   800-$0A78  1380-$70C5
230-$503B   810-$3421  1390-$530D
240-$2527   820-$600E  1400-$FB15
250-$C9AF   830-$7B45  1410-$2BA4
260-$B525   840-$1C73  1420-$0386
270-$91E8   850-$8DB8  1430-$64B8
280-$10E1   860-$F9FD  1440-$4248
290-$DD1F   870-$6AB1  1450-$6A07
300-$8A39   880-$C133  1460-$54D9
310-$AA29   890-$6E8D  1470-$5F49
320-$2B72   900-$5B1D  1480-$0F99
330-$C761   910-$E3E8  1490-$7710
340-$AC40   920-$F254  1500-$BC8A
350-$E8CB   930-$48A4  1510-$AA42
360-$B7E2   940-$1054  1520-$1FDE
370-$AAAA   950-$08D0  1530-$0C8A
380-$1248   960-$5C7F  1540-$6FFD
390-$0577   970-$5D6F  1550-$F4ED
400-$9DCB   980-$E15A  1560-$7E54
410-$D7DE   990-$6A85  1570-$C1A4
420-$3EF5  1000-$6734  1580-$311C
430-$D9FF  1010-$039D  1590-$8165
440-$AE7E  1020-$A2DE  1600-$7D1D
450-$4ED7  1030-$B861  1610-$4B9B
460-$7BFE  1040-$F0FB  1620-$C9C9
470-$3674  1050-$97B7  1630-$6033
480-$CE79  1060-$F3BC  1640-$E2BD
490-$CDE4  1070-$8636  1650-$2C12
500-$7C7B  1080-$92B3  1660-$33D1
510-$3F21  1090-$2197  1670-$A8CD
520-$CA4E  1100-$19C1  1680-$4425
530-$568F  1110-$4F3B  1690-$44B8
540-$D98A  1120-$B550  1700-$FA63
550-$4C3E  1130-$2BEC  1710-$3A00
560-$C977  1140-$9442  1720-$8D21
570-$75D5  1150-$DF13  1730-$78C1
580-$D536  1160-$4868  1740-$ADDD
```

ULT5.MISC.EDIT

```
10 REM
20 REM  Ultima V
30 REM  Misc. Editor
40 REM  By Kevin Lynch
50 REM
60 REM  (c) 1988 |
70 REM| By: The Byte Zappers
80 REM
90 REM
100 CLEAR : NOTRACE : ONERR GOTO 1300
110 N = 7: DIM
    N$(N),W$(48),S$(48),R$(8),P$(8),E$(8)
    ,M$(19),D(16):D$ = CHR$ (4): PRINT D$
    "PR#3"
120 FOR R = 1 TO N: READ N$(R): NEXT : FOR W
    = 1 TO 48: READ W$(W): NEXT : FOR S = 1
    TO 48: READ S$(S): NEXT
130 FOR R = 1 TO 8: READ R$(R): NEXT : FOR P
    = 1 TO 8: READ P$(P): NEXT : FOR E = 1 TO
    8: READ E$(E): NEXT : FOR M = 1 TO 19:
    READ M$(M): NEXT : FOR R = 1 TO 16:D(R) =
    0: NEXT
140 REM Set variables for title screen
150 HOME : PRINT :A$ = "Ultima◊V" :V = 12:
    GOSUB 490:A$ = "Misc.◊Editor" :V = 13:
    GOSUB 490:A$ = "By" :V = 15: GOSUB 490:A$
    = "◊The◊Phantom" :V = 17: GOSUB 490:A$ =
    "◊◊Insert◊Britannia◊Disk◊ And◊Press◊a◊Key"
    :V = 22: GOSUB 490
160 REM Load in character information
170 GET A$: PRINT CHR$ (4); "PREFIX/BRITAN
    NIA" : PRINT CHR$ (4); "BLOAD◊ROSTER"
180 REM Main Menu
190 B$ = "Ultima◊V◊Misc.◊Editor◊-" : NORMAL :B$
    = "◊" + B$:Z$ = B$ + MID$ (B$,1,8)
200 B = 1: HOME :N = 7:A$ = "Ultima◊V◊-
    ◊Cheat◊Menu" :V = 2: GOSUB 490: PRINT :
    NORMAL : VTAB 4: INVERSE : PRINT SPC(
    80): VTAB N + 7: PRINT SPC( 80)
210 FOR A = 5 TO N + 6: VTAB A: PRINT "◊" ;:
    NORMAL : PRINT SPC( 78);: INVERSE :
    PRINT "◊" : NEXT
220 FOR O = 1 TO N: VTAB 5 + O: HTAB 12:
    NORMAL : PRINT "[◊]◊◊" ;N$(O): NEXT :R = 1
230 IF U(R) = 1 THEN VTAB 5 + R: HTAB 39:
    INVERSE : PRINT "*" : NORMAL
240 R = R + 1: IF R > N THEN GOTO 260
250 GOTO 230
260 NORMAL :P = 1
270 VTAB 5 + P: HTAB 13: INVERSE : PRINT
    CHR$ (27);: PRINT "E" ;: NORMAL : PRINT
    CHR$ (24);
280 PRINT : VTAB 20: HTAB 1: PRINT "[" ;:
    INVERSE : PRINT "Ultima◊V" ;: NORMAL :
    PRINT "]:" ;: INVERSE : PRINT CHR$ (27);
    "FG" ;: NORMAL : PRINT CHR$ (24);
290 C$ = MID$ (Z$,B,8): VTAB 20: HTAB 2:
    INVERSE : PRINT C$;: NORMAL : FOR T = 1
    TO 30: NEXT T:B = B + 1: IF B > LEN (Z$) - 8
    THEN B = 1
300 K = PEEK ( - 16384): IF K < 128 THEN GOTO
    290
310 K = K - 128: POKE - 16368,0: IF K = 13 THEN
    410
320 IF K = 21 OR K = 8 OR K = 10 OR K = 11 OR K
    > 48 AND K < 49 + N THEN VTAB 5 + P: HTAB
    13: PRINT "◊" ;: GOTO 350
330 IF K = 21 OR K = 8 OR K = 10 OR K = 11 OR K
    > 48 AND K < 49 + N THEN VTAB 5 + P: HTAB
    13: PRINT "◊" ;: GOTO 350
340 GOTO 300
350 A = PEEK (49200):A = PEEK (49200)
360 IF K = 8 OR K = 11 THEN P = P - 1: IF P < 1
    THEN P = N: GOTO 270
370 IF K = 21 OR K = 10 THEN P = P + 1: IF P > N
    THEN P = 1: GOTO 270
380 IF K < 49 OR K > 49 + (N - 1) THEN GOTO 270
390 P = K - 48: GOTO 270
410 G = LEN (N$(P)) - 3:P$ = RIGHT$ (N$(P),G)
420 PRINT
430 VTAB 20: HTAB 1: PRINT "[" ;: INVERSE :
    PRINT "Bye◊Bye!" ;: NORMAL : PRINT "]:" ;
440 L = 1
450 G$ = P$ + "....." :R$ = MID$ (G$,L,1): VTAB
    20: HTAB L + 11: PRINT R$;: INVERSE :
    PRINT CHR$ (27) "FG" ;: NORMAL : PRINT
    CHR$ (24);:L = L + 1: IF L > LEN (P$) + 8 THEN
    GOTO 470
460 GOTO 450
470 U(P) = 1: ON P GOTO 530,570,610,650,690,
    730,950: END
480 REM Menu for characters
490 H = (80 - LEN (A$)) / 2: VTAB V: HTAB H:
    PRINT A$;: RETURN
500 REM Poke value into Buffer
510 POKE N,( INT (A / 10) * 16) + (A - INT (A / 10) *
    10): RETURN
520 REM Weapons & Armor
530 HOME :V = 2:A$ = "Weapons◊&◊Armor" :
    GOSUB 490:W = 1:N = 33280
540 PRINT :E$ = W$(W):D = LEN (E$) + 2: GOSUB
    970:W = W + 1:N = N + 1: IF W > 48 THEN
    HOME : GOTO 200
550 GOTO 540
560 REM Spells
570 HOME :V = 2:A$ = "Spells" : GOSUB 490:
    PRINT :V = 3:A$ = "In◊order◊to◊cast◊higher◊
    level◊spells◊you◊ must◊have◊characters
    ◊of◊higher◊levels" : GOSUB 490:W = 1:N =
    33344
580 PRINT :E$ = S$(W):D = LEN (E$) + 2: GOSUB
    970:W = W + 1:N = N + 1: IF W > 48 THEN
    HOME : GOTO 200
590 GOTO 580
600 REM Scrolls
610 HOME :V = 2:A$ = "Scrolls" : GOSUB 490:W =
    1:N = 33392
620 PRINT :E$ = R$(W):D = LEN (E$) + 2: GOSUB
    970:W = W + 1:N = N + 1: IF W > 8 THEN
    HOME : GOTO 200
630 GOTO 620
640 REM Potions
650 HOME :V = 2:A$ = "Potions" : GOSUB 490:W =
    1:N = 33400
660 PRINT :E$ = P$(W):D = LEN (E$) + 2: GOSUB
    970:W = W + 1:N = N + 1: IF W > 8 THEN
    HOME : GOTO 200
670 GOTO 660
680 REM Reagents
690 HOME :V = 2:A$ = "Reagents" : GOSUB 490:W
    = 1:N = 33440
700 PRINT :E$ = E$(W):D = LEN (E$) + 2: GOSUB
    970:W = W + 1:N = N + 1: IF W > 8 THEN
    HOME : GOTO 200
710 GOTO 700
720 REM Miscellaneous
730 HOME :V = 2:A$ = "Miscellaneous" : GOSUB
    490:N = 33152: PRINT :E$ = M$(1):D = LEN
    (E$) + 2: GOSUB 1030: PRINT :E$ = M$(2):D =
    LEN (E$) + 2:N = N + 2: GOSUB 1030
740 PRINT :E$ = M$(3):D = LEN (E$) + 2:N = N +
    2: GOSUB 970: PRINT :E$ = M$(4):D = LEN
    (E$) + 2:N = N + 1: GOSUB 970: PRINT :E$ =
    M$(5):D = LEN (E$) + 2:N = N + 1: GOSUB 970
750 IF PEEK (33159) = 1 THEN F$ = "Y" : GOTO
    770
760 F$ = "N"
770 VTAB 10: PRINT CHR$ (11);: VTAB 10: PRINT
    M$(6); "◊(Y/N):" ;F$; CHR$ (8);: INPUT "" ;A$:
    IF A$ = CHR$ (13) THEN GOTO 800
780 IF A$ = "Y" THEN POKE 33159,1
790 IF A$ = "N" THEN POKE 33159,0
800 PRINT :E$ = M$(7):D = LEN (E$) + 2:N = N +
    2: GOSUB 970
810 C = 33264:F = 8: GOSUB 1320
820 C = 33265:F = 9: GOSUB 1320
830 C = 33266:F = 10: GOSUB 1320
840 PRINT :E$ = M$(11):D = LEN (E$) + 2:N =
    33267: GOSUB 970
850 C = 33268:F = 12: GOSUB 1320
860 PRINT :E$ = M$(13):D = LEN (E$) + 2:N =
    33269: GOSUB 970
870 C = 33270:F = 14: GOSUB 1320
880 PRINT :E$ = M$(15):D = LEN (E$) + 2:N =
    33271: GOSUB 970
890 C = 33272:F = 16: GOSUB 1320
900 C = 33273:F = 17: GOSUB 1320
910 C = 33274:F = 18: GOSUB 1320
920 C = 33275:F = 19: GOSUB 1320
930 GOTO 200
940 REM Save Updated Information
950 PRINT CHR$ (4) "BSAVE◊ROSTER,A$8000,
    L$3FF" : HOME : PRINT CHR$ (4) "PREFIX/
    ULTIMA5.EDIT" : PRINT CHR$ (4) "RUN◊
    STARTUP"
960 REM Print Prompt for items of 0-99 value
970 VTAB 10: PRINT CHR$ (11): VTAB 10: HTAB
    25: PRINT "(0-99)" : VTAB 10: HTAB 1: PRINT
    E$; ":" ;: HTAB D: GOSUB 1010: HTAB D:
    INPUT "" ;A$: IF A$ = "" THEN RETURN
980 A = VAL (A$): IF A > 99 OR A < 0 THEN GOTO
    970
990 GOSUB 510: RETURN
1000 REM Print actual amount of item
1010 VTAB 10: HTAB D: PRINT INT ( PEEK (N) /
    16) * 10 + ( PEEK (N) - INT ( PEEK (N) / 16) *
    16);: RETURN
1020 REM Print Prompt for items of 0-9999 value
1030 VTAB 10: PRINT CHR$ (11): VTAB 10: HTAB
    25: PRINT "(0-9999)" ;: PRINT : VTAB 10:
    PRINT E$; ":" ;: HTAB D: GOSUB 1090: HTAB
    D: INPUT "" ;A$: IF A$ = "" THEN RETURN
1040 A = VAL (A$): IF A > 9999 OR A < 0 THEN
    1030
1050 GOSUB 1070: RETURN
1060 REM Poke value into buffer
1070 POKE N, INT ( INT (A / 100) / 10) * 16 + INT
    (A / 100) - ( INT ( INT (A / 100) / 10) * 10):
    POKE N + 1,( INT ((A - ( INT (A / 100) * 100)) /
    10) * 16) + (A - ( INT (A / 100) * 100) - INT ((A -
    INT (A / 100) * 100) / 10) * 10): RETURN
1080 REM Print actual amount of item
1090 U = INT ( PEEK (N) / 16) * 10 + ( PEEK (N) -
    INT ( PEEK (N) / 16) * 16):J = ( INT ( PEEK (N +
    1) / 16) * 10) + ( PEEK (N + 1) - ( INT ( PEEK (N
    + 1) / 16) * 16)): PRINT U * 100 + J;: RETURN
1100 REM Data for Main Menu
1110 DATA "1)◊Weapons◊&◊Armor" , "2)◊Spells" ,
    "3)◊Scrolls" , "4)◊Potions" , "5)◊Reagents" ,
    "6)◊Miscellaneous" , "7)◊Quit"
1120 REM Data for Weapons & Armor
1130 DATA "Leather◊Helm" , "Chain◊Coif" ,
    "Iron◊Helm" , "Spkd◊Helm" , "Sm.◊Shield" ,
    "Lg.◊Shield" , "Spkd.◊Shld" , "Shld/Magic" ,
    "Shld/Jewel" , "Cloth" , "Leather"
1140 DATA "Ring◊Mail" , "Scale" , "Chain" , "Plate"
    , "Myst.◊Armr" , "Dagger" , "Sling" , "Club" ,
    "Flmng◊Oil" , "Main◊Gauch" , "Spear" ,
    "Thrwng◊Axe" , "Sht.◊Sword" , "Mace"
1150 DATA "Morn.◊Star" , "Bow" , "Arrows" ,
    "Crossbow" , "Quarrels" , "Long◊Sword" ,
    "2H◊Hammer" , "2H◊Axe" , "2H◊Sword" ,
    "Halberd" , "Chaos◊Swrd" , "Magic◊Bow"
1160 DATA "Silver◊Swd" , "Magic◊Axe" ,
    "Glass◊Swrd" , "Jewel◊Swrd" , "Myst.◊Swrd" ,
    "Inv.◊ring" , "Prot.◊Ring" , "Regen◊Ring" , "Am/
    Turning" , "Sp.◊Collar" , "Ankh"
1170 REM Data for Spells
1180 DATA "In◊Lor" , "Grav◊Por" , "An◊Zu" ,
    "An◊Nox" , "Mani" , "An◊Ylem" , "An◊Sanct" ,
    "An◊Xen◊Cor" , "Rel◊Hur" , "In◊Wis" ,
    "Kal◊Xen" , "In◊Xen◊Man" , "Vas◊Lor" ,
    "Vas◊Flam" , "In◊Flam◊Gr" , "In◊Nox◊Gr" ,
    "In◊Zu◊Grav" , "In◊Por"
1190 DATA "An◊Grav" , "In◊Sanct" , "In◊Sanct◊G" ,
    "Uus◊Por" , "Des◊Por" , "Wis◊Quas" ,
    "In◊Bet◊Xen" , "An◊Ex◊Por" , "In◊Ex◊Por" ,
    "Vas◊Mani" , "In◊Zu" , "Rel◊Tym" , "In◊Vas◊Py"
    , "Quas◊An◊Wi" , "In◊An"
1200 DATA "Wis◊An◊Yle" , "An◊Xen◊Ex" ,
    "Rel◊Xen◊Be" , "Sanct◊Lo" , "Xen◊Corp" ,
    "In◊Quas◊Xe" , "In◊Quas◊Wi" , "In◊Nox◊Hur" ,
    "In◊Quas◊Co" , "In◊Mani◊Co" , "Kal◊Xen◊Co" ,
    "In◊Vas◊G◊C" , "In◊Flam◊Hu" , "Vas◊Rel◊Po" ,
    "An◊Tym"
```

```
1210 REM Data for Scrolls
1220 DATA "Vas◊Lor" , "Rel◊Hur" , "In◊Sanct" ,
   "In◊An" , "In◊Quas◊Wis" , "Kal◊Xen◊Corp" ,
   "In◊Mani◊Corp" , "An◊Tym"
1230 REM Data for Potions
1240 DATA "Blue" , "Yellow" , "Red" , "Green" ,
   "Orange" , "Purple" , "Black" , "White"
1250 REM Data for Reagents
1260 DATA "Sulfur◊Ash" , "Ginseng" , "Garlic" ,
   "Sp.◊Silk" , "Blood◊Moss" , "Blk.◊Pearl" ,
   "Nightshade" , "Mandrake"
1270 REM Data for Miscellaneous
1280 DATA "Food" , "Gold" , "Keys" , "Gems" ,
   "Torches" , "Grappling◊Hook" , "Magic◊Carpet" ,
   "Shard/Falsehood" , "Shard/Hatred" , "Shard/
   Cowardice" , "Spyglass" , "HMS◊Cape◊Plan" ,
   "Sextants" , "Pocket◊Watch" , "Skull◊Keys" ,
   "Amulet" , "Crown" , "Sceptre" , "Black◊Badge"
1290 REM Error Checking
1300 PRINT : PRINT "Error..◊make◊sure◊the
   ◊Britannia◊disk◊is◊in◊the◊drive" : GET A$:
   RESTORE : CLEAR : GOTO 100
1310 REM Print and Poke the value of item
1320 IF PEEK (C) = 255 THEN F$ = "Y" : GOTO
   1340
1330 F$ = "N"
1340 VTAB 10: PRINT CHR$ (11);: VTAB 10:
   PRINT M$(F); "◊(Y/N):" ;F$; CHR$ (8);: INPUT
   "" ;A$: IF A$ = "" THEN RETURN
1350 IF A$ = "Y" THEN POKE C,255
1360 IF A$ = "N" THEN POKE C,0
1370 RETURN
```

Checksums

```
10-$BADD    480-$A753   940-$B426
20-$9B13    490-$8BB8   950-$B345
30-$4D3B    500-$609D   960-$7CCF
40-$AD92    510-$CF59   970-$77F0
50-$C899    520-$D28E   980-$8D91
60-$FF65    530-$4234   990-$4207
70-$A3BF    540-$D435  1000-$1E3A
80-$A900    550-$513B  1010-$A964
90-$924D    560-$28C0  1020-$F999
100-$A2BE   570-$DEB6  1030-$EE33
110-$60AC   580-$B035  1040-$4C34
120-$6A79   590-$1F97  1050-$29D3
130-$8BFD   600-$E40A  1060-$FFAC
140-$D3DA   610-$9AF2  1070-$349B
150-$B9F2   620-$B5F1  1080-$0F63
160-$C070   630-$C21C  1090-$505B
170-$4C40   640-$CB69  1100-$3FC5
180-$4217   650-$5E39  1110-$B42F
190-$9AF7   660-$9737  1120-$0B17
200-$1884   670-$32CA  1130-$1530
210-$B8E5   680-$65B1  1140-$CF65
220-$8DBD   690-$2A94  1150-$34DA
230-$2528   700-$A4C8  1160-$5CDC
240-$E090   710-$09E3  1170-$BC24
250-$F3B1   720-$D0F8  1180-$2067
260-$8AC0   730-$C6A1  1190-$1900
270-$15E5   740-$5557  1200-$62F5
280-$48BA   750-$9F7F  1210-$61F4
290-$08A4   760-$7D88  1220-$11CA
300-$2138   770-$ED4F  1230-$EAE7
310-$1EF4   780-$6DA3  1240-$1C49
320-$250F   790-$40E0  1250-$BD96
330-$3EF1   800-$8D32  1260-$C614
340-$5F7F   810-$A3C2  1270-$14BC
350-$8021   820-$DF87  1280-$3E49
360-$6ACD   830-$303C  1290-$0F99
370-$F7E8   840-$7D0E  1300-$17F6
380-$DE76   850-$6758  1310-$5448
390-$19B4   860-$31AD  1320-$E827
410-$D24A   870-$801C  1330-$1E81
420-$DAC8   880-$4728  1340-$DEED
430-$2785   890-$3514  1350-$906A
440-$167C   900-$6587  1360-$C7B2
450-$D423   910-$7A68  1370-$937B
460-$E841   920-$5FAC
470-$F913   930-$58E5
```

Brian A. Troha & Terry Waskowich

Softkey for...

Where in Time is Carmen Sandiego

Broderbund

Requirements:
64K Apple II
5.25" disk copier
5.25" disk editor

Where in Time is Carmen Sandiego (WTCS) is the fourth educational/adventure type program in the Carmen Sandiego series. In this program you must track Carmen through time on your Chronoskimmer checking your clues and witnesses and eventually getting your criminal. Like the other programs in the series, WTCS is copy protected. The copy protection shows up when you finish a case (on an Apple IIgs) or right away on an Apple IIe. WTCS is using the PROLOK copy protection so you don't see any signs of the CP when making your backup until it actually asks for the original side A. I found the CP routines on side C & D of the four disk set in the file called MP. Checking the starting address of the file revealed it loads in at $9600. Searching for references to $9600 I found two JSR 9600's, one on disk C and one on disk D. Changing these to NOP NOP CLC (EA EA 18) results in a deprotected backup. The following is a listing of the copy protection and an explanation of what it's doing as it would be in memory:

```
9600:AD 30 BF LDA  BF30    Load last slot accessed
9603:29 F0    AND  #$F0    Mask off drive number
9605:8D 20 96 STA  9620    Store in temp
9608:A0 00    LDY  #$00
960A:B9 32 BF LDA  BF32,Y  Load first device number
960D:29 F0    AND  #$F0    Mask off drive number
960F:CD 30 BF CMP  BF30    Compare to last accessed
9612:F0 0F    BEQ  9623 (+0F) If equal, then continue
9614:C8       INY          Increment Y index
9615:D0 F3    BNE  960A (-0D)  and try another device
9617:38       SEC          If no matches, the set
                           carry (CP failed)
9618:B0 3A    BCS  9654 (+3A) Go to the return section
961A:B9 32 BF LDA  BF32,Y  Load the device number
961D:29 F0    AND  #$F0    Mask off drive
961F:C9 FF    CMP  #$FF
9621:F0 31    BEQ  9654 (+31)
9623:8C 4B 96 STY  964B    Store device index number
9626:85 2B    STA  2B      Store slot times $10
9628:4A       LSR
9629:4A       LSR
962A:4A       LSR
962B:4A       LSR          Divide by 16,
                           accumulator=slot
962C:29 07    AND  #$07    Mask off all other high bits
962E:09 C0    ORA  #$C0    Turn in Cx, where x=slot
9630:85 81    STA  81      Store it
9632:A2 00    LDX  $#00
9634:86 80    STX  80      Store zero for indirect
                           indexing
9636:BC 5B 96 LDY  965B,X  Load Y index vale
9639:B1 80    LDA  (80),Y  Load Cx00+Y ID byte,
                           where x=slot
963B:DD 60 96 CMP  9660,X  Compare to known 5.25"
                           interface values
963E:D0 0A    BNE  964A (+0A) Not equal, try another
                           slot
9640:E8       INX          Increment the X index
9641:E0 05    CPX  #$05    Did we check all 5 values?
9645:90 F1    BCC  9636 (-0F)  No, go through more
9645:20 65 96 JSR  9665    Go to the ONLINE
                           compare & CP
9648:90 0A    BCC  9654 (+0A) Carry clear means it's
                           an ORIGINAL
964A:A0 FF    LDY  #$F0
964C:88       DEY
964D:10 CB    BPL  961A (-35)
964F:AC 31 BF LDY  BF31
9652:D0 C6    BNE  961A (-3A)  Keep trying to find slot
9654:AD 20 96 LDA  9620    Load temp
9657:8D 30 BF STA  BF30    Tell ProDOS it was the
                           last accessed device
965A:60       RTS          Return to caller
965B:01 03 05 07 FF        5.25" disk interface ID
                           byte locations
9660:20 00 03 3C 00        Expected ID byte values
```

Where x=slot, Cx01=20, Cx03=00, Cx05=03 on most disk drive interfaces. Cx07=3C and CxFF=00 on the 5.25" (Cx07=00 and CxFF=dispatch address on 3.5") interface.

```
9665:A5 2B    LDA  2B      Load slot time $10
9667:8D 75 96 STA  9675    Store in parameter table
966A:20 00 B5 JSR  BF00    ProDOS 8 Machine
                           Language Interface
966D:C5       C5           Comand number for
                           ONLINE
966E:74 96    9674         Parameters start at
                           $9674 in memory
9670:F0 12    BEQ  9684 (+12) Accumulator=00 for
                           no errors
9672:38       SEC          Otherwise set carry for
                           "CP failed"
9673:60       RTS          Return to $9648
9674:02 00 00 60 0B        Buffer=$6000,
                           Pathname length=$0B
9679:43 41 52 4D 45 4E 2E 54 49 4D 45
                           CARMEN.TIME (path
                           name)
9684:AD 00 60 LDA  6000    Load the volume length
                           byte
9687:29 0F    AND  #$0F    Mask off upper four bits
9689:C9 0B    CMP  #$0B    Should be eleven bytes
                           long
968B:D0 E5    BNE  9672 (-1B) If not equal, then
                           branch to the "CP failed"
968D:AA       TAX          Transfer the $0B to X
                           register for indexing
968E:BD 00 60 LDA  6000,X  Load the ONLINE disk
                           volume
9691:DD 78 96 CMP  9678,X  Compare to expected
                           volume (CARMEN.TINE)
9694:D0 DC    BNE  9672 (-24) If not equal, then
                           branch to the "CP failed"
9696:CA       DEX          Decrement the indexing
                           register
9697:D0 F5    BNE  968E (-0B) Compare all eleven
                           bytes
9699:A2 F0    LDX  #$F0    Load new index
969B:B5 00    LDA  00,X    Save the zero page
                           locations $F0-$FF
969D:9D 00 02 STA  200,X   And store them from
                           $2F0-$2FF
96A0:E8       INX          Increment the index
96A1:D0 F8    BNE  969B (-08)  Move all sixteen bytes
96A3:A9 0A    LDA  #$0A    Load max numbers of
                           tries
96A5:85 F4    STA  F4      Store max tries in F4
96A7:A5 2B    LDA  2B      Load the slot times
                           sixteen
96A9:29 70    AND  #$70    Mask off any lower bits
96AB:85 2B    STA  2B      Store it again
96AD:AA       TAX          Transfer it to the X
                           register for indexing
96AE:BD 89 C0 LDA  C089,X  Turn on the drive, X=60
                           for slot 6
96B1:BD 8E C0 LDA  C08E,X
96B4:A9 3F    LDA  #$3F
96B6:85 F6    STA  F6
96B8:A9 97    LDA  #$97
96BA:85 F7    STA  F7      $F6-$F7 point to 973F or
                           the PROLOK bytes
96BC:A9 80    LDA  #$80
96BE:85 F5    STA  F5
96C0:C6 F5    DEC  F5
96C2:F0 5C    BEQ  9720 (+5C)
96C4:20 47 97 JSR  9747    Find start of a sector
96C7:B0 57    BCS  9720 (+57)
96C9:A5 F1    LDA  F1      Load sector number
                           found
96CB:C9 07    CMP  #$07    We're looking for sector
                           seven
96CD:D0 F1    BNE  96C0 (-0F)  If not equal, try again
96CF:A0 00    LDY  #$00
96D1:BD 8C C0 LDA  C08C,X  Load data latch
96D4:10 FB    BPL  96D1 (-05)  Loop until the high bit
                           is set
96D6:88       DEY
96D7:F0 47    BEQ  9720 (+47)
96D9:C9 D5    CMP  #$D5    Should find a D5
96DB:D0 F4    BNE  96D1 (-0C)
96DD:A0 00    LDY  #$00
96DF:BD 8C C0 LDA  C08C,X  Get a byte
96E2:10 FB    BPL  96DF (-05)
96E4:88       DEY
96E5:F0 39    BNE  9720 (+39)
96E7:C9 E7    CMP  #$E7    Should be E7
96E9:D0 F4    BNE  96DF (-0C)
96EB:BD 8C C0 LDA  C08C,X  Get a byte
96EE:10 FB    BPL  96EB (-05)
96F0:C9 E7    CMP  #$E7    Should be E7
96F2:D0 2C    BNE  9720 (+2C)
96F4:BD 8C C0 LDA  C08C,X  Get a byte
96F7:10 FB    BPL  96F4 (-05)
96F9:C9 E7    CMP  #$E7    Should be E7
96FB:D0 23    BNE  9720 (+23)
96FD:BD 8D C0 LDA  C08D,X  Clear data latch
9700:A0 10    LDY  #$10
9702:24 06    BIT  06      Delay to allow a few bits
                           to slip by
9704:BD 8C C0 LDA  C08C,X  Get a byte
9707:10 FB    BPL  9704 (-05)
9709:88       DEY
970A:F0 14    BEQ  9720 (+14)
970C:C9 EE    CMP  #$EE    Should be EE
970E:D0 F4    BNE  9704 (-0C)
9710:A0 07    LDY  #$07    We need the next eight
                           bytes
9712:BD 8C C0 LDA  C08C,X  Get a byte
9715:10 FB    BPL  9712 (-05)
9717:D1 F6    CMP  (F6),Y  Compare to PROLOK
                           bytes at 973F
9719:D0 05    BNE  9720 (+05)  If not equal, go to
                           "keep trying"
971B:88       DEY          Decrement Y index
971C:10 F5    BPL  9712 (-0C)  Keep getting bytes
                           until Y=FF
971E:30 03    BMI  9723 (+03)  Always taken as Y=FF
9720:4C 33 97 JMP  9733    Go to decrement counter
9723:A0 F0    LDY  #$F0    Set up to restore stored
                           info
9725:B9 00 02 LDA  0200,Y  Load a store byte
9728:99 00 00 STA  0000,Y  Store it back ($F0-$FF)
972B:C8       INY
972C:D0 F7    BNE  9725 (-09)  Move all sixteen bytes
972E:BD 88 C0 LDA  C088,X  Turn off the drive
9731:18       CLC          Carry clear means CP
                           passed
9732:60       RTS          Return to $9648
9733:C6 F4    DEC  F4      Decrement number of
                           tries
9735:F0 03    BEQ  973A (+03)  If zero tries the error
                           out
9737:4C BC 96 JMP  96BC    Jump back up and try
                           again
973A:BD 88 C0 LDA  C088,X  Turn off the drive
973D:38       SEC          Carry set means CP
                           failed
973E:60       RTS          Return to $9648
973F:FC EE EE FC E7 EE FC E7
                           PROLOK bytes
9747:A0 FD    LDY  #$FD
9749:85 F8    STY  F8
974B:88       DEY
974C:D0 04    BNE  9752 (+04)
974E:E6 F8    INC  F8
9750:F0 3D    BEQ  978F (+3D)  Go to error out section
9752:BD 8C C0 LDA  C08C,X  Get a byte
9755:10 FB    BPL  9752 (-05)
9757:C9 D5    CMP  #$D5    Looking for D5
9759:D0 F0    BNE  974B (-10)  If not equal, try again
975B:EA       NOP
975C:BD 8C C0 LDA  C08C,X  Get a byte
975F:10 FB    BPL  975C (-05)
9761:C9 AA    CMP  #$AA    Looking for AA
9763:D0 F2    BNE  9757 (-0E)  Or keep trying
9765:A0 03    LDY  #$03    Set up for reading four
                           4x4 encoded bytes
9767:BD 8C C0 LDA  C08C,X  Get a byte
976A:10 FB    BPL  9767 (-05)
976C:C9 96    CMP  #$96    Looking for 96
976E:D0 E7    BNE  9757 (-19)  Or keep trying
9770:A9 00    LDA  #$00
9772:85 F9    STA  F9      Zero out F9
9774:BD 8C C0 LDA  C08C,X  Load a byte
9777:10 FB    BPL  9774 (-05)
9779:2A       ROL          Rotate left for 4x4 nibble
                           encoding
977A:85 F8    STA  F8      Store it at F8
977C:BD 8C C0 LDA  C08C,X  Get a byte
977F:10 FB    BPL  977C (-05)
9781:25 F8    AND  F8      Decode the 4x4 nibble
                           encoded byte
9783:99 F0 00 STA  00F0,Y  Store it at F0 plus the Y
                           index
9786:45 F9    EOR  F9
9788:88       DEY          Did we do all four bytes?
9789:10 E7    BPL  9772 (-19)  If no, then get more
978B:A8       TAY
978C:EA       NOP
978D:18       CLC          No read errors
978E:60       RTS          Return to $96C7
978F:38       SEC          Could NOT find a sector
9790:60       RTS          Return to $96C7
```

There you have the copy protection routines outlined. First the routine finds the last accessed slot number and stores it. Then it does a ONLINE call, or reads block 2 and gets the name of the disk. This is important, because it also brings the drive head to track zero. Then it looks for sector seven and at the end of sector seven is the PROLOK byte sequence. Starting at 9791 in memory is the text for "INSERT ORIGINAL PROGRAM DISK SIDE A", at 97B6 is "PRESS ANY KEY TO CONTINUE", and finally at 97D1 is "WELL DONE" and the rest of the normal text for completing a case. The copy protection doesn't return or store any special values (but does clear the carry as a flag), so simply killing the calls to it deprotects this one. The code on the disk looks like this:

