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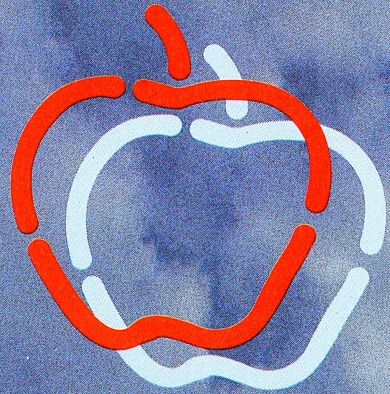
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Volume 5 Number 3 / March 1984

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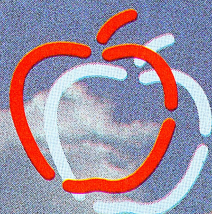
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Peter C. Weiglin – Editor and Publisher

Morgan P. Caffrey – Senior Editor

Gene Wilson – Senior Editor

Lenore Wolgelenter – Senior Editor

Nicole Lefcourt – Editorial Assistant

Cindy C. Mack – Advertising Coordinator

Mark J. Eaton – Art Director

Contributing Editors:

Mark L. Crosby – New Products

“Dr. Wo” – Pascal/Languages Editor

Neil D. Lipson, P. E.

A. S. (Woody) Liswood

Barry D. Bayer

Mike Kramer

Jim Linhart – Miscellaneous Cartoonery

Support Staff:

Joanne Short – Business Manager

Dawn Brown – Circulation Manager

Ellen Roznar – Accounting

Eva Baragona – Customer Service

Jay Eisenberg - Advertising Director
JE Publishers' Representative Company
6855 Santa Monica Blvd.
Los Angeles, CA 90038
(213) 467-2266

Boston - (617) 437-7628 Chicago - (312) 445-2489
Dallas - (214) 660-2253 Denver - (303) 595-4331
New York - (212) 724-7767 San Francisco - (415) 864-3252

Address for all subscriptions, correspondence,
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Apple Orchard
P.O. Box 6502
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Textfile

It's Spring (in the Northern Hemisphere), and in the USA people's fancy lightly turns to thoughts of . . . taxes. So we begin this issue with a method of attacking Form 1040 and supporting documents with the aid of LisaCalc. Many of the concepts are adaptable to other spreadsheet programs, but this application shows off LisaCalc's features pretty well.

While we're on Lisa and the Apple 32-bit family of “Supermicros”, Page 34 contains an update on Lisa, as well as the March installment of “Mac-inations”. As we go to press, the prices of the Lisa units have just been announced. Ready?

- Lisa 2 : 512K RAM memory, no hard disk: \$ 3495.
- Lisa 2/5 : Add a 5 Megabyte ProFile hard disk: \$ 4495.
- Lisa 2/10 : Replace the ProFile with a TEN Megabyte built in hard disk : \$5495.

Note that the upgrade to a full megabyte of RAM memory is not included in those prices; the upgrade will cost \$1495. The Imagewriter printer is priced at \$595, or \$495 if you buy it with a Macintosh during the introductory period. Our guess is that you could get it for \$495 if you bought a Lisa 2 too (shall we dance?).

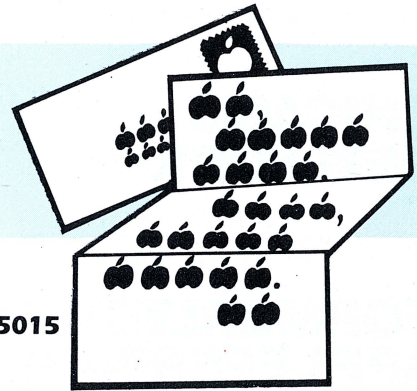
Meanwhile, for those of us with Apple II's, //e's, and ///'s, the news is that the mouse has been trapped for these machines too. See Page 18 for details on the rodent, and the MousePaint software. And for a look over the horizon, check the item which we reprint verbatim on Page 40 on a new 6502 chip.

In the CP/M corner, Diane Burns covers customizing patches for WordStar to make that popular word processor work even better for your applications.

And, this March issue contains an index of the articles which have appeared in **Apple Orchard** in 1983's nine issues, catalogued by title and by author. As you know, we'll have twelve issues in 1984. Your comments will help us to make **Apple Orchard** serve you even better.

—PCW

Ask Us/TELL Us



Address your questions, answers and comments to: **Apple Orchard**
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We've had a number of calls asking the whereabouts of **Orbital Systems**. **Fred Cortazzo**, of **Orbital**, says he has moved to **Scottsdale, Arizona**, and the new phone number is (602) 996-5064.



After reading "True Sixteen-color Hi-res" (*Apple Orchard*, January, 1984), I became interested as to whether this same thing could be accomplished on a **Franklin Ace 1200**.

—ML, from Newark, Delaware

We can only tell you that the **Franklin** people just settled a major lawsuit with **Apple's** attorneys. (In the out-of-court settlement, **Franklin** gave **Apple Computer** several million dollars, along with their promise to stop copying **Apple** hardware). That suit was based upon **Apple's** claim that the **Ace** was produced as a total hardware "clone" of its **Apple** counterpart. If the **ROMS** were copied exactly, it is just possible that the **Franklin Ace 1200** won't know that it isn't an **Apple**.

Does anyone have a complete answer?



I recently saw the following ad on **Los Angeles' dial-up computerized yellow pages**, **BUY-PHONE**:

ROOMMATE WANTED: I am looking for a roommate to share a two bedroom apartment... You may also have partial use of my computer. Maybe it should be recast:

LONELY COMPUTER SEEKS PLAYMATE. Also included, partial use of apartment...

—DL, from Los Angeles, California

Talk about speaking the same language...



We thank Richard Loggins for his continuing series on WPL. He has gotten some mail that we will answer here:

—To BG, South Gate, California:

The designation "**PDO.D1/WPL2**" is conventional **Apple ///** notation for the drive location and filename. Early in the articles, we mentioned the fact that **Apple ///** pathnames would be used, and **Apple II** owners should replace this with **Apple II** pathnames—"**PDO WPL.D1**."

The control-backslash is used by **Apple ///** users to clear the video monitor. To accomplish this on an **Apple II**, enter **CONTROL-V**, **CONTROL-L**, **CONTROL-V**. The result you should see is the letter "**L**" displayed in inverse on your monitor.

Concerning the plus and minus sign, I can't enter it on my computer either. I suppose it means to increment or decrement? Seriously, it should be a minus sign, and I have no idea where it came from.

—To KM, David City, Nebraska:

Yes, you can personalize a letter via **WPL** just about any way you wish. The database program that appears in the *Apple Orchard* March issue will enable you to accomplish exactly what you're trying to do. In fact, you

will be able to go much further, and personalize a letter to the point of mentioning an account number, past due balance (heaven forbid!), or whatever you desire.

—To WJ, Shell Lake, Wisconsin:

This may be getting a bit technical, but here goes. The command "**F&&-0-(&)**" actually consists of four distinct items; a command, which is the "**F**," and stands for "**CTRL-F**" as you know. The ampersands [**&**] are called delimiters, and the "**-0-**" is data.

Last but not least, is the left parenthesis "**(**" is a character presentation, and represents a carriage return - when, and only when, used with the ampersands.

When **AppleWriter** was written, the programmer (**Paul Lutus**) decided which characters would be delimiters, and which characters would represent special functions. In a word processor this is necessary to determine which information is to be found.

He decided (arbitrarily, I suppose) to have the left parenthesis represent a carriage return - ONLY WHEN USED WITH THE AMPERSAND DELIMITERS. So when the ampersand is encountered as a delimiter, **AppleWriter** will interpret the left parenthesis as a carriage return.

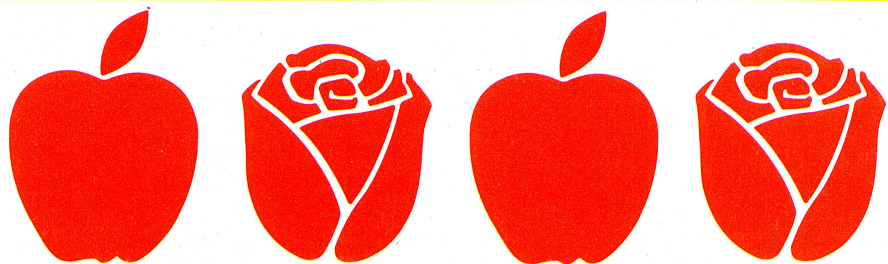
It doesn't really change the carriage return to a left parenthesis, but substitutes an actual carriage return in place of the parenthesis.

There is an entire list of the delimiters and special character representations in your **AppleWriter** instruction manual. Look in the section that covers the text editor, under the **FIND** command.



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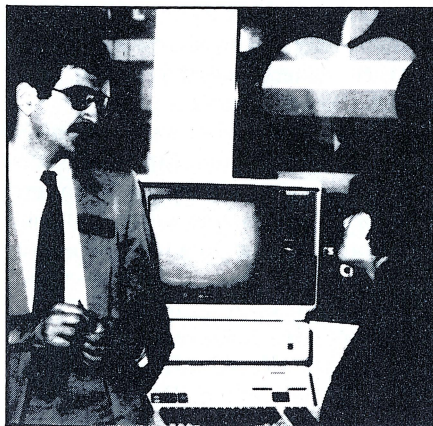
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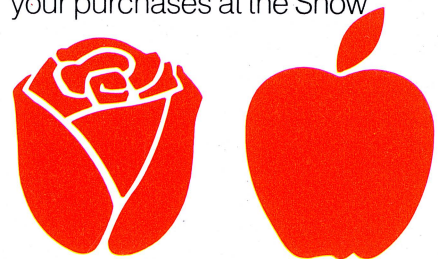


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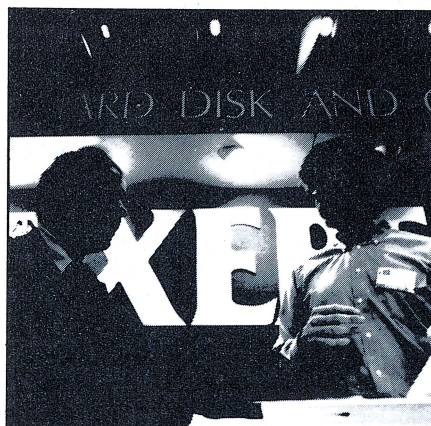
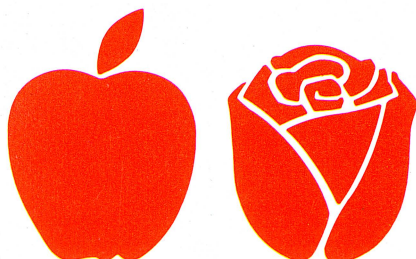


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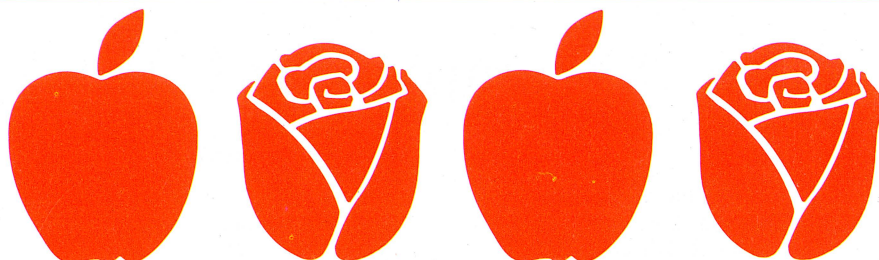


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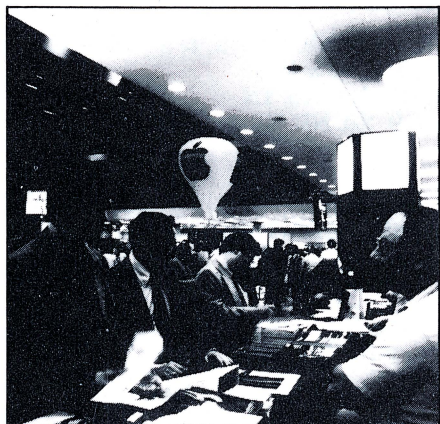


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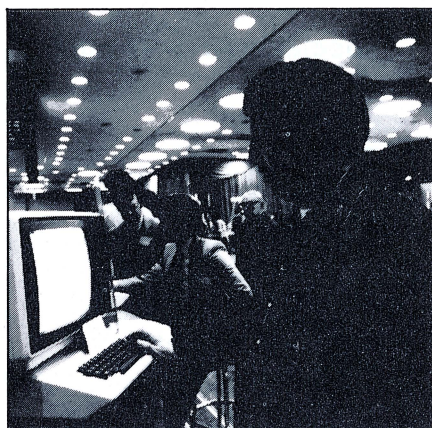
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Coordinator:

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Special Interest Groups

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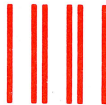
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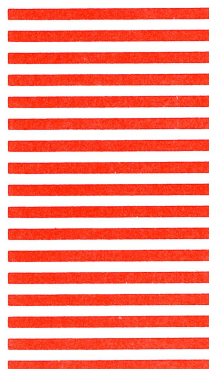
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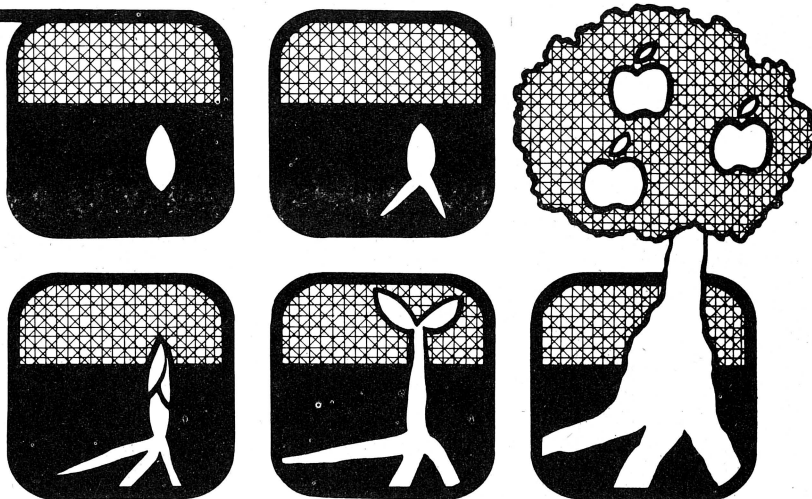


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Planting a seed...



The saddest part of operating any publication is the loss of old friends. I speak not of satiated subscribers, but of advertisers whose fortunes go awry. Receipt in our Accounting office of the papers announcing the bankruptcy of a supplier to our world is never a joyous occasion. In addition to the advertising bill which we must ruefully consign to the dustbin, there is the sense of loss to the Apple community as a whole. A product or service is no longer available, a phone has been disconnected with no forwarding number, mail is returned as undeliverable, investors and/or creditors wince in pain, and at least one human dream is shattered.

The microcomputer industry has attracted more entrepreneurs of diverse types than any other save perhaps the restaurant industry. Funny how almost everyone thinks they can run a restaurant; they unwittingly project their own tastes to the population at large, a dangerous estimate at best. The problems are analogous too: long hours, tiresome drudgery more often than delightful work, the need for endless record-keeping, unreasonable customers, better-financed competition, theft, unreasonable suppliers, and helpful advice from relatives or capital sources.

A lot of people over the last five years have thought they could easily run a microcomputer-related business based on their own tastes and needs, and they are finding that their tastes and needs are not necessarily universal. What starts out as a commercial odyssey, spurred on by cries of "Apple Did It!", quite often founders on the rocks of unprofitability. The plain fact is that businesses succeed or fail for the same reasons, whether or not they are microcomputer-related. There is no exemption from reality for computer firms.

One result of this shows up here, of course, when we receive a call from a reader who has tried in vain to contact a company or worse, who has sent money to a company, with no tangible return. The classic case involves a California retailer whose suddenly inverted abdomen apparently left about \$3 million worth of customer deposits in limbo. But there are other, smaller heartbreaks by the hundreds.

The Vanishing Companies

The problem, of course, is that the consumer most likely has no way of knowing which companies will be around and which ones will not. More than 100,000 people bought Osborne computers, we hear. Which impels us to offer two small bits of advice to the parties involved:

For the consumer: know your dealer. A "low, low" price is just no substitute for the relationship with a good dealer, particularly if something goes wrong. By the way, there are good mail order dealers, and poor in-person dealers; your local Apple user group is recommended as the best source of independent information about manufacturers, dealers and their performance.

For the impending businessman or businesswoman: ask people knowledgeable in business for periodic "reality checks" of your data and assumptions; the primary disadvantage of spreadsheet programs is that they do not contain fantasy detectors; they can enhance invalid assumptions just as easily as valid ones. Have a lawyer or accountant who is *not* involved with personal computers check out your prospects, particularly in the area of financing.

A last note: there's no such thing as "clear sailing"; the need for hard work continues. A recent reality check run on this magazine provided a quote which we pass on to all: "Just because you've been around for five years doesn't guarantee that you'll be around for six."

Oh. Well, we'll keep trying.

Reidighi

LISACALC, BUDGETS, AND THE FORM 1040

by Dirk Van Nouhuys

Electronic Spreadsheets in General: For anyone who hasn't used one, electronic spreadsheets are the most widely used form of personal computer program. The idea is beautifully simple. The computer draws on the screen an array of lines that looks like the lines of an accountant's record book. (See Figure 2 for example). You can write numbers in the cells just the way an accountant does, or headings. But electronic spreadsheets give you power over the numbers. You can add to any cell a formula, like an algebraic formula, that will make a number appear in the cell based on what is in other cells. You can have a cell ten places down column B show the sum of the cells above it, or a certain percent of that sum, or the square root, etc. etc. In fact the possibilities are very rich for this simple device and spreadsheets have been created to solve some very complex business, engineering, and scientific problems. But they are most widely used for simple accounting and cost projection. A spreadsheet makes it easy to change one num-

	Thorn & Co		Profit Forecast		
	1983	1984	1985	1986	1987
Sales	\$ 100	\$ 125	\$ 156	\$ 195	\$ 244
C.O.G.	\$ 50	\$ 55	\$ 61	\$ 67	\$ 73
Profit	\$ 50	\$ 70	\$ 96	\$ 129	\$ 171

Figure 1

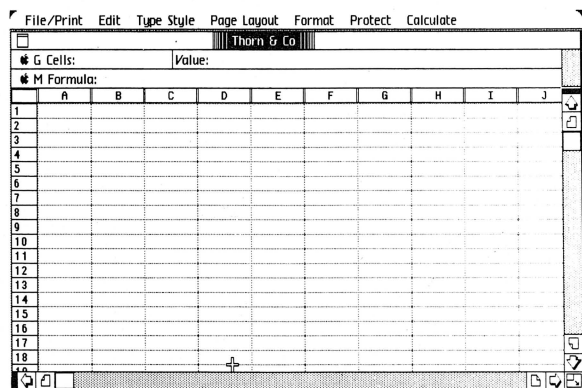


Figure 2

ber and see how it affects the other numbers, or to change a formula, and see how the numbers affect each other under new rules. Therefore they are often used where someone is trying to see the effect of some change, e. g., what if we raised the price of our product? But they are almost as widely used just to save arithmetic, as for example, to automate income tax forms.

What You will Learn Here: This article presents a simple and an intermediate tutorial in LisaCalc followed by a figure showing the formulas for the Federal Income tax, form 1040, with the formulas showing. A reader with a Lisa who has gone through LisaGuide can easily get to feel at home with LisaCalc by proceeding through these tutorials. A reader interested in the Lisa can get some sense of how easy it is to make and use a spreadsheet in the Lisa's hand-eye environment. One of the virtues of LisaCalc is that you can show on the screen or print a spreadsheet with the formulas showing. Someone with a few hours experience in LisaCalc can readily construct his or her own spreadsheet from such a printout. Someone using some other electronic spreadsheet can also work from such a printout. These printouts obviate the program-like lists of XCalc commands that you have been seeing in the literature and which you may have hated as you corrected your typing mistakes.

Concepts You Should Know About:

Space does not permit an introduction to the Lisa generally. For those without access to a Lisa, here are brief definitions of some terms I use below as they apply to LisaCalc. For further information, turn to the Lisa manuals.

Alert Box: A box that comes up on your screen with a message from the system. You must check an item in the box to go on.

Check: The curser turns to a check when it's over a box; then clicking is checking.

Click: Pressing and promptly releasing the button on the mouse.

Cursor: A little symbol on the screen, which you can move with the mouse to point to where things should happen.

Double Click: Clicking twice.

Elevator: A box, which you can slide up and down beside the spreadsheet to scroll the contents, or left and right along the bottom.

I-beam: The shape of the cursor when you can type in text.

Icon: A tiny image of a file (or device), which shows that it is available.

Mouse: A box you can roll on any surface to move the cursor.

Select, selected: When a cell in the spreadsheet is open for change.

Scroll Arrow (Vertical and Horizontal): an arrow beside the file on the screen which will move the spreadsheet box by box if you click it.

Size Control Box: A little box in the extreme lower right of the window, with which you can change the size of the window.

Stationery Pad: A template for making files.

View Button (Vertical and Horizontal): a box at the corner of the file, which will move the spreadsheet screen-full by screen-full if you click it.

Window: The area of the screen where you see the spreadsheet, surrounded by the elevator, etc. Each spreadsheet has its own window.

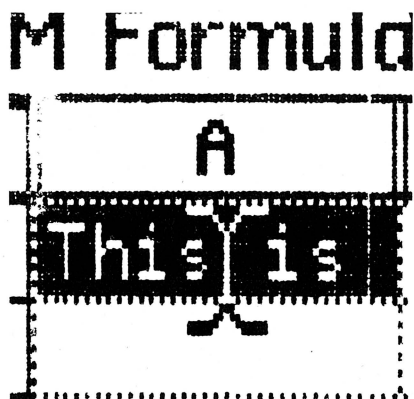


Figure 3

A Simple Model: Thorn & Co Profit and Loss

The management of Thorn & Company has created a simple template of their profit for the next few years. They base it on the profit for this year, and their expectation of the change in sales and cost of goods. The template enables them to enter only last year's numbers, see what their expectations lead to, and change their expectations.

You will create a LisaCalc template that projects the profit and loss of Thorn & Co for the next five years. It will look like Figure 1. At first I will describe the steps very carefully, naming each key stroke and mouse motion so there will be no ambiguity, but when you begin to repeat parts of the process, as for example setting up a row of cells by the same steps as you set up the row above, the description will grow less detailed so as not to bore you.

You will:

- Create the file.
- Play around a little to get the feel of things.
- Type in the headings.
- Type in formulas, which generate the projected numbers based on 1983 numbers.
- Type in the 1983 numbers and watch it work.

Here is the step-by-step Process:

1. Double click the disk icon.
2. Move the elevator until you see the LisaCalc paper stationery pad.
3. Double click the LisaCalc stationery pad.
4. A new document will appear with its title selected. Type in "Thorn & Co."
5. Note that when you type the name of the new document, it's icon disappears to the left. This is an irritating habit of the Lisa. Bring it back into view by clicking the left scroll arrow. Then double click on the icon of the new document.

The document will appear on your screen as in Figure 2. Notice a zone with three rectangular spaces above it labeled Cells:, Formula: and Value:. When you select a cell in the spread sheet, its location appears in Cells: a formula, which governs how the cell derives numbers from other cells, appears in Formula:, if present; and a number or text in the cell appears in Value:. If the value is text, the word text will appear in parentheses.

Perform steps 6 through 13 to get the feel of LisaCalc.

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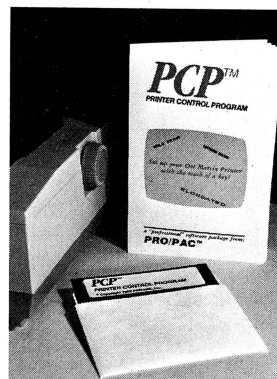
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and slide it to the upper left. Let up on the mouse, then select the lower right hand corner again, and slide it back to the lower right of the screen.

7. Select the lower vertical view button to move down one screen-full.

8. Select the upper vertical scroll arrow and work your way slowly up a few rows; when you are tired of that, go back to the top with the elevator.

9. When you move the cursor with the mouse you will notice that it turns to a hollow cross over the spreadsheet surface. This cross marks the cursor ready to select a cell.

10. Select A1 and type "This is a big mess." You see that the full text appears in the box headed Value:. You could make the column wider, but press the backspace key instead to cut the entry back to "This is". Then press the Enter key.

Nothing enters the spread sheet until you select another cell or press the Enter key.

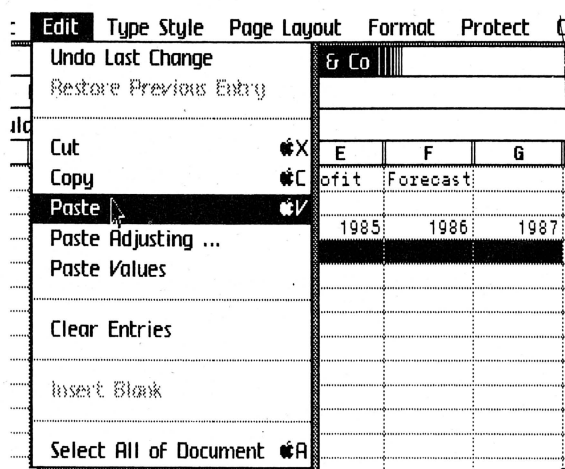


Figure 4

11. Pressing Enter leaves the cell black. (Figure 3). When it is selected (black) it is vulnerable to change. When the cursor enters a selected cell it turns into an I-beam. Move the I-beam between "This" and "is", click the mouse, and type "very".

