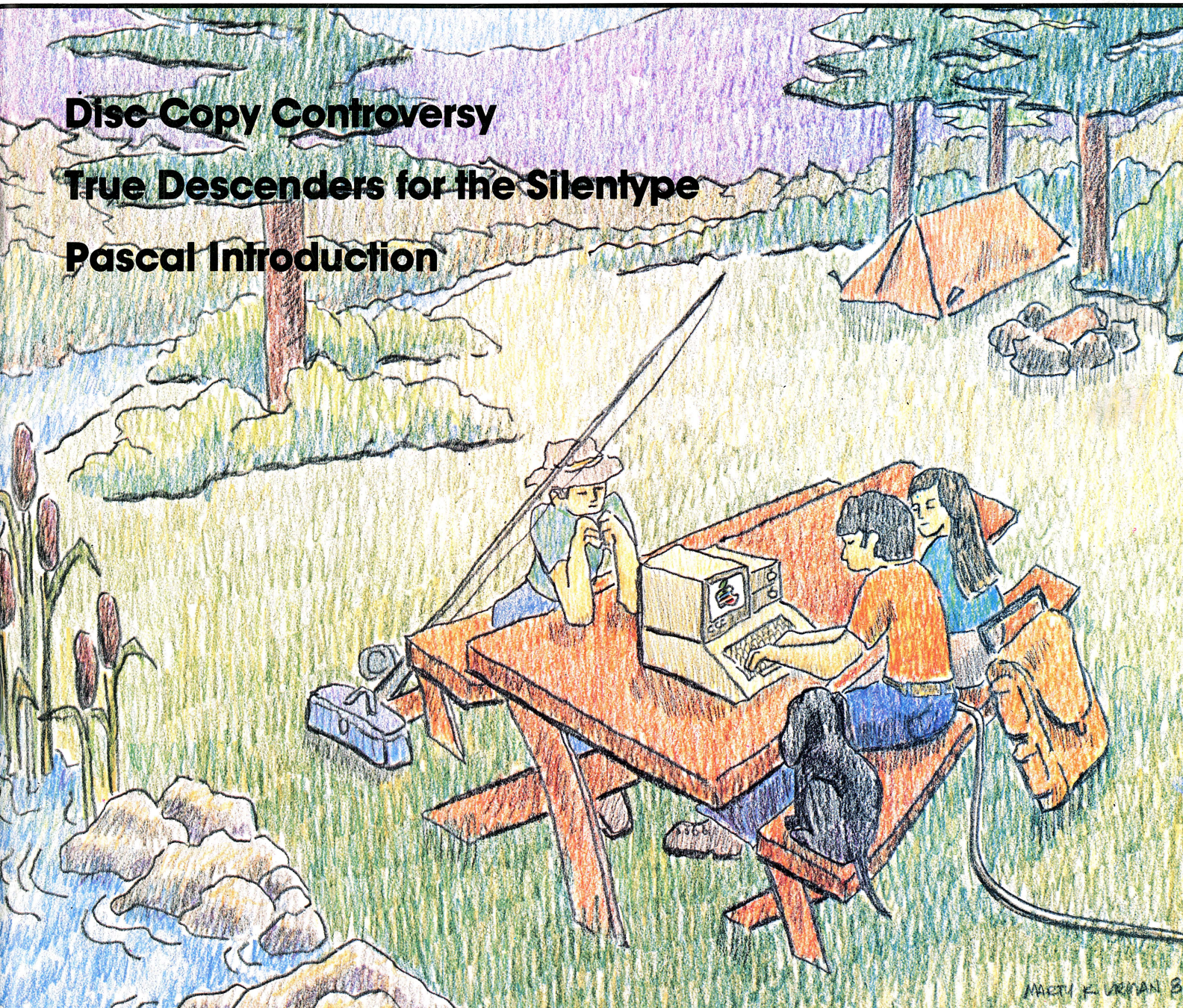
INTERNATIONAL APPLE CORE™
presents

Apple Orchard™

VOLUME 2 NUMBER 2 SUMMER 1981 $3.50

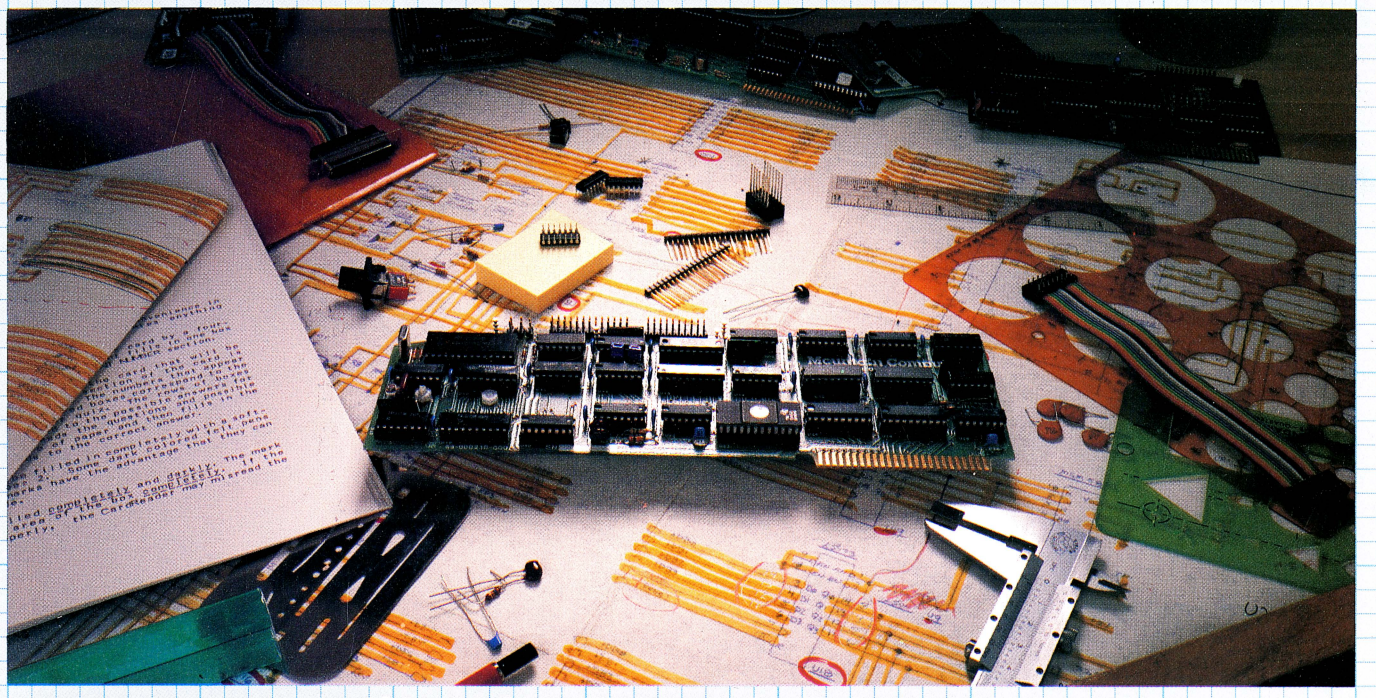


Disc Copy Controversy

True Descenders for the Silentype

Pascal Introduction

Mountain Computer put it all together for you.



The CPS MultiFunction Card

Three cards in one! The Mountain Computer CPS MultiFunction Card provides all the capabilities of a serial interface, parallel output interface and real-time clock/calendar—all on one card—occupying only one slot in your Apple II®. Serial and Parallel output may be used simultaneously from CPS. CPS is configured from a set-up program on diskette which sets the parameters (such as baud rate, etc.) for all functions contained on the card and is stored in CMOS RAM on the card. Once you have configured your card, you need never set it up again. You may also change parameters from the keyboard with control commands. All function set-ups stored on-board are battery powered for up to two years. "Phantom slot" capability permits assigning each of the functions of CPS to different slots in your Apple without the card actually being in those slots! For example, insert CPS in slot #4 and set it up so that is simulates a parallel interface in slot #1 and a clock in slot #7 and leave the serial port assigned to slot #4. CPS's on-board intelligence lets it function in a wide variety of configurations, thereby providing software compatibility with most existing programs. "We've put it all together for you"—for these reasons and many more! *Drop by your Apple dealer and see for yourself how our CPS MultiFunction Card can expand the capabilities of your Apple and save you a great deal of money as well!*

Calendar/Clock
- One second to 99 years
- Battery backed-up (2 years)
- Two AA standard alkaline batteries for back-up (provided)
- Compatible with MCI Apple Clock™ time access programs

Parallel Output
- Features auto-line feed, Apple tabbing, line length, delay after carriage return, lower to upper case conversion
- Centronics standard—reconfigurable to other standards
- Status bit handshaking

Serial Interface
- Features auto-line feed, transparent terminal mode, Apple tabbing, line length, delay after carriage return, local echo of output characters, simultaneous serial/parallel output, lower to upper case conversion, discarding of extraneous LFs from serial input
- Uses the powerful 2651 serial PCI chip
- 16 selectable internal baud rates—50 to 19.2Kbaud
- Half/Full duplex terminal operation
- I/O interface conforms to RS-232C
- Asynchronous/Synchronous operation

Mountain Computer
INCORPORATED

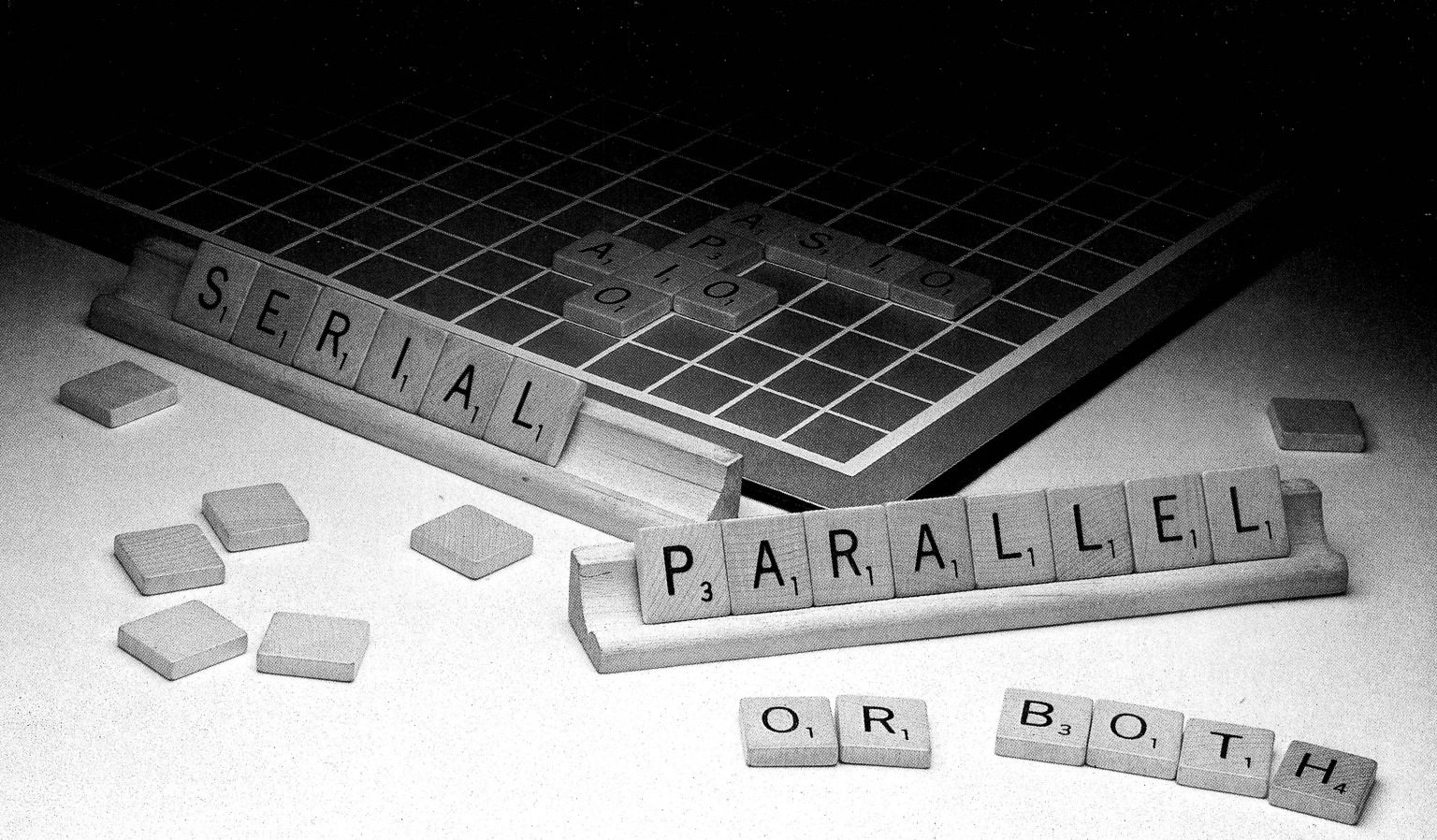
300 El Pueblo Scotts Valley, CA 95066
(408) 438-6650 TWX: 910 598-4504

SPECIAL INTRODUCTORY PRICE . . .

$239.!

™Apple Clock was the trademark of Mountain Computer Inc.

*Apple and Apple II are registered trademarks of Apple Computer Inc.



Apple* I/O Interfaces. SSM Spells Success Three Ways.

SSM helps you get the most from your Apple II* computer. Choose from three general purpose interface boards. With flexibility and prices that translate to big savings. Now, and when you upgrade.

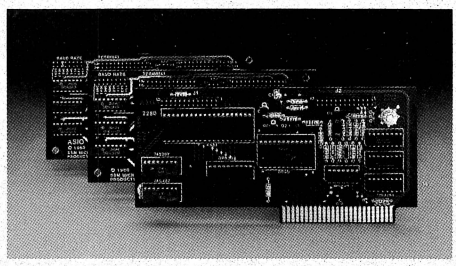
Serial (ASIO™). Our ASIO gives you a full-duplex RS-232 interface. Plus jumper-selectable rates from 110 to 9600 baud. You also get software control, three handshaking lines and two output plugs—so you can connect your Apple to a modem or to a terminal/printer without modifying the cable.

Parallel (APIO™). For parallel interfaces, our APIO offers two 8-bit bidirectional ports. We also include additional interrupt and handshaking lines, plus software control of the interface configuration and data direction. Cables for Centronics and other printers are optional.

Or Both (AIO™). Choose our tried and proven AIO when you need a sometimes-serial or a sometimes-parallel operation. This single-board solution packs a lot of performance for the price. Thousands are now being used. It even lets you operate both ways—simultaneously—under Pascal, or with special drivers.

All three boards feature powerful firmware so you don't have to write software to use them. The ASIO and AIO include cables.

Whether you're an OEM or end-user, we can supply virtually any quantity you need. Quickly. Even in kit form. For the latest word on these, see your local computer dealer. Or call us today. You may also want to look into our cost-effective A488™ board which converts your Apple II into an IEEE-488 controller.



SSM Microcomputer Products, Inc.

SSM Microcomputer Products, Inc., 2190 Paragon Drive, San Jose, CA 95131. (408) 946-7400. (TWX 910-338-2077. Telex 171171.)

*Apple and Apple II are trademarks of Apple Computers Inc. ASIO, APIO, AIO and A488 are trademarks of SSM Microcomputer Products, Inc.

Verbatim comments:

"Compared to the brands I've used before, Verbatim Datalife™ is the best yet!"
Sandy Tiedeman
Las Vegas, NV

"New Verbatim helped eliminate I/O errors on my Apple."
Richard Adams
Ft. Walton Beach, FL

"I would prefer Verbatim Datalife over any brand I've ever used."
Skip Piltz
Overland Park, KS

"My experience with Verbatim diskettes has been excellent. I've used several boxes over the past few months and they've all been error-free."
Robert Roeder
Las Vegas, NV

"Much stronger, better centering. A definite improvement."
Leroy LaBalle
Marrero, LA

"It has worked perfectly everytime!"
Richard Ruth
Shippensburg, PA

"I like the thicker protective cover."
David Hendel
Lititz, PA

"Great! I have had *no* problems!"
Timothy Roscoe
Mechanicsburg, PA

"So far my Verbatim disks have been performing flawlessly. Not always so with other disks."
Chris Otis
Hoffman Estates, IL

"Runs quieter in the disk drive."
Richard Cannova
Los Angeles, CA

"Verbatim disks are super. They're our standard for quality."
Bob Mills
Mission, KS

"Anything that prolongs the life of a diskette is a plus. Thank you Verbatim for an excellent improvement."
Steve Toth
Piscataway, NJ

"Of the 130-plus Verbatim disks I have, I'm not aware of any problems. I'm sure the improvements will give your disks an even longer life."
Gerald Janas
Warren, MI

"FANTASTIC. Not a single registration problem. Much more reliable than what I had been using."
Gary Sandler
Playa Del Rey, CA

"Verbatim is much more reliable. I wouldn't trust anything else."
Howard Chin
Pomona, CA

"Thank you for the improvements. Just another reason why I'll always use Verbatim."
James Hassler
Cheyenne, WY

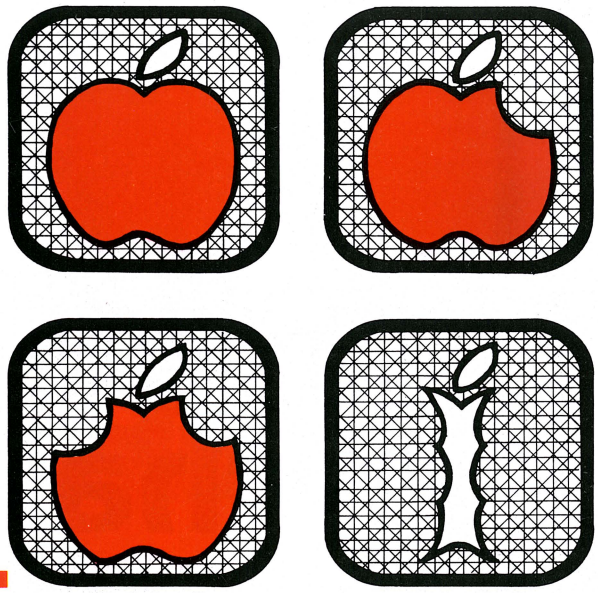
We introduced Verbatim Datalife mere months ago. And it's already playing to rave reviews like these.

But don't take anybody else's word for it. Try it yourself, and see if you don't agree it's the best media you've ever tried. For the name of your nearest Verbatim dealer, call (800) 538-1793, in California call (408) 737-7771 collect.



©1981 Verbatim Corporation
Datalife is a trademark of Verbatim Corp.

We play it back, Verbatim!



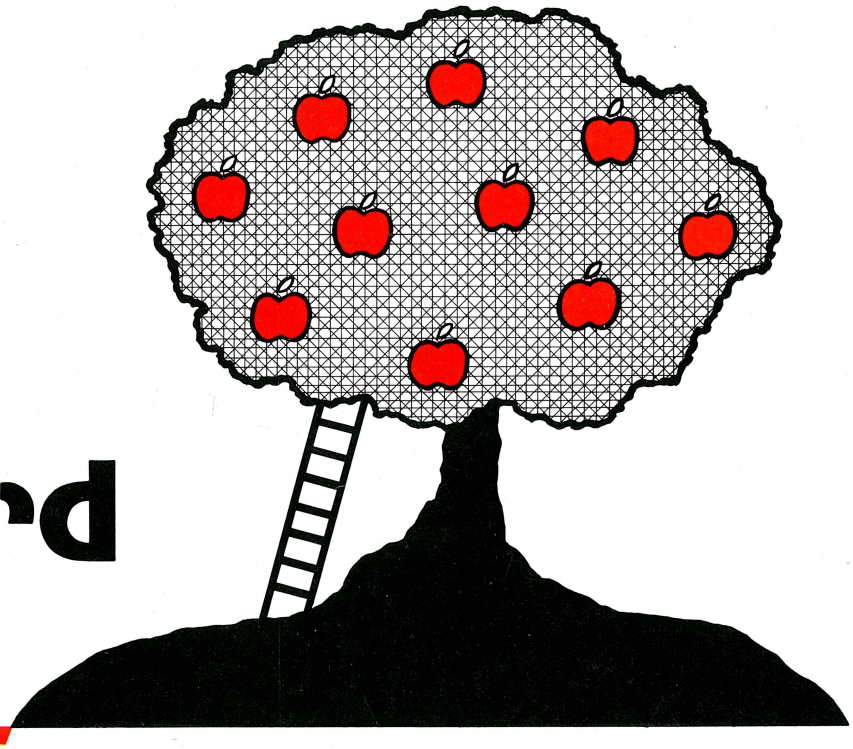
Take a bite...

Vol. 2 No. 2 Summer 1981

True Descenders for the Silentype, Andy Hertzfeld 13
For most (but not all) Silentypes, you can add this classy feature.
CP/M On Your Apple II — Another Beginning, Gene Wilson 19
A tour of the widely used operating system.
The Problem of Copies, Peter C. Weiglin 22
Have you ever gotten a bootleg disk?
Software Protection, Neil Lipson 25
Electronic countermeasures.
For Professional Programmers — A Voice in the Industry, Scot Kamins 26
Vignettes on piracy, and a response.
COUT and Printed or Displayed Output, D. Buchler 28
Doing it Right, Bob Hance 30
A treatise on self-incrimination and quality.
Apple III Users, Unite . . . Jim Linhart 32
Support groups for the newcomer.
Apple III Dabbling, Rick Smith 33
Deja Vu for the Apple II oldtimer.
Read DOS 3.3 Files From Pascal 1.1, Lee Meador 34
Make the transition to Pascal that much easier.
The Executive Branch, C. J. Thompson 45
EXEC operations in BASIC.
Getting There Faster in Applesoft, Part II, David H. Bartley 58
More radical ways to speed up executions.
One-Oven Muffin, Dana J. Schwartz 66
Single-drive 3.2 to 3.3 conversion program.

DEPARTMENTS

PRINT FRE(ED), Val J. Golding 8
Planting a seed . . ., Peter C. Weiglin 9
President's Message, Ken Silverman 11
Letters to the Editor 47
Cycloids, "Dr. Wo" 53
A new Pascal column, beginning with a great graphic.
User Group Forum, Randy Fields 68
Another new feature, this one on User Group activities.
IAC Section: Inside the IAC 48
Membership Information 72
Sponsoring Members 74
Member Club Roster 75
Forbidden Fruit, Mark L. Crosby 85
Temptations, delicacies, and necessities.
Buffer Overflow, Dan Wasleski 100



Apple Orchard

Vol. 2 No. 2 **Summer 1981**

Entire Contents Copyright © 1981
by **International Apple Core**

Peter C. Weiglin—Editor
Val J. Golding—Editorial Associate
Mark Crosby—New Products Editor
"Dr. Wo"—Pascal/Languages Editor

EDITORIAL MATERIAL TO:
International Apple Core
P.O. Box 976
Daly City, CA 94017

Published for the International Apple Core by
dilithium Press, P.O. box 1493,
Beaverton, OR 97075

Jill A. Scofield—Publisher

Tymera Coen—Production Manager

ADVERTISING REPRESENTATIVES:
dilithium Press
P.O. Box 1493
Beaverton, OR 97075
(503) 646-2713

SUBSCRIPTIONS—DEALER INFORMATION:
Apple Orchard Subscriptions
P.O. Box 1493
Beaverton, OR 97075

APPLE ORCHARD (ISSN 0277-1950) is published quarterly by dilithium Press, 11000 SW 11th Street, Beaverton, Oregon 97005. Subscription rates are $10.00 for four issues in the U.S., $15.00 U.S. funds for Canada, Mexico, APO and FPO addresses, and $20.00 U.S. funds for overseas and foreign addresses. Send change of address notices and correspondence concerning subscriptions to: APPLE ORCHARD Subscriptions, P.O. Box 1493, Beaverton, Oregon 97075.

INTERNATIONAL APPLE CORE

Officers

Jerry Vitt	Chairman	(214) 369-7660
Ken Silverman	President	(415) 878-9171
Dave Gordon	Vice-President	(213) 384-0579
David Alpert	Treasurer	(312) 295-6078
Joe Budge	Secretary	(919) 489-4284

Regional Directors

Roger Keating	P.O. Box 448, Double Bay 2048, NSW, Australia
Auby Mandel	409 Queen St. W., Toronto, Ont., Canada M5V 2A5
Wolfgang Dederichs	Auf Drenhausen 2 4320 Hattigen, West Germany

Harlan G. Felt	(Northern United States)	(408) 866-1733
James E. Hassler	(Northern United States)	(307) 632-4934
Jerry Vitt	(Southern United States)	(214) 369-7660
Scott Knaster	(Southern United States)	(303) 238-8301
Bernie Urban	(Eastern United States)	(301) 229-3458
Tony Cerreta	(Eastern United States)	(914) 636-3417
Fred Wilkinson	(Western United States)	(415) 585-2240
James Simpson	(Western United States)	(805) 492-3391

Committee Chairmen

SPECIAL INTEREST GROUPS:

Co-ordinator	Louis Milrad	(416) 223-0599
Education SIG	Ted Perry	(916) 961-7776
Ham Radio SIG	James E. Hassler, WB7TRQ	(307) 632-4934
Handicapped SIG	David McFarling	(402) 467-1878
Languages	Tom Woteki	(202) 547-0984
Legal SIG	Felix B. Clayton	(803) 884-5370
Medical SIG	Larry L. Stoneburner	(714) 953-9151

ApNotes	John Shanes	(804) 746-2711
Apple Orchard	Peter C. Weiglin	(415) 573-9726
IAC Software	Neil Lipson	(215) 356-6183
IAC Librarian	Major Terry N. Taylor	(213) 372-4134
Telecommunications	Craig Vaughan	(703) 255-2241
Standards	Mark Robbins	(303) 755-6440
Newsletter Exchange	David Alpert	(312) 295-6078
New Club Assistance	Randy Fields	(415) 775-7965



Turn your Apple into the world's most versatile personal computer.

The SoftCard™ Solution. SoftCard turns your Apple into two computers. A Z-80 and a 6502. By adding a Z-80 microprocessor and CP/M to your Apple, SoftCard turns your Apple into a CP/M based machine. That means you can access the single largest body of microcomputer software in existence. Two computers in one. And, the advantages of both.

Plug and go. The SoftCard system starts with a Z-80 based circuit card. Just plug it into any slot (except 0) of your Apple. No modifications required. SoftCard supports most of your Apple peripherals, and, in 6502-mode, your Apple is still your Apple.

CP/M for your Apple. You get CP/M on disk with the SoftCard package. It's a powerful and simple-to-use operating system. It supports more software than any other microcomputer operating system. And that's the key to the versatility of the SoftCard/Apple.

BASIC included. A powerful tool, BASIC-80 is included in the SoftCard package. Running under CP/M, ANSI Standard BASIC-80 is the most powerful microcomputer BASIC available. It includes extensive disk I/O statements, error trapping, integer variables, 16-digit precision, extensive EDIT commands and string functions, high and low-res Apple graphics, PRINT USING, CHAIN and COMMON, plus many additional commands. And, it's a BASIC you can compile with Microsoft's BASIC Compiler.

More languages. With SoftCard and CP/M, you can add Microsoft's ANSI Standard COBOL, and FORTRAN, or Basic Compiler and Assembly Language Development System. All, more powerful tools for your Apple.

Seeing is believing. See the SoftCard in operation at your Microsoft or Apple dealer. We think you'll agree that the SoftCard turns your Apple into the world's most versatile personal computer.

Complete information? It's at your dealer's now. Or, we'll send it to you and include a dealer list. Write us. Call us. Or, circle the reader service card number below.

SoftCard is a trademark of Microsoft. Apple II and Apple II Plus are registered trademarks of Apple Computer. Z-80 is a registered trademark of Zilog, Inc. CP/M is a registered trademark of Digital Research, Inc.

MICROSOFT
CONSUMER PRODUCTS

Microsoft Consumer Products, 400 108th Ave. N.E.,
Bellevue, WA 98004. (206) 454-1315



Introducing 4 new programs from the

These new programs are going to do for you just what our VisiCalc™ program has done: make your computer work harder, so you can work smarter!

They'll enable a personal computer to take over more of those tasks eating up so much of your time. That'll give you more time to concentrate on the tasks where your skills, experience and intuition can do the most good. Things like thinking, planning and managing.

A personal computer can help you do all these things better. And Personal Software™ programs will help you do them best!

VisiDex. The VisiDex™ program makes it a snap for you to remember anything, and everything, you don't want to forget.

It's a free-form personal filing program with nearly unlimited cross referencing.

VisiDex "thinks" and "remembers" just the way you ask it to—so you can access it anyway you want, and find exactly what you want—instantly!

VisiPlot. The VisiPlot™ program makes it easy to see what your numbers really say.

It adds real meaning to financial analysis, forecasting, budgeting and business planning. Because VisiPlot takes hard-to-grasp numbers and automatically turns them into easy-to-comprehend charts and graphs, right before your eyes!

All kinds of charts and graphs, with all kinds of flexibility in titling, shading, and color—all at the touch of a few buttons!

© 1981 PERSONAL SOFTWARE INC.
Apple is a registered trademark of Apple Computer, Inc.

Ask your favorite retail computer dealer for a demonstration of the Personal Software programs.

HOW TO WORK SMARTER NOT HARDER



people who brought you VisiCalc!

VisiTrend/VisiPlot. If you want sophisticated trend forecasting and statistical analysis—and you know how hard it is to create them by hand—you'll want to get your hands on the VisiTrend/VisiPlot™ program!

This program will enable you to rapidly perform regressions and time series analysis, plus providing you with comprehensive charting and graphing capabilities.

VisiTerm. The VisiTerm™ program enables you to reach out to the world.

With VisiTerm, you'll be able to use your personal computer to communicate with larger computers, to tap into data networks, to communicate with other personal computers.

VisiTerm gives you all the benefits of a personal computer, plus all the advantages of an intelligent terminal, all in one package.

All of these programs are currently available for the Apple II and II Plus. Besides their many individual benefits, these new programs deliver an even greater total benefit. That's because many of them interact with each other and with our new, enhanced version of VisiCalc.

Together, they give you an unprecedented family of personal computing capabilities; making the computer work harder, so you can work smarter!

PERSONAL SOFTWARE INC.

Or call us at (408) 745-7841 for the name of the Personal Software dealer nearest you. Or write us at 1330 Bordeaux Drive, Sunnyvale, CA 94086.

PRINT FRE(ED)

By Val J. Golding
Editorial Associate

As you read this column, you will find this one of the rare occasions where I have dropped the editorial "we" in favor of the more personal form of first person singular, and for good reason, as you will see.

I have had the extreme good fortune and pleasure of having been the first President of **Apple Pugetsound Program Library Exchange** and of the **International Apple Core,** as well as the Editor of their respective journals, **Call -A.P.P.L.E.** and the **Apple Orchard,** each in a class by itself, each outstanding in its own field.

Over this period I have watched **Apple Orchard** grow from a manufacturer of the world's first single board microcomputer, produced by two individuals, to a multi-million dollar industry employing hundreds, offering a full line of computers and peripherals, and interspersing its phenomenal growth and accomplishments with the occasional and expected goofs.

The first **Call -A.P.P.L.E.** was produced from my basement and duplicated on an office photocopy machine. The finishing touches on the first **Orchard** were done from my hospital bed. Never could I have anticipated the storybook coming of age of any of the three organizations, nor would I have wanted it differently. Expansion begets change, and change begets innovation. In all cases, this onslaught of ultra-rapid development demands ever-increasing manhours and staff.

Today the trend continues. Alas, we may never invent the practical 48-hour day. Thus it is with the deepest of feelings, with pride and regret, sighs of relief and tears of parting, that I leave the **Apple Orchard** as its Editor, and pass the reins to another. If you have glanced at the staff page for this issue of the **Orchard,** you may have already noted the name of Peter C. Weiglin as Editor. Peter is a gentleman of wit and talent, a rare individual who knows the difference between a double-truck Birney and a Philadelphia Nearside ("in" joke), and who was responsible for the well-written lead article in the Spring **Orchard,** "Screen Formatting of Text". Peter brings with him a varied background of public transit, Apple and other computers, and editorial resources.

Naturally, I wish Peter all the best in cranking out each coming issue of the **Orchard,** and as Editorial Associate, I will be available to him whenever needed, and in addition, will be an ongoing contributor to the **Apple Orchard.**

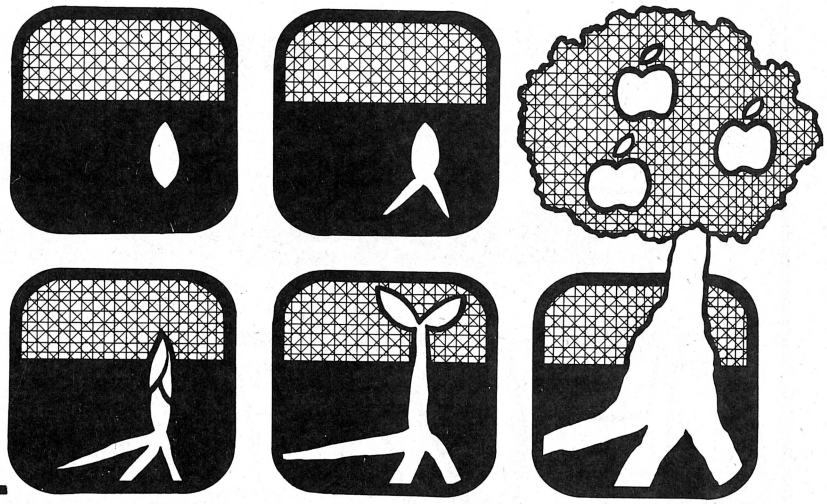
It would not be appropriate to close this somewhat emotional column without extending my thanks to all who have helped and contributed to the success of the **Orchard,** and in particular to two lovely, charming and dedicated young ladies, both dear personal friends, who have toiled long and hard for both the **Orchard** and **Call -A.P.P.L.E., Patricia Boner** and **Kathryn Hallgrimson.** Thanks to both and Love 'Ya.

. . . APPEND FILE . . .

Who replaced Val Golding? Wrong question. Nobody could "replace" Val Golding. All one can do is try to maintain, and maybe improve, upon what he created from blank paper and an office photocopier. The best news for me is that Val will continue to be available; maybe we'll both have time for the Birneys and the Nearsides, someday. Meanwhile, you and your crews have the thanks of all of us.

—PCW

Planting a seed...



or-chard (n.) An environment designed to help Apples flourish . . .

Well, we've taken a liberty or two with Mr. Webster's definition, but that statement is the reason for this Orchard. It's part of the overall mission of the International Apple Core.

This publication, with a worldwide circulation in excess of 30,000 (and growing), exists to improve what one jargon-spouting sociologist called the "man-machine interface". It's a forum for the exchange of information which will help you to get more from your Apple. It's also a means to show you some of the remarkable facets of this Apple world we've all joined . . . and it's a way for you to share your experiences with kindred souls.

Our twin goals are relevance and reliability. Relevance in providing information not only for the newcomers, but also for the "old hands". (By the way, "old hand" status is usually achieved, or at least claimed, after about a year of ownership.)

Some of that information comes from Apple Computer itself, in the form of the CONTACT section. We appreciate the Company's support and contributions of material to this user publication. We also appreciate, encourage (and pay for) material from individuals who share their knowledge and experience. That could be you, couldn't it? If it has to do with our favorite computers and the galaxy of related hardware and software, it's fertilizer for the Orchard.

Not that we're just an Apple Computers, Inc. house organ; far from it. For example, we agree with those dealers who thought that the company's sudden suspension of distribution of Apple II's this past January, without telling the dealers, coincidentally just before a price increase, appeared to be a questionable tactic. Maybe it wasn't, but the point is that the dealers' perception was not a pleasant one. Yes, it all got straightened out, but it was not a winning example of How To Do Business.

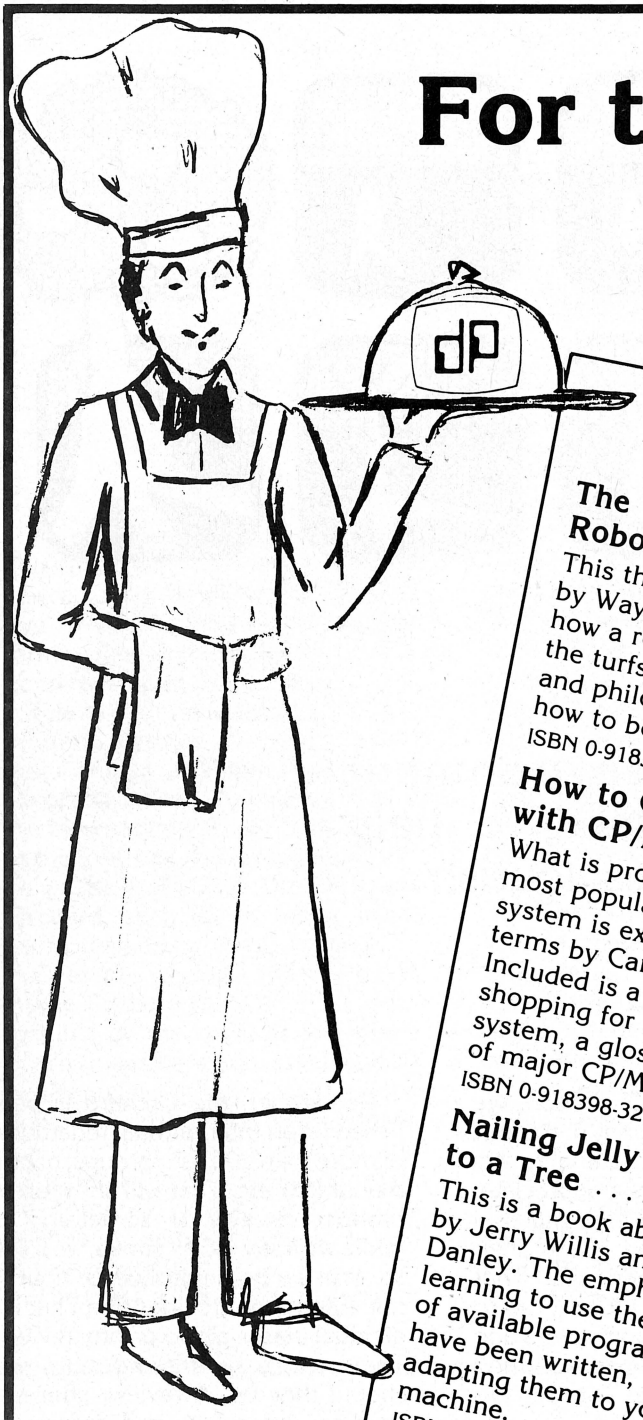
Remember, the Orchard is published by an international federation of more than 200 user groups, not by manufacturers. That will show up in product reviews. If something is good, we'll say so. If it stinks, we'll say so. Will we be unbiased? Of course not. Each person brings his or her individual biases along on any review. These can't be filtered out, nor should they be. A review, after all, implies judgment and informed opinion.

Will we be fair? Just as fair as is humanly possible, including printing rebuttals, dissents, and comments—and doing our best to listen for the telltale scraping and whining of someone grinding his own ax while claiming impartiality.

Like the Apple world, the Orchard will continue to grow and develop over time. We invite you to watch . . . and to participate.

RCWeyl

For the imaginative connoisseur



Specialties of the House

The Year of the Robot $7.95
This thought-provoking book by Wayne Chen illustrates how a robot encroaches upon the turfs of religion, morality and philosophy, teaching us how to behave.
ISBN 0-918398-50-9

How to Get Started with CP/M $9.95
What is probably the world's most popular operating system is explained in simple terms by Carl Townsend. Included is a guide on shopping for an operating system, a glossary and a list of major CP/M software.
ISBN 0-918398-32-0

Nailing Jelly to a Tree $12.95
This is a book about software by Jerry Willis and William Danley. The emphasis is on learning to use the thousands of available programs that have been written, and adapting them to your machine.
ISBN 0-918398-42-8

PASCAL $12.95
This bestseller by Paul M. Chirlian incorporates Pascal with a discussion of structured programming. Pascal keywords, Pascal library sub-programs, and Pascal operators are included.
ISBN 0-916460-28-2

Computers for Everybody $4.95
This fun-to-read book by Jerry Willis and Merl Miller covers all the things a beginner should know about computers. It covers how to use a computer, how to buy and who to buy from, and which computers are good and which are bad.
ISBN 0-918398-49-5

Instant (Freeze-Dried Computer Programming in) BASIC $10.95
Here is an "active participation" workbook by Jerald Brown, which is designed to use with a home computer. It's an easy way to learn BASIC.
ISBN 0-918398-21-5

dilithium Press

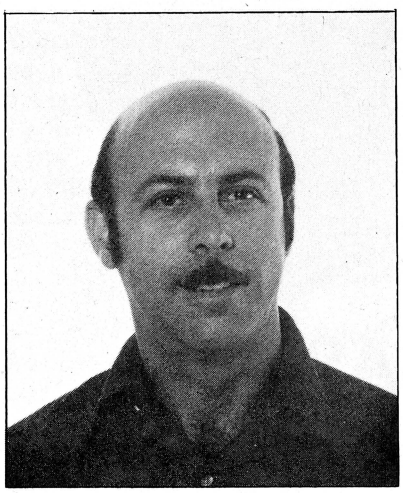
P.O. Box 606
Beaverton, OR 97075

toll free order number
1-800-547-1842

Write for Free Catalog
Our books are available at Kroch's and Brentanos, B. Daltons, computer stores or directly from us.

President's Message

Ken Silverman
President, International Apple Core



More than a full year has passed since the first **Apple Orchard** in March 1980. This issue is number five for our quarterly publication. As time moves forward changes are expected. When the IAC was first formed, the need to get as much information as possible to as many Apple users created the need for the **Apple Orchard.** With that need Val Golding became our Editor.

Val was one of the original founders of the IAC and one of the driving forces to get just such an organization formed. Most users know Val as the Editor of **—Call Apple,** the premier Apple user group publication.

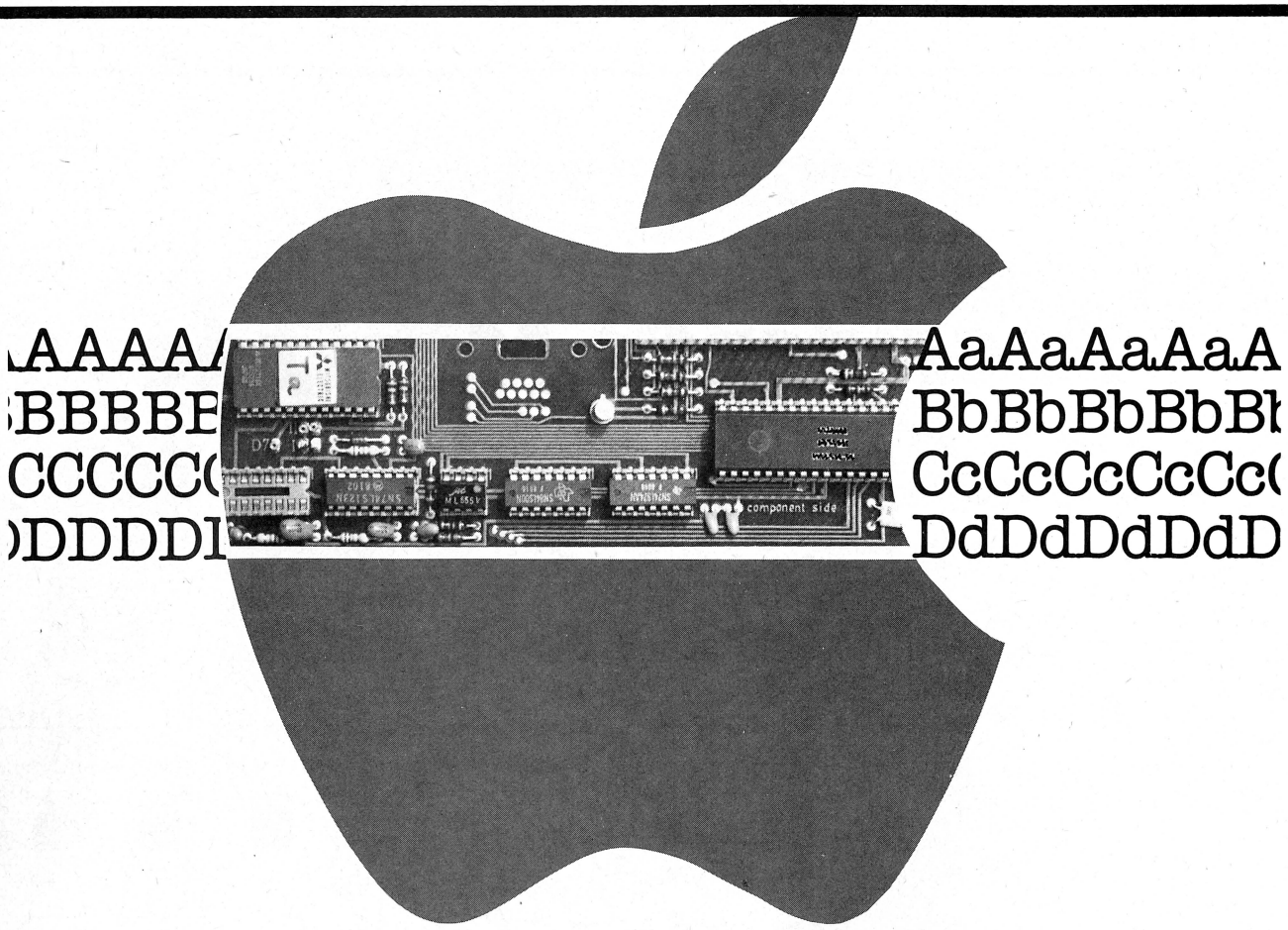
As **—Call Apple** has grown, Val's time has become less available. Now there are plans for a new publication by the A.P.P.L.E. group, which will take even more of his time. Val's first love is, of course, his work with his own club; because of this Val has resigned as Editor of the **Apple Orchard;** his last issue was the March '81 issue.

I'm happy to report that we won't lose his input entirely, because Val has agreed to be a Contributing Editor for the **Apple Orchard.** We wish Val all the luck in the world in these endeavors, and any future ones.

Now we welcome as the new Editor of the **Apple Orchard,** Peter Weiglin of San Mateo, California. Peter has been active in the San Francisco Apple Core, holding, among other jobs, Co-Editor and Editor of the **Cider Press.** He has edited magazines in the past, and has been a radio and TV reporter. His journalistic experience should prove to be a great asset to future issues of the **Orchard** and I hope you will support him as you did Val.

We have been receiving quite a few applications for Associate Membership in the IAC recently. This has been due to the information about membership in our last issue of the **APPLE ORCHARD**. One of the items not mentioned in the article is the difference between **Regular** and **Associate** membership. Associate membership does not carry with it any voting rights in the IAC, nor do Associate members receive any of the free distributed software. They do receive all printed matter.

Not all applying for Associate Membership will receive this membership. The Associate membership category is primarily for Educational Institutions who are using more than one Apple and have more than one person using same. Each application for Associate Membership will be reviewed on its own merits. The more information that is supplied with the application, the better the chance it will be approved.



From BASIS for the Apple® II computer . . . UPPER/lower case Keyboard Encoder

As the uses of the Apple II became more sophisticated, the need for more powerful and specialized keyboard control became clear. Wordprocessing and the Pascal Editor alone showed the deficiency of only displaying capital letters.

BASIS developed a solution: the multi-language Keyboard Encoder. With typewriter-like simplicity, your Apple can now produce all upper/lower case ASCII characters by using the SHIFT key. And for those applications requiring it, your choice of German, French and Swedish character sets—all in upper and lower case. By using an EPROM programmer, you can add any special character sets of your own design.

Features of the Keyboard Encoder

- Replaces the keyboard encoder on Apple II and II Plus from Revision level 7 on.
- Upper/lower case control via the SHIFT key
- New RESET protection
- ALPHALOCK and AUTOREPEAT on all keys
- Ready to install, no wiring or soldering
- European character sets available
- Compatible with all Apple Operating Systems
- Complete Installation and Operating Manual

Add the BASIS Keyboard Encoder to your Apple II and get a new look on the screen. *Available for $125.00 at Apple Dealers everywhere.*

BASIS

INCORPORATED

P.O. Box 2029
Los Gatos, Ca. 95030
(408) 395-4133

Apple is the registered trademark of Apple Computer Inc.

TRUE DESCENDERS FOR YOUR SILENTYPE PRINTER

By Andy Hertzfeld
Apple Computer, Inc.

Apple's Silentype thermal printer is an inexpensive, reliable, and uniquely flexible hard copy devide. The Silentype is really a lobotomized Trendcom 200; instead of having a builting microprocessor (the Trendcom uses an Intel 8048), the Silentype draws its intelligence from the Apple's 6502 microprocessor. This means that native features of the Silentype need not be limited by the software residing on the 2K ROM on its interface card; new features may be added using RAM based software. This program is an example of how new features can be added to your Silentype.

A descender, of course, is that portion of certain alphanumeric characters which, er, descends, below the normal bottom or baseline of printing. In a normal English character set, there are eight such descenders, found in the comma, semicolon, and underline punctuation marks; and in lower-case letters "g", "j", "p", "q", and "y". The problem is that the Silentype's thermal printhead is only seven dots high, as is the case with most inexpensive dot-matrix printers. Normally, then, they can't "reach" below the print line to print a descender, which results in some pretty unusual-looking approximations. This hurts overall print quality, but is considered "acceptable" in the low-end price range; the idea seems to be that if you want descenders, get a more expensive printer, with a nine-dot high printhead.

Maybe not. Chances are that your Silentype can do that trick, if you tell it to. We take advantage of the user-definable character set feature built into the Silentype's firmware. Every time that firmware fetches a dot pattern to print, it jumps through a vector in its local RAM (address $CF09). Thus, we can gain control before every character that is printed. We check to see if the next character is one of the eight with a descender; if it isn't, we just jump back into the ROM and allow it to do its dirty work. But if it is one of the eight that we're looking for, we divert control to a special routine.

