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APPLE CORE™

presents

Apple Orchard

The Premier Magazine for Apple Computer Users

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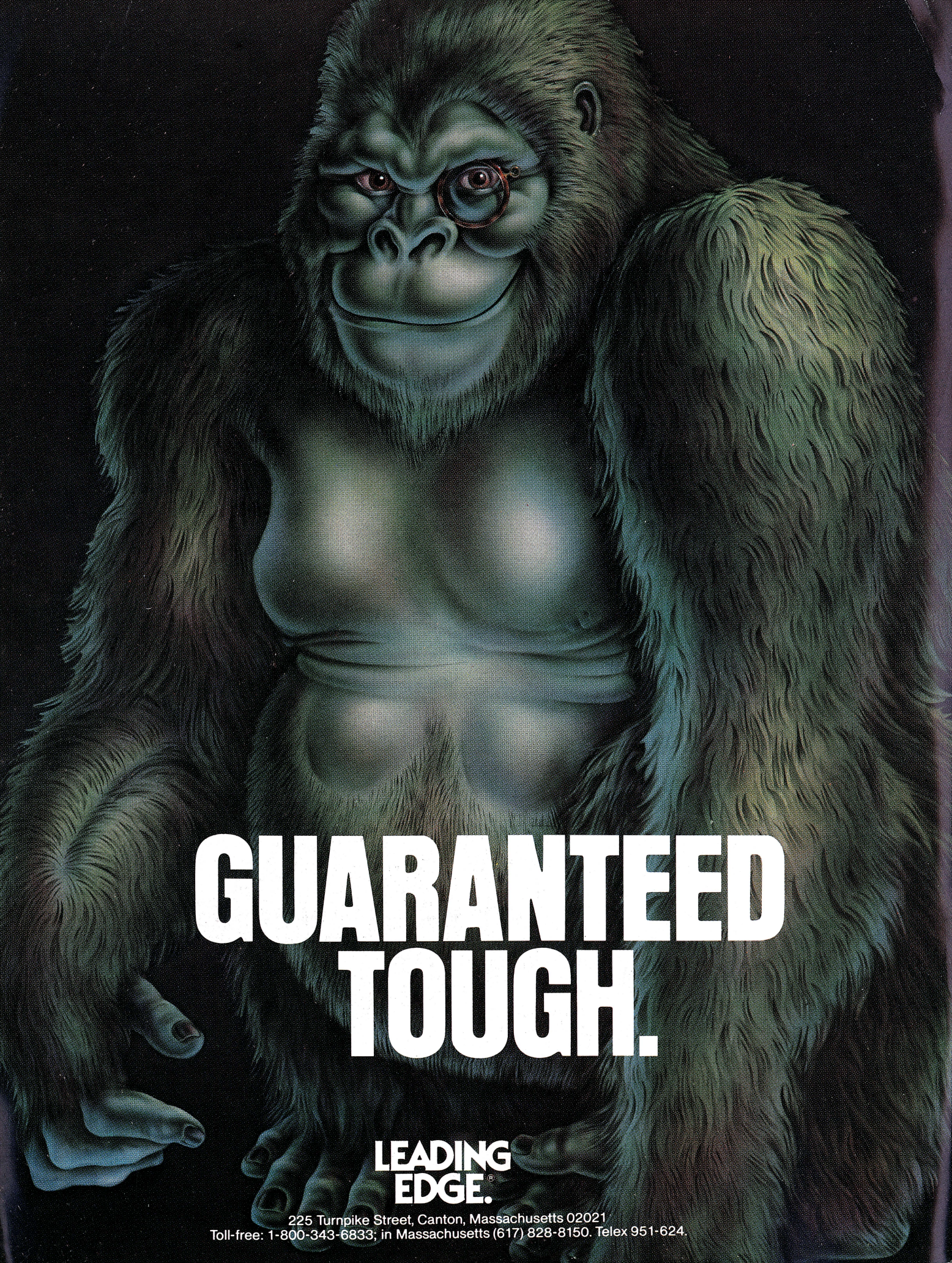
VOLUME 4 NUMBER 4

JUNE 1983

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EPROMs



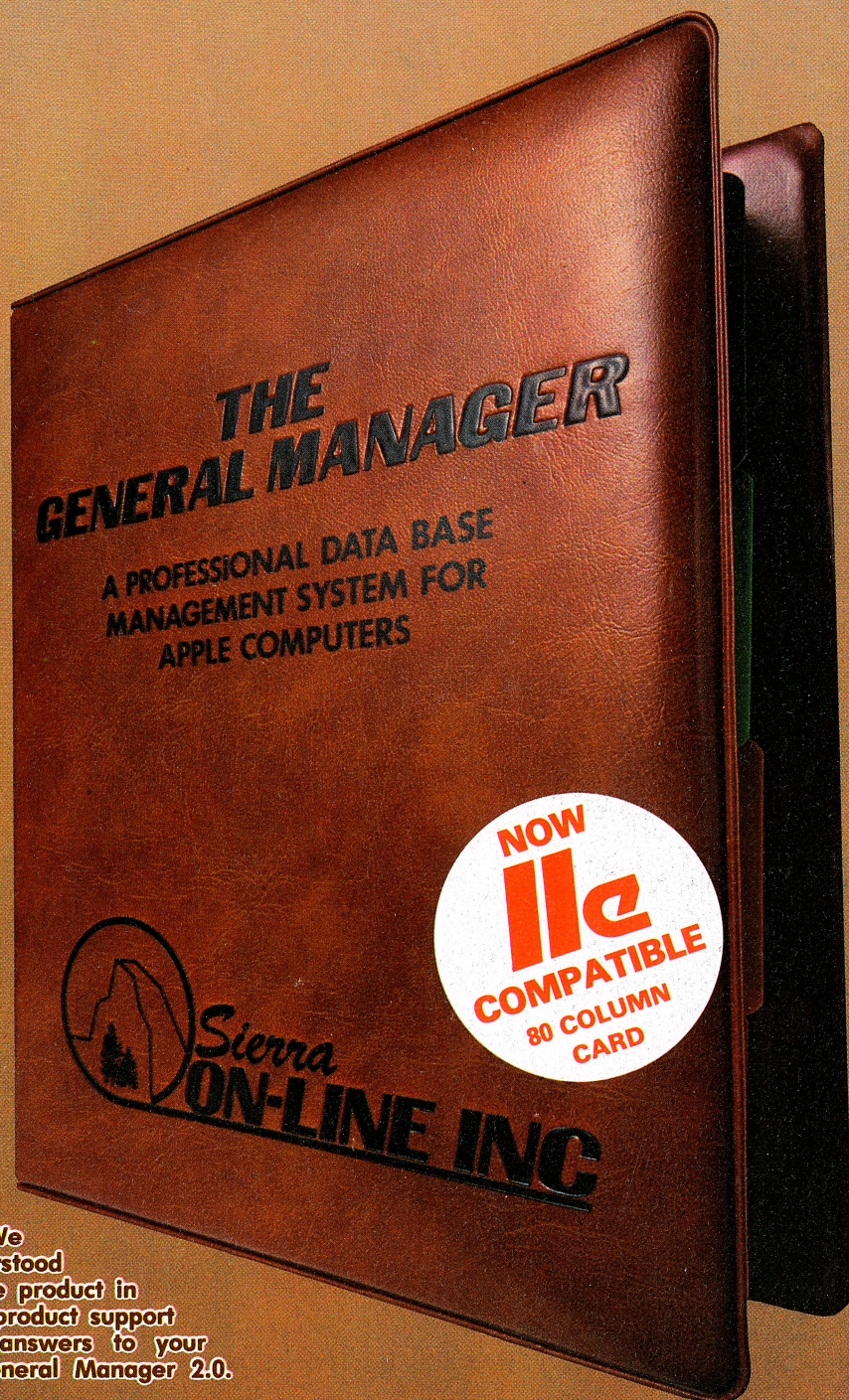
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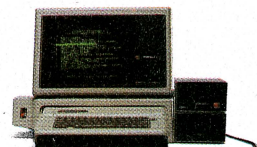
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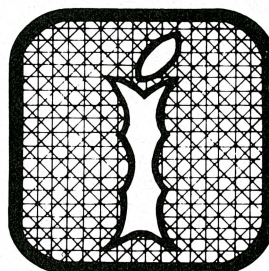
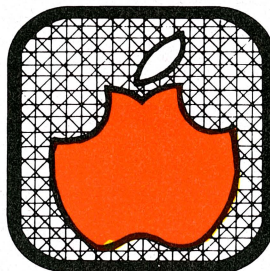
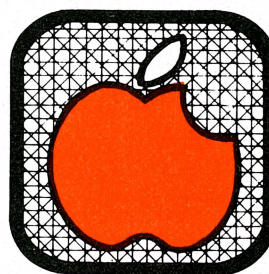
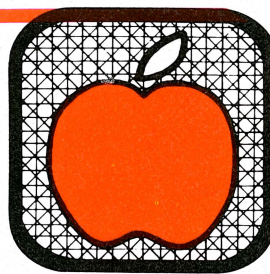


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Take a bite...



Vol. 4, No. 4

June 1983

Cover: Micro Schizophrenia. Photo by Rob Wheless.

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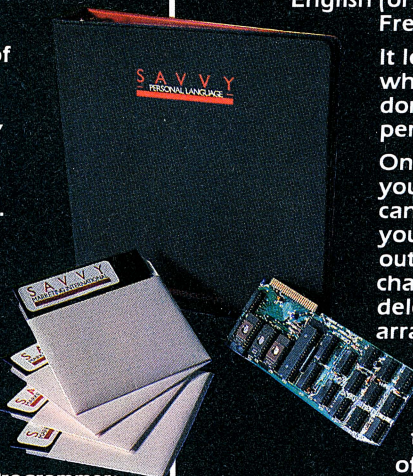
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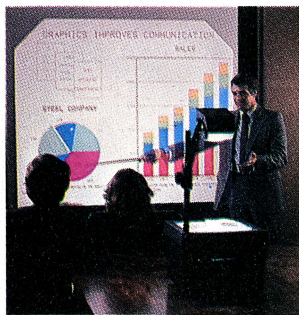
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Textfile

No, you're not missing an issue of **Apple Orchard**; our nine-times-a-year schedule means we did not publish in January and May, and will not publish in July.

Herewith the June issue, on a mostly serious note after our April diversions. First, we welcome back *FRE(ED)*, our prodigal predecessor, Val Golding, who gallantly responded to some pointed remarks. As you can see, he has been restored to his former state of 10-point grace. We can understand his absence; he's been working hard on *Call-A.P.P.L.E.*, and it shows in that magazine's high quality.

The concept of Special Interest Groups within the International Apple Core, as well as in local user groups, has taken off under the firm hand of IAC Vice-President Lou Milrad. A look at what and how they're doing begins on Page 62. These folks embody the volunteer spirit, of which more in this month's *Planting a Seed* essay. Note that you don't have to be an expert to join in.

Semi-expert status may seem to be required for something like burning your own EPROMs, but as Neil Lipson shows, it's

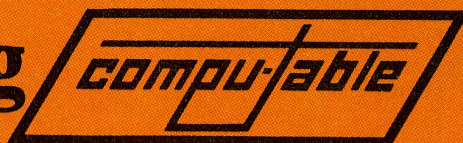
not as difficult as it first appears. As this June issue went to bed, we received a telephone call from an excited Neil, who said that he had come upon a group of public-domain character fonts which could be used in a number of ways, including in EPROMs. He's preparing that material for a future issue.

Jim Hopper and John B. Matthews, active Apple owners in Dayton, Ohio, weigh in with some Assembly language material. The Dayton group is an active one, and more material from the Gem City is in the wings. While we're at it, we'll point out that Mike Kramer and Ed Haymes are active in the Houston Area Apple Users Group, and Mark Darlow is a member of the Capital Area Apple Byters in Albany, N.Y. Max Nareff, Ransom Fields, Gene Wilson and Peter Weiglin are members of the San Francisco Apple Core. Lou Milrad hails from Toronto, home of LOGIC, *nee* Apple-CAN, and Neil Lipson is a stalwart in the Apple users' group in Philadelphia. Pretty good cross-section, huh?

Let us hear from you.



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¹ Model 32 comes without a printer slot

² All tops for models 32, 39, 48 come with built-in cord slot and notches for "Datatop", unless customer specifies otherwise

³ "Datatop" shelf clears "Compu-table" top by a maximum of 22"

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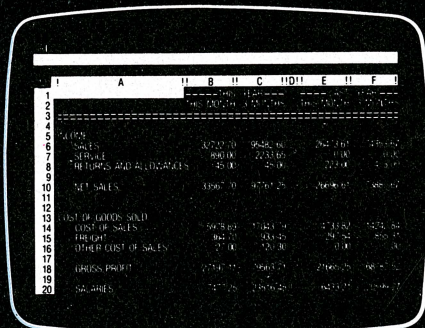
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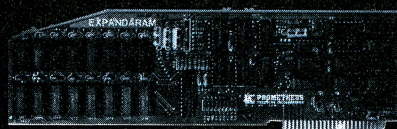
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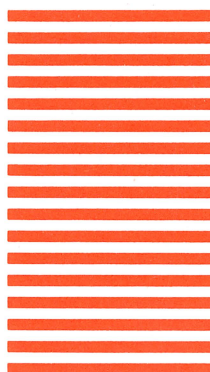
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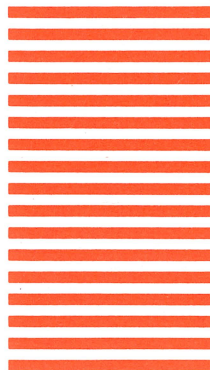
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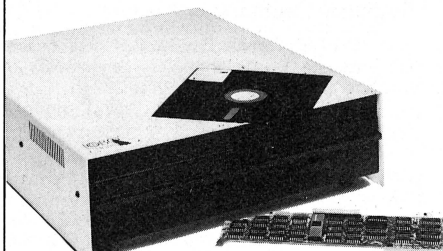
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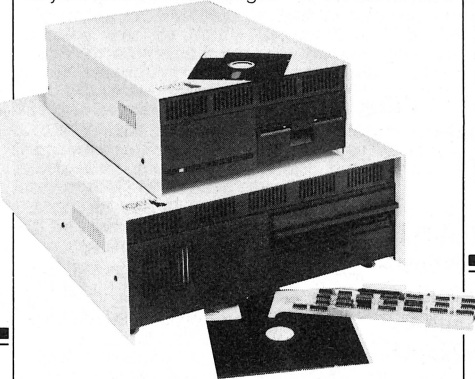
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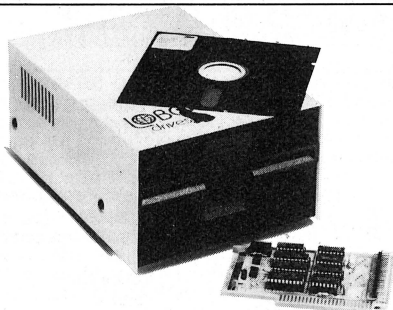
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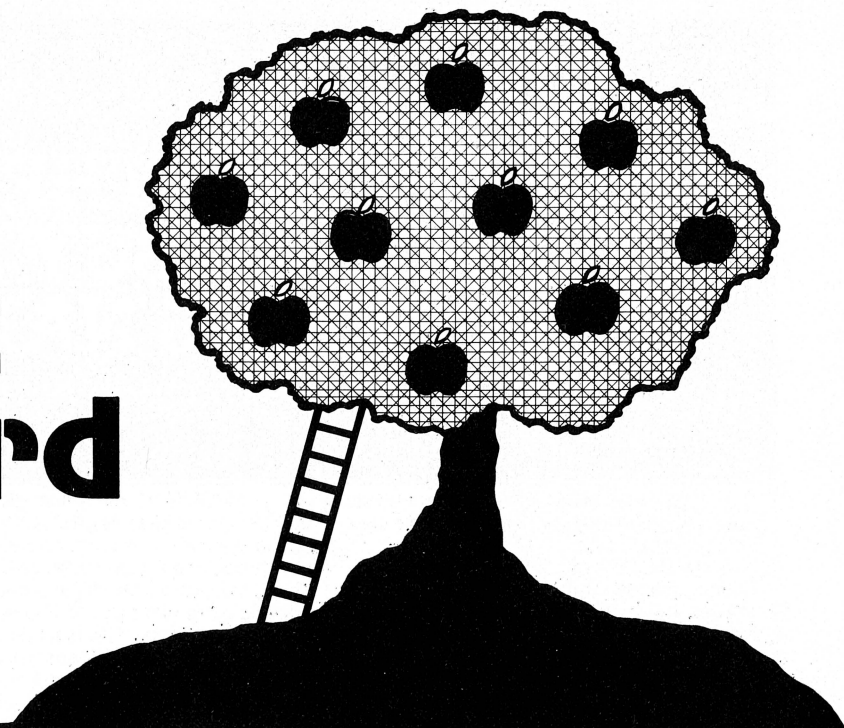
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June 1983

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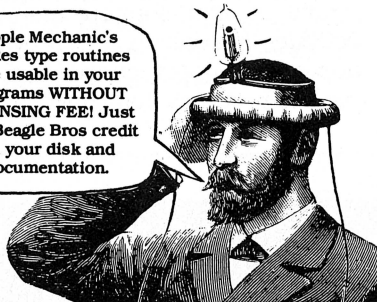
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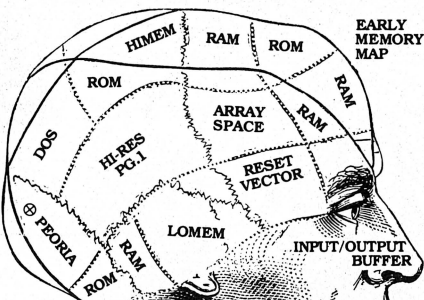
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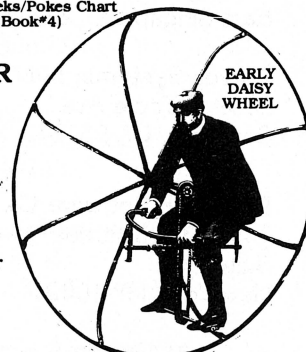
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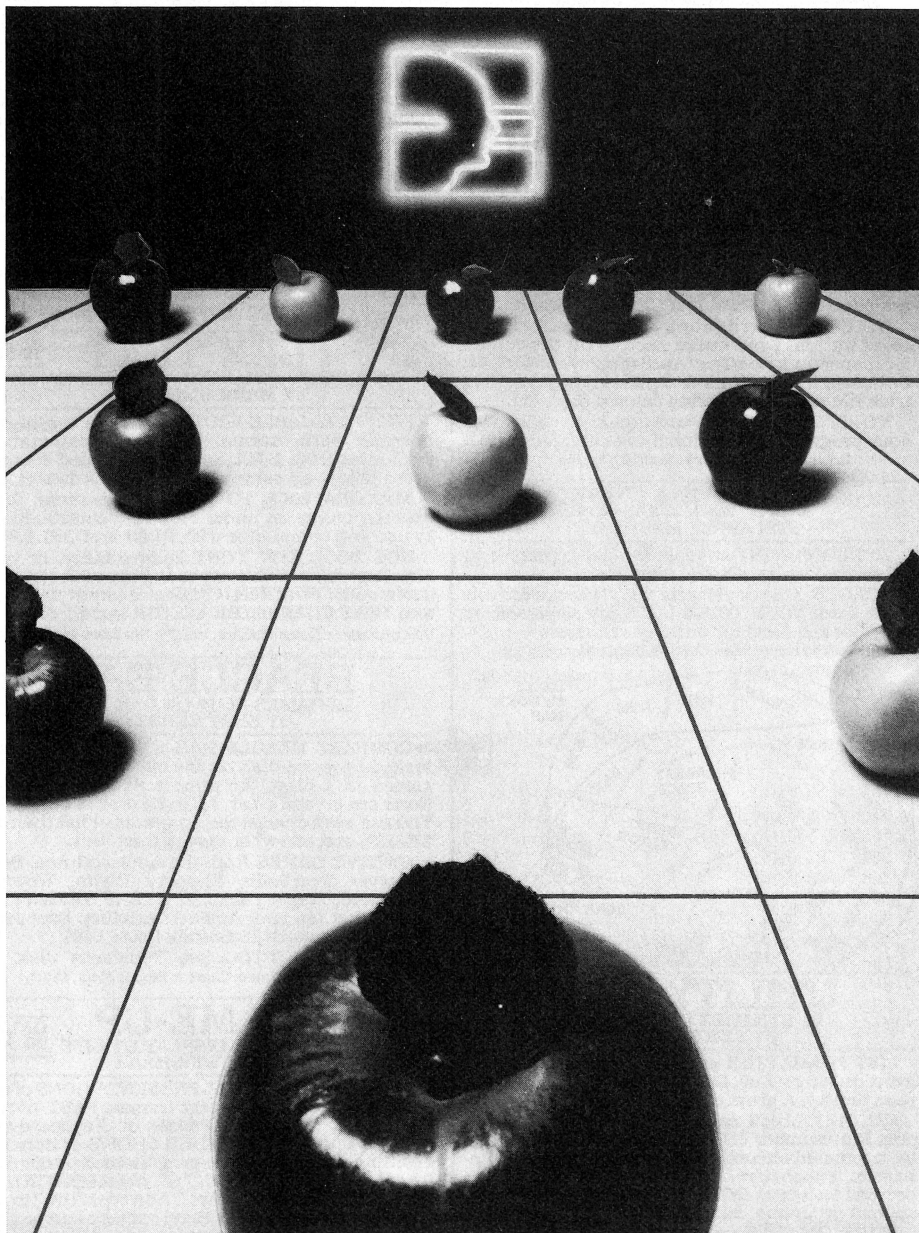
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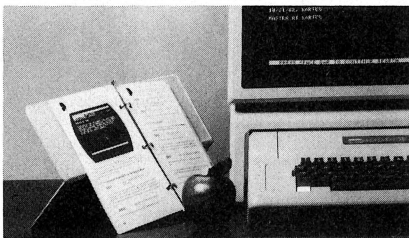
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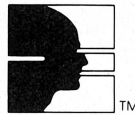
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The IBM That Thinks it's an Apple

by Peter C. Weiglin



The rain was pelting the Market Street cobblestones as I waited for the light to change. Pulling my trenchcoat collar a bit closer around my ears, I headed for the San Franciscan Hotel. Darn rain. Bet this'll be the wettest March in San Francisco history. City looks like the inside of a sewer pipe today.

The uninhibited revelries of the West Coast Computer Faire were going on behind me, in Brooks Hall. The annual Bit Bacchanale, the Festival of the Computer LED Lights, was nothing new, I had seen it all before. This year, the Ol' Rollerskater Jim Warren had set aside an IBM Room and an Apple Room, kind of like separate arenas. Seemed that the crowds were much heavier in Apple-land; among other things, they were almost smothering Lisa to death.

But here I was crossing Market Street, away from the \$200 disk drives, away from the \$800 Apple IIs. But I had a job to do. The trail of a hot story. My 4,728th secret hotel room meeting. Just be there, Bobby had said; never mind why. What a business. Get the story. Get it first. Get it right. Well, it had better be good. Hmm. They're remodelling the lobby. Elevator. Fourth Floor. Ah, there's the room. Knock.

"Who's theah?" from inside. Love southern accents, but this one was male.

"Bobby sent me.", I answered.

The door swung open to reveal the living room of a normal hotel suite; the room without the bed. Center stage on a dresser were an Apple II and an IBM PC, side by side, looking like Jerry Brown and Jesse Helms on the same platform.

A personable and professional operative welcomed me, picked up a disk, and said "Recognize this?"

"Yeah," I replied; "it's an Apple DOS 3.3 Master." He nodded, and inserted it into a boot drive on the Apple. Worked fine.

Then he made his first mistake, or so I thought. He put it into the boot drive of the IBM! Now, that's just plain wrong. I had tensed a few muscles to leap the one and a half yards separating me from the PC when I stopped dead in my tracks, frozen with amazement.

The IBM's CRT was reading "Apple II"; the disk was booting! Obviously, this was something big.

"O.K.," I said, "what's the answer?"

* * * * *

The answer, it turns out, is Quadlink, a new product from Quadram Corporation. Quadram has made a name and quite a few bucks with peripherals for Baby Blue; the Quadlink is a multifunction board including a 6502 and other goodies which emulate the Apple II inside an IBM PC.

What that means, of course, is that Apple-based software is now available to be used by PC owners. Well, most Apple-

based software. We saw games, word processing, and business software being booted and run successfully. Then, one game, known for its Stalag 17 copy protection, failed to boot. Had the Quadlink failed? Well, the program didn't boot properly on the nearby Apple either. Thus we found the ultimate in copy protection: if it won't boot, it can't be pirated.

The Quadlink card requires a slot in the IBM PC. But because there are so few slots available, the trend has been toward multifunction cards. The Quadlink contains the Apple simulator, a parallel port, a serial port, and a game port. The IBM color or monochrome monitor is used for video displays; Apple color HiRes looked good on the IBM color monitor.

The controls are simple: press one function key to become an Apple, another to become an IBM. The hardest part, they said, was getting the DOS worked out. The IBM enhancements are also available for use in Apple mode.

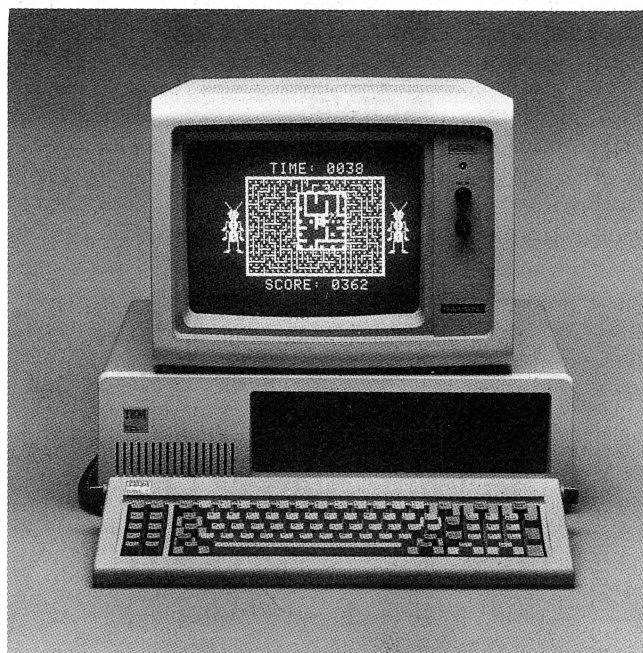
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"All right," I said. "Now show me the one that goes the other way: that simulates an IBM PC in an Apple."

"Sorry. There just aren't that many people with Apples who want them to work like IBMs. But someday, maybe..."

I flipped my notebook shut. "Yeah. Someday." I took my leave and headed back through the rain and the traffic to the bright lights. It had been worth it.



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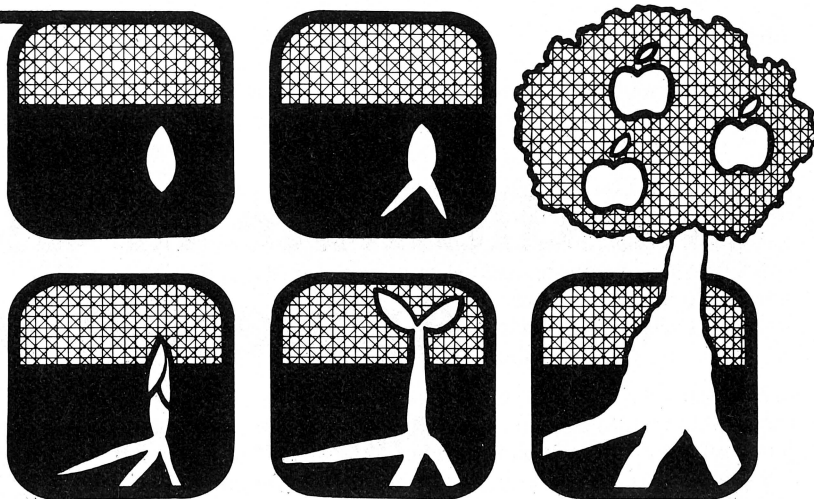
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The most exciting aspect of the Apple Computer phenomenon, as opposed to the more mundane machinery, is not the sheer technical brilliance and humanity which Apple the Company tells us characterizes its activities. Rather, it is the group of Apple users and owners who have volunteered their time and effort to help other users and owners. These folks are not paid, are more often criticized than thanked, and are a significant reason why, today, some others have become affluent.

If you purchase an Apple or Apple-compatible computer today, you do not have to flounder around re-inventing the wheel to use your computer. Instead, there is likely to be a User Group near you, offering help. That help may take the form of classes and help sessions, publications and contributions to them, public domain software (contributed by members), Special Interest Group materials, Club booth work at a local Computerfest, digging out a bargain for clubmembers on one or another product, or the many clerical tasks common to any volunteer organization.

The User Groups are perpetuating one of the oldest and finest ideas of mankind: mutual assistance. Those who have more experience (even when it's measured in months) help those who are coming along. For many people the most valuable activity is "random access". A problem is stated at a meeting, e.g. "I'm having problems hooking my Frazzistat up through the Glorffim connector." From another part of the room comes, "I think I can help you." Helper and helpee move to a sideline to discuss the problem. Indeed, the sideline conversations are more interesting than a good deal of what's going on up front. ("Wanna hold the noise down back there?")

Special Interest Groups represent a more focused approach to sharing, within and between Clubs. Elsewhere in this issue, we describe these widespread yet intense activities. Coordinator Lou Milrad's wry characterization of the SIG leader's job as one with "long hours, frustration, and totally inadequate (i.e. nonexistent) compensation" is understood by everyone who volunteers. Still they go on.

Every club also knows the phenomenon of "burnout", wherein a volunteer's level of effort diminishes over time or ceases altogether. The primary cause of burnout is simply stated: volunteers come to feel they are outnumbered by the complainers 10 to 1, and by the demanders, the "gimme"s, 100 to 1. The machinations of a club's amateur politicians is another factor.

But even if you have never attended a Club meeting; even if you are repelled by the thought of User Groups and are the loneliest of wolves, you have benefitted because the volunteers who *are* those clubs took the time to share some of their knowledge with others.

Pause to thank them. And be thankful too that the volunteer spirit lives on.

The Ultimate in User-Proofing Applesoft Input

by Mark S. Darlow, P.E., Ph.D.

In order for a computer program to be successful, it must have features which prevent the user from accidentally or otherwise "messing" it up. The best planned screen formatting can be ruined by a user who insists on responding to queries with unacceptable input. This is particularly true for programs which require the entry of numeric or alphanumeric data. There is nothing quite so unnerving as spending half an hour entering data into a program only to have it "bomb out" because fumble fingers entered "1E66" instead of "1E6"; and then to have to enter the data all over again.

A well-written program must have some compassion for those of us with fingers just slightly larger than the keys, and patience just slightly less than needed for entering reams of data. Rather than be limited to rebuking the user with "ILLEGAL INPUT - TRY AGAIN" and then try to clean up the screen, the programmer should consider making it *impossible* for the user to enter an unacceptable response. A method for doing this is described below along with several Applesoft routines and sample programs which can be adapted and inserted in most any Applesoft program.

Most "good" programs do include such features, usually by providing error messages and other insults to direct the user to mend his ways. In fact, many BASIC interpreters, Applesoft included, have some of these features inherent in the execution of their input statements. Unfortunately, these "user-proofing" features do not always trap all possible input errors (e.g. illegally large values) and the error messages tend to clutter the monitor screen and defeat the programmer's efforts toward organized and attractive screen formatting. (In deference to the sensitivities of the reader, the term "user-proof" is being used in place of the more colloquial "idiot-proof".)

An alternative approach to "bomb-out" protection is proposed here, wherein the user is simply not permitted to enter an illegal response. That is, each character of the user's response is read and the resulting string is tested for legality before the character is even displayed on the screen. If the input character would render the response incomprehensible (i.e. utterly useless), a control-G (bell) is output to wake up the user and get him back on track. Of course, this approach could be extended beyond the prevention of illegal input data to exclude the possibility of inappropriate input data. The means by which this approach may be applied is described in some detail below along with numerous examples and sample routines using

Applesoft BASIC. The same methods (and routines) could also be applied, with some modification, to any BASIC language and computer system which provides for single character input without automatic output echo.

Single Characters

This "user-proofing" approach will be described by example, beginning with very simple situations and continuing through to the development of some fairly sophisticated routines for general numeric and alphanumeric input. Let's begin with single character input, the simplest case of which is "Y or N" answers to "yes or no" questions. Single character input differs from multiple character input in that the code can be written so that concluding carriage returns are not required. However, when dealing with particularly fickle users who are apt to change their minds continually, it may be preferable to require the concluding carriage return to confirm the response.

The following code will reject (with a beep) any answer other than Y or N (without a concluding carriage return).

```
100 GET ZZ$ 110 IF ZZ$ <> "Y" AND ZZ$ <> "N" THEN  
PRINT CHR$(7);  
GOTO 100  
120 PRINT ZZ$;
```

If the semicolon in line 120 is eliminated, the computer will supply a carriage return in the output. If you want to give the user a second chance, add these lines:

```
130 GET ZZ$  
140 IF ZZ$ = CHR$(8) THEN PRINT ZZ$; " "; ZZ$; GOTO 100  
150 IF ZZ$ <> CHR$(13) THEN PRINT CHR$(7); GOTO 130
```

Line 140 checks for a backspace « and deletes the character on the screen if a backspace is found. With slightly more complicated code, the cursor can be moved over the previous response without deleting it and this response can be subsequently reentered with a right arrow. The procedure for right arrow reentry is described later in this article.

Minor modifications in this code allow it to be used for other single character input. For example, replace line 110 with

```
110 IF ZZ$ < "1" OR ZZ$ > "5" THEN PRINT CHR$(7); GOTO  
100
```


to restrict input to a single digit between 1 and 5 (inclusive), or with

```
110 IF ZZ$ < "C" OR ZZ$ > "J" THEN PRINT CHR$(7);:GOTO 100
```

to allow input of only a single letter between C and J (note that if you have a keyboard modification the case makes a difference). Remember that algebraic comparisons of strings are actually comparisons of their numerical ASCII equivalents.

Multiple Characters

Now let's get a bit more involved and consider multiple character input. First, we'll look at general alphanumeric input where everything is accepted except "left arrow" (control-H) and "right arrow" (control-J). The left arrow will be used to delete the previously entered character, while the right arrow will be ignored (for now). This form of input can be handled using the following code:

```
200 ZI% = 0:Z$ = "":REM NULL STRING
210 ZI% = ZI% + 1
220 GET Z1$
230 IF Z1$ <> CHR$(8) AND Z1$ <> CHR$(13) AND ZI% > 255 THEN 400
240 IF Z1$ = CHR$(21) THEN 400
250 IF Z1$ = CHR$(13) THEN PRINT:GOTO 1000:REM CONTINUE
260 IF Z1$ <> CHR$(8) THEN Z$ = Z$ + Z1$:PRINT Z1$;:GOTO 210
270 IF LEN(Z$) = 0 THEN 400
280 IF RIGHT$(Z$,1) > = " " THEN PRINT Z1$;" ";Z1$;
290 IF LEN(Z$) > 1 THEN Z$ = LEFT$(Z$,LEN(Z$)-1)
300 IF ZI% = 2 THEN 200
310 ZI% = ZI% - 1
320 GOTO 220
400 PRINT CHR$(7);
410 GOTO 220
```

The above example deserves some explanation. Line 200 initializes the string length counter, ZI%, and the string accumulator, Z\$. The next two lines increment the counter and get a character from the keyboard. The test in line 230 is intended to prevent the user from making an error by entering a string which has a length of more than 255 characters. The only legal 256th character is a backspace or carriage return. Line 240 disallows a right arrow input. Line 250 recognizes a carriage return as an input terminator and continues the program. If this code were used as a subroutine, then GOTO 1000 would be replaced by RETURN.