12. Pressing Enter now would label this cell "This very is". Instead, press the Clear key, which empties the cell.

13. Now you are ready to put in the headings. Tab twice to select C1 and type "Thorn", then tab and type "& Co", tab and type "Profit", tab and type "Forecast."

If you mistype anywhere along the line, you can correct it by backspacing or clearing as in step 10. If you see that you have mistyped in a cell you've left behind, you can select in and backspace or clear. When you have selected a cell, you

M Formula: C4*1.25				
A	B	C	D	
		Thorn	& Co	F
		1983	1984	
Sales				

Figure 5

can click the mouse again. The cell goes white with a box around it and the cursor is an I-beam. In this case you can edit the text by normal Lisa Editing methods.

14. After typing "Forecast," press Return to move down to the next row, tab twice to leave blanks, and enter the years by typing and tabbing as above.

15. Press Return and tab twice, then type enough dashes ("-") to fill cell C3, and press Enter.

16. Here is how to copy the same text in several cells. Roll the cursor up to the Edit menu and select Copy. Then roll the cursor down to D3 press down the button, and roll right to select cells D3 through G3. Now select Paste from the Edit menu (Figure 4).

17. LisaCalc can show numbers in a variety of formats. For this simple example, you should select the part of the spreadsheet that will show dollar values and set the format to dollars with pennies rounded off. Select cell C4 and roll 4 cells down and then across to G7 to select the area where dollars will appear. Then roll the cursor to the Format menu and select \$1235.

18. Now select cell A4 and Type "Sales".

19. Thorn & Co. expects sales to increase 25 per cent/year. This is the step where you set up the template so it will calculate that increase for every year. Select cell D4, then move the cursor to any place in the Formula: box (anywhere in it will do.)and click it. Now type in the formula: "C4*1.25".««should be a star shaped symbol»» As in other spreadsheets, "*" represents multiplication. Press the Enter key and the screen will look like Figure 5.

20. Now select C4, type in "100", and press Enter. You will see the forecast sales for 1984 appear. Don't worry that no \$ sign appears in C4 while it is selected, dollar signs never show in black cells.

21. You could easily enter similar formulas in E4-G4 to take care of future years, but it is important for you to understand how LisaCalc can copy formulas and revise them to be correct in their new locations. Select D4 again, then roll the cursor to the Edit menu and select Copy. Now select E4-G4 by rolling the cursor along as you did when you selected the area to show dollar formats. Then select Paste Adjusting from the Edit menu.

The Lisa will put up an alert box that offers you the choice of not adjusting some elements in the formula. This is a complexity that is very useful at times, but you don't need to use in the case of Thorn & Co., so just check OK.

You will see sales for the next three years.

22. Happily, Thorn & Co expects Cost of Goods to rise only 10 percent/year. Repeat the process for the cost of goods line. That is, type in "C. O. G.", enter the formula "C5 * 1.10" in D5, and paste it with adjustment into the cells for the following three years.

23. Select C5 and enter the value 50.

24. Put a line of equal signs under your financial columns just as you put a line of dashes below the years in step 16.

25. Put "Profit" in cell A7 just as you put "Sales" in A4.

26. The profit is the difference between Sales and Cost of Goods, so select C7, then move the the cursor into the bar marked Formula:,click the mouse and insert the following formula: "C4-C5". When you press Enter, you will see the

first profit figure.

27. Copy the formula from C7 and paste it with adjusting into cells D7 through G7.

Now your spreadsheet should look like Figure 1.

Here are some things you can do:

If you have a printer you can print it by selecting Print on the File/Print menu.

You may want to print it with the formulas showing. If so, roll the cursor to the Calculate menu and select Show Formulas and Values. You can't do any work on the spreadsheet when it shows formulas, but you can print it and it will look like Figure 6.

	A	B	C	D	E	F	G
1			Thorn	& Co	Profit	Forecast	
2			1983	1984	1985	1986	1987
3							
4	Sales		\$ 100	C4*1.25= \$ 125	D4*1.25= \$ 156	E4*1.25= \$ 195	F4*1.25= \$ 244
5	C. O. G.		\$ 50	C5*1.1= \$ 55	D5*1.1= \$ 61	E5*1.1= \$ 67	F5*1.1= \$ 73
6			=====	=====	=====	=====	=====
7	Profit		C4-C5= \$ 50	D4-D5= \$ 70	E4-E5= \$ 96	F4-F5= \$ 129	G4-G5= \$ 171

Figure 6

	I	J	K	L	M	N	O	P
1	and	Expense	Register					
2						Expenses		
3								
4			Record		Amount		Categories	
5			=====	=====	=====	=====	=====	
6								
7		Date	Whom to	OK/Cash	Check	Cash	Rent	Phone
8					IF(L8>1, sum (R8:R9), "")			
9					IF(L9>1, sum (R9:R9), "")			
10					IF(L10>1, sum (R10:R10), "")			
11					IF(L11>1, sum (R11:R11), "")			
12					IF(L12>1, sum (R12:R12), "")			
13					IF(L13>1, sum (R13:R13), "")			
14					IF(L14>1, sum (R14:R14), "")			
15	=====	=====	=====	=====	=====	=====	=====	
16						sum(F8:F14)= \$ 0.0	sum(F8:F14)= \$ 0.0	
17						Total	Expenses:	

Figure 7

Of course you may vary the profit or loss of Thorn & Co. by selecting cells and entering other numbers.

You may also see what happens if you change the formulas. For example, if you believe that the cost picture is worse than the management of Thorn expects, select cell D5. You will see the formula in the box marked Formulas: near the top. If you move the cursor into that box, it turns to an I-beam and you can edit the formula as you can edit any text. Try changing 1.1 to 1.3 and entering that. Note that the changed formula applies to that year only, although the change in the base number ripples up through the years. If you think profit will continue to rise at the higher rate for the next four years, you should copy the new formula into cells E5 through E7 by copying the new formula and pasting with adjustment as you did when you built the table.

A Check and Expense Register

Ms. Wheatly operates a small business. She is a marriage counselor and leases a small building where she subleases offices to other tenants. She uses LisaCalc to keep a record of her receipts and expenditures. Figure 8 shows the template she uses, Figure 9 displays the template with the for-

mulas showing. Note that this is not a ledger, it does not balance because it does not account for cash on hand, among other things. But it is an excellent source of information at income tax time.

On the left her register shows income from clients, from tenants, and what she calls "petty borrowing." "Petty borrowing" covers the case when she has her own money in her pocket and uses it to buy, for example, supplies, that show up on the right in the register. In the center she records the date and amount of deposit in the business bank account.

On the right she records the date and recipient of each disbursement. In column L the check number appears if it is a check, and the numeral 1 if it is cash. To the right of that each expenditure appears by category. That is, every item of expenditure (rent, phone, etc.) also appears in the Check Amount or the Cash Amount Column. We show only three columns of expenses, rent, phone, and bank expenses, but any real person has more categories. On the far right appears a column called Draw and Repay Cash, which records her removal of profit and her repayment of petty borrowing. Her LisaCalc template keeps a running total of the various categories, and saves her making entries in the Check Amount and Cash Amount columns, which derive automatically from other entries.

You will create the template step-by-step. The steps are described with increasing succinctness, and, if you have not made a LisaCalc template before, you should probably go through making the template of the Thorn & Co. profit forecast above, for practice.

You will:

Go through the process of creating a master template. Create a Wheatly stationery pad. Enter some actual checks and expenses.

Here is the step-by-step Process:

1. Double click on a stationery pad of LisaCalc paper.
2. Name it by typing "Wheatly".
3. Double click on the new LisaCalc document.
4. This template uses 18 columns, that is it extends to column R. To center the overall heading, you have to begin entering it at column G. Select cell G1. Then head the spreadsheet "Wheatly Income and Expense Register" by typing and tabbing.
5. The heading looks odd because the words are all flush left. Select row 1 by selecting its number box on the left. Then select from the Format menu, Center.
6. Select cell D2, enter the heading "Income", and format row 2 to be centered as in the previous step.
7. Select cell A3 (You will have to scroll left, with the horizontal scroll button for example) and fill it with +'s.
8. Copy the cell full of pluses, select cells B3 through H3, and paste the +'s into them.
9. Select cell D4, enter "Receipts" and center it as in step 5.
10. Copy pluses from A3 into cells B5 through F5.
11. Enter "Deposit" in G4.
12. One of the nice things about a Lisa is that it has many strange characters, which you can use for formatting purposes. Select G5, hold down the Apple key, and type right square bracket, "]", on the keyboard. This will yield you much-less-than signs, "<<", to mark off the deposit columns. Then select H5 and hold down the Apple key and

the Shift key and type right square brackets to enter corresponding much-greater-than signs, ">>".

13. Select F6, enter "Petty".

14. Select rows 6 and 7 by their number boxes at the left edge and format them centered.

15. Select cell A7 and by typing and tabbing, enter "Date", "Name", "Client", "Tenant", "Misc", "Borrow", "Date", and "Deposits".

16. Now it's time to draw clear lines. Lisa offers another odd character useful for that purpose. Select cell I3, hold down the Apple key and type "i". You will see a vertical bar, " | ", appear. Center it by selecting Center from the Format menu. Copy and paste this bar down from I3 to I15 just as you earlier copied pluses across rows in step 5. Note that copying carried forward the centered format.

17. The column that contains the vertical bars makes a useless and unsightly wide space in your template. You can make it narrow. Roll the cursor carefully so the hollow cross lies on top of the double line between I and J in the column headings, Figure 8. This double line is called the Column Handle and it gives you the power to control column widths. With your finger still down on the mouse button, you will find you can slide the column handle to the left. As you do so a ghost line shows its position, Figure 8. Slide it left until the column is just wide enough to hold "and", then let the mouse button up. Presto!

18. Now that you have learned how to control column width, you may consider column B too narrow for the names of clients. Roll the cursor to the Column Handle between B and C, and, holding the button down on the mouse, slide it right one column width, so the ghost line overlaps the line between C and D, before you let up on the mouse button. You could really expand it to any convenient width, but please widen it exactly one column width so your spreadsheet will match my figures.

19. Note that cells remember their format, e.g. "Name" is still centered. But you will have to add more pluses to cells C3 and C5 by selecting them, clicking the mouse at the end of the line of pluses (Figure 9) and typing them in as text. You have to enter the revised cell when you are through.

20. Now for expenses. Put the cursor in the box named "Cells" at the top of the window, click the mouse, type R2, and press Return. The screen will shift to show you R2. Enter "Expenses."

Note you can issue many Lisa commands from the keyboard, and expert users often do so. The pull-down menus show the keyboard version of the command where it exists. In this tutorial I stick to the mouse way of doing things when I can for consistency and because I think it is easier for people new to computers.

21. Enter minus signs (dashes) in cell J3, and copy them and paste them into cells K3 through R3 as before.

You will see that the line between columns K and L is dotted. The dots mean that, with the format and type size that came with your spreadsheet, a printed page would break there. You can change type size here as in other Lisa applications, and then the page break will fall somewhere else, so don't worry about it for the moment.

22. Enter "Record" in K4 and center the word.

23. To enter bullets, "●", in J5, hold down the Apple key and type 8's. Copy your bullets to K5 and L5 in the usual manner.

24. Enter "Amount" in M4 and format it Right Flush. You can use the much-less-than/greater-than signs for these two

columns, by selecting cells G5 and H5 in one movement, copying them, and then pasting them into M5 and N5.

25. Enter "Categories" in P4. Widen the column to accommodate it. Note that the full word always appears in the box called Value:.

26. Fill in cells O5 through Q5 by the usual method of filling in P5 (because it is widest) and copying it into the rest of the row. Holding down the Apple key while you type dash, "-", will provide plus-or-minus signs, "±".

27. Enter "Bank" in Q6 and "Draw &" in R6.

28. Now, starting in cell J7, you can enter "Date" through "Repay Cash" in row 7 (see Figure 8) by simply typing and tabbing. Note that you are able to enter this row quickly because you have set things up right. You should double the width of column K to accommodate names. You will have to widen one column to accommodate wide labels and add bullets and dashes to widened columns.

29. Lay a row of equal signs all across Row 15 by copy and paste; start with the widest, cell B, and you won't have to type in any extra by hand. You can A15 through R15 by clicking in the Cells: box, typing "A15:R15", and pressing return. You may think Ms. Wheatly's business is going to be in trouble if she has only 7 rows to write down receipts, but with LisaCalc you can add rows and so her receipts are extendable to the largest possible spreadsheet (255 rows).

30. Enter "Totals:" in A16, "Total" in F17, "Income:" in G17, "Total" in O17, and "Expenses:" in P17. Format rows 16 and 17 Right Flush.

31. You can set the whole spreadsheet to show dollars and cents correctly in one command. On the Edit menu select "Select All of Document". Then on the Format menu select \$1234.56. You can turn off the blackness of total selection by clicking in the little white box at the corner of A and 1, the "deselect box."

32. Now you can start entering formulas. You will notice that about 3/4 of the effort to create this template is writing headings and formatting headings. Building spreadsheets is often that way. Select cell C16. Roll the mouse to the box at the top marked Formula: and click. Then type in the formula: "SUM(C8:C14)" and press Enter. This formula will make the sum of the numbers in that column appear in that cell. For the present "0" appears in the selected box because there are no numbers in the column to add.

33. Copy cell C16 with the Copy command on the Edit menu, select cells D16 through F16, and Paste Adjusting with the Edit menu. These steps will set correct formulas at the bottom of each column. Select Show Formulas and Values from the Calculate menu and the formulas will appear as in Figure 10. Select Values Only to return to normal viewing.

34. Enter the formula "SUM(C16:F16)" in cell H17.

35. Copy the formula from C16 and enter it with Paste Adjusting into cells O16 through R16. The simplicity of entering these different formulas, which employ numbers in more than 40 cells, may reward you a little for the process of setting up the template to this point.

36. Select cell M8, click in the box named Formula:, and enter the formula: "IF (L8>1,SUM(Q8:O8),)".

Here are some things to notice about this formula:

Ms. Wheatly has adopted the awkward convention of entering a "1" in column L if she paid out cash. If the number in column L is greater than 1, LisaCalc knows the item was a check, looks across the row for the amount, and records it in

40. Enter the formula: “SUM(M16:Q16)” in cell Q17. (Remember, the Draw and Repay cash column is not an expense). You’re done making the template! It should look like Figure 8. Printed with the formulas in place it should look like Figure 9.

Income							Wheatly Income and Expense Register												
Receipts					Deposit		Record		Amount		Catagories								
Date	Name	Client	Tenant	Misc.	Petty Borrow	Date	Deposit	Date	Whom to	Ck#/Cash	Check	Cash	Rent	Phone	Bank Charges	Repay	Draw & Cash		
Totals:																			
		\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	Total Income:												Total Expenses: \$ 0.0	

Figure 8

	A	B	C	D	E	F	G	H
1							Wheatly	Income
2				Income				
3	*****	*****	*****	Receipts	*****	*****	*****	*****
4							Deposit	
5	*****	*****	*****	*****	*****	*****	*****	*****
6						Petty		
7	Date	Name	Client	Tenant	Misc.	Borrow	Date	Deposits
8								
9								
10								
11								
12								
13								
14								
15	*****	*****	*****	*****	*****	*****	*****	*****
16	Totals:		sum(C6: C14)= \$ 0.0	sum(D6: D14)= \$ 0.0	sum(E6: E14)= \$ 0.0	sum(F6: F14)= \$ 0.0		
17						Total	Income:	sum(C16: F 16) =

Figure 9

=====	=====	=====	=====	=====
sum(C8:C14)=	sum(D8:D14)=	sum(E8:E14)=	sum(F8:F14)=	
\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	
			Total	In

Figure 10

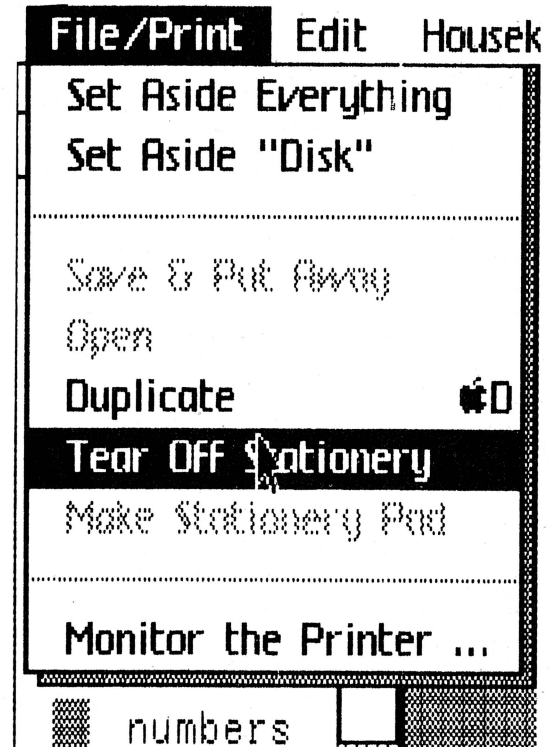


Figure 11

4. Type "January 84" and double click the new icon. On the screen will appear a blank register where you can begin entering items.

Figure 14 shows the left hand portion of an instance of the template with various entries of income. Note that two rows have been added with the insert row command because Ms. Wheatly has already received more than 7 payments. You insert rows by selecting the row handle, the double line between the letters at the end of the rows. Column D and H have also been widened to accommodate totals more than \$1000.

Form 1040---Page 1

1	Put "1" in	Single	1	boxes
Filing	2	One	Married joint	2
status	3	Box	Married separate	3
	4		Head of Household	4
	5		Qualifying widow(er)	5

Exemp- 6a+b	Enter number of boxes checked in 6a & 6b	6a+b	
tions 6c	Enter number of children	6c	
6d	Enter number of other dependents	6d	
6e	Total dependents	0 6e	

7	Wages, salaries, tips, etc.	7	
8	Interest income	8	
9a	Dividends	9a	
9b	Dividend exclusion	9b	
9c	Total dividends	9c	\$ 0.0
Income 10	State and local tax refunds	10	
11	Alimony	11	\$ 0.0
12	Business Income	12	
13	Capital Gain	13	\$ 0.0
14	Capital gain not reported in line 13	14	\$ 0.0
15	Supplemental gains	15	\$ 0.0
16	Taxable pensions	16	
17a	Other pensions	17a	////////
17b	Taxable amount from page 10	17b	
18	Rents, royalties, etc	18	
19	Farm income	19	
20a	Unemployment compensation	20a	////////
20b	Taxable amount from page 11	20b	
21	Other income	21	
22	Total income	22	\$ 0.0

23	Moving expenses	23	
24	Employee business expenses	24	
25a	IRA deduction	25a	
Adjust- 25b	1984 IRA payments	25b	////////
to 26	Keogh payments	26	
Income 27	Early withdrawal penalty	27	
28	Alimony paid	28	
29	Deduction for couple working	29	
30	Disability income exclusion	30	
31	Total adjustment	31	\$ 0.0

Gross 32	Adjusted gross income	32	\$ 0.0
----------	-----------------------	----	--------

33	Amount from line 32	33	\$ 0.0
34a	Schedule A, line 28	34a	\$ 0.0
Tax 34b	Charities if not itemized	34b	
Compu- 35	Running total	35	\$ 0.0
tation 36	Total value of exemptions	36	\$ 0
37	Taxable Income	37	\$ 0.0
38	Tax from one of three schedules	38	
39	Additional taxes	39	

40	Total	40	\$ 0.0
----	-------	----	--------

41	Credit for elderly (schedules R&RP)	41	
42	Foreign Tax credit (Form 116)	42	
Credits 43	Investment credit (Form 3468)	43	
44	Partial credit for political contributions	44	
45	Credit for dependent care (Form 2441)	45	
46	Jobs credit (Form 5884)	46	
47	Energy credit	47	
48	Total credits	48	\$ 0.0

49 Balance		49	\$ 0.0
------------	--	----	--------

50	Self-employment tax (Schedule SE)	50	
51	Alternative minimum tax (Form 6251)	51	
52	Recapture of investment credit (Form 4255)	52	
53	Social security on secrete tips (Form 4137)	53	
54	Uncollected social security (Form W-2)	54	
55	Tax on IRA (form 5329)	55	

56 Total tax		56	\$ 0.0
--------------	--	----	--------

57	Federal income tax withheld	57	
58	1983 estimated plus 1982 application	58	
59	Earned income credit	59	
Payments 60	Amount paid with form 4868	60	see p 16
61	Excess because of two employers	61	
62	Special fuels (Form 4136)	62	
63	Regulated Investment Company credit	63	

64	Total Payments	64	\$ 0.0
----	----------------	----	--------

65	Overpayment	65	\$ 0.0
66	How much you want refunded	66	
67	How much you want to apply to 1984	67	
68	Amount you owe	68	\$ 0.0

Schedule A--Itemized Deductions

Medical and Dental	1	Medicine and Drugs	1	
	2	1% of Form 1040, line 33	2	\$ 0.0
	3	2 from 1 if possible	3	\$ 0.0
4	Other medical and Dental	4		
4a	Doctors, hospitals, nurses, etc.	4a		
4b	Transportation	4b		
4c	Other	4c		
5	Add lines 3 through 4c	5	\$ 0.0	
6	Form 1040, line 33 x 5%	6	\$ 0.0	
7	Total medical		\$ 0.0 7	

Taxes 8	State and local income	8	
9	Real estate	9	
10a	General sales (from tax tables)	10a	
10b	General sales(motor vehicles)	10b	
11	Other	11	
12	Total taxes		\$ 0.0 12

13a	Home mortgage interest to institutions	13a	
13b	Home mortgage interest to people	13b	
Interest 14	Credit cards and charge accounts	14	
Expenses 15	Other	15	
16	Total interest expenses		\$ 0.0 16

17a	Cash contributions less than \$3000	17a	
Contri- 17b	Contributions over \$3000	17b	
butions 18	Other than cash	18	
19	Carry over from prior year	19	
20	Total contributions		\$ 0.0 20

21	Total casualty or theft losses		20
----	--------------------------------	--	----

22	Union and professional dues	22	
Misc. 23	Tax preparation fee	23	
Deduc. 24	Other	24	
25	Total miscellaneous deductions		\$ 0.0 25

Summary 26	Sum of 7, 12, 16, 20, 21, 25		\$ 0.0
of 27	Filing status		

itemized 28	Total itemized deductions		\$ 0.0
-------------	---------------------------	--	--------

Figure 12

	A	B	C	D	E	F
1			Form 1040---Page 1			
2					boxes	
3		1	Put "1" in	1		
4	Filing	2	One	Married joint	2	
5	status	3	Box	Married separate	3	
6		4		Head of Household	4	
7		5		Qualifying widow(er)	5	
8						
9	Exemp- 6a+b	Enter number of boxes checked in 6a & 6b	6a+b			
10	tions 6c	Enter number of children	6c			
11		6d	Enter number of other dependents	6d		
12		6e	Total dependents		sum(E9:E12)=	0
13						
14		7	Wages, salaries, tips, etc.	7		
15		8	Interest income	8		
16		9a	Dividends	9a		
17		9b	Dividend exclusion	9b		
18		9c	Total dividends	9c	E16-E17=	\$ 0.0
19	Income 10	State and local tax refunds	10			
20		11	Alimony	11	\$	0.0
21		12	Business Income	12		
22		13	Capital Gain	13	\$	0.0
23		14	Capital gain not reported in line 13	14	\$	0.0
24		15	Supplemental gains	15	\$	0.0
25		16	Taxable pensions	16		
26		17a	Other pensions	17a	////////	
27		17b	Taxable amount from page 10	17b		
28		18	Rents, royalties, etc	18		
29		19	Farm income	19		
30		20a	Unemployment compensation	20a	////////	
31		20b	Taxable amount from page 11	20b		
32		21	Other income	21		

	A	B	C	D	E	F
33		22	Total income	22	E14+E15+E16+sum(E19:E25)+E27-E28-E29+E31+E32=	\$ 0.0
34						
35		23	Moving expenses	23		
36		24	Employee business expenses	24		
37		25a	IRA deduction	25a		
38	Adjust- 25b	1984 IRA payments	25b	////////		
39	ments 26	Keogh payments	26			
40	to 27	Early withdrawal penalty	27			
41	Income 28	Alimony paid	28			
42		Deduction for couple working	29			
43		Disability income exclusion	30			
44		Total adjustment	31	sum(E35:E37)+sum(E39:E43)=	\$ 0.0	
45	Gross 32	Adjusted gross income	32	E33-E44=	\$ 0.0	
46						
47						
48						
49						
50		form 1040 (1983)				(Page 2)
51						
52		33	Amount from line 32	33	E46=	\$ 0.0
53		34a	Schedule A, line 28	34a	F142=	\$ 0.0
54	Tax 34b	Charities if not itemized	34b			
55	Compu- 35	Running total	35	E52-sum(E53:E54)=	\$ 0.0	

Figure 13 (continued on next page)

65	Credits	43	Investment credit (Form 4668)	43	
66		44	Partial credit for political contributions	44	
67		45	Credit for dependent care (Form 2441)	45	
68		46	Jobs credit (Form 5894)	46	
69		47	Energy credit	47	
70		48	Total credits	48	sum(E63:E69)= \$ 0.0
71					
72		49	Balance	49	if(((E61-E70)> =0,0,E61-E70) ="0",0,"")=
73					\$ 0.0
74		50	Self-employment tax (Schedule SE)	50	
75		51	Alternative minimum tax (Form 6251)	51	
76		52	Recapture of investment credit (Form 4253)	52	
77		53	Social security on secret tips (form 4137)	53	
78		54	Uncollected social security (form W-2)	54	
79		55	Tax on IRA (form 5329)	55	
80					
81		56	Total tax	56	sum(E72:E79)= \$ 0.0
82					

	A	B	C	D	E	F
83		57	Federal income tax withheld	57		
84		58	1983 estimated plus 1982 application	58		
85		59	Earned income credit	59		if(E52<10000 ,"see p 16", "")= see p 16
86	Payments	60	Amount paid with form 4868	60		
87		61	Excess because of two employers	61		
88		62	Special fuels (Form 4136)	62		
89		63	Regulated Investment Company credit	63		
90						
91		64	Total Payments	64	sum(E63:E69)= \$ 0.0	
92						
93		65	Overpayment	65	if(E91>E81,E9 1-E81,"\$ 0.0 overpaid", "")= \$ 0.0	if(E91>E81," overpaid", "")=
94		66	How much you want refunded	66		
95		67	How much you want to apply to 1984	67		
96		68	Amount you owe	68	if(E91<E81,E8 1-E91,"\$ 0.0 ")=	\$ 0.0
97						
98						
99			Schedule A--Itemized Deductions			
100						
101	Medical	1	Medicine and Drugs			
102	and	2	1% of Form 1040, line 33	2	E52*.01= \$ 0.0	
103	Dental	3	2 from 1 if possible	3	if(E102>E101, 0,E101-E102)= \$ 0.0	
104		4	Other medical and Dental	4		

	A	B	C	D	E	F
105		4a	Doctors, hospitals, nurses, etc.	4a		
106		4b	Transportation	4b		
107		4c	Other	4c		
108		5	Add lines 3 through 4c	5	sum(E103:E107)= \$ 0.0	
109		6	Form 1040, line 33 x 5%	6	E52*.05= \$ 0.0	
110		7	Total medical			if(E105>E104 ,0,E104-E105)= \$ 0.0
111						
112	Taxes	8	State and local income	8		
113		9	Real estate	9		
114		10a	General sales (from tax tables)	10a		
115		10b	General sales(motor vehicles)	10b		
116		11	Other	11		
117		12	Total Taxes		sum(E112:E11 6)= \$ 0.0	
118						
119		13a	Home mortgage interest to institutions	13a		
120	Interest	13b	Home mortgage interest to people	13b		
121		14	Credit cards and charge accounts	14		
122	Expenses	15	Other	15		
123		16	Total interest expenses		sum(E119:E12 2)= \$ 0.0	
124						
125		17a	Cash contributions less than \$5000	17a		
126	Contri-	17b	Contributions over \$5000	17b		
127	butions	18	Other than cash	18		
128		19	Carry over from prior year	19		

	A	B	C	D	E	F
129		20	Total contributions			sum(E125:E12 8)= \$ 0.0
130						
131	Losses	21	Total casualty or theft losses			
132						
133		22	Union and professional dues	22		
134	Misc.	23	Tax preparation fee	23		
135	Deduc.	24	Other	24		
136		25	Total miscellaneous deductions		sum(E133:E13 5)= \$ 0.0	
137						
138	Summary	26	Sum of 7, 12, 16, 20, 21, 25		sum(F110+F11 7+F123+F129+ F131+F136)= \$ 0.0	
139	of	27	Filing status		if((E4+E7)+1 ,3400,"")=	
140						if(E3+E6=1,2 300,"")=
141						if(E5=1,1700 , "")=
142	Itemized	28	Total itemized deductions		F138-sum(F13 9:F141)= \$ 0.0	
143						
144						
145						

Figure 13

Form 1040:

Figure 12 is a representation in LisaCalc of Income Tax form 1040 for 1983 and Schedule A. Figure 13 is the same template showing formulas. Form 1040 does not involve any particularly difficult math or complexities from the point of

view of a spreadsheet. If you have gone through the preceding tutorials you should be able to set it up easily from Figure 13 with LisaCalc, and without too much difficulty in most electronic spreadsheets available.