```
9C:20 00 96   JSR  9600    Go do the copy
                           protection
9F:90 25      BCC  C6 (+25) Carry clear means CP
                           passed (original)
A1:20 9A 45   JSR  459A
A4:A9 32      LDA  #$32
A6:8D FE 44   STA  44FE
A9:A9 91      LDA  #$91
AB:A2 97      LDX  #$97    Pointer to "INSERT
                           ORIGINAL..."
AD:20 E9 4D   JSR  4DE9    Print it to the screen
B0:20 3A 4F   JSR  4F3A
B3:20 3A 4F   JSR  4F3A
B6:A9 B6      LDA  #$B6
B8:A2 97      LDX  #$97    Pointer to "PRESS ANY
                           KEY..."
BA:20 E9 4D   JSR  4DE9    Print it to the screen
BD:20 A0 AE   JSR  AEA0
C0:20 F4 A8   JSR  A8F4
C3:4C 9C 71   JMP  719C    Jump back up to 9C (do
                           CP again)
C6:AC 35 44   LDY  4435    Continue with the
                           program
```

To make a deprotected backup of the four 5.25" disk set of Where in Time is Carmen Sandiego follow these steps:

1. Make a fast copy of all four disk sides
2. Make the following edits to the following disks:

Disk side C

Trk	Sct	Byte	From	To
$1F	$0F	$9C	20 00 96	EA EA 18

Disk side D

Trk	Sct	Byte	From	To
$20	$0E	$9C	20 00 96	EA EA 18

3. Write each sector back to the disk
4. Use/play off the newly deprotected backups

Jack Moravetz ___ User #1082

Softkey for...

Sports Scheduler version C.12

Sports Software Associates

Copy the disk with any copier that will ignore errors or format a ProDOS disk and copy all the files to it.

Using a sector or block editor, scan for the bytes D0 03 A5 0C and change the D0 03 to EA EA. Write the changes to the disk. Next scan for the bytes A0 FC 8C 6B D3 and change them to 4C EB D6 EA EA. Write the changes to the disk. Finally scan for the bytes 38 60 18 60 00. Make these changes:

```
0EE6:38       SEC
0EE7:60       RTS
0EE8:18       CLC
0EE9:60       RTS
0EEA:00       BRK
0EEB:AD 2C 62 LDA  $622C   —|
0EEE:C9 90    CMP  #$90    |
0EF0:D0 05    BNE  $0EF7   |
0EF2:A9 50    LDA  #$50    |— Add these bytes
0EF4:8D 2C 62 STA  $622C   |
0EF7:A0 FC    LDY  #$FC    |
0EF9:8C 6B D3 STY  $D36B   |
0EFC:4C 9B D3 JMP  $D39B   —|
0EFF:00       BRK
```

Write the changes to the disk. All the changes were made to the program's modified ProDOS.

Softkey for...

Playroom

Broderbund

Playroom is a children's program that begins with a scene of a child's room. Objects in the room may be clicked on with the keyboard, joystick, or the mouse. Some of the objects in the room make a sound or animation when clicked on while others run a game. Playroom was supplied on four 5.25" disks. With all the disk swapping involved, it seemed like a good candidate for a 3.5" disk.

Playroom seemed to be a fairly normal ProDOS when it booted although the screen was blank during the boot. When a copy was run, the program would go to the quit code. The protection was found in the file PLAYROOM. SYSTEM. The remaining three disks had no protection on them. Here is the protection code that I found and four ways of defeating it. You only have to do one of the changes.

```
10DD:BD 8C C0 LDA  $C08C,X  1. Change to 18 60 EA
10E0:10 FB    BPL  $10DD
10E2:88       DEY
10E3:F0 3A    BEQ  $111F
10E5:C9 E7    CMP  #$E7
10E7:D0 F4    BNE  $10DD
10E9:BD 8C C0 LDA  $C08C,X  2. Change to 18 60 EA
10EC:10 FB    BPL  $10E9
10EE:C9 E7    CMP  #$E7
10F0:D0 2D    BNE  $111F
10F2:BD 8C C0 LDA  $C08C,X
10F5:10 FB    BPL  $10F2
10F7:C9 E7    CMP  #$E7
10F9:D0 24    BNE  $111F
10FB:BD 8D C0 LDA  $C08D,X
10FE:A0 10    LDY  #$10
1100:24 06    BIT  $06
1102:BD 8C C0 LDA  $C08C,X  3. Change to 18 60 EA
1105:10 FB    BPL  $1102
1107:88       DEY
1108:F0 15    BEQ  $111F
110A:C9 EE    CMP  #$EE
110C:D0 F4    BNE  $1102
110E:A0 07    LDY  #$07
1110:BD 8C C0 LDA  $C08C,X
1113:10 FB    BPL  $1110
1115:D9 53 64 CMP  $6453,Y
1118:D0 05    BNE  $111F
111A:88       DEY
111B:10 F3    BPL  $1110
111D:30 03    BMI  $1122
111F:4C 47 64 JMP  $6447    4. Change to EA EA EA
1122:A0 F0    LDY  #$F0
1124:B9 00 BA LDA  $BA00,Y
1127:99 00 00 STA  $0000,Y
112A:C8       INY
112B:D0 F7    BNE  $1124
112D:BD 88 C0 LDA  $C088,X
1130:18       CLC
1131:60       RTS
```

Putting Playroom on 3.5" disk

Since all four of the disks for Playroom had the volume name /PLAYROOM, I thought it would be really easy to put them all on a 3.5" disk. But the program kept crashing after it booted. Once more, some changes had to be made to the file PLAYROOM.SYSTEM.

```
1046:20 00 BF JSR  $BF00 --|
1049:80       (read block) | Change
104A:D1 62                 | all
104C:B0 D8    BCS  $1026   | of
104E:20 9C 09 JSR  $099C   | these
1051:AD D2 62 LDA  $62D2   | bytes
1054:29 70    AND  #$70    | to
1056:85 2B    STA  $2B     | EA's.
1058:B0 C9    BCS  $1026   |
105D:20 9F 09 JSR  $099F --|
1060:20 00 BF JSR  $BF00
1063:C6       (set  prefix)
```

Brian A. Troha ___ User #457

Softkey for...

Gnarly Golf

Britannica

Requirements:
512K Apple IIgs
3.5" disk copier
3.5" disk editor

Gnarly Golf is another crazy miniature golf type game along the same lines as Zany Golf (Electronic Arts). The graphics and game holes are very good and that makes the game enjoyable. The program comes on two disks and has a special formatted block $63F (the last block on the disk) that contains some data bytes. Although the data isn't need for the actual game, it is checksummed as part of the copy protection. Below is the code that reads the altered format block into memory, does the checksum, then continues or asks for the original as it is executed:

```
1302:18       CLC          Carry clear is need for the ROL
1303:A0 AC 07 LDY  #$07AC  Load a "encrypted" value
1306:98       TYA          Transfer it into the accumulator
1307:2A       ROL          Rotate left with carry, $7AC becomes $F58
1308:AA       TAX          Transfer to X for indexing
1309:BF 00 00 E1 LDA  E10000,X  Load a 16 bit value from data-header table
130D:48       PHA          Push on the stack to store original value
130E:BF 02 00 E1 LDA  E10002,X  Load a byte from $E10F5A
1312:48       PHA          Store in on the stack
1313:88       DEY          Commands dealing with Y index not needed
1314:88       DEY          Decrement Y twice to $7AA
1315:98       TYA          Transfer it to the accumulator
1316:82 53 1B BRL  2E6C (+1B53)  Branch to next part of CP routine
2E6C:A9 D5 AA LDA  #$AAD5  Load the corrupt data-header value
2E6F:9F 00 00 E1 STA  E10000,X  Store at E10F58
2E73:C8       INY
2E74:E2 20    SEP  #$20    Switch to 8 bit accumulator
2E76:A9 AD    LDA  #$AD    Load the last corrupt data-header value
2E78:C8       INY
2E79:9F 02 00 E1 STA  E10002,X  Store it at E10F5A
2E7D:9B       TXY          Transfer X to Y
2E7E:5A       PHY          Push Y ($F58) onto stack
2E7F:82 7D F8 BRL  26FF (-0783)  Branch to next part of CP routine
26FF:38       SEC          Set up for switch to emulation mode (//E)
2700:FB       XCE          Do the switch
2701:20 00 BF JSR  BF00    ProDOS 8 MLI entry point
2704:80            80      Command number for read_block
2705:10 27         2710    MLI parms located at 2710
2707:08       PHP          Save the returned carry status
2708:18       CLC          Set up for switch to native mode (IIgs)
2709:FB       XCE          Do the switch
270A:28       PLP          Restore the carry status
270B:C2 30    REP  #$30    Switch 16 bit wide Accumulator & index regs
270D:82 1D 12 BRL  392D (+121D)  Branch to next part of CP routine
2710:03 50 00 50 3F 06     Parms, Buffer=$5000, Block=$63F
392D:FA       PLX          Pull data-header index ($F58)
392E:58       PLA          Pull original E10F5A value
392F:E2 20    SEP  #$20    8 bit wide accumulator
3931:9F 02 00 E1 STA  E10002,X  Restore original data-header value
3935:C2 20    REP  #$20    16 bit wide accumulator
3937:68       PLA          Pull original E10F58 value
3939:9F 00 00 E1 STA  E10000,X  Restore original data-header value
393C:82 52 07 BRL  4091 (+0752)  Branch to next part of CP routine
4091:B0 1D    BCS  40B0 (+1D)  Carry set from read error is a COPY!
4093:C2 30    REP  #$30
4095:A0 FE 01 LDY  #$01FE  Go through all $200 bytes
4098:A2 00 00 LDX  #$0000
409B:98       TYA
409C:18       CLC
409D:E8       INX
409E:8A       TAX
409F:2A       ROL
40A0:AA       TAX          Self creating checksum routine
40A1:08       PHP          Store processor status
40A2:D9 00 50 CMP  5000,Y  Compare to our read in data
40A5:D0 08    BNE  40AF (+08)  Not equal means a COPY!
40A7:28       PLP          Restore processor status
40A8:88       DEY
40A9:88       DEY          Decrement Y index
40AA:10 F1    BPL  409D (-0F)  Are we done yet?
40AC:82 06 DF BRL  1FB5 (-20FA)  Made it here means an ORIGINAL
40AF:28       PLP          Failed checksum comes here
40B0:82 F0 DE BRL  1FA3 (-2110)  Couldn't read altered format comes here
1FA3:20 B3 40 JSR  40B3    Ask for the original disk
1FA6:A2 19 00 LDX  #$0019
1FA9:A0 00 00 LDY  #$0000  X & Y values for short delay
1FAC:88       DEY
1FAD:D0 FD    BNE  1FAC (-03)
1FAF:C8       DEX
1FB0:D0 FA    BNE  1FAC (-06)
1FB2:82 4D F3 BRL  1302 (-0CB3)  Back up to start of the CP routines
1FB5:E2 20    SEP  #$20    8 bit wide accumulator
1FB7:AF 29 C0 E1 LDA  E1C029  Load SHR softswitch
1FBB:09 C0    ORA  #$C0    Set bits #%11xxxxxx
1FBD:8F 29 C0 E1 STA  E1C029  Store new value (turns on SHR screen)
1FC1:C2 20    REP  #$20    16 bit wide accumulator
1FC3:60       RTS          Return to sender
```

That code was fun follow and easy to understand with a little help, right? Let me explain a little bit, starting at E10F57 through E10F6C are the current address/epilogue/data marks to use for reading or writing to a 3.5" disk, only they are listed backwards. So at E10F58 is AD AA D5, the standard data-header values listed backwards.

The protection changes these values to D5 AA AD or simply turns them around. Then CP routine issues a normal ProDOS 8 block read using the altered data headers and the block should read in correctly. Then the CP routine restores the original values and goes to the checksum routine to verify data from that block. The programmers used BRL (BRanch Long) commands to make the code harder to back trace. So you couldn't just search for hard references to 26FF, like JSR 26FF or JMP 26FF. It's easy to find the block read call, but then you must go forward to find clues on what to look backwards for. After I found the STA E10002,X command at 3931 I searched for references to E10002 and uncovered the beginning of the CP routine.

The easiest way I can think of to bypass the copy protection routines would be to change the LDY #$07AC at 1303 (in memory) to JMP 1FB5, which is the "it's okay to continue the program" section of code. So now, the first thing the copy protection routine does is clears the carry and jumps to the continue section allowing you play the game! The easy step by step method would be:

1. Make a copy of both Gnarly Golf game disks (ignore the read error on block $63F on disk 1).
2. Make the following changes to a copy of disk 1:

Blk	Byte	From	To
$14F	$12A	A0 AC 07	4C B5 1F

3. Write the block back to the copy.

Store the original disks in a safe place and use the copy to play from. *Optional:* Upload the program to your hard disk.

Vince Andrews ___ User #926

Softkey for...

QIX GS

I spent a day and night trying to figure this one out and if it wasn't for Starbuck and his softkey for Arkanoid (#70), then I would never have figured it out!

Blk	Byte	From	To
4D5	77	22 73 02 00	AF 73 02 00
	81	22 A3 02 00	AF A3 02 00
	AC	22 B6 02 00	AF B6 02 00
	B0	90 09 A9 04	18 90 0E 04
52B	30	00 00	93 00
5B4	DC	0C 07 03 09	04 04 04 00

Brian A. Troha ___ (User #457)

Note on QIX GS SoftKey

To Vince Andrews: You only need to make the first edits on block 4D5, for the fourth edit change the 90 09 to 80 09. Lastly, include the edit on block $5B4. Trust me I know all about Taito's CP routine (as I have sourced the entire NovaLogic copy protection routine). StarBuck got his info from a auto-patch program I wrote in BASIC.

Note on Arkanoid II

Arkanoid II can be cracked in the same manner as Vince Andrews QIX softkey, instead of the 22 73 02 00 look for 22 73 08 00 and use the 08 for the other two changes and again change the 90 09 to 80 09. On all GS wares the 0C 07 03 09 will appear, change these bytes to four bytes that add up to 12 or less.

Edward Teach ___ User #226

Softkey for...

John Madden's Football

Electronic Arts

I have been asked how I deprotect disks. Well, sometimes, it is just by luck. This is a prime example of luck. This disk was COPYA to begin with, but a copy would not run. Looking at the files on the disk showed that there was a program named STARTUP. This looked like a good place to begin the search for protection. I bloaded the file and list the memory location in the monitor. The very first thing that was done was to load the accumulator with a #$00 and then store that number in memory location $0287. All I did was to make the accumulator load a #$01 and the doc check was bypassed. As I said... luck plays a major role sometimes.

```
CALL -151
BLOAD STARTUP
2001:01
BSAVE STARTUP, A$2000, L$80
```

Softkey for...

Bubble Bobble

Taito

There have been several Taito games on the most wanted list for awhile. Hopefully, this one is still there. I found a JSR $9800 in the boot process. This JSR went directly to another JSR, all that is required is to bypass the first JSR. Why does this work? Well I wish I had an answer.

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	From	To
$00	$01	??	20 00 98	20 03 98

Softkey for...

Sporting News Baseball

Epyx

This is your normal EPYX protection. So not to take up valuable column space with the ordinary, here are the bytes to change:

Trk	Sct	Byte	From	To
$00	$01	$9E-??	??	A9 FC 85 F0 A9 EE 85 F1 85 F2 A9 FC 85 F3 A9 E7 85 F4 A9 EE 85 F5 A9 FC 85 FC A9 E7 85 F7 EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA EA

Lots of EA's I know, but I thought that you might like something different. And speaking of different, how would you like to be the first one on your block to add a new feature to this game. Scanning around in memory I located a picture that is loaded but not called. The above sector edits will allow the game to boot and run, but with a few additional sector edits we can add something neat.

Trk	Sct	Byte	From	To
$00	$0A	$11	?	4C D0 0B
$00	$0D	$D0	?	AD 00 C0 10 FB C9 9B D0 1B 8D 91 B7 A0 00 B9 00 60 99 FE 1F C8 D0 F7 EE E3 0B EE E0 0B AD E3 0B C9 3F D0 E8 8D 10 C0 4C 66 B7 EA A0 A0 4C 17 08
$22	$00	$66	?	AD 91 B7 C9 9B D0 12 A9 00 8D 0C C0 20 DE F3 EA EA EA EA EA EA EA EA EA EA A9 20 8D 11 08 A9 17 8D 12 08 A9 08 8D 13 08 4C 14 08 EA EA

Do not worry about the from bytes (they are almost all $00). These changes turn off the double Hires (JSR $F3DE) and also turn off the 80 column card (LDA #$00..STA $C00C). Now boot the disk and when the picture of the baseball player appears press ESC, any other key and the game proceeds normally. Remember.."Basabawl Bin Berry Berry Good to me".

As a final note, I am really happy that the COMPUTIST covers computers other than the Apple. I have sold my IIe and gone off into IBM land. Not that there was anything wrong with the Apple, but instead, work is alot easier for me if I can do some stuff at home.

I was one of the "Hardcore Computists", which means that that group is now short on members. So if you would like to help the other computists, all you have to do is write a general article on any subject and send it off to Mr. Haight under the "Computists" name. I also need someone to take over the role of "Nissel Watch", we can't let him go back to those short softkeys, he was doing so well. Enjoy. I'll be back.

End of BBS News

Groucho Tarz ___ PA

I would like to make this urgent plea to all Computist readers. SUPPORT COMPUTIST NOW!!! I have purchased many back issues in the last couple of months, written to all the Apple owners I can find, and joined the club Computist has formed. I strongly urge you to support them in every way, especially financially. It only costs a few cents to write to someone else and tell them about Computist and how it can help them. Back issues only cost a few dollars, and every one you order means that many dollars longer we will still be able to receive new issues of Computist. I propose that all readers buy at least one back issue for each softkey they have ever used from Computist. If you have all the back issues, fine. Just get one new subscriber for each softkey you've ever used. If we even get close to meeting this goal, Computist will be with us forever. And I don't know about the rest of you, but I don't know what I'd do without it!

There's an interesting development going on at Beagle Bros. Did you know that they are giving certain of their programs away to ANYONE who downloads them? That's right, as their older software products (such as Beagle Basic, Pronto DOS, and Mechanic) are out of stock, they are being placed on a BBS where ANYONE can download them. According to a Beagle flyer, "If you have received a Beagle Bros catalog in the past, you might be wondering what happened to all the old Beagle Bros utility programs, like DOS Boss and Silicon Salad. They are not in this catalog, but they are still alive and well on Pro-Beagle—the Beagle Bros bulletin board." The programs that were on the system when I called it included the following:

Beagle BASIC
Pronto DOS
Alpha Plot
Beagle Bag
D Code
Silicon Salad
Extra K
Utility City

The catalog also goes on to say "Like we said, these programs are free. You are welcome to use

them as much as you want—even share them with your friends. But please don't give away any programs other than those listed here."

The number for Pro Beagle is (619) 558-6151. When you call, all you have to do is give your name and city. You'll get immediate access to the downloads, all of which are compressed using Shrinkit (which is also available on the board). I wish more software companies would follow this trend with their older wares. To begin with, it's a great promotional gimmick because it gets a company's name out there in the public eye and shows what kind of software they're capable of producing. But it also means that those who bought and use outdated software will be able to find replacement copies when they want it. My only complaint is that Beagle Bros doesn't install documentation files on the disks. But considering the price of the software, I should expect to get what I pay for...

As always, I am willing to correspond with any and all Computist readers. Just contact me at:

Groucho Tarz
P.O. Box 200-X
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Jim Ross _____ NH

Putting "Who Framed Roger Rabbit?" on 3.5" disk

Requirements:
Blank 3.5 disk
Copy II+

In COMPUTIST #68, p.17, the Sky Phantom softkeyed WFRR. Just above the sector edit for the softkey I noticed the ProDOS pathnames for the four sides of the 5.25 disks. They are: /DISK1SIDEA, /DISK1SIDEB. /DISK2SIDEA, /DISK2SIDEB. I searched all four sides of WFRR using Copy II+ sector editor scan for text and found the pathnames only appear once. Just below the pathnames are the text messages to insert the appropriate side. They are: Disk 1, Side A. etc. Both the protection and the ProDOS pathnames are in the file "MASTER.SYSTEM". So, we'll NOP out the JSR to the protection and change the pathnames from volumes to subdirectories on our 3.5" volume.

1. Format a blank 3.5" disk ProDOS, naming it WFRR.
2. Copy the files ProDOS and MASTER. SYSTEM from boot side of original 5.25" disk.
3. Use 3.5" sector editor from Copy II+ to scan for 20 00 1B 90 03 4C 3C 1A and change these 8 bytes to EA (NOP).
4. Scan for text:/DISK1SIDEA. Press T in Copy II+ sector editor to change this to:/WFRR/SID1A. (Note: The number of characters must not change, hence no E in SID1A.)
5. Change the remaining 3 pathnames:/WFRR/SID1B, /WFRR/SID2A, and /WFRR/SID2B.
6. Change the 4 text messages from "Disk 1,Side A....." to " Volume WFRR ". (Note: Type a space before and after "Volume WFRR" so it has the same number of characters as the original text.) Write the sector back to disk.
7. Use Copy II+ create subdirectory to create 4 subdirectories: SID1A, SID1B, SID2A, and SID2B.
8. Copy all the files on SIDE1A except PRODOS and MASTER.SYSTEM to subdirectory SID1A.
9. Copy all the files on sides 1B, 2A, and 2B to the appropriate subdirectory.

Done! Enjoy.

Softkey for...

Math Blaster Plus GS

Davidson

This program uses GS/OS but uses the old ProDOS 16 (but still GS/OS compatible) READ BLOCK command of 22. The GS/OS calls are all made from a little subroutine on Block $9. It looks like this:

Byte	Memory:Code	Inst	Operand	Comment
AE	04/0269:64 B8	STZ	B8	
B0	04/026B:22 A8 00 E1	JSL	GS/OS	
B4	04/026F:13 00	0013		Cmnd code
B6	04/0271:81 02 04 00	00040281		Parameter tbl
BA	04/0275:90 06	BCC	C2 (+06)	
BC	04/0277:85 B8	STA	B8	
BE	04/0279:A9 00 00	LDA	#0000	
C1	04/027C:60	RTS		
C2	04/027D:A9 FF FF	LDA	#FFFF	
C5	04/0280:60	RTS		

This subroutine is used repeatedly by loading the Accumulator with a hex value and then storing the Accumulator at memory location 04/026F. This changes the GS/OS Command Code. All the normal GS/OS calls that are part of the program will have no error so the Carry will be clear and #FFFF will be loaded in the Accumulator. When a 22 is loaded at 04/026F, the READ of the Bad Block sets the Carry and the Accumulator returns an error code of $27 (I/O Error). The Accumulator is loaded with $0000 and the $27 is stored at $B8 on the Direct Page.

Since we want a clean copy without a Bad Block, we will modify the subroutine to handle all non-22 Command Codes normally but on a 22 don't make the GS/OS call and load the Accumulator with the expected $27. The program left $00's in front of the subroutine for us to add a little code of our own. The subroutine starts at 04/0269 so we must write our modifications so that our modified subroutine can be entered at that point.

Byte	Memory:Code	Inst	Operand	Comment
A0	04/025B:A9 27 00	LDA	#0027	
A3	04/025E:80 17	BRA	BC (+17)	
A5	04/0260:C9 22 00	CMP	#0022	Is it 22?
A8	04/0263:F0 F6	BEQ	A0 (-0A)	
AA	04/0265:64 B8	STZ	B8	
AC	04/0267:80 02	BRA	B0 (+02)	
AE	04/0269:80 F5	BRA	A5 (-0B)	Entry point
B0	04/026B:22 A8 00 E1	JSL	GS/OS	

Just use a sector editor on Block $9 to add the code shown from Byte $A0 to AE. Don't forget to write it back to disk. That's it. Enjoy!

Softkey for...

Math Blaster Mystery 5.25"
Math Blaster Mystery 3.5"
Alge-Blaster Plus 3.5"

Davidson

All three use the same bit of code for the protection. It is a Bad Block check using the ProDOS 8 MLI for Read Block (20 00 BF 80).

```
24:20 00 BF     JSR  BF00    MLI entry
27:80                READ BLOCK  Command code
28:CA 0D        0DCA         Parm table
2A:90 09        BCC  35 (+09)
2C:C9 27        CMP  #27     I/O error?
2E:D0 D5        BNE  35 (+05)
30:A9 FF        LDA  #FF     Run
32:85 FF        STA  FF
34:60           RTS
35:A9 00        LDA  #00     Don't run
37:85 FF        STA  FF
39:60           RTS
```

If we NOP out bytes $24 through $2F the check won't be made and the hex value FF will be loaded at FF on the Direct Page as required.

Using a sector editor change bytes $24-2F to EA. On the 5.25" disk they are on Track $16, Sector $02.

For Math Blaster Mystery 3.5", they are bytes $124-12F on Block $3B. For Alge-Blaster Plus 3.5", they are bytes $124-12F on block $29.

Don't forget to write the changes back to disk. Enjoy!

Jim S. Hart _____ NC

Softkey for...

Certificates and More

Pelican Software

Requirements:
COMPUTIST #61, etc.

The softkey for this is the same as the softkey for Pirates! in Computist #61.

Softkey for...

Risk v1.3

Casablanca Software

Requirements:
1 blank disk
Super IOB v1.5
Fast or standard controller
ProDOS file copying program
A disk with the files PRODOS and BASIC.SYSTEM on it (your BASIC disk)

Casablanca Software has a winner in its release of the game RISK. Very smooth scrolling highlights this excellent adaptation. The game can be played with joystick, mouse, or keyboard. If you like RISK, then be sure to pick up this one.

The protection on this disk is not too shabby. Booting the original reveals that the disk is ProDOS based; you see the ProDOS copyright message. 5.25" ProDOS based disks usually do not give me a problem when it comes to deprotecting them, and I naturally assumed that of RISK too. Turns out I was half-right: the disk has a simple format alteration and a pesky signature check.

Getting rid of the format alteration is simple. "Simple?, you say, It might be simple to normalize a DOS 3.3 based program on 5.25 disks, but ProDOS is another beast." Not really. At the level Super IOB copies 5.25" disks, there is no difference between DOS 3.3 and ProDOS. For that matter, there is no difference between DOS 3.3, ProDOS, Apple Pascal, and Apple CP/M disks when it comes to how the disk is formatted (ie. tracks and sectors). The differences are in how the information is **logically**, not physically, written and interpreted. With that out of the way, boot your disk that has your Super IOB on it. POKE 47426,24 to tell DOS 3.3 to ignore errors and then use the fast or standard controllers to copy the original RISK disk (tracks $0 through $22) onto the blank. Make sure to format the blank disk. Once you are done, put away your original RISK disk because we're done with it for now.

Load your ProDOS file copying program and copy the PRODOS file from your BASIC disk (the one with PRODOS and BASIC.SYSTEM on it) onto the copied RISK disk. This ensures a normal PRODOS system file is on the copy. For the fun of it, boot this copied RISK disk now. What you will see is what happens when a signature check is made and not satisfied. Hmmm, where would the signature check code be? The place to look is the first SYS type file with a '.SYSTEM' at the end of it (for example, BASIC.SYSTEM). This is the file that gets run immediately after ProDOS is loaded up. In our case the file is called RISK.SYSTEM. Boot up your BASIC disk and then insert your copied RISK disk. Set the prefix to it by typing PREFIX /RISK. Load the RISK.SYSTEM file into memory so we can examine it by typing BLOAD RISK.SYSTEM,A$2000,TSYS. The disk will whir for a second or two and the file will have been loaded. Get into the monitor (CALL -151) and start looking through the code (2000L). Here is a bit of the code at the beginning:

```
2005:AD B3 FB   LDA  $FBB3
2008:C9 06      CMP  #$06
200A:D0 29      BNE  2035     taken if II+
200C:AD C0 FB   LDA  $FBC0
200F:C9 E0      CMP  #$E0
2011:D0 22      BNE  2035
2013:38         SEC
2014:20 1F FE   JSR  $FE1F
2017:B0 1C      BCS  2035
2019:20 62 F9   JSR  $F962    gets here if GS
```

Although there are some comparisons here, this code is innocent. What this code does is check the ROMs to see what machine it is running on. If the machine is a IIgs, then all branches are ignored and the program makes it to $2019. Any other machine will cause a branch to $2035. The code from $2019 to $2033 is initialization code for the GS only. From $2035 to $2083 is general setup code, such as set the RESET vector, etc. The graphics screen is enabled from $2084 to $208F. At $2090 we find our first bit of code that may be the culprit. The code here ($2090 - $2095) is a ProDOS MLI call, an operating system call. Looking through "Beneath Apple ProDOS" reveals that this call is a simple call to get the current time from the operating system. I'm not quite sure what the code from $2096 to $2103 is doing, other than some memory is being moved around.