That routine is a machine language program which contains a special character table for our eight characters, and commands to move the paper up a two-dot distance, for that special character. We still have a seven-dot print head, but it's offset downward two dots. Then we restore the paper to its original position and go on our way.

There is one small problem with this technique, which is why I was less than positive about your ability to achieve this result. The Silentype printing mechanism wasn't designed to facilitate negative paper motion (the technical term for moving the paper back down). On some Silentypes, negative paper motion causes the paper to puff up against the platen, causing improper contact for the next character printed and a consequent loss of print quality. Most Silentypes do not have this problem; the descenders routine works just fine on about 70 percent of the printers. However, since Silentypes are not tested for negative paper motion, about a quarter of them will have varying degrees of problems with this technique. This is the reason the descenders routine was not employed in the released firmware. The only way to tell if your Silentype has this problem is to try it.

The following machine language program implements true descenders for your Silentype printer. It is very easy to use; once the program is loaded into memory, you can initialize it by activating the Silentype and CALLing its starting address. I have assembled the program to begin at address 24576 ($6000), but it may easily be changed to any location you find convenient. Make sure that output is routed to the Silentype (by issuing a PR command) before you CALL it. The initialization CALL only has to be performed once; it is remembered in the parameter memory on the Silentype's interface card and will stay in effect until the power is turned off.

ANDY HERTZFELD

"My job isn't a job—it's fun," says Andy Hertzfeld. He calls himself a "programmer" at Apple Computer, Inc., which is a bit like Heifitz calling himself a "fiddle player". Andy's "fiddling" credits include much software, plus the programming for many firmware items, including ROMPlus, the M&R Sup-R-Term 80-column Board. . . and the Silentype printer. A Philadelphia area native, Andy was educated at Brown University and the University of California at Berkeley. His fondness and talent for computers found personal fulfillment with an Apple II, which "liberated me from the grad school's large mainframe". Eighteen months ago, Apple recognized his talents and brought Andy aboard; he's now working on things he can't even discuss.

The hex dump for the program follows:

```
6000: 4C 9E 60 29 7F 8D 9C 60
6008: 98 48 8A 48 A2 07 BD B3
6010: 60 CD 9C 60 F0 20 CA 10
6018: F5 AD 9B 60 F0 0E 20 A8
6020: CB 20 84 60 20 B9 CC A9
6028: 00 8D 9B 60 68 AA 68 A8
6030: AD 9C 60 4C 1B CC AD 9B
6038: 60 D0 10 CE 9B 60 8A 48
6040: 20 A8 CB 20 78 60 20 B9
6048: CC 68 AA A4 26 2C 01 CF
6050: 30 06 A9 04 38 E5 26 A8
6058: 8A 0A 0A 8D 9D 60 8A 6D
6060: 9D 60 8D 9D 60 98 6D 9D
6068: 60 A8 B9 BB 60 8D 2B CF
6070: 68 A8 68 AA AD 9C 60 60
6078: A5 26 48 A9 01 20 AB CC
6080: 68 85 26 60 AD 07 CF 0A
6088: C9 10 90 04 29 0F 09 01
6090: 8D 07 CF 20 05 CB A9 78
6098: 4C 90 CB 00 00 00 A9 8D
60A0: 20 ED FD A9 03 8D 09 CF
60A8: A9 60 8D 0A CF A9 00 8D
60B0: 9B 60 60 67 6A 70 71 79
60B8: 2C 3B 5F 98 A5 A5 A5 BE
60C0: 82 81 81 DE 80 BF A4 A4
60C8: A4 98 98 A4 A4 A4 BF B8
60D0: 85 85 85 BE 80 81 8E 8C
60D8: 80 80 80 97 96 80 81 81
60E0: 81 81 81
```

```
SOURCE FILE: RAMDESCENDERS
0000:                1 *
0000:                2 * TRUE DESCENDERS FOR THE SILENTYPE
0000:                3 *
0000:                4 *        ANDY HERTZFELD 4/5/81
0000:                5 *
0000:                6 * THIS ROUTINE INSTALLS ITSELF INTO
0000:                7 * THE SILENTYPE FIRMWARES CHARACTER SET
0000:                8 * FETCH HOOK AND IMPLEMENTS TRUE 9 DOT
0000:                9 * DESCENDERS BY MOVING THE PAPER UP AND DOWN
0000:               10 *
----- NEXT OBJECT FILE NAME IS RAMDESCENDERS.OBJ0
6000:               11          ORG  $6000
6000:               12 *
6000:               13 * FIRMWARE EQUATES AND DEFINTIONS
6000:               14 *
0026:               15 COLUMN  EQU  $26
6000:               16 *
CBA8:               17 LOCKHEAD EQU $CBA8
CCAB:               18 PAPERFEED EQU $CCAB
CCB9:               19 LOCKPAPER EQU $CCB9
CC1B:               20 ROMFETCH EQU $CC1B
CF07:               21 PAPERSTEP EQU $CF07
CF01:               22 STATUS  EQU  $CF01
CF09:               23 FETCHOOK EQU $CF09
CF2B:               24 DOTS    EQU  $CF2B
CB05:               25 PAPERSEND EQU $CB05
CB90:               26 MSWAIT  EQU  $CB90
6000:               27 *
FDED:               28 COUT    EQU  $FDED
6000:               29 *
6000:4C 9E 60       30          JMP  INSTALLIT
6003:               31 *
6003:               32 * ON ENTRY, THE A-REG HOLDS THE CHARACTER TO
6003:               33 * BE PRINTED.
6003:               34 *
6003:29 7F          35 FETCHDOTS AND #$7F
6005:8D 9C 60       36          STA  CHAR
6008:98             37          TYA
6009:48             38          PHA
600A:8A             39          TXA
600B:48             40          PHA
600C:               41 *
600C:               42 *
600C:               43 * FIRST SEARCH THE TABLE OF DESCENDING CHARACTERS
600C:               44 * TO SEE IF THE CHARACTER IS A DESCENDER.
600C:               45 *
600C:A2 07          46          LDX  #NUMDES-1
600E:               47 *
600E:BD B3 60       48 DESRCHLOOP LDA WHICHARS,X
6011:CD 9C 60       49          CMP  CHAR
```

```
6014:F0 20      50          BEQ  ITSDESC
6016:CA         51          DEX
6017:10 F5      52          BPL  DESRCHLOOP
6019:           53 *
6019:           54 * ITS NOT A DESCENDING CHARACTER SO MOVE THE
6019:           55 * PAPER UP IF ITS DOWN
6019:           56 *
6019:AD 9B 60   57          LDA  PAPERUP
601C:F0 0E      58          BEQ  FETCHDONE
601E:20 A8 CB   59          JSR  LOCKHEAD
6021:20 84 60   60          JSR  MOVEUP
6024:20 B9 CC   61          JSR  LOCKPAPER
6027:A9 00      62          LDA  #0
6029:8D 9B 60   63          STA  PAPERUP
602C:           64 *
602C:           65 * NOW JUMP BACK INTO THE ROM FETCHDOTS ROUTINE
602C:           66 *
602C:68         67 FETCHDONE PLA
602D:AA         68          TAX
602E:68         69          PLA
602F:A8         70          TAY
6030:AD 9C 60   71          LDA  CHAR
6033:4C 1B CC   72          JMP  ROMFETCH
6036:           73 *
6036:           74 * THE CHARACTER IS A DESCENDER SO MOVE THE
6036:           75 * PAPER DOWN IF NECESSARY
6036:           76 *
6036:AD 9B 60   77 ITSDESC LDA  PAPERUP
6039:D0 10      78          BNE  DOWNALREADY
603B:           79 *
603B:CE 9B 60   80          DEC  PAPERUP
603E:8A         81          TXA
603F:48         82          PHA             ;PRESERVE X REGISTER
6040:20 A8 CB   83          JSR  LOCKHEAD
6043:20 78 60   84          JSR  MOVEDOWN
6046:20 B9 CC   85          JSR  LOCKPAPER
6049:68         86          PLA
604A:AA         87          TAX             ;RESTORE X REGISTER
604B:           88 *
604B:           89 * PERFORM THE BI-DIRECTIONAL COLUMN ADJUSTMENT
604B:           90 *
604B:A4 26      91 DOWNALREADY LDY COLUMN
604D:2C 01 CF   92          BIT  STATUS
6050:30 06      93          BMI  NOINC0
6052:A9 04      94          LDA  #4
6054:38         95          SEC
6055:E5 26      96          SBC  COLUMN
6057:A8         97          TAY
6058:           98 *
6058:           99 * AT THIS POINT, THE X-REG CONTAINS THE CHARACTER
6058:          100 * NUMBER WHILE THE Y-REG CONTAINS THE COLUMN OFFSET
6058:          101 *
6058:8A        102 NOINC0  TXA
6059:0A        103         ASL  A
605A:0A        104         ASL  A          ;MULTIPLY CHAR NO * 4
605B:8D 9D 60  105         STA  SCRATCH
605E:8A        106         TXA
605F:6D 9D 60  107         ADC  SCRATCH    ;CARRY IS CLEAR
6062:8D 9D 60  108         STA  SCRATCH    ;SCRATCH HAS CHAR# * 5
6065:98        109         TYA
6066:6D 9D 60  110         ADC  SCRATCH    ;ADD IN COLUMN OFFSET (CARRY IS CLEAR)
```

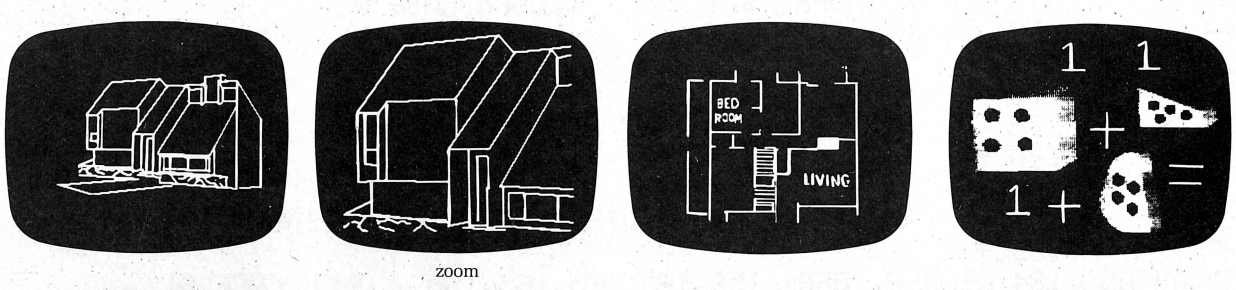
```
6069:A8          111          TAY
606A:B9 BB 60    112          LDA  CTABLE,Y  ;LOOK UP BIT MAP FOR COLUMN
606D:8D 2B CF    113          STA  DOTS
6070:            114 *

6070:68          115          PLA
6071:A8          116          TAY
6072:68          117          PLA
6073:AA          118          TAX
6074:AD 9C 60    119          LDA  CHAR
6077:60          120          RTS
6078:            121 *
6078:            122 * MOVEDOWN MOVES THE PAPER MOTOR
6078:            123 * DOWN ONE STEP
6078:            124 *
6078:A5 26       125 MOVEDOWN LDA COLUMN     ;MUST PRESERVE COLUMN
607A:48          126          PHA
607B:A9 01       127          LDA  #1
607D:20 AB CC    128          JSR  PAPERFEED
6080:68          129          PLA
6081:85 26       130          STA  COLUMN
6083:60          131          RTS
6084:            132 *
6084:            133 *
6084:            134 * MOVEUP MOVES THE PAPER UP ONE STEP
6084:            135 *

6084:AD 07 CF    136 MOVEUP   LDA  PAPERSTEP
6087:0A          137          ASL  A
6088:C9 10       138          CMP  #$10
608A:90 04       139          BCC  NOPADJ
608C:29 0F       140          AND  #$0F
608E:09 01       141          ORA  #$01
6090:8D 07 CF    142 NOPADJ   STA  PAPERSTEP
6093:20 05 CB    143          JSR  PAPERSEND
6096:A9 78       144          LDA  #120      ;WAIT 12 MILLISECONDS
6098:4C 90 CB    145          JMP  MSWAIT
609B:            146 *
609B:            147 * LOCAL VARIABLES
609B:            148 *
609B:00          149 PAPERUP  DFB  $00
609C:00          150 CHAR     DFB  $00
609D:00          151 SCRATCH  DFB  $00
609E:            152 *
609E:            153 * THIS ROUTINE INSTALLS US IN THE CHARACTER
609E:            154 * FETCH HOOK AND INITIALIZES THINGS
609E:            155 *
609E:A9 8D       156 INSTALLIT LDA #$8D      ;FIRST PRINT A CR
60A0:20 ED FD    157          JSR  COUT
60A3:A9 03       158          LDA  #>FETCHDOTS
60A5:8D 09 CF    159          STA  FETCHOOK
60A8:A9 60       160          LDA  #<FETCHDOTS
60AA:8D 0A CF    161          STA  FETCHOOK+1
60AD:A9 00       162          LDA  #0
60AF:8D 9B 60    163          STA  PAPERUP
60B2:60          164          RTS
60B3:            165 *
60B3:            166 * TABLE OF CHARACTERS WHICH ARE DESCENDERS
60B3:            167 *
0008:            168 NUMDES   EQU  8          ;8 DESCENDING CHARACTERS
60B3:            169 *
```

```
60B3:           170 WHICHARS EQU *
60B3:           171 *
60B3:67         172          DFB  $67        ;LOWER CASE G
60B4:6A         173          DFB  $6A        ;LOWER CASE J
60B5:70         174          DFB  $70        ;LOWER CASE P
60B6:71         175          DFB  $71        ;LOWER CASE Q
60B7:79         176          DFB  $79        ;LOWER CASE Y
60B8:2C         177          DFB  $2C        ;COMMA
60B9:3B         178          DFB  $3B        ;SEMI COLON
60BA:5F         179          DFB  $5F        ;UNDERLINE
60BB:           180 *
60BB:           181 *
60BB:           182 * BITMAP TABLES FOR DESCENDING CHARACTERS
60BB:           183 *
60BB:98 A5 A5   184 CTABLE   DFB  152,165,165,165,190 ;LOWER CASE G
60BE:A5 BE
60C0:82 81 81   185          DFB  130,129,129,222,128 ;LOWER CASE J
60C3:DE 80
60C5:BF A4 A4   186          DFB  191,164,164,164,152 ;LOWER CASE P
60C8:A4 98
60CA:98 A4 A4   187          DFB  152,164,164,164,191 ;LOWER CASE Q
60CD:A4 BF
60CF:B8 85 85   188          DFB  184,133,133,133,190 ;LOWER CASE Y
60D2:85 BE
60D4:80 81 8E   189          DFB  128,129,142,140,128 ;COMMA
60D7:8C 80
60D9:80 80 97   190          DFB  128,128,151,150,128 ;SEMI COLON
60DC:96 80
60DE:81 81 81   191          DFB  129,129,129,129,129 ;UNDERLINE
60E1:81 81
60E3:           192 *
60E3:           193 * THE END!
60E3:           194 *

*** SUCCESSFUL ASSEMBLY: NO ERRORS
```

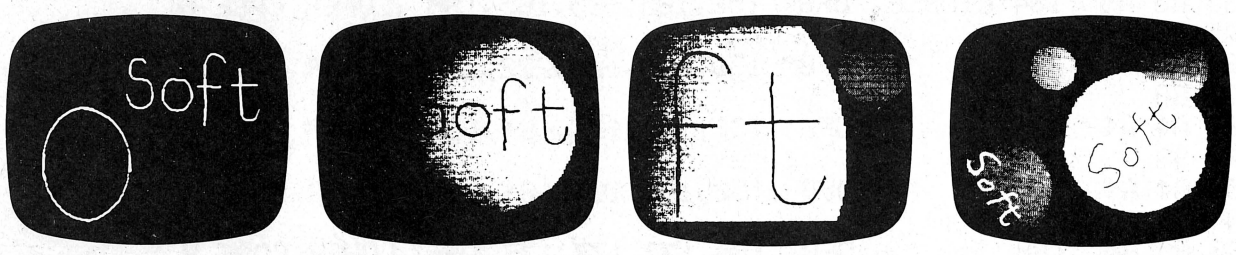
```
609C CHAR          26 COLUMN       FDED COUT          60BB CTABLE
600E DESRCHLOOP    CF2B DOTS       604B DOWNALREADY   602C FETCHDONE
6003 FETCHDOTS     CF09 FETCHOOK   609E INSTALLIT     6036 ITSDESC
CBA8 LOCKHEAD      CCB9 LOCKPAPER  6078 MOVEDOWN      6084 MOVEUP
CB90 MSWAIT        6058 NOINC0     6090 NOPADJ        0008 NUMDES
CCAB PAPERFEED     CB05 PAPERSEND  CF07 PAPERSTEP     609B PAPERUP
CC1B ROMFETCH      609D SCRATCH    CF01 STATUS        60B3 WHICHARS
```

```
0008 NUMDES        26 COLUMN       6003 FETCHDOTS     600E DESRCHLOOP
602C FETCHDONE     6036 ITSDESC    604B DOWNALREADY   6058 NOINC0
6078 MOVEDOWN      6084 MOVEUP     6090 NOPADJ        609B PAPERUP
609C CHAR          609D SCRATCH    609E INSTALLIT     60B3 WHICHARS
60BB CTABLE        CB05 PAPERSEND  CB90 MSWAIT        CBA8 LOCKHEAD
CC1B ROMFETCH      CCAB PAPERFEED  CCB9 LOCKPAPER     CF01 STATUS
CF07 PAPERSTEP     CF09 FETCHOOK   CF2B DOTS          FDED COUT
```

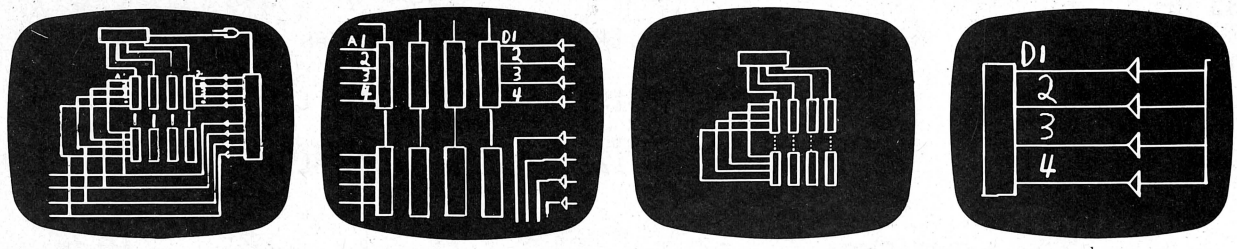
NOW THERE IS A GOOD REASON TO OWN A GRAPHICS TABLET



zoom



draw color fill rotate



enlarge

THE ILLUSTRATOR

What type of images do you make? Business presentations, mechanical drawings, circuit layouts, educational diagrams . . . ? No matter what type of image you need to make the ILLUSTRATOR can assist you in your design. It will save you time by giving you the power you expect from computer graphics.

That power comes from such features as drawing and erasing, zooming, making duplicates, filing in areas with colors, and transforming objects by moving, rotating, enlarging, reducing and proportion change.

These and other capabilities allow you to take control of the design process. It makes you feel free to modify your designs because it is easy to do so. No more pencils and erasers. The abilities of the ILLUSTRATOR make them obsolete. Want to erase some lines? Just point to them and they are gone. Want to move an object? Easy, point to where you want it and it's there. Need to duplicate an object, just point to the original and point to where the duplicate goes. Now there are two. Enlarging and reducing objects is just as easy. So is rotation. To fill in the area of an object, just draw its borders and then mix a color from a palette. The zoom capability allows you to do detail work, and gives you an effective resolution greater than the Apple display. And you can add text of any size, rotation or color and place it anywhere on the screen.

The ILLUSTRATOR is easy to use because what you see is what you get. You communicate to it through elementary graphical means, not in any obscure computer language. Using the Graphics Tablet makes it that much simpler. It also works with the game paddles.

BubbleSoft is adding a new dimension to personal computers. The ILLUSTRATOR is more than just a program, it is a complete graphics processor, doing for graphics what word processors do for text.

So if you need to do graphics on the Apple the ILLUSTRATOR is ready to assist you.

For information or to order, (Price $150):

BubbleSoft
3 Mohawk Dr.,
Westboro, Mass. 01581.
617-366-9734.

Required: 48k Apple, Applesoft ROM, Disk Drive, Graphics Tablet or game paddles.

Apple is a registered trademark of Apple Computer, Inc.
Graphics tablet is a registered trademark of Apple Computer, Inc.

CP/M

CP/M ON YOUR APPLE II —ANOTHER BEGINNING

by Gene Wilson

Let us begin with a short discussion (one sided) on why an Apple II owner would go and pay $350 for a 'Z-80 Softcard'. After all, the Apple /// has been promised for a long time, and some of these units are actually in the stores.

The Apple /// is a completely **new** machine, with preliminary manuals (the old timers remember "preliminary manuals"... Pascal is a good example...the "infamous Red book"... Applesoft I documentation... etc.). Of course, Apple Computer, Inc. has a solution for this problem; there are two classes available (if you have the required thousand dollars for the two of them) that will impart the necessary information about the internals of the "///". (Pardon me if I pass, guys!)

The Apple II Emulation Mode gives only two choices; Integer or Applesoft. What happened to Pascal? It isn't offered (yet) on the "///", but until it is available, the serious programmer is left at the mercy of the Apple ///'s untested (no field use yet) business BASIC (with preliminary documentation), or required to pop an extra thousand dollars for the previously mentioned class—(No thanks, again!).

Fortran? (Sorry to even mention Apple Fortran here!)

I must point out that Apple has a reputation for getting things together, and in time the "///" will be a fantastic machine. But today's user really only has VisiCalc running in 80 columns (which is incentive enough for many business and management applications). The fine manuals will come, and programmers will provide their wares, eventually. The point I'm making here is that the "///" is **not** a "better 'II'." It is an entirely new machine. Sales are targeted for an entirely new segment of the marketplace. The "II" will continue to be sold in greater and greater numbers, and the benefit of large numbers of programmers providing software will continue to keep the "II" in its current limelight for some time to come.

The Z-80 Softcard, by Microsoft, offers a wealth of new programming experiences for Apple II owners. The $350 package is much more than another 'plug-in' peripheral.

The card itself is well built, and has a ninety day product warranty which covers repair or replacement of defective components. After this period, any required repairs will be charged for at a flat fee of $39.50 (which does not cover damage due to negligence, misuse, etc.). The card even sports a red 'in-use' light.

The Operating System is CP/M, an industry standard, by Digital Research. Digital Research has an interesting Software License Agreement (on all of their products), which YOU agree to by opening the package. You have certain rights granted, which include operating on ONE computer system, keeping up to FIVE copies of program at one time and to keep appropriate records of the number and location of all such copies of licensed programs. (A growing number of users would like to see the multi-paged legal agreements shortened to "On my Honor I promise not to give this program to anyone else, ever!" (I'll probably get nasty letters from some attorneys' protective association but it's time to cut the nonsense.)

So what's included in the CP/M (Control Program for Microprocessors) system? How does it work?

CP/M includes built-in commands ERAse, DIRectory, REName, SAVE, TYPE (to display ASCII source files), etc. Transient commands include STAT (status and control of disk files, users, peripherals, etc.) ASseMbler (8080), LOAD (to convert .HEX output from the Assemble into a machine executable .COM file). DDT (the Dynamic Debugging Tool), allows some very sophisticated interaction with Assembler files; included are commands to enter assembly language mnenomics with operands, display memory in HEX and ASCII, set optional breakpoints, substitute memory values, trace program or examine and optionally alter the CPU state...), PIP (Peripheral Interchange Program) to load, print, copy and/or combine disk files, ED (Editor, used to create and edit CP/M text files), SUBMIT (Automatic processing—much like EXEC files), and DUMP (to display contents of a disk file in HEXadecimal form to screen).

Two diskettes are included, one in 13 sector format, the other for 16 sectors. Programs include APDOS (a utility for transferring text and binary files from Apple DOS disks to CP/M disks), CONFIGIO (utility to configure I/O for an external terminal, redefine keyboard characters, load user I/O software, and to read and write to the I/O Configuration Block), COPY, DOWNLOAD (to enable the user to transfer CP/M files from another CP/M machine to the Apple—Also needs UPLOAD on other system, which is listed in documentation, but not included on disk), FORMAT (to 'INIT' a fresh disk), MBASIC (disk based basic with Lo-Res graphics, sound, and game controls), XSUB (for use with SUBMIT to give character input from a disk file during program execution).

The 16 sector diskette also includes CPM56 (to take advantage of 'Language Card memory'), GBASIC (MBASIC with Hi-Res graphics in-

cluded), RW13 (to 'Muffin' files between 13 and 16 sector worlds).

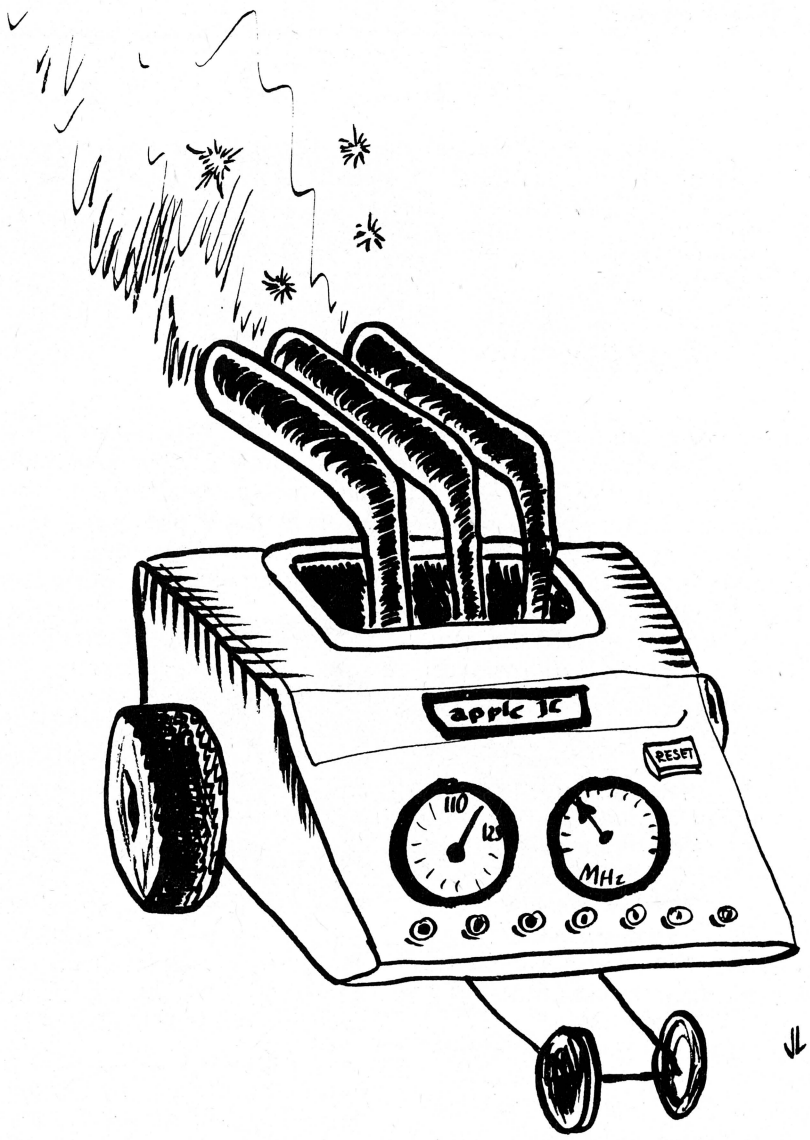
Microsoft BASIC-80 Version 5.0, in its fifth major release, includes PRINT USING, CALL (a Z-80 or 6502 assembly language subroutine), CHAIN (to call a program and pass variables to it from the current program), WHILE/WEND (execute a series of statements in a loop as long as a given condition is true), improved disk I/O (built-in commands; no more 'ctrl D'), EDIT (very comprehensive editing features during program input), IF . . . THEN . . . ELSE, data types (including single and double precision variables—16 digit precision, hexadecimal and octal constants), BEEP (tone of specified pitch and duration), WIDTH (screen or printer width and height), GET (to read a record from a random disk file into a random buffer), PUT (to write a record from a random buffer to a random disk file), FIELD (to allocate space for variables in a random file buffer), AUTO (to generate line machines starting at a given point, with a given increment).

Two manuals are included. Both are comprehensive **hardware and language reference guides.**

(Two books that I've found helpful in working with this system are: **The CP/M Handbook, with MP/M** by Rodney Zaks, Sybex Inc., 1980, and **USING CP/M, A Self Teaching Guide** by Judi N. Fernandez and Ruth Ashley, John Wiley & Sons, Inc., 1980. Both are available from ComputerLand stores.)

Other available (but not included) nuggets include: FORTRAN-80, under the CP/M umbrella, with 13 sector and 16 sector diskettes. Programs include F80.COM (the FORTRAN-80 Compiler), L80.COM (LINK-80 Linking Loader), FORLIB.REL (FORTRAN-80 Runtime Library), PI.FOR (A demonstration program in FORTRAN), RANTST.FOR (A FORTRAN test program), plus Source files and FORTRAN-80 Runtime I/O. The documentation/manual is a comprehensive language reference and user's guide (of very high quality).

An advantage of Fortran-80 over the Apple Fortran is that source is compiled to Z-80 code. This causes a very fast run-time program. with simple DO loops RUNning up to 20 times faster than the Apple Fortran version. (It must be noted that Apple Fortran stores code very efficiently, but the run-time speeds just can't be achieved using the 'Pascal interpreter'.)



COBOL-80 is also available, but is very expensive. (It does run on an Apple II 'mainframe', and emulates a 'large machine' environment.)

The Z-80 Softcard works very nicely with the 80 column boards. The M & R Sup'R'Term binds automatically, with no modifications or changes to be made, and any board set up to bind with Apple's Pascal system seems to work well (my experience is with the M & R board, but it's likely that the other 80 column boards work well, too!).

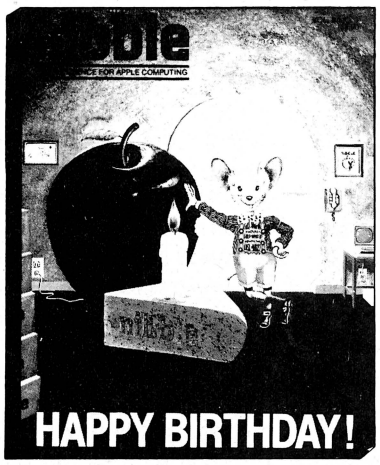
Later offerings include:

A BASIC-80 Compiler, release date in April, 1981, which will convert 'debugged' BASIC programs that have been run and tested in the 'interpreter' environment. A Z-80 code file will be produced. An average increase in speed of from 3 to 10 times has been achieved with this compiler on other systems, and maximizing use of Integer operations can make execution speeds 30 times faster than the interpreted version of disk BASIC.

Microsoft Assembly Language Development System, release date April, 1981. This will be a Z-80 and/or 6502 symbolic assembler, with full debugging tools included.

We note with great interest that CP/M Special Interest Groups are being formed within many IAC member Clubs, and that CP/M software is being made available for Z-80 Softcard-equipped Apples. In future issues of the **Apple Orchard,** we'll keep you informed about developments.

"NIBBLE® IS TERRIFIC" (For Your Apple)



NIBBLE IS: *The Reference for Apple computing!*

NIBBLE IS: One of the Fastest Growing new Magazines in the Personal Computing Field.

NIBBLE IS: Providing Comprehensive, Useful and Instructive Programs for the Home, Small Business, and Entertainment.

NIBBLE IS: A Reference to Graphics, Games, Systems Programming Tips, Product News and Reviews, Hardware Construction Projects, and a host of other features.

NIBBLE IS: A magazine suitable for both the Beginner and the Advanced Programmer.

Each issue of NIBBLE features significant new Programs of Commercial Quality. Here's what some of our Readers say:

- *"Certainly the best magazine on the Apple II"*
- *"Programs remarkably easy to enter"*
- *"Stimulating and Informative; So much so that this is the first computer magazine I've subscribed to!"*
- *"Impressed with the quality and content."*
- *"NIBBLE IS TERRIFIC!"*

In coming issues, look for:

☐ Stocks and Commodities Charting ☐ Assembly Language Programming Column
☐ Pascal Programming Column ☐ Data Base Programs for Home and Business
☐ Personal Investment Analysis ☐ Electronic Secretary for Time Management
☐ The GIZMO Business Simulation Game

And many many more!

NIBBLE is focused completely on the Apple Computer systems.

Buy NIBBLE through your local Apple Dealer or subscribe now with the coupon below.

Try a NIBBLE!

nibble
Box 325, Lincoln, MA. 01773 (617) 259-9710
I'll try nibble!
Enclosed is my $17.50 (for one year).
(Outside U.S., see special rates on this page.)
☐ **check** ☐ **money order**
Your subscription will begin with the next issue published after receipt of your check/money order.

Name _____

Address _____

City _____

State _____ Zip _____

NOTE:
First Class or Air Mail is required for all APO, FPO and all foreign addresses with the following additional amounts

Air Mail Postage Rates 12-14 oz. x 8

Europe $32.00
Mexico and Central America $21.00
South America $32.00
Middle East $35.00
Africa: North $32.00
Central $43.00
South $43.00
Far East, Australia $43.00
Canada $18.00

APO FPO $7.50

THE PROBLEM OF COPIES

by Peter C. Weiglin

"Hey, look, if I can save a few bucks in these inflationary times, I'm ahead of the game, right? Besides, the software companies are making a bundle anyway."

The words were spoken in California in 1981, but the sentiment is widespread. Let's face it. If an item of software costs $29.95, and a blank disk costs about $3.00, that means $26.95 is the value of the magnetic patterns on the disk, and the intangible concepts which they represent. And if people can save a buck, they'll save a buck. The question is how far they'll go to save it.

* * * * *

Hey, Waidaminit! You're tellin' me that I just paid more than a hundred bucks for this program, and I can't back up the program? Only one copy? If the disk goes kaflooey, the manufacturer will **sell** me another copy? Real kind of them!"

This second individual was moving from the games/personal realm to the business computing area, and was living in fear that something important could go down the drain in the middle of the night, a very real loss in the business context. Poor guy was just trying to obey the First Law of Computer Sanity: Back Up Thine Stuff!

* * * * *

And so we have the problem of copies—unauthorized copies—being made, of software of all kinds, some of it being passed on to people who did not purchase it. Quite plainly and simply, this "passing on" of material is theft; stealing; larceny, petty or grand. It is theft not only from the software houses (who smile ruefully and wish that they were doing as well as the thieves think they are), but also from the programmers who did the work of writing and debugging the software.

The copyright laws are of dubious help, but even the print copyright laws allow copying for the private use of the purchaser. The violation occurs with distribution to others, particularly for profit. And on this there seems to be total agreement:

THE BIRDS WHO COPY AND SELL BOOTLEG SOFTWARE SHOULD BE RECOGNIZED AND PUNISHED AS THE CRIMINALS THEY ARE.

And the purchasers of such software should be warned of their possible status as accessories to a crime.

To our knowledge, none of the IAC member Clubs encourage or condone this type of theft; if you know of any that do, let us know and the IAC will take action. The IAC doesn't want them, and will help to stamp out this kind of crime. But the Clubs have no enforcement powers over individuals, members or not.

Leaving aside the "commercial" thieves, akin to the pirates of phonograph records and tapes, we're still faced with the "non-professionals". To deny the existence of an "underground" current of commercial software duplicates would be foolish. Like speakeasies during Prohibition, or use of marijuana, software trading goes on, is enjoyed by many, and isn't thought of as a "real" law-breaking activity. These appear to be mostly informal exchanges among friends, not cash transactions.

But what's new? Anyone who has spent some time in a business or government organization—or a university—knows that Xerocopies of all kinds of published documents are made and distributed among colleagues with widespread and total disregard for print copyright laws. Newsletters, magazine articles, book excerpts, even sheet music, are all circulated widely. It's particularly ironic that government employees and educators are large-scale violators, many of them justifying these violations on the irrelevant ground that their agencies are non-profit. In that kind of climate, it's not surprising that similar copying of computer programs is done with no thought given to property rights.

Attempts at copyright enforcement through legal channels founder on judicial rocks. What now exists is a legal tangle of confusion about whether software is copyrightable, under what circumstances, by whom, etc. A significant body of opinion holds that there is in fact no copyright law now covering computer software. And the law at most gives you the right to sue; it does not impose an automatic penalty on the malefactor. Until, and most likely after, Congress acts on this matter, the process is likely to be straight out of Dickens: members of the legal profession will be the primary beneficiaries.

Some software manufacturers do not sell, but only license, the concepts embodied in those magnetic currents. This improves the theoretical legal "grasp" of the manufacturer on anyone who might make an unauthorized copy. While it may make sense for large-scale systems, for the $29.95 game, it's a futile gesture. Further, a manufacturer who is

menacingly retentive, however just his cause, may find to his dismay that sales are down ("I don't want to bother with that outfit"), and/or that copying his stuff is even more "fun".

With legal solutions problematical at best, many producers have resorted to a technical line of defense; the scrambling of key bits to make a disk uncopyable. There are only two problems with this approach:

(1) It doesn't work; and
(2) It penalizes the legitimate purchaser.

"Our protection system is uncrackable." The statement was made, confidently, by a company executive, with all the smugness born of Stock Market Paper Millionairehood. Trouble is, he was wrong. His company's codes had been cracked, and duplicates were out there. The cracker was a knowledgable programmer; it had taken him 15 minutes. Oh. . . the cracksman was 14 years old. Turns out that a sub-hobby in the computer world, particularly among the young, who have the time, is the cracking of such codes. It's done not so much for profit, but in response to the challenge presented by the allegedly impregnable disk. So the codes get more complicated; some take up to 45 minutes to crack.

And not too long ago, a great hue and cry was raised because a small company did the obvious thing; they marketed a disk that copies other disks, even most "uncopyable" ones. It does this trick by reading and copying each blip on the disk, regardless of format; hence the name "nibble copier". Well, you'd have thought from the agony and anguished wails of the software folks that Iran had just exploded a nuclear device in Berkeley. "An outrage! The Antichrist! We'll SUE!!"

Sure, fellas. But didja notice that the outrage seemed to be directed not at the fact that the nibble copier existed, but that it was being made **generally available,** and no longer the province of a technically elite small group. Horrors! (The analogy to nuclear proliferation should not be lost on students of history.)

No problem; we'll modify our disks so those things can't copy 'em. Right. So look for new versions of the nibblers. What has ensued is a ludicrous escalation of measures and countermeasures reminiscent of the Mad Magazine "Spy vs. Spy" cartoons:

("Well, Smedley, Copyall Version 2.5.4 has cracked our ZBX Data Base Version 3.0.1.4A! It's time for strong measures this week: ZBX Version 3.0.1.5, which causes the disk to run backwards. And if that doesn't do it, then Version 3.0.1.6 will have a flat vial of sulphuric acid cunningly concealed in the. . . ")

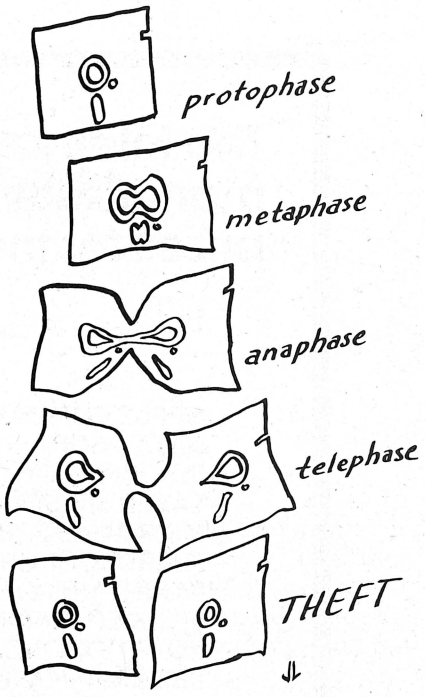
Baloney, all of it. The blunt reality of "uncopyability", as the Japanese Imperial Staff found out (too late) in the 1940's, is that no code is uncrackable. People (many of them teenagers) do exist who will apply the knowledge and time to break any code. The best that can be hoped for is that the process is slowed down, not eliminated.

The irony, of course, is that so many people suffer because of a relative few "traders"; they have a disk that can't be backed up, the software houses' costs increase, and you-know-who pays for it all. The "uncopyable" disk, like a handgun law, penalizes only the law-abiding. The purchaser of such merchandise will live in fear that his sole disk will head lunchward because of some chance electronic hiccup, leaving him with a worthless vinyl plate and a large headache. The inability to make a backup copy violates the First Rule of information storage.

Two specifics come to mind. First, the $150 program, whose manufacturer recently has magnanimously allowed registered owners to purchase backup copies for a mere $30. Well, $30 is still a 1,000 per cent markup over the disk cost, folks. And the programmer's royalty is reduced if not eliminated, so he's not getting much help. And whom are we kidding anyway? That program has long since been "liberated".

Second, the financial record program, about $70. It works great, until you come to the new year and find that you can't create a storage disk for last year's activity, because the disk is "uncopyable". (Oh. . . that one's been cracked too, it is said.)

Let's forget about law and morality, inasmuch as neither is likely to be



an effective solution. We turn instead to more serviceable aids, psychology and economics. Some people will cheat, and technically there is no way of stopping them. The number of cheaters can be reduced, however, and the number of total purchasers increased, by lessening the perceived difference in gain between legitimate purchase and midnight acquisition. The thesis is that the likelihood of unauthorized duplication increases with price. More than that, it increases as the gap between **perceived value** and the price increases. ("At $49.95, it's a rip-off, so we played around with it, and. . . ") Yes, the prices would be lower, but the sales volumes would be greater.

So where are we?

(1) The person who pirates software for profit should be drawn and quartered. That includes the stores who "throw in" a couple of "extras" to sweeten an equipment sale.
(2) The ability to make backup disks should not be denied to the legitimate purchaser.
(3) A simple way to reduce the uneasy feelings of a legitimate purchaser about lack of backup for an "uncopyable" disk is to furnish two copies of the disk. Not necessarily for the $9.95 game, but definitely

(continued on page 24)

The International Apple Core thanks the following manufacturers for their generous donations of door prizes for the 1981 Annual Meeting.

APPLE COMPUTER, INC. 10260 Bandley Drive, Cupertino, CA 95014
DATA—SOFT, INC. 16606 Schoenborn St., Sepulveda, CA 91343
INFORMATION UNLIMITED SOFTWARE 281 Arlington Ave., Berkeley, CA 94707
LAZER MICRO-SYSTEMS P.O. Box 55518, Riverside, CA 92517
MICRO-LAB 3218 Skokie Valley Rd., Highland Pk., IL 60035
MICROSOFT CONSUMER PRODUCTS 400 108th Ave. NE, Bellevue, WA 98004
MOUNTAIN COMPUTER, INC. 300 Harvey West Blvd., Santa Cruz, CA 95060
M & R ENTERPRISES P.O. Box 61011, Sunnyvale, CA 94088
NOVATION, INC. 18664 Oxnard St., Tarzana, CA 91356
PROGRAMMA INTERNATIONAL 2908 N. Naomi St., Burbank, CA 91504
R. H. ELECTRONICS 3125 19th St., Suite 173, Bakersfield, CA 93301
SSM MICROCOMPUTER PRODUCTS 2190 Paragon Drive, San Jose CA 95131
STONEWARE MICROCOMPUTER PRODUCTS 50 Belvedere St., San Rafael, CA 95131
THUNDERWARE, INC. P.O. Box 13322, Oakland, CA 94611
VERBATIM CORPORATION 323 Soquel Way, Sunnyvale, CA 94086
VIDEX, INC. 897 N.W. Grant Ave., Corvallis, OR 97330
VISTA COMPUTER CO. 1317 E. Edinger Ave., Santa Ana, CA 92705

(continued from page 23)

for the $50 and up package. And not for $30 extra, either. (Note: our Product Reviews will look at this.)

(4) The smart software producer will price his products so that the "price/value gap" is small enough to make participation in duplication schemes not worth while.

(5) And you should think twice before obtaining software through unauthorized channels; programmers will be less inclined to market their products widely if they get ripped off. We will all lose if that happens.

One more thing: Recruiters for the CIA and the National Security Agency should encourage a certain group of 14-year-olds to become interested in cracking the military and diplomatic codes of our enemies. (Thank God those kids are on **our** side.)



For Subscription Information See Page 99

SOFTWARE PROTECTION

By Neil D. Lipson

At this time there must be over 100 software publishers that produce software for the Apple. Some of the larger publishers have gone to some lengths to make the software uncopyable and in addition, put serial numbers in numerous places in the program.

There are a few methods to make a disk uncopyable. Before I discuss these methods, I will not give out enough information for someone to break an "uncopyable" disk, but will go over the general techniques that can be used. The most common technique is to re-write DOS. This is no easy task, and some publishers have done an excellent job in doing just this. Tracks 0, 1, 2 have the actual DOS, and track 17 has the directory. By juggling these around, and deleting certain portions of the DOS and/or directory, the standard read/write copy programs will not operate.

However, most manufacturers do not entirely depend on this feature to prevent bootlegging. They rely on serial numbering for the most part to decide if a program has been stolen. Serial numbers can come in many shapes and sizes. Obviously, I could not give you all the methods even if I wanted, as to produce a serial number on a program can vary from being a straight number to a "coded" number. A publisher could put the serial number on the header of the program, or encode it as a "formula" inside the program. They may, and usually do put a few serial numbers scattered throughout the program and disk itself. Therefore, if you think you have removed the serial number from the program, you probably missed a few hidden in other places. Even a top notch programmer would have extreme difficulty in removing all the serial numbers. All that has to remain is one serial number, and you can be sued.

Where can serial numbers be? They could be given clearly in the program or hidden in an equation. Even the way the program is numbered can be a serial number. This, by the way, is not difficult to do, and some publishers actually use this technique among others. If the program is in machine language, chances are you will never find the serial number. BASIC programs as well can be loaded with them, and even listing the program will not show all of them. To remove a serial number from this type of program, you would have to take the program apart piece by piece, and rewrite it. Of course, it is far easier to just write a new program than to go to all this trouble.

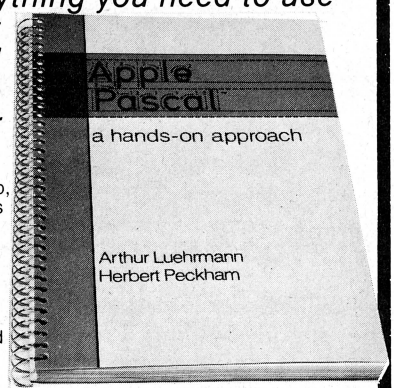
Unfortunately, some clubs have in their standard library programs from many of the big publishers. They are flirting with a law suit. Most software manufacturers expect a person to possibly at most give a copy to a friend, but that is where it should stop. Some expect you to give it to NO ONE. Most programmers spend a great deal of time perfecting their programs, expect some compensation for their work. A lot, unfortunately, have their programs stolen, and lose everything. It is up to us, the end user, to make sure if we want to continue to get the high quality software that we are used to, we must pay for the work that went into it. For example, it took John Draper at least a year and a half to write Easywriter (I know, I met John when he first started writing it back in the winter of 1978).

The moral is, if you want high quality software, you must pay, and if you don't pay, you will in the long run.

APPLE PASCAL™

A HANDS-ON APPROACH

Gives you everything you need to use the most powerful language your computer can have.



User-tested, step-by-step, A-to-Z approach features hands-on experiences in creating, running, and debugging programs. Volume is spiral-bound to lie flat by the keyboard while it takes you from basics to advanced programming and graphics applications. No math background is required. Only $14.95. Order today — put the power of Pascal to work for you.

Also available
BASIC: A Hands-On Method
Second Edition
Herbert D. Peckham,
Spiral-bound, 306 pp., $12.95

Mail the coupon today

Mail to:
D. LaFrenier
McGraw-Hill Book Company
1221 Avenue of the Americas
New York, N.Y. 10020

SAVE MONEY: Remit with order and we pay all shipping and handling costs. Full return privileges still apply.

Please send me the books checked for 15 days' free examination. At the end of that time I will pay for the books I keep, plus local tax, postage and handling, and return any unwanted books postpaid.

☐ APPLE PASCAL (49171-2), $14.95
☐ BASIC: A HANDS-ON METHOD (49160-7), $12.95

Name _____
Address _____
City/State/Zip _____

62-U444-1681-3

FOR PROFESSIONAL PROGRAMMERS: A VOICE IN THE INDUSTRY

by Scot Kamins

This article is for programmers and writers who make their livings creating microcomputer software. It will be best understood by people who have been following the industry over the past four years, but it affects everyone.

It concerns AISA—the Alliance of Independent Software Authors, recently organized by Bruce Tognazzini and myself—and why you should join it.

First, a little fable . . .

PIRACY AND THE CANDY-COATED COMPUTER XEROX MACHINE

Summer, 1978.

"Will you look at that!", beamed the slightly-balding Programmer, staring at the TV screen.

"I know," excited back his companion, twiddling the small plastic box with the knob in the middle. His eyes continued fixed on the sputtering display as he babbled. "Man, I had no idea this kind of animation was even **possible** on a micro. And the speed!"

The crosshairs zipped across two-dimensional space to land squarely atop the Xritan vessel. And with a FLASH and smithereens-of-color the alien was PDL(0)-buttoned into hyperspace.

"It's fantastic, all right," agreed The Programmer. "Where'd you buy it?"

"Phil bought it in a computer store in Los Angeles for fifteen bucks and change. I copied the tape at his place last night. Why don't you get your recorder and . . ."

Flash.

* * * * *

Winter, 1979.

"People with computer stores should have more imagination," thought The Programmer a bit grumpily, tired from his long plane trip and annoyed with having to wait for the salesman.