Income						
Receipts			Deposit			
Date	Name	Client	Tenant	Misc.	Petty Borrow	Date Deposit
1/05/84	Dobs		\$ 544.00			1/10/84\$ 724.00
1/06/84	Moran-Garcia	\$ 80.00				1/12/84\$ 200.00
1/06/84	Refund from CA FIT			\$ 3.22		
1/07/84	Zippy	\$ 40.00				
1/12/84	Ernshaw	\$ 120.00				
1/12/84	Woylewz	\$ 80.00				
1/13/84	Mountolive	\$ 160.00				
1/13/84	Blue		\$ 655.00			
1/15/84					\$ 13.79	
Totals:			\$ 480.00	\$ 1,199.00	\$ 3.22	\$ 13.79
			Total Income: \$1,696.01			

Figure 14

What This Spreadsheet Does and Doesn't Do for You:

As you probably know, filing your income tax return is a process of filling in different forms and schedules and copying the results onto other forms and schedules. This spreadsheet will accept all the numbers you calculate from outside sources. Where computations are required inside the 1040 or schedule A the spreadsheet will perform them (e. g. "add lines 13 through 15"). Where computation requires transferring numbers between 1040 and Schedule A, the spreadsheet will do that for you. Wherever a "0" appears on the spreadsheet, that number will be computed for you. A few other cells that are filled optionally, will also be filled for you.

It is not difficult to extend this principle to other schedules and forms. In fact the forms are fairly orderly in spreadsheet terms and an average LisaCalc user can set up Schedule A in 2-3 hours, faster as she or he gets into the system. As we all sorrowfully know, space does not permit elucidating the whole of the income tax system in a single magazine article.

Notes on Format: I have tried to make the spreadsheet resemble the 1040. The flexibility of LisaCalc in upper and lower case and facile revision of column widths, for example, makes it better for this purpose than many spreadsheets. The second column of line numbers on the right, for example, is to make the screen feel more like the 1040. This version shows on one screen width and will print on three vertical pages; for that reason I clipped some of the IRS's prose. If you have a large enough income you may have to widen columns E and F to accommodate large numbers and so go off the screen. Presumably the larger income is worth the inconvenience. All of the spreadsheet is formatted \$1234.56 except at the top of column E where you have to list dependents. Column A is centered and column C is flush right, except for a few flush lefts for clarity. Cells C2:C5 are formatted flush right and the words "Put '1' in one box" separated with spaces.

Notes on formulas: All the formulas directly express the IRS instructions. In cells F72 and F93 I have added conditional formulas that warn you if you need to go to another schedule, have overpaid, or whatever. The only real problem is in cell F139:F141 (Schedule A line 27) where the IRS's triple question required three lines where the IRS uses 1.

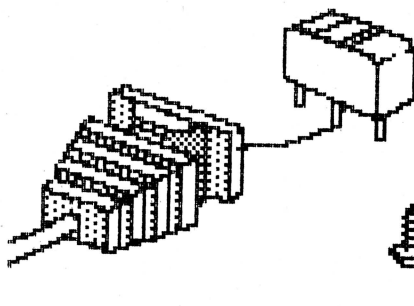
Making Apples Grow:

AppleMouse/ MousePaint

by Gene Wilson

1984 will be a banner year for Apple Computer. The deep stack of new product announcements, tells of new products, advances in technology, continued developer and end user support, and the updating of old standards. As we noted in last month's **Apple Orchard**, Macintosh brings the Lisa technology within financial range of more people, and clearly points the way to the future. But it's fitting that along with all the looking into the future, someone also looked back and saw that some of the concepts that characterize Lisa and Macintosh could be carried down to Apple's (and the whole personal computer industry's) *first* standard. The Apple II's full potential had not yet been realized. The little rodent that had made Lisa so popular could be captured to serve over a million Apple II and //e owners.

The AppleMouse II has been released, and is being shipped to authorized Apple dealers, worldwide. It will be available in quantity by March, 1984. A mouse, of course, is



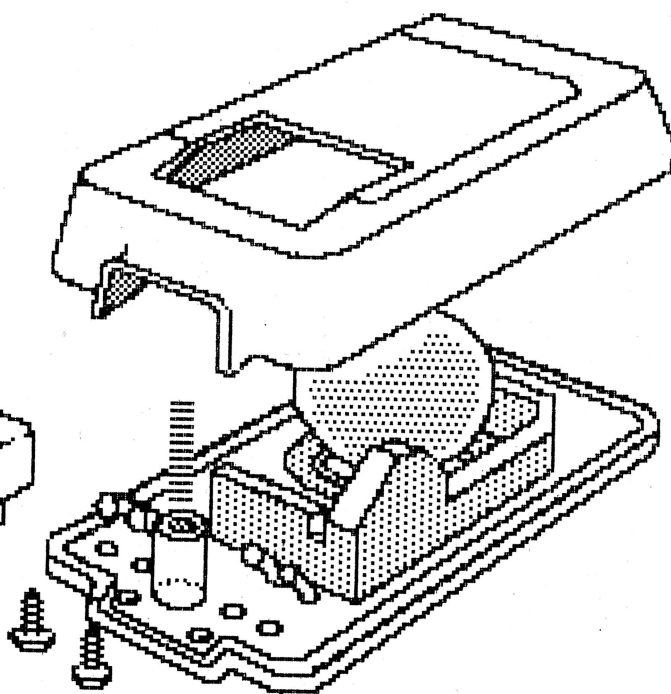
a mechanical device which you move on a desktop. The on-screen cursor mirrors your movements, and certain areas of the screen are sensitive in different ways to the mouse's movement and pushbutton action. With the right software, the mouse has been found to be easier to use than keyboard commands.

This is old hat on the Lisa, with its megabyte of memory; menus are "pulled down" and appear on the screen; one click puts a file away on what appears to be an electronic desktop, etc. Now we find an adaptation of the mouse for the Apple II. Apple says that eighteen months of work was compressed into less than five to get the creature ready.

We said above that the mouse works "with the right software". A startling feature of the Macintosh computer is MacPaint, a program that lets you fulfill your artistic creativity with electronic paintbrush or even spraygun. Even if you always thought that "Spraygun" was a documentary on graffiti in Tokyo, playing with this program is great fun. Could it be shoehorned into the Apple II's memory? Read on.

The Package

The AppleMouse II product consists of a firmware card, a panel connector (it provides a place for the internal cable from the card to connect with the mouse's RFI shielded cable), and a mouse. The mouse's tether (or, the length of the cable) is about four feet long. A manual is also included. The software, on a single diskette, has MousePaint and the ProDOS operating system. Also on diskette is the tutorial, which lets you get accustomed to the mouse in an interactive environment. The price will be about \$175.00.



Hardware: a Card and Mouse

The card installs in minutes. MousePaint assumes that the card has been installed in Slot 4, but the mouse will work with the card plugged into practically any slot. (The program will automatically search for the card's location.) There are no switches or special settings to remember.

Leave a clean, dry area at least 12 inches square alongside your Apple where the mouse can be allowed to run. The mouse is ambidextrous and doesn't care if you are left- or right-handed. (*It should be noted that Mr. Wilson is a southpaw, and has had many colorful comments on the short lengths of disk drive and external power supply cables in the past.*—PCW.)

Apple //e owners can look forward to further hardware enhancements when third party vendors combine the advanced capabilities of the //e's double Hi-Res screen with the mouse's special abilities. By changing the character font chip and adding some fancy programming, it will be possible (soon) to run text and data processing programs in a Lisa-style desktop environment. Movement through the text will resemble scrolling through a document on Lisa or Macintosh. The side bars, window and scroll arrows will all be manipulated by the mouse user.

Operating System

MousePaint runs under the ProDOS operating system. You will recall from Pat Caffrey's "Introducing ProDOS" review, which appeared in the January 1984 **Apple Orchard**, that ProDOS is the operating system that provides a bridge from the Apple II world to Apple /// operations/applications.

ProDOS is an improvement over previous Disk Operating Systems running on the Apple II (e. g., DOS 3.3). Compatibility with the Apple ///'s environment is not without minor irritants. For example, your disk drives are checked by a short disk speed routine during the boot process. If the speed is erratic or outside of certain limits an error message is displayed and nothing further will happen (until that drive is replaced or adjusted). This routine assures that disks formatted and used on an Apple II will work to the closer tolerances required when using the same disk on the Apple ///'s onboard drive.

ProDOS runs on an Apple II Plus or an Apple //e. Applesoft ROMs must replace the now obsolete Integer ROMs to update an older version Apple II. The chips are readily available at your local authorized Apple dealer, and only take a few moments to install. This new operating system is enough reason to finally bring older Apple IIs up to date. My Apple II, serial number 144, has no problems under ProDOS or with using the mouse.

ProDOS requires that an Apple, or Apple format, 16K RAM card be in slot zero. This is likely to cause howls from some Apple users. If you have some other manufacturer's RAM card, you may find that it won't support ProDOS. You probably got a "real deal" on it at the time, and are now upset that it doesn't accommodate ProDOS. In all fairness, Apple did publish specifications that its RAM board and other products should meet. Sources inside Apple guarantee only that ProDOS was not even *tested* on boards that didn't meet the Apple specs.

The most common problem will be if the video blanking signal is not refreshed precisely to Apple standards. Both ProDOS and the mouse firmware card assume the signal will be available. ProDOS can handle interrupts from up to four different devices at one time. For example, the mouse and ProFile can both be working simultaneously, without any noticeable degradation in performance from either device.

MousePaint

MousePaint, written by Bill Budge, is based (very strongly) on Bill Atkinson's MacPaint. Bill Budge's Assembly language programming skills assure that the program runs smoothly. Anyone familiar with some of Bill's prior achievements won't have trouble believing that the program runs quickly, as well.

The display is a faithful re-creation of the MacPaint screen. The mouse, pull-down menus, drawing tools, enclosed shapes, line width selector, and pattern boxes have all been designed to have the same look and function as with MacPaint. MacPaint's "Lasso" and "Mirrors" options didn't get into the Apple II version; well, *something* had to give in limited memory.

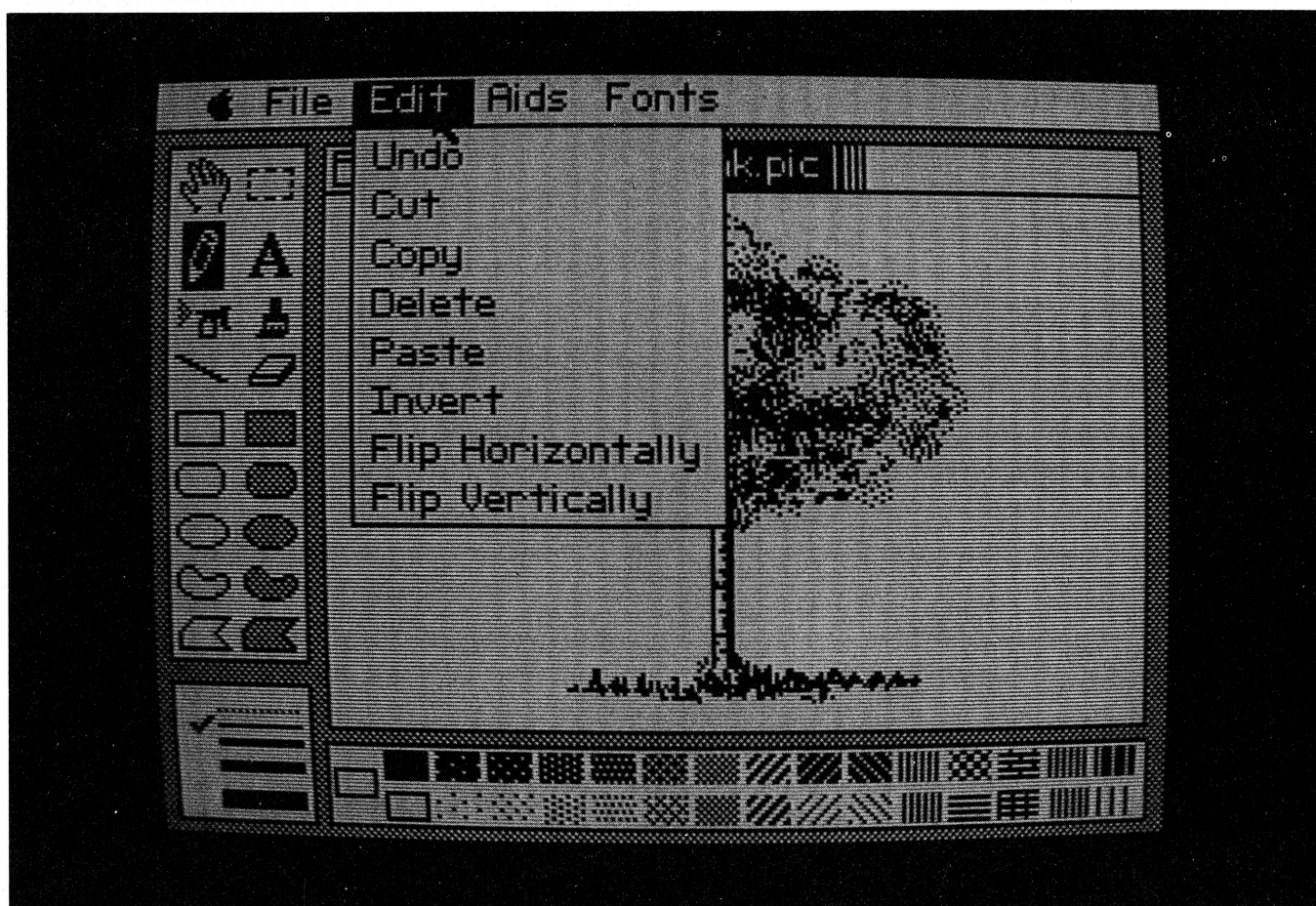
Pull-down menus provide a quick means for selecting a single activity from a pre-defined list. Options:

- Filing commands provide a variety of ways to manipulate/blank the screen, format diskettes, and to get, store, save, copy, and print pictures. Face it now, folks: the Apple II's dot resolution and screen size are no match for either Macintosh or Lisa.
- Editing commands allow rapid manipulation of parts of a picture that have been previously marked (by the Editor's Box) for action. It is possible to move, cut and paste, copy, delete, invert, and flip the marked section either horizontally or vertically (or both). *Undo* reverses the operation just performed.
- Drawing Aids commands contain several very useful utilities. *Fatbits* provides a means to edit at the "bit" level; all the editing commands and drawing tools work on a small area (highly magnified) of the original picture. *Show Page* shows a smaller image of the entire picture (a picture is larger than the drawing screen area). *Set Brush* is a full selection of brush sizes and shapes that are used when "painting" with the Brush. The *Grid* command only allows vertical and horizontal lines to be drawn.
- Fonts stored on disk are listed in this menu.

Drawing tools:

- The *Grabbing Hand* pulls portions of a picture into the view area.
- The *Editor's Box* sets the limits of a rectangular area on screen for further action. (It is not possible to isolate a single object that lies among other objects.)
- The *Pencil* allows freehand drawing whenever the mouse button is held down. It has only one size of "lead."
- The *Text Letter* allows the insertion of text at the mouse's cursor position. The font used is picked from the Font Menu.
- The *Spray Can* is used for shading portions of the picture. Dragging the mouse over an area repeatedly makes it get darker. (This tool is very popular with the younger members of the family.)
- The *Brush* "paints" black shapes in the pattern picked from those available in the Set Brush option.
- The *Straight Edge* draws a line of the width and pattern you have selected, from the point where you clicked the mouse, to the position you stopped dragging it. You can see exactly what the finished line will look like before releasing the clicker.
- The *Eraser* removes items from a portion of the screen, following your mouse movements.

Enclosed Shapes include a rectangle, rectangle with



rounded corners, oval/circle, free form, and polygon. Shapes are drawn in the line width and pattern that you've already selected. Shapes can be either outline only, which puts the selected pattern around the border, or solid, which fills the shape with the pattern.

Building a better Mousetrap

The AppleMouse II manual's "Appendix A: Writing Mouse Programs in BASIC" explains how to include the mouse in AppleDOS and ProDOS applications. "Appendix B: AppleMouse II Firmware" includes descriptions of some of the 6502 Assembly routines which are included on the firmware card. Also included is an explanation of the various interrupt modes, and descriptions of the eight routines that your program can call.

A new series of development tools and technical information is available from Apple Computer. The "Apple Workbench" tools include "The ProDOS Technical Reference Manual" and "The ProDOS Assembler Tools." Both packages include software on disk and technical reference materials in a loose-leaf binder.

An Apple /// Mouse?

Apple's Personal Business Systems Group (Apple /// support team) is hard at work with the AppleMouse concept. The hardware card plugs into any of the Apple ///'s peripheral slots. MousePaint will now run in Apple II emulation mode without any restrictions. At an unspecified later date, MousePaint will run on the Apple /// in native

mode, taking full advantage of the ///'s advanced capabilities.

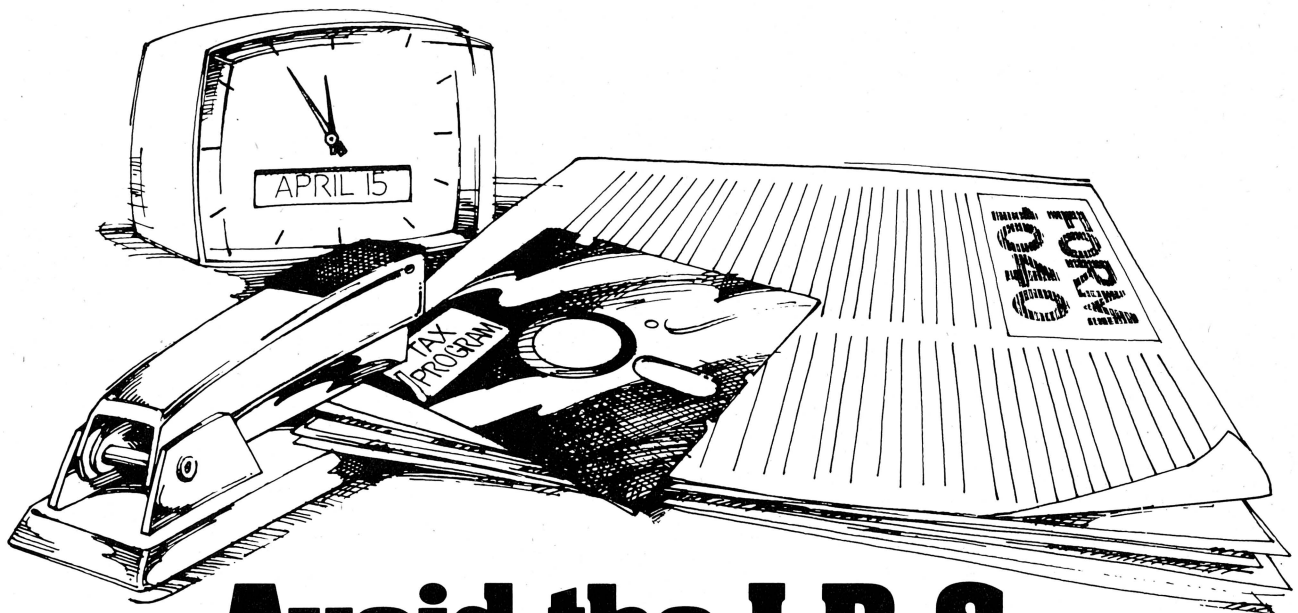
However, **Apple Orchard** has also seen a totally different future product for the /// that makes use of the ///'s greater color, speed, and memory capabilities. The as yet unnamed product (let's just call it "the SketchPad" for now) will provide a total of 136 colors and patterned shades that can be combined with 34 background patterns to create very convincing sketches (in amazing color!). The program structure allows the Apple /// user quickly to draw boxes and various other shapes, fill areas with colors/patterns, and edit both pictures and background patterns at the "bit" level. No, it's not MousePaint. Operationally it bears little or no resemblance to MacPaint or LisaDraw; it is a totally different approach to sketching that will carve its own niche among creativity products for the Apple. Details when available.

Conclusion

The concept of creating Lisa-style applications for the Apple II and ///e computers has not been ignored; mouse-enhanced products will be released soon by Apple Computer. Third party vendors are working on new products and revisions to existing products. The gap between today's menu driven programs and Lisa's desktop environment will narrow considerably.

Many years after the original sale, it is comforting to know that Apple's earliest creation can be updated, inexpensively, with the newest technological developments. *Viva Rodentia!*





Avoid the I.R.S.

(Inadvertently Ruined Software)

You need software insurance.

Diskettes are fragile, and when a protected program is damaged, the results are expensive and inconvenient. If you have a backup diskette, though, you can have your Apple, IBM or compatible computer back on line within seconds...affordably. That's software insurance.

Copy II Plus

This is the most widely used backup program for the Apple. Rated as "one of the best software buys of the year" by **InCider** magazine, its simple menu puts nearly every disk command at your fingertips. The manual, with more than 70 pages, describes protection schemes, and our **Backup Book™** lists simple instructions for backing up over 300 popular programs. The Backup Book is expanded bimonthly, and is always available to Copy II Plus owners for only \$1.00 (and a self-addressed, stamped envelope). Best of all, Copy II Plus is still only **\$39.95**.