```
2104:A5 D6      LDA  $D6
2106:D0 08      BNE  $2110
2108:20 F9 B4   JSR  $B4F9
210B:45 22      ???
210D:4C 00 80   JMP  $8000
2110:20 F9 B4   JSR  $B4F9
```

At $2104 we notice that the Applesoft RUN flag is checked, and if it is not zero (set) then the program branches to $2110. The RUN flag is usually set by protected programs so you cannot get into then to look at them. This is even done when there are only machine language (BIN, SYS) programs on the disk. I generally ignore JSRs (Jump to SubRoutines) into ProDOS itself (JSR $B4F9), so that leaves us with a JMP $8000 (jump to memory address $8000) to worry about. Let's see what happens if we just NOP out (NOPs are to machine language as REMs are to BASIC) the JMP $8000. Two things can happen: (1) the JMP is to the crash routine, or (2) the JMP is to continue on with the program. Type 210D:EA EA EA to NOP out the JMP, and then execute the program by typing 2000G. Look what you just found out! The JMP $8000 is indeed the call to the crash routine. You now know that you have to replace the JMP $8000 (4C 00 80) with three NOPs (EA EA EA) to finish deprotecting the program. Of course, to be sure the game is really deprotected you play the game right now and see if anything bad comes up. I did and everything's fine. Aren't you glad you found that pesky signature check and got rid of it?

Cookbook Method

1. Boot your Super IOB disk. At the prompt (]), type:

POKE 47426,24

2. Install the standard or fast controllers into Super IOB and copy the entire disk (tracks $0 to $22). Put away the original when done.
3. Copy the PRODOS file from your BASIC disk to the copied RISK disk using your ProDOS file copying program.
4. Boot up your BASIC disk.
5. Insert your copied RISK disk into a drive and type:

PREFIX/RISK

6. Load up the main file and remove the crash call:

CALL -151
BLOAD RISK.SYSTEM,A$2000,TSYS
210D:EA EA EA *was 4C 00 80*
BSAVE RISK.SYSTEM,A$2000,TSYS

You're done!

Softkey for...

The Three Stooges GS

Cinemaware Corporation

Requirements:
Original Three Stooges disks (2 - 3.5 disks)
2 blank 3.5 disks
A 3.5 disk copier that will ignore errors (like Copy II Plus)
A ProDOS block editor

Three Stooges for the GS is a must for anyone who enjoys the antics of that famous trio of characters. Moe, Larry, and Curly have to save the orphanage by doing various odd jobs. The odd jobs are based on scenes from their movie shorts. For example, in one odd job you (as Larry) have to get the Philco radio from a store and get it back before round six of Curly's boxing match so he can win the bout. Along the way you have to avoid various items on the street such as dogs and boxes. The digitized sounds make this game a truly enjoyable experience. I have yet to see anyone not smile when Moe slaps the other two stooges around or when Curly says "Ruff Ruff". The protection is not too shabby either. I could kill myself on this one because I committed a cardinal sin: I forgot to take notes while I was deprotecting a program! I really hate myself for this one because it was my first GS softkey. All I can tell you is that I looked at all the other GS softkeys in Computist, and I then searched the disks for code that resembled code in those softkeys. I finally came up with a crack (!) but alas I forgot why I did what I did. All I remember is that a smartport read error has a return value of $27 and the check for it is CMP #$27 (C9 27).

Cookbook Method

1. Copy both original Stooges disks onto the blank 3.5 disks using your whole disk copier. You will get some read errors on disk #1. Ignore them.
2. Boot up your block editor and make the following edit to the COPY of disk #1:

Blk	Byte	From	To
$13	$15D	90 05 C9 27	18 80 0C 27

3. Write that block back to disk, and you're done! Put the originals away in a safe place and enjoy your backups.

Softkey for...

Counting Critters

MECC

Requirements:
64K Apple
Blank 3.5" disk
Initialized DOS 3.3 5.25" disk
Demuffin Plus
FID (from DOS 3.3 System Master)
AmDOS or equivalent
Disk searcher/sector editor

A friend of mine gave me the 3.5" version of Counting Critters and asked me to softkey it. I usually do not have any problems with 5.25" programs when it comes to deprotection, but 3.5" programs are another story. Booting the disk up reveals that the operating system it uses is a modified DOS 3.3, not ProDOS. When the disk is booted you see an Applesoft prompt (DOS 3.3 telltale sign). There are several modified DOS 3.3 packages on the market, AmDOS for example, that allow use of DOS 3.3 on a 3.5" disk. Counting Critters must be using one of them. I am not all that experienced in DOS 3.3 on a 3.5" disk so I went to work hoping to learn something.

Attempting to copy the disk will reveal an error on block #8. Booting a copy of the disk will reveal the protection scheme. The copy freezes a second or two after you boot it. I boot code traced the disk, but everything looked like a normal DOS 3.3 boot. Well, if a boot trace doesn't turn up anything, then let's try to look at the programs on the disk. Maybe they will run fine by themselves because the protection scheme occurs so early in the boot. After the disk is booted and the Applesoft prompt appeared, I pressed **ctrl C**. I was rewarded with a break. I scanned through the BASIC program and then tried cataloging the disk. I had problems with neither. Hmmm. Maybe the protection is only in the boot. We are now faced with another problem: how to get the programs off of the 3.5" disk onto another.

The answer would seem to lie in the AmDOS package. After all, it can give you a catalog of a DOS 3.3 formatted 3.5" disk. Trying that out only leads to frustration because I found out most every modified DOS 3.3 package arranges the

catalog on their disk differently. None of the modified DOS 3.3 packages I could borrow from friends would work. There must be a way to do this. I finally stumbled upon the answer.

Did you notice the program Demuffin Plus in the "What's needed" above? That is the answer I came up with. Demuffin Plus uses the DOS in memory to read files off of the protected disk and uses its own DOS 3.3 RWTS to write the files out to a normal DOS 3.3 disk. The usual procedure in using Demuffin Plus is (1) load it into memory where a boot will not affect it, usually at $6803, (2) stop the boot after the modified DOS has been loaded, (3) move Demuffin Plus down to where it's executed at, $803, and (4) execute it to copy the files. I tried to do this but it seemed that no matter where I loaded Demuffin Plus in memory, it would get overwritten by the booting process. Where could I put Demuffin Plus and not have it get overwritten? The RAM card? Well, that worked! I followed the above procedure and copied the files from the 3.5" disk to the initialized 5.25" disk.

I booted the 5.25" disk to see if everything was OK, and it did seem to work. A bug came up, though, when I chose any of the menu items. A message would them come up asking me to "Insert your original Counting Critters disk". Hmmm, missed something. I went and looked through the menu program and found the code that ran the choice the user made. It looked like this:

```
33020 & DISKV, 0, "COUNTING CRITTERS", ZE
```

If the check were successful, the variable ZE would have a value of 0 (zero). If not, it would contain a 1 (one). Changing the variable ZE to ZF would fix everything, but there might be several of these calls since there were many BASIC programs on the disk. The only way to be sure is to use a disk searcher/sector editor to change every occurrence of the byte sequence 2C 5A 45 (,ZE) to 2C 5A 46 (,ZF). I did this and viola', the disk worked like a champ.

All that was needed to do now was to copy the files back to a 3.5" disk. This is optional since the program works fine on a 5.25" disk. Follow the instructions in AmDOS (or equivalent) to format a 3.5" disk under DOS 3.3 and then copy the files from the 5.25" disk with the Counting Critters files to the 3.5" disk. That's it. You now have a softkeyed 3.5" version of Counting Critters.

COOKBOOK METHOD

1. Initialize a 5.25" disk.
2. Boot up your disk with Demuffin Plus on it. Load it into the RAM card on your 64K (or more) Apple:

```
CALL -151
C081 N C081
F800<F800.FFFFM
BLOAD DEMUFFIN PLUS,A$D003
C082
```

3. Boot up the 3.5" Counting Critters original disk. When you see the Applesoft prompt, press **ctrl C** to break into the boot program. Get Demuffin Plus out of the RAM card and run it:

```
FP
CALL -151
C080
803<D003.EA00M
C082
803G
```

4. Copy all of the files to the 5.25" disk by answering NO to the "Do you want prompting" query.
5. Use your disk searcher/sector editor to search for 2C 5A 45 and change to 2C 5A 46. You will have to make this change to several places on the disk so do not stop until you've searched the entire disk:
6. Follow AmDOS' (or equivalent) instructions for making a bootable 3.5" DOS 3.3 format disk. The instructions should also include patches to FID so that it can copy files to the 3.5" disk from the 5.25" disk; make them and copy the files.

You're done!

Modifying Programs to RUN on a Laser 128

I used to own a Laser 128. In my opinion, it was and still is the best Apple clone put out. In many respects it is better than an actual Apple. In order to be sold and avoid lawsuits by Apple, it was necessary to alter parts of the ROM code in the Laser so as not to infringe on Apple's copyrights. This altering of ROM code has made some programs run 'funny' or not at all.

I think the Print Shop Lover's Utility Set (PLUS) is a great program. Your library of PS graphics are suddenly more useful with this neat utility. Unfortunately, the program behaves 'funny' on a Laser 128. By funny I mean the graphics screens are distorted and have lines through them. The program runs, but you can't be sure of what you are doing! I bought the program back when I owned a Laser 128 (I now own a GS), and the program acting funny annoyed me. There must be an easy way to fix the program so that it acts normally, especially since the program is partially written in Applesoft.

I started to read back issues of Computist and Nibble. Eventually I came across an article in Computist (naturally!) that dealt with moving the ROM code to the RAM card and modifying it so you could break into a program. "This is what I'm looking for" I thought to myself. "Why not just load in the ROM code from the Apple IIe (since the Laser is a 'IIe clone') into the Laser's RAM card, activate the RAM card and deactivate the Laser's ROMs, and then run the hello program on the PLUS disk?" The idea had promise.

Getting the ROM code from a IIe to try this procedure out was easy. Boot up DOS 3.3 on your IIe, and when you reach the BASIC prompt (]), save the ROM code to disk with the command:

```
BSAVE IIE.ROM,A$D000,L$3000
```

All that remains now is to install the code in your RAM card, activate it, and then run the PLUS hello program. Go into the monitor, and set up the RAM card so it will be able to have the code loaded into it:

```
CALL -151
C081 N C081
```

Load the code from disk into the RAM card:

```
BLOAD IIE.ROM,A$D000
```

Now you need to enable the RAM card so that the computer thinks the RAM card is really the ROMs:

```
C080
```

When I tried these steps above, I got garbage after the last step. The IIe's ROMs and for that matter the IIc's ROMs will not work in the Laser as 'pseudo-ROMs'. I knew there must be a way to solve this. Well, why not try the II+'s ROMs? If you have read my previous articles, you know I explain my failures first, and then my successes. Using the II+'s ROMs led to success! Follow all of the steps above, but use a II+ instead of a IIe. Then:

```
ctrl C                  return to BASIC
CALL 1002               reconnect DOS
SPEED = 255             set speed to normal
```

For some reason, when you enable the II+ ROMs, the Applesoft speed gets set to a slow speed and you need to set it back to normal. Now, insert your PLUS disk and RUN the hello program. Notice that the program works great now! Below are a set of 'cookbook' steps to make your PLUS disk autoload the II+ ROMs and perform all of the above steps in loading and initializing the ROM code. This procedure is aimed at those of you who own both a II+ (many of which are not in use any more, unfortunately) and a Laser 128.

Cookbook Procedure

1. Boot up a DOS 3.3 disk on your Apple II+.
2. Take out the DOS 3.3 disk you just booted and insert your PLUS disk.
3. Save the ROM code to it:

```
BSAVE II+.ROM, A$D000, L$3000
```

4. Change the name of the original HELLO program so we can add our own customized HELLO program:

```
RENAME HELLO, PS.HELLO
```

5. Enter in the code below and save it to disk:

```
10 REM "CHECK TO SEE IF HOST COMPUTER
20 REM "IS A LASER 128. IF IT IS, THEN
30 REM "LOAD IN II+ ROMS FIRST BEFORE
40 REM "RUNNING MAIN PROGRAM.
50 HOME :D$ = CHR$ (4)
60 PRINT SPC( 4);
   "PRINT◊SHOP◊LOVER'S◊UTILITY◊ SET"
70 ADDRESS = 64898
80 CHECK = PEEK (ADDRESS) + PEEK
   (ADDRESS + 1)
90 IF (CHECK < > 253) THEN 160
100 RAMCARD = 49281:ROM = 49280:DOS =
   1002
110 WRITE = PEEK (RAMCARD):WRITE = PEEK
   (RAMCARD)
120 PRINT D$; "BLOAD◊II+.ROM,◊A$D000"
130 LOCK = PEEK (ROM)
140 CALL DOS: SPEED= 255
150 PRINT : PRINT SPC( 4);
   "LASER◊128◊MODS◊ ENABLED"
160 PRINT D$; "RUN◊PS.HELLO"
```

Checksums

```
10-$BADD    70-$DA85    130-$13F5
20-$9B13    80-$A2BD    140-$4621
30-$4D3B    90-$EF09    150-$1E2B
40-$AD92   100-$5666    160-$3835
50-$EEAC   110-$BC98
60-$5E9F   120-$FBD4
```

```
SAVE HELLO
```

That's all you have to do. The disk will now work on a Laser 128 as well as a regular Apple II.

Locksmith v6.0's Fast Backup commands

In Computist #68, Dan Reid shows how to write a short BASIC program that will modify your Locksmith v6.0 so that it will only copy specified tracks. I applaud his method since he had to look at the code and understand what was happening. It was a good learning experience. As with many things though, there is an easier way to do it. I guess Dan forgot to look in his Locksmith manual, because there is a section dealing with the fast backup program and its commands. Yes there are commands you can type in while in the Locksmith v6.0 fast copy program. Ever notice the cursor at the bottom of the screen? That's where you type the commands in.

Here is a partial list of the commands you can use:

AB — Copy a disk in drive A to a disk in drive B. For example, say you wanted to copy a disk that is in drive 2 to drive 1. You would then type in '21' (without the quotes). If you use a zero (0) as a drive number, the disk will either be copied to memory (if the 0 is drive B) or from memory (if the 0 is in drive A). You need enough memory to read the whole disk in at once to use 0 as a drive.

V — Toggles verify mode.

Now, there are also internal variables you can alter to change the way Locksmith v6.0 works. They are in the form XXXX:YY where XXXX is the variable location and YY is the default value. A few of the variables are:

0008:00 — Beginning track to copy
0009:22 — Ending track to copy

I too would have gone Dan's route if I did not have the manual to look at. In fact, you do learn more by hacking around in the program's code. I thought these few notes would make using the fast copier a much easier task.

Heck, I have the manual and I didn't know that. Computists only read manuals when all else fails. If Dan Reid had understood less about machine code than he did, he probably would have been forced to read the manual. Guess I'll put the LS manual on my "read list" too. ..... RDEXed

Notes

First of all let me say that I would be glad to volunteer my time as a Computist Volunteer. I remember that when I started off, there was no one to ask questions when things got fuzzy. I think it will be a valuable service to the beginners. There are two ways to reach me. One is by writing a letter or note. The address is

Jim S. Hart
311 Bordeaux St.
Jacksonville, NC 28540

The other way to connect with me is with a modem. I frequent a local BBS quite often helping people out and answering their Apple related questions. The place to call is:

Greg's Grapevine
300/1200/2400 bps (8N1)
1 (919) 324-2048

If enough Computist readers call, I may be able to get the sysop to dedicate a message board for questions and answers. I am on the board 2-3 times a day so that would be the quickest way to get an answer to a question. The only problem is the cost of the long distance call. Here in town, I help people with Apple problems out for free. (I charge MS-DOS users!)

Omega Notes

Apple veterans, remember the old game Robot War by Muse? I bought that game and thought it was great. After some time, however, I became frustrated by the program's shortcomings: one battlefield that is fixed in size and shape, a limit of six robots on the battlefield at one time, the irritating noise made by the robots, the robots limited ability to deal with itself and its environment, and the DOS 3.2 operating environment. The game had such potential as not only a game, but a teaching tool for logic. The flaws above doomed it. Well, Origin Systems has released a fantastic new game that addresses all of these flaws and improves on the good points too. The name of this game is Omega. I bought the game a few months ago and have been thoroughly impressed. The difference between it is like the difference between an Apple II+ and an Apple IIgs. Both have the same basic idea, but Omega executes it far better than Robot War. What I suggest here is that Computist readers go out and get Omega. We can then send in our tank's source code to Computist so other readers can pit our tanks against theirs. We could even have a contest of some sorts. The benefits would include improved logical thinking and most of all fun for everyone! Source code files for the tanks could even be distributed on the library disk for each month. What do you say, readers?

A recent edition of the USA Today reported that Apple Inc's profits were not as high as expected. One of the major reasons cited was that sales of the Apple II line were not doing as well as expected. Oh big surprise! Let's face facts: the Apple II line of computers are all terribly overpriced. I know; I bought a IIGS and will be spending the next year and a half paying it off. I could have bought a Mac Plus with a built in 3.5 drive, 1 meg of memory, monitor, and an external 3.5 drive for what my GS, 3.5 drive, and monitor cost. I will not even go into what you could get for a similar price in the MS-DOS world.

The cost of an Apple II is but one reason its sales are declining. Another major reason for the decline in sales is the LACK OF EFFORT put out by Apple Inc in promoting the Apple II. Reading one of the few and far between Apple II advertisements, the reader is advised that the only thing the Apple II line is good for is children at the kindergarden level. How many of you are at that level right now? How many do you know? None? Well, that must mean Apple Inc is wrong! In fact, Apple Inc is wrong about a great many things.

Here is an idea: let's all send letters to John Sculley expressing our thoughts regarding the lack of support for the Apple II. The magazine Macworld poses a monthly topic pertaining to a problem with the Macintosh and asks their readers to respond to it by writing Mr. Sculley. I think Computist readers should do the same for the Apple II line. Other Apple magazines (with a few exceptions) are worried about "is PROGRAM A a good one for your kids?". Computist readers are worried about slightly less important matters like the survival of the Apple II line. Each month the editor or a reader would present a topic of concern for the Apple II line. Readers would then send in letters to Mr. Sculley expressing their points of view about the topic. Who knows? If enough people write, maybe Apple Inc will do something positive for the Apple II line.

These comments are not meant to say "don't buy an Apple II". Rather, they are meant to convey the message to Apple Inc to get on the ball and give the public a reason to buy an Apple II instead of another computer. More Apples on the market mean more software, innovations, and support for the present and future Apple owners.

Jim Hart suggested that we start with the Apple 90 day warranty but Apple Computer Inc has finally moved up to a 1 yr warranty. I would like to propose another topic for discussion. Why doesn't Apple Computer put a 65C802 processor into their Apple II line. It would allow software to take advantage of the new and more powerful command set while remaining compatible with the 65C02 processor used now. It would only involve a minor change to the monitor ROM as the 65C802 is pin-for-pin compatible with the 65C02..... RDEXed

Address to write to:

John Sculley
Chairman and CEO
Apple Computer, Inc. M/S 38-A
20525 Mariani Avenue
Cupertino, CA 95014

Notes on Eamon Adventures

I enjoyed the Eamon adventure information that was printed in Computist #69. I received an issue of the Eamon newsletter some time back and every now and then I reread it. The Eamon adventuring system is the only system of its kind for any micro as far as I know. Would be Dungeon Masters can create their own worlds for others to explore. If you have never tried out an Eamon adventure, and you like D&D, go out and get one to play. It will be time well worth it.

There are now 201 different Eamon Adventures plus the 5 utility volumes for a total of 218 disks (some are multi-disk). If you are interested, we carry the entire line of adventures from The Eamon Adventurer's Guild for $1 each or even less for quantity orders. If you like Eamon then you should subscribe to The Eamon Adventurer's Guild newsletter. It will keep you up to date on new adventures and any bug fixes on older titles. It's only $7 for 4 quarterly issues (US & Canada) or $12 for foreign. I highly recommend it.

Bug in COMPUTIST #67

The disassembly at the bottom of the first column on page 33 in Computist #67 was done on an Apple IIgs. The disassembly seen on an 8 bit Apple would look like this:

```
B800:00     BRK
B801:00     BRK
B802:00     BRK
B803:00     BRK
B804:00     BRK
B805:00     BRK
(and so on)
```

Free Software

Here is an idea to entice more people into being Computist subscribers. Computist could start making a collection of as much public domain, freeware, and shareware programs as possible. Benefits of this for the magazine are (1) readers could buy the disks for a nominal fee (just enough would be charged to cover costs and make a modest profit), and (2) new subscribers could be given their choice of say 2 or 3 disks for free with their paid subscription. Both regular Apple and IIgs programs would be collected. I'm sure something could be worked out with this idea. What say you, Mr. Haight?

Sure. Would you like to be in charge? Someone has to sort thru what is available to see if it is any good and to make sure that no copyrighted material is included. It will take a lot of time to do it right and, in case anyone hasn't noticed, I'm already short of time. .....RDEXed

Super IOB update?

I have been dabbling in assembly language for a little while now (as evidenced by RWTS WORM), and I am looking for a project to work on so I can learn more. A possible idea is an update to Super IOB. Super IOB's last update (to v1.5) was way back in Computist #22. That's a long time for a program to go without an update. Of course, if a program is flexible and simple to use, then it may not ever need an upgrade (I suspect this is Super IOB's reason). One thing about the program that could be improved is use of the extra 64K in 128K Apples. Currently it takes 7 passes to read a 5.25" disk when using Super IOB. If the extra 64K is used, then it would probably only take 2 passes. The result is less disk swapping for those of us with one disk drive. I do not know if I will be able to modify Super IOB to allow it to do this, but it is a project that I am thinking of working on right now.

RWTS Worm v2.0

I'm so glad to see that readers have found my RWTS WORM program (Computist #61) to be a useful addition to their deprotection library. I have used it quite a bit in my deprotection effort. I used to have a Laser 128 and I made sure every crack/tip/APT worked on it before I sent the info into Computist. I sold the Laser last Christmas and bought a GS, which is what I use now. For compatibility assurance, I also bought a Disk II controller card and an old Apple Disk II drive. Everything runs perfectly with my setup. I didn't think about incompatibilities until I read Steven Kalynuik's letter in Computist #68.

When I wrote the original RWTS WORM program (v1.0), I never thought about would it run on a Laser or even a IIc. Sorry, Steven. I should have been thinking about the Laser owners (we're a hardy group). After reading the letter, I thought about redoing RWTS WORM. I could go one of two ways: rewrite the entire program, or patch the existing code. I originally tried to just patch the existing code so as to make the update easier. As it turned out, patching the code was too complicated and the result would have looked like spaghetti. No, a rewrite of the entire program was in order.

Three problems immediately came to mind when I went to redo RWTS WORM. The first is it will not run properly on a Laser 128. Since I used to own a Laser, I had to patch code at times to make sure it would work properly. The problem in regards to RWTS WORM is that the Laser uses a non-standard boot ROM to boot disks. From the point of the boot stages, everything was identical. The difference was that the Laser's ROMs called to all sorts of different places. This is out of necessity to avoid a suit by Apple. I finally decided the solution to the problem would be to just capture the normal Apple boot ROM and use it to boot the protected disks on the Laser. The second problem was that RWTS WORM v1.0 can only be used once and then to use it again you had to BLOAD it again. The address to call was a pain to remember too. Well, how about fixing the code so that it can be run over and over, and then route it through the ampersand vector so that it can be easily invoked? An ampersand is easy to remember and simple to use. Finally, the third problem is that RWTS WORM could not be in memory concurrently with Super IOB because RWTS WORM v1.0 resided in Super IOB's track buffer. As soon as Super IOB read in seven tracks, RWTS WORM was overwritten. Solution? Move RWTS WORM to a 'safe' area in memory. You could then add RWTS WORM to Super IOB as a specialized controller.

Remember though that the limitations, diskwise, that RWTS WORM v1.0 had, also apply to v2.0 (controller must be in slot #6, protected disk's boot stage 0 and boot stage 1 must be fairly normal, etc.). I hope this version is more useful. If you have any suggestions on features to add to RWTS WORM, please send them in to Computist and I'll see what I can do. One note on the code I used: assembly language gurus will, I'm sure, look at the code and say "he could've done that with a lot less code". I agree. The code is meant to be like it is so that beginners could follow the flow.

Entering RWTS Worm v2.0

1. If you are not using an Apple Disk II Controller card, go out and buy one. Alternatively, though I do not condone it, you could find a friend who has an Apple IIe or II+. Boot your Super IOB disk on the computer and save the boot ROM to disk with:

   (For Laser 128 owners with a Disk II Controller card in the external slot)

   BSAVE BOOT.ROM,A$C700,L$100

   (for Apple IIe and II+ owners)

   BSAVE BOOT.ROM,A$C600,L$100

2. Boot your Super IOB disk and get into BASIC.

3. Go into the monitor and enter the hex code for WORM2.

CALL -151

```
25DB: A9 00 85 06 85                    $95EF
25E0: 08 2C 81 C0 2C 81 C0 A9           $81BA
25E8: 27 85 07 A9 D0 85 09 20           $6425
25F0: CB 26 2C 82 C0 A9 00 8D           $4DFE
25F8: F6 03 A9 26 8D F7 03 60           $FB2C
2600: 20 E0 9E 20 47 26 20 59           $C27C
2608: 26 20 65 26 20 71 26 A9           $145A
2610: 1C 8D F9 96 A9 26 8D FA           $714E
2618: 96 4C 00 96 A9 90 8D 0E           $B278
2620: 08 A9 4C 8D 4A 08 A9 35           $6AFB

2628: 8D 4B 08 A9 26 8D 4C 08           $A885
2630: A2 60 4C 01 08 2C E8 C0           $FA47
2638: 20 82 26 20 93 26 20 A4           $9090
2640: 26 20 B0 26 4C 51 A8 2C           $5EDB
2648: 80 C0 A9 D0 85 07 A9 96           $F744
2650: 85 09 20 CB 26 2C 82 C0           $410E
2658: 60 A9 08 85 07 A9 27 85           $AF4C
2660: 09 20 CB 26 60 A9 03 85           $9D9A
2668: 07 A9 28 85 09 20 CB 26           $A3BA
2670: 60 A9 9D 85 07 A9 6D 85           $1433

2678: 09 A9 C0 8D D5 26 20 BC           $6626
2680: 26 60 A9 B8 85 07 A9 19           $0B1A
2688: 85 09 A9 C0 8D D5 26 20           $A293
2690: BC 26 60 A9 6D 85 07 A9           $0602
2698: 9D 85 09 A9 90 8D D5 26           $7938
26A0: 20 BC 26 60 A9 28 85 07           $99D7
26A8: A9 03 85 09 20 CB 26 60           $932D
26B0: A9 27 85 07 A9 08 85 09           $387B
26B8: 20 CB 26 60 20 CB 26 E6           $BECC
26C0: 07 E6 09 A5 07 CD D5 26           $5ED6

26C8: D0 F2 60 A0 00 B1 06 91           $9D9B
26D0: 08 C8 D0 F9 60 00                 $8ACF
```

4. After you have finished entering in the hex dump, append the boot ROM code you saved in step #1 to the end of the hex dump.

BLOAD BOOT.ROM,A$2700

5. Save the file back to your Super IOB disk

BSAVE WORM2,A$25DB,L$225

If you are going to use WORM2 and Super IOB at the same time, you need to modify the HIMEM statement in Super IOB so that WORM2 is not written over by strings and variables. This modification reduces your available variable storage space by 256 bytes:

LOAD SUPER IOB V1.5
60 LOMEM:8448 : HIMEM:9727 : GOTO 10010
SAVE SUPER IOB V1.5

You could also incorporate WORM2 into a custom controller for Super IOB. If you do this, be sure that the statement to run WORM2 is the FIRST line of the entire Super IOB program. As an example:

0 PRINT : PRINT CHR$(4); "BRUN WORM2"

(rest of Super IOB program including controller)

If you do not do this, some of your variables will be overwritten.

Using WORM2

To use WORM2, here is all you do:

BRUN WORM2

(insert protected disk)

&

(insert Super IOB disk)

LOAD SUPER IOB V1.5
EXEC NEW SWAP.CON
RUN

An alternative to this is:

(insert Super IOB disk)

BLOAD IOB.OBJ0
LOAD SUPER IOB V1.5
EXEC NEW SWAP.CON
BRUN WORM2

(insert protected disk)

&
RUN

From there on, to keep using WORM2 and Super IOB over and over at one sitting, you just need to:

(insert protected disk)

&
RUN

Notes

- WORM2 should be the last ampersand routine you install.

- Contrary to popular opinion, once you use WORM2 to get the protected disk's RWTS into memory at $1900, you do not need to save the RWTS to disk. Immediately load Super IOB and install your favorite controller. The RWTS will not be touched by this activity. I used to save all my foreign RWTSes, but got tired of using up disk space for something (the RWTSes) that I was only going to use once.

- If you are going to be using Super IOB to any extent, it would be a good idea to set up some EXEC files to save you some time. Below is a text file that I have on my Super IOB disk. You would just use a word processor that can save files in ASCII format to type it in and save it with the name FAST. What the text file does is load Super IOB, load the machine language IOB.OBJ0 file, insert the fast controller's lines into Super IOB, and then run the result. No more typing more than one command to get the fast controller up and running!