Line 260 determines whether the input character is a left arrow. If not, the character is a legal input, is added to the string accumulator and the loop is repeated for the next input character. Lines 270 through 320 are accessed only in the case of a left arrow input. Line 270 checks to see if any characters preceded the left arrow. If not, the left arrow is meaningless and is ignored (with a beep). Otherwise, line 280 checks to see if the previous character is a printing character. If so, the cursor is backed up one space and the previous character is erased from the screen.

In line 290, the previous character is stripped from the string accumulator if there is more than one character in the string accumulator. Stripping the last character from a string with only one character would produce an error during the execu-

tion of the LEFT\$ command. Line 300 returns to the initialization of the loop if there is only one character in the string accumulator (the left arrow is the second character). Otherwise, the string counter is decremented and the next character is read.

An interesting feature of this routine is that if a non-printing character is deleted with a left arrow, this character is stripped from the end of the string but the cursor is not moved back over the last printing character as would be done by Applesoft in the same situation. Finally, lines 400 and 410 let the user know (with a beep) if he has done something naughty, and loops back to get the next character input.

This general alphanumeric input routine can be modified to allow only specific forms of input. For example, entries from only a selected list of possibilities might be desired. The string would then be tested after each character is input to see if it would still fall within this list. A fairly common example of this is filename input. In order to restrict the user to legal filename input, in terms of syntax only (30 characters or less; first character a letter; no commas allowed), the following substitutions and additions can be made to the above routine:

```
230 IF Z1$ <> CHR$(8) AND Z1$ <> CHR$(13)
    AND ZI% > 30 THEN 400
235 IF Z1$ = "," THEN 400
245 IF ZI% = 1 AND (Z1$ < "A" OR Z1$ > "Z") THEN 400
```

The change in line 230 reduces the maximum string length to 30 characters. Line 235 disallows commas and line 245 assures that the first character is a letter.

Numeric Input

We will now venture into the much more complicated world of numeric input. General numeric input gets very complicated for a number of reasons. First, in addition to numbers, there are other legal characters which are "+", "-", ".", and "E" (as well the ever present left arrow and the occasionally allowed right arrow). However, these additional legal characters are legal only if used in the proper places. The numbers and other characters must also be combined so as not to produce an illegal value (i.e. greater than 1E+38).

After each character is read in, it must be determined not only if the character is legal, but whether it is legal in the context in which it is being used. Additional tests can be used to determine if the input is legal with regard to the more restrictive requirements of a particular application. For example, the input may be restricted to a particular range of values, or particular values (e.g. zero) may not be appropriate input values. How user-proof numerical input is accomplished is described below as part of a general user-proof input program.

An Applesoft program is presented in Listing 1 which includes general numeric and alphanumeric user-proof input routines. Lines 1 through 140 make up a simple calling program whose only purpose is to exercise and demonstrate the user-proof input routines that follow. The user-proof input routine for numeric data is listed in lines 60000 through 60550. A number of variables are used in this routine to keep track of the number and types of legal characters input. These variables are initialized in line 60020 and are defined below:

ZP% indicates whether a period has been input (1 = yes; 0 = no)
ZE% indicates whether an E has been input (1 = yes; 0 = no)
ZI% is a character input counter
ZN% is a count of the numerical characters entered prior to an

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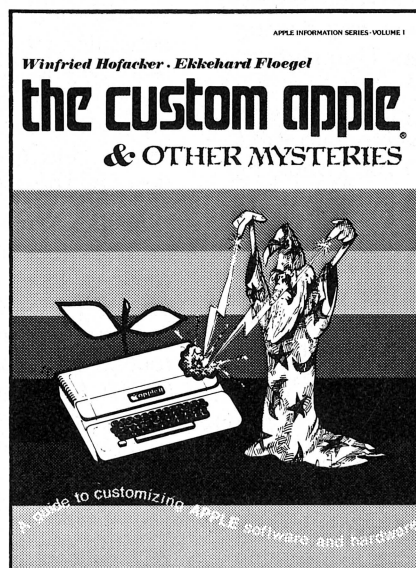
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E
ZX% is a count of all of the characters entered following an E
ZD% is a count of the numerical characters entered between a period and an E

Line 60047 prevents the entry of a null input or more than a single leading zero (no beep). Deletion of the first test in this line will result in a null entry (carriage return only) being interpreted as the value zero. Line 60050 causes a branch to line 60110 if the input character is not a number. Otherwise, a series of tests are conducted to determine whether the number read results in a legal value.

Line 60053 limits the number of characters permitted in the exponent (the value following the E). Line 60055 assigns the current value of the exponent to the variable ZT. Line 60058 checks to see that no more than 38 numeric characters are entered in the mantissa (before the E). Line 60060 then tests to make sure that the character read in would not result in a value greater than $1E + 38$. If not, the appropriate counters are incremented in lines 60070 and 60080, and the program branches to line 60300 to update the string accumulator, print the character and loop back to get the next character.

Line 60110 disallows spaces (no beep). A carriage return is detected in line 60120 and the value of the string accumulator is loaded into the variable ZZ. Lines 60125 through 60130 handle input of a left arrow, as discussed above. Lines 60140 through 60160 check for the input of a plus or minus sign and determine whether it is legal (it must be either the first character read in or the first character after an E). Similarly, lines 60170 through 60190 check the input of a period and lines 60200 through 60220 check the input of an E.

Lines 60300 and 60310 add a legal input character to the string accumulator, print the character and loop back to get the next input character. Line 60400 beeps for an illegal input character and loops back to get the next character. Lines 60500 through 60550 decrement the appropriate counters following a left arrow input, and loop back for the next input character.

An alphanumeric input routine with a filename option follows in lines 61000 through 61410. This routine is a modification of the one presented above for user-proof alphanumeric input. Line 61000 (or 61010) is the entry point for general alphanumeric input, while line 61100 is the entry point for filename input, as discussed above.

If desired, additional restrictions may be placed on the input data by adding appropriate checks. For example, a line 60065 could be added to check that $VAL(Z\$ + Z1\$)$ is within an acceptable range of values before appending the input character (Z1\$) to the string accumulator (Z\$).

An alternative programming scheme for providing this form of user-proof numeric input is simply to compute $VAL(Z\$ + Z1\$)$ and trap any error with an ONERR GOTO, rather than to perform all of the tests in the routine in Listing 1. While this approach would be somewhat simpler and more direct, it would trap only illegal values and not irrelevant or absurd input (such as DUMMY or $1.1.1E + 1.1$). Thus, at least in my opinion, it would not be entirely satisfactory.

Use of the left arrow as an input character to the routines in Listing 1 results in the deletion of the last character in the string accumulator and an appropriate adjustment of the screen image. These routines ignore a right arrow entry. Standard right arrow capability (character reentry) can be added to these routines, if desired. Two principal modifications are required.

First, don't delete characters from the screen after input of a left arrow (just backspace, if appropriate). Second, entry of a right arrow must be detected and the screen character under the cursor determined using a line of code lifted from page 87 of the Applesoft II Reference Manual (using the SCRN function). A modified version of the routines in Listing 1 to include right arrow capability are presented in Listing 2.

Note that entry of right arrows will result in reentry of printing characters only, and that non-printing characters which are deleted with a left arrow cannot be reentered with a right arrow.

When first writing these routines, I was concerned that, as they got more complicated, they would get slow enough to hinder the user. However, as presented in Listings 1 and 2, the routines are fast enough that they will not lose any characters even from a fast typist. When using these routines in long programs, it would be a good idea to renumber the routines and put them at the beginning of the program so as not to slow them down. The only time speed might be a problem would be if Applesoft were to decide to "collect garbage" (delete old strings) during data input. To eliminate any concerns about speed, the routines presented in this article could be rewritten in machine language. However, I have not yet found this necessary.

While these routines have been tested very carefully, the bugless program is yet to be written. If any bugs are found in these routines or a resourceful user finds a way to make them bomb, I would greatly appreciate being notified. I would also be interested to learn of modifications and interesting applications that other programmers come up with. Certainly, there are an infinite variety of approaches and modifications which may be used to provide this form of user-proof input.

Happy programming, and may your users be well proofed.

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Versaform

Review by Gene Wilson

Versaform
from Applied Software Technology, Inc.
14125 Capri Drive
Los Gatos, CA 95030

VS-1 (Apple II Floppy disk)
VH-1 (Apple II Hard Disk)
VS-3 (Apple ///)

Introduction

Advertised as a "business forms processor", Versaform is in fact a versatile data base management system, available for the Apple II or the Apple ///. The group of runtime Pascal programs that makes up Versaform is so extensive as to rival software running on larger "mini" computers. Transaction recording (including printouts), data processing and report generation have been brought to a level where the computer user needs no special tools or training. Versaform's form design flexibility is a real plus in helping non-computer people to understand, use and accept the system.

The examples in this article have been provided from a database which was actually prepared on an Apple II with Versaform to handle the daily and monthly billing and invoice information for a West Coast truck brokerage firm. The broker provides trucking services to clients from a pool of available independent truck owners. The broker receives payment from the client, makes certain deductions (including the brokerage fee), and pays the truckers. The needs and available trucks vary from day to day, which means that no two days are alike; reconciliation of the data is not a simple process.

The task of separating the many daily trucking operations, each with its own "ticket" or "day card", into the various daily summaries and monthly invoices, statements, and reports is one for which Versaform is well suited. Much of the labor involved in taking the daily tickets and turning them into computer data has been removed by features like automatic filling, lookup tables and default values. Even the format of the former manual trucking ticket can be reproduced on screen to give the company employees a familiar "fill-in-the-blanks" system that is very fast and efficient!

There are many other data base programs on the market. Versaform fills a particular function that lies somewhere between the very rigidly structured formats of DB Master, and the mindbending task of learning another "language" with dBase II. The other programs are great, but only Versaform allowed me the freedom to take a quick shot at a form design or entry screen formats. If I don't like the end result, it only takes a couple of minutes to make it better.

22 Apple Orchard

Floppy Disk Version

Versaform comes in either a floppy disk (two drives minimum) or a hard disk version for the Apple II. The Apple /// Versaform contains two boot disks, one for two-drive systems, and the other for 3-drive and hard disk systems. In the floppy disk versions, each program disk covers a general function; here is a list of the disks:

- (1) Design Program Disk;
- (2) Filing Program Disk;
- (3) Report Program Disk;
- (4) Copy/Print Program Disk;
- (5) Tutorial Disk;
- (6) Report Work Disk.

Many people are intimidated by the pile of diskettes that comes out of the box; don't be. Disk 5 is a Tutorial session, and is not part of the ongoing system. The other five disks are separated by activity. For example, designing a form (Disk 1) is a task which will seldom (if ever) involve simultaneous use of any of the other program diskettes. Filing (Disk 2) is another task which seldom involves the generation of reports or fresh design work.

Most of your sessions with Versaform will involve only a single system diskette. This is the reason that the Pascal System is on each of the diskettes. This is also why you must have a minimum of two floppy disk drives on line (the second is for your data diskette).

Reports require Disks 3 and 6; the requirement of a Report Work Disk (Disk 6) is created by the need to store intermediate files during the processing of reports. The Copy/Print program disk (Disk 4) is very handy for segmenting the data into multiple data bases, or for elimination of old records (file updating), etc. You select and boot with the function disk you wish to use.

Hard Disk Version

The hard disk versions (II and ///) tie all of the functions together with a master menu. There is a very complete

installation guide for the Corvus Hard Disk System. The eight pages of information were presented in sufficient detail to allow a correct installation on the first pass. Setting up 1000 blocks (one block equals 512 bytes) for the program (as stated in the manual) gives a pretty wide margin for later addition of files!

A look at the hard disk files shows that 728 blocks were required for the Versaform programs. A few more blocks were used on the boot disk for VERSAFORM.CODE (four blocks for the menu that ties everything together so neatly), and for BJTERM (one block), the configuration information file.

SYSTEM.LIBRARY is going to have nine blocks added. SYSTEM.STARTUP can be set to chain directly to Versaform, or VERSAFORM.CODE can be renamed SYSTEM.STARTUP on the boot volume.) As a further note, only the programs on Disks 1 through 4 need to go on the hard disk. There is some duplication of identical programs on various disks to allow the system to run smoothly in the floppy environment (that is, to minimize disk swapping). Only one copy of each of these programs is needed in the hard disk system.

Why a hard disk? Speed. The hard disk is much faster than the floppy. (We all suspected that!) Finding records in a very large file is also faster with a hard disk. Loading and swapping program segments and messages is extremely fast (and very pleasant for the user), as information, menus and records literally "leap" onto the screen. *but*, don't look for the hard disk to make the CPU do any magic. Looking through a huge data base while sorting for a special report could take all night (just like the floppy version). Be aware of the limitations while the obvious advantages flash before you.

Configuration

The most important part of getting into Versaform is to read and thoroughly understand the System Configuration Program. The true power of this program will not be seen unless things are done correctly; the woods are full of people who have said, "I didn't know it could do *that*." There are provisions for assigning key-activated commands while in data entry mode, and terminal initialization sequences can be manipulated from here. You can even have a standard printer initialization sequence, but still have the option of entering a different sequence at print time. This allows printing of some reports in compressed font mode, while others can be in any font or size/style available on your printer or interface card. The configuration file is named BJTERM, and it must be on every disk to be used as a boot disk (Design, Filing, Report and CPrint). Figure 1 shows a printout of a system configuration list.

Good News - Bad News: As important as the configuration process is, it's the LAST chapter in the User's Guide.

Time for a little philosophy. Documentation isn't a major problem. The whole series of programs called Versaform is set up with the non-computer type person in mind. The menus are clear and usually concise. The decision process is straightforward, and there is ample opportunity (in most cases) to "back out" of a bad decision. There need be no fear of making a mistake that can't be rectified without losing many hours of work. This quick experimentation can be a boon to the person who isn't entirely sure about the final layout or appearance of a report.

Designing the Form

This is the easiest part of the whole system. Simply decide what you want and where, answer questions regarding range checking, length, justification, if keyboard entry is mandatory,

SYSTEM CONFIGURATION BJPROG:BJTERM

Prefix code for this terminal is: NONE

COMMAND	CODE	PREFIXED
Display the cmd menu		No
Validate	3	No
Get a form		No
Save a form		No
First form in file		No
Last form in file		No
File space report		No
Print current form		No
Calculator		No
Next form		No
Back to previous form		No
Clear to blank form		No
Erase unvalidated data		No
Page forward		No
Page backward		No
Remove the current form		No
Index list		No
Delete a line		No
Cursor to command line	27	No
Quit - exit the program		No

Video reverse type : 0 (none)
Video reverse seq : NONE
Normal video seq : NONE
Terminal initialization seq: NONE

Printer page width default : 80
Printer page length default : 66

Printer does not have form feed
Printer does take LF after CR
Printer initialization seq: NONE
Operator will not be asked for
printer control sequence.

Display dummy data character is "."
Printer dummy data character is "."

Program volume names :
Vol name for Design pgm is BJPROG .
Vol name for Filing pgm is BJPROG .
Vol name for Report pgm is BJPROG .
Vol name for Copy/Prnt pgm is BJPROG .
Vol name for Rptwrk disk is #5 .

Default vol name for files is BACK1 .

Diagnostic mode is not set.

Figure 1

look-up table, calculations, automatic filling, etc. The program will ask all the right questions, keep track of the answers, and even give you a hard copy of the session's results. Changes are easy to make. The input mask can be built and then changed, modified, or drastically altered just as quickly. Figure 2 shows the Truck Ticket Entry Form we designed.

Filing

No secrets here, but a few pleasant surprises. Hard work can be replaced by look-up tables, built-in calculator functions, and default values. Yes, you can enter quantity and a stock number, and Versaform will first look up the unit price from a lookup table you have created, and then calculate the extended amount. Just keep dumping data into the machine. The program will make things as tolerable as possible, and a lot of checking can be done to see that the data entry is done properly. Hard copy of the day's activity can be obtained as well. There is no reason to have faulty data if a reasonable system of checks is maintained. The data entry does not have to wait long periods while the screen is reformatted between records. The program is fast in that area, and will not slow you down.

The Command Line is available at any time while entering data:

CMD:..V, G, SA, N, B, CL, PF, PB, R, I, Q

The command line doesn't include all of the possible commands available to you; pressing "?" and «RETURN» gives the full display of available commands:

Validate (V)
Get a form (G)
Save a form (SA)
First form in file (F)
Last form in file (L)
File space report (SP)
Print current form (PR)
Delete a line (D)
Next form (N)
Back to previous form (B)
Clear to blank form (CL)
Erase unvalidated data (E)
Page forward (PF)
Page backward (PB)
Remove the current form (R)
Index list (I)
Calculator (CA)
Quit - another file (Q)

Truck Ticket Entry Form:

				Semi	10Whlr	
Job ..	Ticket #	Mo ..	Day ..	Truck #	Hrs1	Hrs2
Code .					Rate	Rate
	Owner		Driver	Tr#1	49.50	Tr#2 46.30
Gross Amt				Amt1		Amt2
Less Brok						
Less PUC.						
	=====					
Net Due.\$						

BACK1:

```
TRUCK          260 26-Sep-82      6   512  Datafile
BJWORK         12 13-Jun-82     266   512  Datafile
< UNUSED >      2              278
2/2 files<listed/in-dir>, 278 blocks used, 2 unused, 2 in largest
```

File #9:TRUCK

File size: 1040 storage units.
Minimum form size: 110 characters, 1 storage units.
Column line size: 0 characters
Estimated file capacity: 936 forms with no column lines.

Figure 2

Now look at Figure 3, which shows the Checking and Automatic Filing information for item "Mo" (month). We see that the item Month has a minimum length of one character, a maximum limit of two; the number is right justified; it must be numeric, and it is mandatory (meaning you must enter data in this item from the keyboard.) Low acceptable value is 1 and high is 12. Any number out of this range will simply not be accepted.

CHECKING AND AUTOMATIC FILLING

Minimum-length 1.	Maximum-length- 2.
Justify-(L/R/#) r	Selfchecking (Y) .
Numeric --- (Y) y	Date ----- (Y) .
Yes-or-no --(Y) .	Mandatory -- (Y) y

EXTENDED CHECKS

Ranges (Y) y	List (Y) .
Format (Y) .	

AUTOMATIC FILLING

Lookup (Y) .	Today'sdate (Y) .
Calc - (Y) .	Column Total (Y) .

This item: Mo.....

Figure 3

Look-up Table

Now we get fancy, using the Lookup Table feature of Versaform. Information can be stored and cross-referenced using this feature. In our example, we tied not one but two data items, "Owner" and "Driver", to the "Truck #" item. (See Figures 4a and 4b.) You enter the truck number, and Versaform automatically places on the form the data from the lookup tables. The truck owner and driver were both found and plugged into the screen form after the user had entered only two to five digits of information. You can, if necessary, enter a value different from what the table provided by merely typing the new, overriding data right over the information supplied by the table (couldn't be easier).

This allows a tremendous speedup in data entry. It is also one of the places where I felt the program is limited. There is provision for only 99 lookup items per file. This could be too small for many applications. In this data base, every truck number is unique. This saves a great deal of time if much of the data can be keyed to a common (but unique) item.

TABLE LOOKUP

The data for this item will be obtained by looking it up in the table below.
The item to get the lookup value from is: Item name Truck.#.....

Look up	Result
L#L.....R.....
01 J-1.....	BIG.'J'.TRKG...
02 J-2.....	BIG.'J'.TRKG...
03 J-3.....	BIG.'J'.TRKG...
04 J-4.....	BIG.'J'.TRKG...
05 KB-1.....	BISHOP.....
06 B-21.....	BLANCHARD.....
07 AC-1.....	AL.CAIN.....
08 H-88.....	CIRCLE.'H'.....
09 T-1.....	DAVID.ROGERS...
10 DDL-1.....	DDL.TRKG.....
11 DDL-6.....	DDL.TRKG.....
12 DDL-7.....	DDL.TRKG.....
13 H-10.....	HIGDON.....
14 H-11.....	HOSKINS.....
15 K-99.....	P&K.TRKG.....
16 K-111.....	P&K.TRKG.....
17 R-15.....	ROGERS.....
18 R-18.....	ROGERS.....
19 R-83.....	ROGERS.....
20 O-1.....	ROGERS.....
21 R-97.....	ROGERS.....
22 505.....	TEDS.TRKG.....
23 T-1.....	THOMAS.....
24 G-1.....	GORDON.....
25 G-2.....	GORDON.....

This item: Owner.....

Figure 4a

TABLE LOOKUP

The data for this item will be obtained by looking it up in the table below.
The item to get the lookup value from is: Item name Truck.#.....

Look up	Result
L#L.....R.....
01 J-1.....	BELL.....
02 J-2.....	CAMPBELL.....
03 J-3.....	BREAD.....
04 J-4.....	LUCAS.....
05 KB-1.....	KARL.BISHOP...
06 B-21.....	L..ANDERSON...
07 AC-1.....	AL.CAIN.....
08 H-88.....	J..CHRIS.....
09 T-1.....	D..ROGERS.....
10 DDL-1.....	BULLOCK.....
11 DDL-6.....	W..SMITH.....
12 DDL-7.....	BULLOCK.....
13 H-10.....	J..HIGDON.....
14 H-11.....	BEN.HOSKINS...
15 K-99.....	K.E..JOHNSON..
16 K-111.....	KINNARD.....
17 R-15.....	R.T..EDWARDS..
18 R-18.....	B..WELSCH.....
19 R-83.....	SHELTON.....
20 O-1.....	O..WEBB.....
21 R-97.....	APARICIO.....
22 505.....	T..FORD.....
23 T-1.....	ROGER.THOMAS..
24 G-1.....	D..MARSHALL...
25 G-2.....	V.R..GORDON...

This item: Driver.....

Figure 4b

The Net-due item needed a Checking/Filling and a calculation mechanism as part of the form design; it's calculated to two decimal places. Calculation begins with Gross-Amt, subtracts the Less-Brok item, and subtracts the Less-PUC item. Roundoff errors should be trapped and eliminated from the data. (Try explaining a three-cent "bust" in the month's receipts and you'll see the value of storing numbers rounded to two decimal places!) Dummy (intermediate) items can be set up to accomplish further manipulation of the data.

CHECKING AND AUTOMATIC FILLING

Minimum-length .. Maximum-length- ..
 Justify-(L/R/#) 2 Selfchecking (Y) .
 Numeric --- (Y) . Date ----- (Y) .
 Yes-or-no --(Y) . Mandatory -- (Y) .

EXTENDED CHECKS

Ranges (Y) . List (Y) .
 Format (Y) .

AUTOMATIC FILLING

Lookup (Y) . Todaysdate (Y) .
 Calc - (Y) Y Column Total (Y) .

This item: Net.Due.\$.....

Figure 5a

CALCULATION

The calculation may be made by adding, subtracting, multiplying, or dividing two items, or one item and a number.

Operations are +, -, *, /, Low (L), High (H)

Operations	Items/numbers
	I1: GROSS.AMT.....
OP1: -	I2: LESS.BROK.....
OP2: -	I3: LESS.PUC.....
OP3: .	I4:
OP4: .	I5:
OP5: .	I6:

This item: Net.Due.\$.....

Figure 5b

Reports

The whole idea of having a data base is to be able to store and manipulate the data. The report module allows the data to be displayed in almost any imaginable format, on pre-printed forms, in many different sorting orders. Different combinations of data can be readily compared.

The standard reports are handled well. Simply move the cursor around the entry screen and indicate which items you want to have printed (and the order of printing). Subtotals, item totals, and sorting criteria are all established in a fast, straight forward manner. Changes are easily made. Figure 6 shows the payoff: an activity summary printout for all truckers with breakdown of hours and earnings.

The real challenge is to design a print format to fit a pre-printed form, one which has critical locations for items of data. The tools provided include a numeric scale and a "dummy" record for the form that can be printed, using asterisks to show maximum data fields. This removes doubt as to just where an item will appear. Text can be added to every printed form to further clarify the data that is output.

Versaform has provided a key index for record search and retrieval; use it. Any record can be found anywhere in even the largest of databases, but the search must be on a key item to be really fast. Use the built-in features and data can be manipulated at amazing speeds.

Calculator

Another nice feature is the calculator, which provides a dynamic tool for invoicing. In conjunction with column type data entry, it can provide a very fast billing service. The standard four functions (add, subtract, multiply, divide) are supported by additional functions which can change sign, invert, round, total columns, calculate a check digit, or validate data. Some

statistical functions aren't provided, which limits Versaform's ability to produce many types of scientific reports. The calculator is a good device for adding round-off routines where necessary.

Sorting and Printing Reports

Provisions have been included to subtotal, sort and total on any item(s) in the data base. Report Control instructions can be filled in and then saved for repeated use. A particular instruction "form" can be called up and modified (for monthly reports, etc.) The ease of use makes this feature a real joy.

The speed and versatility makes it possible (and convenient) to experiment and adjust until the desired result is obtained. It isn't necessary to have an idea for a form chiseled in concrete before booting up. No big preparation need be done in advance. Just get into it and see if the computer cranks out what *you* thought you wanted. This is one of the best features of Versaform; the ability to create "on the fly". No one likes to be tied down to a program that demands that every little dot be placed in an absolute location or two hours later it won't work. That doesn't happen with Versaform.

Export

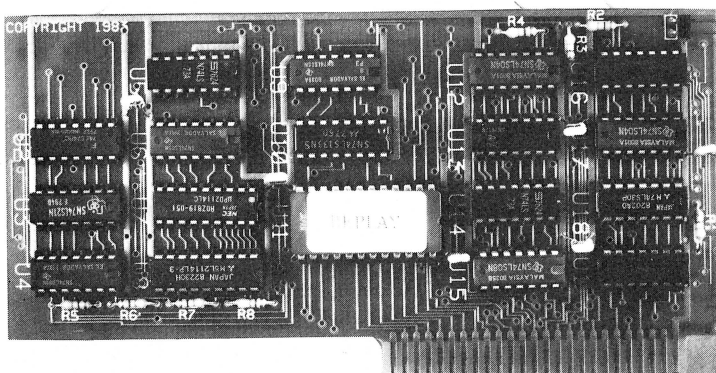
Your data base probably has information that can be collated or placed into some type of written report with a word processor. The facility Versaform provides for this is the Export option of the Report Definition form. An Apple Pascal text file will be created on the data you have asked for, in the proper order as well. This text file will not include header titles, page numbers, etc. or other information that would clobber the entry of this data into a word processor program (or another data base with a completely different format than the original).

Export has some less obvious uses, including placement of very specific data blocks into other files, data bases, etc. This

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REPLAY II is intended to be used as an analysis tool, for program development, and for making archival backup copies.

REPLAY II is an interface card that is slot independent. Users can stop a program, examine and change memory, or copy the program, and restart. Control of the APPLE is obtained by pressing the remote switch which comes on an 18 inch cord outside the APPLE. REPLAY II does not copy the original disk, rather it copies the program executing in memory. If a copy is desired a blank disk is inserted in drive 1 and the options on the menu are contained in the eeprom on the REPLAY II card, no other disk needs to be booted for copying, unlike other copy cards. The very act of booting another disk alters memory which is detectable by some protected software.

REPLAY II does not change ANY memory. Extra memory is buffered to allow copying and analysis without altering the original memory contents. REPLAY II faithfully reproduces the lower 48K of memory in a fast load format. The upper 16K can also be copied for a 64K copy. Standard DOS 3.3 files can be created for storage on floppy or hard disks. A RAM card is needed for this.

REPLAY II is fully documented in a 60 page manual. Utility programs supplied with the REPLAY II card include Program Analysis, Comparisons, Packing, and Compression. A language card is not needed to run packed program copies. Because most programs are written in Assembly language, the user should be familiar with Assembly in order to fully utilize the advanced Analysis and Packing programs.

REPLAY II can automatically move protected APPLESOFT programs to a standard DOS 3.3 disk for listing or modification.

Now game players can save a game at any level and QUICKLY restart with the REPLAY II card. Users can freeze games, change variables to obtain unlimited ships or power, etc., then restart the program. Saving high scores is easy!

*Apple is a registered trademark for Apple Computers Inc.

Minimum requirements are an APPLE II and a single disk drive.

TRUCKING SUMMARY-BY OWNER

Da	Owner	Truck	Driver	Ticket	Hrs1	Hrs2	Gross Amt	Less Brok	Less PUC.	Net Due.\$
11	AL CAIN	AC-1	AL CAIN	2504	2.00		99.00	4.95	0.22	93.83
	AL CAIN				2.00	0	99.00	4.95	0.22	93.83
1	BIG 'J' TRKG	J-3	BREAD	2461	6.00		297.00	14.85	0.67	281.48
1	BIG 'J' TRKG	J-4	LUCAS	2707	6.25		309.38	15.47	0.70	293.21
2	BIG 'J' TRKG	J-2	CAMPBELL	2552	5.50		272.25	13.61	0.61	258.02
2	BIG 'J' TRKG	J-3	BREAD	2462	6.00		297.00	14.85	0.67	281.48
10	BIG 'J' TRKG	J-2	CAMPBELL	2554	7.50		371.25	18.56	0.84	351.85
11	BIG 'J' TRKG	J-2	CAMPBELL	2558	4.75		235.13	11.76	0.53	222.84
12	BIG 'J' TRKG	J-2	CAMPBELL	2560	8.00		396.00	19.80	0.89	375.31
12	BIG 'J' TRKG	J-4	LUCAS	2711	7.50		371.25	18.56	0.84	351.85
15	BIG 'J' TRKG	J-2	CAMPBELL	2564	8.00		396.00	19.80	0.89	375.31
15	BIG 'J' TRKG	J-4	LUCAS	2712	7.50		371.25	18.56	0.84	351.85
16	BIG 'J' TRKG	J-2	CAMPBELL	2568	7.75		383.63	19.18	0.86	363.59
17	BIG 'J' TRKG	J-2	CAMPBELL	2572	4.00		198.00	9.90	0.45	187.65
30	BIG 'J' TRKG	J-1	BELL	2189	7.50		371.25	18.56	0.84	351.85
31	BIG 'J' TRKG	J-3	BREAD	2463	4.50		222.75	11.14	0.50	211.11
	BIG 'J' TRKG				90.75	0	4492.14	224.60	10.13	4257.40
15	BISHOP	KB-1	KARL BISHOP	9999	7.75		383.63	19.18	0.86	363.59
16	BISHOP	KB-1	KARL BISHOP	2569	8.00		396.00	19.80	0.89	375.31
	BISHOP				15.75	0	779.63	38.98	1.75	738.90
10	BLANCHARD	B-21	L. ANDERSON	2557	1.00		49.50	2.48	0.11	46.91
12	BLANCHARD	B-21	L. ANDERSON	2561	7.75		383.63	19.18	0.86	363.59
15	BLANCHARD	B-21	L. ANDERSON	2727	8.00		396.00	19.80	0.89	375.31
16	BLANCHARD	B-21	L. ANDERSON	2729	7.75		383.63	19.18	0.86	363.59
17	BLANCHARD	B-21	L. ANDERSON	2730	3.75		185.63	9.28	0.42	175.93
	BLANCHARD				28.25	0	1398.39	69.92	3.14	1325.33
10	CIRCLE 'H'	H-88	J. CHRIS	1241	6.00		297.00	14.85	0.67	281.48
	CIRCLE 'H'				6.00	0	297.00	14.85	0.67	281.48
12	DAVID ROGERS	T-1	D. ROGERS	2257		5.50	254.65	12.73	0.57	241.34
	DAVID ROGERS				0	5.50	254.65	12.73	0.57	241.34

Figure 6

feature is a real "sleeper" that can provide some interesting applications for advanced users.

Pre-Printed Forms

Changing over to a computer system will create some tension among those people in an organization who have depended on having the data massaged in a familiar fashion over a long period of time. Transition is much easier if the old-style forms are still used. Managers can still see the data they've always had, but now it is more readily available, and usually neater.

The pre-printed forms option allows the placement of data at specific locations on the pre-printed forms. A grid system is established with the printer. The entry locations are then determined, and output information is relayed by the user to Versaform. Output will then "fill" the correct boxes, columns of information will align, and totals will be in the right locations.

With this option, it's possible to print mailing labels, envelopes, letters and invoices, and the bonus is that nothing need appear to have been "computer-generated". Business can continue to appear as if the old ways are still being observed, and that quality is not going to be sacrificed to improve speed. Stockpiles of old forms need not be discarded. Printing and setup costs for new forms can be avoided entirely as well.

Documentation

Strong and weak points. The good news is first that there is a

thorough tutorial disk and very detailed Hands-On manual. The reference Summary is well done and to the point. The bad news is that the "User's Guide", although well-written, is not well-presented, nor does it group information where it can be easily located. The most important information is about the Configuration process, and this information appears in Chapter 10, the last chapter. My advice is to read this manual carefully, one time, then put it carefully away in a dark place at the bottom of a drawer (preferably in another part of the building).

There is a very good tutorial disk, a "Hands-On Experience" manual, and a very detailed reference summary. Don't look for configuration information in the Hands-On Manual or the summary; it just isn't there. The simple truth is that the program itself is so well documented that the average user just won't have any need (after the first use) to look at the manual.

Summary

Versaform is a valuable tool, with a personality unlike any of the other data base programs on the market today. Not for all applications, it handles small and medium data base applications in a very flexible and efficient manner. Ease of use is the key at all times. Program flow from idea to finished report is swift and sure. Report generation is so fast that there is no hesitation in playing "what if" with the data. The program is a real joy for the person desiring to power up and create.

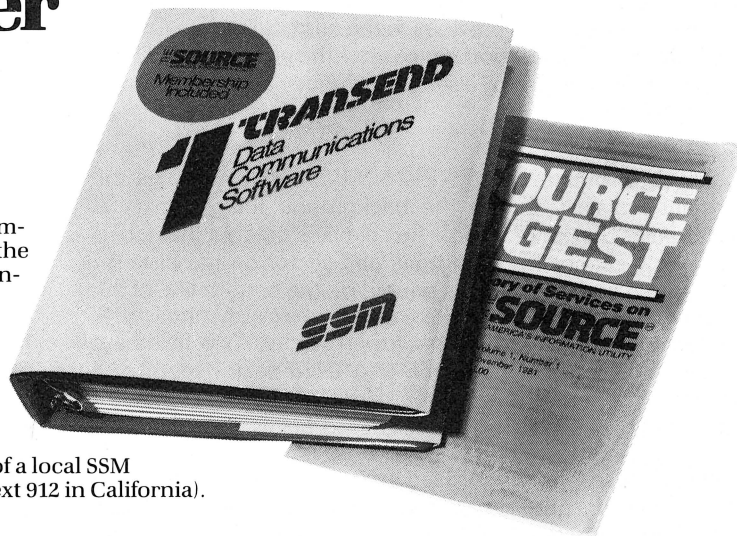


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Writing Custom Utility Programs

by Jim Hopper



While there is a wide variety of disk utilities available, very few are amenable to customizing or incorporation into a larger program. To be truly useful in these respects, a program should include documented source code. Until fairly recently the user had little choice but to use the commercial programs "as is"; however, the recent explosion of information on the Disk Operating System (DOS) has made it relatively easy for the user to write custom utility programs. The listing with this article is an example of a small utility program that exercises many of the routines used to write more complex utility programs. This program creates a text map of a diskette's sector usage, along with a printout of the number of free and used sectors. It is made up of four main modules which use two general library subroutines and several monitor routines. The structure of these modules and the use of the monitor routines will be discussed in the following paragraphs.