"Oh well," he reasoned, a bit more charitably. "Boston's a pretty conservative town, and I guess they figure 'a Business should look like a Business'. I guess . . ."

The thought disappeared. The small salesman in the tweed sports jacket (the only salesman in the store, and My God, does everybody in Boston wear tweed?!) was hyping a business system. His customer was showing obvious concern over what the computer could **really** do to save him money. After all, there weren't that many good business programs around.

. . . But the small salesman in the tweed jacket would throw in a copy of "one of the greatest data bases around—retails for nearly one hundred dollars."

Oh. Well. That would certainly be considered by the customer. And No, he wouldn't mind if the instruction manual for the program were photocopied. Buy why . . . Oh. The little tweed salesman had an AGREEMENT with the people who wrote the program. He could make all the copies he wanted. My! Wasn't that wonderful, mused the customer!

"What agreement?", mused The Programmer to himself.

Flash.

* * * * *

Spring, 1980.

An OK party, as computer freak parties go. The conversations were a bit stilted, the only acceptable—and common—topic being computers. But it was the weekend of the (Fifth) Computer Faire, realized The Programmer, and it was San Francisco . . .

There were five computers hooked to as many color monitors, lined up like digital lifeguards around the precarious Hot Tub ("good grief—if anybody splashes, we'll all fry!") and programs were being shown for egos and traded for prestige. Someone offered The Programmer "the hottest utility published". Proferred like a bourbon and soda.

"No, thanks," replied The Programmer.

"Oh, it's OK," reassured The Hostess as she expertly booted the disk and ran a listing. "See? No copyright! Besides, I know the Author . . ."

She didn't really know the author. And even though the copyright notice wasn't there any more, it was copyrighted nonetheless. It had been copyrighted that very February, right

after The Programmer had finished the third and final draft.

Being naturally squeamish about such things, he didn't want to cause a fuss.

Flash.

* * * * *

Summer, 1981.

The Programmer was confused. He genuinely believed something was wrong.

The Programmer had paid The Heavy a fair amount of money for the protection scheme. And within three months. The Heavy published a program that would defeat any protection scheme on the market, including those The Heavy had marketed in the past.

"A far more advanced product," argued The Heavy.

But it still didn't seem right to The Programmer.

But wasn't The Heavy offering a new kind of protection, one that even HIS product couldn't break? And at a good price!

"Well, I don't know," doubted The Programmer. "I just don't know. . . "

Flash.

So much for fables. Now, about that organization you should join...

The Alliance of Independent Software Authors (AISA) is an association of programmers whose aims are to ensure the professional well-being of its members and to contribute to the maturation of the microcomputer industry. To achieve these aims, AISA will:

(1) Advocate that the programmer receive the economic and social rewards of his/her labors.
(2) Work toward the elimination of software "piracy". Promote human-engineered software design and user documentation standards.
(3) Develop positive relationships between independent programmers and software publishers.
(4) Act as an educational resource for its members in both software design and independent entrepreneurship.
(5) Maintain a central resource for information of interest to its members.
(6) Take public stands on issues of interest to its members in accordance with its primary aims.

AISA will carry out aggressive communications. We will:

(1) Publish a NEWSLETTER in both hard copy and electronic form.
(2) Maintain membership in various public nets including TELENET and the SOURCE.
(3) Make use of computer Bulletin Boards.
(4) Organize members MEETINGS and WORKING COMMITTEES on a local level.
(5) Make use of the various microcomputer JOURNALS and MAGAZINES to inform the computing public of our goals and accomplishments.
(6) Institute a Speakers' Bureau to take part in seminars at various computer conferences and trade shows.

AISA is composed of voting and associate members.

1. VOTING MEMBERS—people with a primary financial interest in software development who receive at least partial payment for their work through royalties.
   a. Independent (non-employee) programmers who market their products through software and/or firmware publishers.
   b. Independent (non-employee) software book and manual writers who market their products through publishers.
2. ASSOCIATE MEMBERS— other people whose income is in a major way dependent upon the growth of the microcomputer software industry (such as writers and programmers who are employees of software development firms).

If you are interested in joining AISA, or if you want to know more, send a self-addressed, stamped, envelope to the co(n)founders:

Scot Kamins
Bruce Tognazzini
4262 24th Street
San Francisco, CA 94114

Maybe you have your own fable to tell.

Scot Kamins has been working with the Apple since that computer's early days. He has sold the Apple retail, has published several successful Apple software products, and has written numerous articles about the Apple and interactive programming. He is the Founder of the San Francisco Apple Core (now more than 1600 strong).

Scot has taught courses in both Communications (in which he holds a Ph.D.) and computer science in Massachusetts and California. His published programs include CALIFORNIA DRIVERS' TEST, ARISTOTLE'S APPLE, and the widely-used training tool, THE LEARNING SYSTEM. He makes his home in San Francisco, where he is a consultant on interactive programming with Humans Unlimited, Inc.



WHAT PROBLEMS DO I HAVE TAKING MY APPLE OVERSEAS? CAN I CONVERT IT?

Converstion of an American (NTSC) Apple to European (PAL or SECAM) television standards is not recommended. There are several circuit modifications involved. It is much better to buy the type that you will need in the first place. An American Apple can be used in Europe with suitable voltage correction equipment and an NTSC television. The Apple will work as well with 50Hz as 60 Hz.

COUT AND PRINTED OR DISPLAYED OUTPUT

by D. Buchler
from Mini'-Apples

As evidenced by several questions recently submitted to me, many Apple Users are unfamiliar with the way in which the system uses the COUT vector locations $36 and $37. These two locations are fundamental to the way in which a printer driver is interfaced to BASIC; and upper/lower case display is tied into the system; the Hayes software ties into the system; or DOS connects/disconnects.

Assuming that DOS or those other goodies are not in use, and assuming also that you are not using some non-standard I/O scheme, like that employed by XPLO, then $36 and $37 will contain the address $FDFO. If you look at your Apple manual, you will see that $FDFO is labelled COUT1. COUT1 is the entry point in the monitor to display on the CRT a single character. That character will be displayed at the current cursor position as determined by CH and CV. CH ($24) is the horizontal cursor position in the range 0 to 39. CV ($25) is the vertical cursor position in the range 0 to 23. After COUT1 has received the character and displayed it, CH and CV will be updated accordingly. BASIC, DOS, etc., when they are ready to do an output (this includes PRINT statements, TRACEs, LISTs, MONITOR outputs such as memory dumps and disassembler printouts, and DOS PRINT D$ when MON C, I OR O is in effect) will transfer control to the monitor location COUT1 with a JMP COUT. Again, referring to the red manual on page 86, you will see that COUT contains a JMP (0036), which means make an indirect Jump to $36, or in other words, transfer control to the address contained at $36 and $37. When $36 and $37 contain $FDFO, control passes to the Monitor and the character is output. Note: this happens once for each character being printed. (In the 6502 everything is done one character at a time).

When a print driver is incorporated into the system, we will normally require that the driver output a character to its device, then give control to the Monitor so it can display the character. This is accomplished as follows:

Store in $36 and $37 the starting address of the driver. This can be done by POKEing to 54 ($36) and 55 ($37) from the BASIC program, the driver start location. Code the driver to do its thing, and exit from the driver to $FDFO.

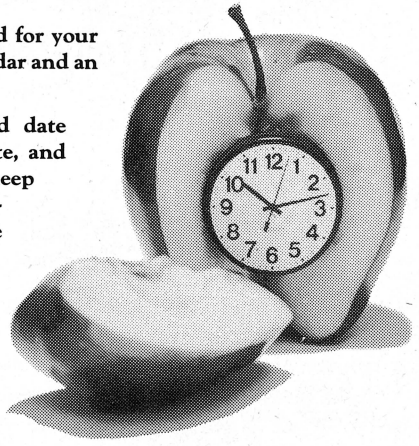
If you issue a PRINT command from inside a program while running under DOS, DOS itself must determine if there is a Ctl D in the output. Therefore, the address in $36 and $37 is a pointer to the DOS software which checks for the Ctl D and performs the disk I/O. This same software will eventually return control to the BASIC program issuing the PRINT command, or if MON C,I,O is in effect, will JMP $FDFO, and the output appears on the screen also! The particular problem to be overcome is how to couple to a printer driver or other special display routine, because we already have a pointer to DOS in $36 and $37. DOS has overcome this problem with some special software, as follows:

The address of the driver or special display routine is placed in $36 and $37. Then (in DOS 3.2) a CALL 1002 is executed from the BASIC program. 'CALL 1002; causes DOS to pick up the contents of $36 and $37 and save them in its own equivalent vector location. The CALL 1002 also replaces the contents of $36 and $37 with the original pointer back to itself. Then after DOS has done its thing, it returns control to the address saved by the CALL 1002 (This would be $FDFO if CALL 1002 was not executed). Thus we now have a situation where 3 different pieces of I/O processing takes place, namely: DOS looking for Ctl D and doing disk I/O if required, a special driver doing its output, and the Monitor displaying the character on the screen.

For those of you who have ROM or EPROM based driver software such as that which comes on the APPLE serial interface card, or with the HAYES modem, you will be doing a PR# n. For example, if your board is in slot 4, and you do a PR# 4, what BASIC does is to jump to $C400. The ROM software then places a $C402 into $36 and $37, the 4 of the $C402 being the slot number. $C400 also happens to be the address of the first location of the ROM memory on the board in slot 4. If the board was in slot 3, the address automaticlly is assigned to $C302, etc. The program in the ROM will do its thing and then transfer control to $FDFO (in most cases). If you are running with DOS 3.2, you should follow the PR# n with a CALL 1002 before any disk I/O is performed, so that the CN02 is saved by DOS as explained earlier.

Put Time and BSR/X-10 Control in Your APPLE II

THUNDERCLOCK PLUS™

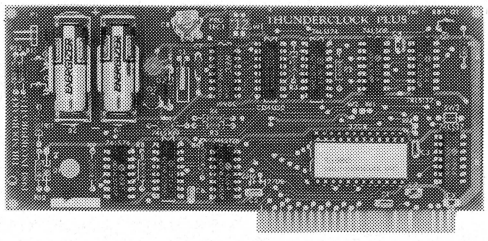


The THUNDERCLOCK PLUS is two peripheral systems on one card for your APPLE II, II PLUS, or III. An accurate, reliable, real-time clock/calendar and an interface for the popular BSR X-10 Home Control System.

The THUNDERCLOCK clock/calendar makes accurate time and date available to your programs: month, date, day-of-week, hour, minute, and second, in any of four software selectable formats. On-board batteries keep your THUNDERCLOCK running when your APPLE II is turned off - for up to four years before battery replacement. On-card 1K firmware makes reading or setting the time easy from APPLESOFT or INTEGER BASIC, PASCAL, or assembly language programs. And it provides software selectable interrupts at any of three rates: 64, 256, or 2048 interrupts/second. All features are software selectable - no switches or jumpers!

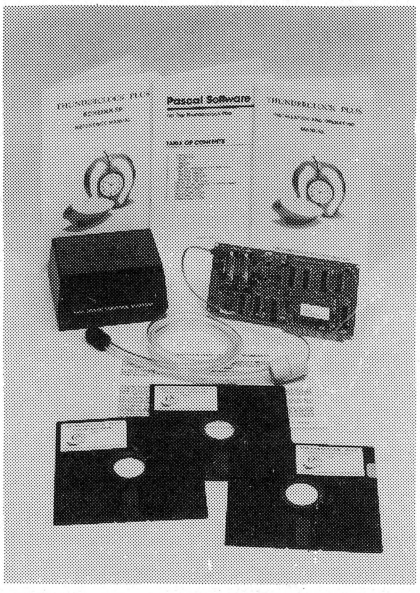
THE PLUS

Add THUNDERWARE'S X-10 ULTRASONIC INTERFACE OPTION to your THUNDERCLOCK and your programs can send all 22 BSR X-10 commands so you can remotely control lights and appliances. Plus a powerful disk software package! The THUNDERWARE SCHEDULER software lets you create schedules to control lights, appliances, security systems, or almost any other electrical device. The software includes: SCUTIL - the SCHEDULER utility that lets you make or change a schedule, and SCHED - executes your schedules in real-time using the THUNDERCLOCK. SCHED runs in the 'background' so you can run other programs in the 'foreground'. Our PASCAL software lets you use all the THUNDERCLOCK'S features and sets the filer date whenever you boot. The THUNDERCLOCK PLUS is a SYSTEM for your APPLE II. Supported by intelligent, easy to use firmware, a powerful software package, and good documentation!



Let the THUNDERCLOCK PLUS time/date stamp your DOS files whenever you create or modify them with our DOS-DATER software.

The THUNDERCLOCK PLUS will work in any APPLE, including the APPLE III.



See your APPLE dealer.

Suggested retail prices:

THUNDERCLOCK PLUS $139
Clock/calendar card with batteries and user's manual

X-10 INTERFACE OPTION $49
BSR X-10 Ultrasonic interface, disk with SCHEDULER SOFTWARE & demos, and user's manual

PASCAL SOFTWARE $29
Disk with PASCAL interface for clock and X-10 interface, and user's guide

MANUALS ONLY, each $5

California residents add 6% sales tax

If your dealer doesn't carry the THUNDERCLOCK PLUS:
ORDER TOLL FREE (VISA/MC) CALL:
800-227-6204 Ext 307 (Outside California)
800-632-2131 Ext 307 (California Only)

OR WRITE TO:
THUNDERWARE INCORPORATED
P.O. Box 13322, Oakland, CA 94661

BSR X-10 is a trademark of BSR (USA) LTD.
APPLE II is a trademark of APPLE COMPUTER, INC

DOING IT RIGHT

A Treatise on Self-Incrimination

by Bob Hance

The subject herein undertaken is at best controversial, and at worst abhorrent to many Microcomputer Hobbyists. The fact remains, however, that the Hobbyist is no longer the main target of the industry. That target is now the "Small Businessman" who has both different needs and a far less sophisticated approach to the uses of computers, whatever their size. This article is directed toward those who wish to program with this end user in mind.

The Microcomputer industry is rapidly overtaking the so-called "Mini-computer industry". That statement, by itself, is neither earth-shaking nor particularly newsworthy. What **is** both earth-shaking and newsworthy is the manner in which this is being accomplished. The assault on the Minis is stumbling forward in spite of some of the most "Godawful" software and documentation ever conceived in the minds of would-be Micro programmers.

Applications programs are being (you should pardon the expression) "written" for micros and sold to the unsuspecting end user. Most of these programs would have earned an "F" grade in a beginning BASIC class. There are some examples of excellent quality applications programming to be had in the marketplace but even some of these suffer from poor quality documentation and very restricted implementations of the capabilities of the system for which they were designed.

The "BIG" systems occupy their gray-flannel position in the marketplace for two or three very basic reasons. The obvious one is that they were there first, and have built up a certain amount of end-user sophistication and loyalty. The other two reasons are less obvious and probably far more important to those of us interested in the future development of the microcomputer as a business tool.

1. Programs and/or systems used on these machines are, generally, both well-designed and well-documented so that the end-user receives the expected output from a given input.

   Flow Charts, Screen/Page layouts and Record Layouts are done with each application in order to facilitate future modification and the necessary debugging routines.

Thus do we come to the purpose of this diatribe, which is to suggest that there might be something to be learned from the mole-like dedication of the "BIG-SYSTEM" programmers upon whom a few of us look down with almost Olympian contempt. It just could be that by giving credence to those "classroom" principles we would deflate a lot of the self-proclaimed validity we have given to our own "free-form" efforts.

There are many ways to accomplish a given task, only a few of which can be considered to be the "right" way. One of those which this writer considers to be "a" right way is this:

1. Buy yourself a book on programming techniques, a programmer's template and a forms design rule. Learn what the symbols mean and how to use them in a flow-charted design.
2. Flow chart your program/system on paper so that operational inconsistencies and potential problem areas can be noted and/or changed before coding. Remember, there are only a few genuine geniuses out there; the rest of us have to depend on references.
3. Lay out the various screens/pages on graph paper so that you and anyone who follows you can understand what should be on that screen and where it should be placed. Then when the cursor does its disappearing act you just might be able to locate it.
4. Take another piece of graph paper and lay out the records to be created and written to. It does help the computer to perform a task if it can be told what to do and where in h--- to do it. Very few programs are capable of writing themselves and you, the programmer, may die, retire, or just decide to give it up. REM statements are nice, but they take up valuable space in memory, and disappear completely if a program is compiled and only OP code is left on the system. Higher level languages are still not plain English; your thought processes may not be as apparent to the programmer who has to debug your work at some later date. Only a real Swami can read your mind. (Oh, you need convincing? Well, go back to a program you haven't looked at for about six months and see whether it doesn't take a few minutes to find **your own** train of thought).
5. If your program passes data from one program to another, then keep the global com-

mands together in the code. If this requires restructuring (HORRORS!) then so be it!!

6. Learn more than one programming language. The methodology of an additional language can only help your perspective when programming in the language of your choice. Learning structured languages has a tendency to tame the "barnyard" instincts of some BASIC programmers and helps us to understand the problems of the "BIG SYSTEM GUYS". It might also earn you some money.

If you are going to write for the commercial or business marketplace, which is just chock full of lawyers and other types who have nothing better to do than to sue you at the drop of a semicolon, it will serve you well to take the substance of this article to heart and learn the lessons represented here. If you do your job well and write well-conceived, carefully executed (and documented) programs, you will probably become very rich and famous. This is a fledgling industry struggling very hard to find or make a place for itself in the marketplace. WE NEED GOOD SOFTWARE, and it MUST BE USER-FRIENDLY. Whatever method of documentation you use, printed matter or self-documentation, you need a full set of system reference documents to back that up for future users.

In other words, "DO IT RIGHT!!"

13 key numeric KeyPad, essential to business applications.

KeyPad™

Bar code reader available with software to read and print various types of bar codes.

BarWand™

A great programmer's aid, this features single-key entry and customized key functions.

SoftKey™

APPLE* Peripherals From Your Local Dealer

ADVANCED BUSINESS TECHNOLOGY, INC.
12333 Saratoga – Sunnyvale Rd.
Saratoga, California 95070
Telephone: 408/446-2013

*Trademark of APPLE COMPUTER INC

The Electronic Astrologers™



cast an accurate birth chart for any date, time and place from 1880 to 2000, then TELL YOU WHAT IT MEANS! They give individualized astrological consultations of 1500 WORDS OR MORE, based not just on your sun sign, but on the unique relationship of ALL the planets at your birth.

ASTRO-SCOPE™

explains what your planets, signs, houses and aspects are saying about your character, image, life purpose, love life, talents, etc. Text by Steve Blake, psychology-oriented astrologer and popular lecturer, and Robert Hand, author of 4 bestselling astrology books.

Sex-O-Scope™

tells you what your astrologer would blush to reveal! John Townley, author of PLANETS IN LOVE, an editor of SEXOLOGY TODAY and student of ALL forms of sexual behavior, uncovers your tastes, hang-ups and turn-ons.

$30 screen versions are for Apple II+ with Applesoft, 32K RAM, single disk. $200 printout versions require 48K RAM and dual disk drives; price includes greater accuracy and a license to print and use commercially.

Outside USA please add $2.50 shipping charge
†TM of Apple, Inc. In Mass. add 5% sales tax.

WE TAKE MASTERCARD AND VISA

AGS Software Box 28, Orleans, Ma. 02653 Telephone 617/255-0510

ASK ABOUT OUR HIGH-ACCURACY ASTROLOGY PROGRAMS

dos boss
DISK COMMAND EDITOR

Rename DOS Commands: Instant shorter commands for "CATALOG", etc. Change Apple's **"DISK VOLUME"** Heading to your personal title, with or without Vol. No. **Save-Protect Your Programs:** Illegal copying will bomb with a "NOT COPYABLE" message! **One-key Program Selection** & instant free-space on disk! **Custom Catalogs:** Multi-columns fit more file names on the tube. Alter or omit Sector Numbers & File Codes. **Rename Error Messages:** "SYNTAX ERROR" can be "TRY AGAIN!", etc. Included is The **DOS BOSS BOOK**, 36 pgs. of Apple tricks & experiments; a great learning tool! PLUS our 11x17 **Apple Command Chart** of all Basic & DOS Commands. PLUS our famous 36-pg. **Apple II Tip Book!**

All for $24 + $1.50 Shipping

All Shipped First Class Within 24 hours!

$24. Rush DOS BOSS, the DOS BOSS BOOK, the APPLE COMMAND CHART, TIP BOOK & CATALOG

Applesoft disk only: 3.2 unless you specify 3.3

Add $1.50 for Same Day First Class Shipping.

NAME$= _____ Amt. Enclosed=$_____
(Cal residents add 6% tax)

ADDR$= _____

CITY$= _____ ZIP=_____

VISA/MASTERCARD, include ACCOUNT NO., EXP. DATE & SIGNATURE.

(Use this coupon or separate sheet)

VISA Beagle Bros™ MICRO SOFTWARE master charge

Mail to: BEAGLE BROS. Dept. F. 4315 Sierra Vista, San Diego, CA 92103
(714) 296-6400, Dealer Inquiries Welcome!

APPLE /// USERS, UNITE . . .

By Jim Linhart

There's a new (large) kid on the block; the Apple /// (THREE), and I bought one. Traded a perfectly good Apple II for it. There aren't many of us who own Apple ///'s yet, but our numbers are growing.

As I look at mine, memories come flooding back . . .

—in the two years I've been a member of the San Francisco Apple Core the club has grown (groan) threefold, making our membership chairmen rise to new heights of heroic endeavor.

—we used to have our monthly meetings in the back of a small neighborhood savings and loan, outgrew that, and now meet in a former barracks at Fort Mason in San Francisco; it look like we're on the verge of outgrowing that too (maybe Candlestick Park next . . . the Giants don't seem to fill the place lately . . .)

No doubt that kind of rapid growth has happened to clubs all around the country as the number of Apple owners doubles and redoubles. Look how far we've come: if memory serves, in May 1979 there was no VisiCalc, no 80-column board, no Pascal, no Z-80 card, and 48K was the limit of memory. I remember the feeble interest in the TOM—**Tape**-of-the-Month.

The newest interest group in the SFAC is the Apple /// group; seven of us so far, exchanging information, rumors, and dreams; things we'd like to see developed for our ///'s. Frankly, I have a vague feeling that I've been here before, and it's even more exciting than two years ago!

So let's have a confederation of Apple /// users and Interest Groups (I **think** there are more than seven ///'s out there). We could form a nationwide pool of knowledge as we all learn about our machines. This confederation could have an additional function; to speak with a coordinated voice about the aspirations we have as Apple /// owners. Let's see, there's software, peripherals (maybe a real clock?), languages, applications . . .

Gee! Here we get to go pioneering again!

Sounds like a great idea, Jim, and I want to thank you for volunteering to head up the co-ordinating effort. (Of course he volunteered, didn't he, folks?) Write to,

Apple /// Group
APPLE ORCHARD
P.O. Box 976
Daly City, CA 94017

And on the next page, a contribution from Northern Illinois . . .

—PCW



APPLE ///DABBLING

By Rick Smith
From The Harvest

Several days ago, a friend of mine called and told me to try something unusual on the Apple /// that I had. He asked me to press the (CONTROL) key, the ("Open Apple") key and the (RESET) key simultaneously. Then release the (RESET) key and in about one second release the other two keys. Much to my surprise, a small right arrow (→) and a blinking underscore appeared on the screen in front of me. Apparently we had found the Apple ///'s monitor, and my job was to find out what it could do. After trying several combinations, here is what I have come up with:

X,Y

Displays the contents of memory locations X through Y inclusive. The format is eight bytes per line with an address on the left and the ASCII equivalent of each byte on the right (this is quite similar to the Apple II's monitor).

Example.

1000*C1 C2 C3 C4 C5 C6 C7 C8
ABCDEFGH

When a long range of memory, greater than one or two screensful is being displayed, pressing the space bar will "freeze" the display. Pressing the space bar again will cause the screen to scroll up one line, and the next eight bytes will be displayed at the bottom of the screen.

Pressing any key except (RETURN) will cause the screen to return to its normal fast scroll. Holding the space bar down causes a slow scroll of the memory contents until the end of the specified memory range is reached. Pressing the (RETURN) key while the screen is scrolling or stationary will cause the user to return to the monitor prompt.

X:Y

This causes the contents of location X to be changed to Y. Each hexadecimal number typed after Y, with a space between each one, will cause the subsequent bytes to be changed. (This works exactly as in the Apple II monitor described in the Apple II Reference Manual, Pages 43 and 44.)

(RETURN)

Each time the (RETURN) key is pressed, the next eight bytes are displayed. Since this key is self-repeating on the Apple ///, holding this key down is another way of causing a slow scroll of memory contents.

X< Y.ZM

This move command works identically to the Apple II command described on Page 46.

X,Y.ZV

This verify words the same way as the Apple II's. However, when a match is not found, this—

X:Y A:B

is displayed. (Where X and A are the memory locations that "should" have been the same, and Y and B are the contents of those locations respectively.

After this, I proceeded to try all the letters in the alphabet to try to find more commands. Apparently, commands which are not understood by the system sound a beep.

A Display the contents of Location A
B Display the contents of Location B
C Display the contents of Location C
D Display the contents of Location D
E Display the contents of Location E
F Display the contents of Location F

G

Executes a machine language routine at the last location specified in a command. XG executes a machine language program beginning at Location X. (Exactly like the Apple II's monitor described on Page 49.)

H and I—Error (system beeps)

J

Turns disk drive on, sometimes causes underscore prompt to disappear at other times.

K, L, M, N, O, P, Q—all errors (system beeps)

R

Reads disk(?) (the disk starts to spin)

8000 R at one time generated an 82! (I/O error code?)

500R and 600R—filled part of the screen with flashing characters. (Text page area?)

1000R—filled locations 1000-1FFF with what appeared to be the beginning of a disk directory. (This area was cleared with FF's, using the move command described above, prior to the 1000R.)

S and T—errors (system beeps)

(continued on page 70)

READ DOS 3.3 FILES FROM PASCAL 1.1

By Lee Meador

I have found that I prefer to write programs in Pascal. The problem with that preference is that much of the data that I would like to compute on is stored in files under Apple DOS. So . . .

This is a UNIT to read DOS 3.3 files and program to convert text files from DOS 3.3 format to Pascal format. The UNIT can be used in your own programs to allow reading of Apple DOS files. I have used it to do cross references of DOS files, to print text from my word processor in double column output and to "proofread" my text looking for some formatting errors. You can use it to transfer your assembly language programs in source form (maybe even translate them as you go) or read your financial data files that you created with an accounting package or VisiCalc.

Now, a word or two about the program I have included to show how the unit is used. First, I want to make sure you know that this program is all you need to move anything from Apple DOS to Pascal. Suppose you have a BASIC program you want to move. You can enter a few lines into the program that will let it convert the program to a text file. Let's say you have a few free lines at 5073 to 5079. Boot the DOS 3.3 diskette and load in the program you want to transfer. You can enter:

```
5073 PRINT
     "OPEN TEXTFILE":
     REM HAS   D
5074 PRINT
     "WRITE TEXTFILE":
     REM HAS   D
5075 LIST
5076 PRINT "CLOSE":
     REM HAS   D
5077 END
```

Then when you type RUN 5073 the disk will begin whirring and a listing of the program will be transferred to a DOS text file called "TEXTFILE". Then this program can convert that file to Pascal format.

One other "suppose" is in order. Suppose you have your files on Apple DOS 3.2. You will have to MUFFIN those files over to DOS 3.3 before they can be converted to Pascal format.

You may be wondering about Binary files. The program has a provision for transferring binary files. It puts the starting address and length as decimal numbers on the first two lines of the Pascal file. Then the other bytes are transferred as if they were text. This is useful for converting text files that you have saved under Applewriter, Apple Pie or another text editor that uses binary files for storage. (NOTE: The high bit is cleared as each byte is transferred.)

Enough with general information --how do you run it? First, enter the UNIT from the listing. Then enter the DOSTRANS Program from its listing (or I can send you a copy for $10.00 Box 3261, Arlington, TX 76010.). Compile and link the UNIT. Run the LIBRARY program on your APPLE3; disk to create a library with the normal UNITs in slots zero through six. Put this unit in slots seven and eight. The commands are shown as Figure 1.

Now, go into the filer and rename the old library (SYSTEM .LIBRARY) to get it out of the way. Then rename NEW. LIBRARY to SYSTEM.LIBRARY. This will allow your program to access the functions in the unit without typing them in every time.

Compile, Link and Execute the DOSTRANS program. (I use the R)un command to take care of all that.) When the program begins running, the first question asked will be:

What unit is the DOS 3.3 disk in?

You should enter 4, 5, 9, 10, 11 or 12. Usually I put the DOS 3.3 disk in slot 6, drive 2 and answer 5. (DO NOT put a pound sign--'#'--in front of the number or a colon--':'--after it.)

What file to transfer?

Type the name of the DOS file that you want to transfer. You will need to know the name from the normal DOS command: CATALOG. This question assumes you have put the 3.3 disk in the drive and closed the door because when you push RETURN that drive will whirr and the program will try to find the file on the DOS 3.3 diskette. If

CRAE 2.0

A FAST CO-RESIDENT APPLESOFT EDITOR FOR APPLESOFT PROGRAMERS, NOW PERFORM GLOBAL **CHANGES/FINDS** TO ANYTHING IN YOUR PROGRAM. OTHER COMMANDS INCLUDE: RENUMBER, APPEND, QUOTE (COPY), LIST (OPTIMIZED), MODIFY (SINGLE LINE), AUTO LINE NUMBERING, FORMATTED MEMORY DUMP, HEX/DEC CONVERSION, FREE SPACE, AND ABILITY TO ENTER MONITOR COMMANDS. CRAE 2.0 IS COMPATIBLE WITH NEIL KONZEN'S PROGRAM LINE EDITOR, REQUIRES 48K RAM APPLESOFT ROM AND DISK.

MCAT 2.0

MCAT 2.0 IS A FAST BINARY UTILITY WHICH CREATES A SORTED MASTER CATALOG WHICH IS SAVED ON DISK AS A BINARY FILE (FAST). THE MASTER CATALOG CAN BE EASILY UPDATED A WHOLE DISKETTE AT A TIME (ADD, DELETE, REPLACE). LIST/PRINT HAVE GLOBAL SEARCH CAPABILITY AND ONE OR TWO COLUMNS, PROVISIONS FOR DUPLICATE VOLUME NUMBERS. APPROXIMATELY 1200 FILE NAMES, 48K OR 32K, 13 OR 16 SECTORS DOS SUPPORTED.

CRAE on disk with 20 page manual
$24.95

MCAT on disk with 10 page manual
$19.95

CRAE and MCAT on one disk
$39.95 with manuals

EROM #1

CRAE's powerful Global Change/Find, optimized List Command, Hex to Decimal and Decimal to Hex conversion now available on a 2716 EPROM.

EROM #1 w/manual

$69.95

EROM #2

CRAE's Autoline numbering, formatted Memory Dump, Append, number conversion (Hex/Dec) on one 2716 EPROM.

EROM #2 w/manual

$49.95

EROM #3

CRAE's powerful renumber and quote function now on two 2716 EPROMS.

EROM #3 w/manual

$49.95

EROM 1, 2, 3
$149.95

ALL EROMS REQUIRE APPLESOFT ROM AND ROMPLUS+ AND ARE COMPATIBLE WITH NEIL KONZEN'S PROGRAM LINE EDITOR.

OLDORFS REVENGE	THE TARTURIAN	CREATURE VENTURE
48K, Applesoft ROM	48K, Applesoft ROM.	48K, Applesoft ROM.
ON DISK $19.95	ON DISK $24.95	ON DISK $24.95

SEE YOUR LOCAL DEALER OR SEND CHECKS TO

HIGHLANDS COMPUTER SERVICES

14422 S.E. 132nd
Renton, Washington 98055
(206) 228-6691

Washington residents add 5.3% sales tax. Applesoft and Apple are registered trademarks of Apple Computers, Inc.

Romplus is a registered trademark of Mountain Computers, Inc.

```
X APPLE3:LIBRARY (RETURN)          ...    execute the librarian program
NEW.LIBRARY (RETURN)               ...    create a new library file
SYSTEM.LIBRARY (RETURN)            ...    copy UNITs from the old library
=                                  ...    equal means copy all UNITs
N DOSUNIT.CODE (RETURN)            ...    copy from the new units file
1 7                                ...    move slot 1 to slot 7
2 8                                ...     and slot 2 to slot 8
Q                                  ...    Q)uit the librarian
DOSSTUFF COPYRIGHT (C) 1981 BY LEE MEADOR (RETURN)
                                   ...     but put my copyright notice in
```

Figure 1

it finds the file, the program will print out the message:

Transferring file
T 13 TEXTFILE

This shows the file type, length and name. You may end the program if this is wrong. To end, enter a blank line for the next question.

If the file isn't on the disk or some other error occurs, the program will end. A good programming exercise for learning some Pascal would be to change this part of the program so the entry of filenames is easier. Maybe you should be able to look at the DOS catalog if you want.

Anyway, the next thing the program needs to know is where to put the data that is being transferred. So, it asks the question we have all been waiting for:

Transfer to: (DEV:FILENAME) ?

You should tell it where you want the file transferred. If you want it put out on the printer, use 'PRINTER:'. To watch it come by on the TV screen, use 'CONSOLE:'. If you want it put on the disk, use the volume number or name and the file name. (eg. #4:DOS.FILE.TEXT) Be sure to enter the '.TEXT' on the end of the name.

Your part is done. The computer, however, will keep whirring away. It takes about one minute to transfer a nine sector program. When the program is finished, it will tell you to push the return button to exit to the command level of Pascal. Your file is converted. If you transferred it to the disk, you can edit it, copy it, print it out. It is a normal TEXT file in every way.

Some Ideas for Expansion

Obviously, you may have to transfer files back. I hope one of you is motivated to do that. The function that calculates the block to read/write for each track and sector is called CBLK. Another function is needed that converts the bitmap in the Apple VTOC into a BOOLEAN array. You will need that array to figure out where to put the file you are transferring. Another use of that map is to provide yourself with a map of used and unused sectors on the DOS 3.3 disk. If you count the TRUE values in the array you will have the Free Sector Count.

The program only works correctly for Sequential files. Random Access files are semi-transferrable. Some useful procedures would allow something like the SEEK routine for Pascal. Position the input pointer to a specific place in the file.

A third possibility for expansion lies in adding the capability for opening several DOS files at one time. You could have open files numbered from one to whatever to keep them apart when you call ReadByteDOS, etc. Or, you could pass along a DOSfile variable that contains the key information. Each file would need a data buffer, filemap buffer, Unit number, and a dozen or so pointers to keep track of where the input is. I like the DOSfile variable idea since it allows an unlimited number of files open and it requires you to declare your intention to have a DOS file in the VAR portion.

Some notes on Implementation

The description of which tracks and sectors on a DOS 3.3 disk are used is in the DOS 3.3 manual and the DOS 3.2 manual. (The 3.2 manual has it in Appendix C on page 123 and following.) The UNITREAD function of UCSD Pascal is used to read the sectors into an array of 512 bytes (0..255).

The function CBLK shows the correspondence between the Pascal Block number and the DOS 3.3 track, sector numbers. GETSECTOR takes into account that the sector you want may be the other half of the block that was read last. If that is so, the block is not read again. (Pascal blocks have 512 characters in them. DOS 3.3 sectors have 256 characters in them.)

The catalog in DOS 3.3 points to the first file map (also known as a track, sector list) of the file. Additional blocks of file map are linked together by pointers in each one. GETFMAP is a procedure to get one sector of the file map and convert the list of track-sectors to a pair of arrays. These arrays are used in ReadByteDOS to know where the actual sectors are that hold the program.

The Capabilities of DOSSTUFF

There are four functions and six variables that can be ac-

cesses from DOSSTUFF. The listing provides more information if you need it.

OPENDOS--You tell OPENDOS which unit the DOS disk is in and what the name is of the DOS file you want to access. Be sure to use upper case in the name. OPENDOS is a function that returns TRUE if the OPEN worked. OPENDOS sets things up for the next functions.

ReadByteDOS, ReadCharDOS -- These two functions are similar in that both return the next byte from the file that was opened by OPENDOS. ReadByteDOS returns it as an INTEGER between zero and 255. ReadCharDOS returns it as the corresponding ASCII character. The ASCII is in the range from zero to 127. The internal pointers of DOSstuff keep track of which byte to return next.

CLOSEDOS -- Close the DOS file. You should be sure to Close one file before going on to another file.

EOFDOS -- This is a Boolean variable that tells you if the DOS file is at the end of file. False means there is more to the file. True means there is no more. If EOFDOS is true you still need to CLOSEDOS.

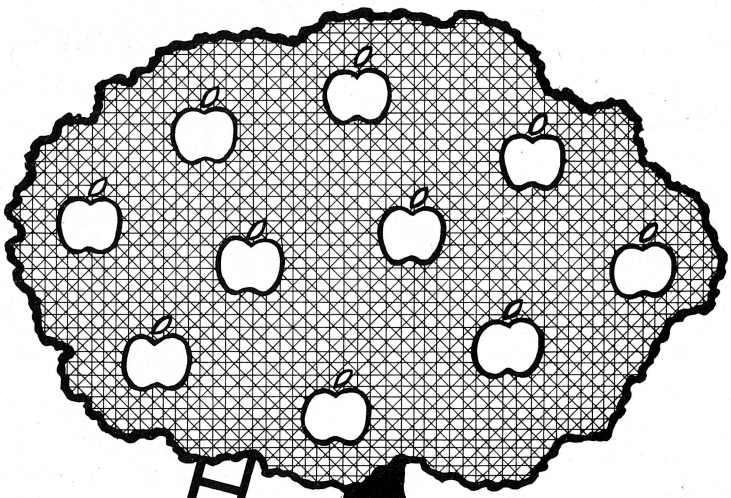
ERRDOS -- This is an integer that has the value of the IORESULT from the last UNITREAD of a sector. What this means is that if ERRDOS is ever non-zero, your data is not valid. Either the door is open on the drive, the disk is bad, etc.

FILELOCK, FILELENGTH, REALFILETYPE and FILENAME --These variables are Boolean, integer, character and string, respectively. They hold the same information shown in a DOS 3.3 CATALOG listing. They all relate to the currently open DOS file. If no DOS file has been opened, they have no meaning.

The DOSTRANS program shows a way to use some of these functions and variable information.

The Program Listing Follows:

```
(*$L printer: *)
(*$S+*)  { Necessary for units -- at least someone told me that }
UNIT DOSstuff; INTRINSIC CODE 18 DATA 19;

   { By Lee Meador - Apr 1981       }
   (*$COPYRIGHT 1981 BY LEE MEADOR*)
   { All rights reserved            }
INTERFACE
{ The DOS Stuff Variables }

  VAR eofdos     : BOOLEAN;      { true on end of DOS file          }
      errdos     : INTEGER;      { the IORESULT of last disk read }
      filelength: INTEGER;       { sector count of DOS file         }
      filelock   : BOOLEAN;      { true if DOS file is locked       }
      realfiletype: CHAR;        { BIATRS for DOS file type         }
      filename   : STRING [30]; { Name of DOS file                  }

  PROCEDURE getsector(t,s:INTEGER);
  FUNCTION  opendos  (unitno:INTEGER;name:STRING):BOOLEAN;
  FUNCTION  readbytedos:INTEGER;
  FUNCTION  readchardos:CHAR;
  PROCEDURE close_dos;

IMPLEMENTATION

{ These are globals to hold the file map and }
{  associated information.                   }
  VAR fmapt,fmaps    : ARRAY [0..122] OF 0..255;
                       { track/sector list (file map) }
      fmap_cont,
      fmap_cons      : INTEGER; { Track, sector of t/s list continuation }
      fmap_curr      : 0..122 ; { current index into t/s list }

{ These are globals used in the various procs          }

      DOSunit        : INTEGER; { Unit with DOS disk in it        }
      off            : INTEGER; { Offset into bytearray           }
      lastblock      : INTEGER; { Previous Block number read      }
      bytearray      : PACKED ARRAY [0..512] OF 0..255;
                       { Holds current block from disk   }
      t,s            : 0..255;  { track, sector of catalog sector }
```



Take a bite...

...of Apple Orchard!

Your Apple will love you for subscribing to APPLE ORCHARD! An official publication of the International Apple Core, APPLE ORCHARD has all the information you need for your Apple. In addition to outstanding feature articles, we present new product information, product and book reviews, program listings, articles and news from member clubs (maybe yours!), and IAC information, including club listings, sponsor listings, and upcoming events.

Please enter a subscription to APPLE ORCHARD for:

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Subscription rate: $10.00 for four issues
$5.00 additional required for first class postage to Canada, Mexico, APO, and FPO addresses
$10.00 additional required for air mail postage to overseas and other foreign addresses

☐ Check or money order enclosed ☐ VISA ☐ MasterCard

No. _____ Exp. _____

Reply to: **Apple Orchard Subscriptions**
P.O. Box 1493
Beaverton, OR 97075

Subscribe today! You . . . and your Apple . . . won't want to miss a single issue!

```
      vol          : 0..255;   { volume number of DOS disk       }
      curr_byte    : 0..256;   { next byte to read from bytearray}

{ These hold one sector of the catalog                           }

      tst,tss,flen  : ARRAY [1..7] OF 0..255;
      locked        : ARRAY [1..7] OF BOOLEAN;
      ftype         : ARRAY [1..7] OF 0..127;
      realtype      : ARRAY [1..7] OF CHAR;
      fname         : ARRAY [1..7] OF STRING [30];
{ These hold the file info for chosen file }
      filetrack,
      filesector   : 0..255;
      filetype     : 0..127;
(*************************************************************************)
PROCEDURE getsector; { (t,s:INTEGER); }

   { reads sector defined by track t, sector s into bytearray }
   { leaves the offset in 'off' and blocknumber*2 in lastblock}
   { as global values to use later. No block is read if       }
   { bytearray already has that block in it.                  }

  VAR i       : INTEGER;
(***************************************)
FUNCTION cblk(t:INTEGER;s:INTEGER):INTEGER;

   { Given the track and sector desired, cblk returns as its }
   {  value the Pascal block number of that sector times two }
   {  then a 0 or 1 is added depending on whether the sector }
   {  is in the first (0) or last (1) half of the block      }
   { Pascal blocks, as you may remember, hold two sectors    }

  BEGIN { calculate block from track, sector                 }
     IF s=0 THEN s := 15
            ELSE IF s=15 THEN s := 0;
     cblk := ((t*8+(15-s) DIV 2)*2 + ((15-s) MOD 2));
  END; { cblk }
(***************************************)
BEGIN
     i   :=  cblk(t,s);
     off :=  (i MOD 2)*256;
     if (i DIV 2) <> (lastblock DIV 2)
        THEN UNITREAD(DOSunit,bytearray,512,i DIV 2);
     errdos := ioresult; { save error status }
     lastblock := i;
  END; { getsector }
(*************************************************************************)

FUNCTION OPENDOS; { (unitno:INTEGER;Name:STRING):BOOLEAN; }

   { Read the catalog a sector at a time and find the file  }
   {  that is in 'Name'. Return TRUE if the file was found  }

  VAR i,j,k,l : INTEGER;
     ch       : CHAR;
     endcat   : BOOLEAN;
(***************************************)

PROCEDURE getcat(off:INTEGER);

   { Using the given offset into the bytearray to find the }
```

```
 {  desired sector contents, getcat moves the catalog     }
 {  information into the various catalog arrays           }
VAR j,k,st,l :  INTEGER; { temps }
    types    :  STRING[8];
    last_char: 0..255;
BEGIN
   t    := bytearray [off+1];  { t,s are the next catalog sector }
   s    := bytearray [off+2];
   FOR j := 1 TO 7 DO BEGIN
       st  := off + 11 + (j-1)*35;
       tst[j]      := bytearray[st + 0];
       tss[j]      := bytearray[st + 1];
       locked [j] := ((bytearray[st + 2] DIV 128) = 1);
       ftype [j]  := bytearray[st + 2] MOD 128;
       flen [j]   := bytearray[st + 33];
       (*$r-*) { we play with the string }
       last_char  := 0;    { remove trailing blanks }
       for k := 0 TO 29 DO BEGIN
           fname [j] [k+1] :=
           CHR(bytearray[st + 3 + k] MOD 128);
           if fname [j] [K+1] <> ' ' THEN last_char := K+1;
          END;
       fname [j] [0] := chr(last_char);
       (*$r+*)
       { Figure out the file type by highest bit set }
       l := 1;
       k := ftype[j];
       while k <> 0 do
             BEGIN
             l := succ(l);
             k := k DIV 2;
             END;
       types := 'TIABRS??';
       realtype[j] := types[l];

    END; { for j := 1 to 7 }
    END; { getcat }
(*****************************************)
PROCEDURE getvtoc;

    { Read the VTOC into bytearray }

   BEGIN
     getsector(17,0);     { read in the VTOC sector }
     vol := bytearray[off+6];
   END;

(*****************************************)

BEGIN { OpenDOS }

      { Read in the VTOC of the DOS 3.3 catalog }

      DOSunit := unitno;
      getvtoc;
      IF errdos <> 0 THEN BEGIN
         OPENDOS := False;
         EXIT(OPENDOS);
        END;
```

(continued on page 42)

ADD A NEW DIMENSION TO YOUR APPLE II

VU #3 REVISED

* Converts text files to VisiCalc files
* Converts VisiCalc files to VisiCalc data files
* Converts single columns to rows, also the reverse
* Designed to be used by Non-Computer Oriented Person
* Examples of each command along with simulated screen drawings
* Suede 6" X 9" binder with 50 pages of typeset docu-documentation
* Comes with double-sided diskette, DOS 3.2 and DOS 3.3

Trade-ins of VU #3 for 90% of their value allowed ($62.95)

$125.00 + $4.95 postage & handling

80 CHARACTER LIGHT PEN

This is a specially modified version of the 40 character light pen, and all software for the 40 character pen will work normally. The 80 character pen is designed especially for the Videx Videoterm 80 Character Card. And, you can use the joystick at the same time. Pen comes with complete documentation and a full compliment of programs on disk. Owners of the 40 Character Pen can trade it in for full credit on the new version.

$49.95 + $3.00 posting & handling

FILES

Files is a file manipulator that allows the user to search for a string within a file, sort data by blocks, handle many files at a time (without exiting the program) and save executed files. A file can be saved under many names, viewed in several modes, and dumped (totally or partially) to a printer.
Comes with extensive documentation.

$49.95 + $4.95 postage & handling

SUPER SORT AND SEARCH

A free-form data-base package which allows the user to define fields per record. As the data is loaded, it is automatically sorted. Can also merge together files or allow key sort entries. Will work a particular field, do a generic search and/or search for a specific piece of data. Will allow each particular record or records to be printed.

$69.95 + $4.95 postage & handling

CATCH THE PIG

An upper grade school game that teaches all four quadrants of the cartesian coordinate system. Four students play at one time, with many levels of play. Also included is a Linear Version for lower grade school children.

$19.95 + $1.50 postage & handling

WATER THE FLOWERS

Math program covering addition, subtraction, multiplication and division for grade levels 1 through 6. Presents material in interesting and graphical format.

$19.95 + $1.50 postage & handling

BROKEN ZILBOWS

Six programs, used in sequence, to develop skills in addition, subtraction, multiplication and division. Difficulty within each program varies with success ratio. And, each program introduces new concepts.

$19.95 + $1.50 postage & handling

DISKETTES

Progressive software now offers the best in fresh 5 1/4" soft sector diskettes:

Memorex	$23.50 (box of 10)
BASF	$24.50 (box of 10)

To Order Send Check or Money Order to:

PROGRESSIVE SOFTWARE

*VisiCale is a trademark of Personal Software
*Videx and Videoterm are trademarks of Videx, Inc.