```
HOME
LOAD SUPER IOB V1.5
BLOAD IOB.OBJ0
1000 REM FAST CONTROLLER
1010 TK=0 : LT=35 : ST=15 : LS=15 : CD=WR :
   FAST=1
1020 GOSUB 490 : GOSUB 610
1030 GOSUB 490 : GOSUB 610 : IF PEEK(TRK) =
   LT THEN 1050
1040 TK = PEEK(TRK) : ST = PEEK(SCT) : GOTO
   1020
1050 HOME PRINT "COPYDONE." : END
RUN
```

I have called this text file FAST. When I want to run it, I just type the command EXEC FAST and everything gets loaded up quickly.

Here is the source code for RWTS WORM v2.0 (in Merlin format).

```
; RWTS WORM v2.0
; Written by Jim S. Hart
; (c) Computist
            ORG $25D6
;-------------
; Equates
;-------------
REHOOK      EQU $A851
UNHOOK      EQU $9EE0
BOOT        EQU $9600
BOOT0       EQU $801
RAMON       EQU $C080
RAMWRT      EQU $C081
ROMON       EQU $C082
DRVOFF      EQU $C0E8
FROM        EQU $6
MOVFROM     EQU $7
TO          EQU $8
MOVTO       EQU $9
;-------------------------------
; Setup:
; 1. Move boot ROM from $2700 to RAM card.
; 2. Point ampersand vector to WORM2 main code.
;-------------------------------
SETUP       LDA #$00
            STA FROM
            STA TO
            BIT RAMWRT  ;enable RAM card for
                        writing to
            BIT RAMWRT
            LDA #$27    ;move boot ROM to
                        RAM card
            STA MOVFROM
            LDA #$D0
            STA MOVTO
            JSR PGMOVE
            BIT ROMON   ;enable motherboard
                        ROMs
            LDA #$00    ;set up ampersand
                        vector
            STA $3F6
            LDA #$26
            STA $3F7
            RTS
; Main: WORM2 main code must start at $2600.
MAIN        JSR UNHOOK  ;disconnect DOS
            JSR MOVBOOT ;move boot ROM
                        from RAM card to $9600
            JSR MOVEPG8 ;move page $8
                        temporarily
            JSR MOVEPG3 ;move page $3
                        temporarily
            JSR MOVEDOS ;move DOS down
                        temporarily
            LDA #<PART2 ;reroute boot ROM to
                        jump to PART2
            STA $96F9
            LDA #>PART2
            STA $96FA
            JMP BOOT    ;start the boot
PART2       LDA #$90    ;altered boot ROM code
                        is at $9600
            STA $80E
            LDA #$4C    ;reroute BOOT0 code to
                        jump to PART3
            STA $84A
            LDA #<PART3
            STA $84B
            LDA #>PART3
            STA $84C
            LDX #$60    ;slot 6
            JMP BOOT0   ;execute BOOT0 code
PART3       BIT DRVOFF;turn drive off
            JSR MOVRWTS ;move RWTS to
                        $1900
            JSR DOSBACK ;put DOS back in
                        normal place
            JSR PG3BACK ;restore page $03
            JSR PG8BACK ;restore page $08
            JMP REHOOK  ;reconnect DOS

; SUBROUTINES: Listed in the order that they are called
    in the WORM2 main code.

; Subroutine: moves BOOT ROM from RAM card to $9600
MOVBOOT     BIT RAMON   ;read RAM card
            LDA #$D0    ;start at $D000
            STA MOVFROM
            LDA #$96    ;goes to $9600
            STA MOVTO
            JSR PGMOVE
            BIT ROMON   ;read ROMs
            RTS

; Move page $8 to page $27
MOVEPG8     LDA #$08
            STA MOVFROM
            LDA #$27
            STA MOVTO
            JSR PGMOVE
            RTS

; Move page $03 to page $28
MOVEPG3     LDA #$03
            STA MOVFROM
            LDA #$28
            STA MOVTO
            JSR PGMOVE
            RTS

; Move DOS down from $9D00-$BFFF to $6D00-$8FFF
MOVEDOS     LDA #$9D    ;DOS starts at $9D00
            STA MOVFROM
            LDA #$6D    ;move it to $6D00
            STA MOVTO
            LDA #$C0    ;it ends at page right
                        before this one
            STA MOVEND
            JSR MOVRNGE ;move DOS out of
                        the way
            RTS

; Move protected RWTS down from $B800-$BFFF to
    $1900-$20FF
MOVRWTS     LDA #$B8    ;RWTS starts at $B800
            STA MOVFROM
            LDA #$19    ;we want to move it to
                        $1900
            STA MOVTO
            LDA #$C0    ;it ends at page right
                        before this one
            STA MOVEND
            JSR MOVRNGE
            RTS

; Move DOS back from $6D00-$8FFF to normal place in
    memory ($9D00-$BFFF)
DOSBACK     LDA #$6D
            STA MOVFROM
            LDA #$9D
            STA MOVTO
            LDA #$90
            STA MOVEND
            JSR MOVRNGE
            RTS

; Move page $03 from $2800 back to $300
PG3BACK     LDA #$28
            STA MOVFROM
            LDA #$03
            STA MOVTO
            JSR PGMOVE
            RTS

; Move page $08 from $2700 back to $800
PG8BACK     LDA #$27
            STA MOVFROM
            LDA #$08
            STA MOVTO
            JSR PGMOVE
            RTS

; Subroutine to move a range of memory
; 1. Put starting page # of source range in MOVFROM
; 2. Put starting page # of target range in MOVTO
; 3. Put ending page # of source range + 1 in MOVEND
MOVRNGE     JSR PGMOVE  ;move single page
            INC MOVFROM ;add 1 to source
                        page
            INC MOVTO   ;add 1 to target page
            LDA MOVFROM ;limit for source page
            CMP MOVEND  ;done?
            BNE MOVRNGE ;no
            RTS         ;yes

; General purpose single page memory move subroutine
; 1. Put source page # in FROM
; 2. Put target page # in TO
PGMOVE      LDY #$00
MM1         LDA (FROM),Y
            STA (TO),Y
            INY
            BNE MM1
            RTS

; Storage
MOVEND      DS  1
```

PRE, the Applesoft Pre-processor

PRE allows you to type up your Applesoft BASIC programs with a word processor, and never have to worry about line numbers. Line numbers are only needed when branching is needed (like GOTO and GOSUB), and instead of line numbers PRE uses named labels. Labels are user defined which means the programmer can use whatever label name would be appropriate for the routine that lies after it. For example, if

you had a routine to sort an array, you might want the label for it to be called &SORT.

As for syntax, the Applesoft BASIC programs themselves are unchanged except for the exclusion of line numbers and the inclusion of labels in their place. An asterisk in column one of a line tells the PRE processor that this line is a comment and it will ignore it while processing. The same holds true for a blank line. You can indent statements to your heart's content since the PRE processor throws away all leading spaces in a line. DO NOT use line numbers in a program that is going to be processed by PRE or the results you get will not be the ones you want.

PRE processes **only** ASCII text files. AppleWriter and FrEDwriter produce ASCII files normally, while with AppleWorks you have to print to an ASCII file to get an ASCII text file.

Here is a list of compiler rules:

1. Labels must begin with an ampersand (&) and must end with a space. The space denotes the end of the label. This means that your label name can consist of any alphanumeric character except a space.

2. **Do not** use line numbers anywhere in your program!

3. Labels may be on a line by themselves or may have program code after them (remember that a space follows a label name).

4. **Do not** use the branching sequence 'THEN GOSUB' or 'THEN GOTO'. The processor is not set up to handle it. Remove the THEN.

For example, don't use this statement:
IF X = 3 THEN GOSUB &START

Instead, use the following equivalent:
IF X = 3 GOSUB &START

5. A branching must be the last program code on a program line. Here are two examples:

(1) Wrong way

```
IF X = 10 GOSUB &SHUFFLE : GOTO &RE-DEAL
GOTO &CONT
```

(2) Right way

```
IF X <> 10 GOTO &CONT
GOSUB &SHUFFLE
GOTO &RE-DEAL
```

In the first example, the processor will tell you that you have a bad label called '&SHUFFLE : GOTO &RE-DEAL'. This is just the way that the processor works: it assumes everything after a GOTO/GOSUB/THEN is one label. Example #2 is the equivalent of #1 and will process correctly.

6. Go ahead and liberally comment your program. Comment lines, ones that begin with an asterisk or are blank, are ignored by the processor and therefore not put into the final processed file.

7. Version 1.1 of the processor supports 1000 lines (comments don't count) and 250 labels.

8. Although PRE operates under DOS 3.3, it is recommended that you use it under ProDOS because of ProDOS' superior garbage collecting capability.

9. Several internal variables can be modified by the user to fit their operating system or personal tastes. These include the start-of-label character (LC$), the catalog command (CAT$), and others. The ability to change CAT$ was put into PRE because of the two different operating systems (DOS 3.3 and ProDOS) it can run under.

10. In version 1.1, 'ON GOTO' and 'ON GOSUB' are not supported.

Compiling the PRE program with a BASIC compiler such as the Beagle compiler is recommended! Compiling the program reduces the execution time by as much as 50%.

The file "SAMPLE" is a sample program that can be compiled with PRE. Try it out.

Improvements

A number of things could be done to improve this pre-processor. The main one would be to replace the subroutine that reads in a line of text. Currently this is done via a GET statement and takes quite a bit of time. If the enterprising Computist reader has a short machine language 'INPUT anything' routine, he/she could replace the subroutine with the GET statement with a call to the 'INPUT anything' routine. This would speed up the program by about 200% for the shorter files and more for the longer files.

Another improvement would to be able to load in library routines. Say for example that you have written your ultimate input routine. It screens out illegal characters and works like a champ. Wouldn't it be a good idea to use it in all of your programs? The only problem with this is that you have to retype he whole thing in for each program. A solution would be to modify PRE so that it could read in library files, such as your input routine, and insert them into your main program. Here's an example:

```
START   GOSUB &SHUFFLE
        X = 0
        INCLUDE "INPUT.ROUTINE"
```

When you run PRE, it would load in the contents of the file "INPUT.ROUTINE" into your main program where the INCLUDE statement is. Modular programming!

If you have any suggestions or bugs found, send them into Computist.

```
*-------------------------------*
* Sample program to compile under PRE *
* By : Jim S. Hart              *
*-------------------------------*

&START
  TEXT : HOME
  PRINT "SAMPLE SOURCE FILE FOR USE
   WITH"
  PRINT "THE APPLESOFT PRE-PROCESSOR."
  GOSUB &PRESS_RETURN_PROMPT
  HOME
  PRINT "RANDOM NUMBER GENERATOR"
  VTAB 7
  FOR I = 1 TO 10
   GOSUB &GET_RANDOM_NUMBER
   GOSUB &PRINT_RANDOM_NUMBER
  NEXT I
  VTAB 20
  PRINT "THAT'S ALL, FOLKS!"
  END
*--<subroutines>--
&PRESS_RETURN_PROMPT
  POKE -16368,0
  VTAB 22
  PRINT "PRESS ";: INVERSE: PRINT " RETURN
   ";: NORMAL
  PRINT " TO CONTINUE...";
  GET KEY$
  PRINT KEY$
  RETURN
*-------------------------------*
* There can either be no text after a label,
*-------------------------------*
&GET_RANDOM_NUMBER
  RNUM = INT (RND(1) * 9) + 1
  RETURN
*-------------------------------*
* Or there can be text after a label
*-------------------------------*
&PRINT_RANDOM_NUMBER  PRINT RNUM :
   RETURN
```

PRE.1.1

```
30 REM * APPLESOFT PRE-PROCESSOR
50 REM * AUTHOR: JIM S. HART
80 REM * 311 BORDEAUX ST.
90 REM * JACKSONVILLE, NC 28540
100 REM * 1-919-455-0530
120 REM * COPYRIGHT (C) 1989
160 REM *----------*
170 REM * Set variables *
180 REM *----------*
200 TEXT : PRINT CHR$ (21): REM turn off 80
    columns
210 D$ = CHR$ (4)
220 CT$ = "CATALOG" : REM use CAT if under
    ProDOS
230 EXT$ = "PRE." : REM extension for
    preprocessed file
240 LC$ = "&" : REM start-of-label character
250 :
260 REM *-------------------------------*
270 REM * Read number of branching commands *
280 REM * and DIMension arrays *
290 REM *-------------------------------*
300 :
310 READ ITEMS
320 DIM LINE$(1000),LABEL$(250),LABEL(250)
330 DIM CMD$(ITEMS),LN(ITEMS)
340 :
350 REM *-------------------------*
360 REM * Read in branching commands *
370 REM *-------------------------*
380 :
390 FOR I = 1 TO ITEMS
400 READ CMD$(I),LN(I)
410 NEXT I
420 :
430 REM *-----------------*
440 REM * Get current prefix *
450 REM *-----------------*
460 :
470 PRINT D$; "PREFIX"
480 INPUT PR$
490 :
500 REM *============================*
510 REM * Display title screen and *
520 REM * get source filename *
530 REM *============================*
540 :
550 HOME
560 VTAB 2: HTAB 9
570 INVERSE
580 PRINT "◊APPLESOFT◊PRE-PROCESSOR◊"
590 NORMAL
600 PRINT : HTAB 13
610 PRINT "BY◊:◊JIM◊S.◊HART"
620 VTAB 8: PRINT "CURRENT◊PATH◊=◊" ;PR$
630 VTAB 12
640 PRINT "PLEASE◊ENTER◊NAME◊OF◊FILE"
650 PRINT
660 PRINT "(?=" ;CT$; ",◊/=SET◊PATH)"
670 PRINT : INPUT "->◊" ;NAME$
680 :
690 IF NAME$ < > "?" THEN 790
700 :
710 REM *-------------------------*
720 REM * User wants a CATALOG (or CAT) *
730 REM *-------------------------*
740 :
750 PRINT D$;CT$
760 GET A$: PRINT A$
770 GOTO 550
780 :
790 IF NAME$ < > "/" THEN 980
800 :
810 REM *-------------------------------*
820 REM * User wants to change current path *
830 REM *-------------------------------*
840 :
850 VTAB 19
860 INPUT "PATH◊WANTED◊:◊" ;PTH$
870 IF LEFT$ (PTH$,1) < > "/" THEN PR$ = PR$ +
    PTH$: GOTO 890
880 PR$ = PTH$
890 PRINT D$; "PREFIX◊" ;PR$
900 GOTO 550
910 :
920 REM *-------------------------*
930 REM * Check to see if file exists. *
940 REM * If it doesn't then get user *
950 REM * to re-enter the filename *
960 REM *-------------------------*
970 :
980 ONERR GOTO 1010
990 PRINT D$; "VERIFY◊" ;NAME$
1000 GOTO 1130
1010 POKE 216,0
1020 PRINT : PRINT "THERE◊IS◊NO◊FILE
    ◊CALLED"
1030 INVERSE : PRINT NAME$;: NORMAL :
    PRINT "◊ON◊THIS◊DISK."
1040 PRINT : PRINT "PRESS◊" ;: INVERSE :
    PRINT "◊RETURN◊" ;: NORMAL
1050 PRINT "◊TO◊TRY◊AGAIN◊" ;
1060 GET A$: PRINT A$
1070 GOTO 550
1080 :
1090 REM *-------------------------------*
1100 REM * Filename found, go and process it *
1110 REM *-------------------------------*
1120 :
1130 POKE 216,0
1140 HOME : PRINT
1150 INVERSE : PRINT "◊PROCESSING◊"
    ;NAME$; "◊" : NORMAL
1160 PRINT
1170 :
1180 REM *============================*
1190 REM * Read file into LINE$() array *
1200 REM *============================*
1210 :
1220 GOSUB 3100
1230 :
1240 REM *========================*
1250 REM * Check for any labels *
1260 REM *========================*
1270 :
1280 PRINT "CHECKING◊FOR◊LABELS" ;
1290 :
1300 FOR I = 1 TO LINES
1310 PRINT "." ;
1320 IF LEFT$ (LINE$(I),1) < > LC$ THEN 1690
1330 :
1340 REM *-------------------------------*
1350 REM * Label found at beginning of line. *
1360 REM * Go through line character by *
1370 REM * character until a space is found. *
1380 REM * If a space is not found, then *
1390 REM * there is no program code after *
1400 REM * label. *
1410 REM *-------------------------------*
1420 :
1430 FD = 0
1440 NUM = NUM + 1
1450 :
1460 FOR K = 2 TO LEN (LINE$(I))
1470 X$ = MID$ (LINE$(I),K,1)
1480 IF X$ < > "◊" THEN 1580
1490 :
1500 REM *-----------------------*
1510 REM * Code found after label *
1520 REM *-----------------------*
1530 :
1540 LABEL$(NUM) = LEFT$ (LINE$(I),K - 1)
1550 LABEL(NUM) = I * 10
1560 LINE$(I) = MID$ (LINE$(I),K + 1)
1570 FD = 1:K = LEN (LINE$(I))
1580 NEXT K
1590 :
1600 IF FD < > 0 THEN 1690
1610 :
1620 REM *-------------------------*
1630 REM * No code found after label *
1640 REM *-------------------------*
1650 :
1660 LABEL$(NUM) = LINE$(I)
1670 LABEL(NUM) = I * 10
1680 LINE$(I) = ":"
1690 NEXT I
1700 :
1710 PRINT "◊" : PRINT
1720 :
1730 REM *============================*
1740 REM * Add line numbers to beginning of each
    line *
1750 REM *============================*
1760 :
1770 PRINT "ADDING◊LINE◊NUMBERS" ;
1780 FOR I = 1 TO LINES
1790 PRINT "." ;
1800 LINE$(I) = STR$ (I * 10) + "◊" + LINE$(I)
1810 NEXT I
1820 :
1830 PRINT "◊" : PRINT
1840 :
1850 REM *============================*
1860 REM * Search each line for a GOTO or
    GOSUB *
1870 REM * and check to see if label exists. If *
1880 REM * label exists, then replace it with line *
1890 REM * number from table. If it does not exist, *
1900 REM * then stop processing and display line
    with *
1910 REM * bad label. *
1920 REM *============================*
1930 :
1940 PRINT
    "REPLACING◊LABELS◊WITH◊LINE◊NUM
    BERS" ;
1950 FOR I = 1 TO LINES
1960 PRINT "." ;
1970 :
1980 FOR H = 1 TO ITEMS: REM items like GOTO
    and GOSUB
1990 :
2000 REM *-------------------------------*
2010 REM * Scan each line for GOTO or GOSUB *
2020 REM *-------------------------------*
2030 :
2040 FOR J = 1 TO LEN (LINE$(I)) - LN(H)
2050 IF MID$ (LINE$(I),J,LN(H)) < > CMD$(H)
    THEN 2260
2060 :
2070 REM *-----------------------------*
2080 REM * GOTO or GOSUB found in line. *
2090 REM * Check to see if label after *
2100 REM * GOTO or GOSUB is in the label *
2110 REM * array we extracted earlier *
2120 REM * from program. *
2130 REM *-----------------------------*
2140 :
2150 A$ = MID$ (LINE$(I),J + LN(H) + 1): REM get
    label
2160 :
2170 FOR K = 1 TO NUM: REM check to see if in
    label array
2180 IF A$ = LABEL$(K) THEN 2200: REM was it
    found?
2190 GOOD = 0: GOTO 2220: REM nope, try again
2200 LINE$(I) = LEFT$ (LINE$(I),J + LN(H)) +
    STR$ (LABEL(K))
2210 GOOD = 1:K = NUM
2220 NEXT K
2230 :
2240 IF GOOD < > 1 THEN 2380: REM GOOD<>1
    means bad label
2250 J = LEN (LINE$(I)) - LN(H)
2260 NEXT J
2270 :
2280 NEXT H
2290 :
2300 NEXT I: PRINT "◊"
2310 :
2320 GOTO 2530
2330 :
2340 REM *====================*
2350 REM * Bad label found *
2360 REM *====================*
2370 :
2380 PRINT : PRINT CHR$ (7)
2390 INVERSE : PRINT "***◊BAD◊LABEL◊
    FOUND◊" : NORMAL : PRINT
2400 PRINT "LABEL◊=◊" ;: INVERSE : PRINT A$:
    NORMAL
2410 PRINT "AND◊WAS◊FOUND◊IN◊THIS◊
    LINE:" : PRINT
2420 INVERSE
2430 PRINT LINE$(I)
2440 NORMAL : PRINT : PRINT
2450 PRINT "PLEASE◊CORRECT◊AND◊THEN◊
    RE-RUN" : PRINT "THIS◊PROGRAM."
2460 GOTO 2950
2470 :
2480 REM *============================*
```

```
2490 REM * Processing complete. Write *
2500 REM * file back to disk w/prefix *
2510 REM *============================*
2520 :
2530 HOME
2540 PRINT "PROGRAM◊SUCCESSFULLY◊
     PROCESSED"
2550 VTAB 5
2560 PRINT "SAVE◊AS◊" ;EXT$;NAME$; "?" :
     PRINT
2570 PRINT "Y=YES,RET=CATALOG,D=DIFF
     ◊NAME,Q =QUIT" : PRINT
2580 PRINT "◊-->◊" ;
2590 POKE - 16368,0
2600 GET A$: ON (A$ < > "Y" AND A$ < > "Q" AND
     A$ < > "D" AND A$ < > CHR$ (13)) GOTO
     2600: PRINT A$
2610 :
2620 IF A$ = "Q" THEN 2950
2630 :
2640 IF A$ < > CHR$ (13) THEN 2690
2650 PRINT D$;CT$
2660 GET A$: PRINT A$
2670 GOTO 2530
2680 :
2690 IF A$ < > "D" THEN N$ = EXT$ + NAME$:
     GOTO 2910
2700 VTAB 7
2710 INPUT "SAVE◊AS◊:◊" ;N$
2720 ONERR GOTO 2830
2730 PRINT D$; "VERIFY" ;N$
2740 POKE 216,0
2750 PRINT
2760 PRINT N$; "◊ALREADY◊EXISTS!"
2770 PRINT
2780 PRINT "PRESS◊" ;: INVERSE : PRINT
     "◊RETURN ◊" ;: NORMAL
2790 PRINT "◊TO◊CONTINUE◊" ;
2800 GET A$: PRINT A$
2810 GOTO 2530
2820 :
2830 POKE 216,0
2840 NAME$ = N$
2850 GOTO 2530
2860 :
2870 REM *============================*
2880 REM * Save new file as text file *
2890 REM *============================*
2900 :
2910 HOME : PRINT "SAVING◊PROCESSED◊
     FILE..."
2920 GOSUB 3520
2930 PRINT : PRINT "TYPE◊'EXEC◊" ;N$; ""
2940 PRINT "TO◊LOAD◊PROCESSED◊BASIC◊
     PROGRAM."
2950 NEW
2960 :
2970 :
2980 REM ************************
2990 REM * *
3000 REM * S U B R O U T I N E S *
3010 REM * *
3020 REM ************************
3030 :
3040 :
3050 REM *============================*
3060 REM * Read file into LINE$() array and *
3070 REM * count number of lines read in. *
3080 REM *============================*
3090 :
3100 LINES = 0
3110 PRINT D$; "OPEN" ;NAME$
3120 ONERR GOTO 3210
3130 :
3140 GOSUB 3330
3150 IF LEFT$ (A$,1) = "*" THEN 3190
3160 IF A$ = "" THEN 3190
3170 LINES = LINES + 1
3180 LINE$(LINES) = A$
3190 GOTO 3140
3200 :
3210 POKE 216,0
3220 PRINT : PRINT D$; "CLOSE"
3230 GOTO 1280
3240 :
3250 :
3260 REM *============================*
3270 REM * Subroutine to read a line *
3280 REM * character by character. *
3290 REM * Ignore leading spaces and *
3300 REM * accept all characters. *
3310 REM *============================*
3320 :
3330 PRINT D$; "READ◊" ;NAME$
3340 A$ = ""
3350 Y = 0
3360 GET B$
3370 :
3380 IF B$ = CHR$ (13) THEN 3450
3390 IF B$ < > "◊" THEN Y = 1
3400 IF B$ = "◊" AND Y < > 1 THEN 3420
3410 A$ = A$ + B$
3420 GET B$
3430 GOTO 3380
3440 :
3450 RETURN
3460 :
3470 :
3480 REM *========================*
3490 REM * Write new file to disk *
3500 REM *========================*
3510 :
3520 IF LEN (N$) > 15 THEN N$ = LEFT$ (N$,15)
3530 PRINT D$; "OPEN" ;N$
3540 PRINT D$; "CLOSE"
3550 PRINT D$; "DELETE◊" ;N$
3560 PRINT D$; "OPEN◊" ;N$
3570 PRINT D$; "WRITE◊" ;N$
3580 FOR I = 1 TO LINES
3590 PRINT LINE$(I)
3600 NEXT
3610 PRINT D$; "CLOSE"
3620 :
3630 RETURN
3640 :
3650 :
3660 REM *==================*
3670 REM * DATA statements *
3680 REM *==================*
3690 :
3700 DATA 2
3710 DATA "GOTO" ,4, "GOSUB" ,5
```

Checksums

```
 30-$EAFF   460-$D5F0   810-$6D07
 50-$2918   470-$FE70   820-$167F
 80-$C2EC   480-$98BC   830-$7E09
 90-$9652   490-$1C3D   840-$C03E
100-$8849   500-$495C   850-$0218
120-$7F2F   510-$2C8E   860-$C178
160-$5914   520-$414F   870-$1F57
170-$96CD   530-$842D   880-$7455
180-$2BBF   540-$F6E7   890-$0B47
200-$739B   550-$C1F6   900-$0C74
210-$016D   560-$1E29   910-$C191
220-$1832   570-$0E10   920-$0841
230-$D435   580-$BB8C   930-$3865
240-$FA08   590-$C4B8   940-$34C6
250-$2A96   600-$DBE4   950-$1385
260-$3E7C   610-$6247   960-$BC6F
270-$F4FD   620-$6CA1   970-$267D
280-$793A   630-$AE46   980-$68A2
290-$2264   640-$682B   990-$C652
300-$6C30   650-$5010  1000-$E40C
310-$0201   660-$3613  1010-$A679
320-$C7CB   670-$0EED  1020-$200E
330-$E825   680-$B6F7  1030-$9C1E
340-$999C   690-$9206  1040-$5A6E
350-$EC8E   700-$41EF  1050-$9A74
360-$C67C   710-$F4AF  1060-$B7DA
370-$C423   720-$4469  1070-$DC88
380-$4748   730-$3284  1080-$98C9
390-$44D0   740-$AB57  1090-$9D12
400-$4457   750-$F223  1100-$3AAE
410-$0CE7   760-$6F3C  1110-$26D4
420-$B3F4   770-$0DFD  1120-$04FF
430-$B444   780-$6CC3  1130-$9BAB
440-$A418   790-$0485  1140-$71FF
450-$E039   800-$0C50  1150-$F5EB
```

Everett B. Young — CA

Softkey for...

Pow! Zap! Ker-Plunk! The Comic Book Maker, School Edition

Pelican Software

Requirements:
Copy II Plus (ProDOS)
2 Blank 5.25" disks, notched so both sides can be used

The challenge is to copy Disk 1 Side 1. Probably the protection scheme is similar to that used on Mini-Converter, which Dick Lavallee deprotected in Computist #67. Thanks to him for showing the way.

Rather than use the /RAM disk, as he recommends, you can boot Pow! Zap!, quit to ProDOS, boot Copy II Plus using ProDOS' BYE, then use the Copy Files function.

Step-by-step

1. Boot Copy II Plus and Catalog it to find out the volume name of your disk (C2P, C2PLUS, COPYIIPLUS, or whatever, depending on the version you have).
2. Format side 1 of a 5.25" disk for ProDOS. Choose any name; the volume name does not matter.
3. Use Copy Files to copy ProDOS from Copy II Plus to the formatted disk.
4. Use Copy Disk to copy all but Disk 1 Side 1 of Pow! Zap! to your blank disks.
5. Boot Pow! Zap! (Quitting from Copy II Plus will not work; your must use openapple ctrl reset.) Press return on the "It Speaks for Itself" screen to go to the Main Menu.
6. Choose Quit from the Main Menu. When prompted, press "y"; you do want to quit.
7. You see:
   `ENTER PREFIX (PRESS "RETURN" TO ACCEPT)`
   `/POW.ZAP.SPROG/`
8. Put Copy II Plus in a drive. Type the volume name of your Copy II Plus disk, which you discovered in step 1:
   /COPYIIPLUS/ *(if you have Version 9)*
9. Type the application:
   UTIL.SYSTEM *Press return to boot*
10. Use Copy Files to copy all files except ProDOS from Disk 1 Side 1 of Pow! Zap! to the disk you formatted in step 2. That's it. You can now keep your originals in a safe place and use your backup copy.

Now, a question. How can "Where in Time is Carmen Sandiego" be put on a 3.5" disk?

A utility in the program copies all four sides to a hard disk. Copy II Plus Copy Disk copies the program onto 5.25" disks. But neither will make a usable 3.5" disk.

Copy Files produces an error message on side C: "I/O error block $8000," while copying file DB0. The ProSel Copy Files utility copies all files, but after the program loads and runs through the preliminaries, the message "Insert side D" shows up.

Tex Window — TX

This is my first letter to Computist. After eight issues, I can finally make a small contribution.

Softkey for...

Plato Courseware: Basic Number Facts

Control Data

1. Use RWTS Worm (Computist #61) to capture the RWTS of the original disk. Boot a DOS 3.3 disk and load RWTS Worm.
   BLOAD RWTS.WORM, A$9500
2. Insert the Plato disk.
3. Execute the RWTS Worm program.
   CALL 38144
4. Insert Super IOB disk and save the RWTS to disk.
   BSAVE PLATO.RWTS, A$1900, L$800
5. Load Super IOB and exec in the New Swap controller.
6. Run Super IOB.
7. Copy a normal DOS 3.3 to the copied disk.
8. (optional) Load the HELLO program and change or delete line 3. Removing the POKE in line 3 disables reboot on reset.

Softkey for...

I Can Carry and Borrow

Troll

Use the Troll Micro Courseware softkey in Computist #53 page 22.

Softkey for...

Mathosaurus Grade 2

Micrograms

Use the partial softkey from Gerald E. Myers in issue 59, page 28. Use Copy II Plus Copy Disk to make a whole disk copy. It will give a read error on track 01. Then use Copy II Plus Manual Bit Copy to copy track 01 only.

I have been unable to completely deprotect Mathosaurus using Mr. Myers' directions in issue 59. I have not been able to capture the RWTS successfully. As I am very much a beginner, perhaps he could give a more specific procedure.

The softkey for Type to Learn (Sunburst) in issue 68, page 21 does not work for my version. When I try to copy the disk using ProDOS Super IOB, Super IOB bombs into the monitor after I insert the disks to begin the copy. The display looks like this:

```
00:D000:00 00 BRK 00
   A=0000  X=000C  Y=0004 S=01E7
D=0000 P=B4
   B=00  K=00  M=00  Q=80 L=0 M=1
X=1 C=1
```

I don't know enough about the monitor to interpret this, but I'll bet there is someone out there who does. I suspect this means that I have not captured the RWTS correctly. Or is there a bug in the procedure? I have tried capturing the RWTS on a //e equipped with a Wild Card and using the IIgs Visit Monitor CDA with no success.

Kathi Quan — CA

I need help. I have the program PIRATES by Microprose and I have tried to produce a backup using both the parameters in Computist #61, p. 8 and those in Computist #65, p. 34 to no avail. Although I am a novice, I have been successful with several softkeys in the past, and can vaguely understand both procedures (they are basically the same). Since I encounter the same problem with both, perhaps I am not performing some step properly. Basically, the idea is to capture the PIRATES ProDOS and use it to copy the files to a preformatted disk, then change the system to allow an update to the resident ProDOS.

My problem occurs when I start to copy the files. Firstly, when the files begin copying, they copy entirely too quickly. When I check the catalog, it lists all files as being 1 block in length. Secondly, early in the file copying (on the 2nd or 3rd file), I encounter an error message reading, "I/O Error Block $0F29." I am certain that I have captured the foreign ProDOS, because when I catalog the original disk from BASIC, as suggested in Mr. Halfwit's article (Comp. #61), I get a long list of files. Also, there is no chance that I am accidentally booting a different ProDOS, because I access UTIL.SYSTEM from a DOS-less disk using the wildcard command from BASIC. Whatever my error, I do it consistently using both methods, as the error message and results are the same.

Could Mr. Halfwit or Mr. Troha (Comp. #65) figure out what I am doing wrong so that I may back this disk up? Alternatively, does someone have another method of doing so? I would appreciate the help.

I also need help with Didatech's Crosscountry USA, Fay: Word Hunter and Crosscountry California. I tried the method outlined in Computist #69, but it doesn't give the original bytes. I checked Computist #55, from which the softkey was taken, and it also didn't list the original bytes. When searching my programs with a sector editor, I find the exact same bytes in those locations in all three programs (T$00, S$04, B$89-91): A2 1C 98 9D E0 BC CA D0 FA. Changing them to A9 D0 8D 6E 85 EA EA EA EA does not work. Could Mr. Cadillac or R.D. West publish the original bytes changed so that I could search for them?

Does anyone know where to locate the crowbar on Level 3 in Alien Mind?? I located it once, but can't remember where and now my husband is stuck on Level 3.

Notes on Milliken Software

I was unable to back up my copies of Milliken Skillbuilder software (Lantern of D'gamma, Islands of Beta, A-Maze-ing Mouse) using the softkey in Computist #68, p.9, but was successful using Larry Rando's procedure in Issue #39, p.7 for Discovery! by Milliken.

Softkey for...

Number Munchers
Jenny's Journeys
Sound Tracks

MECC

I was able to make a back up using a combination of techniques from past issues. First, I checked the address and data headers to see what changes were made using the Nibble editor from Copy II+. I found that the program had altered address headers of AA D5 AD and data headers of D5 96 AA. This fit the category of programs covered in Jack Moravetz' article in Computist #50, p. 23. However, suspecting that the bytes to be changed were in a different location, I modified the controller by deleting lines 5010-5110 and changing line 1020 to read GOSUB 430: GOSUB 490: GOSUB 610. The controller was then exec'd into Super IOB and it backed up my disk. At this point, I had to borrow from Jim Hart's article in Computist #49, p.26. He described searching for the bytes 8C C0 (common memory reference for disk reading routine) to locate the bytes to normalize the disk. I located what I thought might be the bytes, notated them, changed them and booted the disk. It has worked perfectly for me since, so I am fairly certain that the technique was successful. The bytes to change are:

Trk	Sct	Byte	From	To
$00	$0B	$08	AA	D5
		$12	D5	AA
		$1D	AD	96
		$99	96	AA
		$A3	AA	AD
$00	$0C	$82	96	AA
		$87	AA	AD

No one in any of their articles has explained how they found these bytes. I assume they are translate table bytes, but can anyone elaborate? I located them by looking for a pattern, but I am sure there is a more logical (and less time-consuming) way to do this. Could someone suggest a book and where it might be purchased?

In addition, I have succeeded in backing up several other MECC titles and have decided that the title is useless when looking for a method, as MECC apparently changes their protection on all

titles every year or so. My copies of Jenny's Journeys and Sound Tracks could not be backed up using methods suggested for those titles, but I was able to back them up using the method above for Number Munchers. Both sector edits were the same as those in Computist #53, p. 24 by B. Dudley Brett for Grade Manager v2.3. By the way, the COPYA method in that same article didn't seem to work for me. The program couldn't read the disks. I am still looking for a method of de-protecting Addition Logician. Also, I have found that I am unable to use a data disk with these titles after deprotection. Specifically, when using the Matter Maker in Mystery Matter, the program hangs when saving the matter, and keeps asking for the original disk (doesn't recognize the copy.) Can anybody help?

This periodical is the most useful one to which I subscribe. The amount of information is staggering and irreplaceable elsewhere. Although I don't understand everything, I usually learn something more each issue that eventually helps me with my problems. I've recommended it to everyone I know, but find that many feel it is too technical for them to understand. Since many of them are female (like myself), I am very much aware that a lot of it is gender-related. Even dealing with other parents and teachers, I find many more women uneasy when using computers and many are downright unwilling to learn about them. It saddens me that so many people choose to ignore a potentially powerful and important tool in their lives and the lives of their children. If the moms don't use it, the daughters usually don't. Anyway, thank you all for a wonderful magazine and keep up the information flow!

Keep trying with your female friends to convince them of the usefulness of learning about computers. Soon, every electronic device with come with its own micro-controller chip. It's the wave of the future and you can ride the crest or be drowned in the flow. ..... RDEXed

Jeff Strunk _____ PA

This is my first attempt at sending you a letter in the form of a text file. I hope it is successful. Perhaps I should have written a shorter letter for my first attempt, but when I finally sat down and began to type, everything I ever wanted to ask of you or say to you came pouring out.

Tabloid format comment

Since everyone else it taking pot-shots at your "tabloid" format, I figure'd I'd contribute my two cents worth. I don't like it, either; BUT... I'd rather have this format than none at all. To anyone who is even thinking about cancelling their subscription, remember that COMPUTIST is the only publication of its type, i.e., telling you how to remove troublesome copy-protection schemes from your software so that you are free to make as many backup copies as you may ever need. The software publishers would like nothing better than to see COMPUTIST go out of business! In my opinion, COMPUTIST is one of the reasons that copy-protection schemes are being dropped. They figure that there is no reason to go to the added expense of implementing a protection scheme if it is going to be cracked as soon as the program hits the streets. Another heated issue is the price. I don't feel we're getting such a raw deal. Look at an issue of Incider A+, for instance. Take away the pages with advertising and editorials and what do you have left? NOT MUCH! Speaking of advertising, look at all the advertising in COMPUTIST # 70. Why, they must have received at least $30 for all that. And since the advertising income is almost non-existent, there is nothing to defray the cost of your subscription. Each of us pays the whole enchilada. The last point I want to make is that the COMPUTIST staff are all unpaid volunteers. Unless you have ever been a member of a volunteer organization, you have no idea how difficult it is to retain people (good or otherwise). As a supervisor on the staff of an annual festival, I can say that it is difficult enough to get volunteers to participate in something that occurs once a year, let alone all year long.

Source for Print Shop envelopes

I sent this tip to Nibble, A+, and inCider (before they merged) and it was published in 2 of the magazines. In case you didn't see it in either of those magazines, here it is again. For those readers who can not find replacement envelopes for "The Print Shop" I found a solution. Call a small printing shop or an office supplies store and ask for what is known in the trade as a number 5-1/2 or a number 6 Baronial envelope. It is most commonly used to send wedding invitations or commencement announcements. I found an office supplies store that did their own printing and they sold me some envelopes from an opened box that they were using. I acquainted the manager of the store with the potential market for these envelopes and they now keep an open box on the shelf for anyone who comes in. I just purchased my second batch of 100 envelopes and they only cost me 10 cents each.

Cheap word processor

Back when you had your save-on-software ads, you used to recommend Magic Window by Artsci at a price of $106.00 instead of $149.95. I used the Franklin version of this program (AceWriter II) on my][+, revision 7, I now use it on my //e, and I have a friend who uses it on a //c. All of us are quite pleased with it and it can be purchased at flea markets for under $25.00. (At one time, the flea market price was down to $2!) I have bought multiple copies of it from a friend of mine who is a Franklin dealer and servicemen.

Tape Labels

If anyone wants small (or large) quantities of VHS, BETA, or Audio Cassette, tractor feed labels, contact:

Daniel P. Olson
dba Virginia Specialty Products
PO Box 985
Vienna, VA, 22180
(203) 280-1742

For $1.00, he'll send you a sample pack of these items. The video-tape labels are the EXACT size of the originals and I'm using my word processor and these labels to re-label all of my VHS tapes.

Printer Modification

As a sidelight to the above, I had a problem using the VHS labels on my wide carriage C. Itoh ProWriter. On both the wide carriage and narrow carriage models, the tractors could only be closed so far (4-1/2" carrier sheet) and some of the labels come on a 4" sheet. I was able to modify the tractors and I now can go down to about a 3" carrier sheet. If anyone wants or needs to do this to their printer, I will try to talk you through it by remote control if you call me at my home number (215) 262-2457 from 10:00 AM to 4:00 PM, Monday through Friday or weekends or at my work number, (215) 861-8516, in the evenings. If you want to send me a SASE, I'll try to document the procedure in a set of cookbook instructions.

Hang in there, Bobby

I would like to encourage the hardware guru to hang in there and not give up the ship. I liked the construction article. I liked it when it appeared as the Bus Monitor. (I have it recorded as being from issue 36, October '86, page 14.) However, it is, as Bobby pointed out, a gimmick. I think he would get a bigger response if future projects were along the lines of the primary purpose of the magazine, deprotecting programs. I have a couple of suggestions.

Hardware suggestion #1

Have you any plans for a construction project similar to Trak-Star which would display (and store for later retrieval) the numbers of the tracks (and half and quarter) being accessed? I use Franklin Ace 10 drives on my //e and they do not have the plastic spiral-tracked cam that the Apple drives have so I am unable to mark it to assist me in cracking protected programs.

It depends on how many people are interested. There's an economy of scale that determines whether a project is possible. If only a few are interested, it would be cheaper for them to buy the Trak-Star. ... RDEXed

Hardware suggestion #2

How about your own version of an NMI card or something like the Senior Prom. (By the way, are they still in business?)

The previous answer applies to this question also. The simplest and least expensive NMI / RESET device is a modified ROM. There's not much call for that anymore. The Senior PROM is no longer being sold. ..... RDEXed

Hardware suggestion #3

I sent this same idea to Applied Engineering but since bureaucracy always takes 10 times longer than necessary to accomplish anything, I thought I'd mention the same idea to you. AE's PC Transporter card, in addition to allowing you to run IBM software, allows you to use an IBM-style keyboard with your Apple. (This keyboard is required if you own a][+.) How about a circuit card to interface an IBM-style keyboard to an Apple? This might be a problem because of the lack of open-Apple and closed-Apple keys. Therefore, I think that such a card should allow you to have both keyboards operational at the same time. This would allow you to use some of the specialized multiple-key functions necessary on an Apple. I have been considering purchasing a surplus //e keyboard from Jameco and mounting in in a salvaged keyboard housing to give me a detachable keyboard but I may delay doing this depending on (1) what the hardware guru thinks of the practicality of the idea and (2) what I found out about what I mention in my next paragraph.

There are two reasons why a remote keyboard may not be as good an idea as it first seems. 1. Different Apple IIs. 2. Apple II hardware.

From the viewpoint of existing software, the best way to connect the new keyboard is to intercept the normal keyboard data and replace it with your own. This requires a different card for each of the different Apple II models. And since the II hardware only passes the lower 7 bits of data, there's no way to distinguish the function keys from the normal keys. The net gain is zero.

The problem is how to read the keyboard from software. From the viewpoint of a new keyboard and new software, the best way is to use the 16 byte I / O area set aside for each card slot. That way, you can send more data about the keypresses and the additional keys (keypad & function keys, etc...). But if you do, pre-existing software won't use your new keyboard. Without new software that knows about your new keyboard (nonexistent at this time), the net gain is zero. ..... RDEXed

Detachable keyboard source

If you get Nibble, check the middle ad on the top of page 10 of the April, 1990 issue. If not, here's the story. Roman Marshak, dba Martek Electronics, Post Office Box 24, Novi, MI, 48050 is marketing a detachable keyboard which can be used with the][+ or the //e. He says his keyboard has several enhancements over the //e keyboard. It uses a 4-foot retractile telephone style cord to connect the keyboard to a circuit card which mounts inside your Apple. (It doesn't use a slot) It has open and closed Apple keys, 12 user programmable function keys, a logical cursor pad layout, caps lock indicator light, tactile feedback, and matching color. It comes assembled or in kit form but he cautions that the kit is not for beginners. According to the ad, you need to spend about three hours modifying the keyboard. The][+ kit costs $59, the //e kit costs $69. Assembled versions are an additional $20. Shipping and handling is an additional $7. Write to him for further information or call (313) 348-3812. It is probably better to call in the evenings since he works this business from his home.

Help

Can anyone tell me how to softkey Data Perfect, the Franklin database program written by LJK Enterprises in St. Louis, MO. Perhaps softkey is not the right word since the disk is not protected and can be copied with COPYA. However, I can not find any catalog track and, therefore, no file names which would enable me to transfer it to a hard disk or to a disk with my word processing program.

More Help

Now that the BBS is on-line, I may give serious consideration to purchasing a really good modem to replace the one that I have. I will also want a really good software package. For example, one that will allow me to (either) view and print simultaneously or to capture the information in a memory buffer and print it later. How about some suggestions for modems and software?

William Rice _____ NY

Softkey for...

Batman

Data East

Requirements:
COPYA
Blank disk
Sector editor

What started me deprotecting my protected disk is a virus that has probably hit everyone's computer system at one time or another. The virus usually shows up in homes where small children have access to disks. My virus seems to hang out with my son, I call it THE MR NOBODY VIRUS. Not only does it destroy originals, it even managed to destroy my write protected copy of Dazzle Draw several times. If you ask my son about it, you will hear "I don't know how it happened, I didn't do anything to it". That's the MR NOBODYS famous response.

Batman has several different types of protection. On my copy I found the following schemes:

Altered epilogs, both address & data
Loading into the RAM card
A timing loop with code comparisons
Encrypted code on the disk

These pesky schemes are all easy to find and defeat. I will show you how to boot trace the program loader and find each of them.

First, we need to know how they changed the epilog marks so we can work around them. This is done with our nibble editor. What we find when we look at a track dump is that the epilogs have been changed from:

From	To	Where	
DE	AA	FF FF	Address field
DE	AA	FF FF	Data field

This prevents us from just running COPYA and getting a working copy of the disk. What we need to do now is fix up COPYA to read these strange epilogs. The following table comes from COMPUTIST #68, page 28.

Ignore what	$Address	Change to
Address field: Both epilogs	$B988	18 60
Data field: Both	$B925	18 60

We must now copy the original disk to our blank disk. Run COPYA and press ctrl C when it asks which drive the original disk is in. Then modify DOS so it can read the strange epilogs and copy the disk.

```
RUN COPYA
ctrl C
CALL -151                 to enter the monitor
B988:18 60                ignore addr epilogs
B925:18 60                ignore data epilogs
3D0G                      return to BASIC
70
RUN
```

When you have finished with this you have defeated one level of protection. Now we must boot trace the code to find the other protection schemes. Re-enter the monitor and move boot 0 from ROM to RAM where we can modify it.

```
CALL -151
9600<C600.C6F8M           Move code from $C600 to $9600
96F8:4C 59 FF             put in jump to monitor
9600G                     start our new code
```

After a very short whirl you should hear a beep and see the monitor cursor (*).

```
C0E8                      stop the drive
0801L                     List some code
```

The code should look like this:

```
0801:A5 27     LDA  27
0802:C9 09     CMP  #09
0803:D0 27     BNE  082E
0807:78        SEI            no interrupts
0808:AD 83 C0  LDA  C083      set up the ram card
080E:AD 83 C0  LDA  C083      for read and write
080E:A5 2B     LDA  2B        get drive slot
0810:4A        LSR
0811:4A        LSR
0812:4A        LSR
0813:4A        LSR
0814:09 C0     ORA  #C0       C6 if drive = 6
0816:85 3F     STA  3F
0818:8D FD FF  STA  FFFD      set up new reset vector
081B:A9 5C     LDA  #5C
081D:85 3E     STA  3E
081F:A9 00     LDA  #00
081B:A9 5C     LDA  #5C
081D:85 3E     STA  3E
081F:A9 00     LDA  #00
0821:8D FC FF  STA  FFFC      second half of reset
0824:18        CLC
0825:AD BF 08  LDA  08BF
```

From here on I will give partial listings and key points about the data to point out important things to look for on other programs.

0825-0843 sets up a read buffer at D300-D900 for sectors 1,2,3,4,5,6,7. Yet another another scheme to block our boot trace. We will modify this too.

```
0845:6C 3E 00  JMP  ($003E)
```

This bit of clever code just uses $003E as a pointer to use the code at $C65C to read more code off track 0.

0848-0854 This sets soft switches in the computer for the next phase of the load.

```
0857:20 00 D3  JSR  D300      Jump to code just
                              loaded at $D300
```

Now we need to modify boot 0 to allow us to look at the next phase of the loader program.

```
96F8:A9 81 8D 09 08 8D 0C 08 A9 22 8D BF 08
     A9 4C 8D 57 08 A9 59 8D 58 08 A9 FF 8D 59
     08 4C 01 08
```

What this code does is:

1. Reset the ram card to off.
2. Set the input buffer to $2300.
3. Set up a jump to the monitor.
4. Jump to boot 1.

Now we must insert our COPYA copy and start boot 0.

```
9600G
C0E8                      to stop the drive
```

If all went well you should be back in the monitor. Lets look at our new code at $2300. Note: This code that would normally be at $D300-$D700.

```
2300L                     list a page of code
2300:A0 00     LDY  $00
2302:B9 0E D3  LDA  $D30E,Y
```

```
2305:99 00 60   STA  $6000,Y
2308:C8         INY
2309:D0 F7      BNE  $2302
230B:4C 00 60   JMP  $6000
```

What happens here is the code from $D30E-D40D is moved to $6000 and is executed. Lets move that code and see where it leads us.

6000<230E.240DM *move captured code*

The code at $6000-$6009 sets up a new reset pointer and at $600C is a jump to the routine at $6052.

Now we hit the nuts and bolts of this protection scheme. What happens is it checks for $E7 at several places (just like PROLOC then attempts to read 8 bytes at a timed interval away from the last $E7. If any of these routines fail it drops into a cold start at $6048 with the twist it hangs the computer, or simply reboots depending when it fails.

```
$6030:A2 07     LDX  #$07
$6032:8A        TXA
$6033:95 F0     STA  $F0,X
$6035:CA        DEX
$6036:10 FA     BPL  $6032
$6038:A6 2B     LDX  $2B
$603A:BD 89 C0  LDA  $C089,X
$603D:BD 8E C0  LDA  $C08E,X
$6040:A9 0B     LDA  #$0B
$6042:85 F0     STA  $F0
$6044:C6 F0     DEC  $F0
$6046:D0 0B     BNE  $6053
$6048:EE F4 03  INC  $03F4   trash powerup flag
$604B:6C C6 FF  JMP  ($C6FC)
$604E:A6 2B     LDX  $2B
$6050:4C 5C FF  JMP  $FF5C
$6053:A9 80     LDA  #$80
$6055:85 F1     STA  $F1
$6057:C6 F1     DEC  $F1
$6059:F0 E9     BEQ  $6044
$605B:20 80 D8  JSR  $D800
$605E:B0 E4     BCS  $6044
$6060:A5 2D     LDA  $2D
$6062:C9 0A     CMP  #$0A
$6064:D0 F1     BNE  $6057
$6066:A0 00     LDY  #$00
$6068:BD 8C C0  LDA  $ C08C,X
$606B:10 FB     BPL  $6068
$606D:88        DEY
$606E:F0 D4     BEQ  $6044
$6070:C9 D5     CMP  $D5
$6072:D0 F4     BNE  $6068
$6074:A0 00     LDY  #$00
$6076:BD 8C C0  LDA  $C08C,X
$6079:10 FB     BPL  $6076
$607B:88        DEY
$607C:F0 C6     BEQ  $6044
$607E:C9 E7     CMP  #$E7
$6080:D0 F4     BNE  $6076
```

$6082-$6092 Read, compare, go on if $C9

$6094-$609F Read, check for sign flag ON

$60A0-$60B6 Read, store 8 numbers at $F0-F7

$60B7-$60C3 Set up $F8-FA with $04 00 D9

$60C4-$60D9 Decode $D9FF-$D400

From this code we have two things to do. 1. To defeat the timed routine. 2. Find the values expected at $F0-$F7.

What happens is the code from $D900-$D400 (in a backward direction) is decoded like this:

The value stored in $Fx is EOR'ed with $D9xx then stored back to $D9xx-$D400. We know from the code at $873-$881 we will be loading something to the text screen. If you boot the original disk the first screen you see is the QUICKSILVER copyright notice. This just happens to be the translated code starting at $D641. Now we need to look at an ASCII code chart to get the values that would have to be at $D641 for Quick-Dos Apple Program Loader. These are the values:D1 F5 E9 E3 EB AD C4 EF etc.

From this and the code we moved to $2641-$2649 we can find the unknown $Fx values. This is done by EOR'ing the wanted value with the known value.

```
Hex   Binary          comments
D1    1101 0001
3F    0011 1111       from $2641
      1110 1110       $F1 = EE
F5    1111 0101
1B    0001 1011       from $2642
      1110 1110       $F2 = EE
E9    1110 1001
15    0001 0101       from $2643
      1111 1100       $F3 = FC
E3    1110 0011
04    0000 0100       from $2644
      1110 0111       $F4 = E7
EB    1110 1011
05    0000 0101       from $2645
      1110 1110       $F5 = EE
AD    1010 1101
51    0101 0001       from $2646
      1111 1100       $F6 = FC
C4    1100 0100
23    0010 0011       from $2627
      1110 0111       $F7 = E7
EF    1110 1111
23    0011 0011       from $2648
      1111 1100       $F0 = FC
```

Now all we have to do is change the code on track 0 sector 1 to load our $F0-F7 values and jump to the decoder routine.

Load your favorite sector editor and change the following:

Reading from byte $74 should look like this:

A0 00 BD 8C C0 10 FB 88 F0 C6 C9 E7 D0 F4 BD 8C C0 10 FB C9 E7 D0 B9 BD 8C C0 10 FB C9 E7 D0 B0 BD 8D C0

Starting at byte $74 enter:

A9 FC 85 F0 A9 EE 85 F1 A9 EE 85 F2 A9 FC 85 F3 A9 E7 85 F4 A9 EE 85 F5 A9 FC 85 F6 A9 E7 85 F7 4C B5 60

Write the sector back to the copy of Batman. This ends the protection schemes used on side A of Batman.

To copy side B just set up COPYA as described before and copy the original disk.

If you followed all the sets correctly you should have a completely deprotected copy of Batman. Enjoy!

Softkey for...

Bad Dudes

Data East

Requirements:
COPYA
Sector Editor

Bad Dudes is a fast paced Kung Fu game with numerous levels of play. It also comes on a protected disk. The protection scheme on side A is real easy to defeat, as you will see in this softkey. Now if someone would find a way to slow the action down it might be as good as the arcade version.

CALL -151 *Enter the monitor.*
9600<C600.C6F8M *Move boot 0 down to $9600*
96F8:4C 59 FF *Enter code to exit to monitor*
C0E8 *Stop the drive*
0801L *List a page of code*

```
801:4C 00 0A    JMP  $0A00
804:EA          NOP
805:D0 27       BNE  $082E
...
0825:AD BF 08   LDA  $08BF
```

From this code we see the first thing we do is jump to $A00. Listing the code at $A00 looks like this:

```
A00:EA          NOP
A01:EA          NOP
A02:A2 60       LDX  #$60
A04:A9 56       LDA  #$56
A06:85 FD       STA  $FD
A08:A9 08       LDA  #$08
A0A:C6 FC       DEC  $FC
A0C:D0 04       BNE  $0A12
A0E:C6 FD       DEC  $FD
A10:F0 38       BEQ  $0A4A
A12:BC 8C C0    LDY  $C08C,X
A15:10 FB       BPL  $0A12
...
A39:C9 0A       CMP  #$0A
A3B:D0 CB       BNE  $0A08
A3D:BD 8C C0    LDA  $C08C,X
A40:10 FB       BPL  $0A3D
A42:38          SEC
A43:2A          ROL
A44:25 FC       AND  $FC
A46:49 FF       EOR  #$FF
A48:F0 03       BEQ  $0A4D
A4A:4C 00 C6    JMP  $C600
A4D:A9 60       LDA  #$60
A4F:85 2B       STA  $2B
A51:A9 09       LDA  #$09
A53:85 27       STA  $27
A55:A9 01       LDA  #$01
A57:8D 00 08    STA  $0800
A5A:A9 A5       LDA  #$A5
A5C:8D 01 08    STA  $0801
A5F:A9 27       LDA  #$27
A61:8D 02 08    STA  $0802
A64:A9 C9       LDA  #$C9
A66:8D 03 08    STA  $0803
A69:A9 09       LDA  #$09
A6B:8D 04 08    STA  $0804
A6E:4C 01 08    JMP  $0801
```

From $0A00-0A41, a test is made for an original disk. At $0A42-0A48, a check of this test is done. If the check fails the computer jumps to $C600, and if it passed, it goes to $$0A48. The code from $0A4D-0A6B sets up $0800-0804 and jumps to $0801. We can easily defeat this routine in two ways:

1. Modify track 0.
2. Make the test results pass.

If you choose option 1, then sector edit track 0 sector 0.

Trk	Sct	Byte	From	To
$00	$00	$00	?	01 A5 27 C9 09

If you choose option 2, then sector edit track 0 sector 0E

Trk	Sct	Byte	From	To
$00	$0E	$4A	?	EA EA EA

When you are done write the track back to your copy of Bad Dudes.

Side B of the disk can be copied with COPYA. Now the game is deprotected. Enjoy the game!

Softkey for...

Platoon

Data East

Requirements:
COPYA
Blank disk
Sector editor

Platoon is a shoot-em up arcade adventure game. The object is to complete five levels of play without losing your squad of men. It sounds easier than it is because you need certain items you find as you travel along.

When I got this disk I copied the original with COPYA and tried to run it. What I got was the familiar recalibrate sound and nothing more. The next thing was to move the boot ROM code down to RAM so I could modify it.

9600<C600.C6F8M
96F8:4C 59 FF **jump to the monitor**
9600G **boot the copy**

You should be in the monitor now with the drive running. We need to stop the drive and look at the code at $0800-0AFF. I know this because $800 contained #$03. This would have caused three sectors to be loaded.

0801L

You should see this:

```
0801:4C 00 0A   JMP  $0A00
0804:EA         NOP
0805:D0 27      BNE  $082E
```

The very first thing is a jump to $0A00, so lets go there.

0A00L