One special note: this listing was written to be assembled by On-Line System's LISA v2.5, and as such it uses some facilities unique to this assembler. Most of these differences are obvious; however, the use of LISA's local labels will need some explanation. A local label is defined by an up arrow (Shift-N) followed by a digit (0 to 9 inclusive). These labels can be reused many times within the same program, thereby eliminating the need for a unique name for every little loop or skip in a program. Local labels are referenced by direction and name, where the direction is defined by < to branch to the first occurrence of the label previous to the current line, or > which will branch to the first occurrence after the current line. These labels can be replaced by a series of unique names if LISA v2.5 is not available.

The first routine executed is SCREEN which creates the formatted display that is the background for the map. A rectangular border of inverse hex digits is created that labels the map locations for each track and sector on the disk. An inverse title and credit line is printed on the bottom line of the display, and a legend explaining the map's symbolism is printed immediately below the lower border. Two fields are created and labeled for a free and used sector report. All access to the screen and keyboard is through a set of monitor routines which will be briefly discussed below.

Not all these routines are used by SCREEN, but they are used elsewhere in the program, and are included here for completeness. The subroutine HOME clears the 40 column screen, and positions the cursor at the upper left corner of the screen. There are no inputs to this routine and the "homed" screen is the only output. The contents of both the accumulator and the Y register are destroyed by this routine. The vertical tab function is performed by the VTAB routine, where the zero page variable CV is the vertical position numbered down from the top, its values range from 0 to 23. To use this routine, the vertical position is loaded into CV, then a subroutine call to VTAB is executed, which destroys the contents of the accumulator.

An ASCII character is output to the screen by the COUT1 routine. It is used by loading the desired character into the accumulator and executing a JSR instruction. The character is printed at the position of the cursor as defined by the VTABed position, and the contents of the zero page variable CH, which has a range of values from 0 to 39. A carriage return is output by the CROUT subroutine, the contents of the accumulator are destroyed by this subroutine. In PRBYTE the contents of the accumulator are printed to the screen; however, the value is not treated as an ASCII character. Instead the two hexadecimal digits represented by the accumulator value are printed. RDCHAR reads one byte from the keyboard and returns it in the accumulator. The program pauses until a character is input.

There are three different character sets in the Apple II computer: inverse, flashing, and normal character sets. Not all characters are represented in all three sets. The ASCII codes for the normal letters 'A' to 'Z' are \$C1 to \$E0, and the numerals '0' to '9' by \$B0 to \$B9. Inverse letters are given by the hex codes \$01 to \$1A, and numerals by \$30 to \$39. The codes for the 16 hex digits '0' to 'F' are thus not entirely sequential.

To print the sequence it is necessary to check for the last digit, then change the next code to 'A'. The lines 48 to 64 of SCREEN demonstrate this for the inverse set. The character '0' is initialized by loading the code \$30 into the accumulator. The character is then printed by the routine COUT1, and incremented to the next character. It is necessary to check for ' '; when this occurs the sequence is moved to 'A' by changing the code to \$01. In this routine the sequence is repeated several times to mark every track, thus the sequence continues until 'F' is printed. At this point, the sequence is restarted at '0' and continued until the character counter in the X register is zero. The tracks are marked on the top and bottom borders, and the sectors are marked similarly down both sides.

The legends, labels, and title line are created using the assembler's Psuedo Ops which generate strings of ASCII codes from a text string. The ASC Psuedo Op generates ASCII codes for either flashing or normal text depending upon the string delimiters used. Inverse strings are generated by the INV Psuedo Op, both types of delimiters generate identical code strings. These code strings are printed using the PRINT library subroutine; a zero is considered the end of string marker.

The diskette's Volume Table Of Contents (VTOC) is read from track \$11, sector 0 by RDVTOC. The DOS Input Output Block (IOB) is initialized to accept any volume number, and the correct track and sector. The buffer location is loaded both into the IOB, and stored as a zero page pointer to the buffer. The VTOC is then read into this one page buffer by using the Read Write Track Sector (RWTS) routine from DOS. The VTOC contains a bit map of the sector usage on a diskette, and a pointer to the first sector of the catalog. The bytes \$38 to \$C3 in the buffer are used as the bit map, with four bytes reserved for each track.

At the present time only two of these bytes is used to represent the 16 sectors on each disk. Thus, each of the 16 bits is used to represent one sector on a track. A '1' indicates a free sector, and '0' a used sector. For example, if all the sectors on a

track are free, the two bytes are \$FFFF, and if used, \$0000. Partial usage of a track is indicated by a value between 0 and \$FFFF. The first byte contains the map for sectors \$F@@\$8, and the second byte \$7@@\$0. For example:

sectors
byte #1: FEDC BA98
byte #2: 7654 3210.

For more information on the VTOC format see References 1 and 2.

The subroutine STATS prints the usage statistics to the predefined fields created by SCREEN. The library routine HEXDEC is used to convert the numbers to decimal values.

Input is via the 2 bytes at SUM and SUM 2 + 1, and output values are stored in DEC0, DEC1, DEC2 with the low order two digits stored in DEC0. The output bytes are Binary Coded Decimal (BCD) representations which are output through the PRBYTE routine discussed above. For more information on this conversion routine see reference #3.

MAP is the main program and as such calls the other three modules and translates the VTOC bit map into the text map. Starting at track zero, the index to the VTOC buffer is computed using the formula

$$Y = 4 * \text{TRACK} + \$38$$

and the horizontal cursor position for this track is calculated by

$$\text{CH} = \text{TRACK} + 1.$$

The first eight sectors are mapped by the high byte of the pair so the index is initially incremented to read this byte. If the byte is \$FF, all eight sectors are free and nothing is added to the map as blank sectors are indicated by space characters. If the byte is not \$FF, then at least one sector of the eight is used, and the code starting at the label CHKBYTE is used to find out which it is. A count of the number of used sectors is kept in the two bytes labelled USED and USED + 1. The bits are rotated out of the accumulator into the carry bit which is checked for zero bits. If a zero bit is found that sector is marked as used by calculating its vertical position on the map by using the formula

$$\text{CV} = \text{SECTOR} + 2$$

The cursor is positioned and an asterisk is added to the map to indicate a used sector. A '1' is rotated back into the accumulator for every bit taken out; thus, the byte will become \$FF when all the used sectors have been marked. The variable FLAG is checked to see if both bytes have been tested. If not, the index is decremented to read the first byte and the sector number is set to eight. Once a track has been mapped the two unused bytes are skipped, and a check is made for the last track.

I hope you will find this a useful utility program, as well as an interesting illustration of the use of several important library and monitor routines. This program was written as part of a much larger utility program and as such is not as flexible as it could be. To create a stand alone program that is easy to use, some customization is required, which is the point of this article. I will leave you with the age old dodge used in physics texts when a problem is too much bother for the author to solve: "The completion of this project is left as an exercise for the reader".

References

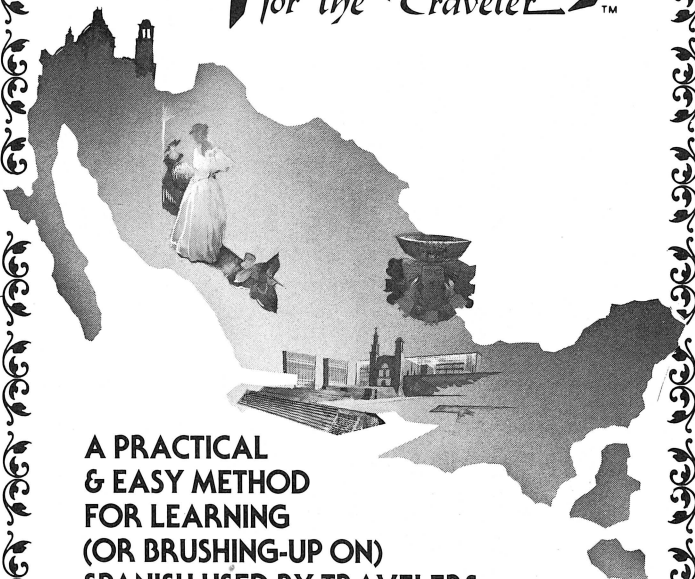
1. Apple Computer, Inc.: *The DOS Manual*, Cupertino, CA, 1980.
2. Worth Don, Lechner Pieter: *Beneath Apple DOS*, Quality Software, Reseda, CA, 1981.
3. Wozniak, Steve: 'Binary-To-Decimal shortcut', APPLE ORCHARD, pp 52-53, Daly City CA, Winter 1980-1981.

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ADDRESS	CODE	OPERAND	COMMENT
0800	2	DCM "WRITE DISK MAP 11.SOURCE CODE"	
0800	3	TTL "MAP OF SECTOR USAGE ON DISKETTE"	
0800	4	JMP MAP	
0800	5	IBDRVN	
0800	6	IBVOL	
0800	7	IBTRK	
0800	8	IBSECT	
0800	9	IBBUFL	
0800	10	IBBUFH	
0800	11	IBCMD	
0800	12	LOAD	
0800	13	RWTS	
0800	14	VPTR	
0800	15	BASE	
0800	16	CH	
0800	17	CV	
0800	18	FC22	
0800	19	FC22	
0800	20	FC22	
0800	21	FC22	
0800	22	FC22	
0800	23	FC22	
0800	24	FC22	
0800	25	FC22	
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0800	40	FC22	
0800	41	FC22	
0800	42	FC22	
0800	43	FC22	
0800	44	FC22	
0800	45	FC22	
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0800	47	FC22	
0800	48	FC22	
0800	49	FC22	
0800	50	FC22	
0800	51	FC22	

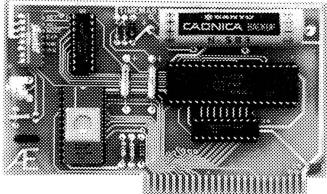
[illegible]

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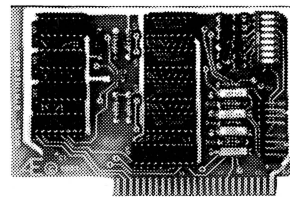
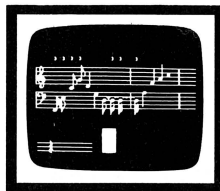
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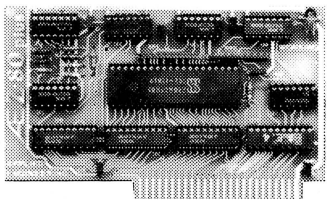
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Address	Hex	Assembly	Comments
09F1	311	;	
09F1	312	;	
09F1	313	;	
09F1	314	;	
09F1	315	;	
09F1	316	;	
09F1	317	;	
09F1	318	;	
09F1	319	;	
09F1	320	;	
09F1	321	;	
09F1	322	;	
09F1	323	;	
09F1	324	;	
09F1	325	;	
09F1	326	;	
09F1	327	;	
09F1	328	;	
09F1	329	;	
09F1	330	;	
09F1	331	;	
09F1	332	;	
09F1	333	;	
09F1	334	;	
09F1	335	;	
09F1	336	;	
09F1	337	;	
09F1	338	;	
09F1	339	;	
09F1	340	;	
09F1	341	;	
09F1	342	;	
09F1	343	;	
09F1	344	;	
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09F1	409	;	
09F1	410	;	
09F1	411	;	
09F1	412	;	
09F1	413	;	
09F1	414	;	
09F1	415	;	
09F1	416	;	
09F1	417	;	
09F1	418	;	
09F1	419	;	
09F1			


```

;CALC VERTICAL
CURSOR POSITION

;PRINT MARKER

;RESTORE BYTE
;NEXT SECTOR
;INCREMENT USED
SECTOR COUNTER

INC
INC CV
PHA
JSR VTAB
LDA CHAR
JSR COUNT1
DEC CH
PLA
INC SECTOR
INC USED
BNE >1
INC USED+1

LDA FLAG
BNE NEXTTRAK
INC FLAG
LDA #08
STA SECTOR
DEY

MAP OF SECTOR USAGE ON DISKETTE

JMP MKSECTR
INC TRACK
CMP #23
BLT CHKTRK
JSR STATS
LDA #123
STA CV
JSR VTAB
LDA #329
STA CH
JMP $3D0

END:

```

Writing Custom Utility Programs - Listing

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AO1

So What's This Thing Called Exec?

by Mike Kramer

One very useful feature of the Apple II which is usually found only on larger systems is the DOS EXEC command. Although several examples of the use of EXEC files are discussed in the DOS manual, the casual reader may not immediately recognize their potential uses. The EXEC command is similar to the DOS RUN command, except that text files are used instead of BASIC files. For most applications, text files contain data. Although an EXEC file appears to be a data file when a diskette is CATALOGed, it is not a data file in the normal sense. Rather, it can contain either lines of BASIC program code, or executable keyboard commands. If it contains BASIC program code, that code can be entered into memory. If it contains keyboard commands, those commands will be executed as they are read into memory.

EXEC files can be created in several ways. One way is to write a BASIC program which **OPENs** a DOS file and then **PRINTs** information into it. Another method is to use a text editor such as Programma's Apple PIE, the Apple Pascal Editor, or one of the CP/M word processors such as Wordstar to prepare the desired text. If the editor operates under Apple DOS and generates 'T' type text files, the resulting files can be EXECed directly into memory. If the Pascal Editor or a CP/M word processor is used, a utility program will be needed to transform the resulting files into DOS text files. The October 1981 issue of *Call - A.P.P.L.E.* featured a Pascal text file conversion utility written by Dana Schwartz of Washington Apple Pi and called Huffin. A utility called CPMXFER is available from Apple CP/M users groups which permits conversion of Apple CP/M text files to Apple DOS files.

CREATION of EXEC Files from BASIC

Once a BASIC program **OPENs** a file and specifies a **WRITE**, any output to the screen is also written to the disk. The desired output usually results from **PRINT** statements in the program. It is possible, however, for output resulting from **TRACE** or **LIST** commands or from error messages to also be written onto the disk. This should be kept in mind whenever writing to the disk, since such surprises are usually not welcome.

As shown in later examples, **PRINT** statements which **OPEN** and **CLOSE** files and specify **WRITES** must include ASCII character # 4 (CTRL-D) at the beginning of the **PRINT** string to tell DOS to handle the command. The **PRINT** statements which actually write the EXEC file onto the disk must not include **CTRL-D**. If an EXEC file is to contain BASIC program code, each **PRINT** statement must include a line number at the beginning of the **PRINT** string. If there are no line numbers, the commands written into the EXEC file will be considered keyboard commands when the file is EXECed into memory and will be executed as they are read in.

Saving BASIC Code in EXEC Files

The DOS 3.3 Master diskette contains a utility program called Renumber/Append which permits appending one Applesoft program to another in memory. This is a useful program, but the instructions are lengthy and the procedures are somewhat involved. A much simpler way to append one block of BASIC code to another is to use EXEC files. All that is

required is typing "EXEC filename" where filename is an EXEC file stored on disk. The only disadvantage to using EXEC files for this purpose is that existing lines of code will be lost if the code being EXECed has the same line numbers. This problem can be avoided if the code being EXECed has line numbers higher or lower than those in memory. Then the new lines can be renumbered using a utility such as Program Global Editor or Renumber/Append to place them where they belong.

The steps required to save a block of code as an EXEC file are straightforward. First create an EXEC file, called CAPTURE EXEC, by entering and running the following short program adapted from Charles Boody's APPLESOFT COMPARE article in the July 1980 issue of *Call - A.P.P.L.E.*

```
0 D$ = CHR$(13) + CHR$(4)
: HOME
: INPUT "FILE NAME?";NAME$
: PRINT D$ "OPEN"NAME$; D$ "WRITE"NAME$
: POKE 33,33
: LIST 1 -
: PRINT D$ "CLOSE"
: TEXT
: END
10 D$ = CHR$(13) + CHR$(4)
: PRINT D$ "OPEN CAPTURE EXEC";
  D$ "WRITE CAPTURE EXEC"
: POKE 33,33
: LIST -1
: PRINT D$ "CLOSE"
: TEXT
: END
```

This program should be RUN by typing "RUN 10". When RUN, only Line 10 is executed since it ends with an END command. First a file is OPENed and a WRITE is specified. Next, the text window is reduced with a POKE 33,33 to give a BASIC listing without imbedded blanks and Line 0 is written to disk. Finally, the EXEC file is CLOSEd, and execution is ENDED. CAPTURE EXEC can then be used to save lines of BASIC code using the following steps:

1. Load the program containing the code to be saved into memory.
2. Delete any lines which are not needed.
3. Renumber the remaining lines to start with a number higher than the highest line number of any program to which it might be appended, such as 30000.
4. Place your EXEC file disk in the drive and type "EXEC CAPTURE EXEC".
5. Type "LIST 0,10" to get a listing of CAPTURE EXEC on the screen (it will appear as Line 0). Change the line number range in the LIST command as needed.
6. Type "RUN" to save the code specified in the LIST command as an EXEC file. Only Line 0 will be executed.

Whenever you want to append an EXEC file to a program in memory, just place the disk containing the disk file into a drive and type EXEC followed by the file name. The contents of the EXEC file will then be "typed" in from disk as though entered

from the keyboard. The EXECed code can then be renumbered as necessary using a renumber utility to place it where it is needed.

A collection of frequently used BASIC routines or blocks of code can be accumulated on disk as EXEC files and EXECed as needed. This can significantly reduce the time required to develop a new program by reducing the amount of typing and the time required to debug the program. Typical routines could include printer activation, file access, error handling, titling, copyright notice, etc.

Saving Keyboard Commands in EXEC Files

EXEC files can be used to execute often used sequences of keyboard commands, saving the effort of remembering them and typing them in. The following example would permit replacing a locked INTEGER BASIC HELLO program with an Applesoft HELLO, LOCKing it, and CATALOGing the diskette to verify the change. Note that only the OPEN, WRITE, and CLOSE commands are preceded by a Control-D. Also, note that D\$ is defined as a RETURN (ASCII character 13) followed by a Control-D. This permits issuing two DOS commands with a single PRINT statement in Line 110.

```
100 D$ = CHR$(13) + CHR$(4):
    F1$ = "CHANGE"
110 PRINT DR"OPEN"FI$D$"WRITE"FI$
120 PRINT "UNLOCK HELLO,D1"
130 PRINT "DELETE HELLO"
140 PRINT "SAVE HELLO"
150 PRINT "LOCK HELLO"
160 PRINT "CATALOG"
170 PRINT D$"CLOSE"FI$
180 END
```

Once the program has been typed in, RUN it to save the EXEC file on disk. To use the EXEC, LOAD the new Applesoft HELLO into memory and insert the diskette to be changed into Drive 1. Then insert the diskette containing the EXEC file into Drive 2 and type "EXEC CHANGE,D2". Using this EXEC file would make it possible to change HELLO programs on several diskettes with a minimum of effort.

The second example below might be useful for listing programs on an Epson MX-80. Line 120 activates Slot #1. Line 130 shifts the printer into compressed print, tells the interface to deactivate the screen, and resets the line width from 40 to 120 characters. Line 150 returns the printer to normal print size with 40 character line width, and Line 160 deactivates the printer.

```
100D$ = CHR$(13) + CHR$(4):
    F1$ = "LISTER"
110 PRINT D$"OPEN"FI$D$"WRITE"FI$
120 PRINT "PR#1"
130 PRINT "?CHR$(15)CHR$(9)CHR$(49)
    CHR$(50)CHR$(48)CHR$(78)"
140 PRINT "LIST"
150 PRINT "?CHR$(18)CHR$(9)CHR$(73)"
160 PRINT "PR#0"
170 PRINT D$"CLOSE"FI$
180 END
```

Still another example would be to use an EXEC file to set HIMEM to avoid overwriting a binary program with an Applesoft program. The EXEC file would BLOAD binary program, set HIMEM, and then run the BASIC program. The BASIC program to generate the EXEC file would be as follows:

```
100 D$ = CHR$(13) + CHR$(4)
110 PRINT D$"OPEN HIMEM EXEC"; D$"WRITE HIMEM EXEC"
120 PRINT "BLOAD DRIVER.OBJ,A15360"
130 PRINT "HIMEM: 15360"
140 PRINT "RUN APPLICATION.BASIC"
150 PRINT D$"CLOSE"
160 END
```

Self-Generating Code Using EXEC Files

Perhaps the most interesting application of EXEC files is in writing programs which write other programs: self generating code. A simple example of such a program can be found on Page 77 of the DOS 3.3 Manual. The program listed there creates a BASIC program that POKes a machine language program into memory. The steps for generating program EXEC files are essentially the same as before. First, a file is OPENed, a WRITE is specified, and program statements are written onto the disk. The main difference between generating program line EXECs and keyboard command EXECs is that the program lines contain line numbers and the keyboard commands do not. A somewhat more involved program which accomplishes the same end results but with more efficient generated code is described and listed below.

Automatic Poke Maker

One of the several ways to load a binary program for use with a BASIC program is to have the BASIC program POKE the values representing the BASIC program into memory. *Automatic Poke Maker* generates an EXEC file containing BASIC code which READs a binary program from DATA statements and POKes it into memory using a FOR...NEXT loop. This BASIC code can then be EXECed into your program whenever you need to include that particular binary code. *Automatic Poke Maker* can save a significant amount of effort over manually PEEKing the values and typing them into DATA statements. More important, however, it eliminates the chance of human error.

Automatic Poke Maker will generate DATA statements for any range of memory. All that is required is entry of the location and length of the binary program, the starting line number and line increment for the BASIC program to be created, and the EXEC file name. There is an option of using the last binary file loaded (assuming you have 48K), entering the starting address and byte count, or entering the starting and ending addresses. When you are asked to enter the EXEC file name, you can enter "CAT" to obtain a CATALOG listing.

The DOS MON function is turned on in Line 100 to permit you to watch what is being written to disk. The heart of POKE MAKER is found in Lines 400 - 510. Lines 420 - 440 generate the FOR...NEXT loop that READs the bytes from the DATA statement(s) and POKes them into memory. Lines 450 - 500 generate the DATA statement(s) from the memory range specified in Lines 140 - 320, converting the PEEKed values into a string variable. Line 490 forces a DATA statement to be written to disk when the string length reaches 200 characters or the last memory location has been PEEKed. Actually the string length could be permitted to reach approximately 245 characters, since the maximum permitted by Applesoft is 255. Finally, Line 510 CLOSEs the file and turns off the DOS MON function.

Before running *Poke Maker*, LOAD the binary program into memory. If necessary, use HIMEM or LOMEM to protect the binary program from being overwritten by *Poke Maker*, remembering that Applesoft programs are normally loaded starting at memory location 2049 decimal. Maybe you could use an EXEC command file!

JLIST

```

10 REM *****
20 REM *
30 REM * AUTOMATIC POKE MAKER *
40 REM * WRITTEN BY *
50 REM * MIKE KRAMER *
60 REM * HOUSTON AREA *
70 REM * APPLE USERS GROUP *
80 REM *
90 REM *****
100 D$ = CHR$ (13) + CHR$ (4): PRINT
    D$"MON,C,I,0"
110 HOME : LIST 10,90: POKE 33,8
    : HOME : TEXT
120 VTAB 22: HTAB 14: PRINT "INS
    TRUCTIONS? ";: GET A$: PRINT
    : IF A$ < > "Y" AND A$ < >
    "N" GOTO 195
130 IF A$ = "Y" GOTO 560
140 HOME : PRINT "USE LAST BLOAD
    ED PROGRAM? ";: GET A$: PRINT
    : IF A$ < > "Y" AND A$ < >
    "N" GOTO 140
150 IF A$ = "N" GOTO 230
160 SA = PEEK (43634) + 256 * PEEK
    (43635)
170 BC = PEEK (43616) + 256 * PEEK
    (43617)
180 PRINT : PRINT "LOAD ADDRESS
    = ";SA
190 PRINT : PRINT "BYTE COUNT =
    ";BC
200 PRINT : PRINT "OK? ";: GET A
    $: PRINT : IF A$ < > "Y" AND
    A$ < > "N" GOTO 200
210 IF A$ = "N" THEN HOME : GOTO
    140
220 GOTO 320
230 PRINT : INPUT "STARTING ADDR
    ESS? (DEC) ";A$:SA = VAL (A
    $)
240 IF SA < 0 THEN SA = 65536 +
    SA
250 PRINT : INVERSE : PRINT "B";
    : NORMAL : PRINT "YTE COUNT
    OR ";: INVERSE : PRINT "E";:
    NORMAL : PRINT "ENDING ADDRE
    SS? ";: GET A$: PRINT : IF A
    $ < > "B" AND A$ < > "E" THEN
    PRINT : PRINT "INVALID CHOI
    CE.": GOTO 250
260 IF A$ = "B" GOTO 310

```

```

270 PRINT : INPUT "ENDING ADDRES
    S? ";A$:EA = VAL (A$)
280 IF EA < 0 THEN EA = 65536 +
    EA
290 IF SA > (EA) THEN PRINT : PRINT
    "ENDING ADDRESS MUST BE GREA
    TER THAN": PRINT "STARTING A
    DDRESS. TRY AGAIN.": GOTO 23
    0
300 GOTO 330
310 PRINT : INPUT "BYTE COUNT? (
    DEC) ";A$:BC = VAL (A$): IF
    BC < 1 GOTO 310
320 EA = SA + BC - 1
330 PRINT : INPUT "FILE NAME OR
    CATALOG? ";FI$
340 IF LEFT$ (FI$,3) = "CAT" THEN
    PRINT D$"CATALOG": GOTO 330
350 IF LEN (FI$) = 0 THEN PRINT
    : PRINT "NO NAME ENTERED. TR
    Y AGAIN.": GOTO 330
360 IF LEN (FI$) > 30 THEN PRINT
    : PRINT "FILE NAME CANNOT HA
    VE > 30 CHARACTERS.": GOTO 3
    30
370 IF ASC ( LEFT$ (FI$,1)) < 6
    5 OR ASC ( LEFT$ (FI$,1)) >
    90 THEN PRINT : PRINT "FILE
    NAME MUST START WITH A LETT
    ER.": GOTO 330
380 PRINT : INPUT "STARTING LINE
    NUMBER? ";A$:LN = VAL (A$)
    : IF LN < 0 GOTO 380
390 PRINT : INPUT "LINE NUMBER I
    NCREMENT? ";A$:IC = VAL (A$
    ): IF IC < 1 GOTO 390
400 PRINT D$"OPEN"FI$D$"DELETE"FI
    $
410 PRINT D$"OPEN"FI$D$"WRITE"FI
    $
420 PRINT LN;" FOR XX=";SA;"TO";
    EA:LN = LN + IC: GOSUB 550
430 PRINT LN;" READ BYTE:POKE XX
    ,BYTE":LN = LN + IC: GOSUB 5
    50
440 PRINT LN;" NEXT XX":LN = LN +
    IC: GOSUB 550
450 SS$ = "":COMMA$ = ""
460 FOR XX = SA TO EA
470 IF LEN (SS$) < > 0 THEN CO
    MMA$ = ","
480 SS$ = SS$ + COMMA$ + STR$ ( PEEK
    (XX))

```



```

490 IF LEN (SS$) = > 200 OR XX
    = (EA) THEN PRINT LN;" DAT
A ";SS$:SS$ = "":COMMA$ = ""
:LN = LN + IC
500 NEXT XX
510 PRINT D$"CLOSE"D$"NOMON"
520 PRINT : INPUT "ANOTHER? ";A$
:A$ = LEFT$ (A$,1)
530 IF A$ = "Y" GOTO 230
540 HOME : END
550 LN = LN + IC: RETURN
560 HOME : PRINT " >> AUTOM
ATIC POKE MAKER <<"
570 PRINT
580 PRINT "THIS PROGRAM GENERATE
S AN EXEC FILE"
590 PRINT "CONTAINING BASIC PROG
RAM LINES THAT POKE";
600 PRINT "MACHINE LANGUAGE INTO
MEMORY. DATA"
610 PRINT "STATEMENTS CONTAINING
THE BINARY CODE"
620 PRINT "ARE GENERATED AUTOMAT
ICALLY. THE BASIC"
630 PRINT "CODE CAN BE APPENDED
TO YOUR BASIC"
640 PRINT "PROGRAM BY EXEC'ING I
T."
650 PRINT
660 PRINT "YOU MUST FIRST BLOAD
THE BINARY PROGRAM"
670 PRINT "BEFORE RUNNING AUTO P
OKE MAKER. YOU THEN";
680 PRINT "HAVE THE OPTION OF GE
NERATING CODE FOR"
690 PRINT "THE LAST BINARY PROGR
AM LOADED OR THE"
700 PRINT "BINARY MEMORY RANGE O
F YOUR CHOICE."
710 PRINT
720 PRINT "THE DISK MONITOR WILL
BE TURNED ON SO"
730 PRINT "YOU CAN WATCH WHAT'S
GOING ON."
740 PRINT
750 PRINT
760 PRINT "PRESS <ESC> TO EXIT O
R <RETURN> TO RUN";: GET A$:
PRINT
770 IF A$ = CHR$ (27) THEN HOME
: END
780 HOME : GOTO 140

```

1



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Word Handler II and Screenwriter II

A Comparative Review

by Ed Haymes

We all know the limitations of the Apple II in word processing. The 40 column screen, the shift key that doesn't shift and so on. The two programs under review here represent software solutions to the limitations of the Apple. Both programs offer lower case display and on-screen formatting without LC chips or 80 column boards. They are both designed to operate successfully on the "minimal" Apple with a single disk drive, although both programs have capabilities that can only be accessed with a two-drive system. It should also be noted that both programs are available in their second major revision.

Word Handler II (Silicon Valley Systems) is perhaps the easiest word processor to use on the market. The boot brings up a screen asking for data about the printer, but after this data has been entered once, it no longer needs to be dealt with. The second and all subsequent boots bring the user to the question "Use 66-column display? Y/N". Most users will want to use the 66 column display unless they are working with an exceptionally bad monitor. The 40 column display breaks the lines and indents the second halves. After answering this, the screen changes to what will be the normal display: a separator line at the bottom and a cursor asking for a command. A menu might have been useful, but the most common command is simply the name of a file. The word "Index" or a simple carriage return will display the contents of the disk so that the user can choose or refresh his memory about spelling or abbreviations. An added feature is the use of short titles. The user can place a semicolon after any part of a title and the remainder will be displayed, but need not be entered to call up the file.

Most editing commands are **CTRL** plus a single letter. The mnemonics are superior. I for insert. D for delete. The cursor is moved forward or backward through the file by using the forward and back arrows. D(elete) or motion through the file can be expanded by adding W(word), L(line) or P(page). The computer stores the number of times a key is struck and eventually carries out the number of commands entered, although some are relatively slow. The back arrow can be used to cancel a deletion before it is completed. Any other key completes it.

Insertion is fast and the text appears on the screen just as it will appear on the page (with the exception of vertical spacing). Justification is shown on the screen and it is possible to go through a text and tighten it up by hyphenating words (soft hyphens are not available).

Block moving is quite simple and the move buffer is emptied after each write command, so there is no serious memory problem. There are no macros and no user definable keys. Macros can be simulated by typing an abbreviation into the text and then using the Replace function. There is also no convenient command telling the cursor to go to a specific place in the text. The forward/back to (T) command can, however, be used by homing in on a particularly unusual word that occurs near where you want to work. Moving to the end of the text can be accomplished by typing an impossible sequence of letters and telling the computer to go forward to the sequence. The program will search and then beep at the end of the document complaining that it did not find the entered string.

The formatting is handled by a special formatting menu, reached from the file by **CTRL-F**. This menu is maintained for each file and is easy to use. It allows starting the numbering at a number higher than one, but not omitting the number from the first page of a document. (Numbering can be omitted entirely.) Omission of the number from the first page can, however, be accomplished by printing the first page without a number and then returning to the edit mode to add numbering for a second print run beginning with page 2. Only arabic numbering is available. Headers and footers can be entered for left and right pages separately.

Printing is very simple and has the flexibility to allow any number of pages to be printed from a document. The Epson and Diablo drivers I have seen in action seem to work flawlessly. The program will even print true superscripts and subscripts as well as underlining on the Epson. No mean trick this. The only drawback in printing is the necessity to push the space bar after each page. This is a useful function for individual sheet feeding, but one should be able to defeat it for continuous feed paper.

Screenwriter II is the much improved version of Superscribe II from On-Line Systems. The original seemed to be full of bugs, but the new one seems to have eliminated the most serious of them and added very few new ones. The ease of use of the new version is also a considerable improvement, but it still will take no prizes for user friendliness. The prime culprit is perhaps the still somewhat dense documentation. One has to read a great deal and experiment even more to find out that the list of disk files can be called up from the line demanding an output file (or the one demanding an input file) by simply typing a 'c' «RETURN». If I had known this, it would have saved me much frustration.

The much-touted 70 column display is of little use in editing a text. It is possible to display the text being entered in any format up to 70 columns (there are actually two fonts, a regular 40 column font and one designed for 70 columns) but the 70 column option does not display the lines, paragraphs and pages as they will appear on the printed page. One is thus editing in the dark, just as with the more traditional Apple word processors. The text is displayed as it will appear after it has been formatted by the RUNOFF program, but any formatting errors found here can only be corrected by a return to the EDITOR program. This is a time-consuming process.

Insertion of text is easy. The screen display falls behind very quickly if one inserts text while pushing a screen of display ahead. Word Handler II gets around this problem by blanking out the screen from the insertion point on. Screenwriter II allows one to overcome this problem by scrolling the cursor down to the last line of the screen.

Editing commands are fairly standard, but the mnemonics are no match for those in Word Handler II. **CTRL-A** moves the cursor down a line. **CTRL-Z** moves the cursor to the next space. **CTRL-P** advances the cursor a screen "page". The shift key reverses all of these functions. Delete is limited to character and to the line following the cursor. Block movements are easy and the block buffer is not erased when printed out, allowing one to repeat a piece of text several times in different places in the document. Macros (strings to be inserted by a single character) are possible, but they must be called up by a single keystroke, meaning that one must sacrifice a character or a control function (almost all of the letters of the alphabet are occupied by commands). Any character can be replaced by any other character or by an ASCII number through the replace command. Formatting and such functions as underlining are managed by imbedded commands.

The formatter-printer program must be booted separately if one does not have a RAM card. Once inside this program one has a menu of possibilities and well-worked out "pages" to deal with different aspects of the process. The most complex of the "pages" is the one dealing with the printer. If one follows the instructions in the new, much improved manual, this should not prove much of a problem for the more popular printers. The printer format is saved so that it does not have to be carried out each time. There is also an "Edit Format" page that allows setting many of the formatting functions that were covered by imbedded commands in the editor. It is not entirely clear which group of commands has precedence. The ambiguous use of the word "Title" here can lead to misunderstandings.

The next stage in the printing process is the display of the formatted text. At this point one invariably sees a problem that must be remedied by a return to the editor. The RAM card version makes this much faster, but it still does not match the ease of Word Handler II in this respect. The last operation is the

printing itself. It is impossible to print specific pages of a document, although one can instruct the program to stop at the end of each page.

In short: Word handler II lacks macros and the character replace function that allows one to call up ASCII numbers that are not on the Apple keyboard. This latter function is necessary if one wishes to make use of the special foreign language fonts available on many printers including the Epson. It also lacks the ability to change format within a document. Indented paragraphs, for example, must be faked with carriage returns and tabs.

Screenwriter II lacks true on-screen formatting in the edit mode. It lacks the ability to print specific pages of a text, and the necessity to go back and forth between editor and formatter programs for minor corrections is a nuisance.

Both programs save the text to disk as they work. Word Handler II stops completely to save, while Screenwriter II may lose a few characters in the process, although I have had no problem there. I did once lose a whole editing session when the Screenwriter save function overwrote the output file. Since then, I have kept my files short to prevent such disasters. This problem must have been foreseen by the programmers, since they have a special error message to inform the user that his program has just eaten the text. This problem can be avoided by keeping the output file and the save file on different disks, but this is not possible on the "minimal" Apple for which this program was ostensibly designed.

Both systems support the hardware shift key modification, although only the Screenwriter II documentation tells you how to do it. It is well worth the trouble.