P.O. Box 273 Plymouth Meeting PA 19462 215-279-4438
Pennsylvania residents please add 6% sales tax
Visa, Master Charge & American Express add 5%

(continued from page 40)

```
      t       := bytearray[off+1]; { track of 1st catalog sector  }
      s       := bytearray[off+2]; { sector of 1st catalog sector }

      { Hunt through the contents of the catalog }

      OPENDOS := FALSE;
      endcat := false;
      WHILE NOT endcat DO BEGIN

        { Read in the next sector of the DOS 3.3 catalog }

        getsector(t,s);    { get sector into bytearray       }
        getcat(off);       { get catalog data from bytearray }
        FOR k := 1 TO 7 DO BEGIN
            IF tst[k] <> 0 THEN {not the end of catalog }
               IF (tst[k] < 128   ) AND { ie. not deleted }
                  (Name = fname[k]) THEN BEGIN
                     endcat       := true;
                     OPENDOS      := TRUE;
                     filetrack    := tst     [k];
                     filesector   := tss     [k];
                     filelength   := flen    [k];
                     filelock     := locked  [k];
                     filetype     := ftype   [k];
                     realfiletype := realtype[k];
                     filename     := fname   [k];

                     fmap_cont    := filetrack;  { Next file map location}
                     fmap_cons    := filesector;
                     fmap_curr    := 122;        { Next entry in map }
                     EOFDOS       := False;      { Well, this isn't the end}

                     END

                     ELSE { dummy else }

              ELSE endcat := true;

        END; { for k := 1 to 7 }
      END; { while not endcat }
  END; { OPENDOS }
(*************************************************************************
FUNCTION ReadByteDOS; { :INTEGER; }
{
VAR none;
}

(***************************************)

PROCEDURE getfmap(t,s:integer);

   { Get the file map (tract,sector list) from the specified track, sector
   {  fmapt,fmaps arrays hold the track-sectors in the file

  VAR j   : INTEGER;

  BEGIN
     getsector(t,s);
     FOR j := 0 to 121 DO BEGIN
         fmapt[j] := bytearray[off + 12 + j*2  ];
         fmaps[j] := bytearray[off + 12 + j*2+1];
         END;   { for j := 0 ... }
     fmap_cont := bytearray[off + 1];
```

```
        fmap_cons := bytearray[off + 2];
        curr_byte := 256; {one past end}
      END; { getfmap}

   (*************************************)

   BEGIN { ReadByteDOS }

      IF EOFDOS OR (ERRDOS <> 0) THEN BEGIN
         ReadByteDOS := 0;
         EXIT(ReadByteDOS);
        END;

      IF fmap_curr > 121 THEN BEGIN {next fmap}
      REPEAT
         IF fmap_cont+fmap_cons <> 0
            THEN BEGIN
               { for trace: WRITELN('FILE MAP ', fmap_cont:5, fmap_cons:5); }
               getfmap(fmap_cont, fmap_cons);
              END
            ELSE BEGIN
               EOFDOS := True;
               ReadByteDOS := 0;
               EXIT(ReadByteDOS);
              END;
        fmap_curr := 0;
        WHILE NOT ((fmap_curr > 121) OR
                   (fmapt[fmap_curr] + fmaps[fmap_curr] <> 0))
           DO fmap_curr := succ(fmap_curr);
       UNTIL (fmapt[fmap_curr] + fmaps[fmap_curr] <> 0);
     END; { if fmap_curr > 121 }
   IF curr_byte > 255 THEN BEGIN
      WHILE NOT ((fmap_curr > 121) OR
                 (fmapt[fmap_curr] + fmaps[fmap_curr] <> 0))
         DO fmap_curr := succ(fmap_curr);

      IF fmap_curr <= 121 THEN BEGIN
         {for trace: WRITELN('SECTOR
                      fmapt[fmap_curr]:5, fmaps[fmap_curr]:5, fmap_curr:5); }
         getsector(fmapt[fmap_curr], fmaps[fmap_curr]);
        END

        ELSE BEGIN
         ReadByteDOS := 0;
         Exit(ReadByteDOS);
        END;

      curr_byte := 0;
      fmap_curr := succ(fmap_curr);
     END;

   ReadByteDOS := bytearray[off+curr_byte];
   curr_byte   := succ(curr_byte);

END; { ReadByteDOS }

(*************************************************************************)

FUNCTION ReadCharDOS; { :CHAR; }
```

```
BEGIN
   ReadCharDOS := chr(ReadByteDOS MOD 128);
END; { ReadCharDOS }

(*****************************************************************************

PROCEDURE CLOSE_DOS;

BEGIN
  lastblock := -1; { for getsector, last block read }
  EOFDOS    := True;
  ERRDOS    := 0;
  DOSunit   := -1; { illegal unit }
  fmap_cont := 0;  { no continuation }
  fmap_cons := 0;
  fmap_curr := 122;
  curr_byte := 256;
END; { close_dos }

(*****************************************************************************

{
INITIALIZATION
}

BEGIN

  CLOSE_DOS; { close the DOS file }

END.
```

```
(* dont use the $L printer: *)

PROGRAM readdos;

   { By Lee Meador - JAN 1981       }
   (*$COPYRIGHT 1981 BY LEE MEADOR*)
   { All rights reserved            }

   { Program allows reading a file from Apple DOS    }
   { 3.3 from a Pascal program.                      }
   { Currently limited to sequential text files      }
   { (but random access will transfer filled sectors}

USES DOSSTUFF;

VAR i, j, l          : INTEGER;   (* COUNTERS *)
    ans,                          (* Misc string answers *)
    OutFile          : STRING;    (* Pascal Output file name *)
    InFile           : STRING;    (* DOS file name *)
    fout             : TEXT;      (* Pascal Output file *)
    catunit          : INTEGER;   { Unit with DOS disk in it

BEGIN

{ Get the unit number of the disk we can expect the }
{  DOS 3.3 diskette to be in.                       }

  WRITE('What unit is the DOS 3.3 disk in? ');
  READLN(catunit);
  IF NOT (catunit in [4,5,9..12]) THEN EXIT(readdos);

{ Get input file name, convert to caps and open }

  WRITE  ('What file to transfer? ');
  READLN(InFile);

{ Make the name of the DOS file all Upper Case }
```

(continued on page 73)

THE EXECUTIVE BRANCH

by C. J. Thompson
Cider Press

The "EXEC" capability of the Apple Disk Operating System (DOS) is an awesome one. In fact, APPLE did such a poor job in explaining the "EXEC" function in the DOS manual that upon first reading, one is filled with a combination of awe, confusion, and fear. However, the "EXEC" function is so useful and powerful (and so very rare in a micro), that it's worth the effort to dig out the basics.

There are two types of "EXEC" text files. The first type contains computer and/or DOS commands. When this type of file is EXEC'd, the computer performs the commands, in sequence, just as if they were being entered manually from the keyboard.

The second type of "EXEC" text file contains a BASIC program, including the line numbers. When this file is EXEC'd, the BASIC program contained in the text file is loaded into the computer, much the same as if you had manually "LOADed" a BASIC program, except that it is added to any BASIC program that is already in memory. Obviously, we have two very different capabilities here.

To illustrate the use of the EXEC function for automated computer operations, the Applesoft program below has been devised to transfer BASIC program from diskette to tape cassette. The human operator need only enter the names of the programs to be moved, and then turn the tape recorder on. The computer will then move any number of programs, as long as they all come from one diskette and will all fit on one cassette.

The D/T/MOVE program first accepts the number and names of the programs to be moved (lines 300-400). Then a text file is written containing the program names and the necessary commands to execute the loads and saves (lines 500-680). Then commands are included to reload D/T/MOVER to permit another batch transfer (lines 740-760). After the text file is closed at line 780, it is EXEC'd at line 860. Now the commands in the next file are executed. After all the scheduled LOADs and SAVES are completed, D/T/MOVE is reentered from the EXEC file at line 900, where the human operator may elect to process more programs or to exit. If the exit is chosen, D/T/MOVE deletes the EXEC text file from your diskette before signing off.

Note the use of CHR$(34), quotation marks, in lines 640 and 720, to effect PRINT statements within PRINT statements. This enables printing to the screen while under control of the EXEC'd text file.

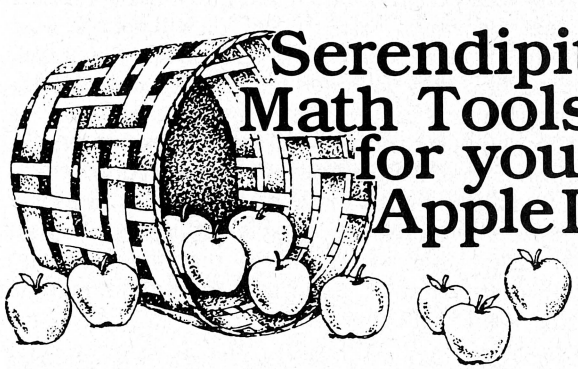
One caution: be careful to enter the correct program names, when prompted for them. D/T/MOVE will proceed with the SAVE even if the LOAD failed because the file could not be found. Anyone out there know how to employ standard error handling routines from within the EXEC file???

Next we will illustrate the second type of EXEC file, one containing a BASIC program. This type is useful for transmitting programs as text files, computer to computer, and for converting Integer programs to Applesoft programs. First let's see how the process works.

To capture a BASIC program into a text file, we must properly OPEN a text file and then LIST the BASIC program into the file. The BASIC program must, of course, be in memory. Then, we must APPEND the necessary DOS commands to OPEN, WRITE, & CLOSE the text file. So why not use the APPEND capability of the EXEC function? Why not, indeed!!!

So first, we must create the text file with the necessary file commands. Below is a BASIC program (very similar to the CAPTURE program from the DOS manual) that will create the needed text file.

This program has been written with low line numbers and is intended to be APPENDed at the front end of your BASIC program. That means that your program must start with a higher (than 12) line number or duplicate line num-



INTER-STAT offers you a full range of interactive statistical analysis techniques, from averages and medians to binomial and poisson distributions, correlation coefficients and one- and two-way analysis of variance. $169.

ADVANCED MATH ROUTINES is the mathematical tool kit for common, yet complex numerical problems. Routines include: linear regression, matrix operations, numerical calculus, differential equations and data set recall for iterative calculations. $169.

Thoroughly tested, well documented and easy to master, each package includes a 30+ page self-teaching manual.
Serendipity's complete line of software solutions for business, education and professional applications are available at your local Computerland or Apple dealer.
For a free brochure, or to order direct contact Serendipity Systems, 225 Elmira Road, Ithaca, NY 14850.
Phone 607-277-4889. Visa and MC accepted.

™Apple Computer

SERENDIPITY SYSTEMS

bers will result. If your BASIC programs characteristically use low line numbers, you can re-write the CAPTURE program with very high line numbers. In either case, you must take care that the CAPTURE program remains as a contiguous subprogram at one end of your BASIC program, and without overlap of line numbers.

The first time the CAPTURE program is run, it will LIST itself into a text file on your diskette. Now this CAPTURE file can be EXEC'd into memory along with your BASIC program, which can then be listed into a text file. To do that, you perform the following steps:

1. Run the CAPTURE (first time only)
2. Load your BASIC program
3. EXEC CAPTURE
4. Change LINE 10 to first and last line of your program
5. Run (if CAPTURE is at front) and enter the name of your program when prompted.

You should now have a new text file on your diskette containing your original BASIC program.

Now if, for instance, your program was an Integer program which you wish to convert to Applesoft, you could enter FP and then EXEC (your program name). Now your Integer program is in computer memory, and your computer is in the Applesoft mode. There remains the small task of correcting the SYNTAX differences. Just type RUN and the first SYNTAX error will pop up via an error message. Repeat the procedure until it RUNS all the way.

If you're going to do a lot of conversion, you may use the program listed. It resets HIMEM: so that it can load your Integer program into memory without destroying itself. Then it lists your program into a text file. It then creates a second text file which, when EXEC'd, will switch your computer to Applesoft and then EXEC the first file of your Integer program. Now you need only SAVE your new Applesoft program and correct the errors.

Probably one of the more useful applications of the EXEC function is the APPENDing of standard subroutines. You can establish a library of subroutines in text files and when needed all you have to do is EXEC them into your program. Using this command to combine program modules is quite different, and much more flexible, than the standard APPEND operation.

APPENDing of two programs can be accomplished by LOADing one program, resetting HIMEM: or LOMEM (depending on whether the programs are Integer or Applesoft), and then loading the second program. A second reset of the HIMEM (or LOMEM) to the original value results in the concatenation of the two programs. Obviously, the programs must be pre-numbered to avoid overlaps, and then loaded into the computer in the proper order.

When the EXEC function is used to combine two programs, the programs are not concatenated. Rather, the program statements of the file being EXEC's are placed into the previously LOADed program, wherever the line numbers of the EXEC'd program happen to fall. If there is a duplication of line numbers, the line from the EXEC's file simply replaces that line in the original program. Thus, with one EXEC operation, one can add (or replace) program lines at several different locations in the program. A subroutine can be EXEC'd into the middle of a program as long as line number space has been reserved for it.

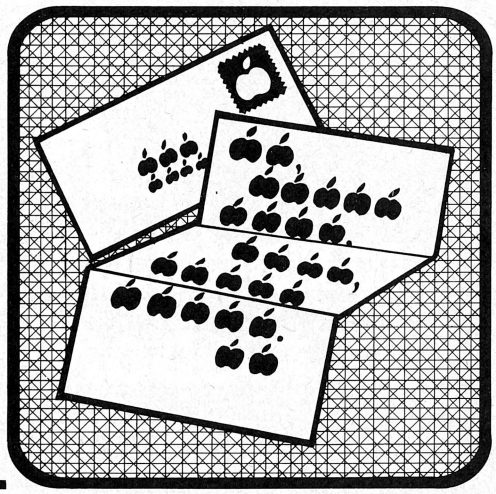
One can also conceive of having two different versions of a program by storing only one version and having all the necessary changes stored in a text file. Version two of the program can be obtained by loading version one, and the EXEC'ing the text file. Of course, you can go one step further and prepare another EXEC text file that will automatically perform the program LOAD and then EXEC the "changes" file. This general technique permits several slightly different versions of a large program to be stored in a minimum of diskette space.

I hope that these few clues are enough to get you thinking about more creative use of the EXEC function.

```
>c
>LIST
    0 REM   INTEGER CAPTURE

    1 DIM NA$(40):D$="": CALL -936
      : REM    D$=CTL D IN QUOTES
    2 PRINT "FILE NAME? ": INPUT
      NA$
    3 PRINT D$;"MONCIO"
    4 PRINT D$;"OPEN",NA$
    5 PRINT D$;"DELETE",NA$
    6 PRINT D$;"OPEN",NA$
    7 PRINT D$;"WRITE",NA$
    8 POKE 33,33: LIST 10,32767
    9 PRINT D$;"CLOSE",NA$: TEXT
      : END : REM
```

```
        10 REM

      "CONVERT" BY RON ALDRICH

      CALL -APPLE * SEPT 1978


   20 POKE 76, PEEK (202): POKE 77
      , PEEK (203): DIM A$(35):D$
      ="": REM  CTL D IN QUOTES
   30 PRINT D$;"NOMONCIO"
   40 TEXT : CALL -936: PRINT "INTEGER
       TO FP CONVERTER": PRINT : PRINT
   50 INPUT "ENTER NAME OF PROGRAM TO
      BE CONVERTED",A$
   60 PRINT D$;"LOAD";A$
   65 PRINT D$
   70 PRINT "PROPER DISK IN DRIVE ? "
      : INPUT ZZ$: POKE 33,33
   80 PRINT D$;"OPEN";A$;"FILE": PRINT
      D$;"WRITE";A$;"FILE":
   90 LIST
  100 PRINT D$;"CLOSE";A$;"FILE"
  105 PRINT D$
  110 PRINT D$;"OPENI-A FILE": PRINT
      D$;"WRITEI-A FILE": PRINT "FP"
      : PRINT "EXEC";A$;"FILE"
  120 PRINT D$;"CLOSEI-A FILE": PRINT
      D$;"EXECI-A FILE": END
```

Letters to the Editor



Sir:

Negative editorializing and software locks have not eliminated pirating; they have only made it more challenging, driven it underground, and given some people added thrills. Let's try a positive suggestion.

The vast majority of software pirating is apparently of arcade-style games and "adventures". I suggest that those very popular types of programs not be copy-protected, but that they include user instructions on the original distribution media and that instructions for copying to disk or tape be included. These special PIRATABLE programs should also be sold at the lowest possible cost (certainly no more than $10 plus the cost of the medium). You'll entice and hold more computer users that way anyhow.

But wait!! Who pays the Piper (i.e., Authors)?? The ADVERTISING sponsors, that's who!! Work with, not against the free enterprise system. Incorporate commercial messages within the program so that each time it is run, you are exposed to the sponsor's words. The brief ads could range from gaudy Hi-Res in full color billboards to low-key use of the product for variable and location names.

Bury the advertising in data statements and machine code; that would make it difficult enough to remove so that most users wouldn't bother. The dedicated cryptographer could still have his fun, but it might be more profitable to exercise these skills in writing more of the sponsored program.

Don't limit the sponsors to computer or electronics hobbyist businesses. Computer users tend to be better educated, to have a higher income level, and to be more progressive than the population as a whole. That's exactly the market advertisers are looking for. Sell microwave ovens, VCR's and new cars. Even soap and paper diapers!

Imagine a simulation road race with bonuses for contributions to the national economy and penalties for exhaust emissions; sponsored by the National commission to Reduce Oil Imports, of course. Or, how about a war game in which the successful production of nutritious food supply must accompany the weapons supply? (Brought to you by the National Farmers Alliance, maybe.) A snowmobile race over an obstacle course—sponsored by Ski-Doo... the list goes on.

Another idea: Push the stamps on the back of breakfast cereal boxes. For $3.00 and 3 boxtops you could order a game tape for your home computer permitting you to play the role of the Ceres Kid in his struggle against the forces of dentistry. Younger sibling could guide his cockatoo through the maze in search of froot droops. Change to a rabbit looking for chocolate moth balls.

Now you have the idea; let's use the system, not fight it!!

C.E. Walker
Lincoln, Nebraska

Sir:

Early in May I, along with other members of our group, had the good fortune to attend the IAC's Annual Meeting in Chicago. I came away with mixed feelings and would like to share some of them here.

To start on a positive note, I would like to congratulate those responsible for the Sunday session. The speakers were informative, energetic and, with one exception, well-prepared. Many in our group are eagerly awaiting the availability of the video tapes. It takes a lot of work to organize such an event so thanks and a big red apple to all of you.

There was another nice benefit to attending the Annual Meeting. We were able to put faces on all of those people we had read about, written to or talked to on the 'phone. And, as in a blind date, no one looked quite like we expected them to. Not only did we meet some old friends, but we were able to start some new relationsips with people and groups. We never would have met them but for the Annual Meeting. If you ever have the chance to attend, I highly recomment it. This is especially true for the groups that are miles away from the larger population centers, as we are.

I believe I mentioned mixed feelings. Some of them were generated by the business meeting on Saturday; let me give you a quick description of what occurred.

Prior to opening the business meeting, President Ken Silverman opened the floor for two-minute statements on the nibble copier issue.

The meeting was called to order and several Regional Director positions were voted on.

A financial report was given.

(The new editor discussed the **Apple Orchard's** author and newsletter policies, and urged Club participation.—PCW)

The meeting was closed so that the Executive Board could go off to a closed meeting to conduct "our" business.

There we sat, contemplating the reality that we had drive 300 miles to vote for a director, and we had already done that by mail. Further, the director that had just been elected would serve for two years, and during that time we would not be able to see him in action or even find out how he had voted on any issue.

Now, in order to be positive again, I offer some suggestions. When one takes on the often thankless job of leadership he/she spends large amounts of time trying to get people to participate. It is unfortunate, but it is human nature to allow others to do all the work. To aid in this effort, consider the following:

Open all meetings to all that wish to attend. Rules can be adopted to maintain order and to keep the meetings moving. (Done—JV)

Solicit opinion from all of the member groups. The **IAC Bulletin** would be a great format for monthly pools on issues being debated. The audio tape sent to us by one of our Directors, James Hassler, is a good step in this direction. (Well, that's an example of **hearing** the Director in action. . .— PCW) He is distributing information and asking for information in return.

Distribute proposal forms to be used by member Clubs to submit new ideas or possible changes. The Board should be required to follow up forms, with an explanation of any action taken. I have written several letters to members of the Board that have gone completely unanswered.

I know it is a difficult task, but I hope the leadership can successfully encourage active participation by all members. The alternative is the type of member you are all familiar with; the one who pays his dues, gets copies of all the Club software, and is never heard from again.

May your efforts not be wasted.

Thomas E. Jacobsen
President
The Green Apples
Cedar Falls, Iowa

INSIDE THE IAC

By Joe Budge, Secretary

Since the last issue of the **Orchard** went to press, the IAC has sent several mailings to its members. Individuals should be aware that each club has designated an IAC contact person who receives these mailings. The contact person is responsible for distributing the information to club members. Too frequently the materials get as far as the club officers and stop there. If you haven't seen any of the IAC mailings, and would like to, get in touch with your club's IAC contact. A complete list of IAC clubs and contacts is included elsewhere in this issue. The following materials were sent out since the last issue:

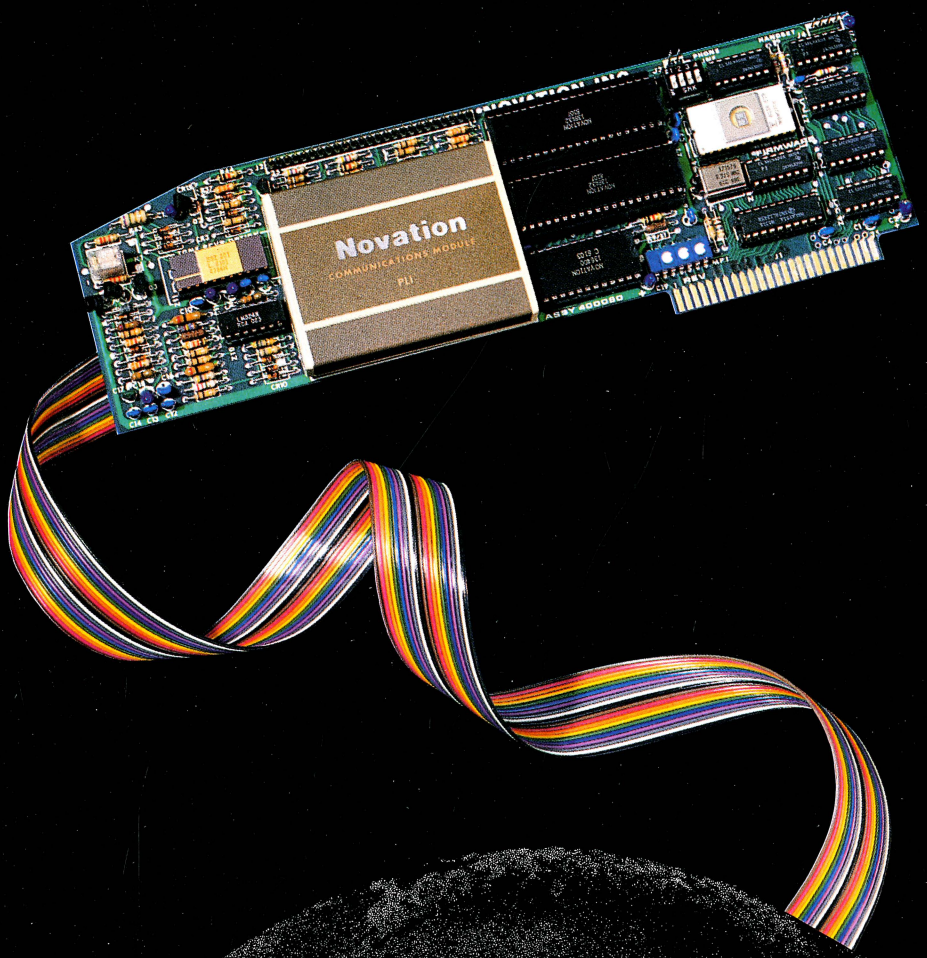
ORCHARD: Each member now receives a copy of the **Orchard.** This started with Volme 2, Number 1, the Spring, 1981 issue.

APNOTES: A set of Apnotes was mailed to members on March 23. These Apnotes included a 9600 Baud modification to the Comm Card, documentation of Integer floating point routines, documentation of Monitor ROM subroutines, the Apple II buss standards, and a description of the IEEE-488 interface for the Apple II and Apple III. A word about the Apnote index is in order here. Each mailing includes a composite index of all Apnotes published by the IAC to date. Your club should have on hand all the past releases. Some numbers are apparently missing in the index—these have been assigned but not yet published.

SOFTWARE: The IAC has sent every member a copy of the Pascal 1.1 System. Attach disk and documentation. The documentation includes Pascal interface standards.

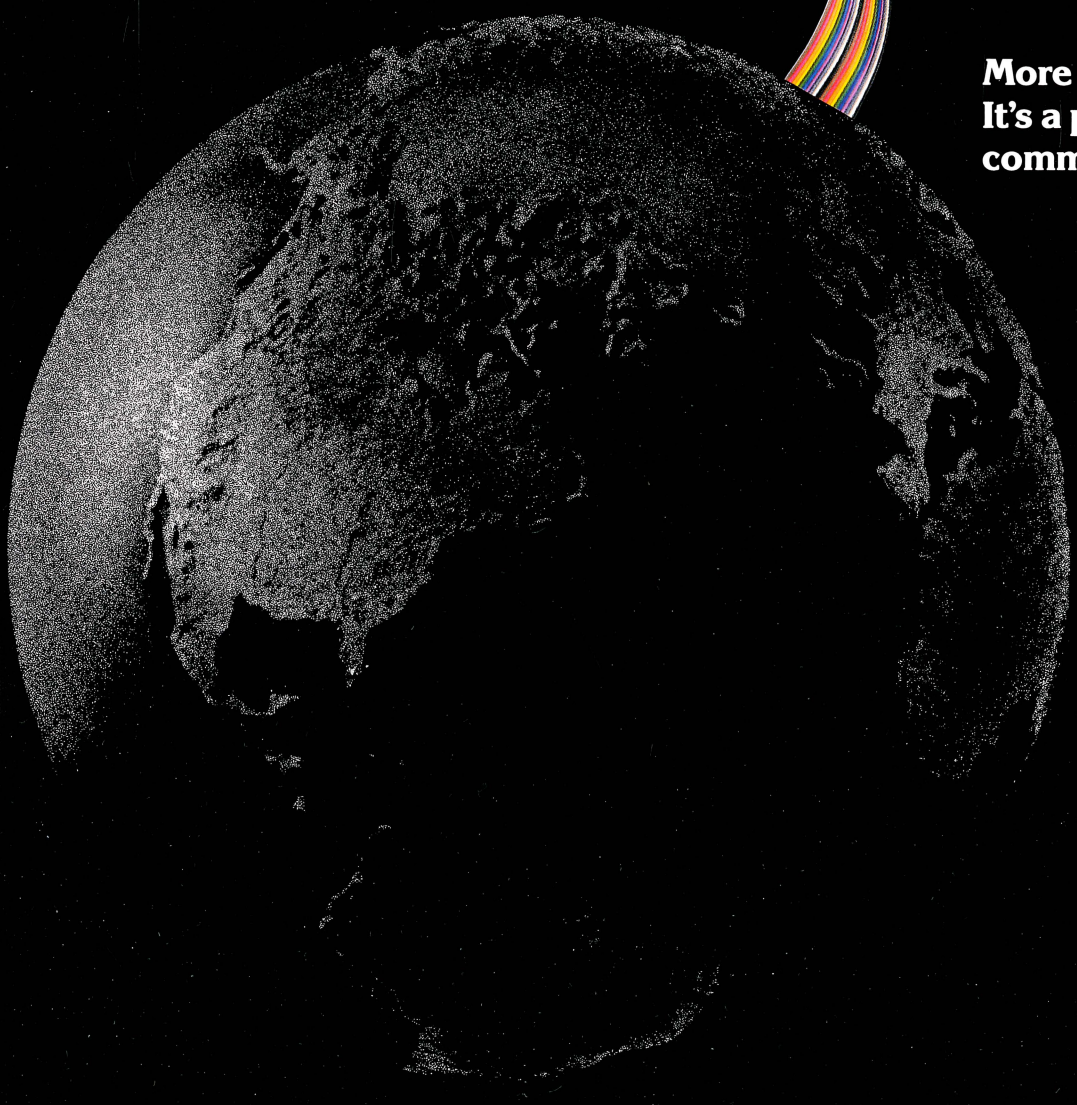
OTHER: Every member is now receiving our monthly Bulletin. In addition members received a notice of the Annual Meeting and proxy statements. Members in the Western and Southern regions were sent announcements that their Directors were elected by default, as only one nomination was received for each region. Descriptions of the Directors were included with the announcement.

Introducing Novation Apple-Cat II™*



The Maximum Modem

More than just a modem. It's a personal communication system



If you've been waiting for a major breakthrough in modems, this is it.

First, the Apple*-Cat II™ is a superb direct connect modem. It uses Novation's exclusive modem technology. Absolutely no compromises. It's the best.

But Apple-Cat II is far more than that. It's a full personal communication system with all of those extra features that truly opens up the outside world to your computer. You can access data banks. Swap programs. Talk with your office computer from home. And do it all in the simplest, easiest, most logical way.

For example: Change Speeds

Choose from standard 110 or 300 baud communications—or 1200 baud that can reduce telephone charges by 75%.

The Apple-Cat II is also for the deaf community. It has a special 45.5 baud, Baudot coded, Weitbrecht modem for communicating with the TDD network.

Set it on automatic.



You have all of those automatic functions that let you set up your Apple to run on its own, including automatic dial, answer and disconnect.

The automatic functions are not only convenient, they're money saving. You can do much of your communications unattended, at night when line charges are lowest.

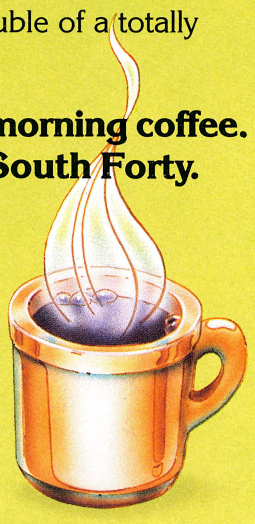
Holds your messages until you ask for them.

Apple-Cat II organizes your computer memory for message storage. Incoming messages are held for your convenience. Outgoing messages you've created can be stored, then sent on command.

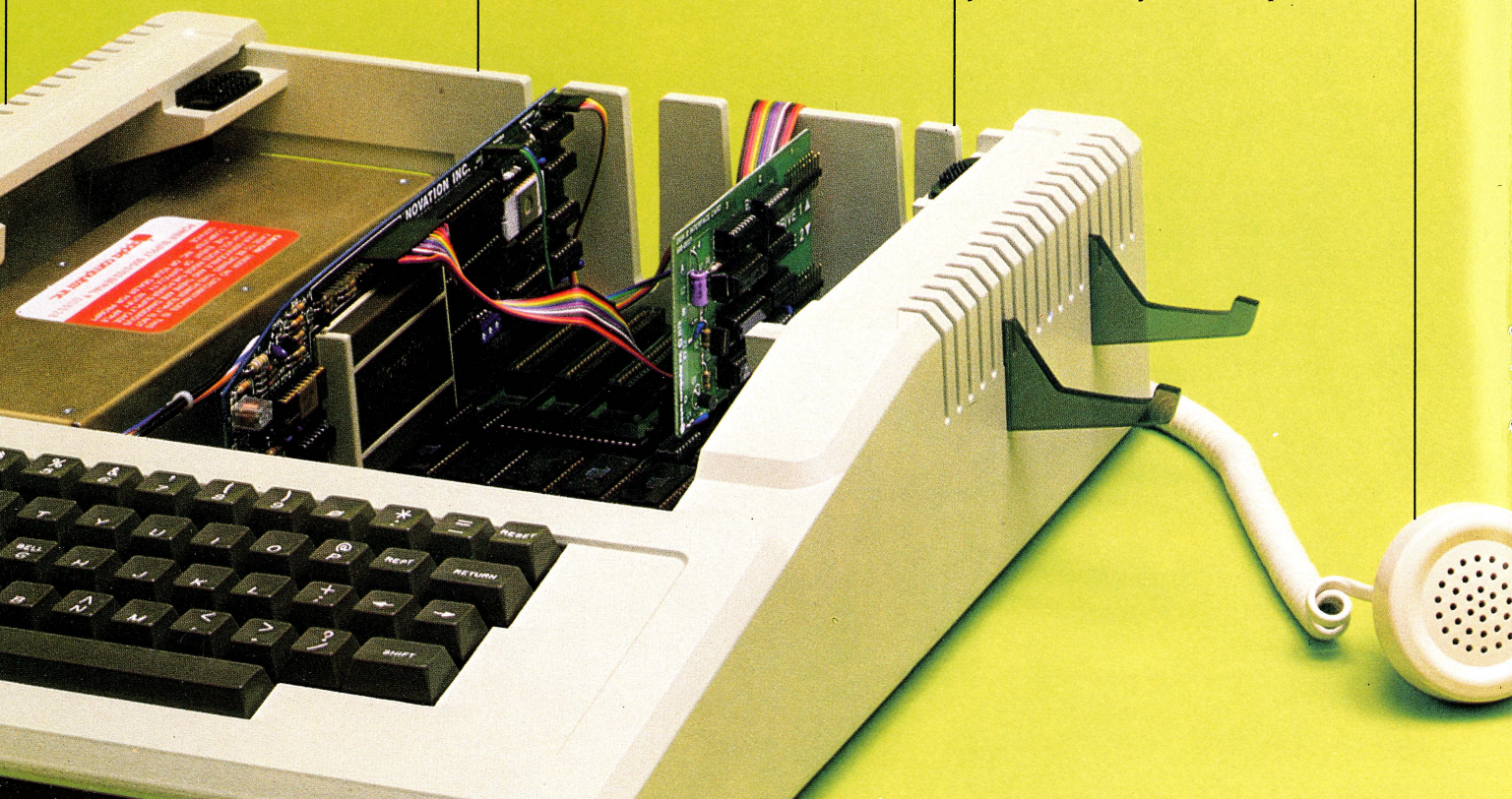
Built-in port for your printer.

The Serial RS-232 port with handshaking to run your printer is built-in. No need for the expense and trouble of a totally separate card.

Start your morning coffee. Water the South Forty.



Built-in BSR controller connects directly to your home wiring. Control is at your fingertips or as close as a phone. Add a real time clock and you can use your computer



to program and run home appliances, lights—anything you power with electricity.

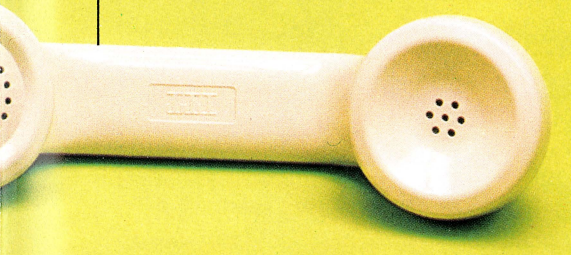
It's a phone.

Apple-Cat II takes up one of your phone lines—but you don't have to lose the use of a phone. A standard handset converts your Apple into an intelligent telephone at the push of a few keys. It's a handy extra phone to have when you want to precede or follow data transmission with a voice call. You can switch from voice to data anytime without losing the connection.

Easy to use.



From day one, you spend your time talking to the world, not mumbling at the modem. All the functions are fully programmed in. Insert the supplied diskette, turn it on and your screen displays a menu of your options. You select each option with the push of a single key. It's a fully self-prompting program—no homework needed to operate.





What have you done?

Your Apple-Cat II knows—and constantly tells you through a status display across the bottom of your screen. Are you in full or half duplex mode? How much of the communication memory have you used? How much is left? And more. It's all there.

Apple-Cat II is the personal communication system you grow into, not out of.

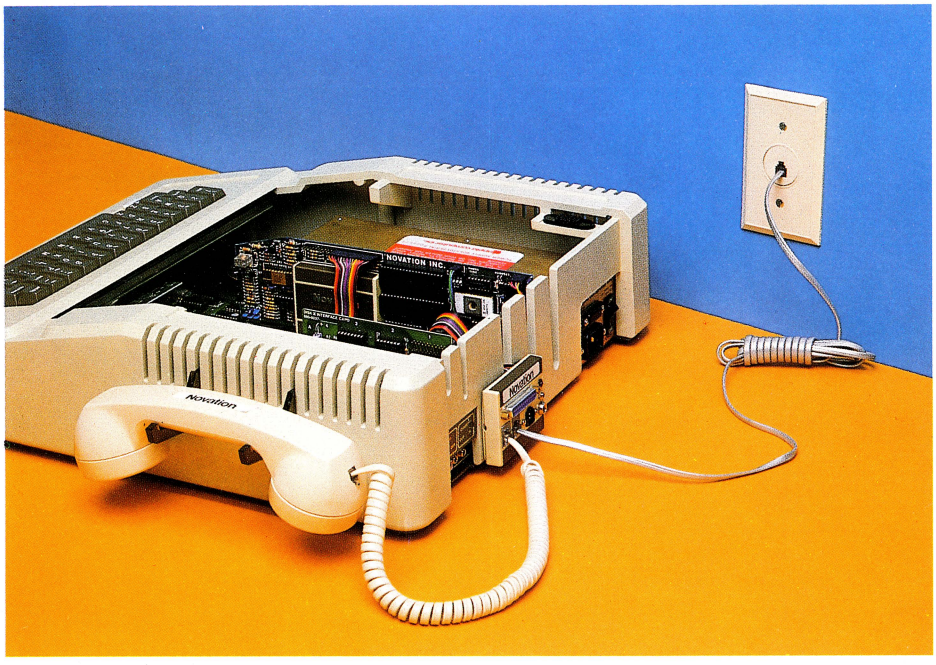
We've designed the Apple-Cat II to give you not only what you need today, but to meet your tomorrow's needs as well.

Many of the features are simple add-ons. So you start with what you want right now, then add features as your needs grow and change. You keep your investment to a minimum, yet always have the option to go to the full Apple-Cat II system.

It's the most advanced modem you can put into your computer.

More features than any other modem.

1. Full range of communication baud rates—up to 1200 (Bell System 100 and 202 series compatible).
2. Full or half duplex operation.
3. Complete communications program on a single diskette.
4. All automatic functions—auto dial (pulse or Touch Tone), redial, auto answer and disconnect.
5. Conventional telephone operation.
6. Touch Tone® receiver.
7. Firmware is expandable and compatible with Basic, Pascal and Z-80 Softcard.
8. Built-in BSR® X-10 Controller.
9. Remote control for external cassette tape recorder.
10. Works with other Apple parallel or serial printer interface cards.
11. Constant status display on screen.
12. Binary or text modes.
13. Single card installation.
14. FCC certified built-in phone line interface (PLI) module.



Simple, plug-in installation

The Apple-Cat II PC board plugs into one of the peripheral slots inside your Apple. The small interface expansion module goes on the back of the computer and a ribbon cable connects the module to the PC board.

The telephone handset and holder are mounted on the right side of the frame.

The entire installation should take no more than 5 to 10 minutes.

And just that quickly, you can begin to bring the world into your computer.

ORDER INFORMATION			BENEFITS/FEATURES											ITEMS SHIPPED WITH ORDER												
		PART NUMBER	300 BAUD ANS/ORIG FULL/HALF DUPLEX	1200 BAUD HALF DUPLEX	PULSE & TOUCH TONE DIALING	TOUCH TONE RECEIVER	VOICE TELEPHONE	VOICE RECORDING	BSR X-10 CONTROL	EIA RS232 FULL DUPLEX PORT	SOFTWARE	PROGRAM IN ROM		APPLE-CAT II CARD	OPERATING MANUAL	DISKETTE	LINE MODULAR JACK	HANDSET MODULAR JACK	6 FT MODULAR JACK	HANDSET WITH CORD & HOLDER	BSR CONTROL INTERFACE	CASSETTE RECORDER CABLE	FIRMWARE ROM	DEAF FIRMWARE ROM	TOUCH TONE DECODER	EXPANSION MODULE	PRICE
BASIC	APPLE-CAT II	490402	X	X	X					X				X	X	X	X	X	X								$389.
ACCESSORIES	EXPANSION MODULE	490403						X	X	X																X	39.
	HANDSET	490404					X													X							29.
	BSR CONTROL*	490405							X												X						19.
	CASSETTE REC CABLE *	490406						X														X					5.
	TOUCH TONE RECEIVER	490407				X																		X			99.
	FIRMWARE	490408	X	X							X												X				29.
	DEAF FIRMWARE	490409	X	X							X													X			29.
	SOFTWARE DISKETTE	490410								X																	29.

*Requires Expansion Module

Prices subject to change without notice.

NOTE: Apple-Cat II requires a 48K Apple II or Apple II Plus with a single disk drive and a 3.2, 3.2.1 or 3.3 Disk Operating System (D.O.S.). Diskette is formatted in 3.2.1 DOS. Conversion to 3.3 DOS can be done by using Apple II Muffin Program.

See the Apple-Cat II Modem at your computer store.

*Apple is a registered trademark of Apple Computer Inc.
™Cat is a trademark of Novation, Inc. which does not manufacture Apple computers.

BSR is a trademark of BSR Corporation.
TouchTone is a trademark of AT&T
Z-80 Softcard is a trademark of Microsoft Consumer Products.

Novation

18664 Oxnard Street, Tarzana, CA 91356 / (213) 996-5060

© Copyright 1981 Novation, Inc. Printed in U.S.A. NB241/481/800150

Pascal

CYCLOIDS

EXPLORING THE CONCENTRIC LAYERS OF APPLE-PASCAL

By Dr. Wo
Washington Apple Pi

Blaise Pascal (1623-1662), the French mathematician, is known for many things. Among computerists he is known for having invented one of the earliest computing machines and for his work in combinatorial theory and probability theory. Perhaps less well known is his characterization of the cycloid, the path described by a point on a circle as it rolls along a straight line.

My dictionary defines cycloid, when used as an adjective, to mean arranged or progressing in circles, which brings us to the idea behind this column. CYCLOIDS will be a regular feature of the **Apple Orchard** in which we hope to explore the concentric circles, beginning to advanced, of Apple-Pascal programming.

I would like to receive your questions about Apple-Pascal; and the **Orchard** would like to consider your articles for publication. Help us make this column more interesting to you by letting me know what you would like to read about. And help us make the Apple Orchard more interesting for all of us by submitting your Pascal articles here.

Please observe the following when submitting a Pascal article to the **Orchard**:

- Include a machine readable copy of your article on a standard Apple-Pascal 5.25 inch disk.
- Include a machine readable copy of all programs. Include text and code versions of all executable programs appearing in your article. Please use Version 1.1 if at all possible.
- Include hard copy of your article and all your programs. Copy should be produced on a printer or typewriter with a fresh ribbon.
- Mail all your correspondence to the IAC's Daly City post office box.

PLOTTING CYCLOIDS

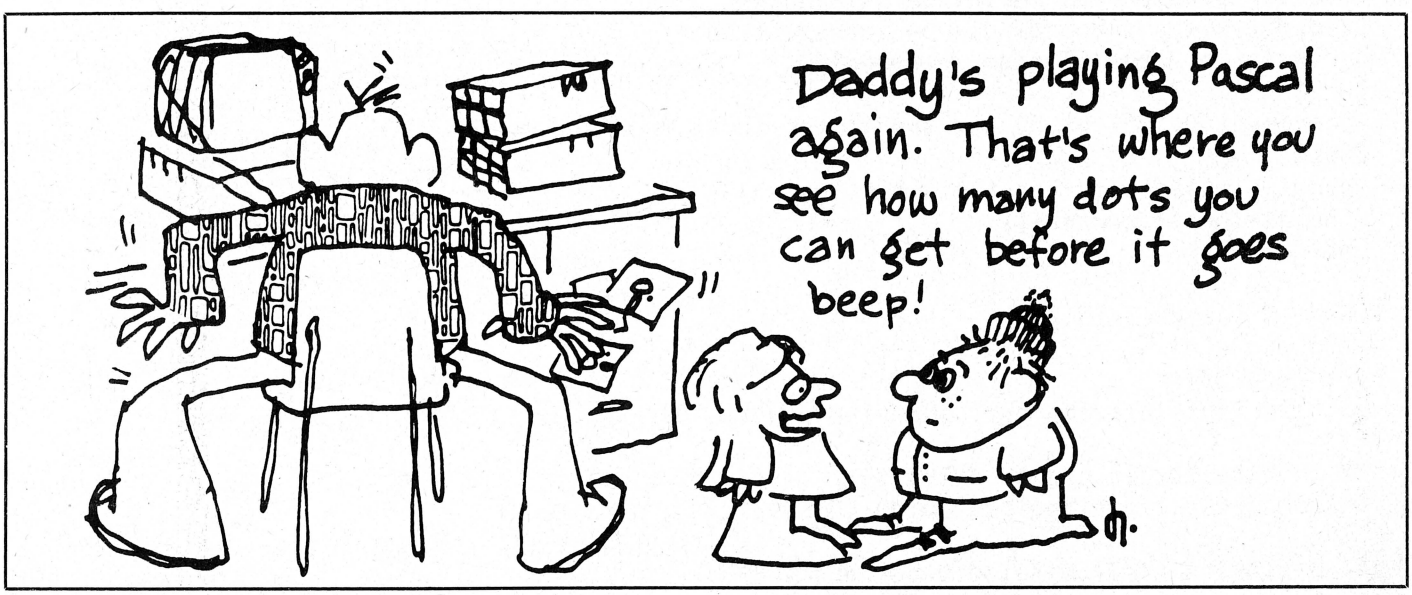
Since no article on Pascal would be complete without some program, let's kick things off with a program to draw colorful cycloids on the Apple's high resolution screen.

The program starts off with 'initcycloid;' which sets up the array 'cycloid' to contain eight shaded cycloids. The procedure makes use of the parametric form of the equation of a cycloid, namely,

```
x:=radius*(theta-sin(theta))
y:=radius*(1-cos(theta))
```

where the pair (x,y) is a point on the cycloid, radius is a constant which determines the distance between the cusps in the cycloids, and theta is the varying parameter.

The program then calls 'setupscreen' which relies on 'drawblock' to put up the cycloids in a colorful way. It then keeps complementing the screen until you get tired of the whole affair.



```
PROGRAM cycloids;

USES
 transcend,turtlegraphics,applestuff;
CONST
 (* width of the high res screen *)
 xlimit=279;
 (* twice radius is twice the radius of the cycloids desired. *)
 twiceradius=11;
VAR
 cycloid:PACKED ARRAY[0..twiceradius,0..xlimit] OF BOOLEAN;

 PROCEDURE initcycloid;
 CONST
  halfxlimit=139;
  radius=5.5505;
 VAR
  dotcount,oldx,x,y:INTEGER;
  theta:REAL;

  PROCEDURE writedot;
  BEGIN
   write('.');
   dotcount:=dotcount+1;
   IF dotcount=40 THEN
    BEGIN dotcount:=0;writeln; END;
  END;

 PROCEDURE setbits(x,oldx,y:INTEGER);
 VAR
  ix,iy:INTEGER;
 BEGIN
  FOR ix:=oldx TO x DO
   FOR iy:=0 TO y DO
    BEGIN
     cycloid[iy,ix]:=TRUE;
     cycloid[iy,ix+halfxlimit+1]:=TRUE;
    END;
 END;

 FUNCTION updatex(VAR theta:REAL):INTEGER;
 (* updatex the x-coordinate by incrementing
    theta in steps of size increment*)
 CONST
  increment=0.125; (* 50 increments for theta from 0.0 to 2*pi *)
 BEGIN
  updatex:=trunc(radius*(theta-sin(theta)));
  theta:=theta+increment;
 END;

BEGIN (* initcycloid *)
 page(output);
 gotoxy(0,5);
 writeln('Initializing cycloid, please wait.');

 (* initialize cycloid to false *)
 fillchar(cycloid,sizeof(cycloid),chr(0));

 x:=0;oldx:=x;y:=0;theta:=0.0;dotcount:=0;
```

```
 (* set bits to correspond to 8 images of
    a shaded cycloid with radius=5.5505 *)
 (* use symmetry to halve computing time. we could do better *)
 REPEAT
   setbits(x,oldx,y);
   oldx:=x;
   (* get next x *)
   REPEAT x:=updatex(theta);writedot;
    UNTIL x>oldx;
   y:=trunc(radius*(1.0-cos(theta)));
 UNTIL x>halfxlimit;

END; (* initcycloid *)

PROCEDURE setupscreen;
CONST
 ylimit=191;
VAR
 yoffset,rowsize:INTEGER;
 seedcolor:screencolor;
 okcolors:SET OF screencolor;

 FUNCTION setcolor(VAR seedcolor:screencolor):screencolor;
 BEGIN
  REPEAT
   IF seedcolor=white2 THEN seedcolor:=none;
   seedcolor:=succ(seedcolor);
  UNTIL seedcolor IN okcolors;
  setcolor:=seedcolor;
 END;


BEGIN
 okcolors:=[green,violet,orange,blue];
 seedcolor:=black;
 yoffset:=0;
 (* set number of bytes per row in the array cycloid. *)
 rowsize:=2*((xlimit+1+15) DIV 16);
 initturtle;
 REPEAT
  viewport(0,xlimit,yoffset,ylimit);
  fillscreen(setcolor(seedcolor));
  drawblock(cycloid,rowsize,0,0,xlimit+1,twiceradius,0,yoffset,6);
  yoffset:=yoffset+twiceradius;
 UNTIL yoffset>=ylimit;
 viewport(0,xlimit,0,ylimit);
END;(* setupscreen *)


BEGIN
 initcycloid;
 setupscreen;
 REPEAT fillscreen(reverse) UNTIL Keypress;
 unitclear(1);
 textmode;
 writeln;
 writeln(chr(7),chr(7),'That''s all folks!');
END.
```

News From



Apple Computer is growing with the personal computer market, and we're spreading the word about our success, future plans and the career opportunities that go with them.

Apple's profits are increasing with each quarter. In the second quarter of fiscal 1981, our profits more than tripled, up 229% from last year. We're pouring a significant amount of that profit into R&D, with development expenditures up 234% in the second quarter.

The key to the future is SOFTWARE... and our software efforts are moving in the direction of the projected broad-based use of personal computers — over 3 million by 1985, and more than 10 million by 1990.

What does all this growth at Apple mean to the Apple user? It could mean a career that combines the excitement and challenge of exploring new applications and markets for Apple software products with the opportunity to advance their programming skills in a new direction.

We have openings for experienced system programmers to work on designing, coding, testing and documenting software systems, including the Apple III PASCAL system, the Apple III BASIC system, the Apple FORTRAN system, DOS, SOS and a variety of development tools.

We're also looking for people to work with development teams, testing modules of new software product packages and assuring final packages as accurately documented and bug free.

More... We have senior level opportunities for Software Product Marketing Engineers.

It could be that you know at least one Apple addict (it could be YOU!) that has the experience and know-how for one of these challenging opportunities. Tell him or her to contact **Professional Employment, Apple Computer Inc., 10260 Bandley Drive, Cupertino, California 95014.** For additional information for your club meeting or newsletter, contact **Brian Duff (408) 446-8430.** An equal opportunity employer.

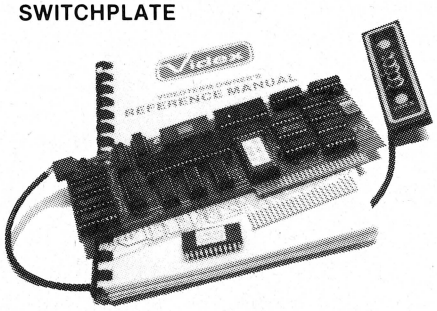


The Text Solution for APPLE II®

Now APPLE II® Owners Can Solve Text Problems With VIDEOTERM 80 Column by 24 Line Video Display Utilizing 7 X 9 Dot Character Matrix

Perhaps the most annoying shortcoming of the Apple II® is its limitation of displaying only 40 columns by 24 lines of text, all in uppercase. At last, Apple II® owners have a reliable, trouble-free answer to their text display problem. VIDEOTERM generates a full 80 columns by 24 lines of text, in upper and lower case. Twice the number of characters as the standard Apple II® display. And by utilizing a 7 by 9 character matrix, lower case letters have true descenders. But this is only the start.