WildCard 2 (formerly The Alaska Card)

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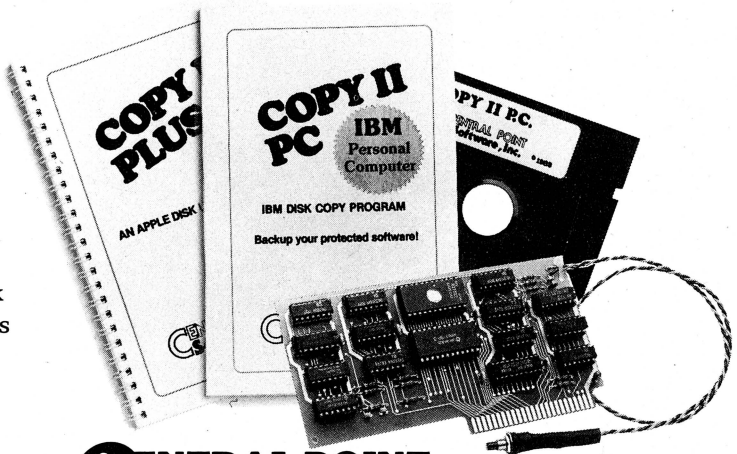
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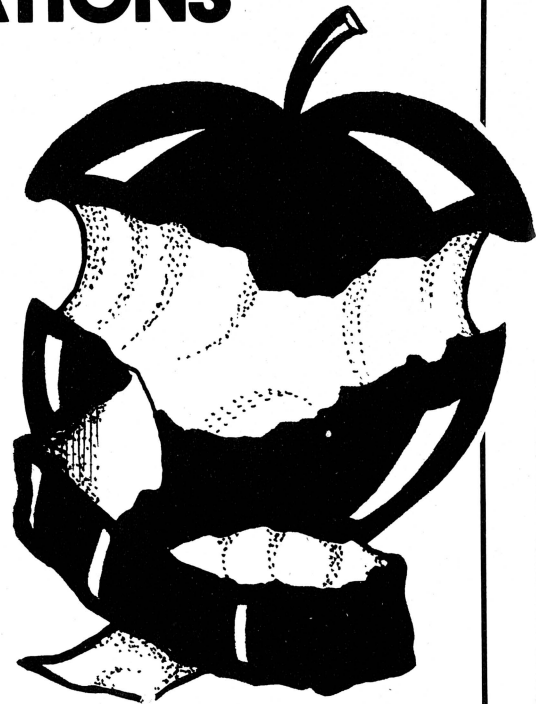


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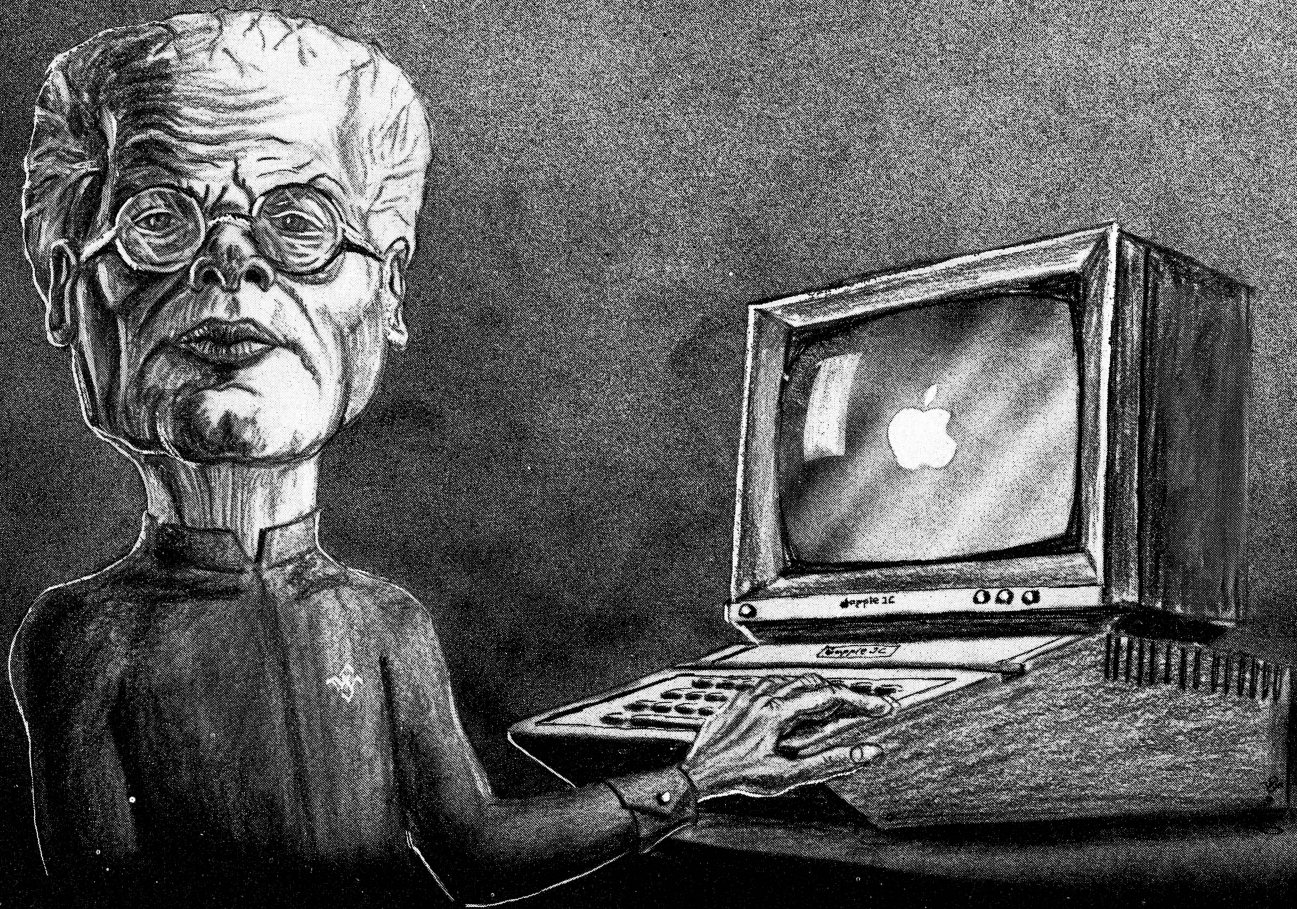
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LAZERWARE

COMPUTER CAMPS

by Tony Dirksen

Will computers replace canoes? Probably not. But in thousands of homes across the country, kids are packing their favorite floppies into backpacks, and heading off to camp.



When they get there, they'll hear tales of mice and turtles, instead of legends about snakes and bears. And they'll write home with a sophisticated word processing program, instead of scratching out notes with a leaky pen.

It's all happening at the new computer camps, which combine traditional camp recreations with computer education. Summer has never been so sophisticated.

Or so much fun. In a typical camp, a child might spend four hours each morning learning some fundamentals of BASIC, then spend the afternoon playing baseball. And the evening creating computerized camp songs.

At the end of a one-week stay—standard for most camps—that child might earn a special programming certificate, along with a swimming medal or naturalist's award.

Computers, you see, have been brought into many camps to supplement the total summer camp experience. Not to replace it. There are, of course, exceptions. A few "camps" offer nothing more than what's really a mini-course in computer science. (Which may be exactly what your youngster wants.) And, at the other end of the spectrum, some camps have added a machine or two just so they can put the word "computer" in their advertising. But it's hardly enough to meet the typical teenager's enthusiastic demands.

For even camps with a more-than-adequate number of computers report that kids can sometimes be lined up to use them. Most serious camps have one computer for every two children. There's a simple economic reason for this arrangement—half the kids are given computer time in the morning; half in the afternoon. Evenings, though, aren't always so easy. To get computer time, kids have to learn traditional but unnatural values like "sharing" and "cooperation;" the values that camping is supposed to instill.

Most of these camps, incidentally, use Apple systems. Logical, perhaps, since Apples run software than any other computer. Even Donald McLeod's camp in Chapel Hill, North Carolina—which features a trip to an IBM plant among its activities—uses Apple //e's. "Some of the people on my staff," he notes, "think we should include some of IBM's computers. But I think you have to pick one system and do your very best with it."

Some camps, though, do feature more than one computer. The Midwest Computer Camp of Indiana, for instance, has a wide collection of systems that includes Apples, Commodores, and IBMs. Each student has exclusive use of a computer, although students can switch between different systems if they wish. "We do a lot to try and challenge youngsters," notes camp director Frank Unum. "For instance, if a youngster has written a program on a TI system, we might ask him to see if he can do it on an Apple, too."

"It's a chance for them to explore differences between machines," Unum continues. "And if they already have one computer at home, they can try out others."

Equipped for learning

But are computer camps just a gimmick, or do they really offer a practical way to learn more about computing?

We talked with several camps to find out what they're teaching and what the kids are learning. Without exception, they claimed success for their programs.

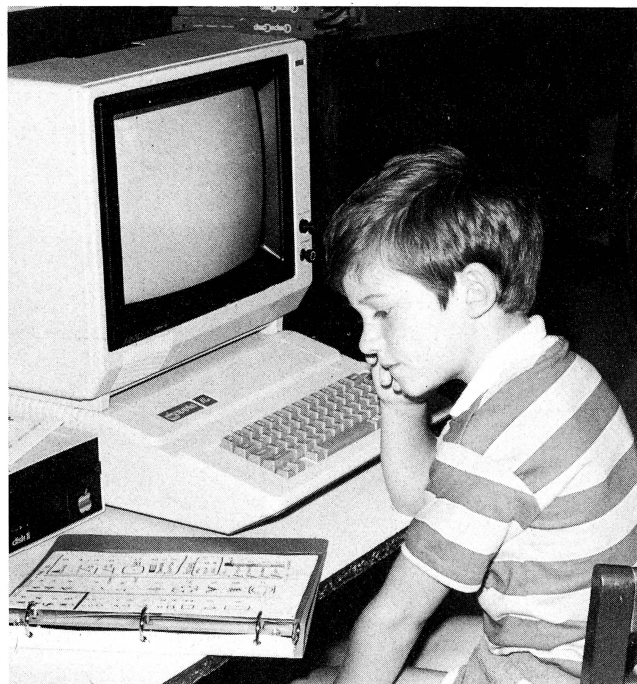
Given, of course, that the kids who come to computer camps already have an inherent interest in technology. "Some of them even beg their parents to let them come here," notes Tom Bollay of the Original Computer Camp in California. "We've had fantastic results. In fact, we figure that no more than one percent of the youngsters can't connect with what we're doing."

The other ninety-nine percent engage in computer-related activities that range from learning about Logo (probably the most popular language in the camps) to experimenting with robotics and artificial intelligence.

Learning is almost always self-paced, using workbooks designed to give youngsters some hands-on experience right away with the computers. Much of that, you might argue, could be duplicated in your own home, since there are plenty of good step-by-step guides available that teach about computing.

But more than half the children in camp often have computers in their homes. Yet they keep coming. Clearly, they're getting more than just book learning out of the camping experience.

What happens is that the workbook learning is augment-



ed by professional attention from trained computer educators. (And from the enthusiasm and knowledge of other campers, as well.) It creates an environment that can produce some relatively sophisticated programs in a relatively short period of time.

Frank Unum describes one such example: "Last summer, we had a youngster who wrote a space battle program.

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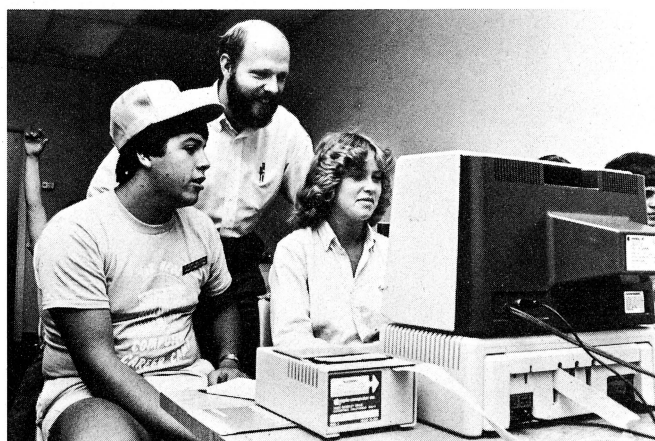
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After he'd written his first version—a basic shoot-'em-up—we invited him to add sound to it. Then color. Then other features. Every one of them, one step at a time, to help him produce a better program.”



Tar Heel Computer Career Camp instructor John Hampton, standing, checks keyboard and terminal work of Laura Ayscue, Louisburg, as Terry Moose, Claremont, looks on.

Most camps offer a choice of novice, intermediate, and advanced learning programs. They often offer each level on succeeding weeks, so that a camper could theoretically work from novice to a more advanced level over a month.

Adults only

Sending the kids off to camp is one way parents can give themselves a week or two off during the summer. But there's another. You can go to camp yourself.

“Learning at Pinehurst” offers a three-day summer seminar on computers for adults. It can give you some experience with applications programs, as well as teach some fundamentals of BASIC. You even get a free afternoon off to indulge in a little golf at the excellent Pinehurst Country Club, or to claim a few extra hours on the computer.

It turns out that a lot of these adult campers opt to spend that free afternoon on the machines. Because they very quickly discover—as youngsters are discovering in camps all over—that computers are one tool that allow learning and fun to easily go together.

A total experience

In most of these camps, computers represent just a part of the total camping experience. It's the biggest part, to sure—the unifying part that defines what the camp is all about—but typically it's not the only thing the camp does.

One camp, for instance, run by the Stanislaus Department of Education in California, includes hiking and overnight trips among its scheduled activities. Similarly, the camps operated by the Original Computer Camp are set among lakes and other scenes of natural beauty, and feature canoeing, crafts, and swimming.

Many of these camps, though, are located on college campuses, taking advantage of existing dormitory and recreational facilities. CompuCamp, for instance, runs 12 camps at college sites throughout the country. “We've

found that the facilities at mid-sized liberal arts schools are ideal for our needs,” notes Warren Smith of CompuCamp. “The real emphasis of our program is on computing.”

One camp that manages to offer both is the Adirondack Computer Camp, operated by the Office of Graduate and Lifelong Learning of Potsdam College in New York. It's set on a campus site overlooking small, but picturesque Star Lake. The computer facility is right up the hill from an excellent waterfront, with sailboats, canoes, and paddleboats, as well as nearby woodland hiking trails.

Campers at Adirondack benefit not only from a fine computer staff (the college itself consistently graduates a large number of computer science students), but from an expert recreational staff connected with the Star Lake campus.

Should your youngster go to computer camp? Certainly they'll have some fun. And develop some friends with a strong common interest. Perhaps they'll learn something new about computers. And maybe even get in a little bit of canoeing, too.

In fact, computer camps aren't all that different from what you'd expect from any summer camp. It's just an 80's interpretation of the same things camping has always been about, anyway: a blending of learning, friendship, and fun.

These are camps that feature computer education as their primary activity. Many other camps also offer computing among their other activities:

- Adirondack Computer Camp (Star Lake); Office of Graduate and Lifelong Learning, State University of Arts and Science, Potsdam, NY 13676; 315/267-2166.
- Champlain College Computer Camp (Vermont); Room 4F, Box 670, Burlington, VT 05402; 802/658-0800.
- CompuCamp (12 camps, including Colorado, north & south California, Washington D.C., Minnesota, Nebraska, Oregon, Pennsylvania); 5810 West 78th Street, Minneapolis, MN 55435; 800/328-4815 ext. 549.
- Computer Camps International (Connecticut, Georgia, Texas, Wisconsin); 310 Hartford Turnpike, Vernon, CT 06066; 203/871-9227.
- Midwest Computer Camp (Old Acres, Indiana); 9392 Lafayette Road, Indianapolis, IN 46278; 317/297-2700.
- National Computer Camps (Connecticut, Georgia, Missouri, Ohio, Oregon); Box 585, Orange, CT 06477; 203/795-9667.
- New England Computer Camp (Connecticut); Banner Lake, Banner Road, Moodus, CT 06469; 203/873-1421.
- Original Computer Camp (California, New Hampshire, Colorado); 559 San Ysidro Rd., Santa Barbara, CA 93108; 1-800/235-6965, inside California 1-800/824-3349.
- Pinehurst Camp (adult and upper-high school programs); Box 2328, Chapel Hill, NC 27514; 919/967-6996.
- Stanislaus County Department of Education (Sierra camps); Foothill Horizons, 801 County Center III Court, Modesto, CA 95355; 209/571-6596.

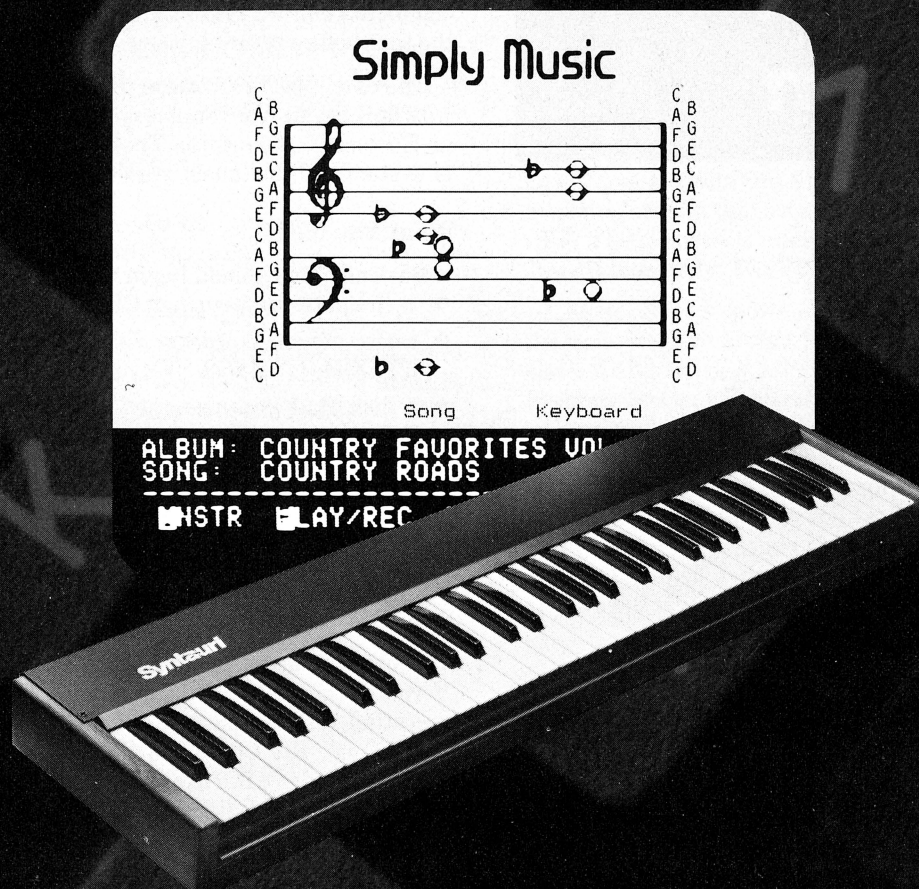
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CUSTOM MADE WORDSTAR:

Patching The Wordstar Program

by Diane Burns

Burns & Venit

IF YOU USE WordStar for more than an occasional letter, chances are you've had to change the standard WordStar settings for documents. The standard settings are nice. WordStar justifies your text and sets it neatly in the middle of an 8½ x 11-inch page. In my case, I like to work with ragged right margins, hyphen help and variable tabs OFF, and the help level set to 2. You might have similar "eccentric" standards.

It's possible and easy to fix or "patch" the WordStar program so that the initial settings are tailored to your needs. You don't have to be a programmer to do it. (If you are a programmer, you can use CP/M's program DDT.COM.) Anyone can use the program that MircoPro International, the manufacturer of WordStar, has provided to help you make all the necessary changes. It's called INSTALL.COM and it comes on your WordStar Disk. That's the program we'll be using in this article.

We'll take you step-by-step through an example of changing one setting in the WordStar program, followed by listings for other types of patches. In our example, we'll show you how to set the initial justification toggle OFF (**CTRL-O J**). This produces unjustified, or "ragged right" text. You may want to install this patch on your own WordStar. Justification causes extra spacing between words. This can be a problem if, for example, you want to search for a two-word string (**CTRL-Q A** or **CTRL-Q F**) like "San Francisco". WordStar will not find it if the justification process places an extra space between words. For this reason, I always type my documents with justification OFF. When all edit cycles are complete, I can always turn it back ON and reform (**CTRL-B**) the text before printing it out.

The examples below were performed on an Apple II plus with 64K RAM, WordStar version 3.0, Microsoft's CP/M, and an Epson MX-100 printer. They will be the same for any CP/M system and the labels work on any version of WordStar.

What You Need

Basically, you should begin with:

- a computer that runs on CP/M, with two disk drives;
- a copy of your WordStar disk. Be sure it contains the files WS.COM, WSMGS.OVR and WSOVLY1.OVR;
- a disk that contains the operating system (including PIP.COM and STAT.COM) and the file INSTALL.COM (From the original WordStar disk).

If you know how to copy the system and INSTALL.COM on to a disk, skip over to the section "Running the Install Program". If making copies is new to you, read the next section.

Setting Up a New Disk

In order to use a newly purchased disk, you first have to "format" the disk. To do this you must have your CP/M operating system disk containing the files FORMAT.COM, COPY.COM, PIP.COM, and STAT.COM in drive A, and a blank disk in drive B. Take a look at the directory, or list of the files on your CP/M disk by typing in **DIR «RETURN»**.

By using the FORMAT.COM program, we will set the disk up in a way that our particular machine can use it. To format your blank disk type: **FORMAT B: «RETURN»**.

The screen will say Insert disk to be formatted in drive B:, press <RETURN> to begin. Be sure you have a blank disk in drive B and press <RETURN>.

The disk will whirr, and your drive will make a horrible noise while the screen says formatting A few moments later, the screen says **FORMAT Complete**. Now copy the operating system on to the disk by entering

COPY B:=A:/S <RETURN>.

The screen says:

Apple II CP/M 16 Sector Disk Copy Program (c) 1980 Microsoft

Insert MASTER disk into drive A:

Insert SLAVE disk into drive B: Press RETURN to begin.

You enter RETURN. The screen says Copying . . . and in a few moments the screen says Copy complete. Do you wish to make another copy (Y/N). If you've just bought a box of disks, you might want to FORMAT each disk first and then copy the system on to each one. That way, you'll have a box of blank, FORMATTed disks ready for use. To end the COPY procedure, type N.

Now we want to copy the program that will enable us to view how much space we have on our disk, STAT.COM. It's a good idea to check the status of your disk space. A DISK FULL error can be fatal in WordStar. Enter

PIP B:=A:STAT.COM <RETURN>.

It's also a good idea to include on your disk the program that allows us to transfer single files from one disk to another, PIP.COM. Enter **PIP B:=A:PIP.COM <RETURN>**.

Now you are ready to copy the INSTALL.COM file on to the new disk. Remove the CP/M disk from drive A and put the newly formatted disk into drive A. Insert your original WordStar disk, or a copy of it, into drive B. Use the PIP program to copy the file over to drive A by typing

PIP A:=B:INSTALL.COM.

Type this in carefully, as you don't want an accidental erasure on your original WordStar disk.

Running the INSTALL Program

In drive A, insert a copy of the disk containing the files WS.COM, WSMGS.OVR and WSOVLY1.OVR. In drive B, insert the disk with the operating system and INSTALL.COM. To call up the Install program, enter

B:INSTALL <RETURN>.

The disk whirrs and the screen asks, Do you want a normal, first time installation of WordStar? Since we want to do some patching, it is not what WordStar considers a "normal, first time" installation. You respond by typing in N.

Next, you are given the WordStar Installation Options List:

- A INSTALLation of a distributed WordStar, INSTALLing WSU.COM, producing WS.COM, and then running the INSTALLED WordStar.
- B INSTALLation or re-INSTALLation of a WordStar COM file of your choice, placing the newly INSTALLED WordStar in a file of your choice, and then exiting to the operating system.

C Same as B except run the INSTALLED WordStar.

D Modification of the INSTALLation of a WordStar COM file of your choice. The modified WordStar replaces the original file. The modified WordStar is then run.

You want to choose either B,C, or D, depending on whether or not you want to run WordStar as soon as you've finished making your patches. In this example, we'll choose option D, so simply enter D.

Selection D asks Filename of to modify?. You enter **A:WS.COM <RETURN>**.

Now the Install Program will ask you a series of questions about your computer and printer. These questions have already been answered once, assuming you've been using your WordStar successfully. If that's the case, you can just press <RETURN> in response to all questions in this part of the program. (If you've been having problems, refer to Section 3 of the Installation section of your WordStar Manual.) For our machine, the proper responses were:

APPLE VIDEO BOARD MENU option - Videoterm Software U/L case with Shift Mod

PRINTER option A - Any "Teletype-like" printer (i.e., almost any printer)

PROTOCOL option N - NONE required

DRIVER option L - CP/M "List" device

Now comes the fun part! The patching part of the program begins when the screen asks, Are the modifications to WordStar now complete? You enter N, and a summary of the patching process is displayed on the screen along with the prompt LOCATION TO BE CHANGED (0=END) Basically, you want to go to the location in the WordStar program that controls the setting you want to change. The locations are addressed by "labels". You can find a list of many of these in the Installation section of your WordStar manual, or in MicroPro's "Customization Notes", available through MicroPro. For your convenience, a listing of the most commonly changed labels appears with this article. In this example, we want to go to the location that sets the justification toggle and turn it OFF. The location is addressed by the label INITWF:+1 . Type it in exactly: **INITWF:+1 <RETURN>**.

The screen now shows you the address in hexadecimal and the current value of that location, which should be "FF". It also asks for the new value, the one you want to change it to. In computerese, FF means ON and 00 means OFF. Since we want the initial justification setting to be OFF, enter

0 <RETURN>.

Notice the Install Program adds the suffix "H" to all entries; you don't need to. Now you are asked to enter a new location. You may enter another label (see the following listing), or if you're done, enter a 0, followed by <RETURN>. You will be given a chance to review your hardware selections. If you discover an error, enter "N" and you'll have a chance to re-select the hardware options. Assuming they are correct, enter Y.

The disk whirrs and your WordStar program will now come up with the justification toggle OFF.