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Burning EPROMs

for the Apple II and the Franklin Ace

by Neil D. Lipson, P.E.

One of the most fascinating areas of computers is the use of EPROMs. First, though, let's cover a few basic concepts and define a few terms relevant to this.

A computer's memory chips can be divided into two kinds: those in which the information stored there is changeable at any time during the course of program execution, and those in which information cannot be immediately changed. The changeable type is called RAM, for Random Access Memory; these are the ones that "forget" when the power is shut off. The non-changeable kind is called ROM, for Read-Only Memory; these are the ones that "remember".

Read-Only Memory chips, in turn, come with varying degrees of permanence. There are ROMs imbedded with memory patterns in manufacturing process, which you'll change only with a hammer, converting them to junk. Now, *that's* permanent! Then there are PROMS, or Programmable Read-Only Memory chips, which can have a pattern "burned" into them, once, after which they are permanent.

The EPROM is next. EPROM stands for Erasable Programmable Read Only Memory. It differs from a PROM in that it can be erased, by exposure to ultraviolet light. A sub-type is the EEPROM, which is electrically erasable. That means you can revise the memory pattern stored on such a chip, but the computer will think it's permanent.

EPROMs come in many sizes, but we'll consider here only the models numbered 2708, 2716, 2516, 2532, 2732, 2815, 2816 and the 68764. These numbers may seem strange to most of you, but

notice that the last two digits indicate the number of bits, or approximate number of bits, of the EPROM. Thus a 2716 would be a 16K-bit EPROM. Because there are eight bits to a byte, the 2716 holds 2048 bytes, but it is commonly called a "16K EPROM".

Yes, But What Do They Do?

You can use EPROMs to replace your existing ROMs in the Apple (with a small wiring change), or EPROMs in the Franklin Ace with no wiring change. If you want, you can put a 2732 (double-size) in there and "switch" the EPROM from one side to another. This means you could put BASIC on one side of the EPROM, and Pac-Man or something else (Integer, Pascal, Custom routine) on the other side. Here's where it gets interesting.

You could replace the ROMs in the Apple II with 2732's, and put the new Apple //e software on one side and the regular language on the other. This should allow you to run some of the //e software on the old II Plus. Of course, where there are hardware differences, it will not act the same, but in many cases, it will.

The same thing applies to the Franklin Ace 1000. You could take the Apple monitor and Applesoft routines from \$D000 to \$FFFF and burn them and place them in the Franklin Ace 1000. You would gain a few features and lose a few, though. For example, on many of the Franklin Ace 1000 machines, there is the space on the circuit board for the cassette routines. However, the Franklin Ace monitor does not utilize them. With the Apple routines, it will work. However, you will lose the lower case ability of the Franklin. It is funny, but the machine will come up and say "Apple II" on the

Franklin when you turn it on. It probably is not very funny to Apple Computer, which has a law suit against Franklin. We could even have some fun, like putting our name where "Franklin Ace" appears.

What else could we do? Well, it turns out that there are quite a few bugs in Applesoft that we can now fix, and then re-burn the EPROM. The drawback to this is that some commercial software uses the "bugged" memory sections, and will be flummoxed by the corrections. That, by the way, is why Apple didn't correct the bugs in the //e; they wanted to retain compatibility, even if imperfect.

Let me say right now that any modification will void the warranties of the computer, so wait until the warranty is up before altering your machine.

There are many other uses. For example, there are many fonts available for the Videx Videoterm. You can burn them, and place them in the spare socket. You can even put in a third font, and by using the switching technique, pick the font you want. The method to switch an EPROM will be described later. It is even possible to use a 68764, which is a 64K EPROM, and put *four* sets on one chip. This could give us a total of five fonts on one Videoterm card.

This approach can be used on anything that uses EPROMS. This applies to printers, computers, peripheral cards, or anything you like. Wherever there is an EPROM, you can change it, or add to it. If you wanted a dual character set for your computer, you could replace the 2716 in the computer with a 2732, and burn in the other character set, even Hebrew if you like.

Most of the graphics ROMs in many of the printers are EPROMs. When these

companies update the graphics, they simply are revising the EPROMs with the new material. If a friend has another type of computer and wants an EPROM for himself, you can burn it on the Apple or Franklin and give it to him with no problems. The uses and applications are endless.

You Can Do it Yourself

The good news is that you can "burn" your own custom EPROM chips, using your Apple and a peripheral card. We will discuss the use of the Apparat EPROM burner for the Apple, the Mountain Computer ROM PLUS card, and the Ultraviolet Products DE-4 EPROM Eraser.

Most of this is made possible by the use of the Apparat PROM Blaster. It is priced at about \$100. There are, of course, other EPROM burners, but very few, if any are as inexpensive as the Apparat (most cost over \$200). It comes with personality modules for the following: 2708, 2716 - 3 voltage, 2716 - single voltage, 2732, 2532, 2732a - 21V, and MC 68764.

Here is a list of operations which the Apparat can do:

1. Erase EEPROM (electrically erased EPROMs)
2. Verify PROM is erased
3. Read PROMs
4. Fully or partially copy PROMs
5. Fully or partially program PROMs
6. Verify programming is correct
7. Load or save PROM data to disk
8. Program directly from computer memory
9. Examine and/or edit working memory
10. Preset working memory with any byte or sequence of bytes

Apparat recommends that you do not change the EPROM or the personality module with the power on, but some do, and get away with it. To be safe, turn off the computer. You must first select the slot and type of chip, and once this is done, the rest is easy. First, read the EPROM you want to copy, and save to disk, put in a blank EPROM and burn it. The process of burning an EPROM takes a few minutes, and verifies instantly. To make sure everything is correct do the following: read the EPROM, save it and then load it back into the memory array, and verify it against the EPROM. This guarantees the saved information is perfect. The EPROM will get slightly warm during the burning stage, but this is normal.

The Apparat has an editor, so you can even make changes to the data if you want. Every time you reboot the software

**What do all
of the programs
on the left
have in common?**



The One on the Right!

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- Convert standard Apple Sequential Text files (such as those produced by VisiCalc) into Supertext or Applewriter format so that they can be edited by your word processor. For example, you can convert files you've received from The Source and then edit and print them in any desired format!
- Transfer DataPlot picture files to standard Apple DOS disks so that you can use them within your own programs, or print them with any graphics printer (using your own graphics dump software)!
- Convert your Applesoft programs into text files, which can then be edited, printed or transmitted!

And LexiCom 2.0 requires no disk swapping or MUFFINing—it will work equally well with any version of Apple DOS. And when creating Standard Apple Text files from your word processor files, you can direct LexiCom 2.0 to insert Carriage Returns after every 0–255 characters.

LexiCom requires an Apple II with Applesoft, at least one disk drive, and DOS 3.3 (although it will convert files on any DOS).

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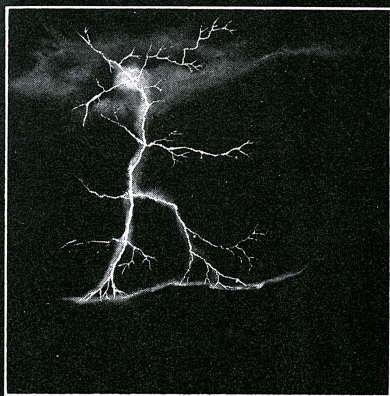
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(which is every time you remove the EPROM), you must set the slot and type. If you forget to do this, you will read whatever is in Slot 7, whether good or bad. The card will even try to "burn" an EPROM in Slot 7, even though it is not there. This is one of the faults of the software, so you must stay on your toes when using this card. Be extra careful with EEPROMS, as if you press the wrong key, you will erase them, and then you'll really be in trouble. I prefer the regular EPROMs, and they are less expensive.

You can put the data on the disk in any fashion you want. For example, if you want to save the F8 ROM from the computer, you type

BSAVE ROM,A\$F800,L2048

However, most of the time you have to read the EPROM first. If you have a problem it is probably one of these four items:

1. Card in wrong slot
2. PROM in socket backwards
3. Wrong personality module or inserted backwards
4. Try erasing for a longer period of time

The program runs very smoothly, and checks the EPROM before you burn it. Once it burns it, it then checks it for verification. I will not detail the EPROM editor, but it is very easy to use, similar to GDU (General Disk Utility) in nature.

Documentation/Problems

The documentation is complete and even has a parts list. Because the product is so cheaply priced, they include complete schematics, parts list, diagrams and everything. It would not be any cheaper to build it yourself, and they know it, so they give you this information. You have to admire a company that prices their products this way!

I had one very small complaint with the software. If you don't remember to pick the correct slot, the program operates as though everything is fine, but it isn't. I would recommend to Apparat to put in some type of slot search and automatically select the slot. This will eliminate any problems. I have made this mistake many times, so it is worth mentioning. You will also just have to remember to select the EPROM type.

One mistake that I also made, which borders on stupidity, is that I inserted the EPROM into the socket with the lever closed. Yes it can be done. Look into the socket (they use zero insertion force sockets with a lever to open and close) before you insert the EPROM.

The EPROM is very sensitive to static electricity, so take precautions in handling these chips, and keep them in static foam when not in use.

Erasures

To erase the EPROM, you must use an EPROM eraser. It is the only source of ultra violet strong enough to accomplish the task. I thought that if you put the chip in the sun for a day, it would do the job. Well, some friends of mine tried that. Not only did nothing get erased, but the EPROM even verified perfect. So much for the sun.

The eraser I use is the Ultra-violet Products, Inc. Model DE-4 EPROM Eraser. The cost is about \$70. This model has some nice features; it will handle eight EPROMs at one time, and completely eliminates UV contact with the eyes. When the unit is new, the lamp is much stronger, and for example after 500 hours of use, the intensity drops to 60% of new. The terminology for this is lamp lumen depreciation, and this lamp has a steep curve.

The manufacturer recommends certain exposure times to erase their EPROM. You take the required erase energy, such as 10 W-Sec/cm², check the chart, and erase for 29 minutes. The less you use the unit, the longer the lamp will last, so don't be hoggish. Most 2716 EPROMs will erase in about 15 minutes or less. Make sure, however, that you push the drawer of the EPROM eraser all the way in, or the EPROMs will not reach the light source.

You could, if you wanted to, build your own eraser. The GE germicidal lamp G4T4/1 will work fine. The lamp socket is an Amphenol 77M1P4 (4 pin) and the ballast is a GE 89G435. While building the device usually takes more time than it's worth, some of you may want to take this route. For goodness sakes, *never* look into the UV source, or you could go blind or crazy (I suspect this is how some of my friends ended up).

The 2732 as two 2716's

Now let's look at the 2732 EPROM as a replacement for two 2716's. First burn the 2732 (you must make sure it is a 2732 and not a 2532) with both programs on one chip. The Apparat instructions tell you how to do this. For example, suppose we want to put two character fonts on the spare socket in a Videx Videoterm card. Well, I would load the first font into RAM, load the second font immediately above it, BSAVE the entire portion onto the disk, and then use the Apparat accordingly.

You can then "switch" between one side and the other. To switch the EPROM, do the following. Take a 2732, erase it completely and verify that it is erased. Burn it as described, and then take pin 21 and bend it out about 90 degrees.

With proper grounds on yourself and on the chip (or with a grounded soldering iron), solder a pullout resistor from the bent out pin (21) to pin 24 (which is normal, not bent out 90 degrees). The pullout resistor can really be of any value above 3K, but anything around 5K will do fine (even 3 or 20 Kohms).

Run another wire from pin 21 through an s.p.s.t toggle (on-off) switch to pin 12 which is also in the normal position (not bent out). Remember that the only pin bent out is pin 21. See Figure 1. Mount the toggle switch securely, probably in a small box outside the computer. Remember that the switch is connected to the EPROM, not the printed circuit board; these are delicate connections.

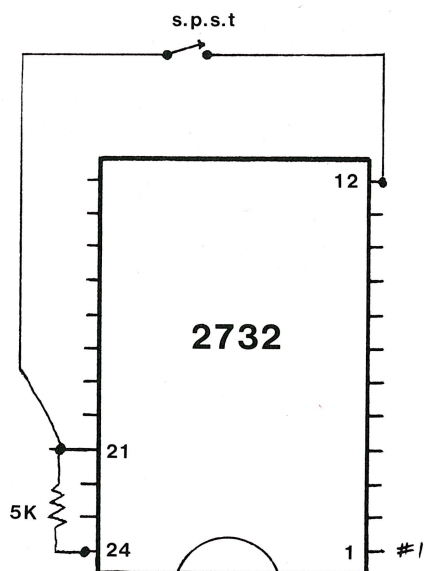


Figure 1

You can then plug the EPROM into the correct position, and switch to either side as you wish. If you have any uncertainty about this procedure, have someone qualified do it for you. The **Apple Orchard**, the IAC, or especially myself will not be responsible for any problems. (*Amen, Brother!* —PCW.)

It is possible, of course, to do the same thing with a 68764 (64K) which could put four character fonts on one chip, but I do not know the wiring changes. If I get this information, and enough reader response from this article, we'll update with a future article to cover more of these tricks.

The ROMPlus Card

Another card which fits very nicely into the scheme of things is the ROMPlus card

from Mountain Computer, Inc. This card has been out for quite some time, but it has tremendous potential. It has room on the card for 6 EPROMs (2716). However, we can still use our trick with the 2732 and they all should work fine. This would give 24K of EPROM on one card. You would need a bank of 6 toggles to switch accordingly. The card also has 4 TTL inputs.

The ROMPlus card has 256 bytes of RAM on board. 255 are available for use. The RAM provides the ROM chips with their own private storage area. This helps minimize memory conflicts. The RAM used is from \$CF00-\$CFFE. I will not go into detailed instruction of how to use the

ROMPlus card as the documentation is quite good, and it uses simple commands. You could even put programs on two EPROMs and use them in sequence. This is also described in the manual. On my card I have EPROMs that contain a copy program, Program Line Editor, Renumber and Merge, Global Search and Replace, and a fancy catalog program. You really could put in anything you want.

Well, We've touched on a few of the uses of EPROMs with the Apple and Franklin. The ROMPlus card may not work with some of the older Franklins unless they have the "Control-Shift N" feature, but this is the only limitation.

May you burn them well!



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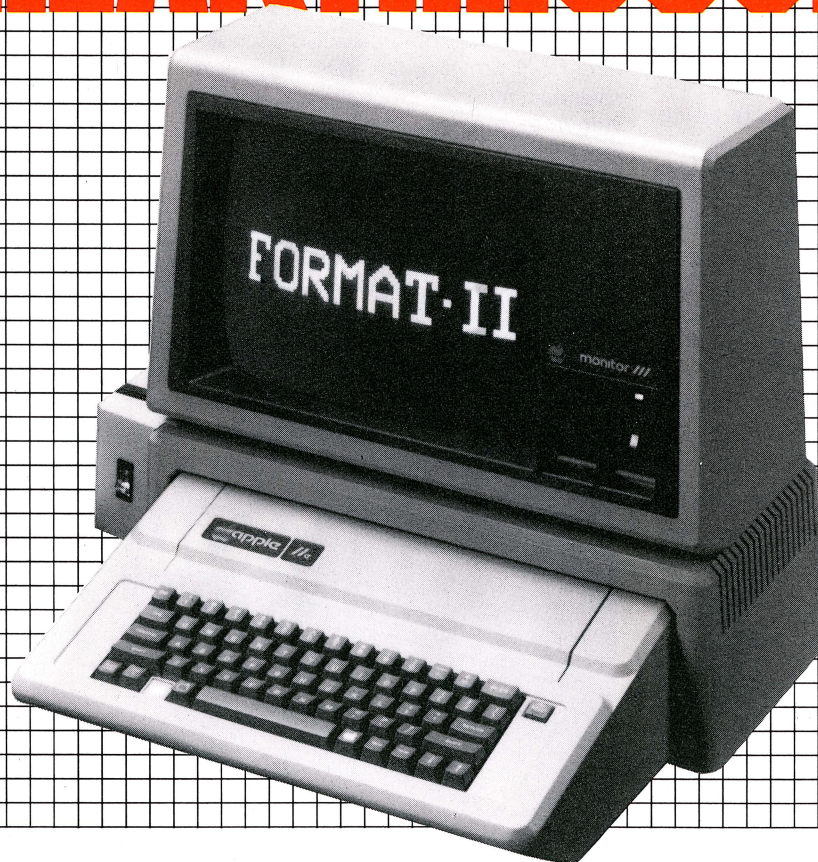
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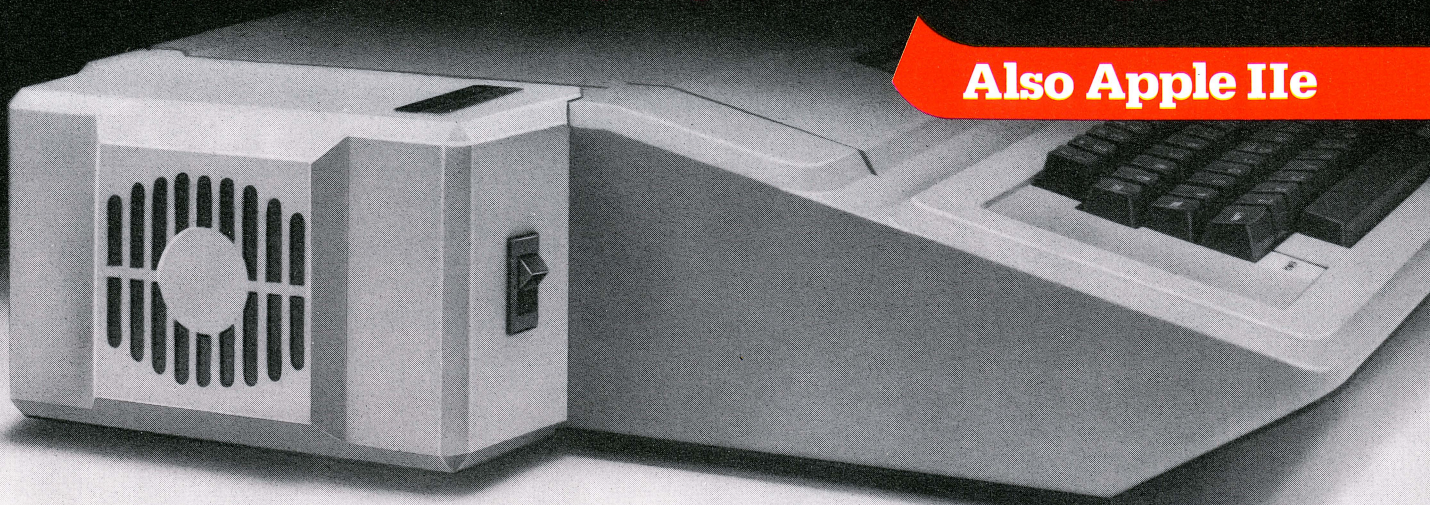
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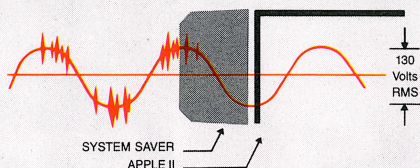
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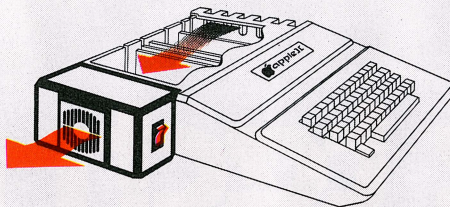


By connecting the Apple II power input through the SYSTEM SAVER, power is controlled in two ways: 1) Dangerous voltage spikes are clipped off at a safe 130 Volts RMS/175 Volts dc level. 2) High frequency noise is smoothed out before reaching the Apple II. A PI type filter attenuates common mode noise signals by a minimum of 30 dB from 600 khz to 20 mhz, with a maximum attenuation of 50 dB.

For Cooling

As soon as you move to 64K RAM or 80 columns on your Apple II you need SYSTEM SAVER.

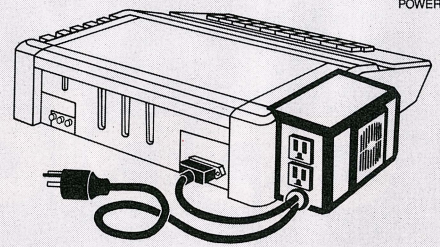
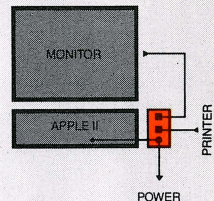
Today's advanced peripheral cards generate more heat. In addition, the cards block any natural air flow through the Apple II creating high temperature conditions that substantially reduce the life of the cards and the computer itself.



SYSTEM SAVER provides correct cooling. An efficient, quiet fan draws fresh air across the mother board, over the power supply and out the side ventilation slots.

For Operating Efficiency

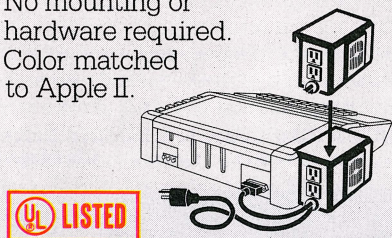
SYSTEM SAVER contains two switched power outlets. As shown in the diagram, the SYSTEM SAVER efficiently organizes your system so that one convenient, front mounted power switch controls SYSTEM SAVER, Apple II, monitor and printer.



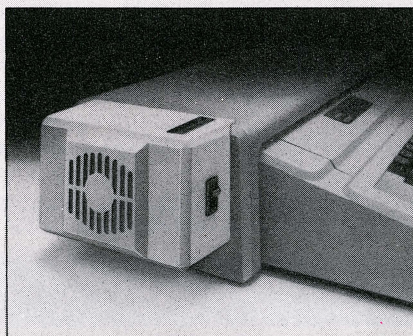
The heavy duty switch has a pilot light to alert when system is on. You'll never use the Apple power switch again!

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Just clips on.
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hardware required.
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to Apple II.



Compatible with Apple Stand



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This powerful small business computer passes higher-priced competitors with ease. Its dual processors — for CP/M® and Apple II® compatibility — open up the largest library of microcomputer software and plug-in peripherals available today.

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The BASIS 108. Microcomputing's "Best Of Both Worlds." German craftsmanship and American business savvy. CP/M-based business computing and Apple II-based personal computing. High performance and a surprisingly low cost. The BASIS 108. A computing machine finely tuned to handle the fast tracks of business today.

Call your BASIS dealer for a test drive.

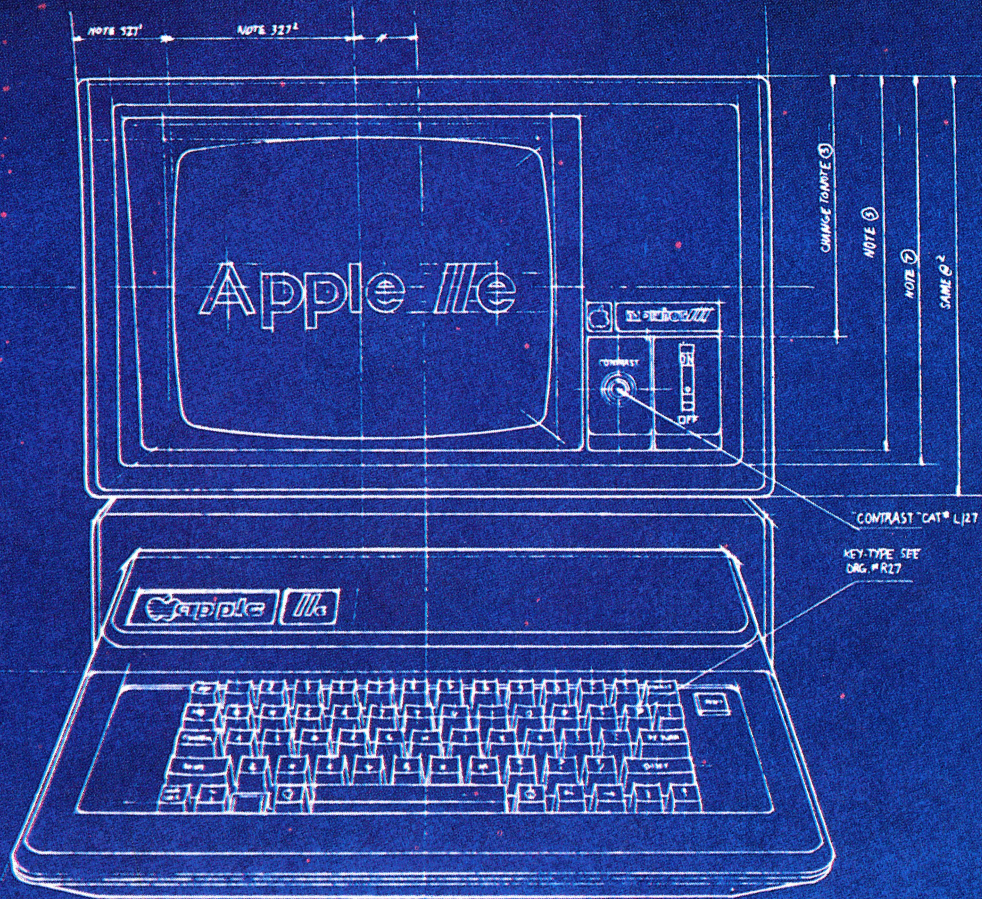


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The "e" means enhanced. Which means a bundle of new features:

A standard memory of 64K (versus 48K) that's easily

expandable. So you can create fatter files and crunch larger numbers of numbers.

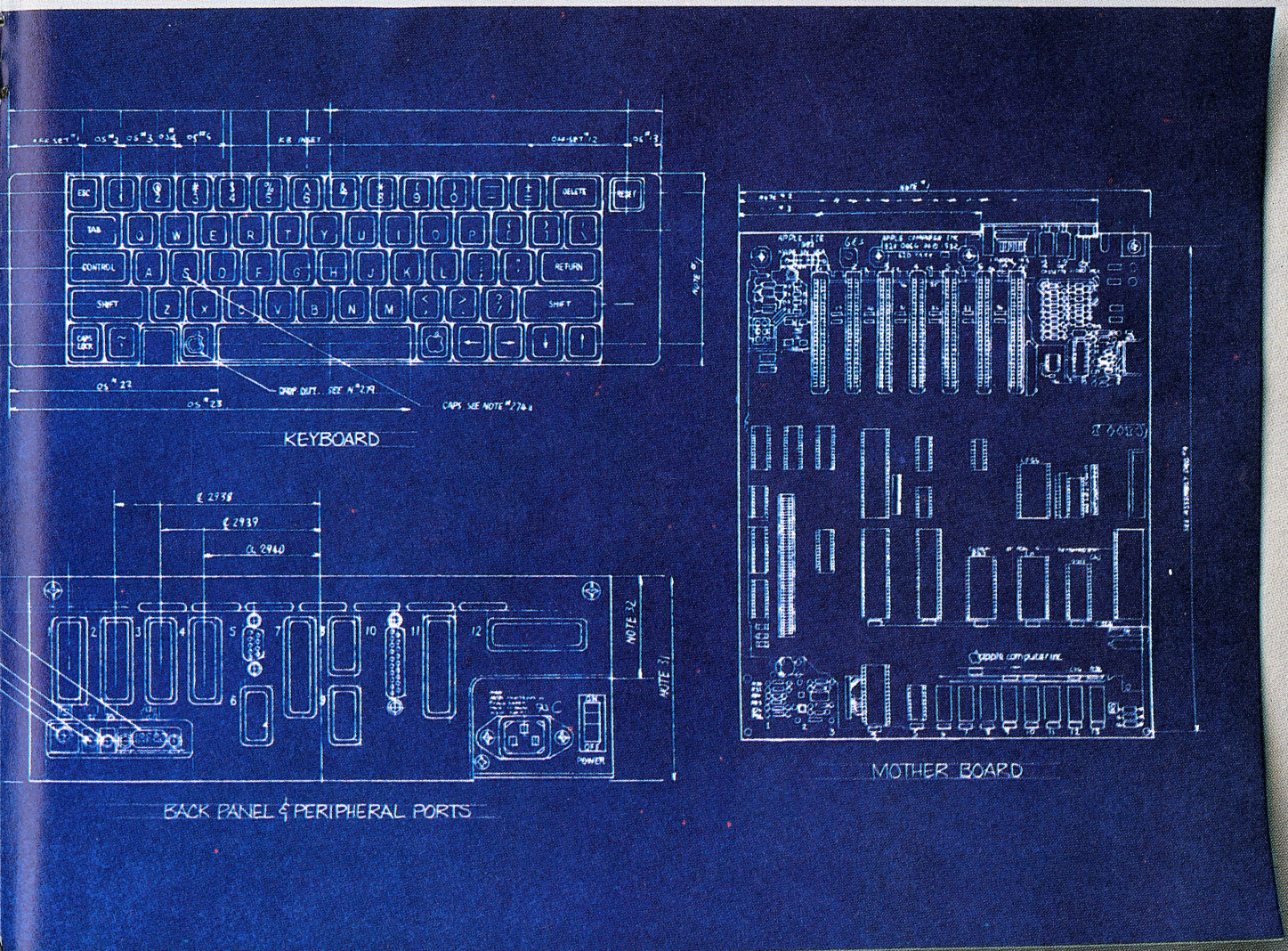
A new, improved keyboard, with a complete set of ASCII standard characters. Plus full cursor controls, programmable function keys, and a rapid auto-repeat feature built into every key on the board.

Both upper and lower case

characters. (And if you want to see more of them on the screen at one time, a low cost 80-column text card is available.)

Improved peripheral ports. Which make it a lot easier to connect and disconnect game controllers, printers and all those other wonderful things that go with an Apple Personal Computer.

Except for the front,
back and inside.



Self-diagnostics. That's a special feature that makes it easy to give your computer a thorough check-up.

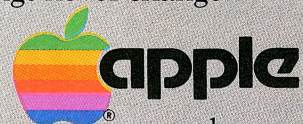
Plus an even more reliable design. Achieved by reducing the number of components—which is to say, the number of things that could go wrong.

And bear in mind, the IIe still has all those other virtues that made the Apple II so very popular. Including access to more accessories, peripheral devices and software than any other personal computer you can buy.

So visit any of our over 1300

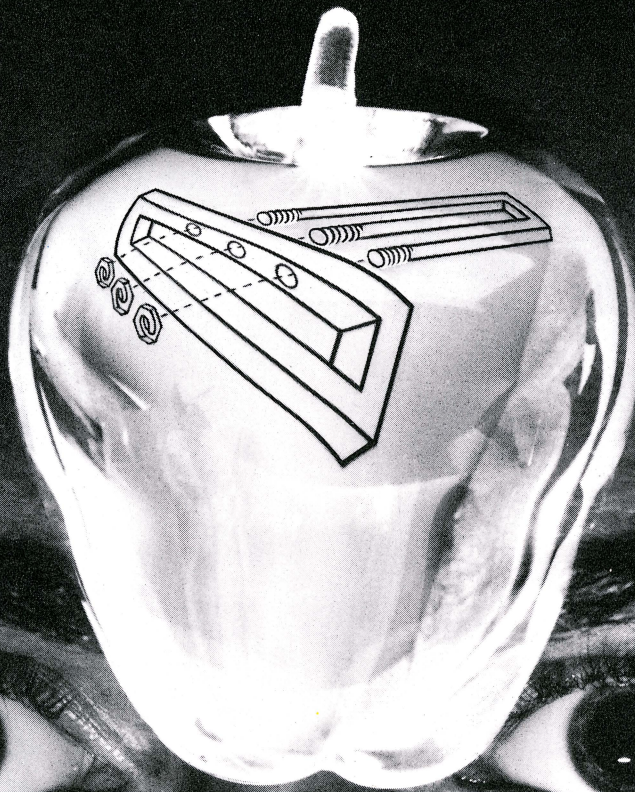
authorized dealers, and see the newest Apple for yourself.

Like the original, it's rather extraordinary. But then some things never change.



The most personal computer.

IMAGINE IT...



CAPTURE IT.

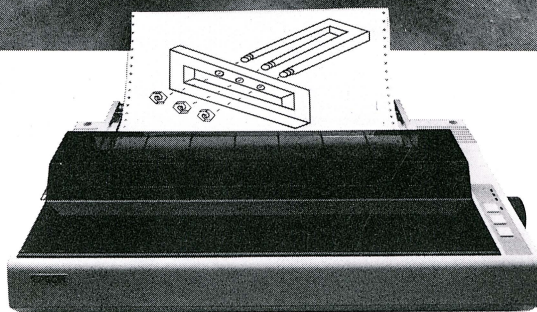
COMPLETELY REDESIGNED. NOW, THE GRAPPLER +.

The original Grappler was the first graphics interface to give you hi-res screen dumps from your keyboard. The new Grappler + with *Dual Hi-Res Graphics* adds flexibility with a side-by-side graphics printout of page 1 and page 2.

The Grappler + can now be used with the Apple® Dot Matrix, the Okidata 84, and is Apple III compatible.* In addition, the IDS Grappler + is currently available with color capability, including color graphics screen dumps.

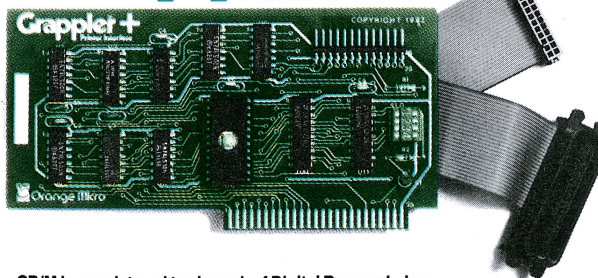
UP TO 64K BUFFER OPTION
An optional Bufferboard can now be added to all existing Grappler and Grappler + interfaces. See your Apple Dealer for details.

* Requires additional software driver.
** Requires graphics upgrade.



ACTUAL APPLE II PRINTOUT USING GRAPPLER + AND EPSON MX100.

With The
Grappler +
Printer Interface



NOW AVAILABLE THE BUFFERED GRAPPLER +

The best of both worlds... the Buffered Grappler +

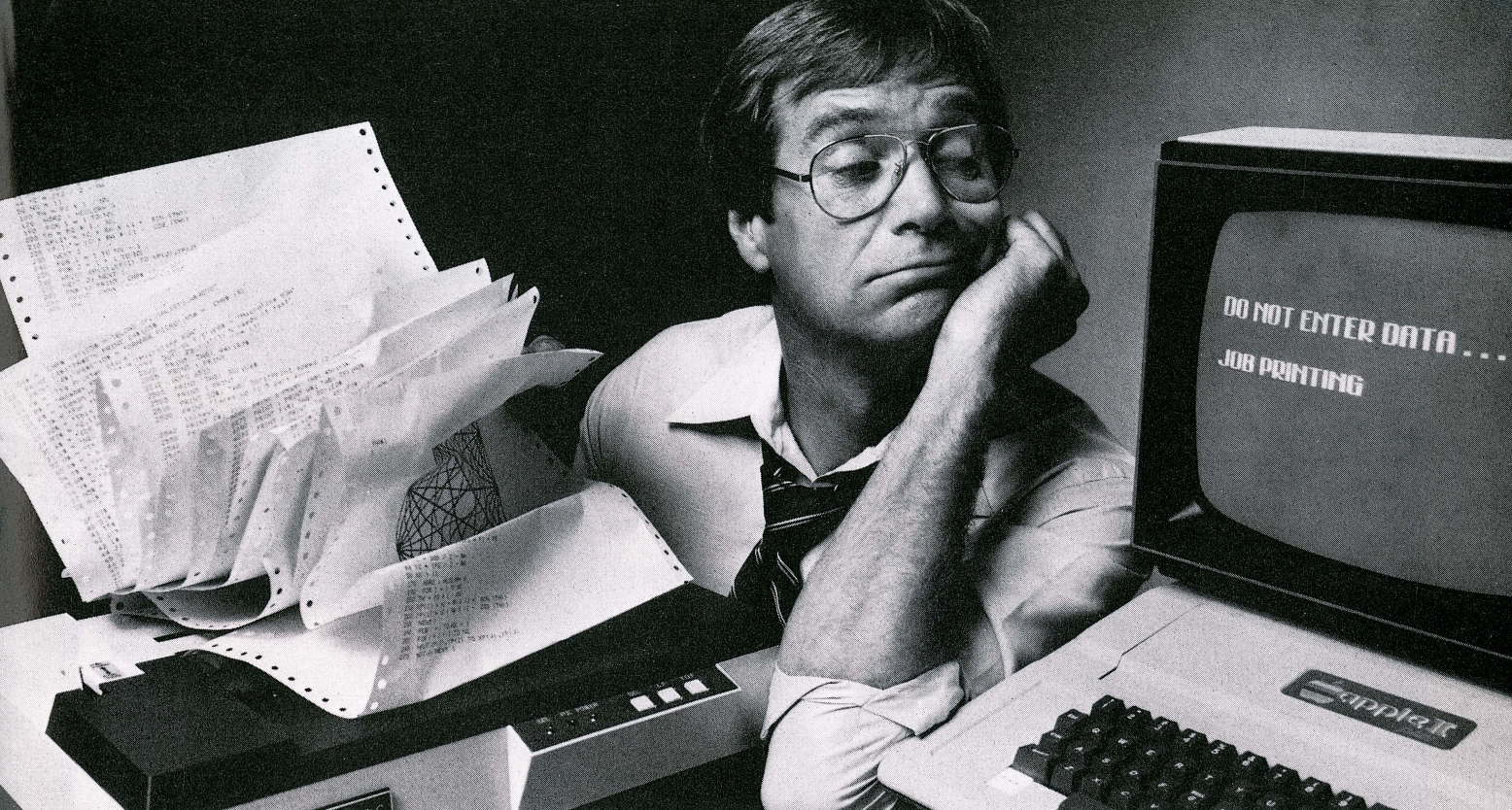
All of the popular Grappler + features with the time-saving benefits of a printer buffer.