VIDEOTERM, MANUAL, SWITCHPLATE



VIDEOTERM

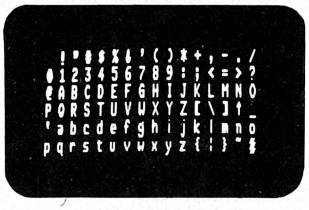
BASICs VIDEOTERM lists BASIC programs, both Integer and Applesoft, using the entire 80 columns. Without splitting keywords. Full editing capabilities are offered using the ESCape key sequences for cursor movement. With provision for stop/start text scrolling utilizing the standard Control-S entry. And simultaneous on-screen display of text being printed.

Pascal Installation of VIDEOTERM in slot 3 provides Pascal immediate control of the display since Pascal recognizes the board as a standard video display terminal and treats it as such. No changes are needed to Pascal's MISC.INFO or GOTOXY files, although customization directions are provided. All cursor control characters are identical to standard Pascal defaults.

Other Boards The new Microsoft Softcard* is supported. So is the popular D. C. Hayes Micromodem II*, utilizing customized PROM firmware available from VIDEX. The powerful EasyWriter* Professional Word Processing System and other word processors are now compatible with VIDEOTERM. Or use the Mountain Hardware ROMWriter* (or other PROM programmer) to generate your own custom character sets. Naturally, VIDEOTERM conforms to all Apple OEM guidelines, assurance that you will have no conflicts with current or future Apple II* expansion boards.



7X12 MATRIX
18X80 OPTIONAL



7X9 MATRIX
24X80 STANDARD

Advanced Hardware Design VIDEOTERM's on-board asynchronous crystal clock ensures flicker-free character display. Only the size of the Pascal Language card, VIDEOTERM utilizes CMOS and low power consumption ICs, ensuring cool, reliable operation. All ICs are fully socketed for easy maintenance. Add to that 2K of on-board RAM, 50 or 60 Hz operation, and provision of power and input connectors for a light pen. Problems are designed out, not in.

Available Options The entire display may be altered to inverse video, displaying black characters on a white field. PROMs containing alternate character sets and graphic symbols are available from Videx. A switchplate option allows you to use the same video monitor for either the VIDEOTERM or the standard Apple II* display, instantly changing displays by flipping a single toggle switch. The switchplate assembly inserts into one of the rear cut-outs in the Apple II* case so that the toggle switch is readily accessible. And the Videx KEYBOARD ENHANCER can be installed, allowing upper and lower case character entry directly from your Apple II* keyboard.

Firmware 1K of on-board ROM firmware controls all operation of the VIDEOTERM. No machine language patches are needed for normal VIDEOTERM use.

Firmware Version 2.0

Characters	7 x 9 matrix	Display	24 x 80 (full descenders)
Options	7 x 12 matrix option; Alternate user definable character set option; Inverse video option.		18 x 80 (7 x 12 matrix with full descenders)

Want to know more? Contact your local Apple dealer today for a demonstration. VIDEOTERM is available through your local dealer or direct from Videx in Corvallis, Oregon. Or send for the VIDEOTERM Owners Reference Manual and deduct the amount if you decide to purchase. Upgrade your Apple II* to full terminal capabilities for half the cost of a terminal. VIDEOTERM. At last.

Apple II* is a trademark of Apple Computer Inc.
ROMWriter* is a trademark of Mountain Hardware Inc.
Micromodem II* is a trademark of D. C. Hayes Associates Inc.
Softcard* is a trademark of Microsoft
EasyWriter* is a trademark of Information Unlimited Software Inc.

PRICE:
- **VIDEOTERM includes manual $345**
- **SWITCHPLATE . . . . . $ 19**
- **MANUAL refund with purchase . . . . $ 19**
- **7 x 12 CHARACTER SET . . . . . $ 39**
- **MICROMODEM FIRMWARE . . . . . $ 25**

APPLE II® OWNERS!

introducing the

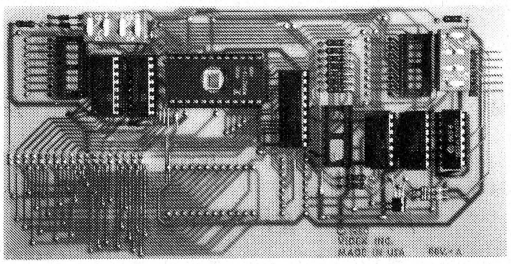
KEYBOARD & DISPLAY ENHANCER

- ***PUT THE SHIFT AND SHIFT LOCK BACK WHERE IT BELONGS***
- ***SEE REAL UPPER AND lower CASE ON THE SCREEN***
- ***ACCESS ALL YOUR KEYBOARD ASCII CHARACTERS***

Videx has the perfect companion for your word processor software: the **KEYBOARD AND DISPLAY ENHANCER**. Install the enhancer in your APPLE II and be typing in lower case just like a typewriter. If you want an upper case character, use the SHIFT key or the CTRL key for shift lock. Not only that, but you see upper and lower case on the screen as you type. Perfectly compatible with Apple Writer and other word processors like, for example, Super-Text.

If you want to program in BASIC, just put it back into the alpha lock mode; and you have the original keyboard back with a few improvements. Now you can enter those elusive 9 characters directly from the keyboard, or require the Control key to be pressed with the RESET to prevent accidental resets.

KEYBOARD AND DISPLAY ENHANCER is recommended for use with all revisions of the APPLE II. It includes 6 ICs, and EPROM and dip-switches mounted on a PC board, and a jumper cable. Easy installation, meaning no soldering or cutting traces. Alternate default modes are dip-switch selectable. You can even remap the keyboard, selecting an alternate character set, for custom applications.



PRICE • KDE-700 (REV. 7 or greater) . . . . . $129.
• KDE-000 (REV. 6 or less) . . . . . $129.

Apple II* is a trademark of Apple Computer, Inc.

VIDEX
897 N.W. Grant Avenue
Corvallis, Oregon 97330
Phone (503) 758-0521

GETTING THERE FASTER IN APPLESOFT PART II

By David H. Bartley

In my article in the Spring issue of the **Apple Orchard**, I discussed some ways to speed up execution of GOTOs in Applesoft programs. You will recall that the BASIC interpreter performs a linear search to find the line you want to go to. In most cases the search starts at the beginning of the program. For some forward jumps, however, it begins searching from the current position. I suggest some ways to renumber your program lines to make it more likely that forward jumps would be executed as quickly as possible.

The following loop, for example takes 38.1 seconds to execute when preceded by thirty other lines:

```
100 FOR I = 1 TO 10000
110 GOTO 120
120 NEXT I
```

After renumbering as follows, the loop consumes only 17.8 seconds:

```
100 FOR I = 1 TO 10000
200 GOTO 300
300 NEXT I
```

The reason is quite simple. For backward jumps, the Applesoft GOTO interpreter starts looking for the proper line at the beginning of the program. For forward jumps, it may be smart enough to start looking from the current position instead. But, the interpreter looks at only the high byte of the line number. If that byte is greater than the high byte of the current line, then it commences the search from the current position. If it is equal or less, it starts the search from the beginning of the program.

Since the low bytes are not compared, a forward jump to a line number whose high byte is the same will not execute as fast as one where the high byte is greater. In the second example, the high byte changed from 0 to 1. The thrust of my previous article was to discuss various ways to renumber your programs to avoid this difficulty in Applesoft's performance.

In this sequel, I present two machine language enhancements for the Applesoft GOTO interpreter. They give better results than the renumbering approach, but are somewhat less convenient to use. After describing these machine language alternatives I'll consider the pro's and con's of each approach.

Listing #1 shows a machine language routine which may be used instead of the Applesoft handler to speed up short forward GOTOs. This code is identical to Applesoft's, but includes a check of the lower line number bytes so that even short forward jumps will cause the search to begin at the current point in the program. This has exactly the same effect on speed that we achieved previously through renumbering.

Each program that wants to use routine #1 must have two changes. First, put an "&" in front of each GOTO that you want it to handle. Second, initialize the "&" vector with POKE 1013,76: POKE 1014,0: POKE 1015,3. Any GOTO not preceded by an "&" will be handled as usual by the Applesoft interpreter.

Listing #2 represents the ultimate speedup for GOTOs! This routine also uses "&" to replace the BASIC interpreter, but it almost completely eliminates all searches by actually modifying your program as it runs! Each &GOTO statement in your program is changed into a form that contains the actual address of the line you are going to.

WARNING--This means that your program cannot be edited once it has been run! Be sure that you have a copy saved on disk before you run it.

The comments in listing #2 fully describe the setup and operation of the routine, so I won't repeat them here.

An additional benefit of this version is that you can also use it to speed up GOSUBs. Place an "&GOTO x" near the beginning of your program for each subroutine "x" you want to call. Then, replace each "GOSUB x" with a GOSUB to the line containing the "&GOTO x". The GOSUB will be fast because it is going to a line near the beginning of the program, so the linear search will be fast. The "&GOTO x" will be fast because

it uses the fast &GOTO handler. This technique is illustrated in Figure 1.

```
 5 GOTO 100  : REM--SKIP TO MAIN PROGRAM
10 &GOTO 1000: REM--SUBROUTINE 1
20 &GOTO 2000: REM--SUBROUTINE 2
          :
          :
100 REM--MAIN PROGRAM STARTS HERE
110 GOSUB 10: REM--CALL SUBROUTINE 1
120 GOSUB 20: REM--CALL SUBROUTINE 2
          :
          :
2000 REM--SUBROUTINE 1 STARTS HERE
          :
2000 REM--SUBROUTINE 2 STARTS HERE
          :
```

Figure 1

Two points apply to both of these machine language routines. First, don't overuse the "&". Not all GOTOs have a significant effect on the execution speed of your program. Concentrate on the "inner loops" and areas of your program that are noticeably slow. Remember that routine #1 is more effective than the Applesoft interpreter itself only for short forward branches.

Second, other programs that use the "&" command, such as the Program Line Editor, will be at least partially disabled by these routines. The effect on PLE is negligible--only the PLE "&" command is lost. To recover it, just "CALL 1016".

Those of you with eagle eyes may have noticed that routine #1 is located at $0300 but routine #2 is at $0800, requiring that Applesoft's TXTTAB pointer be relocated before your program is loaded. Since routine #2 will also fit into page 3 below the DOS hooks, you should feel free to relocate it there (and remove the code which sets up TXTTAB). However, I am experimenting with the idea of storing my "production" programs as binary files on disk with a slightly different version of routine #2 at the front. This avoids having to separately BRUN the GOTO handler before RUNning the program.

So which approach to speeding up GOTOs should you take? The answer depends totally on the specific program you have in mind, and on how much trouble you want to go to. I have only addressed the problem of speeding up the GOTO statement; your speed bottlenecks may have nothing to do with a GOTO. If you don't have a speed problem, or you can't find any GOTO's inside loops, then leave things alone! If the problem is a small number of short forward jumps, then resequence the line numbers as pointed out in the previous article, or use the routine in Listing #1.

But if you want to go all out, try the radical approach in Listing #2. It appears to be ideal for "production" programs that are past the development stage and are used frequently. But don't blame me if you wipe out your only copy of your program!

Listing #1

```
1000          .OR $0300
1010          .TF XB.GOTO #1
1020 *--------------------------------
1030 *
1040 *  ENHANCED 'GOTO' ROUTINE FOR
1050 *  APPLESOFT BASIC PROGRAMS
1060 *
1070 *  DAVID H BARTLEY - AUGUST, 1980
1080 *
1090 *  WRITTEN USING VERSION 4.0 OF
1100 *  THE S-C ASSEMBLER.
1110 *--------------------------------
```

```
                    1120 *
                    1130 *       EXTERNAL ROUTINES
                    1140 *
00B1-               1150 CHRGET .EQ $00B1     GET NEXT CHAR
DA0C-               1160 LINGET .EQ $DA0C     PARSE LINNUM
D9A6-               1170 REMN   .EQ $D9A6
DEC9-               1180 SNERR  .EQ $DEC9     SYNTAX ERROR
                    1190 *
                    1200 *       EXTERNAL VARIABLES
                    1210 *
0075-               1220 CURLIN .EQ $75
0050-               1230 LINNUM .EQ $50
                    1240 *
                    1250 *--------------------------------
                    1260 *
                    1270 *       AMPERSAND ENTRY POINT
                    1280 *
                    1290 AMPER.COMMAND
0300- C9 AB         1300         CMP #$AB      'GOTO' TOKEN?
0302- D0 1D         1310         BNE END.GOTO -NO
                    1320 GOTO
0304- 20 B1 00      1330         JSR CHRGET    GET NEXT CHAR
0307- 20 0C DA      1340         JSR LINGET    PARSE LINNUM
030A- 20 A6 D9      1350         JSR REMN      Y:=BYTES LEFT
                    1360 *
030D- A5 76         1370         LDA CURLIN+1
030F- C5 51         1380         CMP LINNUM+1 TEST HI BYTES
0311- 90 08         1390         BCC FWARDS    CUR < LINNUM
0313- D0 09         1400         BNE BWARDS    CUR > LINNUM
                    1410 *                     HI BYTES =
0315- A5 75         1420         LDA CURLIN
0317- C5 50         1430         CMP LINNUM    TEST LO BYTES
0319- B0 03         1440         BCS BWARDS    CUR >= LINNUM
                    1450 FWARDS
031B- 4C 4A D9      1460         JMP $D94A     FORWARD GOTO
                    1470 BWARDS
031E- 4C 55 D9      1480         JMP $D955     BACKWARD GOTO
                    1490 END.GOTO
                    1500 *--------------------------------
0321- 4C C9 DE      1510         JMP SNERR     SYNTAX ERROR
                    1520         .EN
```

Listing #2

```
                    1000         .OR $0803
                    1010         .TF XB.GOTO #2
                    1020 *--------------------------------
                    1030 *
                    1040 *  RADICAL 'GOTO' ROUTINE FOR
                    1050 *  APPLESOFT BASIC PROGRAMS
                    1060 *
                    1070 *
                    1080 *  DAVID H BARTLEY -- SEPT, 1980
                    1090 *
                    1100 *
                    1110 *  WRITTEN USING VERSION 4.0 OF
                    1120 *  THE S-C ASSEMBLER.
                    1130 *--------------------------------
                    1140 *
```

```
1150 *  THIS ROUTINE INTERCEPTS BASIC
1160 *  STATEMENTS OF THE FORM
1170 *
1180 *      & GOTO <LABEL>
1190 *
1200 *  AND CHANGES THEM (IN PLACE)
1210 *  TO A FORM IN WHICH THE <LABEL>
1220 *  IS REPLACED BY THE ADDRESS OF
1230 *  THE LINE REFERENCED.  ALL
1240 *  SUBSEQUENT EXECUTIONS OF THE
1250 *  &GOTO AVOID THE SEARCH FOR
1260 *  THE LABEL.  A GOTO WHICH IS
1270 *  NOT PRECEDED BY & WILL NOT
1280 *  BE AFFECTED.
1290 *
1300 *      ===  WARNINGS ===
1310 *
1320 *  THIS ROUTINE SHOULD BE USED
1330 *  ONLY ON A COPY OF A PROGRAM,
1340 *  NOT THE ORIGINAL.  ONCE USED,
1350 *  THE COPY IN MEMORY CAN NOT BE
1360 *  EDITED IN ANY WAY.
1370 *
1380 *  THE <LABEL> MUST COMPRISE AT
1390 *  LEAST 2 DIGITS TO LEAVE ROOM
1400 *  FOR A 2 BYTE ADDRESS IN ITS
1410 *  PLACE.
1420 *
1430 *      === OPERATION ===
1440 *
1450 * 1) ASSEMBLE THIS ROUTINE.  THE
1460 *    OBJECT SHOULD BE SAVED ON
1470 *    DISK FOR FUTURE USE.
1480 *
1490 * 2) BRUN THE OBJECT FILE.  THIS
1500 *    WILL LOAD THE & ROUTINE,
1510 *    PROTECT IT FROM APPLESOFT BY
1520 *    MODIFYING 'TXTTAB', AND SET
1530 *    UP THE & VECTOR IN PAGE 3.
1540 *
1550 * 3) LOAD THE APPLESOFT PROGRAM.
1560 *    YOU MAY EDIT IT (TO PUT THE
1570 *    &'S IN, FOR EXAMPLE) ALL YOU
1580 *    WANT AS LONG AS YOU ALWAYS
1590 *    SAVE IT BEFORE RUNNING IT.
1600 *
1610 * 4) RUN THE PROGRAM.  IT SHOULD
1620 *    RUN FASTER IF THE &GOTO
1630 *    STATEMENTS WERE IN CRITICAL
1640 *    AREAS OF THE CODE.
1650 *
1660 *--------------------------------
1670 *
1680 *      EXTERNAL ROUTINES
1690 *
00B1-    1700 CHRGET .EQ $00B1    GET NEXT CHAR
D61A-    1710 FNDLIN .EQ $D61A
DA0C-    1720 LINGET .EQ $DA0C    PARSE LINNUM
DEC9-    1730 SNERR  .EQ $DEC9    SYNTAX ERROR
```

```
                    1740 *
                    1750 *       VARIABLES
                    1760 *
0075-               1770 CURLIN .EQ $75
0050-               1780 LINNUM .EQ $50
009B-               1790 LOWTR  .EQ $9B
00B8-               1800 TXTPTR .EQ $B8
0067-               1810 TXTTAB .EQ $67
                    1820 *
00CF-               1830 FGOTO  .EQ $CF       'FAST GOTO'
00AB-               1840 SGOTO  .EQ $AB       'GOTO' TOKEN
0008-               1850 TEMP   .EQ $08
                    1860 *
                    1870 *-------------------------------
                    1880 INIT
                    1890 *
                    1900 * RELOCATE 'TXTTAB' SO THE BASIC
                    1910 * PROGRAM WILL BE LOADED AFTER
                    1920 * THIS ASSEMBLY LANGUAGE CODE.
                    1930 *
0803- A9 66         1940        LDA #NEW.TXTTAB
0805- 85 67         1950        STA TXTTAB
0807- A9 08         1960        LDA /NEW.TXTTAB
0809- 85 68         1970        STA TXTTAB+1
                    1980 *
                    1990 * SET UP THE APPLESOFT & VECTOR
                    2000 *
```

(continued on page 64)

APPLE & PET

MAE

The Most Powerful Disk-Based Macro Assembler/Text Editor Available at ANY Price

Now includes the Simplified Text Processor (STP)

For 32K PET, disk 3.0 or 4.0 ROMS or 8032 (specify) — OR — 48K APPLE II or APPLE II + and DISK II

MAE FEATURES
- Control Files for Assembling Multiple named source files from disk
- Sorted Symbol table — Up to 31 chars./label
- 27 Commands, 26 Pseudo-ops, 39 Error Codes
- Macros, Conditional Assembly, and a new feature we developed called Interactive Assembly
- Relocatable Object Code
- String search and replace, move, copy, automatic line numbering, etc.

STP FEATURES
- 17 text processing macros
- Right and left justification
- Variable page lengths and widths
- Document size limited only by disk capacity
- Software lower case provision for APPLE II without lower case modification

ALSO INCLUDED
- Relocating Loader
- Sweet 16 macro library for APPLE and PET
- Machine Language macro library
- Sample files for Assembly and text processing
- Separate manuals for both APPLE and PET

PRICE
- MAE, STP, Relocating Loader, Library files, 50 page manual, diskette — $169.95

SEND FOR FREE DETAILED SPEC SHEET

EASTERN HOUSE SOFTWARE
3239 LINDA DRIVE
WINSTON-SALEM, N. C. 27106

(919) 924-2889 (919) 748-8446

BUYER **SELLER**

ARE YOU PUZZLED BY THE USED COMPUTER MARKET?

Our unique, nationwide listing service puts buyers and sellers of used micro-equipment together.

Listings from $300 — $25,000
(Apples, TRS 80, IBM 5100's included)

YOU PAY ONLY FOR RESULTS!

We also offer for $6.75 the
USED MICRO-TRENDS REPORT
Data on:
Manufacturers • Models • Prices
Trends • Maintenance

call toll-free

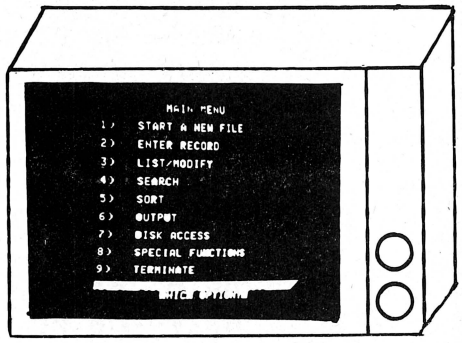
USED COMPUTER EXCHANGE

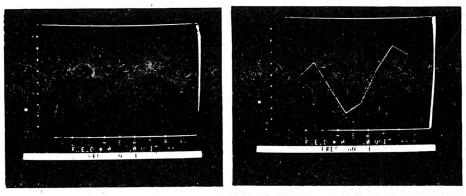
(800) 327-9191
ext. 61

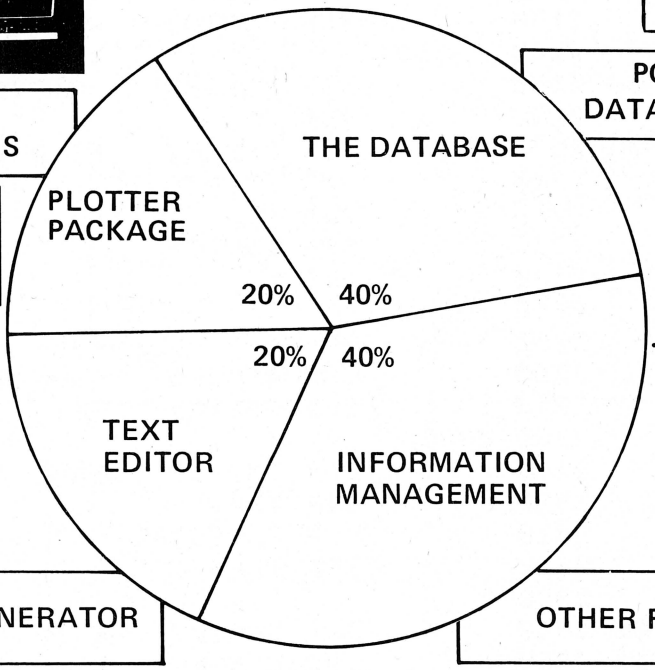
GET 120% VALUE FOR YOUR
PROGRAM PURCHASING DOLLAR
WITH

THE DATA REPORTER

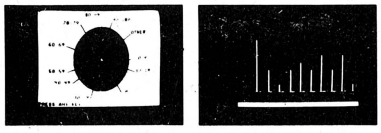
Version 2 of the versatile Modifiable Database







DATA PLOT & ANALYSIS

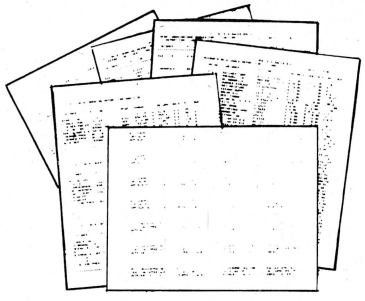


- Data may be plotted in a variety of formats such as scatter graphs, line graphs, bar charts, and pie charts.
- Ranges, minimums, maximums, means, standard deviations, correlation coefficients, etc. of any number of data files can be calculated

POWERFUL DATA MANAGER

- Versatile, user definable database can store data segmented by up to 36 fields.
- User oriented format is easy for the novice or professional to utilize. The use of menus, extensive prompting, single keystroke commands, and a universal escape capability allow anyone to store or retrieve information in seconds without errors.
- Machine language searches and sorts operate in a fraction of the time required by other programs.
- Searches or sorts, subtotals or totals may be performed on any field at any time, not just on those that are indexed or specified in advance.
- Search results may be displayed, printed, deleted, counted, totalled, edited, and/or saved to a new data file.

REPORT GENERATOR



- The sophisticated report generator allows you to format your data output in an infinite variety of ways.
- You can print form letters, columnar reports, lists, mailing labels, etc.
- Data, ratios or the results of calculations can be embedded anywhere in your letters or reports.
- The report generator gives your output the professional appearance that you require.

OTHER FEATURES

- You can append or merge up to a full disk of data files, or segment your data into separate files by a search key.
- Searches can contain up to 20 levels. You can search for a key word in any field, the absence of a keyword, or a number being within a specified range.
- Global editing of data may be performed.
- Arithmetic processing can be performed during record entry, edit, or output.
- Record entry, edit, or deletion (individual records or blocks) can be performed with no tedious delays waiting for disk accesses, index file updates, etc.
- Data may be stored on any number of floppy or hard disk drives.
- Data files can be reformatted at any time without reentering the data.
- A free backup disk is provided.
- The package requires an Apple II plus or Apple II with Applesoft firmware, 48K RAM, at least one disk drive, and DOS 3.3.

SYNERGISTIC SOFTWARE

Introductory price of $150.00 available from June 1, 1981 through Sept. 1, 1981. Existing copies of the Modifiable Database may be returned (original disk and manual), with $75.00 for the complete Data Reporter package. Order yours today!

Available from your local dealer or send check or money order to **Synergistic Software,** 5221 120 Avenue S.E., Bellevue, Washington 98006 or phone **206-226-3216.**

Washington residents add 5.4% sales tax.
Apple is a trademark of Apple Computer, Inc.

(continued from page 62)

```
080B- A9 4C     2010         LDA #$4C      'JMP' OPCODE
080D- 8D F5 03  2020         STA $3F5
0810- A9 1D     2030         LDA #AMPER    & ENTRY
0812- 8D F6 03  2040         STA $3F6
0815- A9 08     2050         LDA /AMPER
0817- 8D F7 03  2060         STA $3F7
                2070 *
081A- 4C D0 03  2080         JMP $03D0     RTN VIA DOS
                2090 *--------------------------------
                2100 *
                2110 *       AMPERSAND ENTRY POINT
                2120 *
                2130 AMPER
081D- C9 CF     2140         CMP #FGOTO    FAST GOTO?
081F- D0 0D     2150         BNE FGOTO9    -NO
                2160 FGOTO1
0821- 20 B1 00  2170         JSR CHRGET    LO BYTE - ADR
0824- 48        2180         PHA
0825- 20 B1 00  2190         JSR CHRGET    HI BYTE - ADR
0828- 85 B9     2200         STA TXTPTR+1
082A- 68        2210         PLA
082B- 85 B8     2220         STA TXTPTR
082D- 60        2230         RTS
                2240 FGOTO9
                2250 *--------------------------------
082E- C9 AB     2260         CMP #SGOTO    SLOW GOTO?
0830- D0 30     2270         BNE SGOTO9    -NO
                2280 SGOTO1
0832- A5 B8     2290         LDA TXTPTR    SAVE TXTPTR
0834- 85 08     2300         STA TEMP
0836- A5 B9     2310         LDA TXTPTR+1
0838- 85 09     2320         STA TEMP+1
                2330 *
083A- 20 B1 00  2340         JSR CHRGET    SKIP 'GOTO'
083D- 20 0C DA  2350         JSR LINGET    LINE NUMBER
0840- 20 1A D6  2360         JSR FNDLIN    FIND THE LINE
0843- 90 1A     2370         BCC ERR.GOTO  -NOT FOUND
                2380 *
                2390 * REPLACE THE 'GOTO' TOKEN WITH
                2400 * A 'FAST GOTO' TOKEN
                2410 *
0845- A0 00     2420         LDY #0
0847- A9 CF     2430         LDA #FGOTO    'FAST GOTO'
0849- 91 08     2440         STA (TEMP),Y
084B- C8        2450         INY
                2460 *
                2470 * REPLACE THE FIRST TWO DIGITS OF
                2480 * THE <LABEL> WITH THE ADDRESS
                2490 *
084C- 38        2500         SEC
084D- A5 9B     2510         LDA LOWTR     LO BYTE - ADR
084F- E9 01     2520         SBC #1
0851- 85 B8     2530         STA TXTPTR
0853- 91 08     2540         STA (TEMP),Y
                2550 *
0855- A5 9C     2560         LDA LOWTR+1   HI BYTE - ADR
0857- E9 00     2570         SBC #0
```

```
0859- 85 B9    2580         STA TXTPTR+1
085B- C8       2590         INY
085C- 91 08    2600         STA (TEMP),Y
               2610 *
085E- 60       2620         RTS           EXIT
               2630 ERR.GOTO
085F- 4C 7C D9 2640         JMP $D97C     LINE NOT FOUND
               2650 SGOTO9
0862- 4C C9 DE 2660         JMP SNERR     SYNTAX ERROR
               2670 *-------------------------------
0865- 00       2680         .HS 00
0866- 00 00    2690 NEW.TXTTAB .HS 0000
               2700 ZZZZZZ .EN
```

SYMBOL TABLE

```
081D- AMPER       009B- LOWTR
00B1- CHRGET      0866- NEW.TXTTAB
0075- CURLIN      00AB- SGOTO
085F- ERR.GOTO    0832- SGOTO1
00CF- FGOTO       0862- SGOTO9
0821- FGOTO1      DEC9- SNERR
082E- FGOTO9      0008- TEMP
D61A- FNDLIN      00B8- TXTPTR
0803- INIT        0067- TXTTAB
DA0C- LINGET      0868- ZZZZZZ
0050- LINNUM      :
```

INTERNATIONAL APPLE CORE™

APPLE ORCHARD BACK ISSUES

Back issues of Apple Orchard are available, while supplies last, as follows:

Volume 1, Number 1 — $5.00 each
All other issues — $3.50 each
(No. 2 is no longer available)

Please send your name, address, and issue number(s), along with a check, money order, or your VISA or MasterCard number and expiration date to:

Apple Orchard Subscriptions
P.O. Box 1493
Beaverton, Oregon 97075

ONE-OVEN MUFFIN

SINGLE-DRIVE DOS 3.2 TO 3.3 CONVERSION

By Dana J. Schwartz
from Washington Apple Pi

Everybody talks about converting their disks from ODS 3.2 to 3.3, but nobody ever does anything about it. Well, I can name that tune in five passes (or less)!

The Spring 1981 **Apple Orchard** contained a fine single-drive copy program by Steve Adams, written in Integer BASIC (Single Disk Copy .3). I took that routine and integrated it with Muffin to produce a single-drive 3.2 to 3.3 conversion program which doesn't require you to switch disks after every single file as Muffin alone does. A 48K Apple II has sufficient RAM to transfer 100 sectors on each pass, which means that a full 3.2 disk can be converted with no more than five passes.

To use the program, it should be kept on a 3.3 disk along with a copy of Muffin from your 3.3 master. The disk which is to receive the files in 3.3 should first be INITialized in 3.3 in the normal manner. It should be otherwise blank; any files on it will be overwritten by the copy process and lost. After starting Single Drive Convert, you will be prompted as to which disk to insert at each point. All of the cautions stated in the original **Apple Orchard** article are still valid, including the prohibition on changing HIMEM: and write protection of the copy disks.

Since the original article was adequately explained in the Spring issue, I'll attempt to explain only the modifications which I have introduced.

(Back issues are available at $3.50. Write P.O. Box 1493, Beaverton, OR 97050.)

Line 0 sets LOMEM: to 8460 to reserve space for Muffin, which is loaded at Line 500. Note that LOMEM: must be set (Line 1) before any variables are defined.

The comments before Line 1000 were moved to the end for speed purposes, and PRINTing in Lines 1000-1010, 4090, and 4100, was changed to reflect the new version. (The speed didn't seem to improve, but in my heart I know I was right.)

Lines 1067, 4035, and 4037 change DOS pointers to the appropriate RWTS (Read or Write a Track and Sector) routine for 3.2 or 3.3. This is the basis of the conversion process, allowing DOS 3.3 to read 13-sector (3.2) disks.

Since only 3.2 disks will be input, lines 1, 1080, and 2040-2095 were changed to remove the variable VER. Also, as we don't want to copy the 3.2 DOS onto the 3.3 disk, Lines 2010 and 2040 were altered to only transfer tracks 3 through 34, leaving out tracks 0-2.

Lines 2100-2120 were added to convert the 3.2 bitmaps in the VTOC (Volume table of contents). The conversion is completed by a GOSUB in Line 4070 to a new subroutine (lines 6000-6110) which rewrites the VTOC and readjusts the links in the directory. Also, Line 4070 allows for a restart for multiple disk conversions, if desired.

Note that disks without standard DOS directories (Track 17) and most "uncopyable" disks don't stand a niffum of a chance of being converted successfully. (Hey, that gives me another idea. . .)

```
>LIST

  0 POKE 74,8460 MOD 256: POKE
    75,8460/256: POKE 204, PEEK
    (74): POKE 205, PEEK (75): REM
    LOMEM:8460
  1 A=B=PTR=LOC=RWTS=IBTRK=IBSECT=
    IBBUFP=REP=REPS=CMD=TBL=IOB=
    TRK=SEC=BYTE1=BYTE2=OLDPTR=
    BITMAP=BUFLO=BUFHI=IBVOL=IBCMD=
    0
500 PRINT "BLOAD MUFFIN": REM CTRL-D

1000 TEXT : CALL -936: VTAB 4: TAB
     11: PRINT "SINGLE DRIVE CONVERT"
     : TAB (16): PRINT "3.2 -> 3.3"
     : VTAB 7: TAB 11: PRINT "BY DANA
      J. SCHWARTZ"
1005 TAB 11: PRINT "WASHINGTON APPLE
     PI": VTAB 12: TAB 16: PRINT
     "BASED ON": TAB 11: PRINT "SINGL
     E DRIVE COPY.3": TAB 13: PRINT
     "BY STEVE ADAMS"
1010 VTAB 20: PRINT "INSERT THE DISK(
     3.2) YOU WISH TO CONVERTAND GENT
     LY TOUCH RETURN TO BEGIN.":
      GOSUB 5010
1020 REM
1021 REM *** FIND THE IOB ***
1022 REM
1030 A= PEEK (77): IF A>94 THEN
     A=A-256:IOB=(A+33)*256+231
1040 REM
1041 REM *** LOAD CONTROLLING ***
1042 REM *** SUBROUTINE IN    ***
1043 REM *** PAGE 0           ***
1044 REM
1050 POKE 0,169: POKE 1,IOB/256+
     255*(IOB<0): POKE 2,160: POKE
```

```
     3,232: POKE 4,32: POKE 5,217
     : POKE 6,3: POKE 7,96
1060 REM
1061 REM *** LOAD THE VTOC INTO ***
1062 REM *** MEMORY STARTING    ***
1063 REM *** AT $02D0           ***
1064 REM
1065 IBVOL=IOB+4:IBTRK=IOB+5:IBSECT=
     IOB+6:IBBUFP=IOB+10:IBCMD=IOB+
     13
1067 POKE -17152,76: POKE -17151
     ,0: POKE -17150,30: REM MUFFIN
     RWTS
1070 POKE IBVOL,0: POKE IBTRK,17
     : POKE IBSECT,0: POKE IBBUFP-
     1,208: POKE IBBUFP,2: POKE
     IBCMD,1: CALL RWTS
1080 BITMAP=776
2000 REM
2001 REM *** THE TABLE STARTS ***
2002 REM *** AT "TBL"         ***
2003 REM
2010 TBL= PEEK (204)+ PEEK (205)
     *256+1:PTR=TBL
2020 VTAB 10: TAB 15: PRINT "I'M THIN
     KING"
2030 REM
2031 REM *** READ "BIT MAPS" IN ***
2032 REM *** THE VTOC AND CON-  ***
2033 REM *** VERT TO BINARY     ***
2034 REM
2040 FOR TRK=3 TO 34:BYTE1=BITMAP+
     TRK*4:BYTE2=BYTE1+1:SEC=12
2050 A= PEEK (BYTE1): IF A#255 THEN
     2070:SEC=4
2060 A= PEEK (BYTE2): IF A=248 THEN
     2100
2070 B=A/128:A=A-B*128: GOSUB 3020
     :B=A/64:A=A-B*64: GOSUB 3020
     :B=A/32:A=A-B*32: GOSUB 3020
     :B=A/16:A=A-B*16: GOSUB 3020
     :B=A/8:A=A-B*8: GOSUB 3020
2080 IF SEC<0 THEN 2100
2090 B=A/4:A=A-B*4: GOSUB 3020:B=
     A/2:A=A-B*2: GOSUB 3020:B=A:
      GOSUB 3020
2095 GOTO 2060
2100 IF TRK<3 THEN 2120
2110 A= PEEK (BYTE1):B= PEEK (BYTE2)
     : POKE BYTE1,A/8+224: POKE
     BYTE2,B/8+(A MOD 8)*32: REM CON-
     VERT BITMAP
2120 NEXT TRK: GOTO 4010
3000 REM
3001 REM *** IF THE TRACK BIT   ***
3002 REM *** MAP INDICATES AN   ***
3003 REM *** IN-USE SECTOR,     ***
3004 REM *** POKE TRK & SEC     ***
3005 REM *** INTO THE TABLE     ***
3006 REM *** STARTING AT "TBL" ***
3007 REM
3020 IF B THEN 3030: POKE PTR,TRK:
      POKE PTR+1,SEC:PTR=PTR+2
3030 SEC=SEC-1: RETURN
4000 REM
4001 REM **** COPY ****
4002 REM
4010 BUFLO=(PTR) MOD 256:BUFHI=(
     PTR)/256: POKE IBBUFP-1,BUFLO:
      POKE IBBUFP,BUFHI
4020 REPS= PEEK (203)-BUFHI-( PEEK
     (202)<BUFLO):OLDPTR=TBL:TBL=
     PTR
4030 FOR CMD=1 TO 2: CALL -936: IF
     CMD=1 THEN PRINT "READING":
      IF CMD=2 THEN PRINT "WRITING"
     : POKE IBCMD,CMD:LOC=BUFHI:
     PTR=OLDPTR
4035 POKE -17152,76: POKE -17151
     ,0: POKE -17150,30: REM MUFFIN
     RWTS
4037 IF CMD=1 THEN 4040: POKE -17152
     ,132: POKE -17151,72: POKE
     -17150,133: REM 3.3 RWTS
4040 FOR REP=1 TO REPS: POKE IBTRK,
      PEEK (PTR): POKE IBSECT, PEEK
     (PTR+1): POKE IBBUFP,LOC
4045 VTAB 3: PRINT "TRACK="; PEEK
     (IBTRK);: TAB 12: PRINT "SEC="
     ; PEEK (IBSECT);" "
4050 CALL RWTS
4060 LOC=LOC+1:PTR=PTR+2: IF PTR#
     TBL THEN 4080
4070 IF CMD=1 THEN 4090: GOSUB 6010
     : CALL -936: PRINT "FINISHED"
     : PRINT : INPUT "ANOTHER DISK (1
     =Y/0=N)",A: IF A=1 THEN 1000
     : END
4080 NEXT REP
4090 FOR A=1 TO 1000: NEXT A: CALL
     -936: VTAB 5: PRINT "INSERT THE
     ";: IF CMD=1 THEN PRINT "DUPLICA
     TE(3.3)";
4100 IF CMD=2 THEN PRINT "ORIGINAL(3.
     2)";: PRINT " AND HIT RETURN"
     : GOSUB 5010
4110 NEXT CMD:OLDPTR=PTR: GOTO 4030
5000 REM
5001 REM *** WAIT FOR 'RETURN' ***
5002 REM
5010 POKE -16368,0
5020 IF PEEK (-16384)#141 THEN 5020
     : POKE -16368,0: CALL -936:
      RETURN
6000 REM
6001 REM *** HANDLE TRK 17 ***
6002 REM
6010 CALL -936: VTAB 3: PRINT "REVISI
     NG VTOC & DIR"
6020 POKE 722,15: POKE 723,3: POKE
     726,254: POKE 773,16: POKE
     844,0
6030 POKE IBTRK,17: POKE IBSECT,
     0: POKE IBBUFP-1,208: POKE
     IBBUFP,2: CALL RWTS: REM REWRITE
      VTOC
6040 FOR A=12 TO 1 STEP -1
6050 POKE IBSECT,A: POKE IBCMD,1
     : CALL RWTS: REM READ DIR
6060 POKE 721,17: POKE 722,A+2: POKE
     IBSECT,A+3: POKE IBCMD,2: CALL
     RWTS: REM SHIFT & REWRITE
6070 NEXT A: FOR A=720 TO 975: POKE
     A,0: NEXT A: REM DO LAST 3
6080 POKE IBSECT,1: CALL RWTS
6090 POKE 721,17: POKE 722,1: POKE
     IBSECT,2: CALL RWTS
6100 POKE 722,2: POKE IBSECT,3: CALL
     RWTS
6110 RETURN
9000 REM ****************************
9010 REM *                          *
9020 REM *   SINGLE DRIVE CONVERT   *
9030 REM *        3.2 -> 3.3        *
9040 REM *                          *
9050 REM ****************************
9060 REM *                          *
9070 REM *   BY DANA J. SCHWARTZ    *
9080 REM *   WASHINGTON APPLE PI    *
9090 REM *                          *
9100 REM *         BASED ON         *
9110 REM *   SINGLE DRIVE COPY.3    *
9120 REM *     BY STEVE ADAMS       *
9130 REM *APPLE ORCHARD SPRING 1981*
9140 REM *                          *
9150 REM ****************************
```

USER GROUP FORUM

Conducted by Randy Fields

NOTE: The International Apple Core (IAC) receives many requests for information about starting and running Apple Users' Groups. I've asked Randy Fields to conduct this column to discuss many facets of Club activities in a practical way. Randy is Past President of the San Francisco Apple Core, and is the IAC's New Club Assistance Chairman. His sometimes painfully-won background in club policies, procedures, and practices is here for all of us; write if you have questions about Club matters.

—PCW

Why form an Apple Users' Group? The reason is very simple: to share information. Naturally, there are others: to make friends who share a common interest in Apple computers, to learn about events in the fast-moving microcomputer world, to swap software your members have developed (and NOT copyrighted software), to make business and personal contacts, etc. The number of goals for a Users' Group is virtually limitless; and different people in the group have different goals. (It is failure to recognize that last fact that accounts for 90 percent of the "trouble" in Clubs.)

How do You Start an Apple Users' Group? Starting a Club is the essence of simplicity. All you do is announce to the world that it is there, and what the Club's name is. I suggest that you send a list of tentative names to the IAC with a request that it check for the same or similar names. (Virtually every pun or play on words involving things related to fruit-type apples either is in use or has been discarded after its cuteness wore off . . .)

Once you have your Club's name and have rounded up a few friends, you're on your way to a better knowledge of the Apple, the available hardware, firmware and software for it, and the many opportunities ever-present in the microcomputing world. Just a few cautions: check with computer stores and other sources in nearby communities (or the IAC Member Club List in this **Apple Orchard**) for existing Apple users' groups, because it may be more advantageous to join and support an existing group rather than to fragment the effort with a new Club. If you do go ahead with a new Club, check with City Hall or the County Clerk about possible legal requirements for club-type organizations.

Before going any further, of course, you should join the International Apple Core.

Where Should You Meet? A typical progression of meeting places is: first at the members' homes, then at a local computer store or stores, and finally at "community service" rooms available at banks, savings & loans, public buildings, etc. One member should be assigned to the "meeting place liaison" function to make user that the providers of space are satisfied with your members' activities, and to be on the lookout for larger meeting rooms. Apple users' groups have a tendency to expand and to outgrow meeting places!

How Does Your Club Expand Membership? Since computer stores sell Apples, they are the logical place to let people know of your Club's existence. Most computer stores will let you put up a notice about your Club; the notice should include the Club's name, when and where the next meeting will be, and the name and telephone number of a member to call for additional infor-

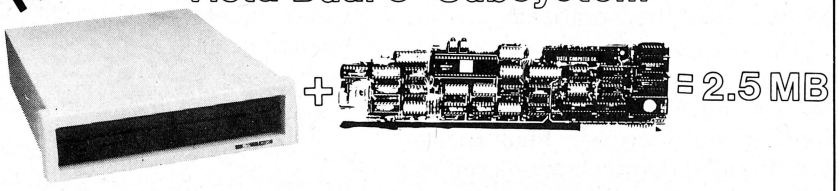
apples apples apples apples apples

WE HAVE EVERYTHING YOU NEED FOR YOUR APPLE COMPUTER

NEW

Breakthrough In Mass Storage!

Vista Dual 8" Subsystem

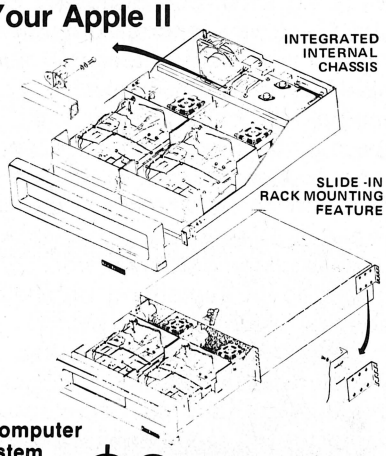


+ = 2.5 MB

New Double Sided Double Density DMA Floppy Disk Subsystem For Your Apple II

Features:
- High speed DMA transfer of data (1 microsecond byte)
- Complete documentation provided — includes theory of operation, source code for DOS enhancement utilities, schematics and diskette
- Uses all standard Apple DOS commands (OPEN, CATALOG, LOCK, DELETE, LOAD, etc.) except for INIT which has been improved and enhanced in a Vista format routine.
- Compatible with Apple DOS 3.2/3.3, Pascal 1.1 and CPM 2.2 (with the Z80 soft card by Microsoft)
- 2K x 8 PROM contains Autoboot functions and all eight-inch floppy driver code allowing complete compatibility with Apple DOS 3.2/3.3
- 120 days parts and labor warranty
- Immediate delivery

System Includes:
- Vista V1000 subsystem w/case power supply & two QUME DATATRAK 8 Disk Drives
- Vista A800 Quad Density DMA Disk Controller with software
- 5-foot interconnecting cable (50 pin)



	List Price
V1000 —	2295.00
A800 —	595.00
Cable —	49.00
Ready To Run	$2939.00

Advanced Computer Products System Package Special

$2495.00

AVAILABLE SOON!

VISTA 80-TRACK APPLE DISK DRIVE

- Can boot & run standard Apple disks
- Can boot & run 80-track diskettes for over 300 kbytes of storage
- Based on MPI B91 Drive
- Uses Apple Disk Interface
- Uses Apple DOS 3.2 or 3.3 (3.3 required for 80-track operation)

List $499.00 **$459.00**

BIT 3



80 by 24 VIDEO BOARD
- — Fully compatible w/Apple II
- — Has video input from Apple II
- — Can switch between Apple video and 80 by 24 video under software control
- — Fully follows Pascal protocols no system reconfiguration needed
- — Comes with 7 x 9 character generator full upper/lower case
- — Light pen input supported in firmware (light pen not included)

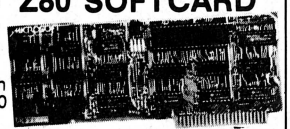
$349.95

ROMWRITER

Program your own EPROMs. Create your own firmware. Programs 2K, 2716 5V EPROMs. Disk software package provides easy EPROM programming. EPROMs are verified after BURN. RUN your programs from on-board socket or install them on ROMPLUS.

$175.00

★Z80 MICROSOFT Z80 SOFTCARD



- Z80 CPU on Apple Card
- CP/M 2.2 by Digital Research
- Microsoft BASIC MBASIC 5.0
- GBASIC 5.0 includes Apple Graphics
- File transfer functions for reading 13 or 16 sector Apple diskettes
- Will use 80 x 24 cards & terminals
- Can use Language Card for 56 K CP/M

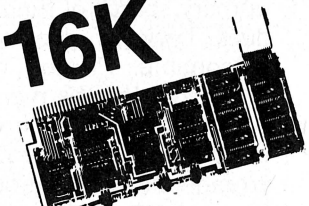
COBOL & FORTRAN-80 NOW IN STOCK
$349.00 List

$299

---

apples

MICROSOFT 16K



ON A PLUG-IN CARD.

Microsoft's new RAMCard simply plugs into your Apple II, and adds 16K bytes of dependable, buffered read/write storage.

$175

NEW Wordstar from Micro-Pro

The "ultimate Word Processor" requires Z80 Softcard, Ramcard, and 80 col card

$395.00

Mail-Merge

Enhancement package for Wordstar available now.

$175.00

Locksmith Ver. 3.1

Back-up your valuable software only

$79.95

The Vista V300 Printer



- 25 CPS printspeed
- Static print impact
- 136 printable columns
- 1/120-inch min. char spacing
- 1/48-inch min. line spacing
- 1000 msec. line feed time
- 40 msec. line feed time
- 381 mm (15") max. paper width
- Multistrike fabric black ribbon
- 96 print characters
- Standard 96 character wheel
- Standard parallel or RS232 C Compatible
- 115V ±10%, 50/60 Hz, 70 W power requirements

$1895

ADVANCED COMPUTER PRODUCTS

STORE #1: 1310 "B" E. Edinger, Santa Ana, CA 92705
STORE #2: 542 W. Trimble Road, San Jose, CA 95131 • (408) 946-7010
Showrooms, Retail, Warehouse

RETAIL STORES OPEN MON.-SAT.

FOR INTERNATIONAL ORDERS
1310 E. Edinger (714) 953-0604
Santa Ana, CA 92705 TWX: 910-595-1565

P.O. Box 17329 Irvine, Calif. 92713
Direct Order Lines: (714) 558-8813
(800) 854-8230 or (800) 854-8241

mation. The store may allow you to leave some membership forms on a counter or in the magazine rack. Because a main purpose of an Apple users' group is to spread information about products available for Apples, the computer store should provide information; it's good business. If they don't help your Club, first check to see if some personal conflict has poisoned the relationship. If it hasn't, then do business elsewhere; a store that won't hlep a rational user group is obviously crazy.