```
0A00:EA         NOP
0A01:EA         NOP
0A02:A2 60      LDX  #$60
.
.
.
0A42:38         SEC
0A43:2A         ROL
0A44:25 FC      AND  $FC
0A46:49 FF      EOR  #$FF
0A48:F0 03      BEQ  $0A4D
0A4A:4C 00 C6   JMP  $C600
.
0A4D:A9 60      LDA  #$60
0A4F:85 2B      STA  $2B
0A51:A9 09      LDA  #$09
0A53:85 27      STA  $27
0A55:A9 01      LDA  #$01
0A57:8D 00 08   STA  $0800
0A5A:A9 A5      LDA  #$A5
0A5C:8D 01 08   STA  $0801
0A5F:A9 27      LDA  #$27
0A61:8D 02 08   STA  $0802
0A64:A9 C9      LDA  #$C9
0A66:8D 03 08   STA  $0803
0A69:A9 09      LDA  #$09
0A6B:8D 04 08   STA  $0804
0A6E:4C 01 08   JMP  $0801
```

From $0A00-0A41, a test is made for an original disk. At $0A42-0A48, a check of this test is done. If the check fails the computer jumps to $C600, and if it passed, it goes to $0A48. The code from $0A4D-0A6B sets up $0800-0804 and jumps to $0801. We can easily defeat this routine in two ways:

1. Modify track 0.
2. Make the test results pass.

If you choose option 1, then sector edit track 0 sector 0.

Trk	Sct	Byte	From	To
$00	$00	$00	?	01 A5 27 C9 09

If you choose option 2, then sector edit track 0 sector 0E

Trk	Sct	Byte	From	To
$00	$0E	$4A	?	EA EA EA

When you are done write the track back to your copy of Platoon. Now file the original in a safe place and enjoy the game.

Vincent C. Andrews ____ WA

Ultima CDA v1.0

A Ultima V Character Editor

This Character Editor was designed to increase your chance to win the game. It is a CDA which means you can use it any time during the game, including while you are having a fight with one of your enemies. The best thing about this editor is that you can choose the areas you want to maximize. For example, if you want to maximize your spell ingredients or restore health and hit points, just choose those areas and leave the others alone.

To install this CDA, you must copy the file over to your ProDOS 16 System Disk. The CDA goes into the SYSTEM/DESK.ACCS directory. Boot your System disk and execute Basic.system. The CDA is in memory and you can select it from the Control Panel. But before you do that, insert your Ultima V disk into your floppy drive and type PR#6 <return>. It will boot the disk without wiping out the CDA you have installed into memory. The rest is self explanatory.

We have a problem. I don't have a IIgs so I don't know how to enter binary data directly into memory and save it as a CDA. If anyone knows the proper procedure please let me know right away. For now, I am printing the source code in the original Merlin format. If you want the CDA, you will either have to enter the source into your copy of Merlin and assemble the proper file format or you will have to order the library disk. (Or call the BBS.) ..... RDEXed

ULTIMA.CMD.S

```
* LINKER.GS  command file for Linking ULTIMA
* Batch asm part:
          ASM   ULTIMA ;Only one module
* Linker part:
          VER   $1     ;Link to OMF version 1
          KND   $20    ;No spec mem
                       ;(Use KND $1000 for
                       ver=2)
          TYP   $B9    ;Make CDA type file
          LINK  ULTIMA.L  ;Only one link file
          SAVE  ULTIMA.CDA
          END   ;Optional
```

ULTIMA.S

```
* Ultima V  Character Editor
* A classic desk accessory
* Vince C. Andrews 18 MAR 90
* Merlin-16+ Assembler
*
          LST   OFF    ;Turn the listing off here
          DATE
          REL
N         EQU   0
Y         EQU   1
n         EQU   0
y         EQU   1
SAVOBJ    KBD   "Save object code? (Y/N)"
          DO    SAVOBJ
          DSK   ULTIMA.L
          FIN

          XC    ;65C02 mode
          XC    ;65816 mode

* Zero page loc saved and used as well as other locations:

PTR       EQU   $06
TEMP      EQU   $08
PNT       =     $E0     ;Also E1,2,3
KYBD      =     $E0C000 ;Get key
STROBE    =     $E0C010 ;Clear Keyboard Strobe
AHLTH     =     $001083 ;Loc of 1st char health
AHPTS     =     $001088 ;Loc of 1st char hit points
ABASE     =     $001200 ;Loc of 1st Item
AMISC     =     $001180 ;Loc of 1st Misc Items
ASPECIAL  =     $001100 ;Loc of Base Addressing
*
* Required stuff of all CDA's:
* The string is what goes on the
* Control panel listing.
*
BEGIN     STR   'Ultima V Editor'
          ADRL  START  ;Entry point address
          ADRL  EXIT   ;Exit "routine" address
                       ;(just an RTL).
          MX    %00    ;Enters in full 16-bit mode
                       ;so better tell asm.
*
* Entry point when selected from Control panel:
*
START     PHB          ;Save current data bank
          PHK          ;Get our bank
          PLB          ;and set data bank to it
          PEI   PNT    ;Save the 4 zp locs we use
          PEI   PNT+2  ; and zero the bank byte for
          STZ   PNT+2  ; long addressing
          SEP   %00110000 ;8-bit mode
          JMP   HELLO
*
* The Draw LINE Macro
*
LINE      MAC
          LDY   #80
]LUP      LDA   #"_"   ;Routine used to print
          JSR   COUT   ; a straight line across
          DEY          ; the screen.
          BNE   ]LUP
          <<<
*
* The PRINT Macro
*
PRINT     MAC
          JSR   SENDMSG
          ASC   ]1
          BRK
          <<<
*
* The COUT Macro
*
Tool      MAC
          LDX   #]1
          JSL   $E10000
          <<<
WriteChr  MAC
          Tool  $180C
          <<<
COUT      PHA
          PHY
          PHX
          PHP
          REP   %00110000
          PHA
          WriteChr
          PLP
          PLX
          PLY
          PLA
```

```
         RTS
*
* The SENDMSG Macro
*
SENDMSG  PHP
]LUP     REP   %00100001
         LDA   2,S       ;Get return address
         INC
         STA   2,S       ;Point to next byte
         SEP   %00110000
         LDY   #0
         LDA   (2,S),Y   ;Get next byte
         BEQ   :BACK     ;Exit if 0
         JSR   COUT      ;Process it (OUTPUT)
         BRA   ]LUP      ;Loop always
:BACK    PLP
         RTS   ;Return to caller
*
* Continue with the program
*
HELLO    JSR   TITLE
         PRINT 8D" Ultima V  MUST be present in
               memory, if it is not, I am NOT"8D
         PRINT " responsible for the results to your
               system!"8D8D
         PRINT " This CDA will restore HP to its
               maximum, and bring the Dead"8D
         PRINT " back to Life.  It will also Max your
               Gold, Food, Equipment"8D
         PRINT " Spells, and give you Items You
               currently do not have!"8D
         LINE
         PRINT 8D8D
         PRINT " Do you want to continue?  (Y/
                     N)"8D8D
         JSR   ]GETKEY
         JSR   ]CMP
         BEQ   QUIT      ;Branch if result was 0 (NO)
         JMP   EDITOR
*
* This is the QUIT ROUTINE
*
QUIT     REP   %00110000 ;16-bit mode
         PLB             ;Restore data bank to
                         original
         PLA
         STA   PNT+2
         PLA
         STA   PNT
EXIT     RTL
*
* The GET KEY ROUTINE
*
]GETKEY  SEP   $30
]AGAIN   LDAL  KYBD
         BPL   ]AGAIN
         STAL  STROBE
         RTS
*
* Compare for Y or N
*
]CMP     SEP   $30
         CMP   #"Y"
         BEQ   ]YES
         CMP   #"y"
         BEQ   ]YES
         LDA   #0        ;FLAG is set to No
         RTS
]YES     LDA   #1        ;FLAG is set to YES
         RTS
*
* This is the PRINT TITLE SCREEN
*
TITLE    PRINT 8C8D
         LINE
         PRINT 8D"       ULTIMA V  Character
               Editor v1.0"8D
         PRINT "       by Vincent C. Andrews  18
               MAR 90"8D
         LINE
         PRINT 8D
         RTS
*
* This is the PRINT MENU SECTION
*
MENU     JSR   TITLE
         PRINT 8D" (1)   Restore All Characters
               Hit Points and Health"8D
         PRINT " (2)   Max Weapons & Armor"8D
         PRINT " (3)   Max Spells"8D
         PRINT " (4)   Max Potions & Scrolls"8D
         PRINT " (5)   Max Reagents (Spell
               Ingredients)"8D
         PRINT " (6)   Edit Food, Gold, and Misc
               Items"8D
         PRINT " (7)   Edit Special Items"8D8D
         PRINT " (8)   Quit"8D8D
         LINE
         RTS
*
* This is the PRINT EDIT GOLD/FOOD SECTION
*
MISC     JSR   TITLE
         PRINT 8D" Do you want to..."8D8D
         PRINT "  Max Gold, Food, Keys, Gems,
               Torches, Flying Carpets."8D
         PRINT "  And own a Grappling Hook?  (Y/
               N)"8D8D
         RTS
*
* This is the PRINT SPECIAL ITEMS MENU
*
SPECIAL  JSR   TITLE
         PRINT 8D" Do you want to..."8D8D
         PRINT "  Max Skull Keys."8D
         PRINT "  Own a Spy Glass, HMS Cape
               Plans, Sextant,"8D
         PRINT "  Pocket Watch, Black Badge,
               Wooden Box."8D
         PRINT "  And own all Shards, King's
               Jewels, and Moon Stones?  (Y/
               N)"8D
         RTS
*
* This is your EDITOR PROGRAM
*
EDITOR   JSR   MENU    ;Print the MENU
         JSR   ]GETKEY ;Get keypress
         JSR   COUT
         CMP   #"1"
         BEQ   ]JMP1
         CMP   #"2"
         BEQ   ]JMP2
         CMP   #"3"
         BEQ   ]JMP3
         CMP   #"4"
         BEQ   ]JMP4
         CMP   #"5"
         BEQ   ]JMP5
         CMP   #"6"
         BEQ   ]JMP6
         CMP   #"7"
         BEQ   ]JMP7
         CMP   #"8"
         BEQ   ]JMP8
         LDA   #0
         JMP   EDITOR
]JMP1    JMP   RESTORE  ;Restore Character's HP
]JMP2    JMP   WEAPONS  ;Max Weapons and
                        Armor
]JMP3    JMP   SPELLS   ;Max Spells
]JMP4    JMP   POTIONS  ;Max Potions and
                        Scrolls
]JMP5    JMP   REAGENTS ;Max Spell
                        Ingredients
]JMP6    JMP   MISCEL   ;Jump to Misc. Items Menu
]JMP7    JMP   ]SPECIAL ;Jump to Special Items
                        Menu
]JMP8    JMP   QUIT     ;Jump to the QUIT Routine
*
* Restore Character Routine
*
RESTORE  JSR   TITLE
         PRINT 8D8D8D" Restoring Health to all
               Characters..."8D8D
         LDY   #$0
         LDX   #$0
]LUP     TYA           ;Trans. Y to Acc.
         ASL           ;X2
         ASL           ;X4     This will increment
                       X in
         ASL           ;X8     Groups of 16
         ASL           ;X16
         TAX           ;Trans. Acc. to X
         LDA   #$C7    ;Load Acc. with $C7 (good
                       = $C7)
         STA   AHLTH,X ;Stay Long Acc. to
                       AHEALTH + X
         INY           ;Y=Y+1
         CPY   #$10    ;Comp. Y to 17
         BCC   ]LUP    ;Branch if < than 1
HP       PRINT " Restoring Hit Points back to
               normal..."8D8D
         LDY   #$0
         LDX   #$0
]LUP     TYA
         ASL
         ASL
         ASL
         ASL
         TAX
         REP   $30     ;16-bit Regis.
         LDAL  AHPTS+2,X;Load Max HP
         STAL  AHPTS,X ;Sta Max HP to Curr. HP
         SEP   $30     ;8-bit Regis.
         INY           ;Y=Y+1
         CPY   #$10    ;Comp. Y to 17
         BCC   ]LUP    ;Branch if < than 17
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Max Weapons & Armor Routine
*
WEAPONS  JSR   TITLE
         PRINT 8D8D" Maxing all Weapons..."8D8D
         PRINT " Maxing all Armor..."8D8D
         PRINT " Maxing all Magical Items..."8D8D
         LDX   #$0     ;There are 47 total Items to
                       max
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  ABASE,X ;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$30    ;Comp. X to $30 (47 Items)
         BCC   ]LUP    ;Branch if X < $30
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Max Spells
*
SPELLS   JSR   TITLE
         PRINT 8D8D" Maxing all Spells..."8D8D
         LDX   #$4C    ;There are 48 total Items to
                       max
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  ABASE,X ;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$70    ;Comp. X to $70 (48 Items)
         BCC   ]LUP    ;Branch if X < $70
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Max Scrolls & Potions
*
POTIONS  JSR   TITLE
         PRINT 8D8D" Maxing all Potions..."8D8D
         PRINT " Maxing all Scrolls..."8D8D
         LDX   #$70    ;There are 16 total Items to
                       max
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  ABASE,X ;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$80    ;Comp. X to $80 (16 Items)
         BCC   ]LUP    ;Branch if X < $80
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Max Spells Ingredients
*
REAGENTS JSR   TITLE
         PRINT 8D8D" Maxing all Spell
               Ingredients..."8D8D
         LDX   #$A0    ;There are 8 total Items to
                       max
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  ABASE,X ;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$A8    ;Comp. X to  (8 Items)
         BCC   ]LUP    ;Branch if X < $A8
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Miscellaneous Items Menu
*
MISCEL   JSR   MISC    ;Print Misc. Menu
         JSR   ]GETKEY
         JSR   ]CMP
         BEQ   ]DONE2  ;Branch if result was 0 (NO)
         JMP   ]MISCELY ;Jump if YES
]DONE2   JMP   EDITOR  ;Jump if NO
]MISCELY JSR   TITLE
         PRINT 8D" Maxing Gold, Food, Keys,
                     Gems, Torches, and Flying
                     Carpets..."8D8D
         PRINT " You now own a Grappling
                     Hook..."8D8D
         LDX   #$4     ;Max items from $4 to $8
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  AMISC,X;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$9     ;Comp. X to $7 (3 Items)
         BCC   ]LUP    ;Branch if X < $9
         DEY           ;Skip current Loc.
         DEY           ;Skip Carpets
         LDA   #$01    ;Load Acc. with 01
         STAL  AMISC,X;Stay at Grappling hook
         REP   $30     ;16-bit Regis.
         LDA   #$9999  ;Load Acc. with 9999
         STAL  AMISC   ;Stay at Food
         STAL  AMISC+2 ;Stay at Gold
         SEP   $30     ;8-bit Regis.
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
*
* Special Items Menu
*
]SPECIAL JSR   TITLE
         PRINT 8D8D" You now own a Spy Glass,
               HMS Cape Plans, Sextent, Pocket
               Watch,"8D8D
         PRINT " Black Badge, Wooden
               Box..."8D8D
         PRINT " And all Shards, King's Jewels, and
               Moon Stones..."8D8D
         PRINT " Maxed Skull Keys..."8D8D
         LDX   #$90    ;Loc of 1st Item to max
         LDA   #$99    ;Load Acc. with 99
]LUP     STAL  ABASE,X ;Stay Acc. at Loc + X
         INX           ;X=X+1
         CPX   #$98    ;Comp. X to $98 (8 Items)
         BCC   ]LUP    ;Branch if X < $A8
         LDX   #$F0    ;Loc of 1st Item
         LDA   #$FF    ;Load Acc. with $FF
]LUP     STAL  ASPECIAL,X  ;Stay Acc. at Loc +
                           X
         INX           ;X=X+1
         CPX   #$FD    ;Comp. X to $FD (13 Items)
         BCC   ]LUP    ;Branch if X < $FD
         LDX   #$F7    ;Load X with $F7 (Loc of
                       Skull Keys)
         LDA   #$99    ;Load Acc. with 99
         STAL  ASPECIAL,X  ;Stay Acc. at Loc +
                           X (Skull Keys)
         PRINT "Press any KEY to continue..."8D
         JSR   ]GETKEY
         JMP   EDITOR
         LST   ON      ;Turn the listing on here
```

Wizfix 2.1

An editor for Wizardry I-III (A.P.T.)

This program will edit up to 20 characters from these Wizardry games:

Wizardry I ver 2.1
Wizardry II
Wizardry III

Note: You must run this from DOS 3.3 only!

WIZFIX.II

```
2 REM WIZFIX 2.1
4 REM REVISED BY VINCENT ANDREWS
6 REM MUST BE RAN FROM DOS 3.3!
10 HIMEM: 38000: DIM
   N$(20),B(20),A(20),T$(140): GOSUB 1440
70 GOSUB 1320: GOTO 510
80 P$ = "" : FOR E = D + 17 TO D + 31:P$ = P$ +
   CHR$ ( PEEK (E)): NEXT :L$ = STR$ ( PEEK
   (D + 200)) + "-EAST◊" + STR$ ( PEEK (D +
   202)) + "-NORTH◊LEVEL-" + STR$ ( PEEK (D
   + 204)):R = PEEK (D + 34):C = PEEK (D +
   36):S = PEEK (D + 40):O = PEEK (D + 42):Y1 =
   PEEK (D + 38):Y2 = PEEK (D + 39):OL = INT
   ((Y1 + Y2 * 256) / 52):N = PEEK (D + 44):I =
   PEEK (D + 45):M = PEEK (D + 46):H = PEEK
   (D + 47):W = N - INT (N / 32) * 32
81 V = INT (N / 32) + (I - INT (I / 4) * 4) * 8:U = INT
   (I / 4) - 32 * INT (I / 128):T = M - INT (M / 32) *
   32:Q = INT (M / 32) + (H - INT (H / 4) * 4) * 8:P =
   INT (H / 4) - 32 * INT (H / 128):G1 = PEEK (D +
   52):G2 = PEEK (D + 53):G3 = PEEK (D +
   54):G4 = PEEK (D + 55):CA = G1 + (G2 * 256) +
   ((G3 + (G4 * 256)) * 10000):E1 = PEEK (D +
   124):E2 = PEEK (D + 125):E3 = PEEK (D +
   126):E4 = PEEK (D + 127)
82 Z = E1 + (E2 * 256) + ((E3 + (E4 * 256)) *
   10000):Y = PEEK (D + 132) + ( PEEK (D + 133)
   * 256):X = PEEK (D + 134):G = PEEK (D +
   136):J = PEEK (D + 176): IF PEEK (D + 177) >
   0 THEN J = (J - 256)
250 FOR K = 1 TO 7:E = D + 144 + (2 * K):M(K) =
   PEEK (E): NEXT : FOR K = 1 TO 7:E = D + 158
   + (2 * K):P(K) = PEEK (E): NEXT : RETURN
280 HOME : PRINT N$(A),O$(O); "◊◊" ;R$(R); "◊◊"
   ;C$(C): PRINT "PASSWORD==>" ;P$: PRINT :
   PRINT "◊STRENGTH◊" ; SPC( W < 10);W;
   SPC( 5); "GOLD◊" ;CA: PRINT "◊◊◊◊◊I◊Q◊◊" ;
   SPC( V < 10);V; SPC( 6); "EXP◊" ;Z: PRINT
   "◊◊◊◊PIETY◊" ; SPC( U < 10);U: PRINT
   "◊VITALITY◊" ; SPC( T < 10);T; SPC( 4);
   "LEVEL◊" ;Y; SPC( 6); "AGE◊" ;OL
281 PRINT "◊◊AGILITY◊" ; SPC( Q < 10);Q; SPC(
   5); "HITS◊" ;X; "/" ;G; SPC( 2); "AC◊" ;J: PRINT
   "◊◊◊◊◊LUCK◊" ; SPC( P < 10);P; SPC( 3);
   "STATUS◊" ;S$(S): PRINT : PRINT
   "◊◊◊◊◊MAGE◊" ;M(1); "/" ;M(2); "/" ;M(3); "/"
   ;M(4); "/" ;M(5); "/" ;M(6); "/" ;M(7): PRINT
   "◊◊◊PRIEST◊" ;P(1); "/" ;P(2); "/" ;P(3); "/" ;P(4);
   "/" ;P(5); "/" ;P(6); "/" ;P(7): PRINT
282 PRINT "LOCATION:◊" ;L$
400 FOR K = 1 TO 39: PRINT "*" ;: NEXT :
   RETURN
410 PRINT : PRINT "A-LIFE◊◊◊◊◊◊E-LEVEL+1◊
   ◊◊◊I-EXPERIENCE" : PRINT "B-CASTLE◊◊◊◊
   ◊F-HIT◊POINTS◊J-GOLD" : PRINT "C-IDENTIF
   Y◊◊◊G-M◊SPELLS◊◊◊K-YOUTH" : PRINT "D-
   UNCURSE◊◊◊◊H-P◊SPELLS◊◊◊L-QUALITIE
   S" : PRINT "◊<2>◊P.2,REMAKE◊◊<3>◊P.3,◊
   TRADING◊POST" : PRINT "◊<ESC>◊◊ROS
   TER,◊CHANGES◊CANCELLED"
411 PRINT "◊<RET>◊◊ROSTER,◊CHANGES◊
   PERMANENT" : PRINT "◊CTRL-P◊PRINT-
   OUT◊OF◊CHARATER" : RETURN
510 :
520 GOSUB 80: GOSUB 280: GOSUB 410: POKE
   35,15
530 VTAB 15: HTAB 19: POKE - 16368,0: GET
   B$:B = ASC (B$): IF B = 27 THEN GOTO 70
550 IF B = 50 THEN 820
560 IF B = 51 THEN 1000
570 IF B < > 16 THEN 610
580 VTAB 14: HTAB 1: PRINT "◊->START◊PRINT
   ER◊AND◊PRESS◊ANY◊KEY<-◊" ;: GET A$:
   PR# 1: PRINT : FOR K = 1 TO 40: PRINT "*" ;:
   NEXT : PRINT : GOSUB 280: PRINT : GOSUB
   1300: GOSUB 400: PRINT : PR# 0: GOSUB
   280: GOTO 530
610 IF B = 13 THEN POKE 47092,2: CALL 768:
   POKE 47092,1: GOTO 70
620 IF B < 65 OR B > 76 THEN GOTO 530
630 B = B - 64: ON B GOSUB 650,660,670,690,
   700,720,740,750,760,780,800,810: GOSUB 80:
   GOSUB 280: GOTO 530
650 POKE D + 40,0: POKE D + 41,0: RETURN
660 POKE D + 32,0: FOR K = 200 TO 205: POKE D
   + K,0: NEXT : RETURN
670 FOR E = D + 64 TO D + 120 STEP 8: POKE
   E,1: NEXT : FOR K = 8 TO 1 STEP - 1: IF PEEK
   (D + 58 + (8 * K)) = 0 THEN NEXT :K = 0
680 POKE D + 58,K: RETURN
690 FOR E = D + 62 TO D + 118 STEP 8: POKE
   E,0: POKE E - 2,0: NEXT : RETURN
700 K = PEEK (D + 132): IF K < 254 THEN POKE D
   + 130,K + 1: POKE D + 132,K + 1: RETURN
710 RETURN
720 K = PEEK (D + 136): IF K < 555 THEN POKE D
   + 134,K + 10: POKE D + 136,K + 10
730 RETURN
740 POKE D + 138,255: POKE D + 139,255: POKE
   D + 140,255: FOR K = 1 TO 7:E = D + 144 + (K
   * 2): POKE E,9: NEXT : RETURN
750 POKE D + 140,255: POKE D + 141,255: POKE
   D + 142,255: POKE D + 143,255: POKE D +
   144,7: FOR K = 1 TO 7:E = D + 158 + (K * 2):
   POKE E,9: NEXT : RETURN
760 IF PEEK (D + 126) < 254 THEN POKE D +
   126, PEEK (D + 126) + 1
770 RETURN
780 IF PEEK (D + 54) < 254 THEN POKE D + 54,
   PEEK (D + 54) + 1
790 RETURN
800 POKE D + 38,170: POKE D + 39,3: RETURN
810 POKE D + 44,82: POKE D + 45,74: POKE D +
   46,82: POKE D + 47,74: RETURN
820 :
830 TEXT : HOME : PRINT N$(A);O$(O); "◊" ;R$(R
   ); "◊" ;C$(C): PRINT : FOR K = 1 TO 40: PRINT
   "*" ;: NEXT : PRINT "A-GOOD◊◊◊◊◊◊◊◊D-HU
   MAN◊◊◊◊◊◊I-FIGHTER" : PRINT "B-NEUTR
   AL◊◊◊◊◊◊E-ELF◊◊◊◊◊◊◊◊J-MAGE" : PRINT
   "C-EVIL◊◊◊◊◊◊◊◊F-DWAFT◊◊◊◊◊◊K-PRIE
   ST" : PRINT TAB( 16) "G-GNOME◊◊◊◊◊◊L-
   THIEF" : PRINT TAB( 16) "H-HOBBIT◊◊◊◊◊◊M-
   BISHOP"
831 PRINT TAB( 30) "N-SAMURAI" : PRINT TAB(
   30) "O-LORD" : PRINT TAB( 30) "P-NINJA" :
```