- 16K of Buffer
- Expandable to 64K
- Interfaces with all popular dot matrix printers

Make the most of your Apple and printer, with the Grappler + or the Buffered Grappler +.

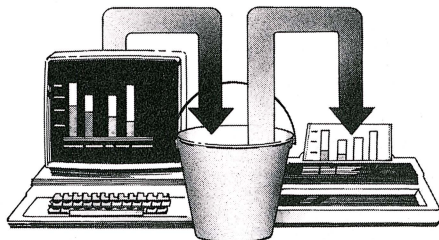
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If your printer uses your Apple[®] more than you do, you need The Bufferboard[™].

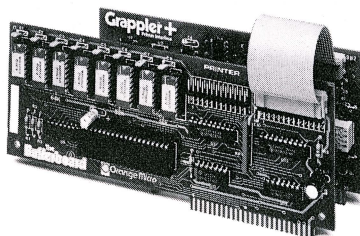
If your Apple is locked into the "PRINT" mode so much that you've taken up solitude to kill the boredom, you need a buffer. And if your computer is the Apple II or III, the only buffer for you is The Bufferboard. Expandable to 64K of storage, The Bufferboard stores an instantaneous **bucketful** of print data from your computer. Then it feeds the data to your printer at its own printing rate. Your Apple is set free from driving your printer and is ready for more data from you.



**Take your existing interface—
and buffer it!**

Only The Bufferboard has a simple Interface-Docking System. No bulky boxes

or expensive power supplies are needed because The Bufferboard fits right into your Apple—and docks onto your existing printer interface. The result is convenient



and economical buffering of most popular printer interfaces, including the Grappler +[™] interface, Epson interface, and Apple printer interface. Thirty seconds and a single hook-up are all you need to end the printer waiting game forever.

**Up to 20 letter-size pages
stored at a time.**

The Bufferboard comes standard with 16K, and is expandable to 32K or 64K of buffering capacity with the addition of

memory chips. This "bucket" will hold up to 20 pages of a print job, allowing you freedom to use your Apple.

**The Bufferboard—designed
exclusively for the Apple Computer.**

Specifications:

- Versions for Grappler + interface, Epson interface, Apple interface, and other popular printer interfaces • 16K buffer standard • Upgradeable to 32K or 64K • Automatic memory configuration • Automatic self test • Includes interface docking cable.

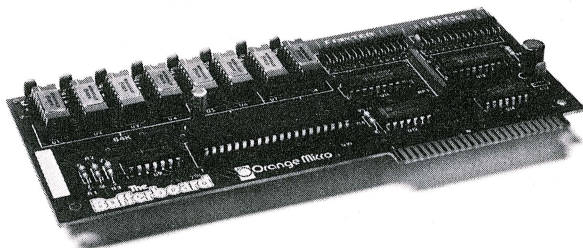
The Bufferboard is made by Orange Micro, Inc., the same people who brought you the popular Grappler + printer interface. Both the Grappler + and The Bufferboard are now available at your local Apple dealer.

Apple is a registered trademark of Apple, Inc. Epson is a registered trademark of Epson America, Inc.



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**The
Bufferboard[™]
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The Apple //e User Group Conference

by Ransom S. Fields
Club Management SIG Chairman

More than 100 representatives from Apple User Groups worldwide gathered in Santa Clara, California between March 4 and 7, 1983 for the Apple //e User Group Conference. It was put together in less than two months by Apple Computer, Inc.'s Personal Computer Systems Division (PCS) and the IAC. Travel Incentives, Inc. did a great job in bringing the out-of-towners to us, and in the administrative work of mounting such a conference. Harlan Felt, with help from Joe Budge and other PCS people, and from the IAC's Ken Silverman, made the arrangements and ran the show. Harlan and Joe occupy pivotal positions; both are part of PCS, and both are IAC officers.

For the record, you'll be happy to know that Apple Computer Inc. now has the following divisions:

PCS - Personal Computer Systems: //e and ///.
POS - Personal Office Systems: LISA.
APD - Accessory Products Division.
PSD - Peripheral Systems Division: disk drives.
MAC - whatever that means!

As a computer manufacturer, Apple is unique in that it has a coterie of devotees, both individual and gathered into User Groups, which were and are instrumental in the popularity of the various Apple computers. It had been a long time since Apple and the groups had come together in a formal way. That lack of communication had caused some misconceptions about users, particularly on the part of recently-added Apple executives who had had no experience with a company that had *fans* as opposed to mere customers. At the end of the Conference, many people from Apple Computer, Inc. came away with a revised opinion of what and who the User Groups and the IAC are, and the Club representatives had their eyes opened about Apple Computer as a first-class outfit. We present here some of the Conference highlights.

Friday, March 4. Apple hosted a "Welcome Cocktail Reception and Buffet". This was the first opportunity for Apple to meet the various leaders, Board Members, Presidents, Vice Presidents of more than 100 of the 400 Apple User Groups. Informal chats with Apple people and with other club officers were carried on with great gusto. Paraphrased comment from all sides: "This is *amazing*!"

Saturday, March 5. This was the big day. Presentations by lots of different Apple Computer people from 9 AM to 5 PM. Although there was a power failure in the afternoon, the mental electricity was flowing all day.

We were welcomed by **Paul Dali** (PCS General Manager), who set the tone by saying that "User Groups are important for Apple Computer", and briefly described the //e ("e" for "enhanced").

Phil Roybal (Manager, Communications, and Employee Number 35) followed, with a recap of Apple's history and progress as only he can do it. Phil is no stranger to user groups or the IAC, having been "present at the creation". Samples:

In 1976 (7 years ago), the 6502 microprocessor was selling for \$25 while others were about 10 times more expensive. From the standpoint of the two Steves at that time, the 6502 was a choice born of necessity. On May 10, 1977 (6 years ago), the first Apple II was delivered. The business market demanded two things: Applesoft and Disk II, which saw the light of day in 1978. VisiCalc was released in 1979, and hand-in-hand (bit-by-bit) both the Apple and VisiCalc climbed the ladder of success. In 1980, Apple went public. Meanwhile, the Apple ///, LISA, and the //e were under development.

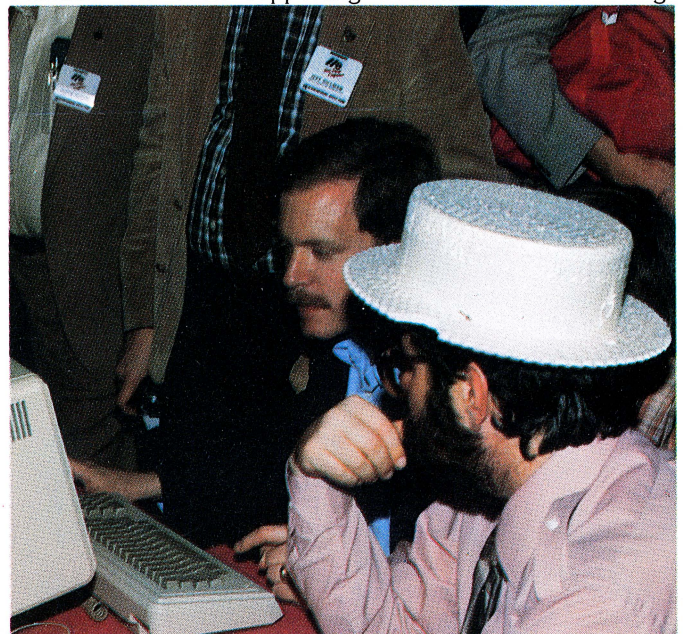
Miscellaneous tid-bits: out of \$65 million spent for Research and Development, LISA consumed \$50 million. Current production: an Apple computer is made every 20 seconds, and one Drive II is made every 12 seconds. If all the 800,000 Apples sold were placed on top of each other, the pile would be 59 miles high. Steve Jobs has founded a program called "Kids Can't Wait" which will give away 1,000 //es to schools.

The name "Apple" was created while Steve Wozniak and Steve Jobs were getting a business license for their new company. They were sitting in the registry office, looking through the book containing all the names of companies which had preceded theirs. They found that their favorites had already been taken. Jobs told Woz that they were going to have a name before the office closed at 5 PM. At 4:59, they still hadn't agreed on a name, and, because Jobs was on a fruit diet, and was eating an apple, ... the rest is history.

George Johnson (//e Product Manager) acknowledged the past; that the Apple II was a hard act to follow. The Apple II is simplicity in design: one printed circuit board, one keyboard and one power supply. In December 1982, the last month of its production, 45,000 Apple IIs were produced. There are more than 100 different personal computers in the market today. Low cost home computers (Atari, Texas Instruments, etc.) when configured like an Apple //e cost about the same. But Apple leads. "There are more people doing more things in more places with Apples than any other computer in the world."

Peter Quinn (//e Hardware Manager) gave us a close look at the //e, and some of the reasons why things are as they are. The fundamental improvement is that 110 ICs on the motherboard were engineered down to 31. Why? "Steve Jobs doesn't like fans" (presumably the kind that rotate). Steve had a lot to do with the design of the //e. Note that the Apple II had a Teletype keyboard, and that the //e keyboard, while it looks like the /// keyboard, does in fact have a different layout. The //e keyboard, as well as other features, were developed with both in-house and user group input.

Apples for markets outside the U.S. are designed to be bilingual, with a "hard" switch allowing the user to switch back and forth between character sets and keyboard configurations. Manuals and other supporting documentation are being



rewritten in more than 22 foreign languages. The "Dvorak" keyboard will also be available in the future.

If you have a //e and the 80-column card with 64K of memory, you can exchange your "Rev. A" board for a "Rev. B" board at your dealer. The "B" board has double Hi-Res and a 14 Mhz clock.

Finally, the //e power supply switch (a notorious source of problems on the Apple II) is being changed, although the //e draws half the power of the II. (Look, Steve, no fan!)

Walt Broedner (//e Logic Designer) added some history, and told us of the design, including the Auxiliary Slot. In 1978, the //e design (code names: Annie to Alice to Diana) was started by Broedner and Woz to offset perceived competition from Atari and Texas Instruments. When this competition did not materialize, the //e project was shelved in favor of the Apple ///. In December, 1980, the //e project was restarted, and the decision was made to use "custom" ICs for two logic sections: the Memory Management Unit (MMU) and the Input/Output Unit (IOU). These two ICs control virtually everything that happens in the //e.

The Auxiliary Slot, which has 60 pins instead of the 50 pins in Slots 1 to 7, integrates the needs of the 80-column card. This Slot is also used for testing the //e on the production line. The //e is a more manufacturable unit than the II.

The //e still does not generate true NTSC, for reasons of compatibility. However, other companies will make boards for the Auxiliary Slot which generate true NTSC, RGB, and allow expanded memory.

Rick Auricchio (//e Firmware Developer) began by saying that in the "Disneyland of Computing", you play Galaxian to 94,000 points while working with "Flash" and "Superman" prototype machines (more code names) to develop the software and firmware for the //e.

This approach becomes understandable when you consider that the //e F8 ROM (the monitor ROM) needed to be compatible with the F8 ROM in the II. In other words, all of the listed entry points (standard memory locations used by the Applesoft interpreter, and also, by Assembly language programmers) needed to be the same.



The goal here was maximum compatibility with the II, which overrode possible "improvements" and/or "fixes", depending on how you look at it. Since the //e contains more keys, a built-in 80-column board capability, on-board diagnostics, and bank switching while allowing 95% of the existing Apple software to run, the task of programming the F8 ROM was challenging, to say the least.

One look at the //e monitor ROM listing will show that because space was so limited, there is more spaghetti than in a beginner's BASIC program; so much for structured programming. Rest assured that the //e does work. Just don't jump into the diagnostics. A programmer's aside: The //e cursor keys are converted to their ESC I, J, K, M sequence which are then converted to the proper ESC A, B, C, D sequence. And so it goes in Apple land.

Sue Berman (//e Marketing Product Manager) had just begun to tell us what was done to bring the //e to the world when the lights went out: a power failure due to a storm. (Note: PG&E fans should know that Santa Clara has a municipal electric utility.) Sue, in true marketing tradition, tried to keep on talking, but it became apparent to all that her description of the many people and many skills used would have to wait. After 1

½ hours or so, the current was restored to our part of Silicon Valley . . . sometimes, known as Silly Putty Valley.

Marketing's outstanding achievement was that over 2,000 dealers worldwide actually *had* //es and the vendor support program information ready for the customers on the announcement date of January 19, 1983. This was achieved by putting together a multi-disciplinary team; in other words, the power was on in the Apple //e marketing effort.

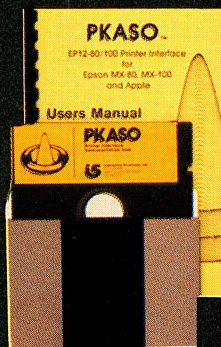
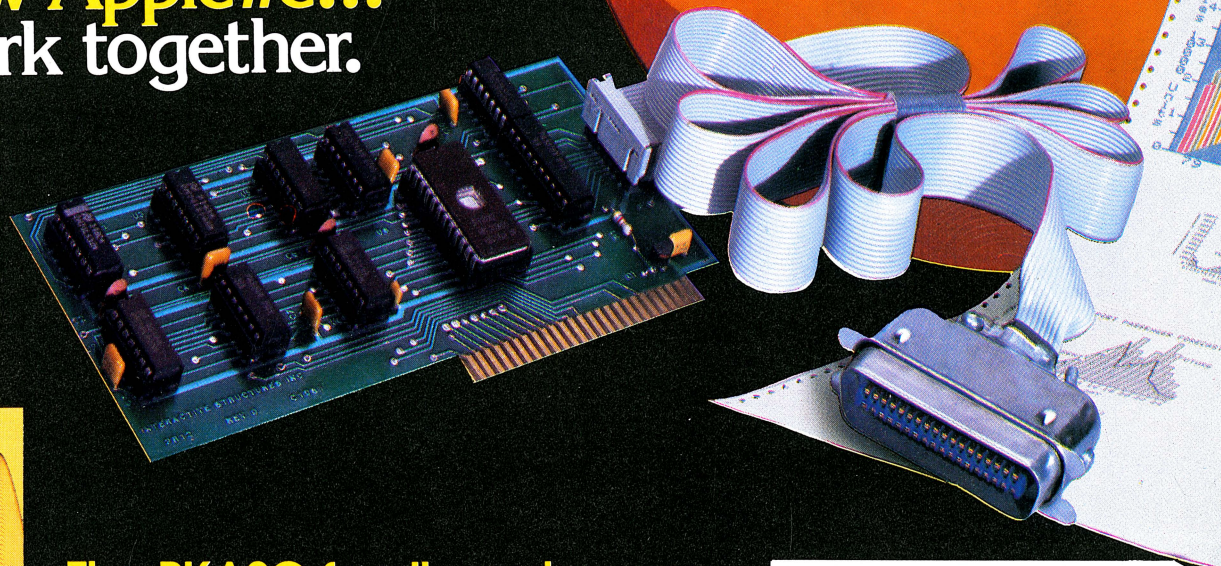
Sue described the "Target Consumer", i.e., who we are. Well-educated 25-44 year old folks (predominantly males) with a mean income of \$41,000. 60% of us have never touched a computer. 42% of us are in the business environment, 20% at home, 17% in education, 8% in science, and last but not least, 11% hobbyist. All of these have helped or will help turn the "Success into the Successor" by word-of-mouth advertising.

Jay Quimby (Apple Service) stated the policy: Apple Computer Inc. "recognizes the importance of service and support", which implies that local service should be "fast, with quality repairs, and reasonable prices". To provide this, there are three service levels: Level 1 at Apple dealers, Level 2 at six (U.S.) regional support centers, and Level 3 at corporate

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New Apple IIe...
We work together.**



PKASO Interfaces come complete with Cable, Instructional Diskette and Comprehensive Manual.

The PKASO family makes you and your Apple Computer a master of text and graphics.

PKASO makes it easy to use the features of your printer—select character sizes, vary line spacing, even print in colors. Simple PKASO commands make these features usable from the keyboard or a program.

PKASO also adds features to your system. Press a few keys and get a snapshot “dump” of the image you see on the screen—text or graphics. Add new characters and symbols that you couldn’t print before, using our SuperFont™ system. Add our new PipeLine™ printing buffer and your printer can take its time while you and your Apple move on to the next task. The PipeLine is a modular add-on to the standard PKASO board.

The PKASO interface is designed for Apple II and Apple III in all the popular configurations. It prints in full color on the IDS Prism Printer, and in striking black on C. Itoh, Centronics, Epson, IDS, NEC, and Okidata matrix printers.

NEW!

The IS Pipeline™ Printing Buffer with Random Access Printing stores paragraphs or pictures for printing in any order—any number of times!

- Universal—works with any parallel (Centronics style) computer/printer combinations.
- 8K to 128K Bytes of memory with data compression for efficient use of memory space.



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headquarters. Apple also provides a 90-day warranty for new //es and other new equipment, the "AppleCare" -carry-in insurance - package, RCA "On-Site" service, and a 90-day warranty on Apple software with updates for a period of six months.

With these and other facts out of the way, questions and comments from the participants were entertained. It seems that service bulletins have the strange property of staying in the Dealers' file cabinets and hardly ever seeing the light of day. One astute club officer asked why the clubs' couldn't receive the service bulletins for distribution to club members, and growing even bolder, asked why the user groups are not allowed to perform Level 1 service. Well . . .

Another Apple representative (wearing a flak jacket) said that service problems with Apple dealers should be addressed to the Regional Service offices. There, appropriate steps would be taken. He then recessed the Conference with a promise to have further discussions on the service situation on Sunday - which didn't happen.

What did happen Saturday evening was dinner in "Everybody's Favorite City" - not Cupertino, but San Francisco, where we were wined and dined to hot Dixieland band music, and the even, hotter LISA. It was a "hands-on" session.

Sunday - March 6. //e Hands-on Session. "Don't play with the computers until we tell you; we'll shut off the power if we have to." There we were in a sea of //es. Blinking cursors and ringing bells played havoc with some of the participants' eyes and ears. It seems that we just couldn't wait to play. Anyway, there were some diskettes available which demonstrated the

power of the //e. These demo disks served as an introduction to additional members of the Apple Computer family.

Martha Steffens (Publications Manager) proved that our favorite computer company has come along way since the days of the infamous Red Book. Various //e manuals were discussed and should be available in your Club library. Martha said her group is already working on Rev. D of the //e Owner's Manual. Soon to be released are the SOS Reference Manual and the /// Device Driver Writer's Guide.

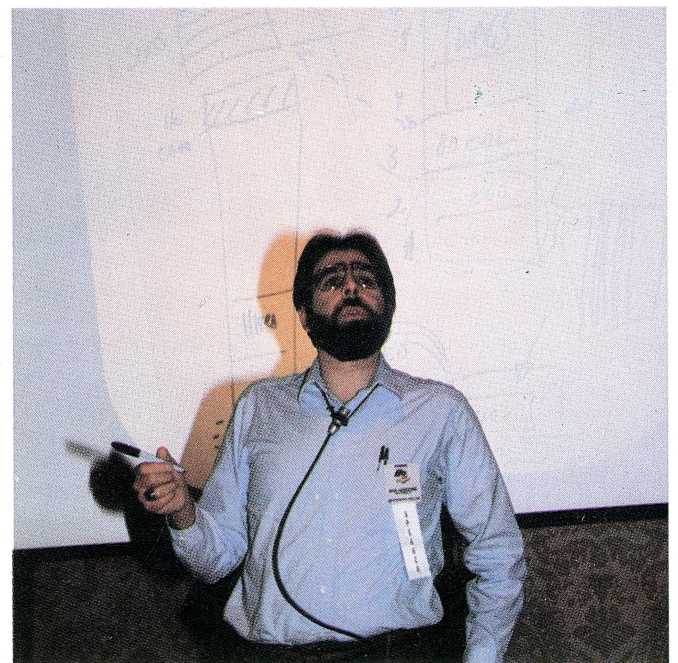
Apple's new policy is that only the Owner's Manual will be shipped with the //e, with the Applesoft manuals and the Reference manual available at additional cost to the purchaser. Another cost reduction for the //e, but why have an Applesoft manual around if you only use Pascal? or CP/M?

Peggy Miller (Training) was up next. Some of us old-timers remember when training consisted of reading the Red Book, the AppleSoft reference manual and the DOS 3.2 manual while developing computer programs. Well, megabucks of sales certainly changed all that. Now, there are Product Training Paks, which cost about \$40 and provide the user with step-by-step tutorials for many of Apple's popular programs, such as Applewriter II. Apple is planning to put the manuals on diskettes using CAI techniques.

Apple has realized that "hackers" are a vanishing, or maybe diminishing breed, and has started to offer computer literacy packages to dealers, consultants, clubs, etc. These packages include slides, audio cassettes, training materials and teachers' guides at retail costs between \$200 to \$500.

Peggy told a few anecdotes: one person when prompted to "HIT ANY KEY" looked for the key marked "ANY". Another person, when told that the disk drives are used to store information, folded a piece of paper to the exact size of the disk drive slot and put it into the drive. Computer literacy has a long way to go!

Jim Hoyt (Technical Support), was the appropriate choice to handle questions & answers. Samples:



Q: Is the Apple /// viable? A: Yes, Apple Computer Inc. will continue to support it.

Q: How does Apple support programmers? A: By licensing programmers and providing a software developers technical support hotline.

Q: How does Apple support customers? A: Apple has set up (finally) a Customer Relations department to handle the over 10,000 letters per day. Hopefully, Apple Computer Inc. is no longer the "black hole".

Ed Reutemann (PCS Marketing) provided the closing comments, reminding us of the Apple Computer values, as formulated by Phil Roybal.

- 1: Computers for people with users in mind.
- 2: Continuing innovations.
- 3: Have fun.

IAC Stuff

Many of the user group officials expressed their appreciation to Apple Computer Inc. for presenting the //e and LISA. Also, these officials were happy to have had the opportunity to get together with the other club's active volunteers. The IAC has a myriad of activities and functions going on; some of which are only dimly perceived by the members of various clubs.

Example: if you have a single side band (SSB) short-wave receiver, you can find facts, tips and rumors on Sundays starting at 9 AM PST (1700 GMT) at 14.329 MHz, and on Saturdays at 9 AM at 7.230 or 7.260 MHz.

If your Club has public domain, debugged, documented software, such material will also be considered by Dr. Charles Smith, Software Chairman, for a future IAC Disk of the Month.

While the Directors of the IAC were having a closed Board meeting, many of the user group officers got together to discuss what was happening with their various clubs. The exchange provided an insight into the prospects, promises and problems of both the large and small Apple computer clubs. It became apparent that many of the clubs were "reinventing the wheel". Over the next year, this writer and other IAC active volunteers will be setting up a network for club information exchange so that ideas and practices can be circulated to interested user groups. If the IAC member clubs are better managed, we all win!

Our heartfelt thanks go to Apple Computer Inc., and particularly to the two Apple employees who also serve the International Apple Core: Harlan Felt, IAC Vice President, and Joe Budge, IAC Secretary.

All of us learned a lot, at a first-class event.



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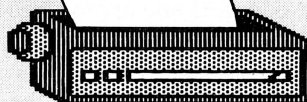
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Of Special Interest

The International Apple Core's Special Interest Groups (SIG's)

by Louis H. Milrad
Vice-President & SIG Co-ordinator

The mandate of the International Apple Core is twofold:

- (i) the dissemination of useful and valuable information to Apple owners and users, and
- (ii) to act as a liaison among the Member Clubs comprising the International Apple Core.

In furtherance of this mandate, the International Apple Core has, upon request from Member Clubs, isolated specific areas of interest and appointed responsible individuals in charge of Special Interest Groups (SIG's). Although there is no required organizational aspect pertaining to these Special Interest Groups, they have been established in a variety of ways. For example, in the case of the HAM Special Interest Group, by regular communication over the airwaves on Sunday evenings. This has evolved as an informal and voluntary exchange of information and the persons participating in this structure have found the actual activity as a useful medium for public-domain program exchanges.

In other instances, the Chairmen have acted as a repository of information, compiling such information into regular mailings and newsletters, to those persons interested in the particular discipline.

Until recently, the Special Interest Groups have worked in an *ad hoc* fashion. With a growing number of Apple Owners and the increased membership in the International Apple Core, we are endeavouring to increase the number of Special Interest Groups and to explore new areas, concepts and approaches such as the formation of specialized users' groups.

As an example of this, we have established a Games Users' Group comprised of the counterpart Games SIG's of the

Member Clubs or any individuals belonging to a member club and having an interest in this particular area. This SIG would in effect be set up as a member club with particular stated goals and would be registered as a member club with the IAC while at the same time its mode of communication with the Officers and Directors of the International Apple Core is through the Chairman of such SIG overseeing its activities.

While at the present time we have some vacant SIG Chairmanships, we hope to fill such vacancies and establish SIGs in other stated areas of interest. It is to our Member Clubs that we look for suggestions and guidance in addition to enthusiastic volunteers to share the attendant workload of the particular Special Interest Groups. For example, assistance is needed to help co-ordinate activities, in the writing of articles for **Apple Orchard** and for internally prepared newsletters of the SIG, as well as compiling and distributing the articles. This list goes on!

You are invited to participate, so please get involved by contacting the designated SIG Chairman. Only through active involvement and participation of Apple owners can we endeavour to share our collective experiences, knowledge and resources. If you are not already involved in our shared expertise programs, become a catalyst and take the first step. The information, expertise and resources are all there, so let's share them!

If you are interested in volunteering your time to accept any vacant chairmanship or the appointment of the position of Chairman for any contemplated SIG's or to assist in any other non-financially remunerative and time consuming position

where the rewards are few, please contact and include your resume to:

Louis H. Milrad
Vice-President & SIG Co-ordinator
International Apple Core
15 Sydnor Road
Willowdale, Ontario
M2M 2Z9

Currently Established SIGs:

At the present time, we have 12 SIGs established in the following areas:

Apple III
Calc (SuperCalc, Visicalc, Calcstar, etc.)
Computer Generated Art
Data Management
Dental
Education
Family
Farming
Games
Ham Radio
Investments
Telecommunications

SIGS Without Chairmen:

SIGs have previously existed in the following four areas for which the International Apple Core is presently entertaining applications for new Chairmen:

Handicapped
Legal
Medical
Languages

Contemplated SIGs:

We hope to establishing SIG's in the following six areas for which we are seeking interested and dedicated volunteers for the positions of Chairmen, Co-ordinators, overall volunteers and participants:

Accounting
Business Applications
CP/M
Engineering
Graphics
Source

Present SIG Activities:

All of the present SIG's, their stated goals and activities and Chairmen are briefly described; should you require further information or are interested in becoming actively involved in these SIG's, please contact the respective Chairmen directly.

SIG: **APPLE ///**

Chairman: Don Norris
Address: P. O. Box 813
San Francisco, CA 94101 U.S.A.
Phone: (415) 673-7635

Stated Goals and Activities:

- To encourage and assist in the development of local Apple /// user groups with an emphasis on application ideas and uses of available and new software.

- To maintain a list of software for the Apple /// for distribution to other Apple /// owners to assist them in their personal or business purchases.
- To provide advice and guidance by way of articles directed exclusively to Apple /// owners.
- To develop and exchange working Visicalc models.

SIG: **CALC**

Chairman: John C. Hunter
Address: Compu-Point Incorporated
Suite 302, 515 Consumers Road
Willowdale, Ontario, Canada, M2J 4Z2
Phone: (416) 494-6674

Stated Goals and Activities:

- To allow people who are presently interested in the "CALC" forecasting type programs a medium by which an interaction of experiences and learning will occur.
- To make "CALC" users aware of related software, hardware, new products, and new found details and intricacies so that they may fully utilize the power of the "CALC" package, and what to expect in the future.
- To allow a method by which resulting templates and ideas constructed in one "CALC" package can be transferred to another "CALC" package.

SIG: **COMPUTER GENERATED ART**

Chairman: Stephen W. Long
Address: 39 Scanboro Beach Blvd.
Toronto, Ontario, Canada, M4H 2W9
Phone: (416)-694-8892

Stated Goals and Activities:

- The sharing of research and experimentation and exchange of information regarding this relatively new phenomenon.
- The defining of computer-based art activity as distinct from computer and video graphics.
- To establish formal working relationships with other artists having interest in this particular discipline.
- To share information in this field through newsletters, telephone communications, seminars and conferences.

SIG: **DATA MANAGEMENT**

Chairman: Malcolm Slovin
Address: 10515 Tabor Street, No.1
Los Angeles, CA 90034 U.S.A.
Phone: (213) 837-3741

Stated Goals and Activities:

- To assemble and disseminate concepts used in file management systems or data base systems without regard to any particular applications, profession or discipline.
- Reviews of file management and data base systems.
- The publishing of articles concerning general principles of data base design and implementation and data management techniques (e.g. virtual processing).
- Specific applications using existing and new data management techniques.

SIG: **DENTAL**

Chairman: Ellis (Skip) Neiburger
Address: 33263 No. Cove
Wildwood, IL 60030 U.S.A.
Phone: (312) 223-5077

Stated Goals and Activities:

- a. The identification of quality software for use in dental offices on the Apple Computer.
- b. The exchange of ideas and experiences among members of the profession.
- c. Assisting computer novices by providing advice and experience and implementation of a computer bulletin board as well as software exchange of public-domain software.

SIG: EDUCATION

Chairman: Ted Perry
Address: 2331 Rainbow Avenue
Sacramento, CA 95821 U.S.A.
Phone: (916) 485-1690

Stated Goals and Activities:

- a. The Educational SIG has been mostly an information, referral and reference source. Common questions covered include assisting in the identification of preferred software applications that cover a given subject; comparison of projects being conducted in the classroom; consideration of networking concepts for particular applications; discussion of the ability to locate computer literacy curriculums and how to fulfill a child's educational need with an Apple.
- b. The group would continue as an information and referral service in anticipation of developing a national network of educators willing to help novices including the publication of regular newsletters and a column in the Apple Orchard.

SIG: FAMILY

Chairman: David Stern
Address: 6921 Old Stage Road
Rockville, MD 20852 U.S.A.
Phone: (301) 881-2543

Stated Goals and Activities:

- a. To develop a newsletter and exchange member-developed software;
- b. To participate in regional Applefests and encourage member creativity and proficiency in basic, LOGO, machine language, graphics and to some extent games.
- c. To encourage "FAMILY" participation in the use and application of the Apple Computer.

SIG: FARMING

Chairman: Susie Allen
Address: c/o Farmplan Computer Systems Inc.
1055 Sunnyvale-Saratoga Road
Sunnyvale, CA 94087 U.S.A.
Phone: (408) 746-0636

Stated Goals and Activities:

- a. To explore and implement the use of the Apple Computer in support of the farm community by the contribution of articles to the Apple Orchard and other publications, through the holding of conventions, conferences and various seminars.

SIG: GAMES

Chairman: James Shook Eatherly
Address: 3342 18th Street N.W.
Washington, DC 20010 U.S.A.
Phone: (202) 232-6046

Stated Goals and Activities:

- a. To serve those groups of people who use their Apples for entertainment, including ideas exchange through newsletter on a regular basis and exchange of member-developed, public-domain software.
- b. The development and exchange of public-domain games discs with the ultimate goal being to reach the individual through the games he plays and exchange of information and evaluations on such games.

SIG: HAM RADIO GROUP

Chairman: James E. Hassler
Address: 2203 Park Avenue
Orchard Valley
Cheyenne, Wyoming 82007 U.S.A.
Phone: (307) 632-4934

Stated Goals and Activities:

- a. The HAM SIG is probably the most active and oldest SIG, and was in fact established before the International Apple Core. It meets every Sunday night at 0100GMT on 14.329MHZ. The Chairman acts as Net Control and since inception has never missed a Sunday night. The main goal of the HAM SIG is to inform Hams and Short Wave Listeners of the latest available software and peripherals for the Apple Computer and to exchange information with others on the latest software and hardware. To date more than six hundred Hams with Apple Computers have checked onto the Net (not including the number that merely listen).

SIG: INVESTMENTS

Chairman: John F. McMullen
Address: P. O. Box 230-Perry Street
Jefferson Valley, NY 10535 U.S.A.
Phone: (914) 245-2734

Stated Goals and Activities:

- a. The evaluation and review of business-related software and exchange of information among members including publication of reviews in the Apple Orchard. Proliferation at a geometric rate in areas such as time-sharing firms with market prices, historic price and dividends, fundamental data, commodity history, etc. as well as evaluation of Dow Jones Service indicators have been covered.

SIG: TELECOMMUNICATIONS

Chairman: Craig W. Vaughan
Address: c/o Software Sorcery, Inc.
Suite 400, 4927 Jones Branch Drive
McLean, Virginia 22102 U.S.A.
Phone: (703) 471-0572
ABBS (703) 471-0610
Source ID - TCA099

Stated Goals and Activities:

- a. To promote the interchange of information on telecommunications both between user groups and other interested parties and organizations. In the past have coordinated efforts with the Standards Committee in development of standards in the telecommunications area.
- b. To promote the establishment of a proposed file exchange standard for telecommunications.
- c. To promote the use of the Apple Computer as a means for telecommunications among the deaf.
- d. In the past have worked with DCI.DEAFNET.



PRINT FRE(ED)

by Val J. Golding
Editorial Associate

Making Points
Making Points
Making Points
Making Points
Making Points

Point is a descriptive term which generally refers to the measurement of the vertical component of a typeset character. For example, the text you are reading at this moment is set in 9 1/2 point type. There are 12 points to a *pica*, and six picas to an inch.

Our esteemed editor and close friend Peter Weiglin has threatened us with extinction — a case in (of?) point — by reducing, a point at a time, the size of the type in which our name appears on the **Apple Orchard** masthead.

Peter made the point quite clear at the West Coast Computer Faire by pointing out that our name had been reduced to 8 point size in the March issue. "Produce or be pointed out," he boomed in his powerful manner.