Other ways of expanding membership include local newspapers, radio and television stations, notices on public bulletin boards, etc. If you set up your club as a "non-profit" organization, the media may allow you "public service" space or time. Be inventive, but not illegal, in spreading the word.

What Should Members Expect and What Should You Expect From Members? There are typically three types of club meetings: General meetings, Executive meetings, and Interest Group meetings. The general meeting can be held about once a month, and can have a club activities section, member announcements, and demonstrations.

Demonstrations, by the way, are a very important part of the general meeting. Some of the members develop software of which they are proud, and would like to show to other members. Another source of demonstrations is new product releases from software and hardware distributors, which local computer stores would be happy to show. You can even have a member or two review a product (old or new) to demonstrate its functions and limitations to the membership. It is possible to arrange "theme" demos around particular types of software or hardware, such as word processors, printers, "adventure" games, data bases, etc.

It's also possible to write to either the producer or distributor of hardware or software, and ask them or their local representative for a demonstration. The likelihood of agreement depends on your Club size and location, but you may be surprised at the willingness of many good firms to come and visit you, or arrange to swing off an existing trip itinerary to drop by. You **don't** have to be in California.

Don't hesitate to ask for volunteers at a general meeting. These volunteers are the people who make the club function. Whether the Club has ten or a thousand members, chances are the "worker core group" will number between five and nine. Without them, virtually nothing happens. Be sure to make the particular job "appetizing" in terms of benefits that the volunteer will derive, such as a free Disk of the Month, etc.

The governing meetings should be held a few days to a week before the General Meeting, and the agenda for that meeting made final; make sure that the demonstrations will in fact be there, etc. Other business of the Club should be discussed in a structured way; reports from offices, reports from committees, old business, new business, comments from members, etc. Remember to invite the members to attend the governing meetings; the Club is an open affair, and those who do come are likely to be your next volunteers. (Always thank someone who complains about something not being done for volunteering to help.)

Organization and Financing. A sample Constitution and By-Laws is available from the IAC Secretary, as part of the IAC membership services. The key is to have just enough organization to get the job done. Remember too that individuals get work done, not structures; don't turn 'em off with too many procedures, policies, forms, etc. On the other hand, some structure must exist. On this question, nobody else's solution will work for you.

For financing Club activities, the primary source of funds is member dues. Typically, dues of $15-25 are reasonable. Printed membership cards showing the member's name and membership expiration date are useful, particularly if you work out an arrangement with one or more stores for copying, etc. Maintain the membership list with a mailing list or data base program that can print labels; you'll need it.

It's important to maintain a good set of financial records. Without this information it will be difficult to make decisions on the expenditure of Club funds. If you don't have a handy accountant (check your membership list), investigate the possibility of hiring a local bookkeeping service as your membership passes 50 or so. And, since there are some good general ledger programs available for the Apple (remember, this is related to computers), the process is less of a problem. VisiCalc can also help you understand past performance and future projections.

What's Coming? We've scratched the surface of a number of topics, about which I'm sure you have some thoughts. Now that we're up and running, we'll discuss in future issues other facets of Club activities, including:

—Club Officers
—Committees
—Division of work load and duties
—Newsletters
—Member-developed Software
—Equipment needs
—Special Interest Groups
—Club Education Programs
—More, including your questions or comments.

From time to time, IAC member groups will be receiving information directly from the IAC on specific club activities. Please write me at the IAC address if you have a particular problem area, question, information, or warning.



(continued from page 33)

U—Prompt disappears

V—error (system beeps)

W—Write disk? (Disk drive starts to spin, "scratch disk" caused, and 82! (error).

X—Prompt disappears sometimes and the Apple /// makes a soft (barely audible) high frequency pitch change. Other times, one or two lines are listed after the current pointer (line X.Y).

The only Control characters I noticed that were useful were:

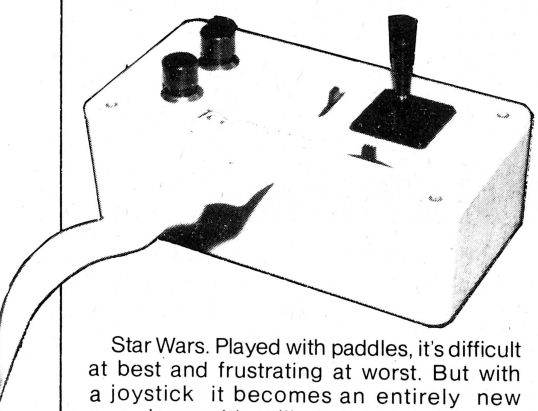
(Ctrl-X) kill currently typed line.

(Ctrl-H) Backspace.

Well, that's all I've come up with, for now. If anyone finds any new functions or features, or can explain some of the unknown functions or syntax, let us know. This is our first venture into the Apple ///'s internals. Maybe you'll enjoy using a little detective work on the system. Remember, it is this kind of inquiry that brought us many of the details of the Apple II.



Why would anyone spend $59.95 for a joystick?



Super Joystick

Star Wars. Played with paddles, it's difficult at best and frustrating at worst. But with a joystick it becomes an entirely new experience. It's still challenging. It's also fun. And very addictive.

Have you ever used a drawing program in which one paddle controls the horizontal movement of the "brush" and the other paddle the vertical? It's slow, tedious work. But with a joystick, drawing is an absolute joy.

Exceptional Precision

The Apple high-resolution screen is divided into a matrix of 160 by 280 pixels. To do precise work on this screen, you need a precise device. Most potentiometers used in paddle controls are not quite linear. If you rotate a paddle control at a constant speed, you'll notice that the cursor speeds up slightly at the beginning and end of the paddle rotation.

The Super Joystick has a pure resistive circuit which is absolutely linear within one tenth of one percent. In other words it would give you precise control over an image of 1000 by 1000 pixels, were such resolution available. Thus it is suitable for high precision professional applications as well as educational and hobbyist ones.

Matched to your application

The Super Joystick also has two external trim adjustments, one for each direction. This allows you to perfectly match the unit to your application and computer. Say you want to work in a square area instead of the rectangular screen. Just reduce the horizontal size with the trim control.

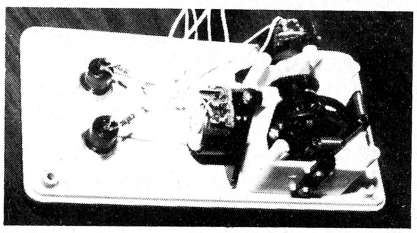
How many times have you played Space Invader and had your thumb ache for hours from the repeated button pressing? This won't happen with the Super Joystick. It's two pushbuttons are big. Moreover, they use massive contact surfaces with a life of well over 1,000,000 contacts. A few games of Super Invader using these big buttons will justify the purchase of the Super Joystick.

The Super Joystick is self-centering in both directions. That means when you take your hand off it, the control will return to the center. However, if you want it to stay where you leave it, self-centering may be easily disabled.

The Super Joystick plugs right into the paddle control socket and doesn't require an I/O slot.

High-quality construction

The sturdy metal case of the Super Joystick matches that of the Apple computer. Every component used is the very highest quality available. The Super Joystick even uses a full 16-conductor ribbon cable so you can add a second joystick if you wish. The first Super Joystick replaces Paddles 0 and 1. You may not realize it, but the Apple can support four paddle controls. A second Super Joystick would replace Paddles 2 and 3.



By removing two springs, self-centering can be defeated.

We invite your comparison of the Super Joystick with any other unit available. Order it and use it for 30 days. If you're not completely satisfied, return it for a prompt and courteous refund plus your return postage. You can't lose.

The Super Joystick consists of a self-centering, linear joystick, two trim controls, and two pushbuttons mounted in an attractive case. It comes complete with an instruction booklet and 90-day limited warranty. Cost is $59.95.

Order Today

To order the Super Joystick send $59.95 plus $2.00 postage and handling (NJ residents add $3.00 sales tax) to our address below.

Experience the joys of using the world's finest joystick. Order your Super Joystick at no obligation today.

Peripherals Plus

39 East Hanover Ave.
Morris Plains, NJ 07950
Toll-free **800-631-8112**
(In NJ 201-540-0445)

Super Paddle

Are the paddle controllers on your Apple wearing out? Or did you get a new Apple without paddles?

We've got good news for you! Super Paddles. Each paddle control consists of a high-precision linear potentiometer and a big (1/2" D) industrial-quality pushbutton mounted in a sturdy 4" x 2" x 1" metal case which matches the Apple. Each of the two paddles is connected with a long 5-foot cable to the Apple paddle socket.

Every component in a set of Super Paddles is the very finest quality available. The set is backed by a 90-day limited warranty from the manufacturer as well as Peripherals Plus' moneyback guarantee of satisfaction.

To order, send $39.95 plus $2.00 postage and handling (NJ residents add $2.00 sales tax) to the address below. Credit card customers may call orders to our toll-free number.

Peripherals Plus

39 East Hanover Ave.
Morris Plains, NJ 07950
Toll-free **800-631-8112**
(In NJ 201-540-0445)

FREE 48-Page Catalog

A new, free 48-page catalog is free from Creative Computing and Peripherals Plus. To help buyers make intelligent purchasing decisions, the product descriptions are exceptionally comprehensive and include screen photos in the software section.

The catalog describes 20 books on programming, games, and educational applications; 160 software packages for Apple, Atari, TRS-80, PET, CP/M, TI, Sorcerer and Sol computers; 3 magazines (*Creative Computing*, *Microsystems*, and *SYNC*); 5 graphics and music peripherals; an LP record; board game; 8 T-shirts and an eclectic assortment of other products for the personal computer user.

To get your free copy, simply drop a card or note to the address below.

creative computing
Attn: Debbie

39 East Hanover Avenue
Morris Plains, NJ 07960

IAC MEMBERSHIP INFORMATION

The International Apple Core is a non-profit organization composed of Apple computer user groups throughout the world. Membership is available to user groups as Full Members, to companies and individuals as Sponsors, and to educational and charitable institutions as Associates. Details of memberships are described below.

The IAC was formed to disseminate all types of information from Apple clubs and the related computer industry. Our publication, the **Apple Orchard,** provides the latest and best information on a quarterly basis. Membership includes a subscription. Members also receive technical information in the form of Apnotes. These cover Apple Computers, related equipment, and related products from other manufacturers. Timely and fast-breaking news is covered in our monthly Bulletin.

FULL MEMBERSHIP

Apple user clubs are the principle reason for the IAC's existence today. We provide them many services beyond information dissemination. A newsletter exchange coordinator facilitates newsletter swapping between clubs. Our software librarian collects and distributes public domain software. Depending on the software's availability, new diskettes are sent out as frequently as once a month. We support special interest groups which our member clubs cannot: education, handicapped, medical, ham radio, and legal SIG's are examples. The **Orchard** publishes a complete list of our member clubs so that interested users may easily get in touch. There is even a committee just to help new Apple clubs get started.

As a Full Member, your club will be able to participate in the election of IAC Directors. Directors provide an important link between member clubs and the IAC. As your representatives they set the IAC's policies and guide its administration. When schedules permit, the Directors and Officers are available to meet with clubs for personal input and exchange of ideas.

Full Membership is open to all Apple Computer User Groups. The combined initiation fee and annual dues will be $50.00 (U.S.) for 1981. To enroll your club, simply return a completed application form with your first year's dues.

SPONSORS

Manufacturers having business related to Apple Computers need timely access to information that the IAC distributes. In addition many will seek access to the IAC membership for business interests, either to promote a product or to conduct market research. The Sponsoring membership is tailored to meet commercial interests.

In addition to the information sent to all members, Sponsors receive several benefits. Up to date mailing lists of our membership will be sent on request. Sponsors are given preferential placement of their advertising in the **Orchard.** Also, Sponsors are listed in each issue of the **Orchard.** Sponsors are welcome to participate in all the activities of the IAC, and are encouraged to explore marketing potential with the IAC administration.

The Sponsoring membership is open to all corporations and individuals that wish it. The annual membership fee during 1981 has been set at $200. Membership extends for a full 12 months.

ASSOCIATE MEMBERSHIPS

The Associate Membership was created to help educational, research, and charitable institutions that have an interest in Apple Computers but cannot join the IAC for financial reasons. Associate members receive only the printed materials sent to all members. If software and other additional IAC services are desired, the institution is encouraged to organize a user group which may apply for Full Membership.

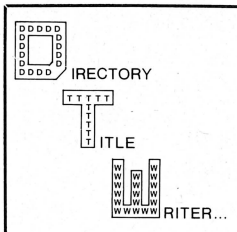
The Associate Membership is open only to non-profit institutions at no cost. Membership applications must be accompanied by evidence that the institution is non-profit. If the membership will be care of an individual, evidence must be provided that the individual represents the entire institution to the IAC. Pease submit whatever you feel is appropriate to demonstrate these requirements. Due to the diversity of institutions and countries, the IAC cannot set any fast rules. Associate Membership applications will be judged on their merit by the IAC President.

For information on becoming a member of IAC please write:

International Apple Core
P.O. Box 976
Daly City, CA 94017

(continued from page 44)

```
  FOR i := 1 to LENGTH(InFile) DO
     IF InFile[I] IN ['a'..'z'] THEN
        InFile[i] := chr(ord(InFile[i]) - 32 );

{ Open the DOS file and make sure it worked }

  if NOT OPENDOS(catunit,InFile) { Get a file }
     then EXIT(readdos);
  WRITELN('Transferring file ');
  IF filelock THEN WRITE('*')
     ELSE WRITE(' ');
  WRITE  (realfiletype,' ');
  WRITE  (filelength:3,' ');
  WRITELN(filename);
  WRITELN;
{ Get output file name and open it  }

  WRITE('Transfer to:  (DEV:FNAME)? ');
  READLN(OutFile);
  IF length(OutFile) = 0 THEN EXIT(readdos);
  REWRITE(fout,OutFile);

{ notify the user that we are doing something so }
{  they will not get impatient and start pushing }
{  buttons (like reset)                          }

  WRITELN('Wait a while. I will notify you');
  WRITELN(' when the transfer is complete');

{ Read the Address and Length and put them on the}
{  first two lines if (and only if) this is a 'B'}
{  file (binary).                                }
{ This takes care of Binary files that hold text }
{  If you want to do something else, you can     }
{  change this part.                             }

  IF realfiletype = 'B' THEN BEGIN
     WRITELN(fout,ReadByteDOS+
                  ReadByteDOS*256);
     WRITELN(fout,ReadByteDOS+
                  ReadByteDOS*256);
    END;

{ Read the file and write it to the desired unit }

  REPEAT
     WRITE(fout,ReadCharDOS);
  UNTIL EOFDOS or (ERRDOS <> 0);

{ Well, thats all folks ...                      }
{ So... close up the files and tell 'em we're through }

  CLOSE_DOS;

  CLOSE(fout,LOCK);
  WRITELN('Your file is converted ... ');
  WRITELN('Push (RETURN) button to continue');
  READLN(ans);

END.
```

$20
POSTPAID
INCLUDING
DOCUMENTATION

A DISK UTILITY
BY VAL J. GOLDING

- Creates Fancy File Names in Seconds
- Enter Flash, Inverse, Etc. from Keyboard
- Modify Anything in a Catalog
- Many other unique features

UTILITIES
4147-0 California Ave. S.W.
Seattle, Wa 98116

SPECIFY DOS 3.2 or 3.3 WHEN ORDERING

*COPY PROTECTED DISKETTE
* BACK UP ON REVERSE*

INTERNATIONAL APPLE CORE SPONSORING MEMBERS

IAC Sponsors are a special breed. They are the organizations who contribute to and support many IAC activities. In addition, they provide us application notes concerning their products—notes that show new and different ways to utilize the Sponsors' products with modifications for special purposes. When you consider a software or product purchase, give our sponsors special consideration; they have shown that they care about their customers.

Apple Computer Inc.
10260 Bandley Drive
Cupertino, CA 95014
(408) 996-1010

Axiom Corporation
1014 Griswold Avenue
San Fernando CA 91340
(213) 365-9521

Belk Enterprises
125 E. Alton Avenue
Santa Ana, CA 92707
(714) 641-0945

Bell & Howell
7100 McCormick Road
Chicago, IL 60645
(312) 262-1600

Compuserve-Micronet
5000 Arlington Centre Blvd.
Columbus, OH 43220
(614) 457-8600

Creative Computing
39 E. Hanover Avenue
Morris Plains, NJ 07960
(201) 540-0445

Custom Computing Systems, Inc.
122 Second Avenue North
Saskatoon, Sask. Canada
S7K 2B2
(306) 664-8933

dilithium Press
P.O. Box 606
Beaverton, OR 97075
(503) 243-1160

Epson America, Inc.
23844 Hawthorne Blvd.
Torrance, CA 90505
(213) 378-2220

Hayes Microcomputer Products
5835 Peachtree Corners East
Norcross, GA 30092
(404) 449-8791

Image Computer Products, Inc.
615 Academy Drive
Northbrook, IL 60062

Interactive Structures, Inc.
P.O. Box 404
Bala Cynwyd, PA 19004
(215) 667-1713

Malibu Electronics Corp.
2301 Townsgate Road
Westlake Village, CA 91361
(805) 469-1990

Mountain Computer, Inc.
300 Harvey West Blvd.
Santa Cruz, CA 95060

Nestar Systems, Inc.
2585 East Bayshore Road
Palo Alto, CA 94303
(415) 493-2223

Okidata Corporation
111 Gaither Drive
Mt. Laurel, NJ 08054
(609) 235-2600

Peachtree Software
3 Corporate Square, Suite 700
Atlanta, GA 30329
(404) 325-8533

Peripherals Unlimited
2105 Sheriff Court
Vienna, VA 22180

Siro-tech Software Products
6 Main Street
Ogdensburg, NY 13669
(315) 393-5151

Source Telecomputing Corp.
1616 Anderson Road
McLean, VA 22102
(703) 821-6660

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

Syntauri, Ltd.
3506 Waverly Street
Palo Alto, CA 94306
(415) 494-1017

Verbatim Corporation
323 Soquel Way
Sunnyvale, CA 94086
(408) 245-4400

Vista Computer Company
1317 E. Edinger Street
Santa Ana, CA 92705
(714) 953-0523

Xerox Retail Markets Div.
7700 Edgewater Drive, Suite 306
Oakland, CA 94621
(415) 632-5808

(For information on Sponsoring Membership in the IAC, write to: Sponsors, IAC, P.O. Box 976, Daly City, CA 94017).



INTERNATIONAL APPLE CORE MEMBER CLUB ROSTER

6/81

This roster of member clubs is directed primarily at **Apple Orchard** readers who either currently don't belong to any Club, or who are looking for additional sources of information. The roster is arranged alphabetically by country and state/province. In addition, some clubs have a membership, publication and/or software services which go beyond local geographic boundaries. Readers may wish to contact these Clubs and request a sample newsletter. If you do, we recommend enclosing a check for two dollars to cover their postage and handling costs.

AUSTRALIA

EMU
Box 3143, G.P.O.
Sydney 2001, NSW Australia

APPLE USER'S CLUB
8 Leemon Street
Condell Park, NSW Australia 2200

W.A.U.G.
P.O. Box 19
Wondai, Queensland
Australia 4606

S. AUSTRALIAN APPLE USERS CLUB
c/o Computerland, 125 Pirie St.
Adelaide, So. Australia 5000

TAS APPLE USERS CLUB
422 Elizabeth St.
North Hobart, Tasmania
Australia 7000

MICOM
P.O. Box 60
Canterbury, Victoria
Australia 3126

APPLE USERS CLUB WESTERN AUSTRALIA
269 Marmion St.
Cottlesloe, W. A.
Australia 6011

AUSTRIA

APPLE USER CLUB AUSTRIA
P.O. Box 51
A-1181 Wien, Austria 0

BRAZIL

BRAZIL APPLE CLUBE
Rua Maestro Pena 90
Porto Allegre, Brazil 90 000

CANADA

APPLE B. C. USERS SOCIETY
101-2044 West Third Avenue
Vancouver, B.C. Canada

OTTAWA 6502 USERS GROUP
P. O. Box 6283 Station J
Ottawa, Ont. Canada K2A IT3

APPLE-CAN
P.O. Box 696 Station B
Willowdale, Ont. Canada M2K 2P9

BOLO/UB APPLE CLUB
1208 Patenaude #3
Laval, Que. Canada H76 3H2

CLUB APPLE DE MONTREAL
32 Avenue Des Erables
St. Therese DE Bl Que.
Canada J7E 3T4

CLUB DE MICRO-ORDINATEUR ST. JEAN
P.O. Box 21
St. Jean, Que. Canada J3B 6Z1

SASK-APPLE RESEARCH GROUP
P.O. Box 291 Sub. P.O. #6
Saskatoon, Sask. Canada S7N 0W0

COLOMBIA

GRUPO USARIOS APPLE DE COLUMBIA
A.A 91226
Bogota, Columbia

ENGLAND

BRITISH APPLE SYSTEMS USER GROUP
P.O. Box 174
Watford, England WD2 6NF

MIDDLESEX MED SCH APPLE CLUB
Cleveland St.—Physics Dept.
London, England W1P 6DB

FRANCE

OEDIP—APPLE
8 Place Ste. Opportune
Paris, France 75001

GERMANY (Federal Republic)

APPLE OF EUROPE
P.O. Box 4068
Hattingen, West Germany D-4320

APPLE CLUB FRANKFURT
Schweizer Str. 92
Frankfurt/M.70,
W. Germany D-6000

APPLE CLUB ROEDINGHAUSEN
Wehmerhorstsr.110
Roedinghausen, Germany D-4986

HONG KONG

HONG KONG APPLE
c/o Delta Communication
15 Cumberland Road, Rear Portion
Kowloon Tong, Hong Kong

HONG KONG APPLE DRAGON
101 Fu House, 7 Ice House St.
Hong Kong

INDONESIA

JAKARTA APPLE CORE
International School Computer Dept.
P.O. Box 79/KBT
Jakarta Selatan, Indonesia

IRELAND

APPLE USERS—DUBLIN
51 Lower Camden St.
Dublin 2, Ireland

ISRAEL

YEDA-NIKUV COMPUTERS
12 Karlibach St.
Tel Aviv, Israel 0

ITALY

MELA-MANIA APPLE USER CLUB
Cappello Via Monte Pelago 2
Ancona, Italy 60100

JAPAN

DEPARTMENT OF ORTHOPEDIC SURGERY
Takatoshi Ide-Kurume U. Sch. Medicine
1167 Asahi-Machi, Kurume
Fukouka, Japan

BAKED APPLE
Miyadaira Apts. No. 1; 1575 Sugao
Takatsu-Ku, Kawasaki-Shi
Kangawa, Japan

APPLE BUGS
20-29 Banchi Yamate-Cho 1 Chome
Suita City, Osaka, Japan

NEPAL

APPLE USERS
c/o Gerold V. Van Der Vlugt, M.D.
Kathmandu (ID)
Department of State
Washington, D.C. 20520

MALAYSIA

APPLE ORCHARD
Batu 3, Jalan Cheras
Kuala Lumpur, Malaysia

NETHERLANDS

APPLE GEBRUIKERS GROEP NEDERLAND
Bergselaan 145A
Rotterdam, Netherlands

NEW ZEALAND

NZ GROUP OF APPLE USERS
90 Washington Ave.
Brooklyn 2, New Zealand

PHILLIPINES

APPLE P. I.
3rd Floor, Liberty Bldg., Pasay Rd.
Makati/Manila, Phillipines 3116

SCOTLAND

APPLE—EDEN
10 Seton Terrace
Glasgow, Scotland G31 2HU

SOUTH AFRICA

TAC2 APPLE USERS GROUP
P.O. Box 87421
Houghton, South Africa 2041

SPAIN

CATALUNYA APPLE CLUB
Fabra y Puig 389 E/4
Barcelona-31, Spain

SWEDEN

APPLE USERS GROUP SWEDEN
Norra Valvagen 24
Kristianstad, 291 32 Sweden

THE MAILING LABEL AND FILING SYSTEM

From Avant-Garde Creations **only $24.95 ppd.**

This unique system will handle both your filing needs and your mailing label needs.

It's uniqueness starts with user-determined variables (up to 10 options) and continues with a special COUNT/SORT routine that allows the user to sort up to 9 VALUES for each of any 9 (out of 18) variables. It will print mailing labels, do a regular print-out or just display the criteria-meeting records while it counts them. It will also range-sort for 3 particular variables.

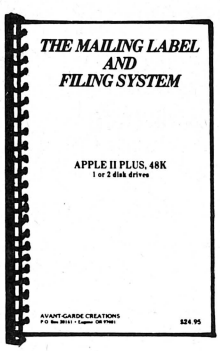
It makes an alphabetized directory of names and record numbers. You can find records by name or by numbers in seconds. If you don't know the exact spelling there's a quick-find option for directory-reading.

You can customize your labels and print up to 6 lines of your variables on them.

It includes special quick-copy and backup programs.

An easy to use system, brimming with options and dynamics, which ends the need for separate filing and mailing label programs.

Includes 40-page program manual and disk. APPLE II PLUS, 48K, one or two disk drives.



$24.95 ppd.
We accept VISA/Mastercharge

Write for our detailed brochure and more information:

Avant-Garde Creations
P.O. Box 30160
Eugene, OR 97403
Dept. ao
503-345-3043
Noon to 6 pm.

AVANT-GARDE CREATIONS HAS SOFTWARE

Over 50 disks available in areas of education, art/design, games, business, utilities, and self-transformation!

WRITE FOR CATALOGS

The Creativity Tool Box Draw, write poetry, music. Includes Action Sounds, Hi-Res Scrolling, routines, shape tables and shape view program, utilities, animation demo, and fonts. **$44.95**
"...impressive...satisfying...interesting...fun!" Peelings (The Magazine of Software Reviews)
"Truly different...unique...the program is an enjoyable one...cute...very interesting...new...nice...a good value! Apple Orchard (Winter)

WE HAVE MORE!

Chambers of Xenobia A new adventure game with Hi-Res & sounds **$15.95**
5 Great Games! Animal Bingo, Jungle Safari, Space Defense, Sky Watcher, Air Traffic Controller **$29.95** (or $9.95 each)
5 More Great Games! Deep Sea Treasure, Mystery Code, Depth Charge, The Mine Fields of Normalcy, Turn 'Em Loose **$29.95** (or $9.95 each)
The Complete Mailing Label & Filing System Filing, label-making, binary sort, dynamic sorting, directory, quick-find, formatted reports, character code sorts, zip or alphabetical order, two-level sorting and more! **$59.95** (4 disks and 3 manuals)
Sentence Diagramming Educational, grades 6-12 **$19.95**
Action Sounds & Hi-Res Scrolling Designed to give your program the excitement of **action & sound** **$15.95**
Super Draw & Write Fonts, drawing, and useful utilities **$15.95**
Super Shape Draw & Animate The best system yet, it works... create and/or animate shape tables like a dream... **$34.95**
Demo Disk I Some of our best stuff **$9.95**
Demo Disk II More of our best **$9.95**
***And Introducing:* The Zenith Education Systems**
Easy-to-use programs designed to aid in creation, modification, monitoring and grading lesson material. *Demonstration package available for $10.00 (includes 2 disks and a booklet)* Complete Z.E.S.System **$250.00**

ALL OF OUR SOFTWARE IS WRITTEN IN APPLESOFT*, 48K, DISK

DEPT. AO
AVANT-GARDE CREATIONS
P.O. Box 30160 Eugene, OR 97403
(503) 345-3043 (12pm-6pm 7 days a week)

DEALER INQUIRIES INVITED
VISA/MASTERCARD

*Apple is a trademark of Apple Computer, Inc.

SWITZERLAND

MICROCLUB
A. Rte. Villeret 48
St. Imier, Switzerland CH 2610

VENEZUELA

APPLE USERS OF PARAGUANA
G. sanderson—c/o Lagoven S.A.
Apt. 47
Judibana; Falcon
Venezuela 4147A

YUGOSLAVIA

APPLE CLUB ZAGREB
Ruzmarinka 5, 41000
Zagreb, Yugoslavia 0

UNITED STATES OF AMERICA

Alabama

APPLE CORPS OF BIRMINGHAM
P.O. Box 3321-A
Birmingham, AL 35255

NEWTON'S TREE APPLE USER GROUP
3714 Lakewood Circle
Huntsville, AL 35811

QUAD CITIES APPLE BYTERS
129 E. Oak Hill Drive
Florence, AL 35630

Arkansas

LITTLE ROCK APPLE ADDICTS
P.O. Box 55215 Hillcrest Sta.
Little Rock, AR 72205

Arizona

ADAM-II
P.O. Box 34056
Phoenix, AZ 85206

TUCSON APPLE USERS GROUP
Pima College
2202 W. Anklam Rd.
Tucson, AZ 85709

GILA VALLEY APPLE GROWERS ASS'N.
c/o Synergistics, P.O. Box 1077
Thatcher, AZ 85552

MOUNTAIN VIEW APPLE USERS GROUP
1923 Viola Drive
Sierra Vista, AZ 85635

APPLE C.A.R.T.
P.O. Box 2361
Page, AZ 86040

California

HFEA APPLE COMPUTER USERS GROUP
417 Meadowbrook Place
Anaheim, CA 92801

PLACER COUNTY ED. FILM CEN.
1228 High Street
Auburn, CA 95603

APPLE BUG
4509 Millbrook Way
Bakersfield, CA 93309

LERC ACES
P.O. Box 551
Burbank, CA 91520

TRI-NETWORK APPLE USERS GROUP
8041 Sadring
Canoga Park, CA 91304

AEROSPACE APPLE USER GROUP
28901 Lotusgarden Dr.
Canyon Country, CA 91351

HESEA APPLE COMPUTER CLUB
21111 Dolores #146
Carson, CA 90745

ABACUS USER GROUP
2850 Jennifer Drive
Castro Valley, CA 94546

ORIGINAL APPLE CORPS
12804 Magnolia
Chino, CA 91710

APPLE FOR THE TEACHER
5848 Riddio St.
Citrus Heights, CA 95610

E V A C
250½ W. Center, Apt. B
Covina, CA 91723

APPLE VALLEY COMPUTER CLUB
4900 Newcastle
Encino, CA 91316

UCLA APPLE USERS GROUP
17565 Bullock St.
Encino, CA 91316

APPLE SAC
P.O. Box 874
Fairoaks, CA 95628

RIDGECREST APPLE GROUP
Star Rt. Box 109E
Inyokern, CA 93527

S.P.A.C.E.
4546 El Camino Real
Los Altos, CA 94022

L.A. APPLE USERS GROUP
9513 Hindry Pl.
Los Angeles, CA 90045

JPL COMPUTER/APPLE CLUB
24575 Spartan St.
Mission Viejo, CA 92691

SILICON APPLE PROGRAMMERS SOC.
18138 Bancroft Ave.
Monte Sereno, CA 95030

NORTH COUNTY COMPUTER CLUB
2521 Oceanside Blvd.
Oceanside, CA 92054

APPLE CORPS OF SAN DIEGO
279 Satinwood Way
San Diego, CA 92114

SAN FRANCISCO APPLE CORE
1515 Sloat Blvd.
San Francisco, CA 94132

BLOSSUM VALLEY APPLE CLUB
5821 Cottle Road
San Jose, CA 95123

APPLE MUG
c/o Med Logic Systems
2030 E. 4th St. #133
Santa Ana, CA 92705

SANTA BARBARA APPLE USERS GROUP
2007 State St.
Santa Barbara, CA 93105

APPLE P.I.E.
337 Montclair
Santa Clara, CA 95051

SANTA CRUZ APPLE GROUP
P.O. Box 1428
Santa Cruz, CA 95061

S.M.A.L. APPLE
223 S. Broadway
Santa Maria, CA 93454

SOURCE APPLE USERS GROUP
2525 Beverly Ave. #9
Santa Monica, CA 90405

APPLEPICKERS
P.O. Box 4208
Santa Rosa, CA 95402

APPLE PI
171 E. Thousand Oaks Blvd.
Ste. 104
Thousand Oaks, CA 91360

APPLE JACKS
4818 Reese Road
Torrance, CA 90505

SOUTH BAY APPLES COMPUTER CLUB
506 Ridgewood Dr.
Vacaville, CA 95688

APPLEHOLICS ANONYMOUS
c/o Byte Shop, 155 Morse Ave.
Ventura, CA 93003

(continued on page 80)

The Newest In

Apple Fun

We've taken five of our most popular programs and combined them into one tremendous package full of fun and excitement. This disk-based package now offers you these great games:

Mimic—How good is your memory? Here's a chance to find out! Your Apple will display a sequence of figures on a 3×3 grid. You must respond with the exact same sequence, within the time limit.

There are five different, increasingly difficult versions of the game, including one that will keep going indefinitely. Mimic is exciting, fast paced and challenging—fun for all!

Air Flight Simulation—Your mission: Take off and land your aircraft without crashing. You're flying blind —on instruments only.

A full tank of fuel gives you a maximum range of about 50 miles. The computer will constantly display updates of your air speed, compass heading and altitude. Your most important instrument is the Angle of Ascent/Bank Indicator. It tells if the plane is climbing or descending, whether banking into a right or left turn.

After you've acquired a few hours of flying time, you can try flying a course against a map or doing aerobatic maneuvers. Get a little more flight time under your belt, the sky's the limit.

Colormaster—Test your powers of deduction as you try to guess the secret color code in this Mastermind-type game. There are two levels of difficulty, and three options of play to vary your games. Not only can you guess the computer's color code, but it will guess yours! It can also serve as referee in a game between two human opponents. Can you make and break the color code...?

Star Ship Attack—Your mission is to protect our orbiting food station satellites from destruction by an enemy star ship. You must capture, destroy or drive off the attacking ship. If you fail, our planet is doomed...

Trilogy—This contest has its origins in the simple game of tic-tac-toe. The object of the game is to place three of your colors, in a row, into the delta-like, multi-level display. The rows may be horizontal, vertical, diagonal and wrapped around, through the "third dimension". Your Apple will be trying to do the same. You can even have your Apple play against itself!

Minimum system requirements are an Apple II or Apple II Plus computer with 32K of memory and one minidisk drive. Mimic requires Applesoft in ROM, all others run in RAM or ROM Applesoft.

Order No. 0161AD $19.95

Solar Energy For The Home

With the price of fossil fuels rising astronomically, solar space-heating systems are starting to become very attractive. But is solar heat cost-effective for you? This program can answer that question.

Just input this data for your home: location, size, interior details and amount of window space. It will then calculate your current heat loss and the amount of gain from any south facing windows. Then, enter the data for the contemplated solar heating installation. The program will compute the NET heating gain, the cost of conventional fuels vs. solar heat, and the calculated payback period—showing if the investment will save you money.

Solar Energy for the Home: It's a natural for architects, designers, contractors, homeowners...anyone who wants to tap the limitless energy of our sun.

Minimum system requirements are an Apple II or Apple II Plus with one disk drive and 28K of RAM. Includes AppleDOS 3.2.

Order No. 0235AD (disk-based version) $34.95

Math Fun

The Math Fun package uses the techniques of immediate feedback and positive reinforcement so that students can improve their math skills while playing these games:

Hanging—A little man is walking up the steps to the hangman's noose. But YOU can save him by answering the decimal math problems posed by the computer. Correct answers will move the man down the steps and cheat the hangman.

Spellbinder—You are a magician battling a computerized wizard. In order to cast death clouds, fireballs and other magic spells on him, you must correctly answer problems involving fractions.

Whole Space—Pilot your space craft to attack the enemy planet. Each time you give a correct answer to the whole number problems, you can move your ship or fire. But for every wrong answer, the enemy gets a chance to fire at you.

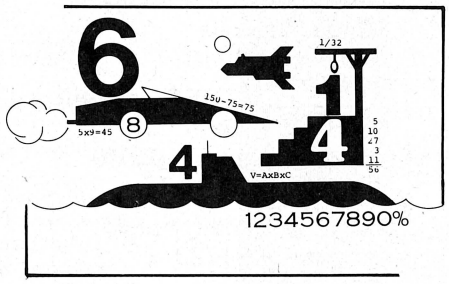
Car Jump—Make your stunt car jump the ramps. Each correct answer will increase the number of buses your car must jump over. These problems involve calculating the areas of different geometric figures.

Robot Duel—Fire your laser at the computer's robot. If you give the correct answer to problems on calculating volumes, your robot can shoot at his opponent. If you give the wrong answer, your shield power will be depleted and the computer's robot can shoot at yours.

Sub Attack—Practice using percentages as you maneuver your sub into the harbor. A correct answer lets you move your sub and fire at the enemy fleet.

All of these programs run in Applesoft BASIC, except Whole Space, which requires Integer BASIC.

Order No. 0160AD $19.95



Skybombers

Two nations, seperated by The Big Green Mountain, are in mortal combat! Because of the terrain, their's is an aerial war—a war of SKYBOMBERS!

In this two-player game, you and your opponent command opposing fleets of fighter-bombers armed with bombs and missiles. Your orders? Fly over the mountain and bomb the enemy blockhouse into dust!

Flying a bombing mission over that innocent looking mountain is no milk run. The opposition's aircraft can fire missiles at you or you may even be destroyed by the bombs as they drop. Desperate pilots may even ram your plane or plunge into your blockhouse, suicidally.

Flight personnel are sometimes forced to parachute from badly damaged aircraft. As they float helplessly to earth, they become targets for enemy missiles.

The greater the damage you deal to your enemy, the higher your score, which is constantly updated at the bottom of the display screen.

The sounds of battle, from exploding bombs to the pathetic screams from wounded parachutists, remind each micro-commander of his bounden duty. Press On, SKYBOMBERS—Press On!

Minimum system requirements: An Apple II or Apple II Plus, with 32K RAM, one disk drive and game paddles.

Order No. 0271AD (disk-based version) $19.95



Paddle Fun

This new Apple disk package requires a steady eye and a quick hand at the game paddles! It includes:

Invaders—You must destroy an invading fleet of 55 flying saucers while dodging the carpet of bombs they drop. Your bomb shelters will help you—for a while. Our version of a well known arcade game! Requires Applesoft in ROM.

Howitzer—This is a one or two person game in which you must fire upon another howitzer position. This program is written in HIGH-RESOLUTION graphics using different terrain and wind conditions each round to make this a demanding game. The difficulty level can be altered to suit the ability of the players. Requires Applesoft in ROM.

Space Wars—This program has three parts: (1) Two flying saucers meet in laser combat—for two players, (2) two saucers compete to see which can shoot out the most stars—for two players, and (3) one saucer shoots the stars in order to get a higher rank—for one player only. Requires Applesoft.

Golf—Whether you win or lose, you're bound to have fun on our 18 hole Apple golf course. Choose your club and your direction and hope to avoid the sandtraps. Losing too many strokes in the water hazards? You can always increase your handicap. Get off the tee and onto the green with Apple Golf. Requires Applesoft.

The minimum system requirement for this package is an Apple II or Apple II Plus computer with 32K of memory and one minidisk drive.

Order No. 0163AD $19.95

Instant Software™

*A trademark of Apple Computer Inc.

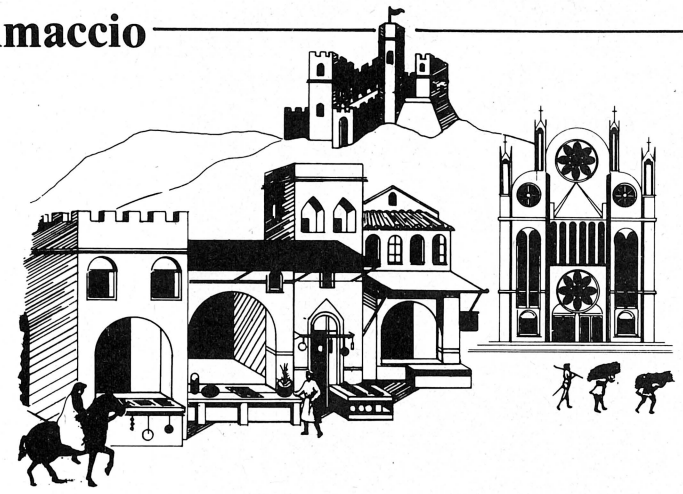
PETERBOROUGH, N.H. 03458
603-924-7296

Apple* Software
From Instant Software

Santa Paravia and Fiumaccio

Buon giorno, signore!

Welcome to the province of Santa Paravia. As your steward, I hope you will enjoy your reign here. I feel sure that you will find it, shall we say, profitable.



Perhaps I should acquaint you with our little domain. It is not a wealthy area, signore, but riches and glory are possible for one who is aware of political realities. These realities include your serfs. They constantly request more food from your grain reserves, grain that could be sold instead for gold florins. And should your justice become a trifle harsh, they will flee to other lands.

Yet another concern is the weather. If it is good, so is the harvest. But the rats may eat much of our surplus and we have had years of drought when famine threatened our population.

Certainly, the administration of a growing city-state will require tax revenues. And where better to gather such funds than the local marketplaces and mills? You may find it necessary to increase custom duties or tax the incomes of the merchants and nobles. Whatever you do, there will be far-reaching consequences...and, perhaps, an elevation of your noble title.

Your standing will surely be enhanced by building a new palace or a magnificent *cattedrale*. You will do well to increase your landholdings, if you also equip a few units of soldiers. There is, alas, no small need for soldiery here, for the unscrupulous Baron Peppone may invade you at any time.

To measure your progress, the official cartographer will draw you a *mappa*. From it, you can see how much land you hold. how much of it is under the plow and how adequate your defenses are. We are unique in that here, the map IS the territory.

I trust that I have been of help, signore. I look forward to the day when I may address you as His Royal Highness, King of Santa Paravia. *Buona fortuna* or, as you say, "Good luck". For the Apple 48K.

Order No. 0174A $9.95 (cassette version).
Order No. 0229AD $19.95 (disk version).

TO ORDER

SEE YOUR LOCAL INSTANT SOFTWARE DEALER OR USE THE ORDER FORM BELOW

For Fast Service *call now* Toll-Free 1-800-258-5473

Apple Cassettes

0018A Golf $7.95
0025A Mimic $7.95
0040A Bowling/Trilogy $7.95
0073A Math Tutor I $7.95
0079A Oil Tycoon $9.95
0080A Sahara Warriors $7.95
0088A Accounting Assistant $7.95
0094A Mortgage w/Prepayment Option/ Financier $7.95
0096A Space Wars $7.95
0098A Math Tutor II $7.95
0174A Santa Paravia and Fiumaccio $9.95
0148A Air Flight Simulation $9.95

We Guarantee It!

Instant Software Guarantee

OUR PROGRAMS ARE GUARANTEED TO BE QUALITY PRODUCTS. IF NOT COMPLETELY SATISFIED YOU MAY RETURN THE PROGRAM WITHIN 60 DAYS. A CREDIT OR REPLACEMENT WILL BE WILLINGLY GIVEN FOR ANY REASON.

500

Name _____

Address _____

City _____ State _____ Zip _____

☐ Check ☐ Money Order ☐ VISA ☐ AMEX ☐ Master Charge

Card No. _____ Exp. Date _____

Signed _____ Date _____

Order your Instant Software today!

Quantity	Order No.	Program name	Unit cost	Total cost
		Shipping and handling		$1.00
			Total order	

Instant Software™ Inc.
Peterborough, N.H. 03458

(continued from page 77)

APPLE CREEK
1815 Ygnacio Valley Rd.
Walnut Creek, CA 94598

APPLE PEELERS
340 N. Civic Dr., Apt. 503
Walnut Creek, CA

Colorado

APPLE PI USERS GROUP
P.O. Box 17467
Denver, CO 80217

SOUTH COLORADO APPLE USERS
1635 S. Prarie
Pueblo, CO 81005

Connecticut

NEW LONDON APPLE USERS GROUP
130 Jefferson Ave.
New London, CT 06320

APPLELIST
50 Ida Lane
W. Haven, CT 06516

APPLE USERS OF WESTPORT
1439 Post Road East
Westport, CT 06880

Delaware

G R A P E
P.O. Box 8904
Newark, DE 19711

Florida

S C A T
P.O. Box 7488
Clearwater, FL 33518

A.C.E.S.
P.O. Box 9222
Coral Springs, FL 33065

APPLE JAX
1021 King St.
Jacksonville, FL 32204

APPLE USERS CORE
307 Tarpon Rd.
Mary Esther, FL 32569

APPLE PI OF BREVARD
P.O. Box 327
Melbourne, FL 32901

M A U G
2300 NW 135 St.
Miami, FL 33167

S M A U G
10201 Fontainebleu Blvd. #206
Miami, FL 33172

SPACE COAST APPLE USER GROUP
P.O. Box 4332
Patrick AFB, FL 32925

SUN COAST COMPUTER ASS'N.
P.O. Box 15294 Southgate PO
Sarasota, FL 33579

Georgia

ATLANTA SOC. OF PROF. APPLE USERS
6600 Powers Ferry Rd., Suite 220
Atlanta, GA 30339

S E A
3258 Powers Ferry Rd.
Marietta, GA 30067

Hawaii

H.A.U.S.
P.O. Box 91
Honolulu, HI 96810

Idaho

A.B.U.G.
2213 Targee #5
Boise, ID 83705

P.I.N.E. APPLES
1855 Jean St.
Pocatello, ID 83201

Illinois

C.A.C.H.E.
18W 145 Bel Air Court
Darien, IL 60559

CRAB-APPLES
P.O. Box 437
DeSoto, IL 62924

APPLE USERS—NU
Mathematics Dept.
Northwestern University
Evanston, IL 60201

S L A C C
2445 Cleveland
Granite City, IL 62040

D.A.T.A.
5048 Pebble Creek Trail
Loves Park, IL 61111

NW SUBURBAN APPLE USERS
1300 S. Elmhurst Rd.
Mt. Prospect, IL 60056

DUPAGE APPLE USERS GROUP
10 S. 592 Windjammer
Napierville, IL 60540

CENTRAL ILLINOIS APPLE (CIA)
1023 W. Hudson
Peoria, IL 61604

APPLE PI COMPUTER CLUB
11630 S. Nagle Ave.
Worth, IL 60482

Indiana

C A U G
2805 Chestnut Ct.
Columbus, IN 47201

FT. WAYNE APPLE COMP. USER GROUP
3833 Foresthill Ave.
Fort Wayne, IN 46805

THE APPLE PICKERS, INC.
P.O. Box 20136
Indianapolis, IN 46220

APPLE TECH
412 West Third
Mishawaka, IN 46544

Iowa

THE GREEN APPLES
4417 N. Lincoln Ln. Lot 129
Cedar Falls, IA 50613

CEDAR RAPIDS APPLE USERS GROUP
417 Third Ave.
Cedar Rapids, IA 52404

GLITCH KICKERS COMPUTER CLUB
3711 Douglas
Des Moines, IA 50310

IOWA CITY APPLE USERS GROUP
134 Ravencrest Dr.
Iowa City, IA 52240

I/OWA USER GROUP
844 10th N.E.
Mason City, IA 50401

AGRI-CURSORS
c/o Sac City State Bank
500 Audobon
Sac City, IA 50583

Kansas

APPLE BITS
6140 Glenwood
Mission, KS 66202

APPLEBUTTER
10049 Santa Fe Dr.
Overland Park, KS 66212

PLANE APPLE CLUB
P.O. Box 12013
Wichita, KS 67277

Kentucky

APPLE-SIDERS (Cincinnati)
27 Crystal Lake Dr.
Covington, KY 41017

L.A.U.G.H.S.
8207 Pipilo
Louisville, KY 40222

(continued on page 82)

IAC ATTACH BIOS 1.1 DISK AND BOOKLET

Because of popular demand, the International Apple Core is offering the *original* ATTACH BIOS 1.1 disk and documentation for the low price of $6.00 plus $1.00 handling and mailing charge, anywhere in the world. Send your check or money order (payable in USA funds) to:

INTERNATIONAL APPLE CORE
ATTACH BIOS DISK
P.O. BOX 976
DALY CITY, CA 94017 USA

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____
COUNTRY _____

GALAXY SPACE WAR 1

Galaxy Space War 1[1] (WAR1) is a game of strategy in which the player has complete control of his space fleet's tactical maneuvers. Each fleet battles its way toward the opponents galaxy in an attempt to destroy it and win the war. WAR1 simulates the actual environment encountered in a space war between two galaxies. Optimum use is made of Apple's high resolution graphics (HIRES) and colors in displaying the twinkling stars universe, the colored ships of each fleet, long range sensors colored illuminations, and the alternating blinking colors used in battles between ships. Complementing HIRES are the sounds of war produced by Apple's speaker.

WAR1 is played between Apple and a player or between two players. You may play with total knowledge of each others fleet or only ships sensor knowledge of the opponents fleet. Each player builds his starting fleet and adds to it during the game. This building process consists of creating the size and shape of each ship, positioning it, and then allocating the total amount of energy for each ship.

During a player's turn he may dynamically allocate his ships total energy between his screen/detection and attack/move partitions. The percentage of the total energy allocated to each partition determines its characteristics. The screen/detection partition determines how much energy is in a ship's screens and the detection sector range of its short range sensors. The attack/move determines the amount of energy the ship can attack with, its attack sector range, and the number of sectors it can move in normal or hyperspace.

STOCK MARKET ANALYSIS PROGRAM DJI WEEKLY AVERAGE 1897-DATE

ANA1[2] (ANALYSIS 1) is a set of BASIC Programs which enables the user to perform analyses on the Dow Jones Industrial weekly average data. From 6 months to 5 years of user selected DJI data can be plotted on the entire screen in one of 5 colors using Apple's High Resolution capabilities. The DJI data can be transformed into different colored graphic representations called transforms. They are: user specified moving averages; a least squares linear fit (best straight line); filters for time, magnitude, or percentage changes; and user created relationship between the DJI data, a transform, or a constant using +,-,x,/ operators. Colored lines can be drawn between graphic points. Graphic data values or their dates of occurrence can be displayed in text on the screen. Any graph or text can be outputted to a users printer. The Grid Scale is automatically set to the range of the graphs or can be user changed. As many colored graphs as wanted can be plotted on the screen and cleared at any time. The user can code routines to operate on the DJI/transform data or create his own disk file data base. ANA1 commands can be used with his routines or data base. An update program allows the user to easily update a file with current data.