Now that you see how easy it is to customize your WordStar, you can create different disks for different tasks. I work with at least two different WordStar disks: one I use for producing drafts, another for producing final printout. In each case, WordStar is tailored to meet different needs.

WordStar - LABEL LISTINGS

Initial Help Level

Label - ITHelp:
hex address - 0360
old value - 03
new value - 02

Result - changes the Help level to Level 2. Choices of 0 through 3 are possible. Level 2 shows the "No-file menu" but none of the others (unless you call for them)

WS Command - CTRL-J H

Help Level Message

Label - NITHLF:
hex address - 0361
old value - FF
new value - 00

Result - by turning this byte "off" (setting it to 00), you enable the display of the message: "For maximum help (full menu display), select Help Level 3 by typing CTRL-J H 3." This message will clear when a key is pressed.

You might want WordStar to do this when you've set the initial help level (see previous listing) to 2 or lower, especially if you'll have users who want to use the full Help Level 3.

WS Command - none

Initial Insert Toggle

Label - ITITOG:
hex address - 0362
old value - FF
new value - 00

Result - WordStar comes up with Insert OFF

WS Command - CTRL-V

Initial NO FILE MENU Toggle

Label - ITDSOR:
hex address - 0363
old value - FF
new value - 00

Result - WordStar comes up without the "No-file" menu

WS Command - none

Word Wrap Toggle

Label - INITWF:
hex address - 0385
old value - FF
new value - 00

Result - WordStar comes up with word wrap off

WS Command - CTRL-OW

Justification Toggle

Label - INITWF:+1
hex address - 0386
old value - FF
new value - 00

Result - WordStar comes up with justification OFF

WS Command - CTRL-OJ

Variable Tabs Toggle

Label - INITWF:+2
hex address - 0387
old value - FF
new value - 00

Result - WordStar comes up with variable tabs OFF. Variable tabs are the tabs that appear across the ruler line at the top of the screen. You can change the location of these tabs, so they are "variable". Non-variable tabs occur every 8 spaces and cannot be altered. Non-variable tabs will help ensure the transmission of a true "tab" character, necessary for typesetting purposes.

WS Command - CTRL-O V

Soft Hyphen Toggle

Label - INITWF:+3
hex address - 0388
old value - FF
new value - 00

Result - WordStar comes up with soft hyphens OFF. Normally, when you press "-" when hyphen-help comes on, WordStar inserts a "soft" hyphen (like a "soft" carriage return) that will disappear when you reform (CTRL-B). With this byte set to 00, you'll get "hard" hyphens only.

WS Command - CTRL-OE

Hyphen Help Toggle

Label - INITWF:+4
hex address - 0389
old value - FF
new value - 00

Result - WordStar comes up with hyphen-help OFF. Normally, when you reform (CTRL-B) text, WordStar, when it comes to long words at the end of a line, will stop reforming to ask if you want to hyphenate the word or not. Turning this toggle OFF is handy when you want to reform your entire document at once without interruption (CTRL-Q Q CTRL-B).

WS Command - CTRL-0 H

Print Control Display

Label - INITWF:+5
hex address - 038A
old value - FF
new value - 00

Result - causes WordStar to *not* display the print (CTRL-P) control characters.

WS Command - CTRL-0 D

Display Ruler Line

Label - INITWF:+6
hex address - 038B
old value - FF
new value - 00

Result - causes WordStar to *not* display the ruler line across the top of your screen.

WS Command - CTRL-0 T

Initial Line Spacing

Label - INITWF:+9
hex address - 038E
old value - 01
new value - 2

Results - WordStar comes up set for double spacing. Possible choices are 1-9.

WS Command - CTRL-0 S

Block Column Move

Label - INITWF:+A
hex address - 038F
old value - 00
new value - FF

Results - WordStar comes up with block column mode ON. This is handy for producing documents with two columns of text: type one long, narrow column of text and CTRL-KV (move) the bottom half of it alongside the first half.

WS Command - CTRL-K N

Initial Left Margin

Label - INITLM:
hex address - 037F
old value - 00
new value - 11

Result - WordStar comes up with an initial left margin setting of 10. Remember to translate the column number you desire from decimal to hexadecimal. See chart below.

WS Command - CTRL-0 L

Hex	Decimal
01	01
02	02
03	03
04	04
05	05
06	06
07	07
08	08
09	09
0A	10
0B	11
0C	12
0D	13
0E	14
0F	15
10	16
11	17
12	18
13	19
14	20
15	21
...	
1E	30
1F	31
20	32
21	33
...	
FE	254
FF	255

Initial Right Margin

Label - INITRM:
hex address - 0380
old value - 40
new value - 45

Result - WordStar comes up with the initial right margin setting of 70 (45 in hexadecimal) instead of the default of 65 (40 in hexadecimal). See "Initial Left Margin".

WS Command - CTRL-0 R

Decimal Point Character

Label - DECCHR:
hex address - 0393
old value - 2E
new value - 2C

Result - WordStar comes up with the comma character (2C in hexadecimal) used as a decimal point instead of the period (2E hex). European users might use this one.

WS Command - none

Hyphenation Pauses

Label - HZONE:
hex address - 039A
old value - 04
new value - A

Result - WordStar comes up with the hyphen help set to be activated 10 columns (A in hexadecimal) before the right margin rather than the default of 4. Occurs when reform (CTRL-B) is used.

WS Command - none

Omit Page Number

Label - ITPOPN:
hex address - 03D3
old value - 00
new value - FF

Result - WordStar comes up as though you have a .op (omit page number) command on every line.

WS Command - .op

User-Defined Print Control Character Set to Turn ON Condensed Font

Label - USR1:
hex address - 06C9
old value - 00
new value - 1

Label - USR1:+1
hex address - 06CA
old value - 00
new value - F

Result - causes WordStar to define the print control character Q (CTRL-P Q) as an imbedded print control character to turn on the condensed mode. The first address states how many bytes the actual string will take up. In the second address the string is entered. The value "0F" is what the Epson printer requires. If you do not have an Epson printer, refer to your printer manual to see what hexadecimal value you need to enter here.

WS Command - CTRL-P Q

User-Defined Print Control Character to Turn OFF Condensed Font

Label - USR2:
hex address - 06CE
old value - 00
new value - 1

Label - USR2:+1
hex address - 06CF
old value - 00
new value - 92

Result - causes WordStar to define the print control character W (CTRL-P W) as an imbedded print control character to turn off the condensed mode. The first address states how many bytes the actual string will take up. In the second address the string is entered. The value "92" is what the Epson printer requires. If you do not have an Epson printer, refer to your printer manual to see what hexadecimal value you need to enter here.

WS Command - CTRL-PW

User-Defined Print Control Character to Turn ON Italic Font

Label -USR3:
hex address - 06D3
old value - 00
new value - 2

Label - USR3:+1
hex address - 06D4
old value - 00
new value - 1B

Label - USR3:+2
hex address - 06D5
old value - 00
new value - 34

Result - causes WordStar to define the print control character E (CTRL-P E) as an imbedded print control character to turn on the italic mode. The first address states how many bytes the actual string will take up. In the second and third addresses the string is entered. The values "1B" followed by "34" is what the Epson printer requires. If you do not have an Epson printer, refer to your printer manual to see what hexadecimal value you need to enter here.

WS Command - CTRL-P E

User-Defined Print Control Character to Turn OFF Italic Mode

Label - USR4:
hex address - 06D8
old value - 00
new value - 2

Label - USR4:+1
hex address - 06D9
old value - 00
new value - 1B

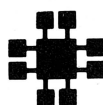
Label - USR4:+2
hex address - 06DA
old value - 00
new value - 35

Result - causes WordStar to define the print control character R (CTRL-P R) as an imbedded print control character to turn off the italic mode. The first address states how many bytes the actual string will take up. In the second and third addresses the string is entered. The values "1B" followed by "35" is what the Epson printer requires. If you do not have an Epson printer, refer to your printer manual to see what hexadecimal value you need to enter here.

WS Command - CTRL-PR.



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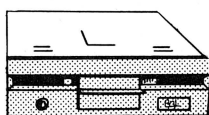
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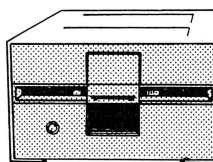
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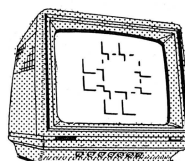
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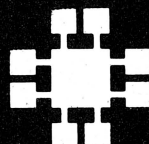
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MAC- INATIONS

by Scott Knaster

If you've seen a Macintosh, you know that it can do a lot of neat tricks. One of its best tricks is the capability to create software that uses the Mac user interface without having to write your own code for things like pull-down menus, windows, and dialog boxes. The soul of Mac software is the Macintosh Toolbox, 64K bytes of ROM (Apple calls it "handcrafted ROM") that contain a wide array of callable routines to support many of the wonderful things that Mac does.

In this month's meanderings, we'll talk about how programmers use the magic in Macintosh's ROM to make applications programs do great things. We'll discuss what you need to do to create Macintosh software, and the tools that are available for you.

LISA 1 UPDATE

by Gene Wilson

The Lisa 2 was announced at Apple's stockholder's meeting. While this new Lisa offers downward compatibility with her new companion, Macintosh, improvements have been made to the new machine that remove the earlier model from further participation within the 32-bit family.

It is not Apple's intent to make last year's beauty an orphan, or the victim of technology advancements. Their Upgrade plan guarantees that Lisa (1) owners have not been disinherited. There are two different upgrade paths.

Option One includes the following changes, which will be made by your local authorized Apple Lisa dealer, for FREE:

- A new front cover will be installed. The "twiggy" drives will be removed. A new, 3 1/2 inch Apple drive (presently supplied by Sony Corporation) will be installed. This drive will offer 400K of removable storage. There will be full compatibility with all other members of the Lisa Technology family; you can now run Macintosh software.
- A ROM chip will be changed on the I/O board. The

The first thing you need to create Macintosh software is a Lisa. Yes, the Lisa Pascal development environment is the place where Mac software comes from. Although this requirement is not inherent in the Mac Toolbox, it is the recommended development environment right now. Why? Well, the main reason is the Lisa's big memory space (half or full megabyte) and easy access to hard disk, which eases development.

If you're a 68000 Assembly language fan, you can also take that direction, again using the Lisa to prepare your code. You can talk to the Toolbox from assembler, too; no need for Pascal if you don't want it.

In this month's column we'll concentrate on the special tools that the Mac Toolbox provides; we'll leave the discussion of the Lisa development world as a possible future subject. If you're a Lisa Pascal wizard, you already know about it anyway.

Tools of the Trade

The Macintosh Toolbox is in the ROM of every Macintosh, as much a part of it as the Apple logo. The Toolbox contains the routines and data types that do the Mac magic. The Toolbox is divided into units (following the Pascal habit). The ROM also contains the Macintosh's operating system, humbly known as the Operating System or OS.

The Toolbox units contain routines that your program can use. For example, your program does not have to know how to draw a pull-down menu; it only has to know how to call the appropriate Toolbox routine to take care of this task.

Continued on Page 36.

68000 microprocessor will now run at 8MHz.

- New operating system software will provide a much faster running Lisa, which will end the earlier comments that the machine was not very fast.
- Updated Apple Office software will assure a better integration between different modules. A number of changes have been made to improve the software.

Your Lisa (1) will now have full benefit of an additional year of research and development. There will be full compatibility with all other members of the Lisa Technology 32-bit family.

The copying of your software and data from the "twiggy" format to the new 3 1/2 inch Apple drives is strictly between you and your local dealer. Profile hard disk owners will be relieved to find that their units will continue to function as before, so program data stored will not have to be disturbed.

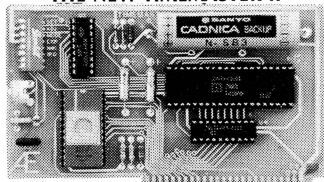
Option Two takes full advantage of ALL the improvements possible, and upgrades the Lisa into a virtually new machine. This option will cost about two thousand dollars, as it provides a significant enhancement:

- All the changes listed in Option One will be performed, for FREE.
- A fast, ten megabyte hard disk will be installed inside Lisa. Apple maintains that this unit is being sold at their cost. This aggressive pricing strategy will allow placement of major storage capacity into the hands of those people whose early support of the Lisa made it so successful.

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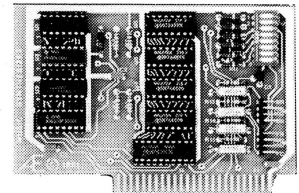
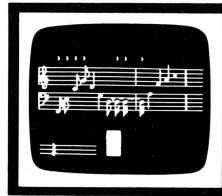
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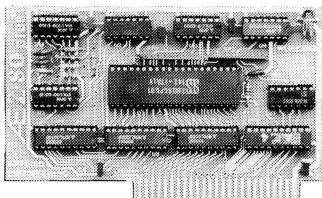
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VIEWMASTER	169	YES	YES	YES	YES	YES	YES	YES	YES
SUPRTERM	MORE	NO	YES	NO	NO	NO	NO	YES	YES
WIZARD80	MORE	NO	NO	NO	NO	YES	NO	YES	YES
VISION80	MORE	YES	YES	NO	NO	YES	NO	NO	NO
OMNIVISION	MORE	NO	YES	NO	NO	NO	NO	YES	YES
VIEWMAX80	MORE	YES	YES	NO	NO	YES	NO	NO	YES
SMARTERM	MORE	YES	YES	NO	NO	NO	YES	YES	NO
VIDEOTERM	MORE	NO	NO	YES	NO	YES	YES	NO	YES

The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, WordStar, Format II, Easywriter, Apple Writer II, VisiCalc, and all others. The VIEWMASTER 80 is THE MOST compatible 80 column card you can buy at ANY price!

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The units in the Toolbox are built in levels; many of the routines in Toolbox units call other Toolbox routines. Figure 1 shows the general order of the hierarchy of Toolbox units.

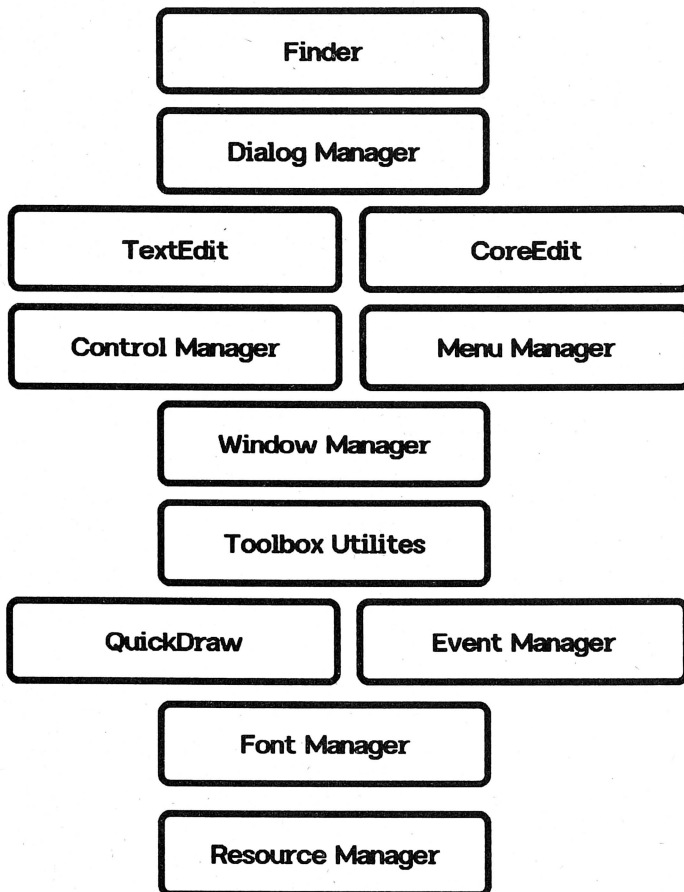


Figure 1

The unit listed at the bottom, the Resource Manager, acts like a master librarian for the system. In the Macintosh development environment, resources are the various pieces of an application program: menus, icons, dialog boxes, fonts, and even the application's code are stored as resources. Calls to the Resource Manager, either directly by the application or through one of other Toolbox units, pull in the various resources as they're needed.

One of the great advantages to the resource way of doing things is the ease of modification that it creates. For example, an application program can be translated to a foreign language by changing only the resources -- the program itself can remain unchanged! The Resource Manager helps make it all possible.

Ghost Writers in the Sky

The Font Manager is used to draw text on the screen. The phrase "draw text" is very revealing, since Macintosh, like Lisa, does not distinguish between text and graphics "modes" like most personal computers (including Apple //s and //s) do. Instead, everything is a drawing on a big bit map. Since text is such an important special case, there's a unit (the Font Manager) to take care of it.

If there is one piece of software that is at the heart of Macintosh (and Lisa, for that matter), it is QuickDraw. QuickDraw is Mac's resident artist. Every time any Macin-

tosh program or Toolbox routine puts something on the screen, QuickDraw is at work. QuickDraw is Apple's 68000 graphics workhorse. In addition to text, it can draw lines, rectangles, circles, polygons, arbitrary pictures, complex regions, and it can do so very fast. It can fill up anything that it draws with any kind of shading pattern that you can devise. If you've seen MacPaint and LisaDraw, you've seen QuickDraw at its best, but QuickDraw is there behind all the applications.

In your applications, you use QuickDraw whenever you need to put something on the screen. QuickDraw has its own routines that you call for drawing text, and these routines in turn call the Font Manager. Of course, the other Toolbox routines make extensive use of QuickDraw, using it whenever they need to draw on the screen.

The Main Event

At roughly the same level as QuickDraw is the Event Manager. If you'd like another human analogy, think of the Event Manager as the play-by-play announcer. As you sit in front of your Mac, typing and mousing away, he's behind the screen watching you and keeping track of your requests. The application program listens in and takes action depending on what the Event Manager reports. For example, if you type "Hello" at your keyboard, the Event Manager will record those keystrokes. The application program can then find out from the Event Manager that you typed those characters, and it can then respond appropriately.

Just how detailed does the Event Manager get? Well, since you asked... let's talk about the above example of typing "Hello". Typing "Hello" would generate ten separate events: one for every keypress, plus one every time you released a key. Yep, you read that right: the Event Manager detects keys being released as well as keys being pressed. Of course, most of the time you don't care when keys are released, so you can tell the Event Manager not to bother reporting those events (called "key up" events).

The Event Manager also tells you a lot more. In addition to reporting what happened (key up, key down, mouse button up/down, disk inserted, etc.), it tells you when it happened. The time of an event is reported in sixtieths of a second. You're also told where the mouse was located at the time of the event, in case that information is pertinent. In addition to the What, When, and Where information, the Event Manager provides two other pieces of information about each event. The first tells you what modifier keys (shift, caps lock, feature, option, or mouse button) were held down at the time the event occurred. The other gives you more information about the event: if it's a keyboard event, it's the key number and ASCII code of the key being pressed or released; if it's a disk inserted event, it will tell you which drive the diskette was inserted into; other events will provide different information.

Whew! That seems like an awful lot of stuff when you just want to find out if the user pressed a key. Well, the Event Manager gives you the ability to be selective about the events reported. If you never want to know about mouse events (an unlikely proposition), you can tell the Event Manager, and it won't tell you about 'em. Also, you can ignore as much of the Event Manager's information as you want.

The next unit, the Toolbox Utilities, is a collection of miscellaneous useful stuff, like bit manipulation and graphics utilities.

How Much is that Data in the Window?

The Window Manager controls the appearance of windows on the screen which present information. The Window Manager is like a traffic cop for the screen: it controls what windows show up where, how large they are, and which one is active, but the real presenting is done by the stuff in the windows, the pictures, words, and numbers that are created and manipulated by the applications.

The Window Manager relieves you of having to know how to draw the boxes that contain windows, called window frames (slight pun intended, I'm sure). The Window Manager will redraw a window in a different place if the user drags it; you can use it to redraw if the user changes the window's size. The Window Manager will also help you with the sticky task of redrawing parts of windows that have been overlaid by other windows.

One of the nice things about the Macintosh Toolbox is that many of the standard ways of doing things can be changed by you. If you don't like the built-in methods, you can redefine them to suit yourself. For example, if you don't like the Window Manager's rectangular windows, and would like to draw one shaped like, say, Upper Volta, or perhaps like your spouse, you can write a routine to do so.

Mac applications draw lots of things on the screen for users to click on, like buttons, check boxes, and scroll bars. The Toolbox calls these things controls, and provides a Control Manager to handle them. The Control Manager helps your application draw controls, highlight them, detect when the user has clicked in them, and perform some action if he does.

Just like with the Window Manager, the Toolbox provides a standard way of doing things, but lets the whizbang programmer create his own. If buttons, check boxes, and scroll bars don't fit your needs, you can make your own. How about an analog clock face with hands you can drag to set the time? Or maybe a disk space indicator that looks like a gas gauge? Somebody could have a lot of fun with this one.

The Menu Manager takes care of all the dirty details of handling menus. Menus, like windows, controls, and lots of other things, are usually stored as resources. The Menu Manager routines let you load in the menus from the resource files, display the items in different type styles, put check marks or icons in front of them, and change them, if you want. Of course, the Menu Manager takes care of pulling down menus, highlighting items on the way, and erasing the menu when it's done. The Menu Manager also lets you associate menu items with a feature-key equivalent.

The standard menus provided by the Menu Manager are made up of text and icons and are in neat rows. Once again, if you're a rugged individualist and you need menus that are made up of graphical items (such as the Shades menu in LisaDraw, the one that shows 36 different shading patterns) or text that changes fonts a few times, you can write your own procedures to do these things.

The TextEdit and CoreEdit units are the text input and editing routines you always dread writing. Well, now you don't have to bother writing them. With these units, you can perform much of the fancy text editing that you see in other applications like MacWrite: selecting text, inserting and deleting text, moving text, justifying text, and more. TextEdit, which lives in the Macintosh ROM, provides all the basic text editing facilities and is quite simple to use; CoreEdit is fancier, is loaded into RAM, and adds more capabilities to your text editing.

Can We Talk?

The Dialog Manager takes care of dialog boxes. Dialog boxes are the little windows that pop up when the Macintosh needs to tell you something or ask you something. For example, when you want to print a document, you get a dialog box asking about paper size and other particulars. One special kind of dialog box is the alert box. This is what Macintosh uses to replace old-fashioned error messages. When something is wrong or the Mac needs to warn the user about something, an alert box appears. When the user is about to do something potentially damaging, like erase a diskette or launch thermonuclear weapons, the application can make an alert box appear to confirm the action. Dialog boxes can contain icons, text, controls, and other graphics.

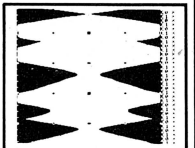
The top of the pile is the Finder. It oversees the starting and stopping of programs, and takes care of the loading of desk accessories. Desk accessories are handy little things like the clock, the calculator, the puzzle, and so on, and they can coexist with your application. All you have to do is call the proper Finder routine and it will take care of the rest.

You've Been Initialized

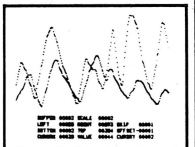
You've now got a general idea of the structure of the Macintosh Toolbox and how it helps you do things. Next time around, we'll get into specifics of how some of the different pieces work, and we'll dissect a real, working program. Also, we'll be taking a look at the growing variety of stuff (hardware and software) for Macintosh. Until then, may all your alert boxes be happy ones

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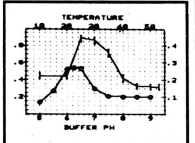
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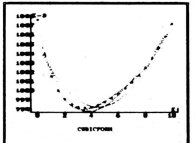


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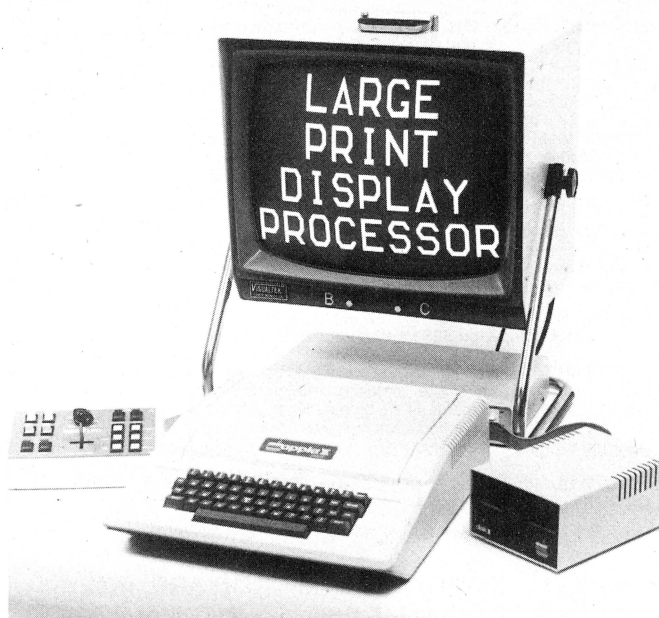
SPECIAL NEW PRODUCT RELEASE

Apple Computer Now Usable By Visually Impaired

(Ed's note: Normally press releases for new products appear in the monthly "New Stuff" column. This device, and others like it, service an important sector of the microcomputer using community. We will highlight other products that aid the handicapped. Please tell us what's available.)

Most Apple computers can now be used by people who have serious visual impairments, even legal blindness, with the help of a new large print "display processor" announced by a Santa Monica firm. The product, designated the Model DP-10, manufactured by Visualtek, Inc., plugs into the Apple II, Apple II Plus, or Apple //e as a peripheral device, but automatically (without operator intervention or special programming) enlarges the displayed letters up to 16 times their original size.