Thus, after allowances for Peter's homespun but sick sense of humor, and his pointed remarks, we figured it was pointless to procrastinate further and we should get down to the business of writing a column.

Attempts at humor aside, the point is: The Apple community is changing its image rapidly. In 1978 and 1979, a large majority of Apple users — and thus the image of the user group — were hobbyists.

Today, hobbyist numbers have not changed substantially, but the *ratio* of hobbyists to other users has undergone a drastic revision. More Apple computers today are being sold for business and educational users than any other single area. The membership of Apple user groups, we believe, accurately reflects this change. Nowhere was this attested to more vehemently than by Dave Lingwood's eloquent plea to Apple Computer, Inc., at a recent Apple-IAC //e getogether.

Obviously, Apple Computer, Inc., is in step with the times. First the Apple ///, then the recent introduction of the Apple //e and Lisa, to be followed shortly by MacIntosh.

We were faced with a decision when the /// became a reality. Should we (the IAC) support it? The answer to that one was easy. After all, if *was* an Apple, and it moreover could emulate the Apple II.

Now comes a situation not at all analogous: Lisa. Lisa not only does not emulate the II or ///, it does not even share the 6502 microprocessor, relying instead on the 16-bit 68000. But as evolutionary/revolutionary as was the original Apple II in hardware design and innovation, Lisa plays second fiddle to none in terms of its software design and engineering. Truly the fourth generation, Lisa will be the leader in her field for many years to come, as was (and is) the Apple II and its kin, the Apple //e.

If we are to support Lisa, then what form will that support take? Certainly Lisa can run BASIC, and other languages as well. But how many users — and remember, we are thinking almost exclusively of the business community — will have an interest in anything other than Apple's smooth and super-sophisticated software, supplied with Lisa, plus the promise of similar packages to be supplied by outside vendors?

This is all good wholesome food-for-thought, but let us first answer the question of to support or not to support. How can we make this determination? Frankly, the thought scares us. Remember, Lisa is a *teh* grand machine. Most of us will not run out and buy one for the home, another for the office and a third for a spare.

We think it behooves us to poll our members. If they could afford it, would Lisa be a machine they would want to use. If we were to publish Lisa-related material, how many Lisa users would join our clubs, read our magazines?

These are just a couple of the questions that must be asked, only the tip of the iceberg. Brainstorm it. Get some good questions going. Ask your members. Send the questions to Peter to print; send him the answers, too.

"Get the point, Peter?"

"Got it."

"Good."



Converting Hex to Dec

by John B. Matthews, M.D.

The majority of this planet's natives are born with a complement of ten fingers: five on each of two hands. This is often cited as a reason for the popularity of the decimal (Base 10) numbering system. Computers have only two fingers and count in binary (Base 2). Computer programmers find binary digits hard to read and, since they seem to have sixteen fingers anyway, the hexadecimal (Base 16) System is used.

A complete discussion of these numbering systems and their interconversion is beyond the scope of this article. The principles involved are usually introduced at the junior high school level. For a data processing oriented description see Benice, Chapter Three, in the references.

The tedious process of converting hexadecimal and decimal numbers is ideally handled by a computer and no less than eight programs have appeared on the Apple-Dayton Disk-of-the-Month to perform the conversions. The trouble with these is that they are written in BASIC and invariably run at inconvenient locations in memory. The author inflicts yet another Hex/Dec conversion program on the gentle reader since this one is in machine language and can be assembled to run at some more convenient location in memory such as a ROM or a DOS buffer.

The program listing was produced with the LISA V2.5 assembler. A few psuedo-opcodes may need to be changed to work with other assemblers: EPZ is the same as EQU but forces zero-page addressing; HEX is similar to DFB in standard MOS syntax; ASC <delimited string> should assemble characters with the high order bit set (i.e. negative ASCII) if output is to the Apple screen. External references to routines in the Apple monitor are more fully documented in the Apple II Reference Manual.

This utility should help make the assortment of PEEKs, POKEs, and CALLs in a program a bit less mysterious. Happy programming!

References

BENICE, D., *Introduction to Computers and Data Processing*, Prentice-Hall, Englewood Cliffs, New Jersey, 1970.

WOZNIAK, S., BAUM, A., Apple II System Monitor, in *Apple II Reference Manual*, Apple Computer, Cupertino, California, 1979.

WOZNIAK, S., "Binary-to-Decimal Shortcut", in CONTACT section of *Apple Orchard*, Vol.1, No. 3, International Apple Corps, Daly City, California, 1180.

0800	4	; HEX/DEC Conversion by John B. Matthews, M.D.	
0800	5	; 3/20/80; last update 1/9/82	
0800	6	;	
0803	7	ORG \$803	; if run from Applesoft
0803	8	OBJ \$803	
0024	9	CH EPZ \$24	; cursor hor. pos.
0025	10	CV EPZ \$25	; cursor vert. pos.
002F	11	INDEX EPZ \$2F	; to BUF
003A	12	TEXTPT EPZ \$3A	
003C	13	A1 EPZ \$3C	
0050	14	MP EPZ \$50	; multiplier/result of MUL
0054	15	ML EPZ \$54	; multiplicand
00F9	16	LOBYTE EPZ \$F9	
00FA	17	HIBYTE EPZ \$FA	
00FB	18	DECO EPZ \$FB	
00FC	19	LEC1 EPZ \$FC	
00FD	20	DEC2 EPZ \$FD	
0200	21	BUF EQU \$200	; keyboard buffer
E003	22	BASIC2 EQU \$E003	; BASIC warmstart
F940	23	PRYX EQU \$F940	; output YX as 4 hex digits
FC22	24	VTAB EQU \$FC22	; vert. tab to CV

FC58		25	HOME	EQU %FC58	;home and clear screen
FD6F		26	GETLN	EQU %FD6F	;get a line, no prompt
FD8E		27	CROUT	EQU %FD8E	;output <CR>
FDDA		28	PRBYT	EQU %FDDA	;output A as hex [0..255]
FDE5		29	PRHEXZ	EQU %FDE5	;output A as hex [0..15]
FDED		30	COUT	EQU %FDED	;output A as ascii
FFA7		31	GETNUM	EQU %FFA7	;get hex number
FFC7		32	ZMODE	EQU %FFC7	;set mode 0 for GETNM
0803		33			
0803 20 58 FC		34	ENTRY	JSR HOME	
0806 20 60 09		35		JSR PRTEXT	
0809 8C 8D		36		HEX 8C8D	;ascii FF & CR
080B A0 C8 C5		37		ASC " HEX/DEC CONVERSION "	
080E D8 AF C4					
0811 C5 C3 A0					
0814 C3 CF CE					
0817 D6 C5 D2					
081A D3 C9 CF					
081D CE A0					
081F C2 D9 A0	38			ASC "BY J MATTHEWS,M.D."	
0822 CA AE A0					
0825 CD C1 D4					
0828 D4 C8 C5					
082B D7 D3 AC					
082E CD AE C4					
0831 AE					
0832 8D 8D	39			HEX 8D8D	
0834 A0 A0 C5	40			ASC " ENTER NUMBER TO BE"	
0837 CE D4 C5					
083A D2 A0 CE					
083D D5 CD C2					
0840 C5 D2 A0					
0843 D4 CF A0					
0846 C2 C5					
0848 A0 C3 CF	41			ASC " CONVERTED & PRESS"	
084B CE D6 C5					
084E D2 D4 C5					
0851 C4 A0 A6					
0854 A0 D0 D2					
0857 C5 D3 D3					
085A 8D	42			HEX 8D	
085B BC D2 C5	43			ASC "<RETURN>; PREECEED "	
085E D4 D5 D2					
0861 CE BE BB					
0864 A0 D0 D2					
0867 C5 C5 C3					
086A C5 C5 C4					
086D A0					
086E C8 C5 D8	44			ASC "HEX WITH \$; Q TO QUIT"	
0871 A0 D7 C9					
0874 D4 C8 A0					
0877 A4 BB A0					
087A D1 A0 D4					
087D CF A0 D1					
0880 D5 C9 D4					
0883 00	45			HEX 00	
0884 20 60 09	46	PROMPT		JSR PRTEXT	
0887 8D 8D	47			HEX 8D8D	
0889 A3 A0	48			ASC "# "	
088B 00	49			HEX 00	
088C 20 6F FD	50			JSR GETLN	
088F 86 2F	51			STX INDEX	;X is line length
0891 C6 25	52			DEC CV	;stay on input line
0893 20 22 FC	53			JSR VTAB	
0896 8A	54			TXA	

0897 69 02	55	ADC #02	;advance CH to
0899 85 24	56	STA CH	;line length + 2
089B A0 00	57	LDY #00	
089D B9 00 02	58	LDA BUF,Y	
08A0 C9 D1	59	CMP #D1	
08A2 F0 3A	60	BEQ BASIC	
08A4 C9 A4	61	CMP #A4	; "\$"
08A6 D0 3C	62	BNE DEC	; if not \$ then decimal
08A8 20 C7 FF	63	JSR ZMODE	; set hex mode
08AB C8	64	INV	; skip the \$ sign
08AC 20 A7 FF	65	JSR GETNUM	; hex num to A1
08AF 20 60 09	66	JSR PRTEXT	
08B2 A0 BD A0	67	ASC " = "	
08B5 00	68	HEX 00	
08B6 A6 3C	69	LDX A1	
08B8 A5 3D	70	LDA A1+1	
08BA 20 9D 09	71	JSR PRDEC	
08BD A5 3D	72	LDA A1+1	
08BF C9 80	73	CMP #80	
08C1 90 C1	74	BLT PROMPT	; >32767 form 2's complement
08C3 20 60 09	75	JSR PRTEXT	
08C6 A0 BD A0	76	ASC " = -"	
08C9 AD			
08CA 00	77	HEX 00	
08CB 38	78	SEC	
08CC A9 00	79	LDA #00	; subtract A1 from 0
08CE E5 3C	80	SBC A1	
08D0 85 3C	81	STA A1	
08D2 A9 00	82	LDA #00	
08D4 E5 3D	83	SBC A1+1	
08D6 A6 3C	84	LDX A1	
08D8 20 9D 09	85	JSR PRDEC	
08DB 4C 84 08	86	JMP PROMPT	
08DE 20 8E FD	87	JSR CROUT	
08E1 4C 03 E0	88	JMP BASIC2	; DOS hooks unchanged
08E4 A0 00	89	LDY #00	
08E6 84 3C	90	STY A1	
08E8 84 3D	91	STY A1+1	
08EA A6 2F	92	LDX INDEX	
08EC CA	93	DEX	
08ED BD 00 02	94	LDA BUF,X	; start with last digit
08F0 C9 AD	95	CMP #AD	; "-"
08F2 F0 46	96	BEQ NEG	
08F4 38	97	SEC	
08F5 E9 B0	98	SBC #B0	; "0"
08F7 85 54	99	STA ML	; init ML with digit
08F9 A9 00	100	LDA #00	
08FB 85 55	101	STA ML+1	
08FD 85 52	102	STA MP+2	
08FF 85 53	103	STA MP+3	
0901 B9 56 09	104	LDA PWR,Y	
0904 85 50	105	STA MP	; and MP with power of ten
0906 C8	106	INV	
0907 B9 56 09	107	LDA PWR,Y	
090A 85 51	108	STA MP+1	
090C 98	109	TYA	; save X & Y
090D 48	110	PHA	
090E 8A	111	TXA	
090F 48	112	PHA	
0910 20 7F 09	113	JSR MUL	; multiply ML by MP
0913 68	114	PLA	; 32 bit result in MP
0914 AA	115	TAX	
0915 68	116	PLA	
0916 A8	117	TAY	
0917 18	118	CLC	

0918 A5 50	119	LDA MP	;add to A1
091A 65 3C	120	ADC A1	
091C 85 3C	121	STA A1	
091E A5 51	122	LDA MP+1	
0920 65 3D	123	ADC A1+1	
0922 85 3D	124	STA A1+1	
0924 C8	125	INY	;next power of ten
0925 CA	126	DEX	;next digit
0926 10 C5	127	BPL NXTDIG	
0928 20 60 09	128	HEX JSR PRTEXT	
092B A0 BD A0	129	ASC " = \$"	
092E A4			
092F 00	130	HEX 00	
0930 A6 3C	131	LDX A1	
0932 A4 3D	132	LDY A1+1	
0934 20 40 F9	133	JSR PRYX	
0937 4C 84 08	134	JMP PROMPT	
093A 20 60 09	135	NEG JSR PRTEXT	
093D A0 BD A0	136	ASC " = "	
0940 00	137	HEX 00	
0941 38	138	SEC	
0942 A9 00	139	LDA #\$00	
0944 E5 3C	140	SBC A1	
0946 85 3C	141	STA A1	
0948 A9 00	142	LDA #\$00	
094A E5 3D	143	SBC A1+1	
094C 85 3D	144	STA A1+1	
094E A6 3C	145	LDX A1	
0950 20 9D 09	146	JSR PRDEC	
0953 4C 28 09	147	JMP HEX	
0956 01 00	148	PWR HEX 0100	;1
0958 0A 00	149	HEX 0A00	;10
095A 64 00	150	HEX 6400	;100
095C E8 03	151	HEX E803	;1000
095E 10 27	152	HEX 1027	;10000
0960	153		
0960	154	; PRTEXT (relocatable)	
0960	155		
0960	156	; Print text starting after	
0960	157	; JSR PRTEXT and ending #\$00	
0960	158	; A & Y destroyed, X intact.	
0960	159		
0960 68	160	PRTEXT PLA	;get return address
0961 85 3A	161	STA TEXTPT	;as text pointer.
0963 68	162	PLA	
0964 85 3B	163	STA TEXTPT+1	
0966 A0 00	164	LDY #\$00	
0968 E6 3A	165	PRTEXT1 INC TEXTPT	
096A D0 02	166	BNE PRTEXT2	
096C E6 3B	167	INC TEXTPT+1	
096E B1 3A	168	PRTEXT2 LDA (TEXTPT),Y	
0970 F0 06	169	BEQ PRTEXT3	;0 is end of string
0972 20 ED FD	170	JSR COUT	
0975 18	171	CLC	
0976 90 F0	172	BCC PRTEXT1	;branch always
0978 A5 3B	173	PRTEXT3 LDA TEXTPT+1	;restore return address
097A 48	174	PHA	
097B A5 3A	175	LDA TEXTPT	
097D 48	176	PHA	
097E 60	177	RTS	

097F	178	;	
097F	179	;	MULTIPLY MP by ML and save in MP
097F	180	;	after Wozniak: Apple monitor
097F	181	;	
097F A0 10	182	MUL	LDY #\$10 ;index for 16 bits
0981 A5 50	183	MUL2	LDA MP
0983 4A	184		LSR
0984 90 0C	185		BCC MUL4
0986 18	186		CLC
0987 A2 FE	187		LDX #\$FE ;\$FE = -2 in x-page,x
0989 B5 54	188	MUL3	LDA ML,X ; addressing mode
098B 75 56	189		ADC ML+2,X
098D 95 54	190		STA ML,X
098F E8	191		INX
0990 D0 F7	192		BNE MUL3
0992 A2 03	193	MUL4	LDX #\$03
0994 76 50	194	MUL5	ROR MP,X
0996 CA	195		DEX
0997 10 FB	196		BPL MUL5
0999 88	197		DEY
099A D0 E5	198		BNE MUL2
099C 60	199		RTS
099D	200		
099D	201	;	PRDEC X=LO, A=HI
099D	202	;	after Wozniak and others
099D	203	;	
099D 86 F9	204	PRDEC	STX LOBYTE
099F 85 FA	205		STA HIBYTE
09A1 A9 00	206		LDA #\$00
09A3 85 FB	207		STA DEC0
09A5 85 FC	208		STA DEC1
09A7 F8	209		SED
09A8 A0 10	210		LDY #\$10
09AA 06 F9	211	PRDEC1	ASL LOBYTE
09AC 26 FA	212		ROL HIBYTE
09AE A5 FB	213		LDA DEC0
09B0 65 FB	214		ADC DEC0
09B2 85 FB	215		STA DEC0
09B4 A5 FC	216		LDA DEC1
09B6 65 FC	217		ADC DEC1
09B8 85 FC	218		STA DEC1
09BA 26 FD	219		ROL DEC2
09BC 88	220		DEY
09BD D0 EB	221		BNE PRDEC1
09BF D8	222		CLD
09C0 A5 FD	223		LDA DEC2
09C2 20 E5 FD	224		JSR PRHEXZ
09C5 A5 FC	225		LDA DEC1
09C7 20 DA FD	226		JSR PRBYT
09CA A5 FB	227		LDA DEC0
09CC 20 DA FD	228		JSR PRBYT
09CF 60	229		RTS
09D0	230		END ;of source



Braindusting With Pascal

by Max J. Nareff

A flashcard program is a familiar and adaptable educational tool with a diversity of uses. In the present instance, its use as a foreign language study aid is demonstrated.

The basic unit consists of a two-field record of type string for the question and answer pairs (Q & A). The records in a lesson are represented in an array from which each record can be read in a random manner.

Unit APPLESTUFF is required for the RANDOM function. RANDOMIZE varies the sequence of numbers on successive invocations of the program. One problem with RANDOM is the repetition of the numbers, particularly evident in short sequences. Unattacked, this causes recurrences of some or many of Q & A pairs, to the exclusion of others. To obviate this, some type of "filtering" process is required. An array of Boolean type* is used and its values initialized as FALSE. A generated number only becomes eligible for use in reading a record from its array, if the Boolean array element contains the FALSE value. Ex. #5 is generated. Bool [5] := FALSE. #5 can be used as the element in the record array to call up Card [5] .Q and Card [5] .A. Once used, the Bool [5] is changed to TRUE, making it unavailable to any other #5 which might be generated.

Set operations can also be used in securing non-repetition of the random numbers.

The Q & A pairs are easily entered into an ordinary text file using the Editor. No blank lines or header should be in the file. The number of pairs must be carefully noted. File under the filename "LESSON". The number of records, 10 in this demo, is entered in the constant SIZE and will serve as the range of the array loops.

"LESSON.TEXT" must be on drive #5 or its location changed in the program listing.

When the program is executed, two options are offered. "A" mode, interactive, requires typing the correct answer. If incorrect, the prompt will recur until the student scores or elects a graceful exit. The second, "B" mode, presents a more passive

approach. Each question is followed, after a brief and adjustable pause, by the answer. Any key will then display the next randomly selected pair.

The program driver, FLIPNFLASH, uses two REPEAT loops. The inner services the "A" mode. The outer, using the variable "J", insures full loop access (i.e. J = SIZE).

A small French vocabulary exercise appears below. Au Revoir.

* Boolean array as filtering device suggested by Steve Lloyd, San Francisco Apple Core.

TO EAT
MANGER
TO SLEEP
DORMIR
TO SPEAK
PARLER
TO SELL
VENDRE
TO GO
ALLER
TO TAKE
PRENDRE
TO GIVE
DONNER
TO FORGET
OUBLIER
TO BUY
ACHETER
TO HEAR
ENTENDRE


```
(* A language learning aid *)
PROGRAM FLASHCARD;
(* A series of English words are "FLASHED" *)
(* The user has two options, either typing *)
(* the correct "foreign" word, or controlling *)
(* the screen response. *)
```

```
USES APPLESTUFF; (* For random function *)
```

```
CONST SIZE = 10; (* # of word pairs in lesson *)
```

```
TYPE RNDFILTER = ARRAY[1..SIZE] of BOOLEAN;
WORDS = RECORD
```

```
    O : STRING[15];
    A : STRING[15]
```

```
END;
```

```
BOOK = ARRAY[1..SIZE] of WORDS;
```

```
VAR F : TEXT; (* File ID *)
```

```
Rool : RNDFILTER;
```

```
Str : STRING; (* For answer input *)
```

```
ModeSelect, Ch : CHAR;
```

```
FileName : STRING[23];
```

```
Card : BOOK; (* The Flashcards *)
```

```
InteractMode : BOOLEAN;
```

```
PROCEDURE DELAY (X : INTEGER); (* EX.X=1000=0.9 sec. *)
VAR I : INTEGER; (* 2000=1.5 sec. *)
BEGIN (* 4000=2.7 SEC. *)
```

```
FOR I := 1 TO X DO
END;
```

```
PROCEDURE GETFILE;
```

```
VAR
```

```
Error : STRING;
```

```
Successful : BOOLEAN;
```

```
BEGIN
```

```
REPEAT
```

```
PAGE (Output);
```

```
FileName := #5:LESSON.TEXT; (* Change as required *)
(*$I-*) (* Auto I/O checking off *)
```

```
Successful := False;
RESET (F, FileName);
```

```
IF (IORESULT = 0) THEN
BEGIN
```

```
Successful := TRUE;
```

```
GOTOXY (8,10);
```

```
WRITELN (FileName, ' being loaded');
```

```
DELAY (2000);
```

```
PAGE (Output)
```

```
END
```

```
ELSE
```

PROGRAM FLASHCARD

```
BEGIN
```

```
Error := 'Error in FileName or disk drive';
WRITELN (CHR(7),CHR(7),CHR(7));
```

```
WRITELN ('I/O err code # ' :18,IORESULT);
```

```
WRITELN (Error:35);
```

```
(*$I+*)
```

```
WRITE
```

```
('Please correct.ANOTHER? <Ret>,Abort<esc>');
```

```
READ (KEYBOARD,Ch);
```

```
IF (Ch=CHR(27)) THEN
```

```
EXIT (PROGRAM)
```

```
ELSE
```

```
PAGE (Output)
```

```
END (* Else*)
```

```
UNTIL Successful
```

```
END; (* GETFILE *)
```

```
PROCEDURE START;
```

```
BEGIN
```

```
InteractMode := FALSE;
```

```
WRITELN;WRITELN ('A Flashcard Program':29);
```

```
WRITELN;WRITELN ('Select from':26);
```

```
WRITELN;WRITELN (' [A]: InterActive-user types response');
```

```
WRITELN;WRITELN (' [B]: Passive-user keys <ANYCHAR> next');
```

```
WRITELN (' word.');
```

```
WRITELN;WRITE ('<A or B> to continue::<ESC> to abort');
```

```
READ (KEYBOARD,ModeSelect);
```

```
IF (ModeSelect=CHR(27)) THEN
```

```
EXIT (PROGRAM)
```

```
ELSE
```

```
IF (ModeSelect='A') THEN
```

```
BEGIN
```

```
InteractMode := TRUE;
```

```
GETFILE;
```

```
WRITELN
```

```
('To continue>Type Ans: To stop<ESC>+<RET>');
```

```
WRITELN
```

```
('.....');
```

```
WRITELN;WRITELN
```

```
END
```

```
ELSE
```

```
BEGIN
```

```
GETFILE;
```

```
WRITELN
```

```
('To continue(<ANYCHAR>):To stop(<ESC>');
```

```
WRITELN
```

```
('.....');
```

```
WRITELN;WRITELN
```

```
END
```

```
END; (* START *)
```



```

BEGIN
  RANDOMIZE; (* Changes sequence of random # generation *)
  INITBOOLEANARRAY;
  READLESSON;
  J := 0; (* Initialize counter for outer loop *)

  (* Generate random numbers from 1 to SIZE *)
  (* Filter these through BOOLEAN array to *)
  (* prevent repetition. *)
  REPEAT
    X := RANDOM MOD SIZE + 1;
  IF NOT Bool[X] THEN
    WITH Card[X] DO
      BEGIN
        WRITE ('Q>> ':5,Q,'...');
      END
    (* A mode *)
    IF InteractMode THEN
      BEGIN
        (* User must type correct answer else repeats *)
        REPEAT
          WRITE (' ':15-LENGTH(Q),'..ANS>> ');
          READLN (Str);
          IF (Str[1]=CHR(27)) THEN
            BEGIN
              WRITELN ('Program aborted!':28);
              EXIT (PROGRAM)
            END
          UNTIL (Str=A);
          WRITELN
        END (* A mode *)
      ELSE
        BEGIN
          DELAY (2700);
          WRITE (' ':15-LENGTH(Q),'..A, ');
          READ (KEYBOARD,Ch);
          IF (Ch=CHR(27)) THEN
            EXIT (PROGRAM);
          WRITELN
        END;
      Bool[X] := TRUE; (* So it will not repeat *)
      J := J + 1;
    END (* WITH *)
  UNTIL (J = SIZE);

  CLOSE (F)
END; (* FLIPNFLASH *)

BEGIN (* Main *)
  PAGE (Output);
  START;
  FLIPNFLASH;
  WRITELN ('The End.':23)
END.

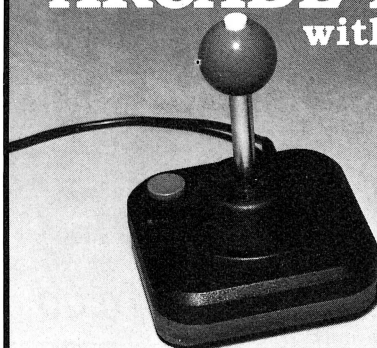
```

```

PROCEDURE INITBOOLEANARRAY;
VAR
  I : INTEGER;
BEGIN
  FOR I := 1 TO SIZE DO
    Bool[I] := FALSE
  END; (* INITBOOLEANARRAY *)
PROCEDURE FLIPNFLASH;
VAR
  X, J : INTEGER;
  Ch : CHAR;
PROCEDURE READLESSON;
VAR I : INTEGER;
BEGIN
  FOR I := 1 TO SIZE DO
    WITH Card[I] do
      BEGIN
        READLN (F,Q);
      END
    END
  END; (* READLESSON *)

```

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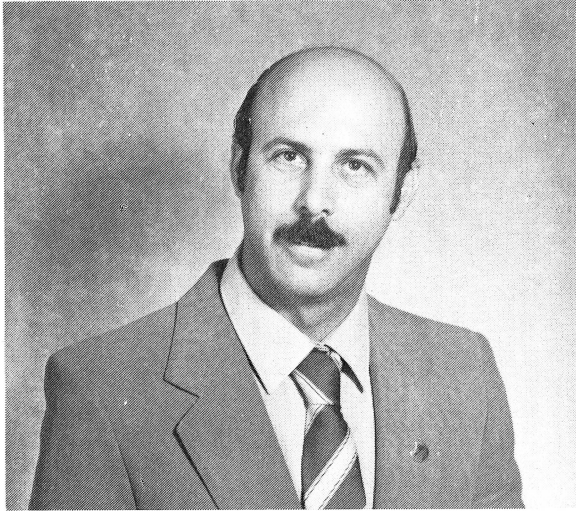
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From the IAC Office...

Ken Silverman, Executive Director



The IAC has become involved in a significant way with providing IAC information for America's communities. Recently Apple Computer has put together a Community Affairs Program. It is for small to medium-sized nonprofit, tax-exempt community groups in which Apple provides the tools needed to better organize and use information critical to effective community work. Networks are set up between cooperative groups so information can be shared. This is accomplished by connecting computers through the telephone system, which brings to the groups the advantages of electronic mail, teleconferencing, community bulletin boards, and public information services.

Apple donates the computers to community groups who qualify under the plan (more information can be obtained by contacting Apple Computer, Inc., Community Affairs Program), and other software and hardware manufacturers donate useful related products to set up the networks.

The IAC involvement includes free **Apple Orchard** subscriptions, back issues for their reference library, and the help of a local IAC club. The help of a club can be significant in getting the most out of the equipment and software donated. Apple clubs are a great resource of information that can be helpful on an ongoing basis.

If you as an individual wish to help your community by donating some of your time in answering questions, please drop us a line at the IAC office. When a grant is established in your area, we will contact you.

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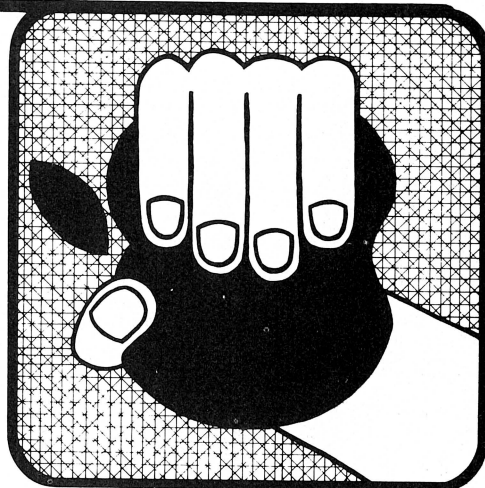
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NEW PRODUCTS FOR THE APPLE

Edited by
Mark L. Crosby



Producers of products for the Apple line of computers should send news releases two months in advance to:

NEW PRODUCTS EDITOR
Apple Orchard
908 George St.
Santa Clara, CA 95050

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Contents:

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Input/Output

Memory

Printers

Miscellaneous

SOFTWARE

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Communications

Educational

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Games/Simulations

Graphics

Languages (Programming)

Music

Personal

Utilities

Word Processing

BOOKS/CATALOGS

MISCELLANEOUS

Follow-Up

We pass along the information that System Fabricators in Hermosa Beach, CA, mentioned in our March issue, is not responding to inquiries; their phone has been disconnected.

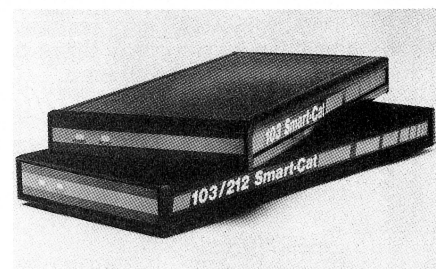
Control Data Corp. reports that 800-233-3784 (Calif. 800-233-3785) are better numbers at which to reach them than the Minneapolis telephone number on some of their stationery.

Statpro, a 26-diskette statistics/data base/-graphics package mentioned in March, was published by Blue Lakes Software. Change: new publisher (price \$1,995) is Wadsworth Electronic Publishing Co., Statler Office Bldg. 20 Park Plaza, Boston, Ma 02116. (800) 322-2208 or (617) 423-0420.

keyboard, even back where it usually sits. It plugs in with no soldering - \$79.95 plus \$3.00 for shipping.

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Anaheim, CA 92806
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Smart-CAT modem offers a maximum of features in a minimum of space. The 103 Smart-CAT is 300 baud, full duplex while the 103/212 Smart-CAT operates at 300 or 1200 baud, full duplex. Suggested retail price for the 103 Smart-CAT is \$249.00 and for the 103/212 model \$595.00. Features that Novation has incorporated into the smart modems include a built-in dialer (TouchTone or rotary), auto answer, direct connect, analog and digital loopback testing, and an extensive software command set. The units also have a busy detect capability that allows the modem to be programmed to redial.
Novation



HARDWARE

Input/Output

Key III is a detachable keyboard conversion kit for your Apple /// computer. The kit consists of a bottom keyboard cover (your existing keyboard cover serves as the top), extension cable, and vent cover. It also comes with easy to follow installation instructions. The 28-inch extension cables allow for convenient placement of the

A new, 300 baud, direct connect, auto answer/originate modem approximately one-fifth the size of conventional units has been introduced by Novation. Called the **J-CAT**, the modem uses LSI technology. The 5-inch x 1.9-inch x 1.3-inch dimensions allow the modem to be placed virtually anywhere. It plugs into any modular RJ11C

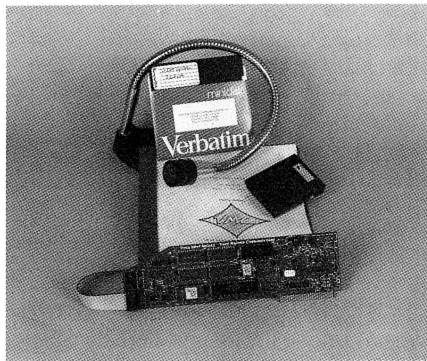
phone jack. It automatically switches into the right mode (answer/originate). LED's show you status; and audio "beeps" tell when you reach a busy signal, detect a carrier or get a dial tone. Other features include a disconnect/test key, connect/break key, self-test, low power and compatibility with EIA-RS232C.

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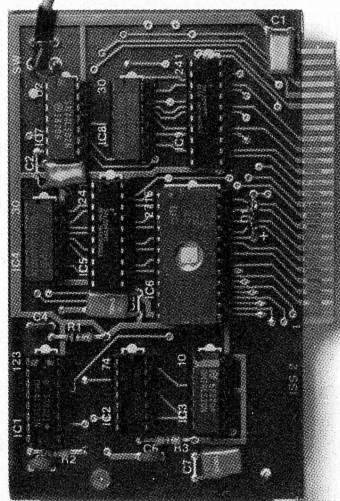
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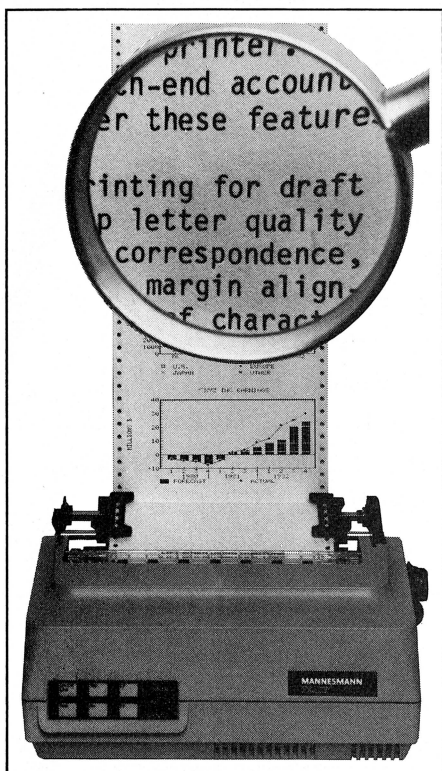
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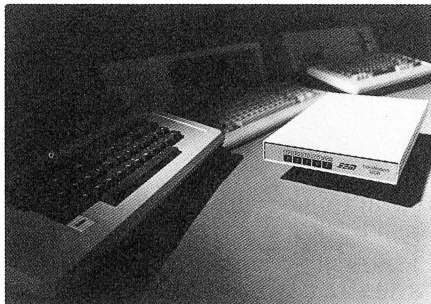
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(206) 251-5524

taneously as data is updated, or as an end-of-the-day back-up service. The tape cartridge, which is the same size as an audio cassette, loads directly into the front of the Graymatter Mass Storage System requiring no additional surface space - \$1500.00.

IQ Systems
2931 La Jolla Street
Anaheim, CA 92806
(714) 993-0152

The **TransModem 1200** features 110/-300/1200 baud operation, half and full duplex, auto answer/auto dial, automatic speed detection, Touch Tone and pulse dialing and log-on and password storage. Included with the modem is all necessary equipment, including a modular-style telephone cable and plug and a power supply. It can be used with any computer having an RS232 interface. For the Apple II computer two packages are available that include the TransModem, an ASIO serial interface card, all interfacing cables and Transend 2 (\$999) or Transend 3 (\$1,100). TransModem alone is \$695.

SSM Microcomputer Products Inc.
2190 Paragon Drive
San Jose, CA 95131
(408) 946-7400



Memory

18K Static RAM card for all Apple II computers (including the "e") contains a battery backup system to allow memory retention after power-down, enabling the user to store programs and/or special monitor routines. The card draws very low power and can be used in any slot. A write-enable/write-protect switch allows the user to protect the information in the card or alter the data at will. This is great for those monitor routines that are not alterable in the ROM on the motherboard, such as CAPTEST. One other application is to relocate DOS into the card and install a special "boot" routine that would automati-

cally install DOS into the machine. This routine can be installed in the C800-CFFF space provided by Legend on the RAM card.

Legend Industries, Ltd.
P. O. Box 112
Pontiac, MI 48056
(313) 674-0953

Know-Drive 128K card for the Apple II Plus is fully hardware/software compatible with any normal 128K card. It runs VisiCalc expansion, or utilities written specifically for other 128K cards. Compatible with major 80 column display cards. Hardswitch allows ram write protect, just like a diskette while a crafty switch gets you into the monitor on reset, just like the Integer Card. The board also features a power de-select switch for invisibility. Use it as a 128K printer buffer (software available extra) - \$335.00.