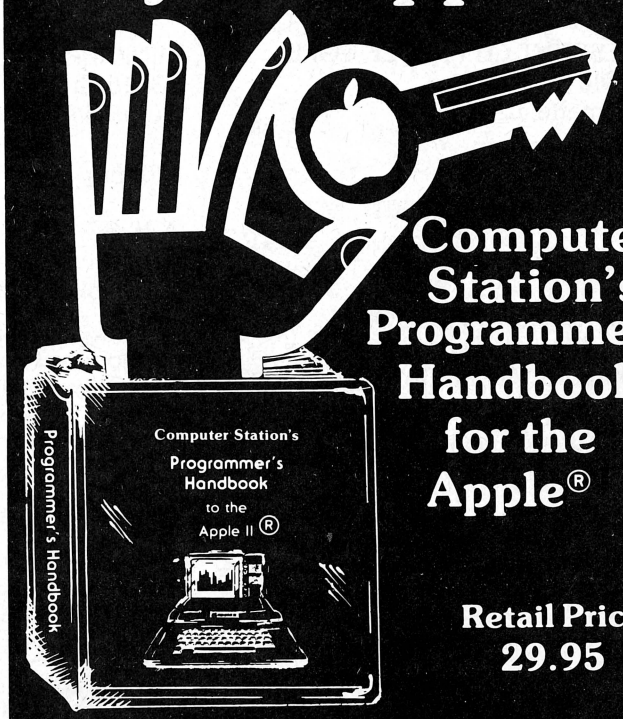
APPLE® II, 48K, APPLESOFT ROM CARD, DISK II DOS 3.2
WAR1 DISK & MANUAL ...$39.95
ANA1 DISK & MANUAL ...$49.95
CA residents add 6% sales tax

GALAXY
DEPT.A06
P.O. BOX 22072
SAN DIEGO, CA 92122
(714) 452-1072

Write or call for more information or see your local Apple dealer

1 Software Reviews: Apple Orchard (12/80); The Book (1/81); Creative Computing (4/81)
2 Software Reviews: Call-A.P.P.L.E. (2/80); Apple Orchard (3/80); Info World (8/80); Creative Computing (5/81)

Here's the KEY to your Apple®!



Computer Station's Programmers Handbook for the Apple®

Retail Price 29.95

Indexed Looseleaf notebook (7½" x 9") containing all the reference material found in our popular Programmers Guide to the Apple II®

Plus . . .

- Applesoft® & Integer
- CP/M© Digital Research, Inc.
- Basic-80© Microsoft
- Pascal
- 6502 Assembly Language
- DOS 3.3
- DOS Tool Kit
- Monitor

Including Command References for

- Applewriter®
- Visicalc® Personal Software
- Macro-Sced

Hardware Configurations & Software Commands for

- Spinwriter
- PaperTiger
- Silentype
- Special ROMs

Two diskette pockets in front & back. Notebook format allows user to add personal comments. A must for every Apple® owner. Available from your local Apple® Dealer or from:

Computer Station
11610 Page Service Dr.
St. Louis, MO. 63141
(314) 432-7019

Direct order will incur a $2.00 shipping/handling charge plus sales tax where applicable

Apple, Apple II and Applesoft are the registered trademarks of Apple Computer, Inc.

(continued from page 80)

Louisiana

B.R.A.N.C.H.
324 W. Parker Blvd. #35
Baton Rouge, LA 70808

CRESCENT CITY APPLE CORE
72 Old Hickory Ave.
Chalmette, LA 70043

CENLA APPLE
P.O. Box 1564
England AFB, LA 71301

Maryland

MARYLAND APPLE CORPS
6711 Greenspring Ave.
Baltimore, MD 21209

PENCOM
J-303 Waverly Drive
Frederick, MD 21701

Massachusetts

APPLE/BOSTON
3 Center Plaza
Boston, MA 02108

APPLESAUCE
118 Brookhaven Dr.
East Longmeadow, MA 01028

APPLE CORE OF BERKSHIRE COUNTY
32 Deborah Ave.
Pittsfield, MA 01201

APPLESEED
4 Cranebrook
Shrewsbury, MA 01545

APPLE GUILD
P.O. Box 371
Weymouth, MA 02188

N.E.A.T.
P.O. Box 2652
Woburn, MA 02155

Michigan

ANN ARBOR APPLE
P.O. Box M-1047
Ann Arbor, MI 48106

APPLE CORE EXAMINERS
4691 S. Elm Dr.
Bay City, MI 48706

K.A.C.U.S.
455 W. Michigan Ave.
Kalamazoo, MI 49007

GRAND RAPIDS APPLE
3268 Coach Lane #2A
Kentwood, MI 49508

APPLE L.U.G.
5411 Marsh Rd.
Haslett, MI 48840

MICHIGAN APPLE COMPUTER CLUB
P.O. Box 551
Madison Heights, MI 48071

Minnesota

MINI/APP/LES
13516 Grand Ave. S.
Burnsville, MN 55337

Missouri

A.M.M.P.L.E.
333 E. Winter
Columbia, MO 65201

APPLE EYE
25 Morwood Lane
Creve Coeur, MO 63141

PERSONAL COMP. CLUB OF ST. LOUIS
274 Brightfield Dr.
St. Louis, MO 63011

APPLE JACKS
11145 Suntree Rd., Apt. D
St. Louis, MO 63138

COMSTAT
11610 Page Service Road
St. Louis, MO 63141

APPLE SQUIRES OF THE OZARKS
1904 E. Meadowmere
Springfield, MO 65804

Nebraska

COMPUSERS
P.O. Box 2064
Hastings, NE 68901

BIG RED APPLE CLUB
1301 N 19th
Norfolk, NE 68701

APPLESAUCE OF OMAHA
1915 S 44 St. #112
Omaha, NE 68105

Nevada

APPLE CORPS OF S. NEVADA
6325 Portola Rd.
Las Vegas, NV 99108

New Hampshire

SOUTHERN N.H. APPLE CORE
Warner Hill Rd. RFD #5
Derry, NH 03038

New Jersey

SOUTHERN NJ APPLE USERS GROUP
106 Ashbrook Rd.
Cherry Hill, NJ 08034

MONMOUTH APPLE CORPS
P.O. Box 333
West Long Beach, NJ 07764

APPLE GROUP—NJ
1411 Greenwood Dr.
Piscataway, NJ 08854

PRINCETON APPLE USERS GROUP
c/o Comp. Enc., 2 Nassau St.
Princeton, NJ 08540

SHORT HILLS APPLE PITS
29 Clive Hills Rd.
Short Hills, NJ 07078

New Mexico

APPLEQUERQUE COMPUTER CLUB
6609 Orphelia Ave. NE
Albuquerque, NM 87109

MESILLA VALLEY ORCHARD
P.O. Box 114
Las Cruces, NM 88001

New York

SOUTHERN TIER APPLE CORE
409 Hooper Road
Endwell, NY 13760

APPLE POWER
21 Ridgedale Ave.
Farmingville, NY 11738

SUFFOLK APPLE COMPUTER SOCIETY
64 Pinedale Rd.
Happauge, NY 11787

U.A.U.G. c/o Upstate Com.
629 French Rd.
New Hartford, NY 13413

BIG APPLE USERS GROUP
P.O. Box 490
Bowling Green Sta.
New York, NY 10274

C A M S —APPLE USERS GROUP
Box 348 Ridge Road RD #1
Scotia, NY 12302

T S A U G APPLE CLUB
216 Cherry Rd.
Syracuse, NY 13219

APPLE C.I.D.E.R.
1435 Tudor Way
Victor, NY 14564

MID-HUDSON MICRO USERS
Imperial Plaza
Wappingers Falls, NY 12590

North Carolina

APP-LE-KATIONS
6525 Springfield Dr.
Charlotte, NC 28212

GREEN APPLES
218 N. Elm St.
Greensboro, NC 27401

CAROLINA APPLE CORE
P.O. Box 31424
Raleigh, NC 27622

North Dakota

G.F. APPLE S.A.U.C.E.
2500 B South Columbia Rd.
Grand Forks, ND 58201

APPLE POLISHERS
1112 Glacial Dr.
Minot, ND 58701

Ohio

CINCINNATI APPLE-SIDERS
(see Covington, Ky.)

CENTRAL OHIO APPLE COMPUTER HOBBY
1357 Bernhard Rd.
Columbus, OH 43227

APPLE-DAYTON
4819 Leafburrow Dr.
Dayton, OH 45424

NEO-APPLE CORE
7047 E. Jefferson Dr.
Mentor, OH 44060

TOLEDO APPLE USERS
1417 Bernath Pkwy.
Toledo, OH 43615

Oklahoma

MIDWEST CITY HOSP. APPLE USERS
2825 Parklawn Dr.
Midwest City, OK 73110

BIG RED APPLE GROUP
200 N. University Blvd.
Norman, OK 73069

OKC APPLE USERS GROUP
3728 N. Frankford
Oklahoma City, OK 73112

TULSA COMPUTER SOC-APPLE USERS
P.O. Box 1133
Tulsa, OK 74101

Oregon

CORVALLIS APPLE CLUB
2013 NW Monroe
Corvallis, OR 97330

A.P.P.L.E. PORTLAND
1915 NE Couch
Portland, OR 97232

Pennsylvania

APPLE USER OF PENNSYLVANIA
29 S. New Ardmore Ave.
Broomall, PA 19008

ERIE APPLE CRUNCHERS
P.O. Box 1575
Erie, PA 16507

A R G
16 Laurel Lane
Glen Riddle, PA 19037

KEYSTONE APPLE CORE
4644 Carlisle Pike
Mechanicsburg, PA 17055

CENTRAL PENN. APPLE INT. GROUP
240 Calder Way
State College, PA 16801

South Carolina

SCRAPPLE
1610 Longview Rd.
Mt. Pleasant, SC 29464

LOWCOUNTRY APPLE CORPS
313 Hawthorne St.
Mt. Pleasant, SC 29464

AUGUSTA APPLE USERS GROUP
819 Jackson Ave.
N. Augusta, SC 29841

C S A APPLE CORE
P.O. Box 405
Shaw AFB, SC 29152

South Dakota

RAPID CITY APPLE USERS
3016 Glenwood
Rapid City, SD 57701

Tennessee

MUSIC CITY APPLE CORE
765 McMurray Dr., Apt. 04
Nashville, TN 37211

Texas

ABILENE APPLE CLUB
925 N. Judge Ely Blvd.
Abilene, TX 79601

A.I.D.E.
P.O. Box 30878
Amarillo, TX 79120

FORT WORTH APPLE USER GROUP
1401 Hillcrest Dr.
Arlington, TX 76010

RIVER CITY APPLE CORPS
12404 Split Rail Pkwy.
Austin, TX 78750

MICRO APPLE CORE
3920 Caruth Blvd.
Dallas, TX 75225

FRANKLIN MTN. APPLE ORCHARD
Drawer G
El Paso, TX 79951

HISD/BASIC CURRIC. DEV.
3830 Richmond Ave.
Houston, TX 77027

H A A U G G
11803 Rowood Dr.
Houston, TX 77070

APPLE PI OF THE PERMIAN BASIN
415 E. 43rd St.
Odessa, TX 79762

APPLESEED
P.O. Box 12455
San Antonio, TX 78212

H.O.T.-APPLE-P.I.E.
2321 Lee St.
Waco, TX 76711

Utah

APPLE SLICE
P.O. Box 11246
Salt Lake City, UT 84147

Virginia

APPLE WORMS
3307 Indigo Rd.
Chesapeake, VA 23325

PENINSULA APPLE CORE
1419 Todds Lane
Hampton, VA 23666

APPLE T.A.R.T.
1706 Hanover Ave.
Richmond, VA 23220

NOVAPPLE
8108 Adair Lane
Springfield, VA 22151

TIDEWATER APPLE
ORGANIZATION
1021 Tivoli Crescent, Apt. 102
Virginia Beach, VA 23456

Washington

KITSAP APPLE USERS GROUP
7265 Thasos Ave. NE
Bremerton, WA 98310

THE G.R.A.P.E.
P.O. Box 283
Port Orchard, WA 98366

A.P.P.L.E.—WASHINGTON
14109 S.E. 168th St.
Renton, WA 98055

FETCH
Naval Air Facility Box 13
FPO Seatle, WA 98767

AU
12816 E. Desmet
Spokane, WA 99216

Wisconsin

ADAM & EVE APPLE GROUP
11 S. Hancock St.
Madison, WI 53703

WISCONSIN APPLE USERS
P.O. Box 11463
Milwaukee, WI 53211

FOX VALLEY CRAB-APPLES
Math Dept.—John Oman
University of Wisconsin
Oshkosh, WI 54901

Wyoming

THE APPLE NET
129 Park Ave., Orchard Valley
Cheyenne, WY 92001

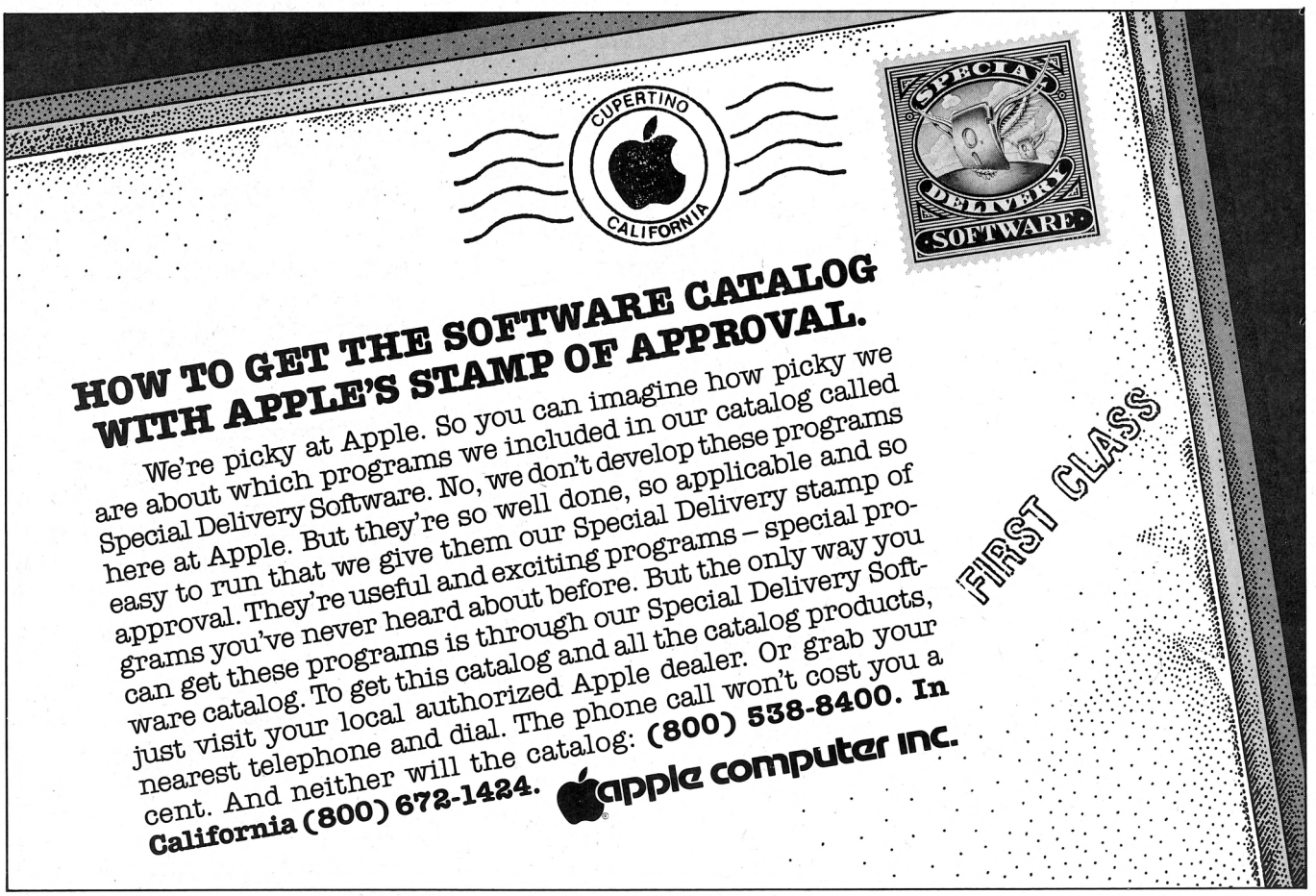
District of Columbia

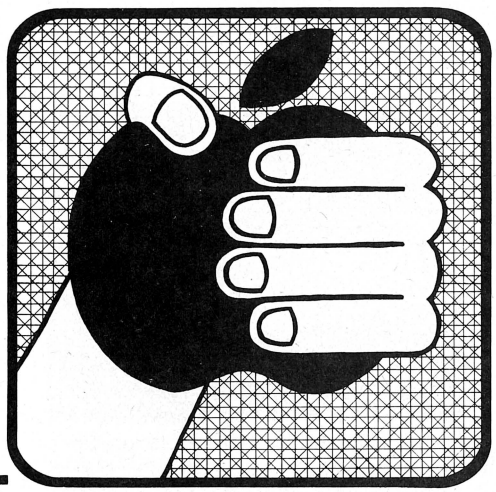
HOBBY COMPUTER INFO. EXCH.
2300 41st St. N.W. #203
Washington, D.C. 20007

WASHINGTON APPLE PI
P.O. Box 34511
Washington, D.C. 20034

Guam

GUAGE
16-B S. Oceanview
Finegayan, Guam 96912





Forbidden Fruit

Pick these new products for your Apple

Edited by
Mark L. Crosby

Producers of hardware and software for the Apple line of computers should send news releases 3 months in advance to NEW PRODUCTS EDITOR, Apple Orchard, P.O. Box 976, Daly City, California 94017. The IAC cannot be held responsible for claims made by manufacturers.

Contents:

Hardware
- Input/Output
- Media
- Power Conditioning
- Speech
- Music
- Printers/Plotters
- Miscellaneous

Software
- Business/Education
- Graphics
- Languages(Programming)
- Simulations/Games
- Special Items
- Communications
- Utilities
- Word Processors

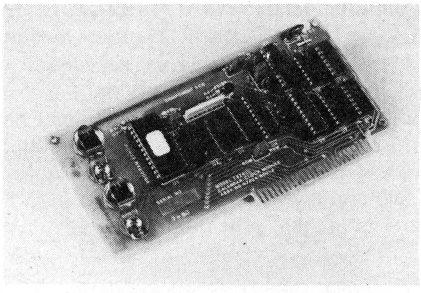
Catalogs

Miscellaneous

HARDWARE

Input/Output

CLOCK/CALENDAR



Clock/Calendar Module provides accurate real time counting. It can be software-programmed for either a 12-hour or 24-hour format, and automatically adjusts February to 29 days for leap years. Optional battery backup maintains accurate time counting when the Apple is powered down or during power outages. The time-setting signal to the clock can be jumper-disabled. Firmware includes three jumper-selectable driver programs. One transfers the date and time in the Mountain Hardware format. Another continually interrupts to write the correct time into an Applesoft string, while the third continually interrupts to display the time in the upper right-hand corner of the CRT screen. California Computer Systems, 250 Caribbean Drive, Sunnyvale, CA 94086 (408) 734-5811.

EXPANSION CHASSIS

Expansion chassis offers eight additional slots to expand the peripheral capacity of all Apple][computers. The user can select these slots with a panel mounted select/deselect switch or with immediate or deferred software commands. Comes with an Apple interface card and built-in power supply. Mountain Computer, 300 Harvey W. Blvd., Santa Cruz, CA 95060.

CLOCK/CALENDAR

Real-Time Clock/Calendar permits reading of time and date. Accurate even with computer turned off with long lived internal battery backup. Uses standard software to date output forms, to time events or simply to display the time and date on the screen. Clock supports foreground/background operation. Gold contacts and plated-through holes. Hours, minutes, seconds, year, month, day are provided with leap year register. Clock—$109, utility software $19 on cassette, $24 on disk. Frisbee Electronics, P.O. Box 556, Ridgecrest, CA 93555.

LIGHT PEN

Light Pen for the Apple allows those without typing skills to interact with the Apple][. Two short BASIC subroutines handle the light detection and take less than 400 bytes. All pens come with complete documentation so that you can write your own programs in BASIC. No machine language coding is necessary. All pens are ready to plug in and use and no assembly is necessary. (low-res) $32.95. 3G Company Inc., Rt. 3, Box 28A, Gaston, OR 97119 (503) 662-4492.

GREEN MONITOR

Green phosphor monitor provides sharp, clear display of up to 80 characters by 25 lines of text or graphics. Built-in sound system and speaker uses standard video output. Screen angled 80 degrees

to reduce glare. Lightweight industrial grade construction gives maximum portability with reliable operation. NEC America, Inc., 130 Martin Lane, Elk Grove Village, IL 60007.

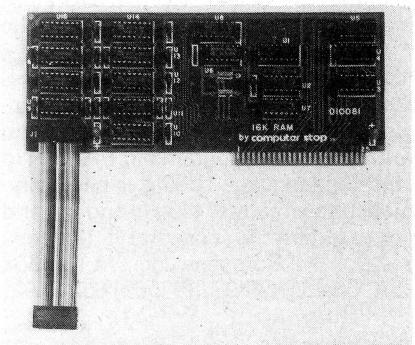
TEMPERATURE PROBES

Tempsens provides direct temperature input for the Apple and other microcomputers. Operating within a temperature range of −10 to +160 degrees Fahrenheit, each Tempsens module provides two temperature probes to the AIM16 analog input module using a MANMOD1 (both also available). Tempsens price is $49.95. Connecticut Microcomputer Inc., 34 Del Mar Dr., Brookfield, CT 06804 (203) 775-4595.

16K MEMORY CARD

RAMCard provides the Apple][48K computer with 16K additional bytes of programmable memory. It's compatible with Microsoft's SoftCard. It can be used with all software available for the SoftCard, but it cannot be used in addition to the Apple Language Card—$195. Microsoft Consumer Products, 400 108th Ave. N.E., Suite 200, Bellevue, WA 98004 (206) 454-1315.

16K MEMORY CARD

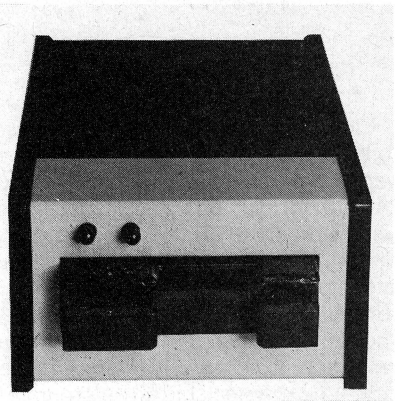


16K RAM card increases your Apple's memory to a maximum of 64K. This card is computer designed using shortest distance between points and laying heavy traces that improve overall reliability. Compatible with Pascal, Digital Research's CP/M, DOS 3.3, COBOL, FORTRAN, Personal Software's VisiCalc, PILOT, Integer BASIC, Applesoft BASIC and other software currently used with the Apple][. 180 day warranty period—$195. Available at select Apple dealers or contact Computer Stop, 2545 W. 237th St., Suite L, Torrance, CA 90505 (213) 539-7670.

DUAL SIDED DISKETTES

Dual sided mini diskettes are offered by Omni. Now you can record on both sids of a disk for twice the storage capacity of a single sided disk. Features two recording surfaces, two sets of write enable notches, two index holes, reinforced hub rings and a lubricating shield to protect disk surface and reduce wear on disk drive read/write heads. Compatible with Apple and other microcomputers—$50 box of ten (twenty sides). Omni Resources, 4 Oak Pond Avenue, Millbury, MA 01527 (617) 799-0197.

STRINGY FLOPPY



Exatron Stringy Floppy Mass Storage System is very similar to the operation of disk drives with the exception that it writes on an endless loop tape system called a wafer. One wafer can hold up to 125K bytes. Operating system extends the command set of BASIC to allow complete control of the Stringy from the keyboard or from your program. Saves or loads a 16K program in 10 seconds. Works with Applesoft or Integer BASIC. Full year warranty. Two Stringy's cost less than one disk drive with controller. Exatron Corporation, 3555 Ryder St., Santa Clara, CA 95051 (800) 538-8559. In California (408) 737-7111.

Media

CASSETTES

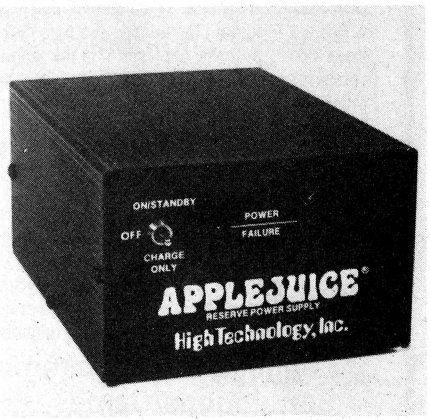
High quality cassettes designed for microcomputers come in 50 and 100 foot lengths and also the standard C-60 and C-90 lengths. Norelco-style box with separate box labels. High energy tape is excellent for both data and audio use. Warrantied replacement within 30 days. Prices from $7.50 for a ten-pack of 50 foot length to $77.50 for a fifty-pack of C-90 length. Microsette Co., 475 Ellis St., Mt. View, CA 94043 (415) 968-1604.

DISK KIT

Disk kit contains everything you need to handle disks. Comes with 12 dual-sided diskettes with reinforced hub ring. Double frequency tested on both sides. Also included are 2 head cleaning disks, 1 bottle of specially formulated head cleaning solution, and 1 binder with labels and write/project patches—$59.50 plus $3.50 for freight and handling charges. Factory Direct, P.O. Box 60759, Sunnyvale, CA 94088 (800) 824-7888; in California (800) 852-7777; for Alaska and Hawaii (800) 824-7919.

Power Conditioning

RESERVE POWER SUPPLY



Applejuice reserve power supply provides back-up power for the Apple][computer during power "flickers", prolonged outages and brownouts. An interrupt feature can be used to generate an interrupt to automatically transfer memory contents to disk or to operate any external device. Backup time is 25 minutes using a single disk drive, 48K, Language Card, printer or serial card and disk controller.

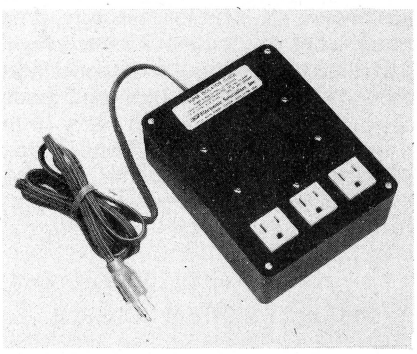
Backup time is increased or decreased depending on peripheral current requirements and disk usage. Recharges from discharge state in 10-12 hours. Model APS-2A $249. A one hour backup model is also available. APS-3 $295. High Technology, Inc., 8001 N. Classen Blvd., P.O. Box 14665, Oklahoma City, OK 73113 (405) 840-9900.

Speech

SPEECH SYNTHESIZER

Speech synthesizer adds intelligible speech to your Apple. The initial operating system allows the creation of your own vocabulary with phonemes (word sounds) while using very little RAM memory (approximately 800 bytes + 20 bytes per word). Enhanced operating systems and vocabulary ROMs will be offered as they become available. The Echo][comes complete with speaker, instruction manual, and a disk containing a speech editor, sample programs, and a sample vocabulary—$225. See your dealer or contact Street Electronics Corp., 3152 E. La Palma Ave., Suite C, Anaheim, CA 92806 (714) 632-9950.

SPIKE/SURGE SUPPRESSOR



Super Isolator is designed to control electrical pollution. Incorporates heavy duty spike/surge suppression, the Super Isolator features 3 individually dual-Pi filtered AC sockets. Equipment interactions are eliminated and disruptive/damaging power line pollution is controlled. The Super Isolator will control pollution for an 1875 watt load (combined). Each socket can handle a 1000 watt load. MODEL ISO-3 SUPER ISOLATOR for $94.95. Electronic Specialists, Inc., 171 South Main St., Natick, MA 01760 (617) 655-1532.

SPIKE/SURGE SUPPRESSOR

The Spike-Spiker has eight individually switched 120 VAC grounded outlets divided into two rows of separate filtered circuits of 4 outlets each, main on/off switch, fuse, and indicator light. Hash filtering occurs between the two groups of four outlets. Protects computer equipment from most power line transients. Maximum continuous load of 10 amps, maximum transient protection of 10 joules with a switching time of 35 nanoseconds. Kalglo Electronics Co., Inc., Colony Drive Industrial Park, 6584 Ruch Road—E. Allen Twp., Bethlehem, PA 18017 (800) 523-9685 in Pennsylvania (215) 865-0006.

Music

MUSIC BOARD

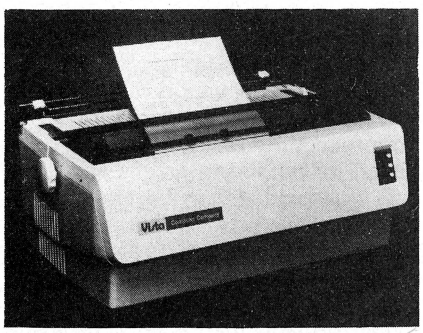
Appledac Hardware Music Board is a fully integrated digital audio system with an 8 bit D/A converter, 6-pole low-pass filter and half-watt audio amplifier with volume control. The board fits into slot 0, 2 or 4 of the Apple][. Software is also available including the capability to specify an independent amplitude envelope for each harmonic. A manual supplied contains specifications for 20 different instruments and a discussion of sound synthesis. A song pack is available which contains 30 selections on a disk. Board: $89, Software: $49, Song Pack: $20. Micro Technology Unlimited, 2806 Hillsborough St., P.O. Box 12106, Raleigh, NC 27605 (919) 833-1458.

MUSIC BOARD

MusicSystem features 16 part digital synthesis with stereo, fully programmable waveforms and envelopes and graphic input of standard musical notation. Includes dual boards ready to install. Includes light pen for input and editing. Provided are all connecting cables and standard RCA pin jacks for connection to stereo amplifier or headphones. All software included on disk requires no compiling or modifications. Manual covers installation, a tutorial, reference details, hardware description, theory of additive synthesis, etc. Mountain Hardware, 300 Harvey West Blvd., Santa Cruz, CA 95060 (408) 429-8600.

Printers/Plotters

DAISY WHEEL PRINTER



The new V300 Daisy Wheel Printer produces letter quality printing using standard Diablo or Qume-type 96 character print wheels. Accommodates paper widths up to 15 inches and can print up to 136 columns. Character spacing is 1/120 inch minimum and line space is 1/48 inch minimum. Completely furnished and ready to use. Available with standard Centronics parallel interface or RS-232-C. Internal DIP switches select 7 or 8 bit character lengths, single or double stop bits, odd/even parity, 300, 600, 1200 or 2400 baud transmission speeds. Programmable vertical format up to 66 lines with top-of-form and VT justification. 25 CPS Model V300-25 $1,895. 45 CPS Model V300-45 $2,195. Vista Computer Company, 1317 E. Edinger Ave., Santa Ana, CA 92705 (714) 953-0523.

MATRIX PRINTERS

Epson MX80 printer is a dot matrix printer that provides letter quality print using a 9 × 9 matrix at 80 CPS in bidirectional mode. Uses true descenders and 64 characters of block graphics. Adjustable pin feed from 4 to 10 inches. 5, 8.25, 10 and 16.5 characters per inch. Disposable print head (less than $30) with Centronics parallel interface. Dot addressable graphics available soon as a retrofit. List $645 at your local dealer or Epson America, Inc., 23844 Hawthorn Blvd., Torrance, CA 90505 (213) 378-2220.

★★★★★★★★★★★★★★★★★

AFTER USING THE RENUMBER PROGRAM, I GET SOME WEIRD CALCULATIONS. WHY?

Renumber is a very powerful tool for developing programs, but after you use it you may find some strange calculations in your program. What happens is that the number after an asterisk ("*"), as for multiplication, is sometimes mistaken as a line number, and Renumber renumbers it. So if you had a line:

★★★★★★★★★★★★★★★★★

Miscellaneous

PLOTTER

Flatbed plotter is designed for straight forward interface to any microcomputer that outputs the ASCII code. Miplot can even be used by operators with no plotter experience. Incorporates pre-programmed "intelligent" functions required for producing graphs and drawings. Solid and broken line types can be specified. Built in character generator for letters, numbers and symbols—rotation to four orientations. Special printer mode outputs character data as-is. Uses commonly available hard fiber-tip pens and has a maximum plot speed approximately 2 inches per second—$1,395. Astar International Company, 5676 Francis Ave., Chino, CA 91710 (714) 627-9887.

MATRIX PRINTER

Impact printer is a low cost dot matrix printer. Features 7×7 or 14×7 dot matrix, 6 different character sizes, 100 CPS bidirectional print speed, selectable tractor or friction paper feed, and a long-life "finger clean" ribbon cartridge. It has variable line density and continuous form length controls. 100% duty cycle without overheating gives high reliability. Upper/lower case printing with 80, 96 or 132 characters per line on 8½ inch wide paper—$625 in OEM quantity of 100. For information contact DIP, Inc., 745 Atlantic Avenue, Boston, MA 02111 (617) 482-4214.

MATRIX PRINTER

The Paper Tiger 445 printer has a very rugged 5×7 matrix printing mechanism with a ballistic print head and cartridge ribbons. Two separate heavy-duty motors drive the head and paper advance with true tractor feed. Software selection of character sizes up to 132 columns. Adjustable paper width and length up to 6-part forms. Unidirectional speeds of up to 198 CPS. With graphics option, it can print graphics as easily as text—$795. Models 460 and 560 provide 9-wire staggered print head with "letter quality" bidirectional printing and programmable parameters. The 460 is for 8½ and the 560 for 14 inch wide papaer. Also available with graphics option, they both utilize ballistic head and ribbon cartridge. Integral Data Systems, Inc., Milford, NH 03055 (800) 258-1386.

VOICE ENTRY SYSTEM

Voice entry terminal plugs into any slot of the Apple][. A direct keyboard link allows the user to choose keyboard or voice at any time. Once a word has been entered into the program, whenever it is spoken, the function is performed. Supplied with preprocessor, interface board, software with demonstration programs, noise-cancelling headset microphone, and a user's manual—$895. Scott Instruments, 815 N. Elm, Denton, TX 76201 (817) 387-9514.

DOS 3.2/3.3 SWITCH

Safe Switch gives both DOS 3.2 and DOS 3.3 in your Apple safely. Throw switch for either DOS without having to convert old 3.2 disks to 3.3 Easy to use and inexpensive, requires no memory or soldering and will not harm or interfere with your Apple's operation—$56. Belk Enterprises, 125 E. Alton Ave., Santa Ana, CA 92707 (714) 641-0954.

LOGIC DISPLAY BOARD

Apple][display board has a run-stop, single-step switch that simplifies identification of shorted lines between address or data bits and shows individual steps for teaching computer logic. The board has 16 address LEDs (light emitting diodes), 8 data LEDs, and 1 ready LED. All lines are buffered. Assembled and tested $49.95, kit $42.95, bare board $25.95. John Bell Engineering, P.O. Box 338, Redwood City, CA 94064 (415) 367-1137.

VIDEODISK INTERFACE

Videodisk-to-Apple interface fits inside the Apple and allows complete control of the DiscoVision industrial videodisk player. In addition, the package provides circuitry to switch computer-or disk-oriented video on a single television monitor. The package sells for $525, and includes a manual, a controller card, junction box for video connections, control subroutines in assembly language and Pascal, cables, and a demonstration program. Coloney Productions, 1248 Blountstown Hwy., Tallahassee, FL 32304 (904) 575-0691.

6809 MICROPROCESSOR CARD

6809 Board for the Apple][, "The Mill", plugs into the Apple. It can be used in manufacturing or laboratory process-control monitoring and concurrent programming tasks. Users can run 6502 programs, 6809 programs or any software reassembled for the 6809 from existing 6800 source code. In operation, the 6502 and 6809 run concurrently, with the 6809 acting as the bus master during the 6502's bus accesses. Features directly addressable stacks and the position independence of code and permits the Apple to be used in a multiprogramming mode—$275. Stellation Two, P.O. Box 2342, Santa Barbara, CA 93120.

MARK SENSE READER

Mark sense reader interfaces to the Apple][. Mark a card with a #2 pencil, feed it into the reader's slot and the reader automatically turns on and feeds the card through the slot. Data is automatically entered into memory. It is a simple low-cost alternative to keyboard entry. For businesses, it's ideal for inventory, time cards, labor distribution. Educators will find that the MR-500 streamlines test scoring, attendance records, and grade reporting. Lightweight 4½ inch cube—$750. Chatsworth Data Corp., 20710 Lassen St., Chatsworth, CA 91311 (213) 341-9200.

SECURITY SYSTEM CONTROL

Security systems control allows direct computer control of up to 256 BSR remote modules by sending signals over house wiring. These low-cost modules, in conjunction with the Super X-10 Mod, allow microcomputer control over lamps, motors, and appliances. It has eight digital inputs and outputs which can easily be connected to external switches for control even when the computer is turned off. Direct, plug-in compatibility and software are available for the Apple][—$249. Connecticut Microcomputer, 150 Pocono Road, Brookfield, CT 06804.

SOFTWARE

Business/Education

STOCK MARKET

Stock Tracker can improve your profits in trading through enhanced timing of purchases and sales. Involves technical analysis of individual securities, based on the universal law of supply and demand. Automatically provides daily trading signals for each security tracked. The signals are geared to trading on a short-term basis for stock options and an intermediate term for stocks and commodities; yet it can be easily used to time long-term stock investments as well. Requires 32K Applesoft ROM or Language System and one or more disk drives—$190. H & H Trading Company, P.O. Box 23546, Pleasant Hill, CA 94523 (415) 937-1030.

DATA FILING SYSTEM

From Hardhat Software comes WHATSIT. This is a data filing system designed for indexing applications where speedy response is important. WHATSIT, an acronym for "Wow, How'd All That Stuff get In There?", is a flexible and useful data base for home and small business applications. This package is a self-indexing query system that adapts to your needs. Information is stored in WHATSIT in the form of simple, declarative sentences, and that's the way it gives them back to you. Features soundex matching, multiple items per heading, printer support and a well-organized manual. Hardhat Software, Box 14815, San Francisco, CA 94114 (415) 621-2106.

ACCOUNTING SYSTEM

Professional accounting system from Insoft is extensive enough that CPA's are using it for client reporting and yet non-accountants have found it relatively easy to use and set up due to it's comprehensive user oriented manuals (300 pages total). System includes General Ledger, Accounts receivable/payable and payroll. Ledger will hold 400 accounts in the Charts Accounts, and 400 in each of the Accounts receiveable and payable systems and up to 150 employees for a 48K machine and 300 for 64K when using the Microsoft Z80 Softcard—$365. Insoft, 259 Barnett Road, Unit 2, Medford, OR 97501 (503) 779-2465.

CHINESE LESSONS

Chinese lessons are simplified and enjoyable with the Apple][computer. Chinese greetings, times, seasons, numbers, foods, and other commonly used terms (200 in all) are contained in eleven easy-to-use lessons. Color, graphics, and sound are used in each lesson in exciting combinations. The proper stroke sequence for each character is clearly shown and can be repeated stroke by stroke at the user's pace. Exercises with exam scoring are part of each lesson. Menus used throughout the lessons make it easy to select what is just right for you. Requires 48K, Applesoft with a single disk drive on a reversable diskette—$29.95 plus $1.50 shipping and handling. Computer Translation, Inc., Dept. AOD, Box 7004 University Station, Provo, UT 84602 (801) 224-1169.

KILL SURGES LIKE LIGHTNING!

AC power line surges are destructive, can cost you money, and can't be prevented. But you can stop them from reaching your sensitive electronic equipment with a Surge Sentry.

Surge Sentry acts in picoseconds to dissipate up to a 1,000,000 W, 100μ second surge. Triggers at 10% above nominal peak voltage. Works in parallel with the power line. Is easy to install for immediate protection. No complicated wiring or special tools required.

Several different models to choose from, including an OEM version. Call or write today for a *free* brochure.

SURGE SENTRY

It'll clean up your AC



RKS ENTERPRISES, INC.

643 South 6th Street, San Jose, CA 95112
(408) 288-5565

DEALER INQUIRIES INVITED

SCHOOL ATTENDANCE

The Attendance Program keeps detailed records of classroom attendance (including tardiness data) and automatically prepares necessary reports on Average Daily Attentance. Absences and tardies may be later marked as "excused" or "unexcused" before they are compiled into the continuing attendance record system. Maintains a complete audit trail to validate reported figures. The system can be used alone or in conjunction with CMA's grade reporting, counselling, and/or scheduling systems. $249.95 Charles Mann & Associates, Micro Software Division, 7594 San Remo Trail, Yucca Valley, CA 92284. (714) 365-9718.

COURSE INSTRUCTION SYSTEM



Portable voice-response, microcomputer-based system is designed for effective, low-cost, computer-aided instruction of IBM mainframe computer operators. Designated TRAINER-3000, the system features the Course Structuring Facility (CSF), the same authoring language used in IBM's Interactive Instructional System (IIS). With CSF, courses can be authored and executed under either the TRAINER-3000 or the IIS system. For additional information contact Computer Systems Research, Inc., P.O. Box 45, Avon, CT 06001. Call Michael L. Daversa (203) 678-1212.

PAYROLL

Payroll system utilizes Pascal Run-Time module for speed but you don't need the Language Card to run it—it works on any 48K Apple][. Computes all Federal and State Income Taxes, plus other state and local taxes for any and all 50 states and Washington, D.C. Capacity of 300 employees, 15 Divisions/Stores in multiple states. . . any state. Up to 30 additional deduction types. Prints payroll check, check register, W-2 Forms, all summary and quarterly reports, and employee lists. Documentation is clearly written and easy to use. Contact Broderbund Software, Box 3266, Eugene, OR 97403 (503) 343-9024.

MEDICAL BILLING SYSTEM

Medical Billing system for the Apple handles up to ten physicians and over 7000 accounts. Includes RVS and ICDA codes. Entirely menu driven and easy to use. Supports SuperBill, Medi-Care, Medi-Cal, other. Professional Medical Software, 3604 Foothill Blvd., La Crescenta, CA 91214 (213) 248-2884.

SPELLING SYSTEM

Compu-Spell spelling system is both simple and effective. Accurate student learning is enhanced by use of positive feedback. Selected high-resolution displays embed spelling words in paragraphs, and asks the learner to replicate spelling as the computer monitors progress. An elaborate operating system supports multiple student use in the classroom environment, while separate data diskettes make it affordable to individual home users. System contains operating system, sample spelling units from each of the six available data diskettes (grade levels 4-8 plus secretarial). Requires 48K Applesoft ROM and one disk drive—System diskette $29.95—data diskettes $19.95 each. Edu-Ware Services, Inc., 22222 Sherman Way, Suite 102, Canoga Park, CA 91303 (213) 346-6783.

SENTENCE DIAGRAMMING

Sentence Diagramming, parts of speech and usage includes 3 levels of difficulty, 20 sentences per level with optional record-keeping on data disk and printouts. Teacher formatted requirements for advancing to next level and options to exclude actual sentence diagramming. Requires Apple][Plus 48K 1 or 2 disk drives—$19.95. Avant-Garde Creations, Box 30161, Eugene, OR 97403 (503) 345-3043.

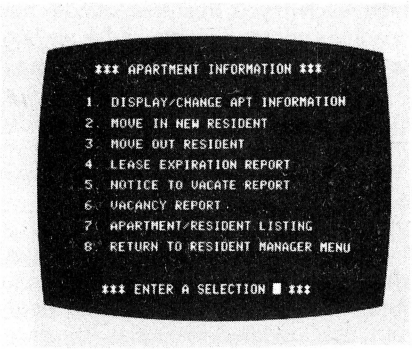
TOUCH TYPING

Touch Typing Tutor improves your typing. Includes 4 lesson plans. Uses short exercises and longer paragraph drills to teach keys and drill on problem areas. It advances at the user's pace, not proceeding to more difficult levels until proficiency is shown at current levels. Immediate feedback on speed, weak keys and percent accuracy. Requires 32K RAM and one disk drive. In both integer and Applesoft on disk—$19.95. Sold through Microsoft retail dealers or Microsoft Consumer Products, 400 108th Ave. N.E., Suite 200, Bellevue, WA 98004 (206) 454-1315.

PERSONAL FINANCE SYSTEM

The ACCOUNTANT, a finance data base system, features double entry with optional prompting (for those not comfortable with debits and credits) that translates increases and decreases to debits and credits. Its natural dialogue and user orientation enables the ACCOUNTANT to offer the advantages of double entry record keeping without the apparent complexity of such systems. As many as 63 accounts and 63 codes can be defined. Other features of the ACCOUNTANT includes a Balance Sheet, flexible queries, fast retrieval using inverted pointers, data compression allowing 2500 to 4000 transactions on a single diskette, integrated files, memory management, a built-in calculator, scroll and page modes, automatic transactions, monthly summaries, and complete documentation. Included are a demonstration data base and a tutorial. The ACCOUNTANT requires an Apple][with 48K—$89.95. Decision Support Software, 1438 Ironwood Drive, McLean, VA 22101 (703) 241-8316.

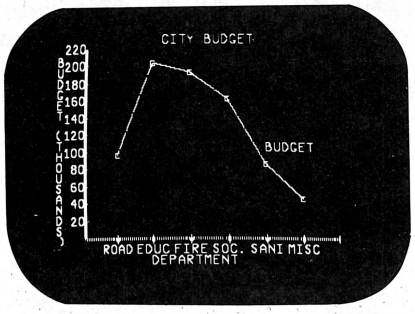
APARTMENT MANAGEMENT



The Landlord is an apartment management software package for Apple][computers. The system can be used by apartment properties of up to 400 units. Provides listings of apartments, residents, and past residents, as well as reports on vacancies, lease expirations, intents to vacate, and resident payments. Records of disbursements and other financial transactions are maintained by the system and a monthly property analysis statement is produced. Security and pet deposits, returned checks, and overpayments are also handled by the system. An outstanding balance report allows expedient follow-up of deliquent residents. Requires 48K, 2 disk drives and a Silentype or Centronics 779 printer—$795. See your local store for information or contact MIN microcomputer Software, Inc., 5835-A Peachtree Corners East, Norcross, GA 30092 (404) 447-4322.

Graphics

GRAPH PROGRAM



Data-Plot graph program by Muse is easy to use. Menu driven options feature quick data entry and editing, bar charts and line graphs, scatter diagrams, pie charts, multiple line and additive bar plots, automatic or manual scaling and labeling, basic statistics. All plots may be output to a Trendcom or Silentype printer. Includes tutorial manual and program disk. Requires Applesoft ROM and 48K. $59.95. Muse, 330 N. Charles St., Baltimore, MD 21201 (301) 659-7212.

PRINTER GRAPHICS

Agent Computer Services offers software for hi-quality Hi-Res pictures with Image-Writer for Spinwriter/Spinterm—Diablo—Qume. Color separation is also a standard feature. Print either page or portion of a page—$69.95. They also offer hard copy graphics for the Okidata Microline 80 printer with Oki-Image/Oki-Adapter. The package includes a cable which makes both text and graphics available with the Apple][and a very powerful Hi-Res Screen Dump. Print any page or portion of a page in six print sizes—$89.95. Agent Computer Services, RR #3, Columbia City, IN 46725 (219) 625-3600.

STAR GAZER'S GUIDE

Star Gazer's Guide is a Hi-Resolution handbook of the Constellations for the Apple][. Permits you to display at will the entire summer or winter sky of the northern hemisphere, or any specific section thereof, in great detail. Constellations displayed with or without outlines. Major galaxies, nebulae, clusters, double stars, etc., are pinpointed by special symbols for quick identification. Brightest stars are identified by name and location in each constellation. Completely menu driven. Requires 48K, disk, Applesoft ROM—$30. At your local dealer or from Synergistic Software, 5221 120th Ave., S.E., Bellevue, WA 98006 (206) 641-1917.

PRINTER GRAPHCS

SMARType upgrades your Apple Silentype Printer to a high-quality text printer by adding the following features: New character fonts, 60, 80, 96 and 120 characters per line, lower case letters with true descenders in one pass. Recognizes type faces created by the following font editor programs: Apple DOS 3.3 Tool Kit Animatrix, Synergistic Software's Higher Text, Mountain Hardware's Keyboard Filter Font Editor, Programma's The Typesetter. Also includes a stand-alone utility to dump a Hi-Res picture to the silentype as a regular or full page. Requires DOS 3.3 and Silentype printer. SMARType uses 1924 bytes of memory $29. Softsmith, P.O. Box 272, Kansas City, MO 64141 (913) 492-8882.

Languages (Programming)

APPLESOFT COMPILER

Applesoft Compiler can increase a BASIC Program's speed ten-fold while occupying only 3,200 bytes of memory. It can be run on a 48K Apple][Plus or Apple][with Applesoft in ROM, the Autostart ROM chip and at least one disk drive. It will also work on systems equipped with the Apple Language system or Microsoft RAMCard. Compiler produces true machine code at a user specified address. Handles Hi-Res graphics and shape tables. Arithmetic completed for faster operation. Permits multiple programs in memory at the same time—$200. Hayden Book Company, Inc., 50 Essex St., Rochelle Park, NJ 07662 (201) 843-0550.