```
    PRINT : PRINT "◊<RET>◊◊RETURN◊TO◊P.1"
920 VTAB 16: HTAB 19: POKE - 16368,0: GET
    B$:B = ASC (B$): IF B = 13 THEN 520
930 B = B - 64: IF B < 0 OR B > 16 THEN 920
940 IF B < 4 THEN 970
950 IF B < 9 THEN 980
960 GOTO 990
970 O = B: POKE (D + 42),O: GOTO 830
980 R = B - 3: POKE (D + 34),R: GOTO 830
990 C = B - 9: POKE (D + 36),C: GOTO 830
1000 GOSUB 670: GOSUB 690: TEXT
1020 HOME :T(0) = PEEK (D + 58): GOSUB 1290:
    FOR K = 1 TO 40: PRINT "" ;: NEXT : PRINT :
    PRINT "YOU◊MAY◊CHOOSE:" : PRINT
    "◊A.◊BASICS" : PRINT "◊B.◊BETTER◊STUFF"
    : PRINT "◊C.◊REALLY◊GOOD◊STUFF" :
    PRINT "◊D.◊PROVING◊GROUNDS◊ONLY" :
    PRINT "◊E.◊KOD◊ONLY,◊PART◊1" : PRINT
    "◊F.◊KOD◊ONLY,◊PART◊2" : PRINT
    "◊G.◊DROP◊SOMETHING" : PRINT : PRINT
    "<RET>◊RETURN◊TO◊P.1"
1070 VTAB 22: HTAB 19: POKE - 16368,0: GET
    B$:B = ASC (B$): IF B = 13 THEN 520
1080 IF B < 65 OR B > 71 THEN 1070
1090 B = B - 64: ON B GOTO
    1130,1140,1150,1160,1170,1180,1100
1100 VTAB 22: HTAB 1: PRINT "TYPE◊NUMBER◊
    OF◊OBJECT◊TO◊DROP:◊" ;: POKE - 16368,0:
    GET B$:B = ASC (B$): IF B < 49 OR B > 56
    THEN 1100
1110 B = B - 48: FOR K = B TO 8: POKE D + 58 + 8
    * K, PEEK (D + 66 + 8 * K): NEXT : POKE D +
    122,0: POKE D + 58, PEEK (D + 58) - 1: GOTO
    1020
1130 C$ = "BASIC◊◊ITEMS" :F = 1:G = 15: GOTO
    1190
1140 C$ = "BETTER◊ITEMS" :F = 33:G = 15:
    GOTO 1190
1150 C$ = "REALY◊◊GOOD◊ITEMS" :F = 64:G =
    14: GOTO 1190
1160 C$ = "PROVING◊GROUNDS◊ONLY" :F =
    130:G = 3: GOTO 1190
1170 C$ = "KNIGHT◊OF◊DIAMONDS◊◊ONLY" :F
    = 94:G = 14: GOTO 1190
1180 C$ = "KNIGHT◊OF◊DIAMONDS◊◊ONLY" :F
    = 124:G = 2: GOTO 1190
1190 HOME : HTAB 20 - LEN (C$) * .5: PRINT C$:
    PRINT : FOR K = F TO F + G: PRINT K; "-"
    ;T$(K): NEXT : VTAB 3: FOR K = F + G + 1 TO
    F + 1 + (G * 2): HTAB 20: PRINT K; "-" ;T$(K):
    NEXT : VTAB 19: FOR K = 1 TO 40: PRINT ""
    ;: NEXT :T(0) = PEEK (D + 58): PRINT "YOU◊
    HAVE◊" ;T(0); "◊OBJECTS." : IF T(0) > 7 THEN
    PRINT "YOUR◊HAVE◊NO◊MORE◊ROOM." :
    FOR K = 1 TO 1500: NEXT : GOTO 1020
1240 PRINT "YOU◊MAY◊CHOOSE◊AN◊OBJECT
    ◊BY◊NUMBER,◊OR◊◊PRESS◊<RETURN>◊
    TO◊GO◊TO◊TRADING◊POST."
1250 VTAB 23: HTAB 19: INPUT "" ;B$: IF B$ = ""
    THEN 1020
1260 B = VAL (B$): IF B < F OR B > F + 1 + (G * 2)
    THEN 1250
1270 IF B > 129 THEN B = B - 36
1280 POKE D + 58,T(0) + 1: POKE D + 58 + (8 *
    (T(0) + 1)),B: GOTO 1190
1290 PRINT TAB( 14) "TRADING◊POST" : PRINT :
    PRINT C$(C); "◊" ;N$(A); ":◊" ;T(0); "◊OBJECT
    S"
1300 FOR K = 1 TO 8:T(K) = PEEK (D + 58 + 8 *
    K): NEXT : PRINT : FOR K = 1 TO 8 STEP 2:
    PRINT K; "-" ;T$(T(K)); SPC( 17 - LEN (T$(T(K))
    ));K + 1; "-" ;T$(T(K + 1)): NEXT : PRINT :
    RETURN
1320 :
1330 TEXT : HOME : GOSUB 1420: PRINT :
    PRINT : PRINT "THESE◊ARE◊THE◊CHAR
    ACTERS◊ON◊YOUR◊BACK-UPWIZARDRY◊
    DISK.◊◊YOUR◊OPTIONS◊NOW◊ARE:" :
    PRINT : PRINT "'A'◊TO◊'T'◊CHOOSE◊A◊
    CHARACTER◊BY◊LETTER◊◊<ESCAPE>◊
    ◊ENDS◊THE◊PROGRAM◊◊◊◊◊◊◊◊◊◊◊◊◊
    ◊CTRL-P◊◊◊PRINTS◊OUT◊THE◊ROSTER" :
    PRINT
1350 VTAB 22: HTAB 19: GET A$:A = ASC (A$): IF
    A = 27 THEN 1520
1360 IF A < > 16 THEN GOTO 1400
1370 PRINT : PRINT TAB( 4) "START◊PRINTER
    ◊AND◊PRESS◊ANY◊KEY.◊" ;: GET A$: PR# 1:
    PRINT : GOSUB 1420: PRINT : PR# 0: GOTO
    1330
1400 IF A < 65 OR A > 84 THEN GOTO 1350
1410 A = A - 64: POKE 47084,B(A): POKE
    47085,A(A): CALL 768: RETURN
1420 PRINT SPC( 8) "WIZARDRY◊◊ROSTER" :
    FOR K = 1 TO 32: PRINT "-" ;: NEXT : PRINT :
    FOR K = 1 TO 20 STEP 2: PRINT CHR$ (K +
    64); ".◊" ; LEFT$ (N$(K),12),; CHR$ (K + 65);
    ".◊" ; LEFT$ (N$(K + 1),12): NEXT : RETURN
1440 TEXT : HOME : VTAB 5: HTAB 14: INVERSE
    : PRINT "+◊◊◊◊◊◊◊◊◊◊+" : VTAB 6: HTAB 14:
    PRINT "◊WIZFIX◊2.1◊" : VTAB 7: HTAB 14:
    PRINT "+◊◊◊◊◊◊◊◊◊◊+" : NORMAL : PRINT :
    PRINT : SPEED= 100: SPEED= 250: PRINT "-
    WIZARDRY◊KILLED◊OF◊YOUR◊BEST◊
    FRIENDS?" : FOR K = 1 TO 1200: NEXT :
    PRINT "-YOU◊SAY◊YOUR◊BROTHER◊IS◊
    LOST◊FOREVER?" : FOR K = 1 TO 1200:
    NEXT : PRINT "-YOU'D◊GIVE◊ANYTHING
    ◊FOR◊1◊MORE◊LEVEL?"
1441 FOR K = 1 TO 1200: NEXT : PRINT : PRINT :
    PRINT TAB( 10) "WIZFIX◊IS◊THE◊ANSWER" :
    PRINT TAB( 10) "------" : PRINT : FOR K = 1 TO
    1500: NEXT : PRINT "◊◊MAKE◊A◊BACK-UP◊
    DISK◊OF◊YOUR◊CHARACTERSUSING◊
    THE◊◊WIZARDRY◊◊UTILITIES.◊◊◊WIZFIX
    WILL◊HELP◊YOU◊DO◊ALL◊MANNER◊OF
    ◊MAGICS.◊◊◊◊◊◊◊◊USE◊ONLY◊THE◊
    BACK-UP!!!!!!"
1442 PRINT TAB( 10) "INSERT◊BACK-UP◊DISK.
    ◊" : SPEED= 255: GOSUB 1540: PRINT TAB(
    8) "PRESS◊<RETURN>◊TO◊BEGIN◊" ;: POKE
    - 16368,0: GET A$: IF A$ = CHR$ (13) THEN
    GOTO 1530
1520 HOME : VTAB 11: HTAB (16): PRINT "FARE
    WELL" : PRINT : PRINT : PRINT : PRINT : END
1530 FOR K = 1 TO 20: POKE 47084,B(K): POKE
    47085,A(K): CALL 768:N$(K) = "" : FOR L = 1
    TO 15:N$(K) = N$(K) + CHR$ ( PEEK (D + L)):
    NEXT : NEXT : RETURN
1540 POKE 768,32: POKE 769,227: POKE 770,3:
    POKE 771,76: POKE 772,217: POKE 773,3:
    POKE 47083,0: POKE 47091,0: POKE
    47092,1:D = 38000: POKE 47088,D - INT (D /
    256) * 256: POKE 47089, INT (D / 256): FOR K
    = 1 TO 5: READ R$(K): NEXT : FOR K = 0 TO
    7: READ C$(K): NEXT : FOR K = 0 TO 7: READ
    S$(K): NEXT : FOR K = 1 TO 3: READ O$(K):
    NEXT : FOR K = 1 TO 20: READ B(K),A(K):
    NEXT :T$(0) = "◊" : FOR K = 1 TO 136: READ
    T$(K): NEXT : FOR K = 94 TO 100
1541 T$(K) = T$(K + 36): NEXT : RETURN : DATA
    HUMAN,ELF,DWARF,GNOME,HOBBIT,FIGH
    TER,MAGE,PRIEST,THIEF,BISHOP,SAM
    URAI,LORD,NINJA,OK,AFRAID,ASLEEP,
    PARALYZED,STONED,DEAD,ASHES,LOST◊
    FOREVER,GOOD,NEUTRAL,EVIL
1542 DATA 0,0,0,13,0,11,0,9,0,7,0,5,0,3,0,1,1,0,1,
    13,1,11,1,9,1, 7,1,5,1,3,1,1,2,0,2,13,2,11,2,9◊
    ,LONG◊SWORD,SHORT◊SWORD,ANOINTED
    ◊MACE,ANOINTED◊FLAIL,STAFF,DAGGER,
    SMALL◊SHIELD,L.◊SHIELD,ROBES,LEATER◊
    ARMOR
1543 DATA CHAIN◊MAIL,BREAST◊PLATE,
    PLATE◊MAIL,HELM,DIOS◊POTION,LATUM
    OFIS◊POTION,LONG◊SWORD◊+1,SHORT◊
    SWORD◊+1,MACE◊+1,STAFF◊OF◊MOGREF
1544 DATA KANTINO◊SCROLL,LEATHER◊+1,
    CHAIN◊MAIL◊+1,PLATE◊MAIL◊+1,SHIELD◊
    +1,BREAST◊PLATE◊+1,BADIOS◊SCROLL,
    HALITO◊◊SCROLL,LONG◊SWORD◊-1,SHORT
    ◊SWORD◊-1
1545 DATA MACE◊-1,STAFF◊+2,DRAGON◊
    SLAYER,HELM◊+1,LEATHER◊-1,CHAIN◊-1,
    BREAST◊PLATE◊-1,SHIELD◊-1,JEWELED◊
    AMULET,BADIOS◊SCROLL,SO PIC◊POTION,
    L.◊SWORD◊+2,S.◊SWORD◊+2,MACE◊+2,
    LOMILWA◊SCROLL,DILTO◊SCROLL,COP
    PER◊GLOVES,LEATHER◊+2,CHAIN◊+2,
    PLATE◊MAIL◊+2
1546 DATA SHIELD◊+2,HELM◊+2(EVIL),DIAL◊
    POTION, PORFIC◊RING,WERE◊SLAYER,
    MAGE◊MASHER,MACE◊PRO◊POISON,
    MONTINO◊STAFF,BLADE◊CUSINART', MAN
    IFO◊AMULET
1547 DATA ROD◊OF◊FLAME,EVIL◊CHAIN◊+2,
    NEUT◊P-MAIL◊+2,EVIL◊SHIELD◊+3,MAK
    ANITO◊AMULET,MALOR◊DIADEM,BADIAL◊
    SCROLL,SHORT◊SWORD◊1,DAGGER◊+2,
    MACE◊-2
1548 DATA STAFF◊-2,DAGGER◊OF◊SPEED,
    CURSED◊ROBE,LEATHER◊-2,CHAIN◊-2,
    BREAST◊PLATE◊-2,SHIELD◊-2,CURSED◊
    HELMET,BREAST◊PLATE◊+2,SILVER◊
    GLOVES◊
1549 DATA EVIL◊SWORD◊+3,EVIL◊SSWORD◊
    +3,THIEVES◊DAGGER,BREAST◊PLATE◊+3,
    LORDS◊GARB,MURASAMA◊BLADE,SHU
    RIKEN,CHAIN◊PRO◊FIRE,EVIL◊PLATE◊+3,
    SHIELD◊+3
1550 DATA RING◊OF◊HEALING,RING◊PRO◊UN
    DEAD,DEADLY◊RING,ROD◊OF◊RISING,
    AMULET◊OF◊COVER,ROBE◊+3,WINTER◊
    MITTENS,NCKLCE◊PRO◊MAGIC,STAFF◊
    OF◊LIGHT,LONG◊SWORD◊+5
1551 DATA SWINGING◊SWORD,PRIEST◊PUN
    CHER,PRIEST'S◊MACE,SWINGING ◊SSWO
    RD,RING◊PRO◊FIRE,CURSED◊PLATE◊+1,
    PLATE◊MAIL◊+5,STAFF◊OF◊CURING,RING◊
    OF◊REGEN,METAMORPH◊RING
1552 DATA STONE◊STONE,DREAMER'S◊
    STONE,DAMIEN◊STONE,GREAT◊MAGE◊
    WAND,COIN◊OF◊POWER,STONE◊OF◊
    YOUTH,MIND◊STONE,STONE◊OF◊PIETY,
    BLARNEY◊ STONE,AMULET◊OF◊SKILL
1553 DATA AMULET◊OF◊SKILL,GREAT◊MAGE
    ◊WAND,COIN◊OF◊POWER,STAFF◊OF◊GNIL
    DA, HRATHNIR,KOD◊HELMET,KOD◊SHIELD,
    KOD◊GAUNLETS,KOD◊ARMOR,WERDNA'S
    ◊AMULET,BEAR◊STATUE,FROG,STATUE,
    BRONZ E◊KEY,SILVER◊KEY,GOLD◊KEY,
    BLUE◊RIBBON◊
```

Checksums

```
 2-$9AC9   740-$FD19  1250-$CFE1
 4-$9FB3   750-$46CD  1260-$9BF4
 6-$2D53   760-$D4CB  1270-$3B6C
10-$101A   770-$F94C  1280-$0978
70-$FB87   780-$3CB0  1290-$A8C5
80-$8299   790-$7ED0  1300-$770F
81-$8FD5   800-$BC6D  1320-$19E9
82-$EA21   810-$9ADB  1330-$0931
250-$05A2  820-$8A28  1350-$ACCE
280-$8947  830-$8C51  1360-$32F5
281-$4CB0  831-$19E6  1370-$4811
282-$9F82  920-$E935  1400-$4B02
400-$0E07  930-$7BDA  1410-$5234
410-$3F2D  940-$ACB7  1420-$8620
411-$B5C2  950-$04C7  1440-$E4A3
510-$A27A  960-$9F1C  1441-$BFDE
520-$A0BA  970-$A62E  1442-$33F0
530-$FD2E  980-$09EB  1520-$6968
550-$9019  990-$846F  1530-$937C
560-$3916 1000-$2C49  1540-$B69B
570-$2FDF 1020-$22F6  1541-$DDF8
580-$0DFE 1070-$7D99  1542-$0F48
610-$20C8 1080-$3A25  1543-$7544
620-$E145 1090-$C39B  1544-$1CB4
630-$C6E6 1100-$9C2F  1545-$CDAB
650-$27F1 1110-$D606  1546-$0AAE
660-$2271 1130-$D9EC  1547-$8B14
670-$685E 1140-$FAA1  1548-$5071
680-$A3C6 1150-$9084  1549-$89FF
690-$A993 1160-$1FE2  1550-$46BD
700-$43F3 1170-$8DA5  1551-$BBD6
710-$8B1C 1180-$A6AD  1552-$34BA
720-$633D 1190-$A8FE  1553-$32FD
730-$0D16 1240-$DE8E
```

ALOY CDA

The Ancient Land of Y's Character Revival v1.0

This character reviver will restore your current Hit Points to normal and if you have less then 3,000 Gold pieces then it will change your Gold to 3,000 pcs. I find this very useful when I reach higher levels with lots of Hit Points! To use this CDA, you must create a directory in the system directory of your Backed-up version of the Program Disk. The directory name is "DESK.ACCS". Copy the CDA file named ALOY.CDA to this new directory and every time you play the game, just enter the Control-Desk-Accessory and choose ALOY and answer Y or N to continue or not. The rest is self explanatory. If your Hit Points or Gold does not show up on the screen, be patient. The moment you are attacked or buy something, the screen will reset to the new default settings which we have changed for our gaming purposes.

ALOY.S

```
* Ancient Land Of Y's Editor
* A classic desk accessory
* Vince Andrews 13 MAR 90
* Commercial rights reserved
* Merlin-16 assembler
*
            DATE
            REL
SAVOBJ      KBD   "Save object code? (0=N, 1=Y)"
            DO    SAVOBJ
            DSK   ALOY.L
            FIN
            XC    ;65C02 mode
            XC    ;65816 mode
            EXT   COUT,SENDMSG
            ENT   OUTPUT
* Zero page loc saved and used as well as other locations:
PNT         =     $E0     ;Also E1,2,3
KYBD        =     $E0C000
STROBE      =     $E0C010
HP          =     $0171E4
HPP         =     $0171E6
GOLD        =     $0171EE
PRINT       MAC
            JSR   SENDMSG
            ASC   ]1
            BRK
            <<<
*
* Required stuff of all CDA's:
* The string is what goes on the
* Control panel listing.
*
BEGIN       STR   'ALOY Editor'
            ADRL  START   ;Entry point address
            ADRL  EXIT    ;Exit "routine" address
                          ;(just an RTL).
            MX    %00     ;Enters in full 16-bit mode
                          ;so better tell asm that.
*
* Entry point when selected from Control panel:
*
START       PHB           ;Save current data bank
            PHK           ;Get our bank
            PLB           ;and set data bank to it
            PEI   PNT     ;Save the 4 zp locs we use
            PEI   PNT+2   ;and zero the bank byte for
            STZ   PNT+2   ;long addressing
*
* Continue with the program
*
            SEP   %00110000;8-bit mode
TITLE       PRINT 8C8D
            PRINT "          The Ancient Land of
                  Y's"8D8D
            PRINT "          Character Revival
                  v1.0"8D8D
            PRINT "          by Vincent Andrews 9
                  MAR 90"8D8D8D
            LDY   #80
]LUP        LDA   #"_"    ;Routine used to print
            JSR   COUT    ;a straight line across
            DEY           ;the screen
            BNE   ]LUP
            PRINT 8D" Ancient Land of Y's MUST be
                  present in"
            PRINT " memory, if it is not, I am NOT" 8D
                  8D
            PRINT " responsible for the results to your"
            PRINT " system!"8D8D
            PRINT " This CDA will restore HP to its
                  maximum"
            PRINT " and change your GOLD to 3,000
                  pcs or more."8D
            LDY   #80
]LUP        LDA   #"_" ;Routine used to print
            JSR   COUT    ;a straight line across
            DEY           ;the screen.
            BNE   ]LUP
            PRINT 8D8D
            PRINT " Do you want to continue? (Y or
                  N)"8D8D
]GETKEY     LDAL  KYBD
            BPL   ]GETKEY
            STAL  STROBE
            CMP   #"Y"
            BEQ   CONTINUE
            CMP   #"y"
            BEQ   CONTINUE
*
* This is the QUIT ROUTINE
*
QUIT        REP   %00110000;16-bit mode
            PLB           ;Restore data bank to
                          original
            PLA
            STA   PNT+2
            PLA
            STA   PNT
EXIT        RTL
OUTPUT      JMP   COUT
CONTINUE    PRINT 8C8D8D" Restoring Hit Points to
                  normal...."8D8D
            LDAL  HP
            STAL  HPP
            LDAL  HP+1
            STAL  HPP+1
            PRINT " Comparing GOLD to 3,000 pcs or
                  greater...."8D8D
            SEP   $30     ;8-bit mode
CHK1        LDAL  GOLD+1
            CMP   #$0B    ;Compare to Hi-value
            BCC   ]LESS
            BEQ   CHK2    ;If equals to then CHK2
            BCS   ]GREATER
CHK2        LDAL  GOLD
            CMP   #$B8    ;Compare to Lo-value
            BCC   ]LESS
            BEQ   ]GREATER ;If equals to or
            BCS   ]GREATER ;Greater then, goto
                          GREATER
]GREATER    PRINT 8D"You already have 3,000 GOLD
                  pcs or more."8D8D
            JMP   DONE
]LESS       PRINT " Changing GOLD to 3,000
                  pcs...."8D8D8D
            LDA   #$B8    ;Load Lo-value
            STAL  GOLD    ;save it.
            LDA   #$0B    ;Load Hi-value
            STAL  GOLD+1 save it.
            REP   $30     ;16-bit mode
DONE        PRINT " Character is healed to normal Hit
                  Points and "
            PRINT "now have 3,000 GOLD pcs or
                  more."8D
            PRINT 8D" Press any key to continue."8D
]GETKEY     LDAL  KYBD    ;This routine is to:
            BPL   ]GETKEY
            STAL  STROBE;<Press any key to
                  continue>
            JMP   QUIT
CHKSUM      CHK
```

Gary Wills — Canada

Softkey for...

Omega

Origin

Requirements:
Any Apple (64K or greater)
COPYA

Omega is a simulation in which you create a tank. Using an "almost Basic" type language, you program your machine with its own AI. Similarly, you must build the body using a basic number of Hardware Credits. Each time that you earn a promotion by defeating a tank selected by the program, your Credits increase. Naturally you are able to improve the Hardware Design of your vehicle.

Up to 15 tanks may compete in any given simulation. The battlegrounds may be created, also. Tanks may be sent via modem to another computer to compete. Intelligence Capsules are included to aid beginners in designing the "brain" of the machine.

Omega comes on 2 5 1/4" disks (a 3rd is required as the data disk). The System side is protected but the other 3 sides are not. It requires only 64K!

Using a sector editor, it becomes apparent that the ODD numbered tracks have an altered Address Marker. Instead of D5 AA 96, they are D4 AA 96.

1. Boot your DOS 3.3 System Master.

```
RUN COPYA
ctrl reset                press at the menu
POKE 47444,41             ignore altered Addr Marks
POKE 47445,0              on System side of Disk 1
70
RUN
```

2. Copy the System disk (Front side of one disk).

3. Copy the remaining sides using any quick copy method.

Ⓠ Is there any way to put ALL of Omega onto a 3.5" disk? Space is not a factor. Prefixes are.

Bruce Menard _____ ID

Playing Tip for...

Dungeon Master

?

Here are a few things I have found out about this game:

Play the kids dungeon until you become accustomed to the way the game works and experiment with the different weapons, characters and spells.

Watch your weight. If your weight is in the yellow, you will lose stamina points, consume food faster and move slower.

When about to rest, cast the remainder of your spells anyway. This will give you credit towards making levels.

Save your real food and eat what you find along the way. Real food replenishes you much more than worm rounds or screamer slices.

Before attempting a trap or problem, SAVE, work on it until you figure it out or get bored with it then restart and solve it or move on.

This really saves on food and water. Do this with keys and rooms to determine if the items within are needed for your party.

When in King Millias's chamber, try flipping a gold coin.

In the room with the pit, floor switches, wall switch and teleporter, face the wall switch, flip it down (teleporter ON), flip it up and back up one space, quickly. This will teleport you to the green switch, press it and walk along the left wall and get the key. I figured this out after moving further down in the dungeon and saved, then checked the contents of the remaining two rooms. Both contained green magic boxes so I saved the key and went back down to where I was, knowing they were there if needed. I used the screamer room as my storage room, periodically coming back for food and to leave off more items.

Scroll List: write down the spells and leave scrolls. Pick your own power.

YA	= stamina potion	- Priest (flask)
ZO	= opens doors	- Wizard
VI	= healing potion	- Priest (flask)
VI BRO	= cure poison	- Priest (flask)
DES EW	= weakens undeads	- Wizard
YA BRO	= magic shield	- Priest
FUL IR	= big fireball	- Wizard
DES VEN	= poison ball	- Wizard
ZO VEN	= poison bomb	- Wizard (flask)
OH VEN	= poison cloud	- Wizard
OH KATH RA	= lightning bolt	- Wizard
OH IR RA	= light	- ?
FUL BRO NETA	= fire shield	- Priest
DES IR SAR	= darkness	- ?
FUL BRO KU	= strength potion	- ? (flask)
OH BRO ROS	= dexterity potion	- ? (flask)
YA BRO DAIN	= wisdom potion	- ? (flask)
YA BRO NETA	= vitality potion	- ? (flask)
YA BRO ROS	= magic footprints	- Wizard
FUL	= dungeon light	

Table1 is the list of potential party members and their attributes. This should have been included with the game.

Groucho _____ PA

Playing Tip for...

Planetfall
Stationfall

Infocom

I first played Planetfall many moons ago. With the help of a friend, I managed to beat it. Stationfall took a whopping three days of intense crunching, but eventually fell also. I have to admit, though, that I thought Stationfall was a bit easier than Planetfall, still as much fun, but easier.

Since some of you may have had problems with some of the tougher puzzles, I thought I'd pass along some pointed but not too specific hints. If you want exact solutions, drop me a line (my address is at the end of the letter).

First, some hints for Planetfall, the first in the series:

- Check all the cracks and crevices for goodies.
- Suspension bridges and extension ladders may have things in common.
- Fluids and lights should be color coordinated.
- Pliers help you get a grip on sticky parts.
- Tell Floyd not to stay out of doors.
- Don't forget to take your medicine.
- Check out that cube!
- Watch that laser battery.
- Go through others' pockets.
- Use outputs as inputs.
- Color coordinate light beams and relays.
- Microbes like hot stuff, they'll follow it anywhere...and nowhere...

I have the full 80-point solution in a more or less step-by-step fashion, or can give you the solution to specific problems, just drop me a line.

As for Stationfall, here are some useful clues to getting the whole 80 points:

- Glass objects like to come together fast and hard.
- It helps to read others' diaries and mail.
- Follow all instructions to the letter or they may not work at all.
- When going for a spacewalk, don't forget your walking shoes and headgear.
- Safecrackers usually drill medium sized holes for their explosives.
- When it comes to heavily locked boxes, remember old westerns and TV cops opening doors.
- A little nip will make it easier to reach that hard to get timer.
- Trash cans are not all that disgusting.
- Remember Vanna White when it comes to places where you could win big money.
- Read where the forklift lands VERY closely, and use that information against it!
- Watch out for those welders, they'd like to keep your attention riveted.
- And watch Floyd closely.

Stationfall likes to confuse you by filling your world with lots of useless objects, like 12-prong Fromitz boards, platinum detectors, dice, assignment completion forms, empty survival kits, exercise machines, semi-eternal flames, holes in the wall, full cups of coffee, sleepy robots, empty trash cans, clothes dryers, and projection booths...to name a few. A couple of items have more than one use. Like the zapgun.

I'm far from an expert, but would be willing to help anyone solve a troublesome piece of Infocom fiction. I also know a bit about 2400 A.D., and some others. Feel free to drop me a line. My address is:

P.O. Box 200-X
Sewickley, PA 15143-0600

Leo & Eric Van Der Loo Canada

Advanced Playing Technique for...

Pharaoh's Revenge

?

You can give yourself more than the 6 ladders you get normally, if you can get in the monitor change address $1693 from $06 to anything up to $FF or if your game is different look for E9 06 85 0F A9 06 and change the last 06 (change it on a backup copy) to the number of ladders that you want. I found it on track $03, sector $03, byte $93.

Jay C Hubschman _____ NJ

Rather than go blind trying to read the copy protected manuals that are currently being issued by several software companies, the following should yield a photo-copyable page.

Take the software manual to any local printer and have them shoot a paper plate (with their Itek or 3M camera) of the pages you wish to copy. Have them shoot the page using a normal F/stop but an exposure time of approximately 60 seconds.

What you will receive is a paper plate which has the background purple color washed out, but has enough black so that it may be copied by a standard photocopier. Do not be concerned that the plate itself is purple. The F/stop and exposure times are approximate and may have to be adjusted for the camera being used. The photo copier may have to be set for a light copy.

The cost of this plate is about 25 cents so the printer should charge you no more that a few dollars for his trouble.

If you have any problems contact me via RDEX.

David Caddell _____ MA

Bitkey for...

Math Blaster Plus 3.5"
Word Attack Plus 3.5"

?

Requirements:
Copy II+ ver 8 or later

To make a bitcopy of either program you can:

1. create your own parm entry

2.1 use the parm entry for music construction set.

To make your own you will need to select create a parm entry. Type the name of the program, the publisher (optional), then in the parameter portion of the entry type:

```
Sector copy
t20-21, KEEP
```

Save the parm entry and you're ready to use it. select auto copy and you are ready to go. Error 6's on track 20 or 21 is ok so is an error 2 on track 22.

Marc Venneman _____ KY

Softkey for...

Great Western Shootout

Britannica Software

Requirements:
Apple IIgs
3.5" Disk copier
3.5" Block editor

Copy disk with disk copier. You will get a bad block error on on block $63F. Using your block editor, make the following changes.

Blk	Byte	From	To
$596	$1B-1C	B0 1D	18 EA
	$2F-30	D0 08	EA EA

Advanced Playing Technique for...

Heavy Barrel

Data East

For unlimited men make the following edit to a copy.

Trk	Sct	Byte	From	To
$07	$0F	$71-73	CE 13 FF	EA EA EA

Steven T. Romanoski _____ MI

Ⓠ Help! My kids are about to lynch me! It seems that even with a tremendous amount of effort, I still have been unable to deprotect my kids' Weekly Reader software (i.e. Stickybear series). I have purchased many back issues of your magazine in an attempt to duplicate what other readers have done to remove the copy protection. However, I seem to be purchasing the wrong issues, since each will make a comment about another user's method (or worse, will utilize the steps in another issue simply by saying "Step 1: Follow John Smith's softkey.....). A good example is the Stickybear Series softkeys by Ralph Augenfeld in Computist #51.

Quite frankly, I am afraid to purchase any more back issues in order to continue this pursuit. Can you positively identify where I can find the right softkey? I have Stickybear ABC, Numbers, Reading, Math and Reading Comprehension.

Ⓠ What kind of protection does Sierra Online utilize. My daughter received Mixed-Up Mother Goose for Christmas and while it can be backed up with Copy II+ using bit copy mode and default parameters, it would be nice to load it into my Applied Engineering Ramfactor. This would hopefully speed up the response time since there is disk access every time the game character changes scenes.

Two notes of constructive criticism. First, reprint the entire softkey when it is submitted with references to other softkeys. This would minimize the frustration for "virgin" Computists. Second, your magazine is terrific but I agree with Paul Johnson that the present format is fragile (the mail service here in Ferndale is incredibly poor). Perhaps a format similar to A2 Central could be utilized. This would permit easy storage of the individual issues, and maybe a yearly cross-reference could be developed (I would be interested in helping).

You can't be serious! A2 Central is 8 pages of compressed type printed on 2 - 11" by 17" sheets. That's the same as 4 of our tabloid pages. Do you really want us to send you 4 pages ,instead of 24-40 pages, each month? If I compressed our smallest (24 page) issue onto 4 pages, you would need a magnifying glass to read the type.

Sorry, A2 Central and COMPUTIST are two similar publications but we each handle our content differently. We print your letters (on any computer related topic) and if there are questions, we allow our readers to answer them (though we sometimes answer your questions ourselves). A2 Central answers your questions directly and sometimes print letters that they can't answer so that their readers can take a shot at answering them. They also print informational letters.

As to reprinting sections of referenced softkeys in previous issues. We do that sometimes when the referenced section is small. But there's a lot of new material that I need to get printed and I usually give priority to new info. If you are having problems with a particular program or series, there is another way to get the data from the back issues. Call or write to Karen and ask for the "Data pages" on that title. It costs $1 (for 1st Class postage and enve-

Table 1

	Strength	Dexterity	Wisdom	Vitality	Anti-Magic	Anti-Fire	Health	Stamina	Magic	Items	
Iado	43	55	40	45	45	50	48	65	11	(No Item)	Apprentice Fighter, Novice Priest
Zed Duke of Ban	40	40	40	50	40	40	60	60	10	Armor	Novice Fighter-Wizard-Priest-Ninja
Elija	42	40	42	36	53	40	60	58	22	Magic Box	Novice Fighter, Apprentice Priest
Gando Thurfoot	39	45	47	33	48	43	39	63	26	Poison Darts	Apprentice Ninja, Novice Wizard
Alexander	44	55	45	40	35	40	50	57	13	Sling	Novice Wizard, Apprentice Ninja
Sonja	54	45	39	49	40	40	65	70	2	Sword	Journeyman Fighter
Boris	35	45	55	40	45	40	35	65	28	Rabbits Foot	Novice Ninja, Apprentice Wizard
Lelya	40	53	45	47	45	35	48	60	3	Rope	Journeyman Ninja
Linflas	45	45	47	35	50	35	65	50	12	Bow	Apprentice Fighter, Novice Wizard
Nabi Profit	41	36	45	45	55	55	55	65	15	Staff	Apprentice Priest, Novice Wizard
Syra	38	35	43	45	42	40	53	72	15	(No Item)	Apprentice Wizard, Novice Priest
Halk Barbarian	55	43	30	46	38	38	40	75	0	Club / Helm	Journeyman Fighter
Azizi Johari	47	48	42	45	30	35	60	77	7	Shield / Dagger	(Miss December 1976) Novice Fighter, Apprentice Ninja
Mophus Healer	42	35	40	48	40	45	55	55	19	(No Item)	Journeyman Healer
Hawk	45	35	38	55	35	35	70	85	10	Arrows	Novice Fighter, Apprentice Priest
Chani	37	47	57	37	47	37	47	67	20	Moonstone	Novice Fighter, Apprentice Wizard
Wuuf Bika	33	57	45	40	35	40	40	50	30	Flask	Apprentice Ninja, Novice Priest
Stamm Bladcast	52	43	35	50	35	55	75	80	0	Axe	Journeyman Fighter
Leif Valient	46	40	39	50	45	45	75	70	7	(No Item)	Apprentice Fighter, Novice Priest
Daroou	50	30	35	45	30	45	100	65	6	(No Item)	Apprentice Fighter, Neophite Wizard
Tiggy Tamal	30	45	50	35	59	40	25	45	36	Wand	Novice Ninja, Apprentice Wizard
Wu Tse	38	35	53	45	47	40	45	47	20	Throwing Stars	Novice Ninja, Apprentice Priest
Hissssa	58	48	35	35	43	55	90	61	5	(No Item)	Apprentice Fighter, Novice Ninja
Gothmog	40	43	48	34	50	59	60	55	18	Cloak of Night	Journeyman Wizard

It costs $1 (for 1st Class postage and envelope) plus 10 cents per copied page. Karen will use an index to find all the references to your problem title and copy just those pages. It's a good way to get the data you want, especially if you don't need the entire issue.

James J. Harvey _____ MI

Softkey for...

The Pace Writing Program "Success With Writing"

Scholastic Software

Requirements:
Apple IIe, IIc, IIGS (128K required)

This program helps young people with all phrases of writing - from generating ideas and outlines to writing and editing final drafts. The program is composed of four integrated modules. They are Prewrite, Arrange, Compose, and Evaluate/Edit.

The "Main Program Startup" on side 1 is copy protected, and so is side 1 of the "Evaluate/Edit" disk. Side 2 of both of these disks as well as both sides of the "Teacher Utility" disk may be straight copied since they are not copy protected.

The copy protection consists of altered address trailers and address prologs of D5 AA 96 on the even tracks and D4 AA 96 on the odd tracks.

1. Boot DOS 3.3 System Master and use COPYA to copy side one of the "Main Program Startup" disk and side one of the "Evaluate/Edit" disk.