Abacus Enterprises
P. O. Box 1836
Detroit, MI 48231
(800) 835-2236; (800) 362-2421 (Kansas)

Printers

The **Transtar 315 color printer** is only \$599. Its new technology four hammer printhead keeps colors true with no cross-color contamination. Unique diagonal ribbon provides simpler and more reliable operation. Prints in 7 colors plus more than 30 shades in a single pass. Features 50 cps operation independent of color or shade; graphics mode; 640 horizontal per 8 inch line; tractor or friction feed; 10-inch maximum paper width; print head life of 80 million characters when each hammer is used equally; 2,500 hours MTBF independent of print head. "Copy" option permits the printing of Hi-Res screen images at the touch of a button (Apple II).

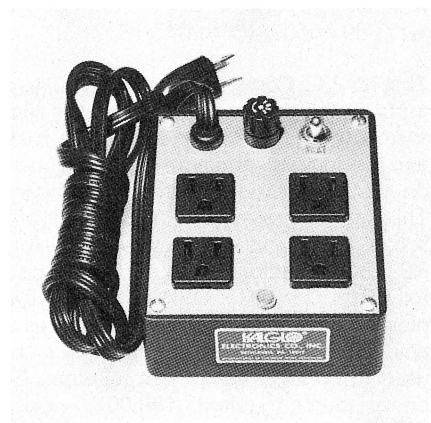
Transtar
P. O. Box C-96975
Bellevue, WA 98009

Miscellaneous

Computer PAL assures pure electrical power to computer owners; lowers risk of expensive damage to micro circuits caused by voltage transients, spikes and noise interference. Provides complete three-stage

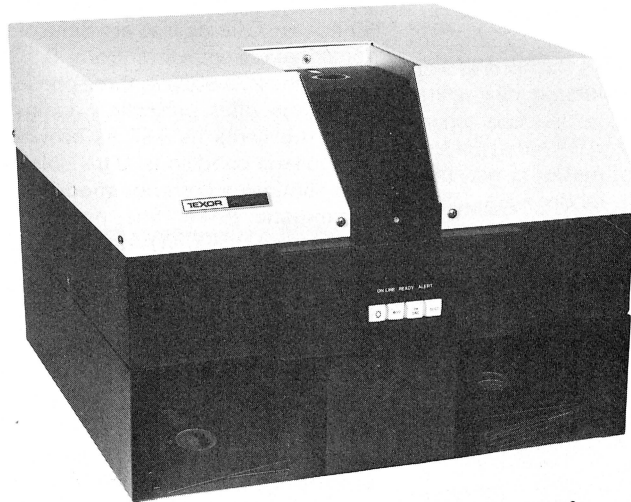
protection for your computer in any location. Plugs into a grounded duplex receptacle. Available in a black vinyl case, covered by a three-year warranty - \$59.50.
National Field Sales, inc.
P. O. Box 230
Broomall, PA 19008
(800) 345-1280; (215) 352-9214 (PA)

The new **QPC quad power console** is provided with 4 filtered and protected outlets, pilot light, fuse, 7-foot cordset and main on-off switch. Unit has 15AMP capacity. Protection is provided by a multi-stage surge suppression network and dual multi-stage low-pass noise filtering circuitry. Provides up to 60db insertion loss at 10MHz. Fast response time - reacts in picoseconds. Heavy duty 45 Joule/4500AMPS absorption capacity. All provided in one console.
Kalglo Electronics Co., Inc.
6584 Ruch Road
East Allen Twp
Bethlehem, PA 18017
(215) 837-0700



Cluster/One is a local area network for up to 65 personal computers, providing the traditional benefits of low-cost, stand-alone computer power as well as the advantages of shared information storage and access to other stations or mainframes. Supports many operating systems (including CP/M), to access a wide variety of software packages. Each workstation can be used for different needs at different times. Typical applications are information processing and analysis, electronic mail, and word processing. Hard disks, printers, and communication ports that link to external computers or networks are shared. Additional stations are added by simply tapping the existing cable; no further software programming is required. To maximize reliability and ease of installation, Cluster/One utilizes modular hardware components whenever possible.
Nestar Systems Inc.
Four Embarcadero
Suite 2120
San Francisco, CA 94111
(415) 433-4226

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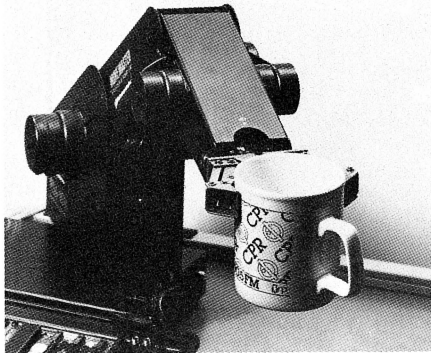
**TEXOR
CORPORATION**

1901 Old Middlefield Way Suite 15
Mountain View, CA 94043 (415) 969-7271

*Patent Pending

Called the **RM-101 Movemaster**, this baby robot can be programmed in BASIC and instructed externally in simple robot language. Ten inches tall, weighs less than 18 pounds, it offers computer hobbyists and professionals opportunities for creative programming of a wide variety of applications. The only limitations are the robot's one-pound payload and the three-inch grasp of the gripper on the end of the robot arm. The Movemaster has a maximum operating speed of 2-3/4 ips and a reach of about two feet. Equipped with its own microcomputer, uses a Centronics printer interface for connecting with a personal computer and has functions comparable to many industrial robots currently in use on production lines.

Mitsubishi Electric Sales America, Inc.
Industrial Products Division
799 Bierman Circle
Mt. Prospect, IL 60056
(800) 323-4216



Graphics +Plus module mates with Lower Case +Plus (and Lower Case Plus +III) to give the user a RAM based character set on the Apple II. With this new module, the Apple user can easily define and redefine the characters that appear on the text screen. Although Graphics +Plus lets you define any character you can fit in a 7 x 8 cell, absolutely no use of the Hi-Res graphics page is made; the 280 x 192 Hi-Res-style graphics becomes available on the Apple's 1K text screen. Included are over 20 sample fonts, font editor, several utility programs and example files. Both Pascal and DOS 3.3 software are provided on diskette. Complete documentation for use and installation is provided with each board - \$159.95.

Lazer Microsystems, Inc.
1791 Capital, Unit G
Corona, CA 91720
(714) 735-1041

MATE-1 5 1/4-inch disk drive will mate your Apple II computer system in quality, function, and even cabinetry but at lower cost to you. With a read/write head and controller so advanced that virtually all I/O errors are eliminated, and along with a 48 hour burn-in, you are assured of system reliability. The track format and storage capacity are identical to that of Apple II's disk drive, enabling you to implement MATE-1 as you see fit as an add-on drive to your existing controller card.

Digital Facilities Associates Limited
1062 E. 105 Street
Brooklyn, NY 11236
(212) 531-2950

Hitran Corporation has just released a brochure describing its **UPS**, **SFR**, and **UIS** series of power systems. Models include Uninterruptible Power Systems: single phase from 1 - 15KVA and standard three phase models from 6 - 45KVA. Battery packs allow an orderly computer system shutdown. Offered also are Sinusoidal Ferroresonant Regulators from 0.5-20KVA, single phase, 3-60KVA, three phase. These regulators offer protection against short term transients as well as brownouts or overvoltage conditions. Ultra Isolation System eliminates common-mode and transverse-mode power line noise in single phase from 0.5-20KVA and in three phase from 3 through 150KVA.

Hitran Corporation
Route 31, RD 5-65
Flemington, NJ 08822
(201) 782-5525

The **Mini-Patch Box** allows users of devices employing RS-232 interfaces to reconfigure the connections, or signal paths. This is usually necessary when interfacing new devices such as printers and CRT terminals. The Model 51 is equipped with a male and female, DB-25, 25 pin connector. 23 signals from each connector terminate on female jack receptacles (pins 1 and 7 go straight through). Supplied with 25 jumper plugs, the interconnect circuitry is patched by the user. Includes a reference manual and jumpers - \$37.95.

Remark Datacom, Inc.
4 Sycamore Drive
Woodbury, NY 11797
(516) 367-3806

Visi-Pac is a combination of three products which allows the VisiCalc user on the Apple II Plus user with an additional 128K of memory for spread sheet data, an 80 column video card for a wider spread sheet display, and the software necessary to interface these products with Visi-Cal. Priced at less than \$650.

Microtek, Inc.
9514 Chesapeake Drive
San Diego, CA 92123
(619) 569-0900

The **ADASI** unit provides LED status indication of all lines connecting the floppy drive to the computer. Lines monitored include power supply voltages, all 4 stepper motor circuits for full and half-track analysis, read data, write data, write request, write protect, and the enable lines for motor,

stepper, and read data. For ease of use, the ADASI daisy chains between the computer and drive or can be used with the computer alone. An optional test disk provides actual test diagnostics in real time for analysis. Three models are available: the ADASI I, designed for internal drive connection - \$59.50, and the ADASI II - \$139.50, and ADASI III - \$149.50, for their respective drives with external connection.

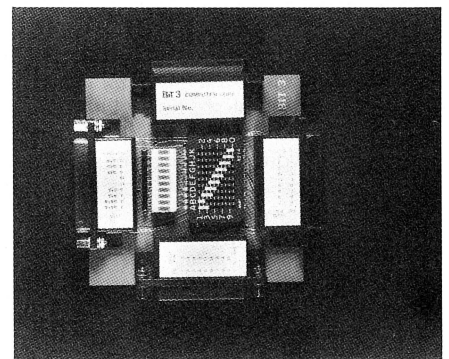
TEACO, Inc.
2117 Ohio Street
Michigan City, IN 46360
(219) 874-6234

The Peach is the newest addition to Electronic Protection Devices crop of EMIRFI Filters/AC Surge Protectors. It eliminates transients such as spikes or "glitches" while simultaneously filtering out fuzz or noise produced by electromagnetic or radio frequency interference. Plug The Peach into any standard 3 wire duplex outlet, then plug what needs protection into it. Each peach has 3 outlets - \$97.50.

Electronic Protection Devices
5 Central Avenue
Waltham, MA 02154
(617) 891-6602; (800) 343-1813

This **RS232 Connector Matrix** consists of a 10 x 10 position miniature matrix slide switch, four RS232 connectors (two male and two female), and nine LEDs, mounted on a 3.5 inch square printed circuit board. This permits cross-connecting pins 2, 3, 4, 5, 6, 8, 11, 19 and 20 or any two of the four RS232 connectors. The LEDs monitor Rx/D, RTS, CTS, DTR, DSR, DCD, as well as pins 11 and 19. It permits RS232 cables of any connector gender combination to be used to connect equipment together. No power source required - \$89.00.

Bit3 Computer Corporation
8120 Penn Avenue South
Minneapolis, MN 55431
(612) 881-6955



The **Tasman Turtle** is a sophisticated yet easy-to-use programmable robot, available for the Apple II or other parallel interface micros as well as those with an RS-232 interface. They also have talking turtle with a vocabulary of 150 words, expandable to more than 600 words. Other features include an electronic compass which, as the Turtle moves, indicates directional change.

They can move and turn, toot their horn, blink their eyes, draw with a pen and "feel" through touch sensors. The Tasman Turtle allows even the very young to develop computer awareness and basic programming concepts, draw geometric designs and learn elements of mathematics and artificial intelligence. More experienced programmers can use BASIC, Logo and other high-level languages to control it. Prices begin at \$999.95.

Harvard Associates, Inc.
260 Beacon Street
Somerville, MA 02143
(617) 492-0660

will allow remote monitoring and control via any Touch-Tone phone. Prices start at about \$800.00.

Compu-Home Systems, Inc.
3333 E. Florida Avenue
Denver, CO 80210
(303) 777-6600

SOFTWARE

Business (General)

Qbase Personal Database/Reports program emphasizes file safety features. Qbase is well suited to such tasks as "index card" catalogs including customer records, mailing lists and inventory records. Extensive documentation assists the novice computer user in designing a personal database. Checklists may be established for any input field to ensure accuracy of values or characters. Includes an embedded calculator within each record definition. This permits computing sales taxes, commissions, depreciation, etc. Select by up to 27 different conditions, sort on any three fields, produce sub and summary totals. Many formats of label or printer output are available - \$189.00.

Applied Software Technology
14125 Capri Drive Suite 4
Los Gatos, CA 95030
(408) 370-2662

Business Planner provides a simulated model of your business. By projecting monthly income and expense figures, budget allocations, and sales forecasts, you can analyze your underlying assumptions in depth. Real world management decisions can be tested out before committing yourself to potentially expensive errors. It combines projects into alternative models to predict future growth. An illustrated manual leads you through a sample business and explains how to create your own models - \$295.00.

Duosoft Corporation
1803 Woodfield Drive
Savoy, IL 61874
(217) 356-3111


The **CYPHER** program allows a user who is familiar with simple algebra to set up and execute sequences of equations without resorting to formal programming languages. Keying in related formulae is sufficient to establish a model, after which the value of any dependent variable is readily available. Provision has been made to store and recall models via text files. Major emphasis is placed on simplicity and convenience of use. Requires an Apple II compatible system running under CP/M. The package includes a program diskette with demo files and a 21 page manual - \$75.00.

Cache Data Systems
P. O. Box 8684
Fountain Valley, CA 92708

Legend Mailer utilizes the powerful Disk Emulator for storage and retrieval of data base type records. The Legend Mailer uses the Legend RAM card as a second disk drive, in which the program stores vital information such as Name, Address, City, State, ZIP Code, Phone Number, and Notes. All are sortable by any one given field. This



TommorrowHouse is the first turnkey home monitoring and control system within reach of the average consumer regardless of technical ability or familiarity with computers. Based on the Apple II, it consists of a specially built plug-in circuit card, sensors, a junction box and related hardware for easy hookup, all the programs to set up and control any house, and installation and user manuals. It monitors heating, air conditioning and lights and includes such convenience features as an appointment calendar and voice wakeup alarm. Monitor display allows a status check of all security and energy functions. Future enhancements



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"Tired of mindless violence on your video monitor? So were the Founding Fathers after The Revolution. In 1787 the literary talents of Thomas Jefferson were fused with the radical hi-res graphics of Ben Franklin's computing device." — SOFTALK Gift Guide 12/82

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APPLE II+ 48 K DOS 3.3

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State _____ Zip _____ enclosed

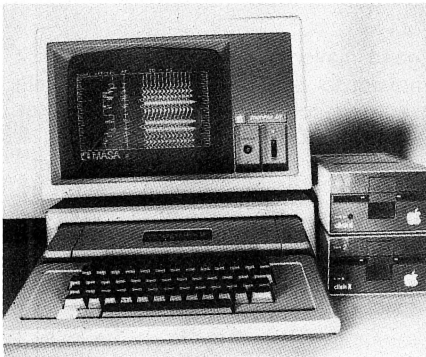
(N.Y. res. add sales tax)

program comes free on the standard, copyable Legend utilities diskette with your purchase of one of their cards. Users may update for \$8.00.

Legend Industries, Ltd.
P. O. Box 112
Pontiac, MI 48056
(313) 674-0953

Micro Assisted Seismic Analysis (MASA) provides easy digitization of sonic logs and plots industry standard (7.5 in/sec) synthetic seismograms. For interpretive work, a 300 ms synthetic seismogram window can also be generated in less than one minute with a subsequent hard copy produced in one minute thereafter. Editing of the sonic log data can be accomplished through easy insert, change, delete, and add modes provided. Seismograms can also be placed side by side to form a synthetic seismic section to provide a two-dimensional seismic model of the corresponding geological scenario. Includes a complete set of accessory programs for the geophysicist, such as: time to depth conversion; RMS velocity function determination from sonic logs; incident ray tracing; source/receiver vs depth ray tracing; sonic log expansion and compression; append sonic logs; and several utility programs.

Sperling Geoscience DataCorp
600 Bluebell Drive
Lansing, MI 48910
(517) 393-1296



ACCESS database manager system allows you to name the fields, develop forms on screen, perform mathematic operations on fields, enter computed fields. Permits up to 39 pages of data with fast, wildcard searching on any field in less than 3 seconds. Multi-level sorts are supported as are global changes. Up to 16 different report formats may be saved for future use. Error trapping prevents entering incorrect data and the program can be restarted without losing any data. Requires an Apple II plus with 48K and 1 or 2 disk drives (2 recommended). Versions are available to support most 80 column cards.

Spider Software
98, Avondale Road
South Croydon
Surrey, England

82 Apple Orchard

The Scheduler is a complete calendar/docket scheduling program for professionals such as attorneys, accountants, architects, engineers and physicians. Records client appointments and tasks and automatically accommodates multiple occurrence dates to prevent duplicate scheduling of time. The 27 criteria which can be included in the calendar or docket may include a control number, staff member number, client number, matter code, action code, disposition code, due date, due day, time due, docket/calendar control, entry date and last action date. In addition, The Scheduler provides eight fields which can be tailored to the firm's needs.

Starsoft

ESQ-1 is a complete professional time and billing program designed to meet the specific needs of the legal profession. The easy-to-use computer program records billable and non-billable time, automatically compensating for multiple billing rates. Continually updates status and billing on work in progress. Invoices, prepared automatically, are reflected in accounts receivable ledgers. Revenue, including deposits and trust (escrow) transactions, is recorded as received and reflected in subsequent invoicing. Can be integrated with The Scheduler, calendar and docket scheduling and control system.

Starsoft

PROMOT is a complete time and billing software system for professionals such as consultants, architects, advertising agency personnel, and others who bill on an hourly basis. Completely automates the recording of billable and non-billable time, accommodating variable rates. The program records, and can add a markup to, reimburseable costs. Records all revenues, including deposits, and reflects this in subsequent invoices. The program offers automatic invoice preparation, allows for multiple invoice formats and maintains complete accounts receivable ledgers.

Starsoft

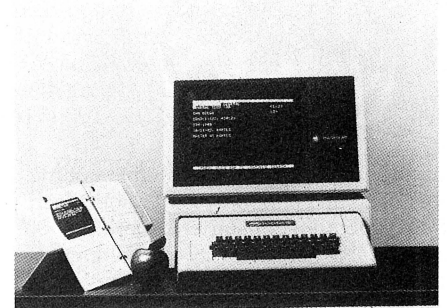
4984 El Camino Real #125
Los Altos, CA 94022
(415) 965-8000

AIDA statistical analysis package is for production research work with large survey data files. Provides a full range of analysis - from descriptive statistics to multiple regression. Complete data manipulation, transformation and case selection. Fast and accurate calculations. Up to 4,000 cases and 255 variables per file - \$235.00
Action-Research Northwest
11442 Marine View Drive, SW.
Seattle, WA 98146
(206) 241-1645

Instant Recall freeform filing system for the Apple II and II Plus has been designed to avoid the necessity of user preparation of fields and formats. Instead, information can be entered on a fresh screen in much the

same way as on a blank sheet of paper or index card. Any variety of information can be intermixed on a single disk file, or separate disk files can be established for specific purposes. Retrieval time is, at most, two seconds: the operator enters the search criteria with the option of an AND search against two criteria. Each screen containing the search criteria is displayed in turn, and printed at the user's discretion. Mass printing of selected consecutive records is also easily accomplished. Documentation is packaged in a handsome easel-back binder. It includes a tutorial, a command quick-reference card, specimen screens, separate keyboard diagrams highlighting special key functions, and a complete index.

Howard W. Sams & Co., Inc.
4300 West 62nd Street
P. O. Box 7092
Indianapolis, IN 46206
(317) 298-5708



Communications

Code Machine will both transmit and receive Morse code. An easy interface with amateur radio equipment allows the Apple II to function as a Morse code terminal unit. Written in machine language for the Apple II or II Plus using DOS 3.3, it features a tunable audio filter (performed by the software) which improves the noise rejection. The receiving speed of the program automatically adjusts to the sender's speed from 6 to 60 wpm. A buffer displays the last 8 lines received. It also converts the received Morse code to ASCII and provides two convenient methods of interfacing with a variety of printers. A sidetone monitor may be switched on to hear the code as it is being sent. Code Machine comes double sided on a 5 1/4-inch diskette with full instructions for installation and use - \$29.95.

COTEC
13462 Hammons Avenue
Saratoga, CA 95070

Magic Window, one of the most popular word processing packages for the Apple, is now being offered at a 70% discount as an option with **Transend**, the electronic mail package. A special order form for Magic Window is included with every order for Transpak and Transend 2 or 3. Magic Window's unique display saves valuable time by allowing the user to actually see the entire formatted text as it is created, thus eliminating the need for reformatting. Transend opens the door to electronic mail providing Apple to Apple and Apple to mainframe and information service communications. Transend easily sends and receives all files created on Magic Window regardless of length. Transend 2 sells for \$149; Magic Window option sells for \$30. SSM Microcomputer Products Inc. 2190 Paragon Drive San Jose, CA 95131 (408) 946-7400



MicroTerm is a high speed terminal program. Some computers can run at up to 4800 baud null-free (9600 in some direct-connect applications). Communicates in both ASCII and the new "error-free" direct file mode. Macro-Key function allows you to have 10 user-defined keys that transmit up to 64 characters at a single stroke. Dial a phone number and transmit the buffer at a specified time completely unattended by the operator. Permits simultaneous operation in command mode while receiving additional data through the RS232 cable. You can adjust video width, turn on the printer, open the buffer and do many other things and then return to the terminal mode without missing a thing. Available for the Apple II - \$79.95.

Micro-Systems Software, Inc.
4301-18 Oak Circle
Boca Raton, FL 33431
(800) 327-8724; (305) 983-3390 (FL)

Zip-Comm communications add-on for the Zardax word processor turns Zardax into a communicating word processor, to send and receive text files. Talk to other Apples, mainframes, information services, typesetters. Includes terminal mode, 300 or 1200 baud. Works with serial, modem, and popular 80 column cards used by Zardax. Log-on files and X-on X-off supported - \$80. Action-Research Northwest 11442 Marine View Drive, SW. Seattle, WA 98146 (206) 241-1645

Educational

TestRite is an educational microcomputer program which stores test items and generates customized tests for all grade levels from the middle elementary through college and technical schools. TestRite software embodies features which will allow the teacher to effectively maintain curricula referenced test item files. Whole files, portions of files, or selected questions may be used to print a single test. Large tests and exams can be created from multiple files by merging their questions with the program facilities. Every question may be printed in any of the four question formats: Multiple

choice, true/false, matching and completion. Numbering options, customized titles and user-edited test taking instructions give the program its flexibility - \$139.00. Requires 48K with two disk drives and an 80 column printer. A demonstration package is available (\$25.00 deposit refundable upon purchase).

Class 1 Systems
17909 Maple Street
Lansing, IL 60438

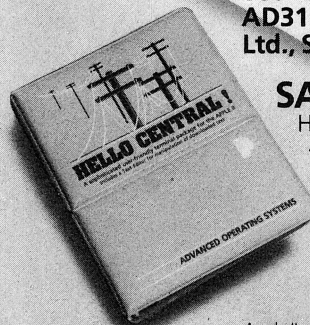
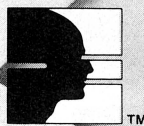
Managers and businessmen can now use a series of programs to increase productivity. **Participative Management Skills** is a set of interactive tutorial lessons designed to help improve employee-management communications and to reverse the trend toward declining productivity. The course has been successfully used with non-profit as well as productivity-oriented businesses. Supervisors explore ways to improve communication, increase productivity, and job satisfac-

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Only HELLO CENTRAL! gives you all these features for only \$99.00. Buy HELLO CENTRAL! at your local software dealer. Or call 800-428-3696 or 317-298-5566 and reference AD315. In Canada, contact Lenbrook Industries, Ltd., Scarborough, Ontario.



SAMS BOOKS & SOFTWARE

Howard W. Sams & Co., Inc.
4300 West 62nd Street, P.O. Box 7092
Indianapolis, IN 46206

**ONLY
\$99.00**

Apple II and Apple II Plus are registered trademarks of Apple Computer, Inc.

tion. Available for the Apple II - \$249.50.
Duosoft Corporation
1803 Woodfield Drive
Savoy, IL 61874
(217) 356-3111

Harmonic Motion Workshop visually presents the concepts associated with harmonic motion by use of Hi-Res graphics. The student can alter such variables as the phase, amplitude, and the damping factor and immediately see the effect. **Projectile Motion Workshop** illustrates projectile motion under the influence of a uniform force of gravity. The user may control the projectile's initial velocity and its angle of fire. **Charged Particle Workshop** simulates the motion of a charged particle under the influence of various combinations of electric and magnetic fields. Uniform electric field, uniform magnetic field and crossed electric-magnetic field are illustrated. The packages require a 48K Apple with AppleSoft in ROM (or a 16K memory card) and DOS 3.3 and retail for \$75.00 each. High Technology Software Products, Inc. 1611 N.W. 23rd Street P. O. Box 60406 Oklahoma City, OK 73106 (405) 525-4359

Here's a game that may get your youngster interested in medicine as a career. **The Doctor Game** is a simplified simulation of

medical practice. Patients come to the "doctor" for help and become better or worse depending on the diagnosis and treatment by the player. It encourages the youngster to experiment and learn by doing simulated laboratory tests. The game is progressively difficult but rewards the player with graphics and animation. It will also ask the player to go to the library and read more about medicine as he plays the higher levels of the game. Full color Hi-Res graphics with sound effects and special animation - \$27.95. Simulation Software Company 6035 N. Maplewood Avenue Chicago, IL 60659

Elementary Computer Literacy System is a four part comprehensive, implementation and utilization consisting of an Elementary Curriculum Guide, Implementing and Utilizing the Microcomputer in the Elementary School, Computers in the Elementary School, and a Student Activity Handbook. This systemized computer literacy program helps you and your students develop a positive attitude toward computers, become familiar with computer terminology, exhibit proper care of computer hardware and software, use the computer as a learning tool to reinforce or teach concepts from various subject areas. Use the computer to solve problems, become aware of the impact of the computer in

society and everyday life - \$110.00, additional student activity handbooks are available for \$5.95 each plus \$1.50 shipping. National Business Institute 407 Galloway Street P. O. Box 1626 Eau Claire, WI 54701 (715) 835-8355

Career Direction program is designed for use with junior high school and high school students. The program is a compressed version of the more comprehensive Computerized Career Assessment and Planning Program. This system helps students: discover what their career interests are; systematically determine what occupations correspond to their interests and abilities; develop an orderly plan to enter or prepare to enter the occupation of their choice. For use with a wide range of students from those who are preparing to enter college to those wishing to directly enter the job market. Covers over 460 specific occupations that range from high-level professions to entry-level jobs. Can be used in conjunction with other guidance programs currently being used or as a stand-alone career guidance program. Systems Design Associates, Inc. 723 Kanawha Boulevard East Charleston, WV 25301 (304) 342-0769

Killer T-cell is a maze game that is designed to explain your body's defense mechanism against cancer. A maze of green squares, the normal cells, contains a single orange cancer cell at the start, but it soon divides, and the tumor cells begin to invade and destroy the normal cells. You control a single white blood cell, the killer T-cell, as it searches through the maze to find and destroy the cancer cells. The T-cell can be guided by keyboard or joystick. Requires a 48K Apple and Disk. Color video is best, but the game can be played in monochrome. Scoring is based on the number of tumor cells destroyed, the game level, and your need to resort to chemotherapy for help in destroying the tumor. Top 10 scores and names are saved on the disk - \$20.00. All proceeds support basic cancer research. M.D. Anderson Hospital and Tumor Institute Box 6 6723 Bertner Avenue Houston, TX 77030

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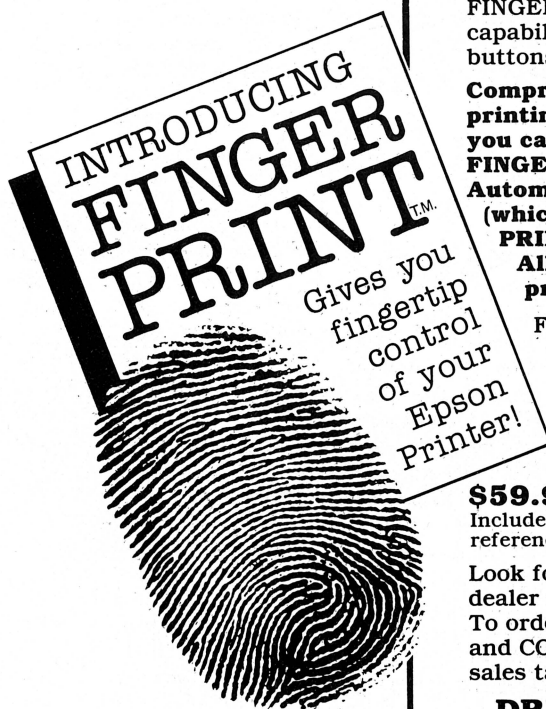
Health Insurance Transmission System (HITS) is an insurance claim processing system for the health care industry. The system, conforming to specifications from the Federal Health Care Financing Administration, is compatible with the Medicare and Medicaid networks. HITS is also approved by a national clearinghouse (NEIC) for direct entry into the commercial processing networks. NEIC was established by eleven of the nation's largest private health insurance companies; and their charter is to develop and establish a national systems network which will enable hospitals and other health care facilities to submit "paperless" claims to private carriers. The HITS system also fits specifications set forth by many of the Blue Cross/Blue Shield networks. Health care facilities using the HITS system can expect to shave several weeks off of their claims payment cycle. Require an Apple II computer.

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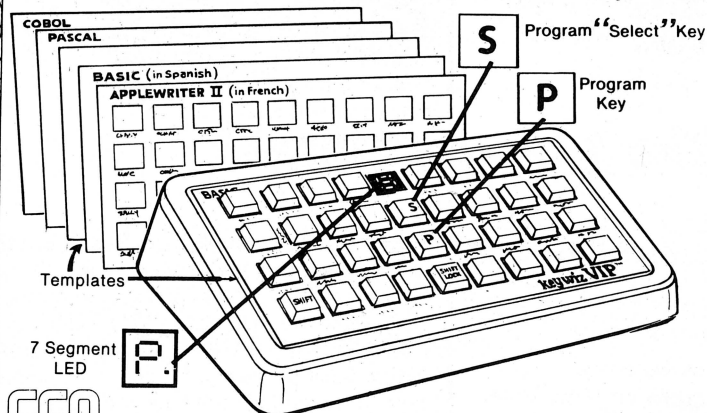
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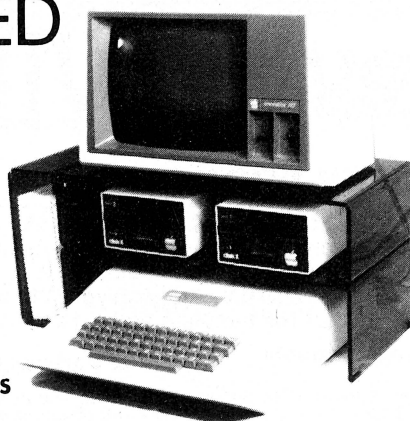
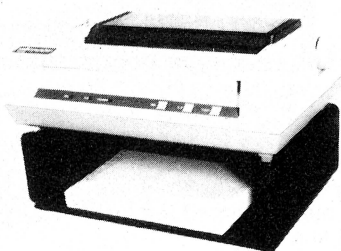
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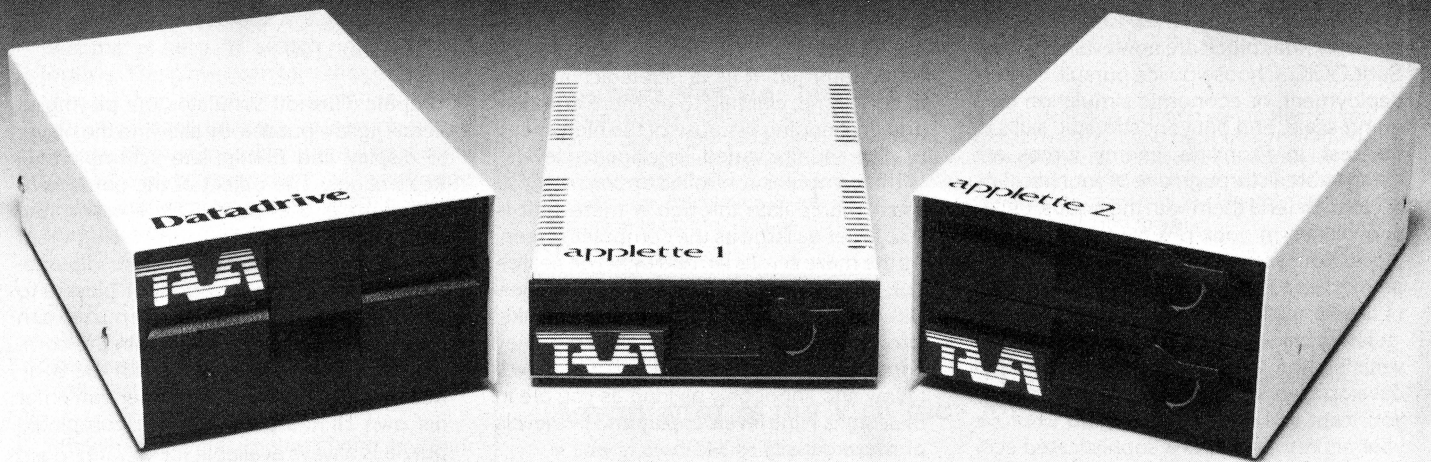
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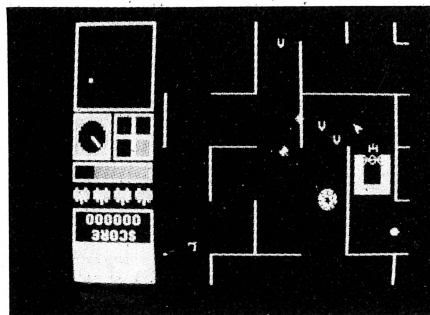
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"Why me?" I thought as I staggered to the deck. My PT boat was being tossed about the ocean by 30-foot waves. The sky was filled with a squadron of enemy bombers, Kamikaze fighters and helicopters with blazing machine guns. I raced to the gun and started blasting. I was scoring some impressive hits and beginning to feel in control when I noticed that the sea around me was loaded with mines. "Oh, great!" And what was that screaming toward me on the horizon? An Exocet missile! My heart was pounding as I tried to decide how to get out of this fix. I had to act quickly! Immediately I jerked the joystick to the starboard while keeping my hand on the fire button. "Ah ha! You missed me!". Sometimes it's hard to believe **Wavy Navy** is just a video game - \$34.95.

Sirius Software, Inc.
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Renton, WA 98055
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Earthware Computer Services
P. O. Box 30039
Eugene, OR 97403

Flip Out is a crazy little strategy game in which each player starts with 10 marbles; taking turns at dropping them into the Flip Out course. But you can't drop them just any place. Every marble dropped causes a chain reaction, which requires a little planning. Your goal is to get all your marbles to fall through a series of traps and out the bottom before your opponent does. If you planned right you'll Flip, if you didn't you'll Flip Out. Playable by 1 or 2 players and features nine different game courses. Written in Assembly language - \$29.95.

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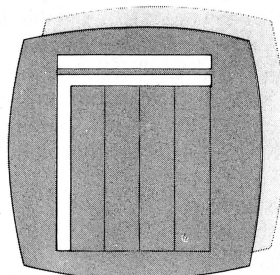
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Temple of Apshai is now available in a new version with fully animated real-time graphics and sound effects. Experience life in a world of ancient legends, fearsome monsters, and spectacular treasures, as you become a hero in search of fame and fortune. The player can take the part of one of more than 15 million new characters the computer can generate, or can choose a veteran of previous adventures. The display keeps the player up to date on the outcome of his encounters with the 30 types of monsters that roam freely through more than 200 rooms on the four levels of the ruin - \$39.95.