The popular Apple computers, of which an estimated 700,000 are in use, are not generally usable by people with serious visual impairments, because the characters displayed on the video screen are much too small to be viewed clearly by the visually impaired. This problem is especially



DP-10 w/Apple Computer, Disk Drive & Visualtek 19" monitor.

serious in public schools, a major market segment for Apple, where partially sighted youngsters "mainstreamed" in the classroom are unable to receive computer training as do their peers.

The Dp-10 is a small electronic device that works in a completely passive or 'transparent' manner. No software is required; therefore, almost all Apple software can be used without alteration. This gives the partially sighted, or legally blind user the ability to function at equal levels of efficiency like a fully sighted person. Whether the Apple is being used in the home, in a small business, in a school, or as a terminal to a larger host computer, the same programs can be used regardless of the user's visual capabilities.

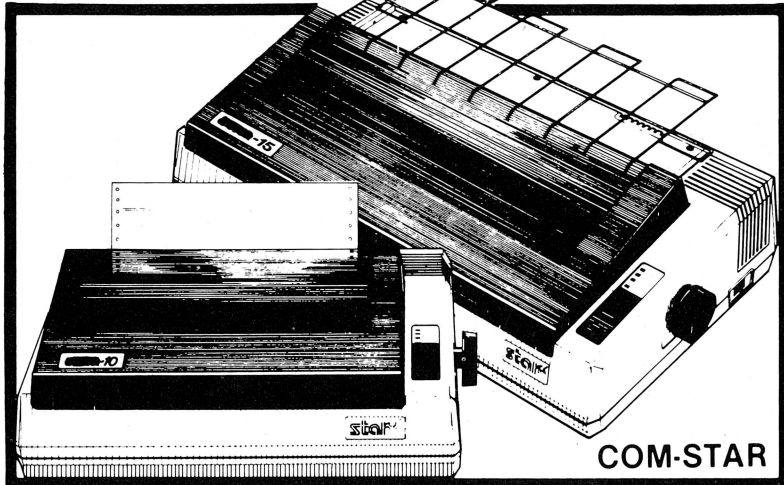


When the normal video screen image is substantially enlarged by this large print Display Processor, providing clear, solid and high-contrast letters up to 5 inches high, only a portion of the original display screen can be seen at any one time. To remedy this, a special User Control Panel (UCP) provides joystick-type control over the image. The user can access the enlarged material at speeds up to 500-600 words per minute, in a variety of flexible operating modes, as well as changing the letter size over a magnification range from x2 to x16.

Price for the unit is \$2,495.00. For further information, contact Jacki Daly-Graves, Marketing Communications Coordinator, (213) 829-6841

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NEW 16-BIT VERSION OF THE 6502 CHIP ANNOUNCED

(Ed.s Note: The following "press release" was made available recently. The news may be more significant for owners of 6502 equipped computers (including Apples) than would first seem evident. Please pay close attention to the part about pin-for-pin and total software compatibility with existing systems/hardware/software.

Has anyone at Apple Computer seen this notice? Are they doing anything about it? Will they tell us what they're working on now?....

They smile in silence.)

Hayden Software Company
600 Suffolk Street
Lowell, MA 01853

Contact: Scott L. Marshall
or David Eyes
(617) 937-0200

Hayden News
For release at Comdex/Fall 1983

**HAYDEN SOFTWARE ANNOUNCES
SYSTEMS SOFTWARE FOR THE 65816
MICROPROCESSOR, THE NEW 16-BIT
VERSION OF THE 6502 CURRENTLY
USED BY APPLE, ATARI, AND
COMMODORE.**

Las Vegas, NV --Hayden Software hosted the Western Design Center and GTE Microcircuits in a joint announcement at Comdex of the new 65816 microprocessor and compatible systems software to be released under the ORCA brand name.

The 65816 is a new, sixteen-bit microprocessor being developed by the Western Design Center, which recently produced the first CMOS 6502 processor, the 65SC02, for GTE, Rockwell, and NCR. The 65816 is currently in the final design stages, and will be available in the first half of 1984 from GTE Microcircuits and the Western Design Center.

The 65816 design occupies a unique position in the historical development of the microprocessor. This sixteen bit processor is completely hardware and software compatible with an eight bit predecessor, namely, the 6502. A hybrid eight-bit and sixteen-bit CMOS microprocessor, it is perhaps the first sixteen-bit processor which accommodates the object code of its eight-bit predecessor as a subset.

This total hardware and software compatibility with the 6502 will be of strong interest to users of installed 6502 systems, such as the Apple Computer. The 65816 has a 6502 emulation mode, which is indicated by the setting of a special emulation flag. When this flag is set, the 65816 behaves exactly like a 6502. The companion product to the 65816, the 65802, is also compatible with the 6502 -- that is, it can replace the 6502 in an existing system, simply by removing the 6502 from its socket and replacing it with a 65802. On power-up, the processor is in the emulation mode, allowing for normal operation of existing 6502 monitor routines or operating systems. Under software control, the user can switch into the sixteen bit mode program control.

The other side of the 65816 is that it eliminates the limitations which had rendered the 6502 unsuitable for many applications, and is a legitimate threat to rival currently available sixteen bit chips such as the 8086/8088 and the 68000.

Systems Software for the 65816 from Hayden Software

During the first quarter of 1984, Hayden Software, who has been working closely with the Western Design Center since March of 1983, will be releasing a series of software products designed to support the 65816. These will include a version of our powerful ORCA/M macro assembler, in a version which supports the 65816 instruction set. Also under development is a Pascal compiler which will support the proposed ISO standard, with extensions in the direction of UCSD Pascal. All of the 65816 support products will be available on the Apple II computers, running under Apple's new ProDOS operating system.

In addition to these systems applications, a third product, ORCA HOST, will be available to support these programs. Essentially, ORCA HOST is the operating system for the development of 65816 software. It is highly complementary to the underlying ProDOS Kernal, which handles all of the disk file management tasks, and provides the user with an environment similar to that of CP/M or MS-DOS, with many additional features. It will include a command processor, full-screen text editor, link editor, IEEE floating-point subroutine library, symbolic debugger, code generators, a disk initialize/copy/and verify program, and several other utilities.

Also planned are BASIC interpreters and compilers, and a text formatting program that will allow ORCA HOST to serve as a word processing system in conjunction with a full-screen text editor.



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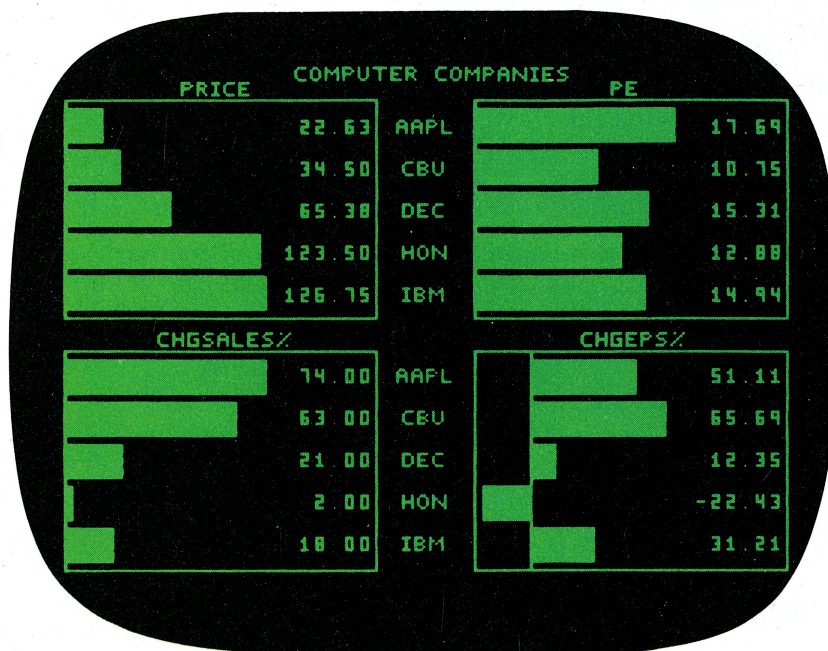
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Roland DG Compu- Music/ CMU-800

by Dominic Milano

Roland DG
Box 22289
Los Angeles, CA 90022-0289
Price: \$565.00

The Apple II has been playing host to numerous add-on systems, both hardware and software based, which convert it into a musical instrument. These outboard systems have ranged in design from simple electronic organs to more complex Apple-controlled synthesizers. One application that has fascinated musicians and Apple enthusiasts alike is the idea of wedding existing analog synthesizer hardware and the Apple. The Apple is used as an event generator, storing and playing back sequences of voltages and gates used to control the analog synthesizer hardware. The result is a sort of electronic do-it-yourself player piano *cum* synthesizer.

In the past, the interfacing involved in this kind of hybrid marriage was complicated and expensive, involving costly A/D and D/A converters and weeks of writing software, debugging it, finding out it doesn't do what it was intended to, and starting all over again. It was the kind of thing experimenters loved to sink their teeth into, but for your average consumer it just wasn't practical. With more and more musical instrument manufacturers getting involved in computer technologies, we're seeing more commercially available interfaces. The Roland DG Compu-Music/CMU-800 is such a device.

Roland is a well-known synthesizer manufacturer. Their system consists of software (the Compu-Music) and hardware (the CMU-800). The hardware is designed to let you generate music as programmed on an Apple II (48K memory minimum), via its own internal tone generation circuitry. There are six "channels" of tone generation: one for lead lines (melodies), one for bass lines, and four for chordal accompaniments. There are also seven drum sounds for providing rhythmic accompaniment. The CMU-800 also gives you eight control voltages (0-5.25 volts, 1 volt/octave) and gate (0-12 volts) outputs that can be used to control external analog synthesizers and effects. Each of the unit's musical voices are of a fixed timbre. You can do little to change and alter those timbres other than adjusting sustain and decay times. You are supplied with a built-in audio mixer for adjusting the relative volume levels of the bass, lead, chords, and rhythm sounds. A master volume control lets you adjust the overall output volume of the entire unit.

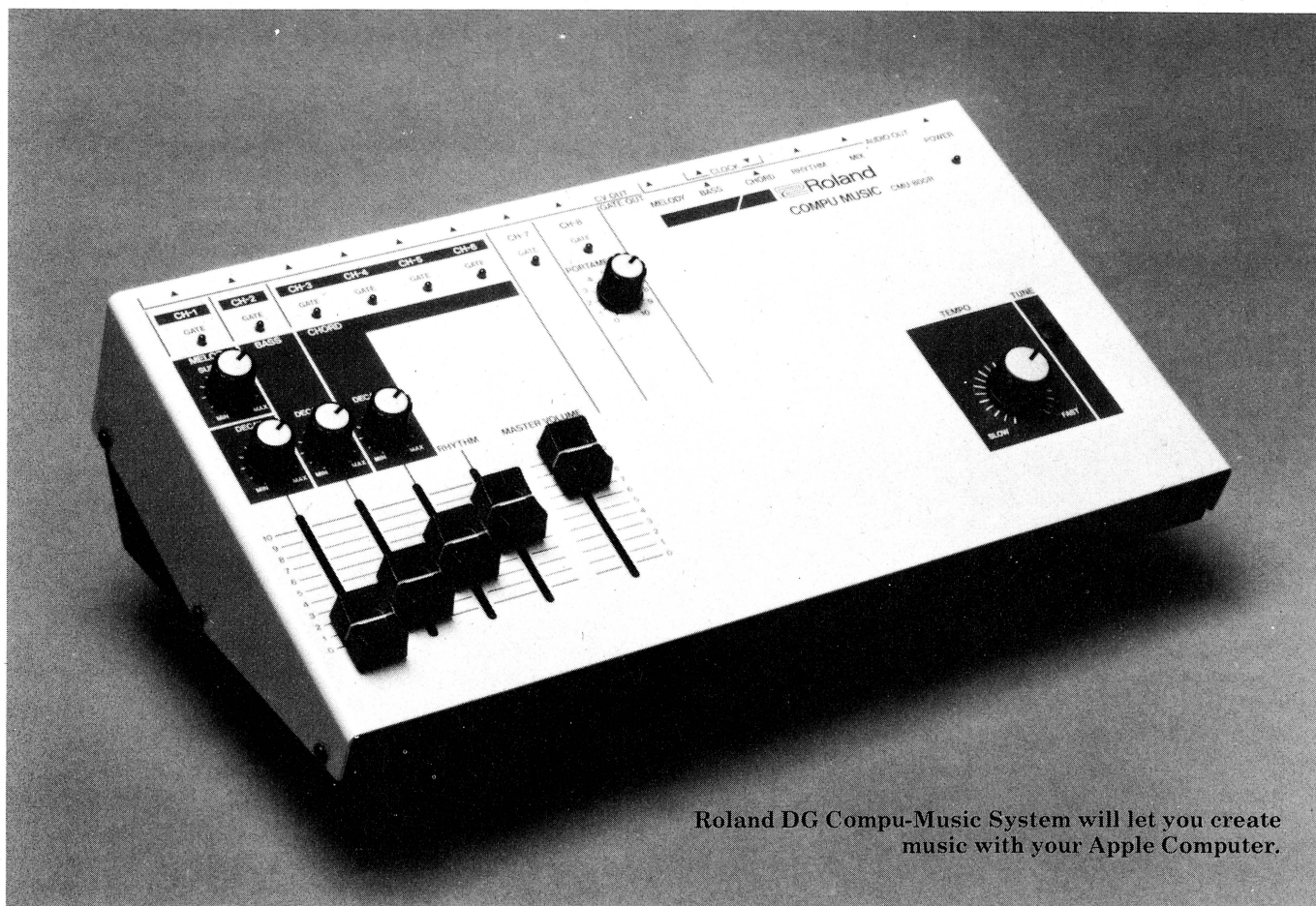
Other features of the hardware include clock input and output (5 volts, 96 pulses per measure, positive trigger) for synchronization of tempo to other devices, a tempo control, LED indicators for displaying when a channel has been gated on, and independent 1/4" phone jack outputs for the melody, bass, chords, rhythm, and mixed audio signals. The independent outputs are used when the device is connected to an external audio mixer and greater control is desired over the individual output channels.

Setting the system up is simple. Attach a small PC board to one of the Apple's interface ports (preferably Slot 5, since the software is set up for it), put the Compu-Music minifloppy in the drive, turn the CMU-800 on, and then boot the Apple. The system will come up ready to be used, as long as you've got the CMU connected to some audio amplifier like your stereo system or musical instrument amplifier.

The system's main command menu gives you access to edit and point edit functions, play and loop commands, tuning adjustments, tuning bias (transposition), control voltage bias (for tuning the CMU-800 to external synthesizers), disk load, save, and verify commands, a memory erase function, and a quit command for exiting the Compu-Music program.

The editor function allows you to enter and revise music data from the computer keyboard. Musical information must be translated into a language the computer can understand. Notes as they would correspond to a piano keyboard are assigned numerical values (a chart is given in the manual to help speed the learning process), and note durations are determined by step and gate lengths, also expressed as numbers. Although we're sure you could have fun with this system without it, a working knowledge of notation is a must if you want to get the most out of the system.

There are 10 channels (0-9) used as a blackboard for writing your musical ideas into the CMU. Channel 0 is used for creating drum patterns with the unit's seven percussion voices: bass drum, snare drum, high-pitched tom-tom, low-



Roland DG Compu-Music System will let you create music with your Apple Computer.

pitched tom-tom, cymbal, open hi-hat, and closed hi-hat. These are designated by the letters B, S, H, L, Y, O, and C, respectively, on the alphanumeric keyboard.

Channels 1 to 6 are used for both the external CV and gate outputs and for the internal tone generators. Channel 1 is recommended as the lead line or melody channel because there are separate volume and sustain controls for it. Channel 2 is recommended for bass because it has its own volume control. Channels 3-6 are used for accompaniment chords and lines because they are all ganged together in the chord output and they're on a single volume control for the internal mixer. Channels 7 and 8 are not connected to internal sound sources. They apply only to the external CV and gate outputs for controlling external synthesizers and effects.

Channel 9 is used to play the rhythm patterns that have been set up in channel 0. This allows you to link patterns that have been stored in channel 0's "library" in order to create non-repetitive rhythm accompaniments, complete with fills and bridges.

Entering musical data, as you may have guessed, takes time and a lot of practice. The procedure is simple enough, but like any programming work, you've got to do a lot of it before it becomes second nature. It's best if you start with a piece that's already been notated, unless you're very familiar with music notation and know what you want to hear.

There are some useful short cuts built into the program to make things go faster for you. Once a number has been typed, it becomes a default value pertaining to either pitch (CV), step time (ST), or gate time (GT). The W, Z, S, and A keys of the

Apple are used as north, south, east, and west cursor commands for changing data. There's also an insert mode for making additions in the middle of a piece of music, so you don't have to start all over again once you've made a mistake.

The point edit function is as close to a real-time edit function as the system comes. It allows you to stop a piece in mid-play and edit the last note heard, so you can correct or alter the pitch or duration of any note you want, as long as you stop the piece at the exact point required. Unfortunately, you can't listen and step through each note, one at a time, to spot errors.

The owner's manual contains a lot of helpful hints as to how to create trills, glissandi, grace notes, and other details that make Compu-Music/CMU-800 performances more musical than robotic. Our only real complaints about the system were that there didn't seem to be enough user prompts shown on the screen to tell you how to get around the program, causing you to refer to the manual until you learned the system, and that you couldn't enter musical data in real-time, playing it into the system via a music keyboard instead of having to type it in. Hobbyists who dabble in music will have a lot of fun with the system, while serious musicians will welcome the interfacing capabilities that enable you to connect an Apple II to more sophisticated synthesis gear.

The unit measures 333mm wide, 108mm high, and 193mm deep. Weight is 3kg.

Dominic Milano is a musician and Assistant Editor at Keyboard Magazine.

P M P ROFESSIONAL USIC ERSPECTIVES

by John Bowen
and
Greg Armbruster

Computers and music appear to have as much in common as bicycles and cantaloupes: there is no connection without a human being to operate one and enjoy the other. Computers represent the forefront of scientific precision while music has traditionally reflected man's emotional exuberance. However, in recent years, more and more musicians have become cognizant of the computer's ability to control complex compositions, and manufacturers have begun to create "musician-friendly" systems which combine keyboards with home computers.

For the non-professional musician, several easy-to-use computer music packages have been marketed by Syntauri Corporation and Passport Designs using an Apple computer and synthesizer circuit boards manufactured by Mountain Computer (which is still well-known as Mountain Hardware). These systems use a number of tone generators (oscillators) to create different instrument timbres.

The characteristic timbre of any instrument is largely dependent on the amount of harmonics present in the sound; more harmonics generally produce a bright, full sound, while few harmonics deliver a softer, "smoother" tone. Harmonics can be generated in a variety of ways. The Mountain Hardware board utilizes one oscillator to make the main tone (fundamental) while the remaining oscillators create the harmonic spectrum above this fundamental. By calculating the frequencies and the relative loudness (amplitude) of each harmonic, the oscillators can imitate a variety of sounds, from clarinet to tuba, guitar to organ.

The technique is called "additive synthesis," and is similar to the method that pipe organs use to create their tonal range (combinations of different organ stops produce different timbres). In fact, good organ sounds are easily produced with additive synthesis systems. Another important aspect of additive synthesis is the fact that the harmonics, once they are set at a particular loudness, do not change their volume. They remain "static" unless they're altered directly by the musician.

Synthesizers for professional musicians employ a different method of sound generation. Those instruments developed by Robert Moog, Don Buchla, and Alan Pearlman in the late '60s and early '70s used simple analog circuits to generate the sound, and voltage control was the key element. In analog synthesizers, the harmonic structure is composed of one or more waveshapes created by an oscillator, with each waveshape already having inherent harmonic characteristics. The signal produced by the oscillator is fed directly to a filter, which removes certain components of the original harmonic spectrum. Voltage control of the filter allows the harmonic content of the sound to be continuously altered by other analog circuitry, creating what many musicians describe as a "warm, full, rich tone quality."

This method is called "subtractive synthesis," and is currently the most popular method of tone control in commercial synthesizers. Slight imperfections inherent in analog circuits also color the harmonic spectrum, adding a "richness" to the sound, which some musicians prefer for recording. However, one of the main problems with analog synthesizers was the lack of control over the many parameters — too many knobs, switches, and cables had to be changed each time a different sound was required.

The obvious solution was to utilize the precision of the computer to control the analog circuitry. In 1978, Sequential Circuits introduced a digitally controlled analog synthesizer called the Prophet 5. This hybrid instrument provided exact control of the analog circuitry and allowed various knob and switch settings to be electronically "stored" in computer memory. At the touch of a button, any sound (switch and knob settings) in memory could be instantly recalled, exactly as it was originally set by the musician. The Prophet 5 introduced musicians to computer control.

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A04

The real power of computer-controlled sound became commercially available approximately three years ago with the introduction of the Fairlight Digital Synthesizer, the Synclavier, and, to some extent, the General Development System (GDS, which is currently unavailable). These systems use custom-designed microprocessors and highly sophisticated software to produce and control sound. For the first time, large scale, multi-timbral orchestrations could be programmed, altered, manipulated, and performed in real time, as they were being created. However, these "ultimate" digital instruments posed three major problems for the average professional musician: they were too expensive, many musicians preferred the "analog" sound, and the instruments themselves were just too complex. Recently, Yamaha has introduced two new digital synthesizers, the DX7 and DX9. These instruments provide a good digital sound at an affordable price, but musicians will have to become familiar with the "algorithm" method of sound shaping, rather than the oscillator-filter process.

Digital/analog hybrid instruments are still the most popular systems currently available. The most recent advances in this area have been in expanded computer control and interface capability. With all the possible ways these instruments could be connected to computers and each other, the leading manufacturers realized the need for a *standard* interface, which would allow different products to be easily interconnected. With this in mind, the MIDI (Musical Instrument Digital Interface) has been introduced. It is an outgrowth of the "Digital Interface" first used in the Prophet 5 in 1980. This original interface was improved by Dave Smith and Chet Wood of Sequential Circuits, and was renamed USI (Universal Synthesizer Interface).

The USI was first presented in 1981 at the Audio Engineering Society Convention in New York. In January, 1982, all synthesizer manufacturers were invited to discuss the adoption of an industry-wide interface standard at the National Association of Music Merchants trade show in Anaheim, California. The USI was proposed as that standard. Led by Roland, the Japanese manufacturers worked enthusiastically with American companies to further develop the USI, incorporating many more functions than were originally included in the design. This advanced USI became known as the MIDI standard and was first incorporated in Sequential Circuits Prophet 600 and Roland Corporation's Jupiter 6 synthesizer.

The idea of standards is not new in the computer world, which abounds with common connections with names like RS-232, S-100 bus, and IEEE-488. (*No, the idea isn't new, but the execution of the idea is laughable.*—PCW.) But in the highly competitive musical instrument marketplace, an industry standard is a rare and major development. Now, professional synthesizer products from numerous manufacturers can be hooked together and played simultaneously. More importantly, there is the possibility of instrument control by personal computer. Companies like Passport Designs can now implement their software with professional-sounding synthesizers. Also, the complex multi-timbral orchestrations of the Fairlight and Synclavier systems can be achieved with home computers and accessibly priced synthesizers.

Several MIDI software packages are currently being developed for the Apple computer by Roland, Yamaha, Passport, and others. A program for the Prophet 5 and the Apple II to function as a 16-track tape recorder, with each track con-

trolling one "voice" of the Prophet 5 (each one of the five voices in the Prophet-5 consists of two oscillators, one noise source, one low-pass filter, one amplifier, and two envelope generators). Obviously, only five tracks are used, leaving eleven empty tracks. These remaining tracks can be used to control other synthesizers separately; MIDI allows for individual addressing of each track.

In addition, the lowest key being played on the Prophet's keyboard can be routed to a monophonic (one voice) synthesizer. This will provide a different timbre along with the Prophet 5's voices, which are homophonic (at any given time, they all have the same timbre). This particular arrangement can be used to sound a bass line along with the Prophet. Other features of O. Z. Hall's program include a display and print-out of the Prophet's front panel settings, storage of timbre programs ("patches") on disk, a random-generated music program, the option to change programs from the Prophet's keyboard (for example, the decay and release times can be programmed to change automatically from one end of the keyboard to the other, much like an acoustic piano), and an "echo" function, which re-articulates a note shortly after it has been played, resulting in an echo effect. Music played with this system can also be synchronized with an external clocking device, such as a drum machine.

MIDI is a serial interface, which means the information is passed from one instrument to another, one bit at a time, at a very fast rate. However, there are some musicians who feel that it is not fast enough to handle all the functions they require. Two manufacturers, Oberheim and CBS/Rhodes, have developed parallel interface systems. A parallel interface is a connection between two or more pieces of hardware in which several streams of digital information are flowing simultaneously. (The RS-232 parallel computer interface standard has not been used because the data-transmission rate is too slow for real-time applications).

The CBS/Rhodes Chroma interface, called Triad, offers complex, real-time control with an Apple II computer. The sixteen single-oscillator voices of the Chroma can each be assigned a different pitch *and* timbre, providing the same kind of multi-timbral orchestration previously only available on the expensive digital systems. (It should be added that both alphaSyntauri and Passport Designs do offer some multi-timbral capability, but the variety is comparatively restricted.) The Oberheim synthesizer interface is specifically designed to operate with Oberheim's other products, including the DMX Drum Machine and the DSX Polyphonic Sequencer. The OB-8 synthesizer can be interfaced with an Apple II computer but no commercially available hardware/software package has been marketed.