```
CALL -151
B954:29 00
B989:18 60
3D0G
RUN COPYA
```

That's it. Sector editing is not necessary. You now have a deprotected copy of "Success With Writing."

Softkey for...

Greek Mythology

Teach Yourself by Computer Software

Requirements:
Apple IIe, IIc, IIGS
Copy II Plus

Disk 1 & 2 introduces the Olympian Gods of Greek History. It is a full-color tutorial with graphics and animation. Deprotecting this program was not too difficult. Just do the following:

1. Boot a DOS 3.3 System Master disk and use COPYA to copy both of the original programs.

```
POKE 47426,24   Ignore checksum & epilog errors
RUN COPYA
```

2. Boot Copy II Plus (Any Version) or your favorite sector editor and sector edit as follows:

Trk	Sct	Byte	From	To
$00	$03	$42	38	18

That's it. You now have a deprotected copy.

Softkey for...

Talking Text Library

Scholastic

Requirements:
Apple IIe, IIc, IIGS

An ECHO or Cricket Speech Synthesizer is required by the program. Plug the ECHO+ card in any slot but 6 for an Apple IIe. If you are using an Apple IIc, plug the Cricket into the modem port.

The Talking Text Library package includes a Library Read disk and a Story disk. The program features a number of classic folk tales, fables, and fairy tales.

The Library Read disk is copy protected but not the Story disk. The copy protection is the same as an unnamed subscriber stated in issue #56 for the "Talking Text Writer" program. The only difference is that the codes are in a different location on the disk.

1. Use any fast copier like Locksmith 6.0 and copy the Library Read disk.
2. Boot Copy II Plus (any version) or your favorite sector editor and scan for 00 B0 00 BD 89 C0 A9 56. On my copy these bytes were found on track $20, sector $03. Change the BD to 60.

Trk	Sct	Byte	From	To
$20	$03	$9B	BD	60

The story disk is not protected and may be straight copied.

Softkey for...

Math Blaster Plus

Davidson & Associates, Inc

Requirements:
For the IIe, IIc, IIGS

This program is much better than the original Math Blaster program. It uses a mouse and/or the keyboard. Activities range from addition through fractions, and there are six stages of difficulty for each activity. Records may be kept and printed.

I tried to use the crack for this program from issue #68 but my version of Math Blaster is entirely different than the one mentioned. So here is my solution to the problem.

Only side one of the Math Blaster Plus disk is copy protected.

For side one of the original program; use any copy program that will allow you to copy only tracks $00 through $21. Straight copy the whole disk on side two.

Or you can use Locksmith Fast Copy, or any copy program that will ignore the error on track $22 on side one, and copy both sides of the disk. Use any method available and delete track $22 from side one.

That's all there is to it. You now have a deprotected copy of Math Blaster Plus.

Softkey for...

European Nations and Locations
States and Traits
The Grammar Examiner
Mission Algebra
Spellagraph
Math Maze
The Body Transparent

Designware

All of the above programs may be cracked using the softkey printed in Computist #52, pg 16.

1. Use Locksmith Fast Copy and copy the disk.
2. Use Copy II Plus to scan for A9 38 8D 9E B9 and change to EA EA EA EA EA. I found these bytes on track $00, sector $03.

Trk	Sct	Byte	From	To
$00	$03	$9C-A0	A9 38 8D 9E B9	EA EA EA EA EA

3. Write the changes back to your copy.

Softkey for...

Individualized Study Master

Random House

This program consists of a Master Program Disk and a Master Data Disk. These components are used to create 'study masters' listing specific information. The program then uses each 'study master' to create four different types of study guides and seven different types of worksheets. Only the Master Program Disk is copy protected.

1. Boot a DOS 3.3 System Master disk and use COPYA to copy the program master disk.

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

2. Sector edit the following:

Trk	Sct	Byte	From	To
$00	$03	$42	38	18

3. Write the change back to your copy.

Softkey for...

Find the Pattern
Choose the Operation
Problem Solving Inc. or PC INC.

Contemporary Perspectives, Inc.

Programs by this company deal with critical thinking skills, mathematical reasoning abilities, and creative strategies for solving problems. The program also has a teacher manager section which allows record keeping of student files.

1. Boot a DOS 3.3 System Master disk and use COPYA to copy the disk.

```
CALL-151                enter monitor
B954:29 00              ignore first prolog byte
B989:18 60              ignore epilog errors
3D0G                    return to BASIC
RUN COPYA
```

That's it. Nothing else is required. You now have a deprotected copy.

Softkey for...

The Writer's Assistant - Interactive Writing Tools

Encyclopaedia Britannica Educational Corp.

This system helps to organize, enter, refine, and print outlines, reports, stories, notes, and letters. The total system consists of The Writer's Assistant System Disk, a Text File Disk, and Writing Tool Disks which are listed as follows: Narrative Writing, Expository Writing, Poetry, News Computer Chronicles, Business Letter, and Friendly Letter. All of the disks except the Text File Disk are protected in the same manner.

1. Boot a DOS 3.3 System Master disk and use COPYA to copy both sides of all of the original disks (There are a total of 8 disks).

```
POKE 47426,24   ignore checksum & epilog errors
```

2. Boot copy II Plus or your favorite sector editor and sector edit the following.

Trk	Sct	Byte	From	To
$00	$0E	$F8	38	18

If this byte ($38) is not found at $F8 on Trk $00, Sct $0E on your copies, then scan for F0 5C 38 60 A0 and make the change wherever this code is found. It will only appear once. That's it. Your programs are now deprotected.

Edison _____ NE

One day I took my computer to a friend's house snickering about his Apple II+ with 64k, no Double-HIRES, and no chance of borrowing a third of my software. WHAM!! He hit me with not one but two pieces of software that claim 128k but use only 64k!! One was Top Fuel Eliminator by Activision, the other is:

Softkey for...

Gamma Force

Infocom

Requirements:
Disk Copy Program
Sector copier

I saw this program on the most wanted list, so here's what I found. First and most importantly it only needs 64K to run. Since this disk copied with COPYA then hung, I decided to trace the BOOT with my Laser 128's 'absolute reset'. I trace by executing each branch, subroutine, or jump until I locate a reboot routine or endless loop. Unfortunately it doesn't always work, however in this case it worked like a charm. I found a JSR at $96C to $4100, the disk check routine. So, in a nutshell, scan for 20 00 41 and change it to EA EA EA. There were two of these JSRs on this infocomic.

Trk	Sct	Byte	From	To
$00	$09	$6C	20 00 41	EA EA EA
$03	$0E	$6C	20 00 41	EA EA EA

Here's a few bytes of the protection.

```
BD 89 C0    LDA  $C089,X
A9 56       LDA  #$56
85 F1       STA  $F1
```

Softkey for...

Arkanoid

Taito

Requirements:
Disk Copier
Sector Editor

Copy this disk with any copier. Now search for any disk access other than the load routine in track zero. (hint: search for $8C C0) I found that very thing around track $20. From here on out only YOUR knowledge of assembly language will help.

Edit track $20, sector $00 from D0 03 to EA EA. That's it.

Playing Tip for...

Arkanoid

Taito

I was wandering through the code for this game looking for a way to increase lives when I happened across a 'get key' routine looking for a **ctrl ^**. (Ctrl-Shift N on the II+) After a few experiments I discovered if you hit this sequence after the main menu when the story is being printed, the printing stops and expects two numeric keypresses between 01 and 32, this selects what level to start on.

Advanced Playing Technique for...

Arkanoid

Taito

If you think you still need more lives the edit below will help some.

Trk	Sct	Byte	From	To
$01	$01	$7C	85 84 85 85 A9 03	85 85 A9 03 85 D8
			85 D8 85 D9 A9 10	85 D9 A9 10 85 D4

Softkey for...

Force 7

Datasoft

Requirements:
128K To play the game
Disk Copy Program
Sector Editor

The first thing I always do is try to copy a disk, in this case it was quite cooperative. Now to BOOT the disk and see if it goes. The disk hung with the message "PLEASE USE ORIGINAL". Aha! I fired up COPY II+ and scanned for "PL". While looking at the sector that contained the message, I found an endless loop causing it to hang. I put a RTS over it and rebooted. It printed the message and continued loading! GREAT! But I don't like that message printing every time the disk BOOTs. Deciding the print routine resided at $1E00 I scanned for 00 1E (address in lo-hi order). It was on track $01, sector $0F, byte $6D-6E in the form of a JuMP ($4C).

1. Copy the disk your favorite way.

Trk	Sct	Byte	From	To
$01	$0F	$6C-6E	4C 00 1E	60 EA EA

Esc Key Patch for $100,000 Pyramid

That friend I mentioned earlier purchased the $100,000 Pyramid by Box Office only to discover the Delete key is required by the game to pass your turn. His Apple II+ has no delete key, so he asked me to modify it. All you have to do is scan for C9 FF and change it to C9 9B so you use the esc key instead. These bytes were found exactly in the same spots on BOTH sides.

Trk	Sct	Byte	From	To
$04	$03	$35	C9 FF	C9 9B
	$08	$9E	C9 FF	C9 9B
$05	$01	$89	C9 FF	C9 9B
$06	$09	$A4	C9 FF	C9 9B
$09	$0E	$56	C9 FF	C9 9B
$20	$07	$E1	C9 FF	C9 9B

Remember, never modify an original!

Softkey for...

Galaxian

Thunder Mountain

Requirements:
Apple II
48K slave disk

1. Boot a DOS 3.3 disk (a fast DOS is preferable) and initialize a slave disk.

```
INIT HELLO
DELETE HELLO
```

2. To capture the second half of Galaxian. Boot the Galaxian original and press ctrl C at the "]" prompt.

```
LIST
9                                   don't show pic
11CALL-151                          enter monitor after loading first half
RUN
```

3. Place the slave disk in the drive.

```
6 ctrl P
BSAVE GAL2, A$4800, L$4800
BSAVE TM, A$2000, L$2000
```

4. To get the first half, boot Galaxian and press ctrl C at the "]" Prompt.

```
9                                   same as before
20?CHR$(4)"BLOADGALAXIAN1,A$2000"
30CALL-151
RUN
```

5. Insert the slave disk.

```
6 ctrl P                            to boot
```

6. Now move it where it belongs, load the second half and the picture to save it all as one file.

```
CALL-151
800<2000.6000M
BLOAD GAL2
BLOAD TM
850: 20 0C FD
A964:FF
BSAVE GALAXIAN,A$800,L$8800
```

Galaxian is now BRUN-able and the only noticeable change is you must press a key before the copyright screen clears.

Softkey for...

Ultima Trilogy

Origin

Requirements:
COPYA

This is for Ultima I & II.

1. Boot DOS 3.3 then type:

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

That's it for those two.

Ultima III requires the softkey from issue #11 pg27 by Tim Schaap. I would have retyped it, but I think Computist deserves $5 for allowing you to back it up.

Note on Boot Tracing on a Laser 128

I remember someone quite a while back complaining that it's not possible to boot trace on his Laser 128. I'm here to tell ya there's always a way. I 'borrowed' the original boot code from an Apple][Disk Controller card. I then load it into $9600 of my laser, modify it like many boot traces require, and always come out the winner.

Anyone with questions feel free to contact me through Computist. I'll help if I can. I'd also be interested in hearing from other Computists in the Sioux City Iowa or Omaha Nebraska area.

Joe Oliver _____ AZ

Comments on Copy II Plus v9.0

I finally received my copy of Copy II Plus v9.0. Here are my comments in a nutshell:

New Options:

- Create/Edit a list of applications that can be launched from C2+, which will return you to C2+ when you finish
- Compare files (- this was an option on the older DOS 3.3 versions)
- Use a mouse to choose options
- Set mouse scale and printer slot (permanent)

Pluses/Improvements:

• Better memory utilization - less disk swapping

• Sort catalog (in your own order)

• Mouse or Single-Key press option selection

• When viewing files you can switch between subdirectories without going to the main menu each time

• High speed interleave (2:1) format for the // gs 3.5" drive

• When printing a DOS 3.3 catalog, hidden characters show up as lower-case

• You can install your own ProDOS quit code!

Problems:

• The catalog sort option has given some people problems. According to some on the National Apple Echo, the sort has corrupted file pointers in their catalogs, causing them to lose the files on their hard disks. (gasp!)

• Some applications will not run after C2+ v9.0. ProTERM is one of them. It has been reported that the system can lock up, and the modem can lock up so you have to reboot. I've noticed that I have to power down my modem after using C2+ v9.0 before booting ProTERM, or it won't initialize the modem.

• Some disks formatted ProDOS will not boot ProDOS even when the file has been copied onto the disk. Even so, ProDOS boots fine when run from a launcher.

Dislikes:

• C2+ kept the same basic menu in V9.0, only adding the new options an the single keystroke character to choose the menu options. To me, this makes the menu look crowded and less friendly.

• When you copy a file it changes the CREATED date of the file to the current date on the system. (It doesn't change the MODIFIED date.)

• C2+ still uses only 40 columns for viewing files.

• It can still take more than 1 pass to copy a single file. (It can copy an entire 5.25" disk in one pass.)

• When formatting disks - it should have the option to format more than one without having to go back to the main menu every time.

• So far I haven't found any routine that uses the auto-eject for my 3.5" drive.

Comments:

Copy II Plus v9.0 looks like an excellent utility. I've used C2+ for years as my main disk/file utility program. I like the new options available and am glad for the improvements. (But, until I can quit worrying about the catalog corruption, I won't be using the sort option!)

I've always found the manual to be very comprehensive. It is organized in a very straightforward, logical manor - providing easy access of information to the more advanced user, and step by step instruction for the beginner. Not only does it provide instruction for the program itself, but also offers suggestions for when you are having problems, explanations as to why things do and don't work, parameter summaries, number conversion tables, ProDOS error codes and more. I even like the cover layout and colors!

To sum up, I like the new version of Copy II Plus. But, with its problems I won't be so free to use it as I have before. I've still my v8.3 handy to use on the fly when I'm flipping back and forth between programs. Once the bugs are fixed, v9.0 will take its place as one of my main utilities.

Thomas Crean _____ NE

Does anyone know how to put either Zany Golf (gs) or BattleChess (gs) onto a hard drive?

[redacted] End

A Public Service Message for Apple II Users

Apple Infinitum

"Editor's note: II Infinitum is a campaign coordinated by Jerry Fellows to focus attention on the Apple II and to give Apple unmistakable proof that there is still much interest in the Apple II. Your letters to Apple and to the Wall Street Journal can make a difference in the future of the Apple II. The 8/16 editors fully support this campaign, just because it makes a lot of sense." Jerry Kindall (8/16 Magazine)

February 1, 1990

To the members of the Apple II community:

This year could mark a historic turning point for the Apple II, if you help. We are asking you to voice your support for the Apple II, to convince Apple Computer that the Apple II is worth further investment.

Despite all the rumors regarding its imminent death, the Apple II remains with us, alive and improving. The Apple II community has, in many respects, been thrust backward into the days of semi-obscurity and grass-roots survival. However, Apple Computer is currently revitalizing its Apple II marketing and development strategies. With the effort comes the hope of a grand rebirth for the Apple II platform.

II Infinitum is a letter-writing campaign encouraging members of the Apple II community to speak out now! We want you to write not only John Scully at Apple Computer, Inc., but also to the Wall Street Journal. We hope that if the Journal receives enough letters, they will be motivated to publish an article on our efforts. This will allow us to reach the Apple stockholders, who have the clout that we need to support our efforts.

In addition, we urge you to distribute this letter to other members of the Apple II community, so that even more voices will be added to this cause. Listed on the following page are some guidelines that we recommend using when writing your letter. The addresses of John Scully and the Wall Street Journal, as well as others we encourage you to contact, are listed after that.

Please take this opportunity to support the Apple II...only by combining our efforts can we achieve success.

Apple II Forever!

Recommended Guidelines:

- Keep your letter businesslike and to the point - no more than one neatly typed or laser-printed page if possible.

- Avoid form letters or petitions; individual, personal letters have a much greater impact. Of course, you can write a single letter, then personalize it for each person you write to.

- Include relevant personal information: perhaps discuss how long you have used the Apple II, the types of applications you use now or would like to use in the future, the direction you would like to see Apple take in developing, marketing and supporting the line, etc.

- Avoid negative or derogatory remarks. Focus on the positive and look toward the future.

- Be sure to close your letters by thanking the reader for his time.

- Mail your letters in a standard legal-size envelope which looks businesslike.

- Mail your letters with a return receipt request if you can afford it.

Names and Addresses:

Apple Computer Inc
John Scully
President and CEO
Mariani Avenue
Cupertino, CA 95014

The Wall Street Journal
Robert L Bartley Editor
200 Liberty Street 20525
New York, NY 10281

InCider Magazine
80 Elm Street
Peterborough, NH 03458

Nibble Magazine
52 Domino Drive
Concord MA 01742

The following are individuals at Apple Computer, Inc. to whom you may consider writing for greater effect (Write to them at the same address as John Scully.)

Michael H. Spindler
Senior VP and president
Apple USA

Bernard Gifford
Vice President
Education
Apple USA

Randall S. Battat
Vice President
Product Marketing: Apple Products

David Hancock Senior Vice President
Marketing
Apple USA

Morris Taradalsky Vice President
Customer Service and Information Technology
Apple USA

Ian Diery Senior
Vice President and President
Apple Pacific

IBM RDEX IBM RDEX IBM RDEX

Marc Batchelor _____

IBM Softkey for...

Motocross

Gamestar

Requirements:
MS-DOS 2.1 or later
Copy of Motocross Disk
DEBUG

Motocross by Gamestar is a BMX simulation/game. It is well laid out and offers a plethora of options for customization. The protection use is similar to many being found in both the Apple and IBM world. I refer to it as a "manual" protection however, Brian Troha has coined a much better word. Pirate protection. The documentation states:

After you load Motocross and press Enter to begin playing, a picture of a Motocross track appears on the screen along with a question about that track... If you answer incorrectly, you get to try again on a second question. If you miss this one, you'll be allowed to race one practice lap, then the game shuts down, bringing you back to DOS.

This is truly a pain in the tush. Especially if you are already familiar with the game controls and have no other need to have the documentation handy but to answer a stupid question. I personally don't like my desk top cluttered with manuals and users guides. Further, it is kind of insulting to be told that I don't quality if I happen to blow both questions (not difficult to do!).

How I found It

I started out by searching all of bank one for Interrupt 21's. INT 21's are calls to MS-DOS. These calls perform functions such as opening and closing files, memory management, obtaining keyboard input, and other I/O. Most pirate protections utilize INTerrupt 21 function 7 for character input. Searching and documenting all 64 INT 21's in bank one was a hideous ordeal. But, there was only one INT 21 function 7. This turned out to be at $A218. $A218 is part of a subroutine that begins at $A204. Armed with this information, I dissassembled all of bank one to a file, and searched it for CALL A204. I found occurrences at $9DD3 and $9EEB. I found that if I played around with the routine at $9DD3, the program would no longer obtain input, but would cycle twice through the answer phase as if I had typed in a wrong answer. This routine actually begins at $9DAA, so I searched the file I created for CALL 9DAA. I found occurrences at $62C2, $632F, $6413, $A3DF and $CC0F. By trial and error, the last one (of course) turned out to be the one we want. Phew!

Disabling the routine

Once I found the general area that things were happening, I decided to observe the effects of NOPing some of the CALLs in the vicinity. As it turns out, a total of three (3) CALLs need to be disabled. Call #1 grabs and displays the track and question, Call #2 obtains user input (via $9DAA) and Call #3 evaluates user input, displays the Correct/Incorrect message and if Incorrect, loops back one more time. The simple solution in this case was to NOP all three Calls.

Step By Step

COPY MOTO.EXE MOTOOLD.EXE *only do this on a copy!*
REN MOTO.EXE MOTO.TMP
DEBUG MOTO.TMP
S100 FFFF E8 09 43 C6 46 D6 00 *Response should be: XXXX:AAAA, write the AAAA down for future use.*
S100 FFFF E8 98 D1 83 C4 08 *Response should be: XXXX:BBBB, write the BBBB down for future use.*
S100 FFFF E8 D2 00 83 C4 06 *Response should be: XXXX:CCCC, write the CCCC down for future use.*

Type the following substituting the addresses obtained before for AAAA, BBBB and CCCC respectively.
E AAAA 90 90 90
E BBBB 90 90 90
E CCCC 90 90 90
W *Response should be: Writing zzzzzz Bytes.*
Q

That's all there is to it! The addresses I obtained for AAAA, BBBB and CCCC were $CBF8, $CC0F, and $CC1F.

Disclaimer

I was only able to test this crack on an EGA machine. I used the EGA switch and CGA switch successfully. I could not however verify the Hercules or Tandy switches.

By the way, I recommend the following reference books to aid in tracking down INTerrupt functions:

MS-DOS FUNCTION and IBM ROM BIOS by Microsoft Press and are among the Programmers Quick Reference Series. They are excellent sources of information and without them, I would not have been able to crack this (or any other) IBM program. I got mine at Waldenbooks for $5.95 each.

Mike Basford _____ Canada

IBM Softkey for...

Populous

?

I hate looking up codes, pictures, etc in instruction books! If you have Populous and feel the same way, here's how to fix the game.

Note: Don't do this to your original, use a copy.

Using Norton Utilities, search POPULOUS.EXE for 3B 46 0C 75 09 8B 46 0C A3 82 2A and replace the 75 09 with EB 03 then write the data and you're done. Now at the verification screen, just type enter. (You still have to put in your name though.)

IBM Softkey for...

Welltris

Spectrum Holobyte

Here's how to get rid of those annoying questions at the start of the game. This works for the WELLTRIS.EXE file dated 10-03-89 6:03pm.
REN WELLTRIS.EXE WELTRIS
DEBUG WELLTRIS
EAA84 00.31 00.32 00.33 00.34 FF.31 FF.32 FF.33 FF.34
EAF73 00.31 00.32 00.33 00.34 FF.31 FF.32 FF.33 FF.34
E2034 E8.90 69.90 42.90
W
Q
REN WELLTRIS. WELLTRIS.EXE

IBM Softkey for...

SimCity

Use Norton or PC Tools to search for 0C 87 00 75 3C and change the 75 to EB. Write the bytes.

IBM Softkey for...

Batman

Data East

Batman comes with two different adventures, Penguin and Joker. The two files, PENGUIN.EXE and JOKER.EXE are identical as far as the protection is concerned. Search and replace the following groups of hex bytes using PC Tools or similar. (Remember: always start each search at the beginning of the file.

search for	replace this	with this
B0 13 A2 35 00	B0 13	EB 0C
B4 08 CD 21 72 32	CD 21	90 90
BB 34 02 B2 80 CD 21 73 03	CD 21	90 90
72 13 33 C0 CD 21 B9 01 14	CD 21	90 90
BE 06 00 A1 00 00 CD 21 73 09	CD 21	90 90
F3 A7 75 18 8D 36 34 02	75 18	90 90
8D 3E 23 02 B9 04 00 F3 A7 75 09 C3	75 09	90 90

Softkey for...

Their Finest Hour the Battle of Brittain

?

Here's how to get rid of that silly code wheel. After this you don't have to tune the radio anymore.

You will need Norton Utilities or Debug, Norton is easier. When using Norton Utilities, Select BOB.EXE and search for 36 24 75 08 B8 01 (using the hex field) and change the 75 08 to 90 90. Write the data and you're done.

If you are using Debug:
REN BOB.EXE BOB.XXX
DEBUG BOB.XXX
R *use the value of CS for the next step*
S CS:0000 FFFF 39 87 36 24 75 08 B8 01 00 8B
E5 *replace CS with the value*

Debug should respond with something like this:
`CS:xxxx xxxx` *is used next*
U xxxx *use the value from above in place of xxxx*

You should see:
`CS:xxxx  CMP [BX+2436],AX`
`CS:yyyy  JNZ 7762`
E yyyy *use value from above*
75.90 08.90 *you type the 90s*
W
Q
REN BOB.XXX BOB.EXE

Now run it and have fun.

unClassifieds

How to place an UnClassified Ad

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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.

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72	50 Mission Crush	SSI
65	Airheart	Broderbund
63	Alcon	Taito
63	Alien Mind	PBI Software
73	American History Explorer Series	Mindscape
72	Ankh	Datamost
73	Ant Farm	Sunburst
67	Apple Panic	Broderbund
67	Aquatron	Sierra
69	Axis Assassin	?
63	Bad Street Brawler	Mindscape
68	Bank Street Writer Plus	Broderbund
73	Bank Street Beginner's Filer	Sunburst
73	Bank Street School Filer	Sunburst
63	Beyond Zork	Infocom
65	Bilestoad	Datamost
69	Blue Powder - Grey Smoke	Grade
63	Border Zone	Infocom
65	Borg	Sirius
67	Bouncing Kamungas	Penguin
66	Boxing	?
65	Bureaucracy	Infocom
69	Caverns of Callisto	Origin
68	Centauri Alliance	Broderbund
69	Checker	Odesta
69	Chess 7.0	Odesta
69	Chuck Yeager's Adv Flt Trainer	Electronic Arts
67	C'est La Vie	Adventure International
68	Comics	Accolade
63	Cosmic Relief	Datasoft
65	Crime & Punishment	Imagic
69	Crossword Magic v4.0	?
69	Cybernation	Nexa Corp.
72	Cytron Masters	SSI
66	Deathlord	Electronic Arts
69	Delta Squadron	Nexa Corp.
67	Desecration	Mind Games
73	Designer Prints	MECC
66	Disk Optimizer System	Nibble Notch
65	Dondra	Spectrum Holobyte
69	Dragon Eye	Epyx
69	Dueling Digits	Broderbund
68	D & D-Master Assistant vol2	SSI
66	Dungeon Master (IIgs)	FTL
62	DROL	Broderbund
72	Epidemic	SSI
67	Epoch	Sirius
63	Explore-Australia	Dataflow Comp Service
67	Evolution	Sydney
67	Falcons	Piccadilly
68	Factastics Trivia	Daystar
73	Fisher's Cove	Tom Snyder Productions
69	Flt Wars	Sirius
69	Gemstone Healer	SSI
73	Geometric Supposer (the)	Sunburst
66	GEOS	Berkley Softworks
71	Gertrudes Puzzles	?
72	Galactic Gladiators	SSI
63	Gladiator	Taito
66	Goldrush	Sierra On Line
73	Goodell Diamond Caper	Tom Snyder Productions
67	Gorgon	Sirius
66	GradeBuster 1 2 3	Grade Buster
61	Gutenberg Sr.	Micromation LTD.
65	Halls of Montezuma	Electronic Arts
69	Hard Hat Mack	?
67	High Orbit	Softsmith
67	Horizon V	Softsmith
69	Impossible Mission	Epyx
62	Indoor Sports	Mindscape
68	Infocomics	Infocom
66	Jane	?
63	Joker Poker	Mindscape
72	Kabul Spy	Sirius
71	Keyboarding Klass	Mastery Developement
68	Kingdom of Facts	Thunder Mountain
72	Lane Mastodon	Infocom
67	Lancaster	SVS
72	Laser Force (IIgs)	Britannica
66	Legacy of the Ancients	
65	Lost Tomb	Datasoft
65	Manhunter New York IIgs	Sierra On Line
65	Mavis Beacon Teaches Typing (gs)	Software Toolworks
73	McGraw-Hill Prob-Solving Lvl 5 & 6	Tom Snyder
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68	Mr. Pixel's Cartoon Kit	Thunder Mountain
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63	National Inspirer	Tom Snyder Productions
66	Observatory (The)	Lightspeed Software
66	Odin	Odessta
63	Operation Wolf	Taito
68	Pensate	Datasoft/Softdisk
69	Phantasie II	SSI
67	Phantoms 5	Sirius
67	Pig Pen	Datamost
67	Project: Space Station	Avantage
67	Pulsar II	Sirius
68	Pure Stat Basketball	?
62	Quadratic Equations II	Olympus Educ Software
63	Questron II	Electronic Arts
68	Rails West	SSI
63	Rastan	Taito
67	Rear Guard	Adventure International
63	Renegade	Taito
67	Rescue Raiders	Sir Tech
67	Rings of Saturn	Level 10
63	Rocket Ranger (IIgs)	Cinemaware
69	Roundabout	Datamost
63	S.D.I. (IIgs)	Cinemaware
72	S.E.U.I.S.	SSI
62	Sea Stalker	Broderbund
67	Serpentine	Broderbund
72	Silpheed (IIgs)	Sierra
68	Skeletal System	Brainbank
63	Sky Shark	Taito
63	Sound Song & Vision	Advanced Software
67	Space Ark	Datamost
62	Spare Change	Broderbund
67	Spectre	Datamost
62	Speedy Spides	Readers Digest
67	Star Cruiser	Sirius
67	Star Maze	Sir Tech
63	StickyBear Math: Add & Subtract	Optimum Resources
68	Stickybear GS Versions 3.5	Xerox
63	Strike Fleet	Electronic Arts
67	Succession	Piccadilly
65	Superstar Ice Hockey	Mindscape
61	Superstar Indoor Sports	Mindscape
68	Talking Text Writer GS	Scholastic
68	Tangled Tales	Origin Systems
69	Tetris (IIe)	Spectrum Holobyte
72	Theatre Europe	PBI
65	Thunder Chopper	?
63	Ticket to Washington D.C.	Blue Lion Software
63	Tomahawk	Electronic Arts
68	Tomahawk (IIgs)	Datasoft
69	Track Attack	Broderbund
68	Triad	Thunder Mountain
72	Triango (IIgs)	California Dreams
68	Trinity	Infocom
73	Unicorn 5.25" software	Unicorn
73	Vincent's Museum	Tom Snyder Productions
68	Volcanoes v1.8	Earthware Comp. Services
66	War in the Middle Earth	Melbourne
61	Wasteland	Electronic Arts
67	Wayout	Sirius
73	Where in Europe is Carmen S (3.5")	Broderbund
73	Where in Time is Carmen S (3.5")	Broderbund
63	Wings of Fury	Broderbund
63	Wizardry:Return of Werda	Sir-Tech.
68	Word Attack Plus (IIgs)	Davidson
65	Works (the)	First Star Software
67	Zenith	Softsmith
63	ZorkQuest	Infocom

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72	GBA Championship Football	Electronic Arts
68	Graphitti	George Best Phillips Academy
61	Gunship	Microprose
63	Heros of the Lance	SSI
72	Kings Quest III	Sierra
72	Operation Wolf	Taito
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72	Ultima V	Origin

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