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Contents:

TAPE ONE: The VisiCalc® Beginner™

A 90-minute instructional tape introducing the VisiCalc commands. The Beginner will lead you step by step through both the major commands and sub-commands. The emphasis is on a practical demonstration of each command using a 'hands on' 'try it out and learn' approach.

TAPE TWO: The VisiCalc® Functions™

A 90-minute instructional tape that will teach you how to use VisiCalc's:

- Arithmetic Functions @INT, @ABS, @EXP, @LN, @LOGIO
- Listing Functions @SUM, @COUNT, @AVE, @MIN, @MAX
- Trigonometric Functions @SIN, @COS, @TAN, @ASIN, @ACOS, @ATAN
- Logical Functions @TRUE, @FALSE, @AND, @OR, @NOT, @IF, @ISNA, @ISERROR
- Special Functions @NA, @ERROR, @PI, @NPV, @LOOKUP, @CHOOSE
- Nested Functions and Boolean operators.

This tape guides the new user of VisiCalc without insulting the advanced user. The Functions tape will give you a new appreciation of how to get the most out of the built-in VisiCalc functions and their usefulness.

TAPE THREE: VisiCalc® Templating™

A culminating high-point instructional 90-minute tape designed to introduce and teach you how to design and produce VisiCalc® templates and overlays. Using all you have learned from the Beginner and Functions tapes you will design specific templates (spreadsheet models) and save to disk and reload. Detailed discussions (with examples) will address input areas, calculation areas, reports, output areas and documentation of templates. Example templates include budgeting, planning, inventory, and more!

Featuring:

- Three detailed 90-minute instructional tapes presented in a natural conversational manner (no interrupting bells or beeps or flipping of the tape in the middle of the subject);
- A diskette complete with examples, templates, overlays and exercises;
- A detailed Reference Guide;
- Rugged book-like vinyl binder to store and protect your VisiCalc® Audio Course™.

Advantages of the VisiCalc® Audio Course™:

- Easy to use, effective Audio course.
- Course authored by VisiCalc® Programmers.
- The course doesn't take control of your computer away from you, but instead allows you to obtain hands-on experience with VisiCalc®.
- You don't have to be a computer programmer to learn how to use the best-selling VisiCalc®, this Personal Tutor™ will bring it to life at your pace.
- Excellent for small business seminar presentations on VisiCalc®.

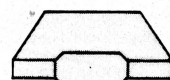
Requirements:

Your computer system, VisiCalc® program, Audio cassette player [no computer hookup is necessary for the cassette player.] Specify computer system.

To order . . . See your local computer dealer or order direct.
Visa/MC, money order, or check acceptable.
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"In Search of the Most Amazing Thing" is designed to let your kids negotiate with aliens instead of destroying them. Using a B-liner (sort of a cross between a hot air balloon and a dune buggy) they'll have to learn how to fly it and navigate it through storms and fog. But before they do anything, your kids will have to talk to Old Smoke. He'll tell them to avoid the dangerous Mire Crabs and how to get fuel for the B-liner. Visit the Metalican Auction where you can trade with the aliens for valuable chips. Use these chips to buy things needed for the trip. Learn to fly over the planet using a jet pack.

Spinnaker Software
 215 First Street
 Cambridge, MA 02142

Pick That Tune is a game with versions available for both the Apple II and the Apple III. It contains 100 different tunes; Pop, Country & Western, Children and TV categories. There are 16 different game variations and from 1 to 10 players can play. Players bid the number of notes that they think they will need to be able to correctly identify the tune. Using the sound generator, **Pick That Tune** will begin with the lowest bidder and play the number of notes each player has bid until the tune has been picked or all players have missed. Top ten player files are automatically maintained for each of the game variations for each category - \$29.95. Additional tune categories may be purchased separately.

Swearingen Software
 6312 W. Little York, Suite 197
 Houston, TX 77088
 (713) 937-6410

Graphics

TEKTERM allows any computer to draw pictures on your Apple screen. Features a High Resolution 70 column display and a complete simulation of the Tektronix 4010. Any software that runs with the 4010 will run with **TEKTERM**; Communication mode allows virtually any kind of information to be sent or received; Macro Mode allows you to automate all communication operations allowing automatic dialing, log on terminal configuration, etc.; High Speed Terminal operates at up to 19,200 baud. Includes a floppy diskette and manual - \$90 plus \$2.50 shipping.

Fountain Computer Products
 1901 Kipling
 Lakewood, CO 80215
 (303) 232-8346

dGRAPH enables dBASE II users to easily produce various types of graphs including

bar, pie, line, and pie-bar. With no programming experience whatsoever, users simply name the kind of graph they want and identify the data to be used and, in seconds, the unique Autograph feature does the rest-automatic loading, computing scales, drawing grid lines, and labeling charts. Other features provide automatic shading, overlay graphs, summing, counting, and averaging functions. Runs on any CP/M based computer with at least 48K. Also requires cursor addressable 24 x 80 CRT. Works with Epson, Okidata, NEC's Spinwriter and others - \$295.00.

Fox and Geller Inc.
 P. O. Box 1053
 Teaneck, NJ 07666
 (201) 837-0142

Maestro is a companion software product for the Ceemac visual composition system for the Apple II computer. The program supports users of the language in assembling "albums" of their own visual creations complete with documentation and necessary runtime modules - \$35.00.

Vagabondo Enterprises
 1300 E. Algonquin - 3G
 Schaumburg, IL 60195
 (312) 397-8705

Languages

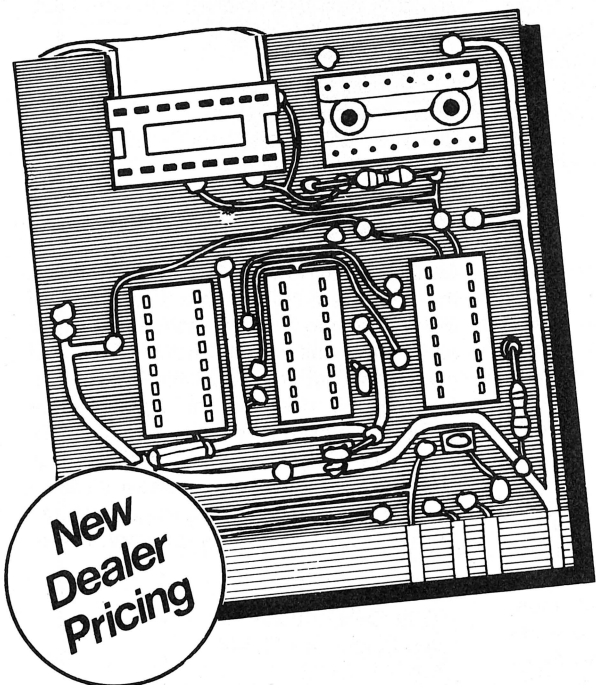
BASIC Tutor makes learning BASIC easy, giving step-by-step instruction in handling all the fundamental elements of the BASIC language. It begins by assuming you have no knowledge of programming. By the end of the last lesson you will be writing carefully planned, well-constructed programs of your own. It is interactive, prompting you with questions to which you will respond at the keyboard. Positive reinforcement is given with each correct answer, and specific aid is provided with each incorrect answer to help lead you in the right direction. Frequent summaries and review help make your new knowledge stick. You can work at your own pace to optimize your learning curve - \$99.00. Requires an Apple II with 48K and DOS 3.3.

SuperSoft
 P. O. Box 1628
 Champaign, IL 61820
 (217) 359-2112

SMC BASIC is now available for Apple's newly announced **Lisa** computer. This BASIC was chosen by Apple because of its ease of use, powerful business features and its compatibility with Microsoft's XENIX and Open Systems accounting software. This will extend Lisa's market reach to small businesses that require multi-user accounting systems. It is an extremely fast, easy to

SNAPSHOT™

Apple disk copy card



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PEELINGS II magazine compares SNAPSHOT with Wild Card and Crack-Shot:

*"Overall, with one of the supported RAM cards, **SNAPSHOT**, at \$109.95 is the best buy."*

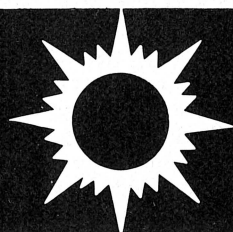
"The copy procedure is perhaps the easiest and clearest of the three cards."

SNAPSHOT has been a best-seller in England since early 1982. It will copy any memory-resident program that runs on the 48K Apple. SNAPSHOT uses your 16K RAM card* to interrupt a running program and dump the entire contents of 48K and registers to an unprotected backup disk. SNAPSHOT backs up programs that baffle nibble copiers like Locksmith without any complex parameter changes or trial-end-error hassle. And SNAPSHOT is still more effective, less expensive and easier to use than its imitators.

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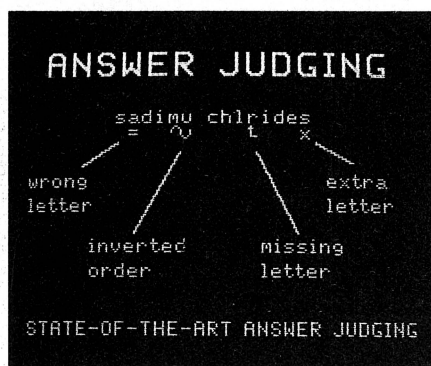
P.O. Box 140, Dept.A, Amherst, MA 01004

*One drive and 16K card required. Works with most popular cards, including Apple, Microsoft, Ramex, Digitek, MPC, RH Electronics, Orange, Franklin, etc. Other brands: specify when ordering. Works on Apple II and Apple II+, and Franklin 100 and 1000. Apple, WildCard, Crackshot, and Locksmith are reg. trademarks respectively of Apple Computer, EastSide Software, Pirate's Harbor and Omega Microware.

learn and use business BASIC that has proven an excellent tool for developing business applications. SMC BASIC retains the simplicity and mathematics capabilities of Dartmouth College BASIC while being enhanced to include business-oriented functions for application programming and an interactive, time-sharing environment. SMC Software Systems
1011 Route 22
P.O. Box 6800
Bridgewater, NJ 08807
(201) 685-9000

EnBASIC, for the Apple II plus is an enhancement of BASIC for improved human-computer interaction. All features of BASIC are still present. Key buffering allows rapid entry without loss during heavy computational loads. Lower case characters and keyboard re-assignment are added. Character design and display options allow proportional spacing, super- and sub-scripts, underlining, and automatically backspaced diacritical marks. Spelling and typing errors can be automatically indicated and synonym lists and embedded string variables are allowed as part of expected responses. Commands allow timed pauses or can force judging at an input if an answer has not been entered before a specified time has elapsed. Includes a 94 page manual with tutorial, pocket guide, diskette with many utilities and character sets, demos, etc., a duplicate master diskette for backup - \$150.00.

COMPRESS
P.O. Box 102
Wentworth, NH 03282
(603) 764-5831



Music

Music Maker provides unsurpassed sound quality and ease of use. Now any Apple II owner can create and play 4-voice (to N-voice) music on the Apple II with no

94 Apple Orchard

additional hardware. Sophisticated software permits you to enter whole to 256th notes, dotted notes, triplets, quintuplets, staccato, regular, or legato notes, all sharps and flats. The range of fifty tones from F below Low C to F# above High C gives the notes necessary for virtually every melody ever written. Editor features include Insert, Delete, Repeat, Edit, Key Set and Change Tempo functions for added versatility and ease of use. The manual includes a tutorial, a music refresher and a section on technical information for those wishing to incorporate completed songs into their own control programs - \$39.95 plus \$1.50 shipping. SubLOGIC Corporation
713 Edgebrook Drive
Champaign, IL 61820
(217) 359-8482

Personal

Fitness Logger is a miniature personal ambulatory blood pressure and ECG recording system using a Sony Walkman-type stereo recorder and an Apple II computer. It was designed for individuals interested in their body's response to the stress of daily activities whether running, working, sleeping or working at the computer. The system includes a pocket-sized recorder, standard blood pressure cuff, ECG electrodes, FM recording module and an Apple interface card. An accompanying diskette, "A Very Personal History" contains eight fitness and personal history programs, and also allows body signals to be presented on the display in the familiar ECG strip chart format, heart rate, blood pressure waveform, computed systolic, diastolic and mean arterial pressure. This data can then be compared with past history in assessing personal fitness development. At less than \$500.00 the Fitness Logger system is an automatic method for privately tracking personal fitness.

Vitalcomp Inc.
Chanhassen, MN 55317-0175
(612) 934-6166

Health-Aide contains features not found in any other nutrition program. Designed by nutritionists, it is now being used by professional dietitians, hospitals, diet and fitness centers, weight watchers, schools and individuals interested in their health. 32 nutrient values, plus cost and food group, are stored for over 800 foods, RDA for all nutrients is computed for each individual. This may then be modified and saved to disk. A complete nutrient analysis (including protein completeness) by meal and by day is displayed on the screen and on the printer. Each user may store 10 personal daily values for blood pressure, pulse, running times, etc. Monthly

and yearly graphs may be produced plotting all daily amounts. Recipes and menus may be created and saved on disk, as well as summarized shopping lists. 21 balanced menus for different caloric levels are supplied. You may instantly substitute for foods within the same food group to create individualized, balanced menus - \$79.95. Requires an Apple II or III (emulated) with 48K, DOS 3.3 and one disk drive.

KNOSSOS, Inc.
422 Redwood Avenue
Corte Madera, CA 94925
(800) 227-3800 ext 467; (800) 792-0990 ext 467 (CA)

Frustrated golfers who don't have as much time to spend on the practice tee as they would like can now improve their game with the help of a computer and a new golf software program called **Statistician**. Created by PGA golf pro and former PGA tour player Dave Haberle, Statistician is a self-help program for use with the Apple II Plus computer. It examines golf's primary analysis factors: impact feel, initial direction, resultant direction, trajectory and relative distance of each shot. Valuable statistics are created from combinations of these primary factors - \$34.95.

Golfsoft, Inc.
10333 Balsam Lane
Eden Prairie, MN 55344
(612) 941-2172

Home Health-Disk is a newly released program providing current information on emergencies, specific medical problems, and ways to save medical dollars. The program runs on an Apple II Plus with 48K and disk. Complete with a three week money back guarantee - \$79.95.

Brahman Software
P. O. Box 331
Castleton, VT 05735

The **Predictor** for the new U.S. Football League will actually "predict" the winners. The entire season schedule is already on the disk. Previous stats and predictions may also be printed on your printer. Written by Jim Jasper, author of Sports Betting and Basic Betting. Requires an Apple II or II Plus with disk - \$39.95.

Pickam Software
14411 Vanowen Street, Suite 209
Van Nuys, CA 91405
(213) 994-7944

Roadsearch is a computerized Road Atlas for the Apple II. It can develop different types of routes, finding the shortest practical route between cities in its database. This program also avoids toll or other roads if desired. Another program develops routes which may be longer, but more suitable to a user's specific needs. Features include estimating flying time between cities, printed outputs (driving route, distances, travel times, and fuel usage tailored to vehicle average miles

SCRG PRESENTS

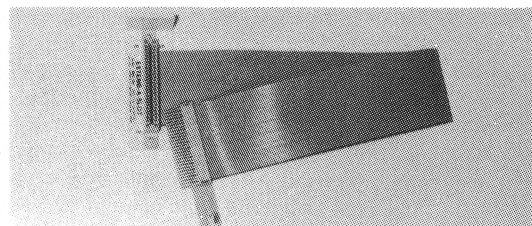
For Your Apple][, Apple][+, Apple //e, Apple /// & Franklin
switch-a-slot ————— Extend-A-Slot



The **switch-a-slot** connects to any peripheral slot of the computer through an 18" cable. The user can plug up to four cards in the **switch-a-slot**. The desired card is chosen by using a switch on the front, and only the selected card draws power. This product is suitable for most peripheral cards. The **switch-a-slot** is perfect for selecting between different printer cards.

- Holds 4 peripheral cards
- Saves wear and tear on delicate connectors
- All connectors are gold plated for reliability
- Only selected card draws power
- Works with most cards

\$179.50



The **EXTEND-A-SLOT** brings a slot outside your **APPLE™**, allowing an easy change of cards. The 18" flex cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability. **\$34.95**

These products work well with all slow to medium speed cards, such as Modems, Printers, Clock, Music, etc. They are not recommended for high speed data transfer devices such as alternate processor and disk drive controller cards.

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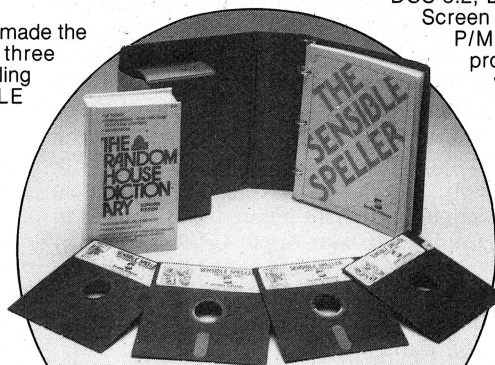
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The **SENSIBLE SPELLER** still includes the largest dictionary available for the Apple computer — over 80,000 words are supplied with unlimited room to add your own special words! This is a brand-name dictionary, containing *real words* from the official Random House Dictionary — not a list of words typed in by some programmer



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*New features not available in Apple CP/M, Pascal, and WordHandler versions.

***...Speller from Sensible Software glommed on to more than three-quarters of the market for proofreading programs...—Softalk Magazine, August 1982

per gallon) and a modifiable database. Complete with a database of 406 cities and road intersections located in the U.S and Canada. Also included in the database are about 69,000 miles of interstate and major through highways - \$34.95 plus \$1.50 shipping and handling. 15 day money back guarantee. Diskette provided may be backed up for personal use. Requires an Apple II with DOS 3.3.

Columbia Software
P. O. Box 2235
Columbia, MD 21045
(301) 997-3100

Utilities

Thermal Scan, Inc. announces its **Pseudo-Disc** software for Apple owners with 16K RAM cards. The software provides the use of a fast, 62-sector capacity "disk-drive" for only \$34.95.

Thermal Scan, Inc.
Dept AO
1779 Bradburn Drive
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Copy II Plus is a set of disk utilities that feature Catalog with file lengths; hidden characters and deleted files; Copy Files which includes pattern matching by character and file type; Copy Disk; Copy DOS; Delete Files, Disk, or DOS; Lock or Unlock Files; Rename Files; Format Disk, Verify Drive Speed, View Files; Track/Sector Map, and more. It also has a sophisticated bit (or nibble) copy program to permit you to make backups of your software. It supports synchronized tracks, half tracks, bit insertion, nibble counting, and track arcing. It also includes a nibble editor to aid in repairing blown disks - \$39.95.

Central Point Software, Inc.

P. O. Box 19730-#203

Portland, OR 97219

(503) 244-5782

Hyper-DOS 2 is a major new release featuring fast load/run, bload/brun and save/bsave of programs (up to 5 times faster); unused sector count display during catalog; bsave of 48K binary files; terminate the catalog listing at any time with control-C; Hyper-DOS menu. Utilities provided include Hyper-Text for fast reading of TEXT files into memory; Hyper-Copy which can write two copies from a single input master; Hyper-Format that will optionally free tracks 1 and 2 for use by data; Hyper-Writer transcribes the DOS currently in memory directly to a standard DOS 3.3 diskette without reinitializing it. Comes on a standard, copyable DOS 3.3 format diskette with easy instructions and documentation. A menu driven install program makes permanent BURT Microsystems- \$29.95.

BURT Microsystems

14221 Matisse

Irvine, CA 92714

(714) 559-5097

Word Processing

Texteditor uses random access techniques to store data and information in ASCII. Words can be examined and edited on each line. The program can be learned in half an hour. Printer Controller for Epson printers permits condensed, emphasized or double emphasized characters. It also tests Epson printers for functions from the computer keyboard through CP/M to Epson. Line Count program can indicate length of each file before using Texteditor. Compatible with Apple CP/M and many others. 8-inch diskette is \$12.50 and 5 1/4-inch diskette is \$9.95.

Tang Data Corporation

100 Eames Street

Framingham, MA 01701

(617) 872-7520

Bibliography will make the professional writer's job easier. It compares citations in a manuscript with the entries in a card catalog and constructs a bibliography of all entries cited. Entries are added to the catalog using a text-editor. Each catalog entry has a keyname (for example, author and year of publication), followed by bibliographic information such as the author's name, the title, journal, publisher and annotations. The entries may be of any length and format. Bibliography can also copy entries from the catalog to footnotes in the manuscript, or replace citations in the manuscript with numbers corresponding to the order in which the works appear in the bibliography. When preparing the manuscript, just type in the keyname for each reference. Requires CP/M, will work with most word processors, including WordStar Spellbinder, PeachText and SuperWriter - \$125.00

Digital Marketing Corporation

2670 Cherry Lane

Walnut Creek, CA 94596

(415) 938-2880

The Performer is an enhanced AppleWriter word processing system. It supports Upper and Lower-case and the shift key modification. It permits you to preview 80 columns of formatted text. You may switch between the Editor and Formatter instantly. Other features include versatile tabs plus decimal alignment, auto-paragraph indents, preset outline margins, flexible headers and footers, word counting, footnotes, form letters, help screens, chain documents of infinite length, supports special printer features. Includes complete documentation and sample files. Requires an Apple II or II Plus and Apple Writer 1.0 or 1.1 and DOS 3.3 - \$39.95.

Kingbird Software

4735 Kingbird Lane

St. Louis, MO 63128

BOOKS/CATALOGS

Misco Inc.'s new 80-page catalog shows more than 150 computer supplies and accessory products. These include a new line of glare-free filters that eliminate 99 percent of the reflections off the screens of CRT's, a converter designed to transform the return on a secretary's desk so it supports a CRT at eye level as well as a detached keyboard or personal computer on a sliding shelf underneath, two or four device share switches that eliminate redundant computer hardware by simply sharing resources. A simple, two-second changeover is all that is required to share printer, modems or CRT's with one compu-

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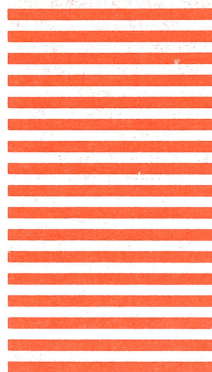
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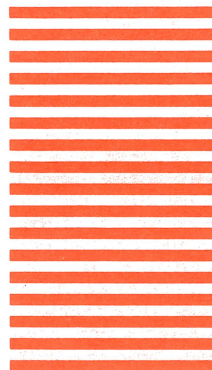
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for Apple II® & Apple //e®



DESCRIPTION

The VIM converts spoken words to commands or data for your application programs. The Voice Input Module has unexcelled spoken word recognition accuracy at an unmatched price.



For ordering or information contact:

VOICE MACHINE COMMUNICATIONS, INC.
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Phone (714) 639-6150

FEATURES

No application programming necessary
Near perfect recognition 98%+
Unlimited vocabulary using eighty word/phrase subsets
Recognizes anybody's voice
Multi-lingual recognition
Allows simultaneous input of voice and keyboard

APPLICATIONS

The VIM is designed to add voice input to ANY existing Apple II application:

- Word Processing
- Programming
- Data Input and Retrieval
- Measurement, Inspection and Testing
- Education
- Control Systems
- Business
- Games and Entertainment
- Graphics
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- Industrial Automation

VIM FOR APPLE II CONTAINS:

Voice Input Module 2020C with:

- 16 channel audio spectrum analyzer
- 6803 high speed microcomputer
- 8K Bytes of RAM, 4K Bytes of ROM

Voice Utility Diskette with:

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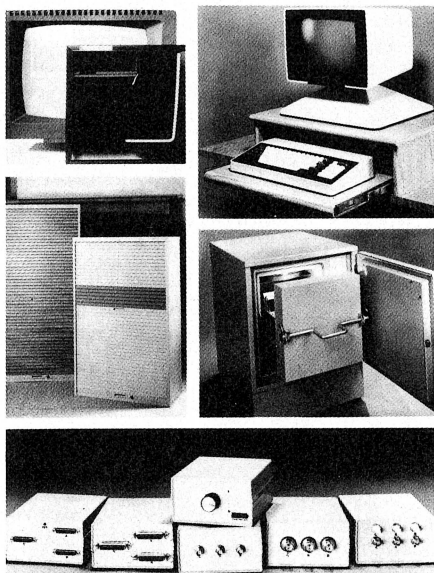
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The **Apple Owner's Booklist** is a listing of more than 200 books, pamphlets, and periodicals that relate to the Apple II computer. Although the list is not annotated, it does give such information as the title, author, publisher's name and address, date of publication, number of pages and

98 Apple Orchard

the price. Books published by Apple Computer, Inc. are not included since it is assumed that they would be available from your local dealer. The list is updated monthly - \$2.00.

Bob Broedel
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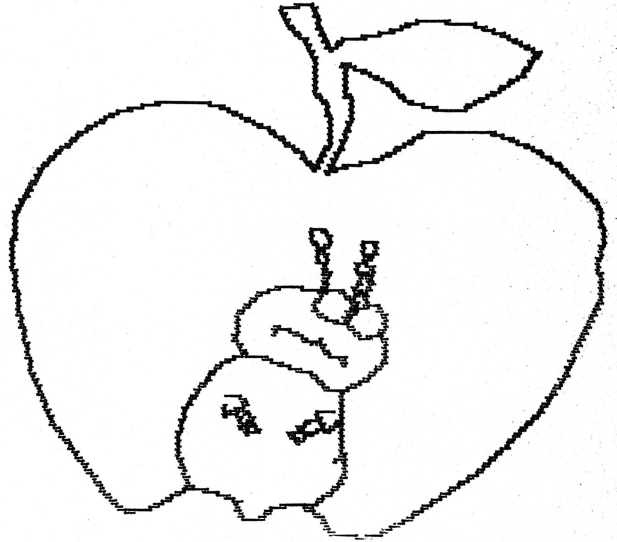
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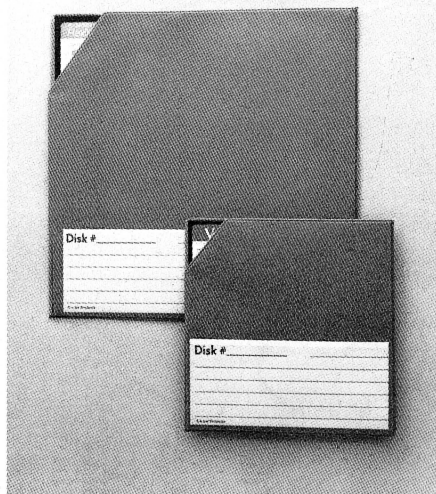
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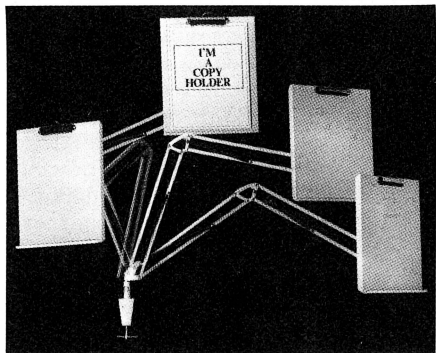
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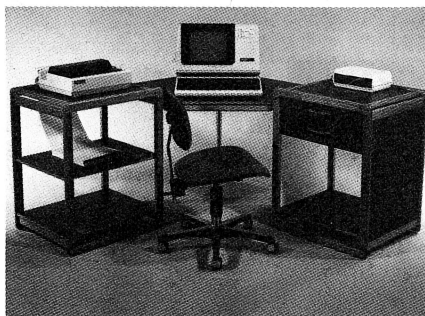
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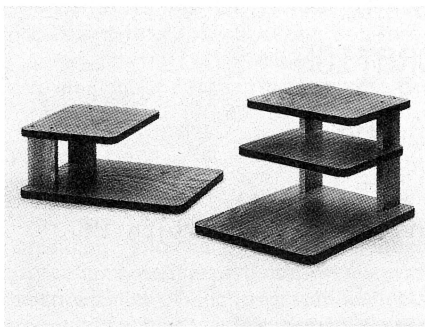
U-Corner, utilizes normally wasted corner space. Choice of wood finishes and laminates, printer paper slots, adjustable shelves, and a five year guarantee. In addition to standard features, they offer options such as a drawer conversion kit, a mounted surge protector/outlet run, and the Cable Roundup, which neatly organizes the myriad of wires required by today's equipment. Each piece of furniture within the system bolts solidly together in minutes.

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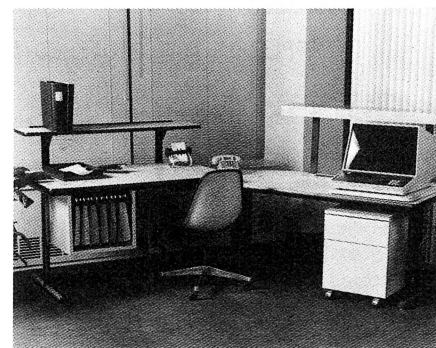
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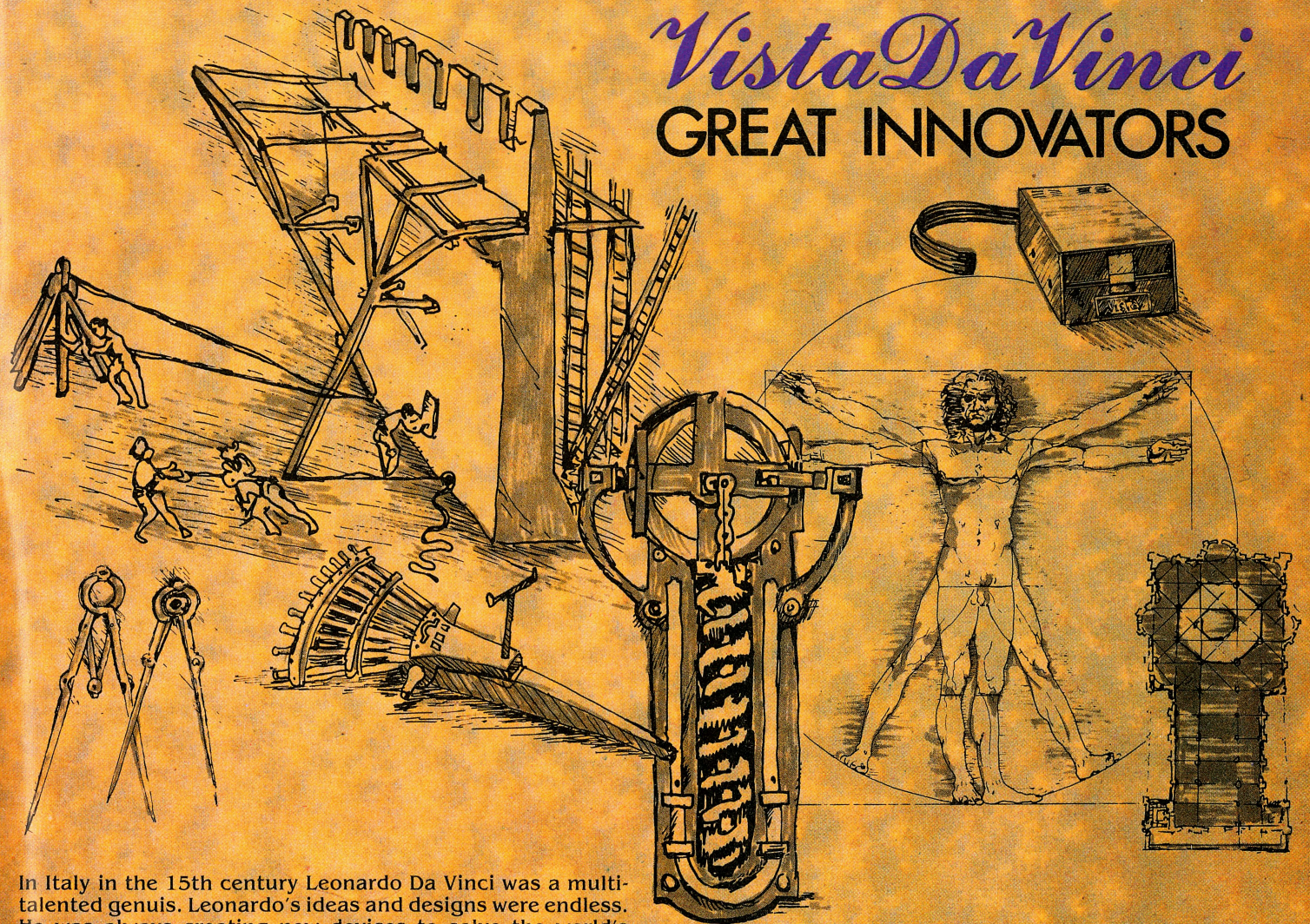
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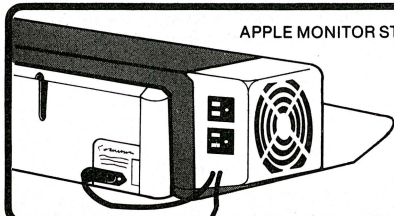
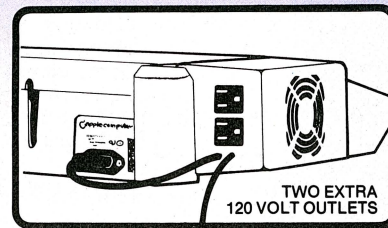
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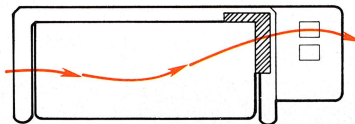
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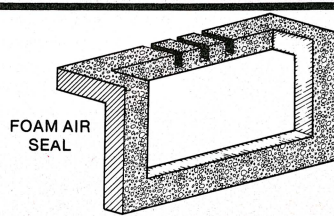
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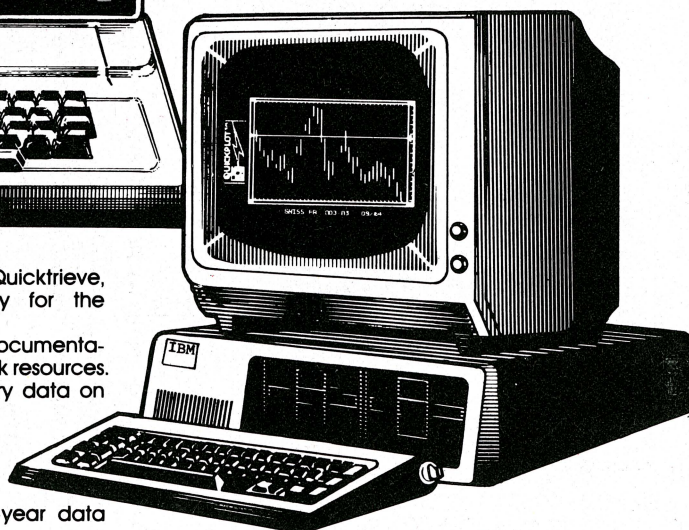
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The PSIO lets you choose from among an unmatched range of software-selectable options, including variable baud rate selection, form width, form length, auto linefeed, linefeed mask, Xon/Xoff protocol, lowercase masking, shift wire mod support, duplex mode, parity, data format, video echo mode and a slot echo mode.

PSIO can also open up new worlds for graphics, since it can reproduce your picture on any graphics printer. Rotate your picture, enlarge it, change it as you wish.

Once you've chosen your options, the PSIO's highly sophisticated NOVRAM (non-volatile RAM) will remember and permanently save them. That means you won't have to give the same configurations over and over again... your PSIO will do it for you. And if you want to *change* those configurations, you can do it through software instead of through the confusing array of switches that other cards use.

The PSIO will work with any printer/modem you now happen to own... and it will work with any printer/modem you happen to purchase in the future. Adaptable? Definitely!

The PSIO is completely compatible with BASIC, Pascal and CP/M® systems.

The PSIO from Videx...how in the world can you do without it?!