Even though MIDI has limitations, it does represent a common starting point, recognized by most of the synthesizer manufacturers as an industry-wide, standard interface specification. An organization has now been formed to support and encourage the proliferation of MIDI. IMUG (International MIDI Users' Group), with the cooperation and approval from the various manufacturers, was created to help ensure that all hardware and software products claiming to utilize MIDI are, in fact, MIDI compatible. For information about the MIDI specification, contact IMUG at (408) 253-4684, or write to IMUG, Box 593, Los Altos, California, 94022.

John Bowen is a product specialist for Sequential Circuits. Greg Armbruster is an Assistant Editor at Keyboard Magazine. 🍎

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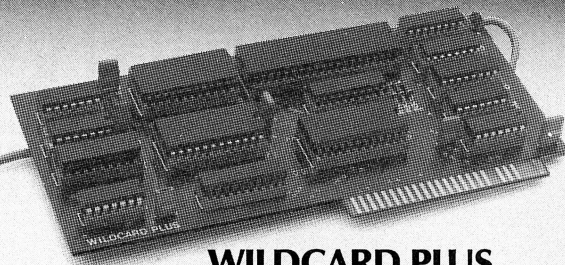
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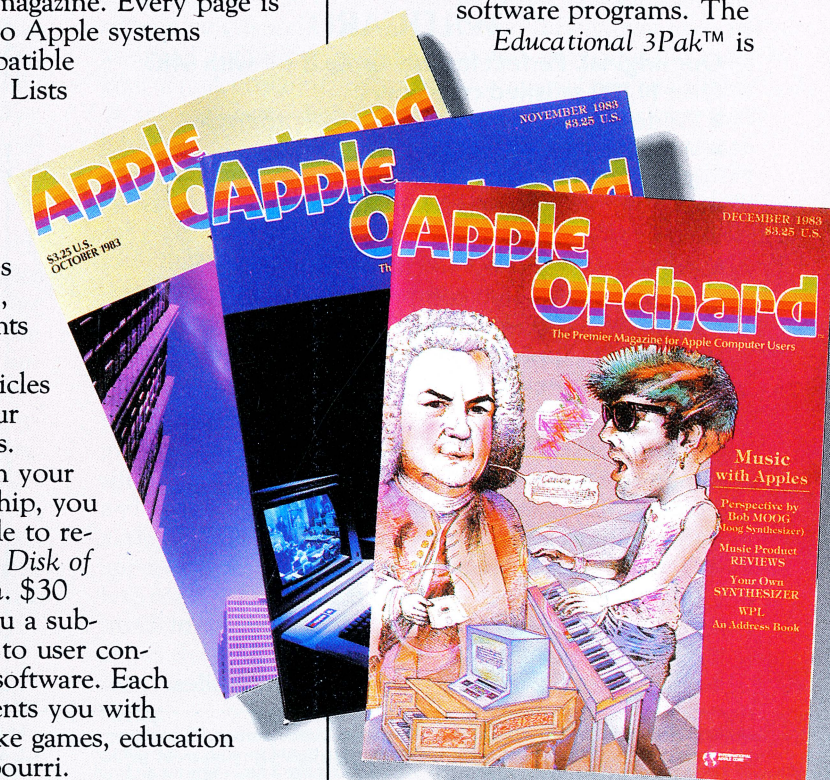
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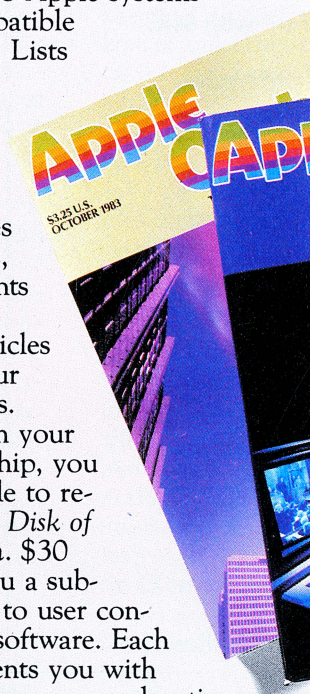
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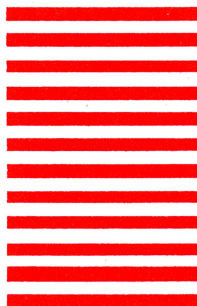
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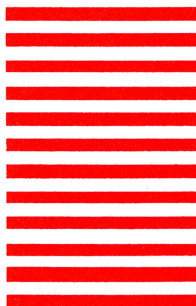
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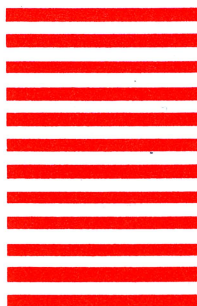
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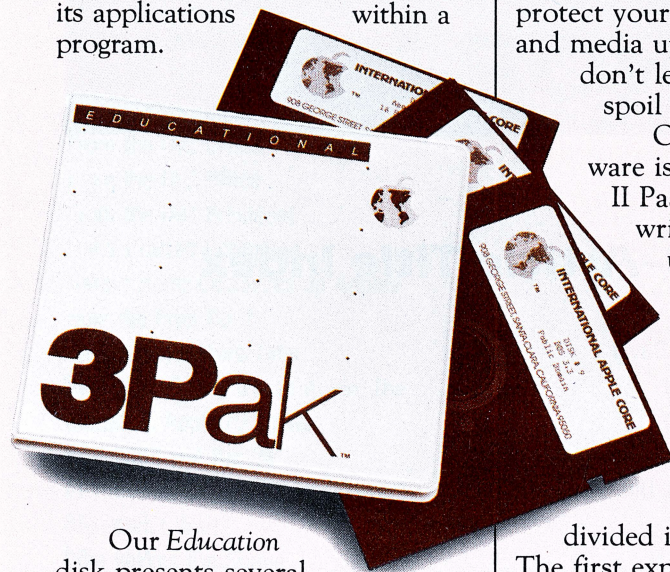


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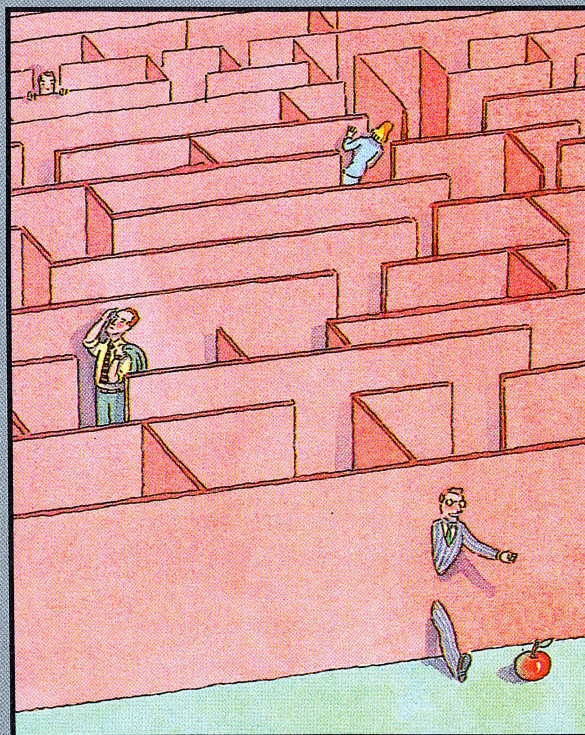
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Dynamics of VisiCalc

Review by Cathleen Morgan

Dynamics of VisiCalc

by Barry D. Bayer and Joseph J. Sobel
Dow Jones - Irwin (Homewood, IL), 1983
Price: \$19.95

I recommend *Dynamics of* to anyone who wants to push VisiCalc to the limits. A glance at the cover reveals instantly that it is not for beginners. The topics listed on the cover include "DIF" files, Boolean functions and VisEXEC files. Clearly these topics require an existing fundamental knowledge.

The book delivers as promised on all topics. The section on Boolean functions offers one of the clearest and simplest explanations of the topic I've ever seen. The section on using DIF files provides a good explanation of what DIF files are. The intriguing possibility of creating system files containing a series of VisiCalc commands ("VisEXEC" files) is presented along with various ways to use such files. Note, however, that the method is not supported by VisiCalc's manufacturer. The advanced VisiCalc section clearly explains some of the new functions and gives practical examples of how these new features make advanced VisiCalc easier to use.

The model design section offers, among others things, an extremely useful way to conceive of spreadsheets. The authors recommend separating them into three distinct areas: data, calculation and reports. The data area holds data "to be entered by the user as well as tables and variables to be used in calculations..." It should be in the upper left corner of the sheet to avoid circular and triangular references. The calculation area holds "Intermediate calculations which will not be displayed in the final report..." The report area holds "the actual format to be used in formal presentation." A complete sample accounting application, including a projected monthly cash flow, income statement and balance sheet, is presented. This application uses many of the techniques discussed, and is presented in detail.

In addition to the above, the book provides a simplified reference guide to VisiCalc commands and functions and a short glossary of computer jargon. The text is well written and has a rather scholarly quality. Enjoyable when compared to the run-of-the-mill computer book, but definitely not something to be skimmed. To get the most out of the book, you need to be the sort of reader who doesn't mind really digging in.

It will be too bad if the rather academic style puts readers off. *Dynamics of VisiCalc* offers many avenues for solving problems that I had long assumed were insoluble with spreadsheets. (In fact, the authors contend that VisiCalc can be considered a language in itself, although they do not get into the subject very deeply.) For example, I had the experience some time ago of tackling a complex cost-distribution problem with Multiplan. After considerable time and effort, I gave up and switched to dBASE II. Had I known some of the techniques presented here, I might have been able to solve the problem with a spreadsheet after all, and perhaps much more quickly.

The authors' introduction states clearly that the book is directed toward readers who are not programmers, though it is not for complete novices either. To fully utilize the book, you need to know how to operate your computer as well as the basics of VisiCalc. (The authors do hope, however, that the book will be useful in helping readers with no computer experience decide whether VisiCalc could be useful to them. I think this would only be true if the novice reader is a manager and/or someone with a strong accounting background.)

My criticisms of the book are few. If they seem occasionally too picky, it is because this book is on the whole so good. I might not have noticed them in a poorer book.

The table of contents appears to have little to do with the topics mentioned on the cover. The glossary and index are inadequate (nothing new, I know, to the reader of computer books). It is sometimes difficult to relate the stated topic of a given section to the generic commands discussed (e.g. /G or /S). A handy thing would have been to show the generic commands in bold-face beside the text.

The publisher had a poor editor. There are several typos. In a history book this can be simply annoying. Here, with listings to be typed in, it is more than that. While some mistakes were easily recognized, others were not and required multiple readings of the text as well as considerable spreadsheet experience to puzzle out. For example, in the section explaining Replication, the reader is told to "not change" a variable in a formula that should be changed. Or: in the section on planning and entering a template, several cells are mislabeled in the text, making it difficult to follow the formulae and the presentation.

Considering that the authors are, respectively, an attorney and an accountant, I found it odd that the organization of the book is somewhat confusing. While the book covers, by the end, most of the basic VisiCalc functions, it covers them rather randomly. It was difficult to tell, from the table of contents or from the index, where many of the specific commands are covered. An example of organizational confusion: one chapter is called the "Ins and Outs of VisiCalc: Printing, Saving and DIF". The material in the chapter is not in the same sequence as the title states and the three topics themselves do not cover what I would call the "Ins & Outs of VisiCalc". Another example: commands and functions are mentioned in early sections of the book that are not explained until later sections.

As a non-accountant, I had some difficulty following the details of the sample application. Perhaps it is impossible to include a complex application without requiring some specialized knowledge. It would help, however, if there was even a small glossary of accounting terms.

Conclusion

I recommend the *Dynamics of VisiCalc*, especially to those who want to push VisiCalc to its limits. It offers a collection of very useful techniques. To a simply curious reader, it is both informative and thought-provoking. To a manager and/or accountant, it offers some information that may help decision-making. For myself, it showed me that a spreadsheet can be a considerably more powerful tool than I had realized and that it can provide solutions to extremely complex problems.



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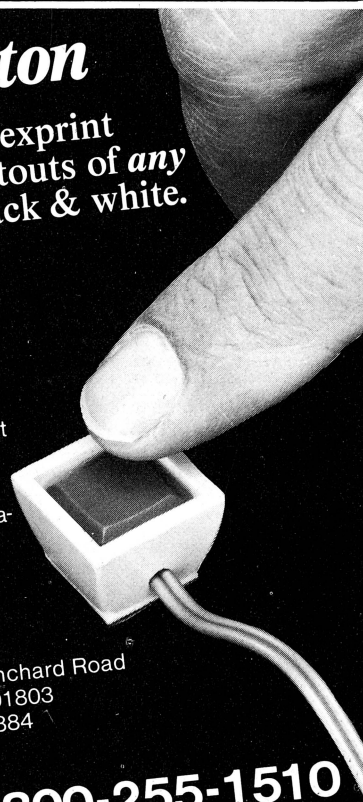
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CONSUMER ELECTRONICS SHOW

by Alan B. Fid

This year for New Year's I decided to take my wife, Betsy-Ann, and Maggie-Sue, our daughter, out to Fresno California to visit my cousin Kristen and Doug, her husband. Kristen moved out of Lizard Lick about 15 years ago and we hadn't seen her since, though she'd written us a lot. Besides, we figured some warm California weather would be nice, which turned out to be a good idea since everybody froze back home for New Year's.

While we was there, I got to telling Doug about my Apple computer and the problems I keep having trying to understand it. Doug said that he was going to the Consumer Elec-

tronics Show in a couple of days to get some stuff for his video store and suggested that I might want to come along. He explained that the show had all kinds of electronic stuff, including phones, stereos, televisions, computers, even CB radios! I figured it couldn't hurt and might even be fun, especially when he told me the show was in Las Vegas.

Betsy-Ann was going to have to take Maggie-Sue back to school and she wasn't too excited about me going to Las Vegas alone, but I explained that Doug would be with me and he'd been there before and knew his way around. So she told me to go ahead, but that I should be careful to stay away from the poker tables and to be sure not to catch anything.

We got there just after breakfast and took a taxi from the airport to the hotel. I couldn't see what all the excitement about the place was. There was just one long street with all these hotels on it and the whole place was out in the middle of the desert. It looked like Miami Beach without the beach. In fact, Fresno is a better looking town, at least in the daytime. Doug told me to wait until night when I could see it all lit up.

After checking in we went over to the show, which was quite a spectacle. The show is held in this hall that's big enough to hold all of Lizard Lick, several times over. I found out later that there was more people there than go to the Super Bowl.

Doug decided to take me to the Apple booth first so that we could get my stuff out of the way before he got down to business. The Apple booth wasn't too hard to find cause it was the only one with people hanging from the rafters. Besides which they had this Syntauri music demonstration going on, just like they did when I was at the US festival a couple of years ago. Martha was there too, the same lady that told me all about Applewriter at the US festival! Martha was real nice and took me around and showed me what Apple was doing there at CES.

The first thing was a ProFile hooked up to a //e. I always used to think a profile was something like a silhouette. But Martha explained that it was really a 5-Megabyte hard disk. Well, I think understanding disks is pretty hard anyway, so I didn't see what was so new. When I asked what a "5-Megabyte" was, Martha said it was a way of measuring how much memory the disk would hold and that "megabyte" meant millions of bytes, just like "megaton" meant millions of tons in a nuclear bomb. I decided real quick that I didn't want a nuclear bomb hooked up to my Apple so I got Martha to show me what else they had there.

The next thing she showed me was a "mouse", which didn't look like a mouse at all. It was this funny-shaped looking box, about the size of two packs of cigarettes, with a button on top and a long wire hooking it up to the computer. When you move it around on the desktop it moves a little arrow around on the screen. There was a real good drawing program hooked up to it and I thought it would be fun for Maggie-Sue, but then I remembered that Buntsie, Betsy-Ann's cat, just loves to play with anything on a string. I could just see the cat trying to bat the mouse across the living room, so I gave up on that idea.

3 SOFTWARE PACKAGES

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Then Martha showed me this new program called "Appleworks." It has a word processor, database, and spreadsheet all built into one program. Martha told me that I could use the spreadsheet to figure out how much money my farm was making, and I could use the database to keep my address list and telephone numbers in. Well, Betsy-Ann keeps track of all the bills for the farm in a shoebox and besides she won't get near the computer, so I figured the spreadsheet wouldn't do me much good. And the address list would be useless in Lizard Lick since we all leave our mail for each other down at Uncle Zeb's store where everybody goes anyway.

Finally Martha introduced me to this slick feller named Jim who tried to tell me all about home banking and modems. I thought the idea of having a bank at home was real neat cause I have to drive 25 miles into Zebulon to get to my bank. I was a little disappointed, though, to find out that Wachovia Bank won't let you do it yet. Evidently only Chemical Bank in New York and the Bank of America have home banking right now. Jim explained that home banking would require a modem, which is evidently some kind of gadget that lets a computer talk over the phone. Since Betsy-Ann and Maggie-Sue run up enough of a phone bill, the last thing I need is for my Apple to get into the act.

About this time, Martha suggested that I might want to go over to the next building where most of the software companies was. Doug wanted to get on with business, but I talked him into taking me over there for about an hour. The software hall had all kinds of flashy exhibits, but there weren't anything there that looked too exciting. There was one program for personal finance made by a company called MECA that kept track of everything for you and did your taxes, too. But like I explained already, Betsy-Ann won't get near the computer, anyway.

While we were there I was real surprised to run into a familiar face. I hadn't seen Sol Schmaz since he'd run off with the Mayor's daughter about four years ago. Seems the Mayor didn't like the idea, so the two of them ran off to Colorado to get married. Sol was building robots now, and had one that he was showing off. The thing could run around, talk, and play songs, but I couldn't imagine what good it would be. Maybe it could chase the cat with the mouse. Anyway, Sol was fine and said to say hello to all the folks back home.



About then Doug said my time was up and he had to get to work. So I said OK, and we went off to look for the video stuff. Turns out there was more video stuff than I had ever imagined. There were TV's in all kinds of sizes, even one that went on your wrist, like Dick Tracy. Then there were TV tape recorders, and all kinds of tapes for them. All the big movie studios were there, which was amazing. They did a good job of making the place seem like Hollywood.

I started to get kind of bored, cause I don't watch TV much, anyway. So Doug took me back to the hotel. While we were walking in the front door this real nice lady asked me if I wanted any company. I was just about to say yes when Doug grabbed me and shoved me through the door. He said I didn't need her company 'cause it was kind of expensive and I got the picture. Doug suggested that we go see one of the Las Vegas shows which are kind of like a flashy circus. I said OK, so we went to see this show where all these dancing girls ran around with nothing but feathers on and they charged us all kinds of money to watch. I told Doug I thought the offer I'd had earlier was better and he told me to shut up and go back to Lizard Lick.



Alan B. Fid is a forty-six year old tobacco farmer who lives in Lizard Lick, North Carolina. He graduated from Eugene A. Jackson High School in 1955, where he majored in shop. After attending North Carolina State College in Raleigh for a year, he dropped out to take over his father's farm. Alan won an Apple II in a contest three years ago run by his local radio station, WJHB-FM. He's been trying to figure out what to do with it ever since.

Using

SOS

by Kevin Everett FitzMaurice

It's surprising how many people have swallowed the line that the Apple /// and its Sophisticated Operating System (SOS) are beyond comprehension. It's even more surprising because the pathname and other SOS concepts are also used by other machines which are allegedly "easier" to use. Sure, if we want to do advanced programming on the Apple ///, then we must learn to talk to SOS with both the Pascal computer language and 6502 assembler. But that bewildering trip isn't necessary, because Apple provides a diskette called "Utilities" with every Apple ///.

The Utilities diskette contains all the functions needed to successfully operate your Apple ///. SOS Utilities should be regarded as the set of tools you need to work with disks, files, and adding or changing hardware. You need no understanding of programming to use the utilities. There are no cryptic commands to learn as on other systems. Instead, you just need to be able to read and spell at an acceptable level.

Hello, SOS?

First put the Utilities disk in the built-in system disk drive, and either turn on your machine, which will cause an automatic cold boot of the disk (Reading the disk into memory and executing it without anything else being there too.), or press CTRL-«RESET», which will also do a cold boot of the disk. Having been booted, SOS is now awake and ready to talk to you in the form of menus and simple prompts (suggestions). You will see the main menu on your screen. There are now only four choices for you to choose from, and one of these is just for "Q"uitting or ending your activity. To quit normally, you just remove the disk, insert a new one, then press «CONTROL» and «RESET» at the same time

Now that we've covered quitting, things are already simplified into just three types of work SOS will do for you: (1) work on our devices (diskettes for the most part); (2) work on files (hard disk files or floppy disk files); and (3) work on SOS's drivers (peripheral interfacing).

Working With Disks

Device handling commands are the top menu choice, and we are going to see what these are by either typing the letter "D", or by moving the cursor with the up and down arrow keys until it is on the "D" and pressing either the «RETURN» or «ENTER» key. Here we are looking at another menu, this one with six choices. Stepping down through the Device menu, the top choice is asking us if we want to use SOS to now copy one complete diskette, just as it is, onto another diskette. If that is indeed what we want to do, we either type "C" or move the cursor over "C" (for copy) and hit «RETURN» or «ENTER».

We are now looking at another screen which prompts us for the name of the disk we want to copy. SOS has already supplied a name for us. You will find that SOS is always second guessing what names we will use in order to save us from typing them. In this case SOS has put in .D2. This means that the disk we want to copy is in disk drive number two (first external drive) which is the most likely place for it. But, you say, there is no name of the diskette (Volume name). SOS does not need a name, though you could supply the name of the disk instead, but it is easier to just type either .D1 or .D2 than having to remember and type the exact diskette (volume) name. If you have the disk in another drive, then just move the cursor with the left arrow key over the "1" and type the new number.

Next, of course, you will be asked where the diskette you want the copy made to is located. SOS will suggest .D1 and if that is the case just press «RETURN» or «ENTER». Finally, you are asked what name you want the copy to have. If you want it to have the same name as the one you are copying, then just hit «RETURN» again. Still SOS is asking questions, (When will it be able to read minds?). This time it asks you if you are sure that you want to make the copy to that disk (if it already has something on it). SOS doesn't know it is an old mess we would be glad to get rid of, so we tell it so by answering with a "Y" for "yes". You can use this utility to make copies with only the built-in disk drive, but that involves constantly switching diskettes in and out of the built-in disk drive. Even though SOS will keep track of which diskette is which, there is a much easier way if you also have the 5-megabyte ProFile hard disk, and in a future article on the ProFile, we will tell you how.

The other options from the Device menu are even simpler, and work very much the same way. We can rename a floppy

disk with a more appropriate name with the "Rename a Volume" option. Those new diskettes we just bought need to be set up for SOS with the "Format a volume" option. SOS will provide names for your new disks to speed up the formatting process using the word BLANK and two digit numbers after it. If we are having some problems we can make sure it is not the fault of some bad blocks (groups of 512 bytes each) on our disk, by checking it with the "Verify a Volume" option.

A listing of the devices (drivers) we have available on any diskette can be found out with the "List Devices Configured" option. And last, we can set the date and time, which we should have done first thing on booting up the Utilities. SOS will be using the last date and time it had to mark our files, if we don't give it a new one. If somewhere along the way we decided we didn't really want to copy a diskette, then we can just press the «ESCAPE» key (panic button) and be returned to the primary device menu. Let's panic again and go back to the main menu (hit «ESCAPE» twice).

Pathnames

Pathnames are the way you find your file in the hierarchical file structure of SOS. Do you remember from school the basic form of a simple outline? Or do you understand a simple filing system that has files further broken down under single subjects? Can you use the card catalog of your local library? If you can answer "Yes" to any of these things, then you already understand more than enough to be able to use the hierarchical file system of SOS. The path through directory levels that SOS must take to any given file is that file's complete pathname. The number of directory levels is up to you, within limits.

File pathnames always start with the device name of the part of your system that contains the file, or the Volume name of the disk. For example, .PROFILE is the device name for the ProFile hard disk drive. To access any file on the ProFile you must first begin the pathname with its device name, .PROFILE, or its directory (volume) name /PROFILE. All device names begin with a period so that SOS will know it is dealing with a device and not an actual file.

There also has to be a way for SOS to know what is the end of the first name in the path, and what is the start of the next element or steppingstone to your file. To do this we use delimiters; these are just single characters that SOS knows are not ever allowed to be part of a name, and that are to be regarded as name separators or delimiters. There are other delimiters that could have been used, but Apple chose the slash (/) as the delimiter in our pathnames. Now we have .PROFILE/ as the device. It could also be /OLDDISK/ or .D2/ for a floppy disk.

What follows next may be a file; name it and you are at the end of your path. The next item could also be a subdirectory name. Directories and subdirectories are not files, but rather names of groups of files. Also, directories and subdirectories can be listed or cataloged, but it doesn't make sense to do the same with files. Let's say we have a subdirectory for our business letters. We type in the subdirectory name .PROFILE/BZ.LETTERS/, and then add the name of the individual letter file we want. Example: .PROFILE/BZ.LETTERS/NAME.4. This would locate the file NAME.4 in subdirectory BZ.LETTERS on the ProFile. We do that kind of thing regularly with Apple Writer ///, loading a file to our screen using CONTROL "L".

Working With Files

The second area of the Utilities package deals with all kinds of files. We will now choose the "F" option from the main menu, and arrive at the primary menu for handling files. Here we have seven options to choose from. Starting at the top again we will choose the "L" option to list some files. We are now asked what directory we want listed. I use this more to get a listing of the files on my ProFile than anything else. So, I type in .PROFILE over what SOS already has there for the default or suggestion.