TINY PASCAL

Tiny Pascal for the Apple][includes support of the major programming constructs, ability to specify procedures and functions, local and/or global variables, generation of a compiled code and transportability. Consists of three components: the Line Editor, the P-code Compiler, the Runtime Interpreter. Editor commands include Filer, Load, Save, Append, Change string, Delete line or range, Insert lines, List, Menu, Print source program, Quit editor, Replace a line. Integer and one-dimensional Array of Integer data types permitted. Constructs include CASE-OF-ELSE, WHILE-DO, IF-THEN, ELSE, REPEATE-UNTIL, FOR-TO/DOWNTO-DO, BEGIN-END, MEM, CONST, VAR, ARRAY. Supports both LORES and HIRES graphics with COLOR, HGRAPHICS, HCOLOR, HPLOT, AND PDL. On disk for $50. Abacus Software, P.O. Box 7211, Grand Rapids, MI 49510.

ASSEMBLER/DISASSEMBLER

Two pass assembler, disassembler and editor single load program that occupies only 7K of memory. You can move freely between assembling and disassembling. Editing is both character and line oriented. The two pass disassemblies create editable source files. Encompasses a large number of pseudo opcodes, allows linked assemblies, software stacking (single and multiple page) and complete control of printer. Requires 48K and one disk drive—$50. LJK Enterprises Inc., P.O. Box 10827, St. Louis, MO 63129 (314) 846-2313.

BASIC TUTOR

BASIC Tutor Series on seven disks contains 67 programs designed for the novice programmer and for those interested in learning how to program the Apple computer in Applesoft BASIC. The seven disks include introduction to programming and system commands, graphics, text files, computer sounds, program studies (flip pages, shapes, tables, random functions), concatenation, mid/right, program length, sort, poke shapes, audio/video, day of dates, disk map, Applesoft pointers and much more. $190/series and documentation. Disk 8 contains program and subroutines that novice programmers can include in your work as you write programs. $39. Educational Courseware, 3 Nappa Lane, Westport, CT 06880.

FORTH-LIKE LANGUAGE CARD

MicroSpeed is a fully-developed, structured, high-level language system (on a peripheral card) for the Apple][. Included are 35 floating point commands, multi-dimensional arrays, string handling, print formatting and text editing. Covers both Lo and Hi-Res graphics functions with extentions for automatic clipping, turtle graphics and hi-res text writing. More than twice as many commands as Applesoft and unlimited additional commands may be created by the user. Running speed is increased by approximately ten-fold (over Applesoft) and for programs using a variety of floating-point functions (for square roots, the speed ratio is over sixty). Compiler is available in memory at all times—$495 each. User's manual $35. Applied Analytics Incorporated, 5406 Roblee Drive, Upper Marlboro, MD 20870 (301) 627-6681.

Simulations/Games

FLIGHT SIMULATOR

Flight Simulator with British Ace 3D Aerial Battle is written in machine language for speed and realism. Accurate flight characteristics allow the non-pilot to learn basic flight control while the experienced pilot can explore an aircraft's flight characteristics in depth. Real time three-dimension out-the-window view of flight is updated at an average of 3 time per second. The fast update speed results in easy control during takeoffs and landings as well as in normal flight. Uses keyboard and/or joystick for input and flight control. Requires 16K minimum either cassette or disk. 40 page user's manual provided—cassette $25 disk $33.50 plus $1.50 shipping UPS or First Class. subLOGIC Communications Corp., Box V, Savoy, IL 61874 (217) 359-8482.

TIME LORD

Based on the Dr. Who of PBS fame, Time Lord is an adventure whereby the player must eliminate the evil "master". Resources include a hyperspace-worthy vessel, clones who will fight for you, the CRASER weapons of the Tardus and magic weapons such as Fusion Grenades and Borelian Matrix Crystals. Traveling through hyperspace, you will encounter Time Eaters, Neutron Storms and other alien creatures and phenomena. Entering real space to search planets, you will encounter still other dangers. Requires 48K and disk—$29.95. At your local store or TSE-Hardside, 6 South St., Milford, NH 03055 (800) 258-1790 in New Hampshire (603) 673-5144.

STRATEGY

From one of the finer strategy game publishers, several simulations: Lords of Karma where the player finds himself in a mythical magical city to perform as many deeds of kindness and bravery as possible. A science fiction alien attack game, conflict 2500, alters its strategy to tease the player. Based on the board game, Acquire has as its object the acquisition of as much wealth as possible. Other military simulations include B-1 Nuclear Bomber, Midway Campaign, North Atlantic Convoy Raider, Nukewar and Planet Miners. The Avalon Hill Game Company, 4517 Harford Road, Baltimore, MD 21214 (301) 254-5300.

NEW GAMES

Creative Computing Software broadens their line with new games. Story Time offers children a seemingly endless variety of illustrated stories featuring themselves, their friends and their personal likes and dislikes. Trivia unlimited tests knowledge in seven areas: science, geography, history, computers, TV and movies, English and trivia. Outdoor Games uses color graphics in four challenging games. Crosswords allows the user to construct his/her own crossword puzzles or solve 24 preprogrammed ones. Action Games include Cycle Jump, Road Machine and Mine Rover. Bumping Games consists of Parrot, a "Simon-like" game, Dueling Digits and Darts. Strategy Games include Blockade, Depth Charge, Checkers, and Tunnel Vision. Available on both cassette and disk, prices range from $11.95 to $24.95. See your local dealer or contact Creative Computing, 39 E. Hanover Ave., Morris Plains, NJ 07950 (800) 631-8112.

WAR GAMES

Three new wargames have been released: Computer Conflict, Computer Air Combat, and The Warp Factor. The first consists of two introductory games, Rebel Force and Red Attack! Using armored, infantry, and heavy weapons companies, you must negotiate the Hi-Res mapboard while being opposed by minefields, ambushes, militia, and anti-tank guns. Red Attack! is a two player game that simulates an invasion by a mixed tank and infantry force against a defending battalion. Complete with rulebook $39.95. Computer Air Combat is an advanced game for those who wish to recreate WWII aerial combat. Each player must choose from among 36 famous fighters or bombers. Each plane is rated—in strict historical accuracy and detail—for firepower, speed, maneuverability, damage tolerance, and climbing and diving ability. Five scenarios are provided. Complete with rule book, two mapboard charts, and three player-aid charts $59.95. The Warp Factor allows one or two players to choose from among 12 starship designs representing 5 Galactic Empires. The players are placed squarely in the Captain's role, dealing with the critical parameters of interstellar battle (shields, disruptor bolts, screens, warp engines, etc.). Complete with manual, 3 starship data cards, game selection card. Requires Applesoft ROM and 48K. Strategic Simulations, Inc., 465 Fairchild Drive, Suite 108, Mountain View, CA 94043 (415) 964-1353.

RUBIK'S CUBE

Rubik's Cube for the Apple][gives full color Hi-Res 3D views or permits play in text mode for black and white monitors. You may start from a solved cube, start at random, enter a specific starting point, save on disk to resume later. Requires 48K Applesoft and one disk drive. Specify DOS 3.2 or 3.3—$19.95. Software Alternatives, Inc., 4020 Elmhurst, Toledo, OH 43613.

THREE MILE ISLAND SPECIAL EDITION

Muse has released two updated versions of its popular game software, Three Mile Island Special Edition and The Best of Muse. Both new issues run on any Apple][or][Plus with disk drive. Each retails for $39.95 at local computer stores. Three Mile Island has been entirely rewritten in quick-response machine language and 6 colors—48K required. The Best of Muse presents five popular game programs: Escape, The Maze Game (both in three dimensions), Tank War, the Music Box and Side Shows' six mini-games—32K required. At local stores or contact Muse, 330 N. Charles St., Baltimore, MD 21201 (301) 659-7212.

Special Items

HANDICAPPED TYPEWRITER

Handicapped Typewriter is a complete electric typewriter without a keyboard. The use of a simple switch allows full operation. For the severely disabled, this typewriter is easily operated by a single switch closure which controls the movement of a cursor across and up a television screen. Operating program includes a word and phrase dictionary that allows items to be added or deleted by the user, a simulation of a hand-held calculator with nine digits accuracy, a telephone directory, dialing and answering facility, an environmental control system. Requires 48K with disk and printer, a simple switch, environmental control uses Hayes Micromodem][and Mountain Computer's Introl X-10 for BSR control modules, and Companion Handsfree Telephone. Softwar—$100. Rocky Mountain Software Inc., 1038 Hamilton St., Vancouver, B.C. V6B 2R9 Canada (604) 681-3371.

(continued on page 94)

UNLEASH YOUR MIND WITH OUR DREAM MACHINES.

Our products are a breed apart from the clutter of other "computer" games that so often are no more than hyped-up video games giving you pretty pictures and little substance. After the novelty has worn off, they are quietly discarded. In our opinion, this is a pretty poor value.

Not so with our games.

STATE-OF-THE-ART PROGRAMS

At Strategic Simulations Inc, our state-of-the-art simulation programs are designed with one purpose: to provide you with computer games unmatched in sophistication, excitement, realism, and playability.

All of which translates into one word: fun. Lasting fun, because they are designed by thinking men for the Thinking Man.

With a little help from your imagination, our software will convert your Apple® into a veritable Dream Machine that transcends the barriers of time and space.

OUR UNIVERSAL DREAM MACHINES.

If your idea of a truly great game is one where more than manual dexterity is required – where planning and plotting based on strategic and tactical skills are essential to victory – then we're thinking along the same lines.

Speaking of lines, our complete and ever-expanding line of quality games will fit your needs perfectly – whether you're into historical wargaming, fantasy/science fiction, business, or sports simulations.

You see, our designers' creativity knows no bounds.

UNCOMPROMISING STANDARDS

As varied as our programs may be, they all share common features without which they could not meet our demanding standards.

To approximate the "you-are-there" feeling so desirable in game playing, all our simulations are created with loving attention to accuracy and meticulous detail.

In recognizing the difficulty of always finding a ready and able human opponent, we have made sure the computer can serve as your adversary in solitaire play. And if you are expecting a pushover, you're in for quite a surprise!

For those dedicated to the ultimate gaming experience, we have exactly what you've been looking for.

We've made quite a statement, and we're ready to back it up. Our 14-day money back guarantee is your assurance of complete satisfaction.

ORDER YOUR DREAM MACHINE TODAY.

If you own an Apple®II 48K (Applesoft ROM) and a 5¼" mini-floppy disc drive, you can own our Dream Machines today and unleash your mind.

Credit card holders, call 800-227-1617, ext. 335 (toll free) and charge your order to your VISA or MASTERCARD. In California, call 800-772-3545, ext. 335.

To order by mail, send your check to: Strategic Simulations Inc, Dept. OA1, 465 Fairchild Drive, Suite 108, Mountain View, CA 94043.

☐ COMPUTER BISMARCK™: $59.95.*
☐ COMPUTER NAPOLEONICS™: $59.95.
☐ COMPUTER CONFLICT™: $39.95.
☐ THE WARP FACTOR™: $39.95.
☐ CARTELS & CUTTHROATS™: $39.95.
☐ COMPUTER AMBUSH™: $59.95.
☐ COMPUTER QUARTERBACK™: $39.95.
☐ COMPUTER AIR COMBAT™: $59.95.
☐ OPERATION APOCALYPSE™: $59.95.
☐ TORPEDO FIRE™: $59.95.

***COMPUTER BISMARCK™ is available for TRS-80 cassette 32K: $49.95; and TRS-80 48K disc: $59.95.**

As part of our demanding standards of excellence, we use maxell floppy discs.

Apple is a registered trademark of Apple Computer Inc.

TRS-80 is a registered trademark of the Tandy Corporation.

Communications

TEXT CAPTURE

Data Capture 4.0 is a communications program for use with the D.C. Hayes Micromodem or the Apple Communications Card. Includes a user-controllable text buffer which can be easily edited. Both prepared and captured text is modifiable. An unlimited amount of text can be captured in most circumstances. This is automatically controlled by the program which alternatively captures then saves the incoming text. Programs are made into text files with a utility and can be sent as well. Data Capture can even be called and controlled remotely from another system. At your local dealer or contact Southeastern Software, 6414 Derbyshire Drive, New Orleans, LA 70126 (504) 246-8438.

PASCAL DATA COMMUNICATION

Pascal software for the Hayes Micromodem][. Datacom is a data-communications-software package for use with the Hayes Micromodem][for Pascal equipped Apple][computers. Consists of a terminal program that allows data and program exchange. It uses the Apple's Pascal routines for ease and accuracy, and Hayes Micromodem routines are used so that a programmer can include data-communications commands in his or her Pascal program. At stores for $50. Hayes Microcomputer Products Inc., 5835 Peachtree Corners E., Norcross, GA 30092 (404) 449-8791.

AUTO-MODEM

Auto-Modem from Computer Station allows for "turnkey" use of the D.C. Hayes Micromodem][. User may select from the following menu: Auto-Dialer, Auto-Answer, Auto-Caller, Auto-Message, Self-Test. File Maintenance, Quit. Requires DOS 3.3, Applesoft ROM, 48K and one disk drive—$39.95. Also available is an excellent bulletin board and computerized message management system for the Apple][using the same modem. The following categories are supported: Apple bulletin board systems, Bulletin board (read/leave messages), Chat with system operator, Download programs, Goodbye (accepts user feedback before hangup), Information about the system, Mail (send/receive private letters), Nulls on or off, Off allows immediate signoff, Programming tips for Apple users, Special interest topics, Time, Users listing of systems callers. Requirements as above—$124.95. Computer Station, 11610 Page Service Drive, St. Louis, MO 63141 (314) 432-7019.

Utilities

FAST SORTER

Hypersort for the Apple][sorts 1000 items in four seconds using machine code. Sorts any single dimensioned array in memory and uses no additional memory for the sort. Handles integer, real and string arrays. Relocates almost anywhere in memory. Demonstration program and full documentation—$24.95. Matthew Jew & Erik Kilk, 2419 Durant #21, Berkeley, CA 94704.

MONITOR UTILITY/ASSEMBLER

Apple Monitor Extender is a utility program that works in complete harmony with the Apple monitor. Screen display shows memory in Hex, ASCII or Binary. Move data anywhere in memory without regard to direction or overlapping and read or write any sector on disk. Study, modify or disassemble any program, complete with labels. Several programs may be combined, and the entire disassembled text file stored on disk/tape for later assembly. Includes slow list feature. Image Computer Products, 615 Academy Drive, Northbrook, IL 60062 (312) 564-5060.

PROGRAMMER'S UTILITIES

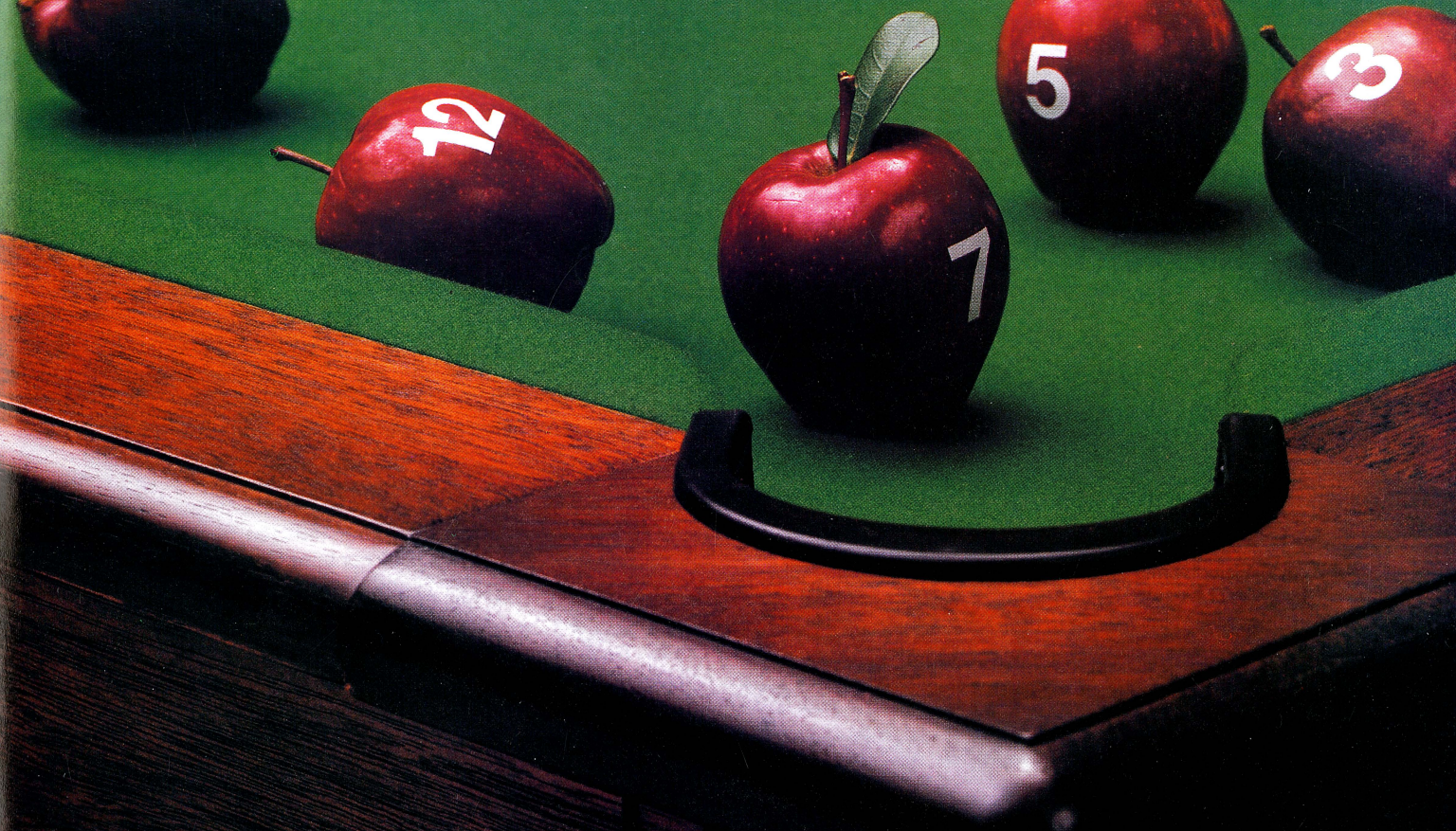
Dakin5 Programming Aids 3.3 provides 12 utility programs to facilitate the development of your own programs. The Lister sends BASIC programs to the printer to be listed with headings, pagination, date. Line Cross Reference produces references by GOTO, THEN, GOSUB, LIST, or RUN statements. Variable Cross Reference displays all variable names and their respective line numbers. The Peeker displays or prints all selected records from a text file. The Patcher allows you to display any sector of a given file or program and then update any data within that sector. The Copier copies any type of file from one diskette to another. The calculator allows twenty place accuracy to add, subtract, multiply and divide very large numbers. The diskette copy checks input and output to see that they match. Allows copies without DOS. The Array Editor is a simple word processor. The Screen Printer permits the contents of the screen to be sent to a printer. The Prompter is a data entry subroutine. The Cruncher removes REM's, unreferences (dead) code and compresses code in Applesoft programs. See your local dealer or contact Dakin5 Corp., P.O. Box 21187, Denver, CO 80221 (800) 525-0463.

Word Processors

The Executive Secretary, a new, professional word processing system for the Apple includes an 85 page manual, oriented to the beginner. Features an integrated card file system so that customized form letters and standard-form documents can be produced easily. Both 40 and 80 character edit modes are included, with true lower case and live shift key, page numbering, headings, forms management and Visicalc compatibility. Two other professional features are an IF command that allows conditional partial printing based on the contents of your database and an abbreviation feature that allows you to write in "shorthand" which the printer will expand to "longhand". This one has an extensive command set. Personal Business Systems, Inc., 4306 Upton Ave. South, Minneapolis, MN 55410 (612) 929-4120.

SuperScribe word processor for the Apple gives true upper/lower case text on your screen with no additional hardware. Works with documents larger than the amount of memory in your Apple—transparent to you. Edits any binary or text file or documents. Designate keys for often-type words, global search and/or replace. On-line instructions, supports multiple drives and alternate character sets. Produces form letters using address files. Supports shift key modification if made to your Apple. Works with any printer and supports the Language Card or any 16K expansion RAM card. Machine language—$89.95. At your local store or On-Line System, 36575 Mudge Ranch Road, Coarsegold, CA 93614 (209) 683-6858.

Apple PIE (Programma International Editor) and **FORMAT** (text formatter) are powerful programs that provide document preparation and word processing capabilities previously found only on much larger computer systems. PIE is a general purpose, full screen editor that features a full range of editing capabilities such as search and replace, delete, copy, insert, move. FORMAT uses simple instructions embedded in the input text to describe the desired appearance of the final document. It handles centering, underlining, indenting, page numbering, margins, headers, footers, even form letters, and includes a proofing capability—$129.95. At your local store or Programma, 2908 N. Naomi St., Burbank, CA 91504 (213) 954-0240.



Take Your Cue From Vista . . .

When it comes to Apples, take your cue from Vista's A800 Eight-Inch Floppy Disk Controller. The A800 offers a cost-efficient approach to software compatible disk memory expansion for your Apple II® computer. The A800 Controller enables Apple II users to access up to five megabytes of online storage through conventional disk operating (DOS) commands.

The Control and DMA Logic provides high speed (1 microsecond per byte) transfer of data from the disk drive directly to the Apple II memory without processor intervention. Plus, the Phase-Locked Loop Data Separator provides the ultimate in data reliability.

AND THERE'S MORE.

The controller is compatible with the most popular disk operating systems for the Apple II computer. It also interfaces to all Shugart/ANSI Standard Eight-Inch Floppy Disk Drives. The A800 provides complete IBM format compatibility in both single and double-density modes.

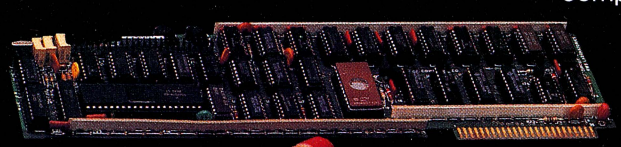
It's a Sure Shot.

THE HOT SHOT AT A COOL PRICE.

The A800 is reasonably priced at $595. A price you can't beat when you compare its quality and performance.

CALL YOUR SHOTS.

Vista offers you a complete line of peripheral equipment to maximize the capabilities of your Apple system including: High capacity Mini-floppy Disk Drives, the Vista Music Machine 9 and the Vista Model 150 Type Ahead Buffer. In addition, Vista offers a line of advanced components fully compatible with the TRS-80* and S-100 based computers.





Vista Computer Company
1317 E. Edinger Avenue
Santa Ana, CA 92705
(714) 953-0523

Call Toll Free 800-854-8017

® Apple II is a registered trademark of Apple Computers, Inc.
* TRS-80 is a trademark of Radio Shack, A Tandy Co.

CATALOGS

Data products catalog for users of Data Processing and Microfilm. Includes such items as CRT trays, stands, binders, cables and connectors, anti-static mats, cases, clocks, fire extinguishers, safes, voltage surge protectors, digital cassettes, diskettes, labels, mailers, magnetic tape storage, microfiche accessories, paper, printwheels, racks, ribbons and rulers/templates. Many useful items. Devoke Data Products, P.O. Box 51230, Palo Alto, CA 94303 (415) 494-8844.

Hobbyworld Electronics offers a catalog of discrete components and electronic components, many for use in digital applications. They also distribute printers, monitors, mods. Kalglo Electronics Co., Inc., Colony Drive Industrial Park, 66584 Ruch Road-E. Allen Twp., Bethlehem, PA 18017 (800) 521-9685 locally dial (215) 865-0006.

California Computer Systems product catalog contains hardware for the Apple. Some of the items include a Calendar/Clock Module, a Programmable Timer, a 3¾ Digit Analog-to-Digital Converter, an Extender Board, Serial and Parallel Interfaces and an Arithmetic Processor. CCS, 250 Caribbean Drive, Sunnyvale, CA 94086 (408) 734-5811.

Software catalog from Creative Computing contains a good section of games such as Saucer Invasion, Baseball, Haunted House, Space War, Mission Impossible Adventure, several Ecology Simulations, a Scientific Plotter and Curve Fitter and educational software developed by the Minnesota Educational Computer Consortium (some excellent stuff—Ed.). Creative Computing, P.O. Box 789-M, Morristown, NJ 07960 (201) 540-0445.

A catalog of hardware and software for the Apple includes such items as A Stellar Trek—the definitive Hi-Res color version of the classic Startrek game, Versawriter][—a drawing tablet with excellent software intelligence built in, Bowling Data System—a data management system providing accurate record keeping and report generation for bowling leagues, Super Sound—musical rhythms, gunshots, sirens, laser blasts, explosions, etc. Catalog—free. Rainbow Computing Inc., Garden Plaza Shopping Center, 9719 Reseda Blvd., Northridge, CA 91324 (213) 349-5560.

The Complete Computer Catalog includes mail order hardware and software for the Apple][. Includes such items as an arithmetic processor from CCS, the VersaWriter graphics tablet, adventure games (Zork, Temple of Apshai, etc.), simulations, text editors, graphics programs and various languages. TSE/Hardside, 6 South St., Milford, NH 03055 (800) 258-1790.

Cable Catalog has everything you need to interconnect equipment: connectors, modem cable, serpentine, 24-pin I/O connectors, DEC compatible cables, coax, ribbon, junction panels, wall outlets/plates. Prewired RS-232-C, null modems, breakout box and interface analyzer, switch boxes, custom cables. Data Set Cable Company, Inc., 722 Danbury Rd., Ridgefield, CT 06877 (203) 438-9684.

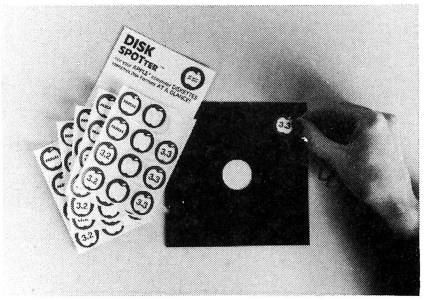
Apple Buyers Guide includes 1000 listings of software, accessories, supplies and books for the Apple computer. Volume discounts available. Guide is growing at a rate of 100 items per month. 72 hour turnaround. $5 refunded with first purchase. Wallace Computers, Accessories and Supplies, Inc., 1024 W. Willcox, Peoria, IL 61604 (309) 685-7876.

Adventure International publishes a catalog of software for the Apple][. Includes the Scott Adams series of adventures, utility software, Galactic Saga, Interactive Flction, Kid-venture, Planetoids, Poker Tournaments and more. AI, P.O. Box 729, Casselberry, FL 32707 (800) 327-7172, in Florida (305) 862-6917.

Apple Computer, Inc., is offering its new catalog called Special Delivery Software. These are programs that Apple has not developed but feels are good enough to include in the catalog. They're useful and exciting programs. The first catalog contains 12 programs, including a personal-finance manager, a BASIC teaching program, stepwise multiple regression, programs for learning geometry and measurement, games, a Pascal animation package, a Pilot animation program, electronic music and a US geography package. Prices are in the $35 to $150 range. Visit your local dealer or call toll free (800) 538-8400 in California (800) 672-1424.

MISCELLANEOUS

PEEL OFF LABELS



Disk SPOTter is a peel-off label that identifies your disk format at a glance. Each pack contains 60 spots for 3.2, 3.3, Pascal and a blank for you to fill in with names of word processors, data bases, systems, etc.—$1.29 suggested retail. See your local dealer or contact Silverman Enterprises, Inc., 3673 Bassett Court, S. San Francisco, CA 94080 (415) 878-5382.

DESK TOP FURNITURE

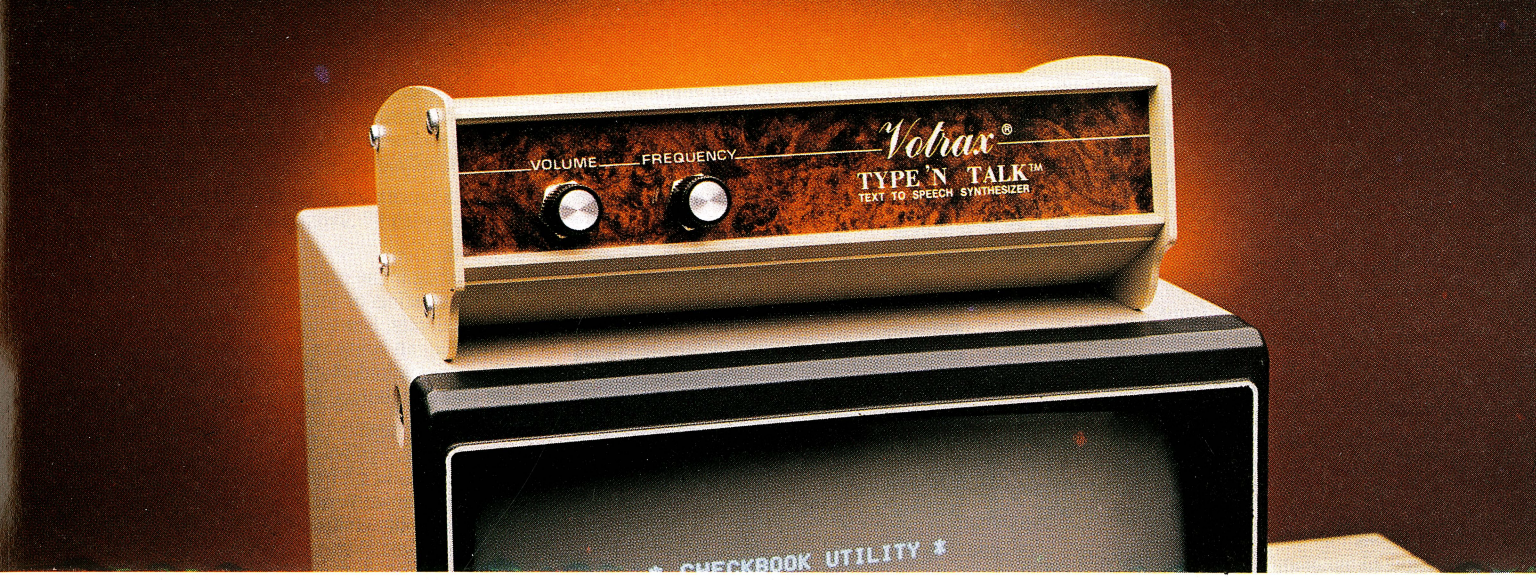
The Apple-Crate is a desk top package that puts all your components into one package. Holds two drives, the Apple and a monitor (on top). Built by the same company that manufactures top-line stereo speaker cabinets. It's rugged, scratch and stain resistant and looks like an expensive piece of furniture but costs only $49.95. At your local store or Softsel, 4079 Glencoe Avenue, Marina del Rey, CA 90291 (800) 421-0980, in California (213) 822-8933.

COPY HOLDER

Copy stand keeps work directly in front of the operator. Fits most terminals including the Apple][. The units can support a telephone book and other heavy reference manuals or manuscripts. Installation is quick and easy. Prices start at $19.95 for the 16 inch model. FKay Corp., P.O. Box 11463, Costa Mesa, CA 92677 (714) 548-2081.

COMPUTER DESK

Computer desk with custom fitted areas to hold the Apple][or][Plus computer is handcrafted in wood. The drawer in front is designed to hold the computer at a comfortable typing height, and a space saving custom area for the disk drives is easily accessible for loading diskettes. Work area of 27×48 inches and is built to a height of 30 inches. Cable cut-outs in back. Finished in Salem Maple stain or other on request—$400. Custom designs are offered. Furnwood Manufacturing, 5665 S.W. Carman Dr., Lake Oswego, OR 97034 (503) 636-1991.



TYPE-'N-TALK™ IS T.N.T.

The exciting text-to-speech synthesizer that has every computer talking.

- **Unlimited vocabulary**
- **Built-in text-to-speech algorithm**
- **70 to 100 bits-per-second speech synthesizer**

Type-'N-Talk,™ an important technological advance from Votrax, enables your computer to talk to you simply and clearly — with an unlimited vocabulary. You can enjoy the many features of Type-'N-Talk,™ the new text-to-speech synthesizer, for just $345.00.

You operate Type-'N-Talk™ by simply typing English text and a talk command. Your typewritten words are automatically translated into electronic speech by the system's microprocessor-based text-to-speech algorithm.

The endless uses of speech synthesis.

Type-'N-Talk™ adds a whole new world of speaking roles to your computer. You can program verbal reminders to prompt you through a complex routine and make your computer announce events. In teaching, the computer with Type-'N-Talk™ can actually tell students when they're right or wrong — even praise a correct answer. And of course, Type-'N-Talk™ is great fun for computer games. Your games come to life with spoken threats of danger, reminders, and praise. Now all computers can speak. Make yours one of the first.

Text-to-speech is easy.

English text is automatically translated into electronically synthesized speech with Type-'N-Talk.™ ASCII code from your computer's keyboard is fed to Type-'N-Talk™ through an RS 232C interface to generate synthesized speech.

Just enter English text and hear the verbal response (electronic speech) through your audio loud speaker. For example: simply type the ASCII characters representing "h-e-l-l-o" to generate the spoken word "hello."

TYPE-'N-TALK™ has its own memory.

Type-'N-Talk™ has its own built-in microprocessor and a 750 character buffer to hold the words you've typed. Even the smallest computer can execute programs and speak simultaneously. Type-'N-Talk™ doesn't have to use your host computer's memory, or tie it up with time-consuming text translation.

Data switching capability allows for ONLINE usage.

Place Type-'N-Talk™ between a computer or modem and a terminal. Type-'N-Talk™ can speak all data sent to the terminal while online with a computer. Information randomly accessed from a data base can be verbalized. Using the Type-'N-Talk™ data switching capability, the unit can be "de-selected" while data is sent to the terminal and vice-versa — permitting speech and visual data to be independently sent on a single data channel.

Selectable features make interfacing versatile.

Type-'N-Talk™ can be interfaced in several ways using special control characters. Connect it directly to a computer's serial interface. Then a terminal, line printer, or additional Type-'N-Talk™ units can be connected to the first Type-'N-Talk,™ eliminating the need for additional RS-232C ports on your computer.

Using unit assignment codes, multiple Type-'N-Talk™ units can be daisy-chained. Unit addressing codes allow independent control of Type-'N-Talk™ units and your printer.

Look what you get for $345.00. TYPE-'N-TALK™ comes with:

- Text-to-speech algorithm
- A one-watt audio amplifier
- SC-01 speech synthesizer chip (data rate: 70 to 100 bits per second)
- 750 character buffer
- Data switching capability
- Selectable data modes for versatile interfacing
- Baud rate (75-9600)
- Data echo of ASCII characters
- Phoneme access modes
- RS 232C interface
- Complete programming and installation instructions

The Votrax Type-'N-Talk™ is one of the easiest-to-program speech synthesizers on the market. It uses the least amount of memory and it gives you the most flexible vocabulary available anywhere.

Order now. Toll free.

Call the toll-free number below to order or request additional information. MasterCard or Visa accepted. Charge to your credit card or send a check for $345.00 plus $4.00 delivery. Add 4% sales tax in Michigan.

1-800-521-1350.

Votrax®

Distributed by Vodex
A Votrax Company — Dept. RT
500 Stephenson Highway, Troy, MI 48084
(313) 588-0341

Type-'N-Talk™ is covered by a limited warranty. Write Votrax for a free copy.

The business information you need at the turn of a key.

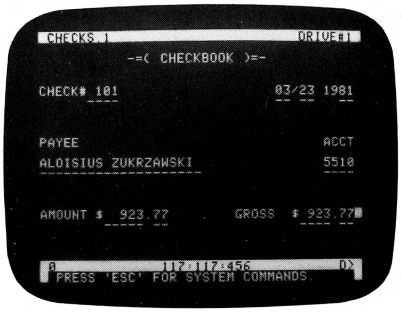
Datadex is a new interactive business management system designed for the Apple personal computer. It's from IUS, the people who brought you EasyWriter™ and who are bringing you new products for office automation, education, and development systems.

Datadex is short for **data index.** It lets you put all your business data into your Apple the way you like to see it and manipulate it any way you want. **It adapts to your way of doing business.**

Want to generate a sales report? Just press four keys and fill in the blanks. That puts your sales data into the computer. Now, your report: Datadex **designs it for you,** based on what you've entered. Nothing to it. That's **power!**

You can do the same with phone lists, mailing lists, dealer names or inventories. They all enter Datadex and form your own personal **data base.**

Want to find a company but don't know how to spell its name? Try something that sounds close, and our **Soundex** routine will find it. It is very forgiving on typos and extra spaces.



Soundex helped us find Mr. Zukrzawski when we were balancing our checkbook. We weren't sure how to spell Al's name, so searched for Al Z and found him. Instantly. The check register and several other applications are free with Datadex.

Want a specific piece of information, like sales for January 14–21? Inquire Datadex and the answer comes up on the screen right now. And right.

Want a report of all sales in ZIP code areas starting with 9? Sure. Just ask it to print a report.

But seeing is the only way to believe. Get a demonstration of Datadex at your local Apple dealer. See the personal computing power it can bring to your office and home. If you've looked at a VisiCalc-type program, see Datadex before you buy.

By the way, about IUS. We're the Apple of software. We got there by giving you great products and super support. We provide customer service over the phone. Professionally written documentation. And products that are never outdated, only updated. Information Unlimited Software, Incorporated, 281 Arlington Ave., Berkeley, CA 94707. (415) 525-9452.

Does your other software have auto system configuration and auto report generation? Datadex does. You don't have to be a computer expert to get results!

PUT DATADEX™ IN YOUR APPLE.



Datadex is a trademark of Sonoma Softworks.
EasyWriter is a trademark of Cap'n Software.
Apple is a trademark of Apple Computer Inc.
VisiCalc is a trademark of Personal Software, Inc.

ADVERTISERS' INDEX

	PAGE
Advanced Business Technology, Inc.	31
Advanced Computer Products	69
AGS Software	31
Apple Computer Inc.	56, 84
ATV Research	24
Avant-Garde Creations	76
Basis O Incorporated	12
Beagle Bros.	31
BubbleSoft	18
Computer Station	81
Creative Computing	71
dilithium Press	10
Eastern House Software	62
Galaxy	81
Highlands Computer Services	35
Information Unlimited Software	98
Instant Software	78, 79
Lobo Drives International	BC
McGraw-Hill Book Company	25
Microsoft	5
Mountain Computer	IFC
Nibble	21
Novation	49-52
Personal Software Inc.	6, 7
Progressive Software	41
RKS Enterprises, Inc.	89
Serendipity Systems	45
Software Publishing Corporation	IBC
SSM Microcomputer Products	1
Strategic Simulations	93
Synergistic Software	63
Thunderware Incorporated	29
Used Computer Exchange	62
Verbatim	2
Videx	57
Vista Computers	95
VK Utilities	73
Votrax	97

INTERNATIONAL APPLE CORE™

Apple Orchard SUBSCRIPTIONS

P.O. Box 1493, Beaverton, Oregon 97075

Please enter a subscription to Apple Orchard for:

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

COUNTRY _____

Subscription rate: $10.00 for four issues.
First class postage: $5.00 additional (required for Canada, Mexico, APO, and FPO addresses).
Overseas and other foreign air mail postage (required): $10 additional.

Charge it to my:
☐ VISA ☐ MasterCard No. _____ Expiration date _____

Or make check or money order payable to "Apple Orchard" and return with this form to:

Apple Orchard Subscriptions
P.O. Box 1493
Beaverton, Oregon 97075

TOTAL REMITTANCE ENCLOSED: $ (USA) _____

Buffer Overflow

LEFTOVER ABSTRACTS

By Dan Wasleski
from K.C. Apple Bits

Recently, I helped abstract some of the programs in the Club library by composing a brief description of them. After matching the descriptions with the programs, I found I had some abstracts left over. I thought it would be a good idea to write them down here so all of you can keep an eye out for these lost programs.

XMAS
I 84 Sectors
This is a scavenger hunt for 2 to 20 players. The computer will randomly pick a Christmas carol/song and players must seek and find the items mentioned in that song. Requires bells, frankincense, myrrh, angels, reindeer, stable, holly, three French hens, two turtledoves, etc.

MEMORY MOVE
I 23 Sectors
You are a brain surgeon in this HiRes simulation. Use paddles to manipulate your instruments. Requires warm brain and paddles.

CENTERING ROUTINE
I 19 Sectors
This is a warm-up program for HiRes Football.

SOLITAIRE
A 234 Sectors
Computer plays with itself until you shut it off.

REGRESSION
A 67 Sectors
This is a program in which oscillating HiRes paterns hypnotize you and take you back to your childhood. CAUTION: Be sure to have the program PROGRESSION inserted in the drive before you start.

MOZART TWO VOICES
I 44 Sectors
Two player game. Computer gives starting pitch and players must sing notes higher and higher each turn. First player to shatter computer wins.

DUKEDOM
I 12 Sectors
John Wayne trivia quiz.

HEX CONVERTER
A 61 Sectors
This program converts your voodoo curse to name-specified ABBS user. Requires modem, doll, and sixteen-pin adapter.

ELECTRICAL ENGINEERING I
A 4536 Sectors
This is an engineering tutorial. Requires 40 chairs.

SLOW MEMORY TEST
I 2 Sectors
For anyone who has read this far.

INFINITE NUMBER OF COMPUTERS
A 99 Sectors
This program creates a monkey. Requires a Mobius interface and an infinite number of Apple computers.

BEACH PARTY
I 69 Sectors
This is a fantasy game in which you are taking a date to a beach party and you have only $5.93. You must decide how much, if any, to spend on a blanket, swimming trunks, beer and miscellaneous items. The outcome of the evening depends on how well you spend.

EGG MAC MUFFIN
A 83 Sectors
This program converts a 3.2 minute egg into a 3.3 minute egg.

TWELVE ANGRY MEN
A 12 Sectors
This game, based on the famous movie, requires 12 players to hear the evidence presented by the computer. They must then judge whether the defendant is guilty. Requires 12 paddles, 6 computers and one judge.

KUNG PONG (PONG FU)
I 22 Sectors
Version of Brick-out. Instead of knocking out bricks with ball and paddle, you remove them with karate chops. Requires new monitor for each game.

OTHELLO
I 55 Sectors
Fantasy game for two players. You may choose to be either Othello or Desdemona. (Some choice!)

MAZE
A 77 Sectors
This is a fantasy game in which you are a maze, and the computer tries to get out of you. Painful game.

A WORD
A 237,689 Sectors
This is a demo program which shows off the alphabetic manipulative powers of your Apple. Program takes the word "A" and rearranges it in all of the possible combinations. Requires 2 disk drives, 48K, and Programmer Aids 1 to 9.

T. O. U. G. H.
I 39 Sector
This is an adventure fantasy set in ancient Greece. You have to be TOUGH to survive and win because you must tease Trojans, offend Odysseus, upset Ulysses, goad Greeks and harass Hector.

The *pfs*:™ software series



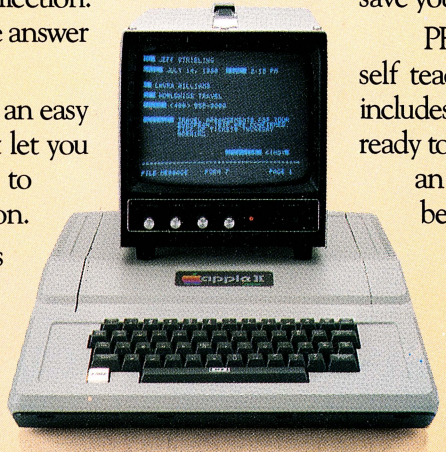
A Personal Information Management System.

Your APPLE* computer really can track purchase orders and inventory, analyze your investment records, maintain client and patient histories, or even catalog magazine abstracts and your stereo collection. Software Publishing Corporation has the answer and it doesn't require programming!

We call it the PFS software series – an easy to use yet powerful set of programs that let you design a system that's versatile enough to manage almost any kind of information.

PFS, the personal filing system, lets you design your own form on the screen for organizing information. Once it's created you just fill in the blanks. Looking up what you've filed is just as easy. PFS can search for a number, a single piece of data, a word within a page of text, or any combination. All forms that match are displayed on the screen for browsing, updating, expanding, or printing. PFS can even create mailing labels.

PFS: REPORT, the personal report system, uses the files PFS creates to produce a report tailored to your specifications. Just mark the information you want listed and PFS: REPORT will sort it and let you specify headings, totals, averages, counts, and calculations. You can save your report design for use on a regular basis.



*requires a 48K, 16-sector disk based APPLE II system

PFS and PFS: REPORT come with simple self teaching manuals plus a support plan that includes program updates and factory experts ready to answer your questions. And all of this at an affordable price. Each program is priced below $100.

The PFS software series is different. It is not a specialized application package nor a complex programmer oriented data base manager. It's a personal information management system that lets you store, retrieve, and report information your way without programming. The PFS software series is available through your local dealers. If they don't carry it have them give us a call at (415) 368-7598 or write to us at Software Publishing Corporation, P.O. Box 50575, Palo Alto, CA 94303.

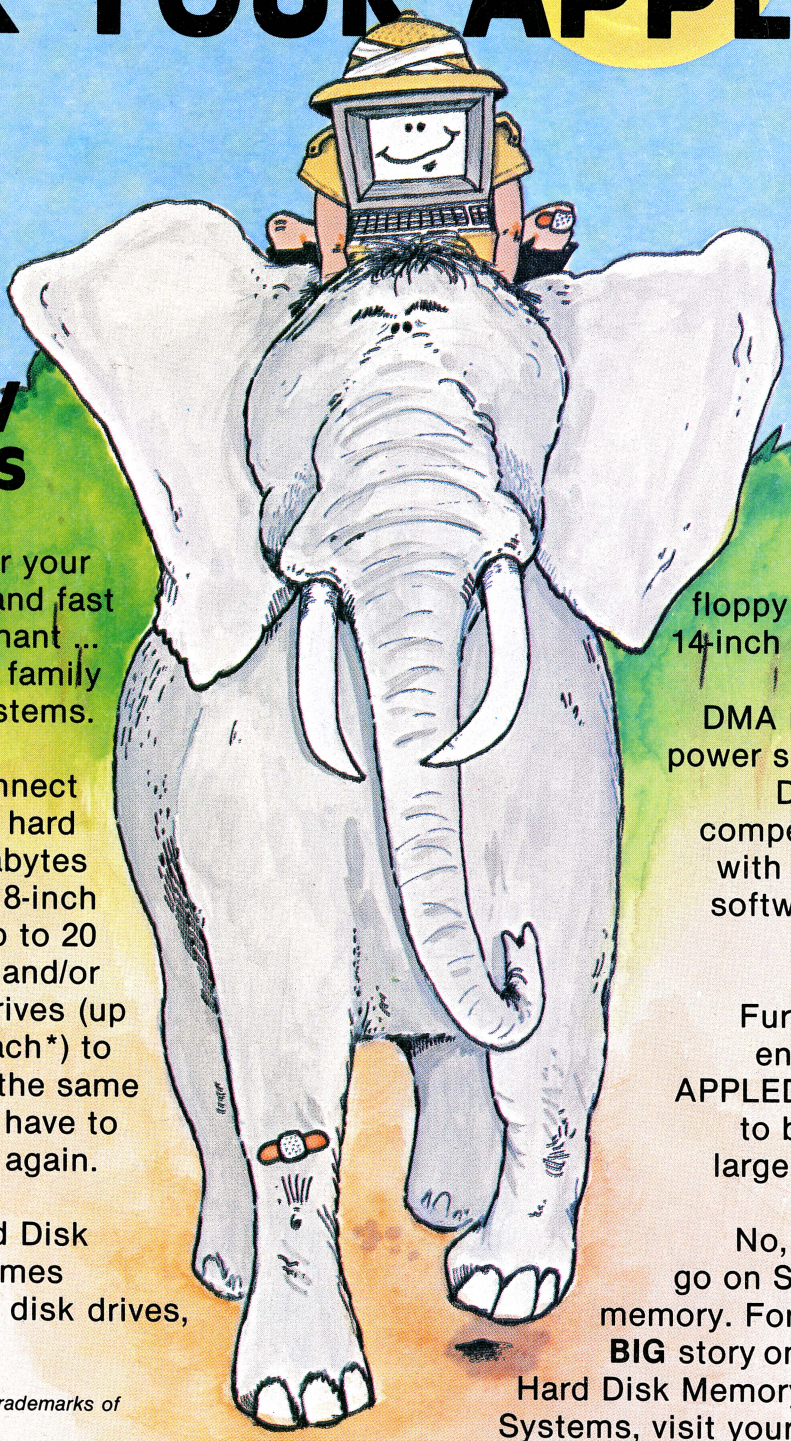
PFS is a trademark of Software Publishing Corporation.

APPLE* is a registered trademark of Apple Computer, Inc.

Software Publishing Corporation

A BIG HAPPENING FOR YOUR APPLE ...

LOBO's New Hard Disk Memory Systems



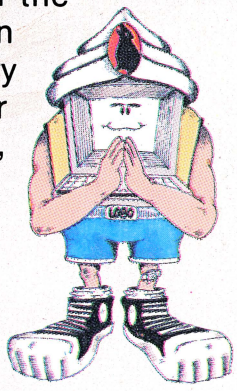
Mass memory for your APPLE™ ... as big and fast as a charging Elephant ... that's LOBO's new family of disk memory systems.

Now you can connect up to four 5¼-inch hard disk drives (6 megabytes each*), and/or four 8-inch hard disk drives (up to 20 megabytes each*), and/or four 14-inch disk drives (up to 58 megabytes each*) to your APPLE, all at the same time. --You'll never have to run out of memory again.

Every LOBO Hard Disk Memory System comes complete with hard disk drives, size-compatible floppy disk drive (except 14-inch model), controller, DMA interface, chassis/power supply, cables, and DOS. And, they are compeletely compatible with most applications software on the market today.

Furthermore, LOBO's enhanced version of APPLEDOS™ permits you to build a data file as large as 16 megabytes.

No, you don't have to go on Safari to find mass memory. For the **BIG** story on Hard Disk Memory Systems, visit your nearest LOBO keeper, or contact our *"Maha Roger"*



*unformatted

APPLE and APPLEDOS are trademarks of APPLE Computer Co.

LOBO drives INTERNATIONAL

LOBO DRIVES, INT'L
354 South Fairview Ave.
Goleta, CA 93117
(805) 683-1576