Hitting «RETURN», we then get a query to see if we want ALL directory levels. If we just want the main directory and only some subdirectory levels, we can type the number of subdirectory levels we want over the default ALL. (We'll consider subdirectories in just a moment.) Next we have the option of what device we want to send the listing to. Here the default is .CONSOLE which means the listing will appear on our screen. I usually type over .CONSOLE the printer device or .PRINTER. This gives me a printed listing (provided my printer is on) of all the files on my ProFile for easy reference. If you ever make a typo while entering a device or pathname, it can be corrected by moving the cursor back over the word with the left arrow key and retyping it. Extra spaces after the word will never cause problems. The ESCAPE key used here will return you to the primary File menu.

Continuing down the File menu our next choice is "C" or "Copy files". This is very useful for transferring files from disk to disk, and even to a different subdirectory on the same disk. Perhaps you didn't know that the copy files option can also be used to send any SOS file to the printer by merely naming the destination file as .PRINTER. There was an erroneous article in another magazine explaining how to write a program to accomplish this for captured Access /// files. (Wonderful: write a program to emulate a feature you already have.) We also have the simple options necessary to delete files, and to rename files.

A very important option is the "M" or "Make a new subdirectory" option. It is necessary to use this to create subdirectories subordinate to the main directory of your disk, whether it is the ProFile or a diskette. The default suggestion from SOS this time is that we leave room for 25 files under our new subdirectory. We can change that by merely typing over it the number of files we think we will need room for. Any main directory is capable of having only 51 files listed under it. These may be all subdirectories or files, or they can be a mix of each. Subdirectories can also have both files and subdirectories under them, which is the means by which a true hierarchical file structure can be developed using SOS. Files, of course, can only have actual data under them.

Why bother with subdirectories? First, it may be that 51 files is plenty on a diskette, but you will surely want more than that on the ProFile. Hence, you will need to make subdirectories. These work just like the main directory, only they are subordinate to it; the directory name must appear before the subdirectory name to gain access to the subdirectory and the files under it (becomes part of its pathname).

There's another reason to use subdirectories: with most software you can set a prefix pathname (see below) to load or save files. That prefix can be the device name alone, or a pathname including device and subdirectory names. The file names can be clearer when they are part of an orderly grouping rather than just being scattered on your disks.

A safety feature is the set write protection option "W". Using this we can protect crucial files on a disk that is not write protected, and leave others open to change. We must remember that files that are write protected in this manner cannot be deleted or updated until the write protection status has been changed.

Our final feature of the file menu is the "P" or "set Prefix" option. This is a convenience feature, and once again shows Apple's concern with helping us save time and avoid tedious and repetitious typing. The prefix is the first part or name in a pathname. Once the prefix has been set, we don't need to type it again as SOS will retrieve it for us. We can still supply it, or supply an alternate one and SOS won't object. Most of these operations on files are also available from Apple Writer ///, Business BASIC, and Pascal. In fact, instead of the Pascal Filer, you can use the SOS Utilities with its superior features right from Pascal. Copy the SYSTEM.STARTUP file from the Utilities disk to the ProFile, and rename it SYSTEM.FILER as you do so.

When we use our Utilities we will most often use the device name .D1. This is an abbreviation for disk drive one (fortunately Apple loves to abbreviate), or the built-in system disk drive. It does not matter what the actual (Volume) name of the diskette in disk drive one is, as SOS can refer to it by its Volume name or .D1. The main difference between using device names as opposed to volume names, is that SOS will locate volume names for you (find in which drive it is), and SOS will just go to a device name. Volume names are the same thing as directories, but not subdirectories. Device names must always begin with a period followed by a letter, then any combination of letters and numbers up to a total of 15 characters. Volume names are always preceded by a slash (/), and must also begin with a letter. They can then contain letters, numbers, and periods in any combination up to a total of 15 characters. Local names (the names of specific files) and sub-directory names, both follow the same rules as Volume names. Pathnames are limited to a total of 128 characters, which means don't use long file names. If you don't get carried away, you won't find much problem with the rules as they are quite logical. In a future article I will delve more deeply into the file structure, and show how to set up an efficient tree structure using it.

MORE to Come

Next time, I would like to go into the System Configuration Program with you. This unique feature of the Apple /// really deserves more than one article, but I will try to give you a good start at using this powerful tool.

Apple is continually coming out with new products for the Apple ///. Apple now has a very serious COBOL for the Apple ///. A new command module is planned that will make use of the Cursor /// joysticks. They are beginning to make plans for another rewrite of the Apple II Emulation mode. The clock-chip kit should have been released by the time you read this. Back UP ///, Apple Speller ///, and BPI software are all now available. Both the "Apple /// Device Writers Guide" and the "Apple /// SOS Reference Manual" manuals have been released. (Now we know where they all went: to Omaha!—PCW.) Perhaps early next year we will get the "Apple /// Technical Reference Manual". Apple is encouraging and helping software authors like never before. Seminars are

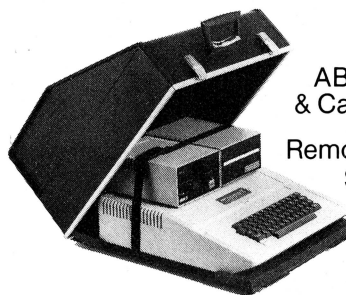
being held in the U.S. and Europe to teach advanced programming on the ///.

Apple is determined to establish themselves as "the" users' computer company. One idea in this vein has been the "Product Training Paks". These are manuals and training diskettes for such programs as Apple Writer ///, VisiCalc ///, Utilities, Mail List Manager ///, and Business Graphics ///. What makes them unique is that they are intended to provide enough hands-on training to get you successfully using the programs in less than an hour. There is a new program at your dealer's store to make loading and changing drivers a snap: Driver's Aid.

Be sure to get the latest SOS update from your dealer: it is version 1.3. Apple is no longer publishing and distributing for free the "Apple /// Dimensions" newsletter. Inside new Apple /// boxes is a manual called "Read Me First". The idea is to provide you with enough information to get going right away. Also Apple has an interactive program called "The Keyboard" to familiarize a novice with the operation of an Apple ///. All this and more is combined in a new merchandising program called "The Apple /// Professional Solution". It also includes a 256K Apple ///, Monitor ///, Apple Writer ///, VisiCalc ///, and Quick File ///.

Apple says their number one priority for the entire company in 1982 was the rerelease of the Apple ///. Did you know that VisiCorp originally developed VisiOn on the Apple ///? "VisiCalc Advanced Version" is still available only for the ///. An Apple /// will fit under an airplane seat in an Apple Softcase. Did you notice that the hero of "Tron" used an Apple /// at home? Makes sense that the programmer for the users would use the user's micro.

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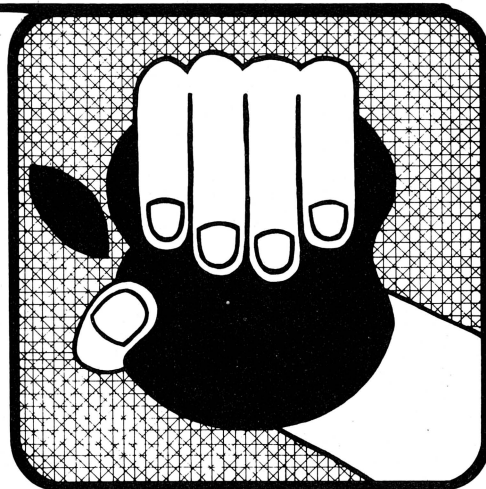
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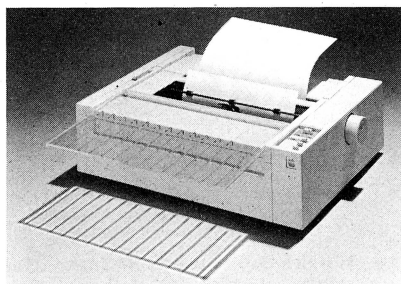
MISCELLANEOUS

COPY PROTECTION

Edited by Gene Wilson

NEW RELEASES FROM APPLE

The Imagewriter, a dot matrix printer designed especially for reproducing high resolution graphics at fast speeds. It is fully compatible with Apple's Lisa(tm), Apple(R) /// and Apple II personal computers. The Imagewriter prints high resolution graphics at a rate of up to 180 characters per second, and full text up to 120 cps. The new printer utilizes bit map graphics technology to support the Lisa computer family's graphics capabilities. For further information contact Yvonne Lynott, at Regis McKenna Public Relations, (415) 494-2030. \$495.00.



Profile, Apple's Winchester-technology hard disk drive, is now available for Apple II, Apple II Plus, or //e computers that have 64 or more kilobytes of internal memory. Storage capacity is equivalent to 35 floppy diskettes. Information is read ten times faster than with floppy disk drives. Also included is Backup II, a software utility that backs up and restores files stored on the Profile. Any application based on ProDOS

or Pascal (Version 1.2) can use Profile. Available at authorized Apple dealers for under \$2,200.00.

The **AppleMouse II** is a high-speed pointer device which is used to select computer operations and modify information displayed on the screen. Packaged with MousePaint software, the mouse can design charts, diagrams, free-hand drawings and other visual aids for reports and presentations. Users can insert text in a drawing and can choose from a variety of character fonts and fill patterns. MousePaint simulates bit map graphics to support the Apple II's high resolution capabilities. Available at authorized Apple dealers for about \$175.00.

A new integrated program from Apple Computer, Inc., **AppleWorks**, combines a word processor, a spreadsheet, and a data base manager into a single program. Commands mean similar things in each application. Up to 12 files can be contained in memory at one time. Information among files can be moved to the word processor from the other two modules. A menu-driven Desktop Manager handles utility functions such as loading and saving files, formatting disks and specifying printer information. The program, which runs under ProDOS (assuring data file transfer to and from the Apple ///) is available for the Apple //e with 64K bytes of memory and an 80-column card, one floppy disk drive and a monitor. Apple's Extended 80 Column Card for the //e, which provides an additional 64K bytes of memory, and a printer are recommended. (The Apple /// version is called III E-Z Pieces, and is available from Haba Systems, Inc.). Available from authorized Apple dealers at \$250.00.

Apple Computer, Inc. has introduced an enhanced version of the Apple ///, which incorporates new features and updated hardware. The **Apple /// Plus** features an interlace video mode that effectively doubles screen resolution, a clock/calendar function, a new keyboard that's identical to the //e's board (a delete key has been added), a redesigned four-layer main logic board that increases system reliability and reduces radio frequency emissions, improved peripheral ports on the back panel that use standard DB-25-pin connectors, modified slot housings for easier insertion and removal of peripheral cards, an upgraded 55 watt power supply that allows the computer to run cooler, and a new casting which provides better heat dissipation and meets standards for Class B computers set by the Federal Communications Commission and similar international organizations. \$2,995.00, at authorized Apple ///dealers.

Both the interlace mode and clock/calendar function can be added to Apple /// systems with upgrade kits, which are available from authorized Apple /// dealers. The Interlace Upgrade Kit has a suggested retail price of \$75.00 with installation; the Clock/Calendar Kit is \$50.00.

Apple's **Serial Card ///** can communi-

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Products below, when used appropriately, either singly or together, will enable you to copy virtually all software for the relevant computer. The copy-products are intended to be used for back-up purposes only! Products are Apple-compatible unless otherwise indicated.

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Not responsible for typographical errors. Prices subject to change without notice. **Circle HelpCard No. 6**

cate with a variety of modems, plotters, printers and other serial (RS-232-C) communications devices. An accessible switch on the card permits changing from DTE to DCE formats without having to replace the modem eliminator cable. If a user requires only one serial communications device, it can be connected directly to the built-in serial port on the Apple ///'s back panel. Available from authorized Apple dealers, \$225.00

Apple Computer, Inc. has started a new corporate support program for developers of Apple-compatible products. The **Certified/Registered Developers Program** provides developers with resources, information, and training to help them target their products toward expanding markets. Apple shares information on product and marketing strategies, and provides tools and technical support that reduce development time and enable developers to bring products to market more quickly. The program unites the developer relations functions of Apple's Personal Computer Systems Division (PCSD), which markets the Apple //e and Apple ///; and the Personal Office Systems Division (POSD), which markets the Lisa.

Registered developers gain access to conferences and seminars, classes (worldwide), hardware and software discounts, and co-marketing programs, periodic issues of technical application notes, use of electronic mail and bulletin board system, and high level technical support. A \$100.00 fee is charged for registration, which covers administrative costs and materials. Developers must demonstrate a commitment to creating and selling products for Apple systems.

Apple also has a **Corporate Software Licensing Program** that allows developers to use Apple's operating systems, programming languages, and other development tools to design products for resale. Licensing fee are nominal and vary from product to product. For further information contact Rene Olsen, at Apple Computer, Inc. (408) 973-2042, or Andrea Cunningham, at Regis McKenna Public Relations (415) 494-2030.

The **Workbench** product line, from Apple Computer, provides development tools and technical information for hardware and software developers. The first group of Workbench products consists of six software packages for the Apple II and Apple /// product lines:

- The **DOS Programmer's Tool Kit** provides the tools needed to program an Apple II computer in both assembly and Applesoft BASIC under DOS 3.3. Software utilities are included for developing and using special text animation character sets, as well as

Boston Window, a full-screen editor.

- The **ProDOS Technical Reference Manual** explains how to develop applications using the advanced features of ProDOS, Apple's new operating system for the Apple II family. A diskette is included that contains an interactive program to allow programmers to test ProDOS function calls from the keyboard.

- The **ProDOS Assembler Tools** package contains the software utilities needed to program an Apple II computer in assembly language under ProDOS. The ProDOS Technical Reference Manual is recommended for use with this package.

- **Apple Pascal Numerics** provides units that allow programmers to use single, double and extended-precision real and integer numbers in Apple Pascal for the Apple II and the Apple ///. The package incorporates full IEEE-standard numerics and includes a variety of mathematical functions.

- The **Apple /// Pascal Tool Kit** helps programmers develop Pascal programs on an Apple /// computer. It includes utilities for performing programming functions such as compiling Pascal code, comparing data text files, designing a good user interface to the program, and sorting SOS and ProDOS directories.

- **Pronto: The Apple /// Pascal Debugger** enables developers to control the execution of Apple /// Pascal programs. Users can debug while executing programs at full speed, and no recompilation is necessary.

The Workbench products are for technically-skilled developers who require little or no tutorial information. Technical reference materials provided with each Workbench product are in a loose-leaf format, with separate binders available so developers can organize the reference materials to fit their individual needs. The loose-leaf format was selected to facilitate updates.

For further information contact your authorized Apple dealer.

An Apple /// Information Service Network, named **Apple Serve ///**, has been set up and is being sponsored by Apple Computer through their Apple /// Independent Business Unit. Apple Serve /// will provide Apple /// owners with information and support on the Apple ///. This system will be an electronic network much like the Source or CompuServe. Apple Serve /// will provide electronic mail between subscribers, an on-line directory of all the software available for the Apple ///, information on user group locations and meeting times, and much more. For further information, or to set up an electronic mailbox, send name, address, and Apple /// serial number to:
Albert Chu

Apple Computer
Mail Stop 22-A
20525 Mariani Avenue
Cupertino, CA 95014
(408) 973-3639

(Ed's note: This information was provided in a special mailing to members of his group, by Don Norris, President of Business Apple Group, Inc., 1850 Union Street ±494, San Francisco, CA 94123, (415) 921-3774. Thank you Don!)
Circle HelpCard No. 207

Apple has encouraged specialized software development by independent companies for the Lisa System by licensing "Workshop" programming environments with the Pascal, COBOL, and BASIC-Plus languages. Each Workshop contains programming tools--such as an editor, linker, and compilers and interpreters--that allow developers to write Lisa-compatible programs in one of the three languages.

These tools allow developers to use the standard Lisa user interface functions--such as mouse-based editing, multiple windows, pull-down menus, or cut and paste--for fast editing, development, and program modification. In addition, Pascal comes with Quickdraw, a program that enables developers to write applications that utilize the mouse interface and graphics software routines present in the Lisa programming environment.

The **Lisa Application Window**, allows developers to integrate existing applications developed in the Workshop into the desktop environment with minimal changes. The Application Window is designed to be used with any of the programming languages provided by Apple for the Lisa.

Circle HelpCard No. 208

The **Lisa Applications Development Toolkit** allows developers to write applications which are not only fully integrated into the Lisa desktop environment, but which also provide the full capabilities of the Lisa user interface.

Circle HelpCard No. 209

Open Systems, Inc., a Minnesota-based vendor of accounting software, is the first of the Workshop "seeded" companies to the market, with seven interactive accounting applications and a complementary report writer and data formatter. The programs run in Science Management Corporation's (SMC) Business BASIC under Microsoft's multi-user XENIX operating system.

For further information contact Renee Olsen, at Apple Computer, Inc. (408) 973-2042, or Jane Anderson, at Regis McKenna Public Relations (415) 494-2030.

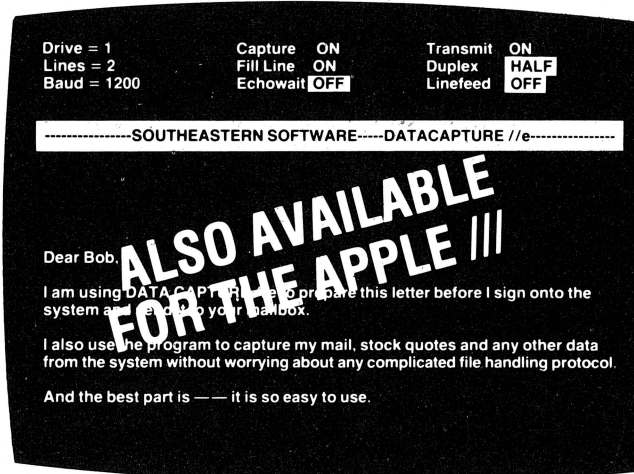
(Ed's note: Among the 165 software companies taking advantage of Apple's

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Apple has announced two software development tools for the Lisa.

Toolkit/32 provides developers all the software and documentation necessary to write integrated software that takes full advantage of the Lisa's features. The Toolkit creates a "Generic Application" environment which shares the same features as the Lisa's user interface—including windows, menus, scrolling and printing, dialog boxes, mouse, graphics, and Cut/Paste integration. Developers only add features that are specific to their application. New applications are automatically integrated with Apple-developed programs and others developed with the Toolkit.

The Generic Application is based on Apple's Clascal language, a superset of Pascal. "Building Blocks" or libraries of Clascal descriptions are included in the package that incorporates the Lisa's basic graphics, text editing, and dialog functions.

One-week Toolkit/32 training classes are being held under the auspices of Apple's Certified/Registered Developers Program. Those enrolled in a class will receive Toolkit/32 software and documentation (disks contain the Generic Application and Building Blocks, the Clascal manual, and the Toolkit/32 reference manual), periodic information updates plus personal support by a qualified engineer for one year. Cost is \$1,200.00.

Circle HelpCard No. 211

QuickPort provides developers with a bridge to the Lisa desktop environment for applications written in Pascal, COBOL, BASIC-Plus and other standard programming languages. Conventional applications written for other machines can be moved to Lisa with minimal changes. Once on the desktop, applications will run in a window, and have their own icon and stationery pad, a feature that enables the user to select paper and begin creating files and documents. The user can scroll, resize, open, and close the window; use the same print functions as Lisa Office System applications; cut and paste between applications; and have any number of windows open on the desktop simultaneously. In all other respects, applications will look like conventional

programs, such as those that run on the Apple //e and Apple ///.

Applications are initially developed or modified in the "Workshop" programming environments which come with all Lisa languages. Each Workshop has a built-in terminal emulation facility that lets developers download source code for applications running on a mainframe computer, modify it in the Workshop environment and install the application on the Lisa desktop.

QuickPort will be packaged with Pascal, COBOL, and BASIC-Plus for the Lisa. Customers who purchase these languages prior to the inclusion of QuickPort will be able to order it for a nominal fee through the Certified/Registered Developers Program and normal Apple sales channels.

For further information contact Kathleen Dixon, at Apple Computer, Inc. (408) 973-2042, Jane Anderson, at Regis McKenna Public Relations (415) 494-2030, or contact your local dealer. Circle HelpCard No. 212

Two new Ryan-McFarland Languages make over 700 applications available for the Lisa. **RM/COBOL** is a GSA certified implementation of the ANSI 74 COBOL standard. **RM FORTRAN** is a full ANSI 77 FORTRAN compiler that supports the IEEE format, and includes extensions. Both languages are configured to run on the Lisa under Microsoft's Xenix and Unisoft's Uniplex««Plus symbol»» operating systems. For further information contact Glen Embrey at (213) 541-4828.

Circle HelpCard No. 213

Ryan-McFarland Corporation
Sales Administration
609 Deep Valley Drive
Rolling Hills Estates, CA 90274

HARDWARE

Disk Storage/Backup

DisCache is a Winchester disk subsystem (5 1/4 inch) for Apple (and other personal computers), available in 10 or 20 Mbyte versions. DisCache RAM memory (up to 256 Kbytes) continuously monitors (and stores in RAM) the 31 most frequently used sectors. A one megabyte "print spooler" is standard. "Booting" the system in CP/M, Apple DOS 3.3, or "P" (UCSD) Apple Pascal System is as easy as pushing the right button on the front of the unit. Suggested retail is \$3,000.00. For further

information, contact Brian Cohen, Technology Solutions, Inc., (212) 752-6440.

Circle HelpCard No. 102

Eicon Research, Inc.
2157 Park Boulevard, Box 60456
Palo Alto, CA 94306
(415) 326-2164

Mountain Computer, Inc.'s **Twenty Megabyte FileSafe cartridge-type tape drive** will provide backup storage for Apple's Profile Winchester disk drive used with the Apple /// or Apple II family personal computers. The FileSafe high speed tape drive offers complete backup for a 5 Megabyte Profile in less than 10 minutes and a directory capability that permits both streaming backup or file-by-file restore. Mountain is the only supplier of an Apple-Endorsed tape drive system. For further information contact Bob Stroh. \$2,195.00.

Circle HelpCard No. 103

Mountain Computer, Inc.
300 El Pueblo Road
Scotts Valley, CA 95066
(408) 438-6650

Interface Cards

The **Print-It! Model 2** is a powerful parallel printer interface card for the Apple II and //e family of computers. With a large internal program aboard, this card is able to handle 40 or 80 column text, standard and alternate fonts, color or black & white, low (and high) resolution graphics, double high resolution graphics, and even automatic selection of the proper print format to match the current display screen in the Apple //e. On-board switches select the proper code sequences to provide compatibility with virtually all available printers. \$174.00.

Circle HelpCard No. 104

Texprint, Inc.
8 Blanchard Road
Burlington, MA 01803
(800) 255-1510

The **VideoSprite** graphics card allows introduction of animated graphics and text to video programming. An Apple II computer can be programmed to generate sprites (large programmable objects that can be moved around the screen) of various sizes and colors. Up to 32 levels of sprites can occupy the screen simultaneously. Software is offered to create and move the sprites in sixteen colors. Videosprite will only work with a color composite video input which is close to NTSC standard. Black and white inputs are not allowed. \$795.00.

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David Boyd

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ZOOM

ZOOM Telephonics, Inc.
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Synetix, Inc.
10635 N.E. 38th Place
Kirkland, WA 98033
(206) 881-8440

✓ **The Omniscan Interactive Video-Disc Interface** includes a circuit board (plugs into any slot in the Apple) all connecting cables, documentation and instruction manual, and operating software (in BASIC, Pascal, Super Pilot, and machine language). Omniscan allows use of Apple II family of computers to program all the capabilities of the LaserDisc players, including fast and slow motion modes, single-step in forward and reverse, stop frame, search for frame or chapter, and audio on right or left channel (or both or even neither). As a dynamic storage medium, the LaserDisc offers up to 54,000 individual frames which can be accessed in random order (very quickly). A user program can branch to any location on the disc. \$275.00. Wireless interface: \$30.00. Pascal and Pilot drivers: \$25.00.

Circle HelpCard No. 106

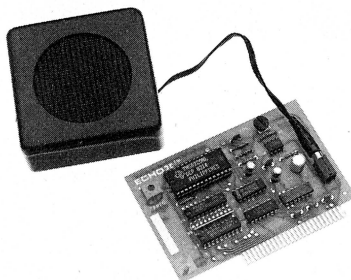
Anthro-Digital, Inc.
103 Bartlett Avenue
Pittsfield, MA 01201
(413) 448-8278

The **ECHO II Speech Synthesizer** board includes a text-to-speech program which gives the Apple II computer

an unlimited vocabulary in four voice modes. The program contains an algorithm with over 400 language and pronunciation rules. These rules analyze the text and convert it to basic word sounds (phonemes). Adjustments are made for the many irregularities in the English language. Using simple control character commands, you control the rate of speech, output mode, how text is read to you, the pitch and volume. The Screen Review and Talking Terminal programs aid blind or sight-impaired users. Nearly 700 natural-sounding words are now available, on diskette, as a fixed vocabulary which can be utilized by other programs. Included are: a small circuit board, an 8 ohm speaker, a diskette with demonstration and utility programs, and a tutorial manual. Requires an Apple II or //e with disk drive. \$149.95.

(Ed's Note: Street Electronics manufactured Grappler products for Orange Micro until January 1, 1984, and will now concentrate on voice products.)

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✓ Alf's new **HGR6 Double-Res Graphics Package** for an Apple //e (with Extended 80-Column Card) lets you use the //e's double resolution hi-res graphics as easily as you presently use standard hi-res! Many new functions are added directly to Applesoft, so you can use double-res in all your existing hi-res programs, or write new programs using the familiar graphics statements. HGR3 and HGR4 statements give you 16 colors and 560 x 192 resolution. HGR5 and HGR6 give you 16 colors with 280 x 192 resolution for compatibility with your existing programs. And GR2 gives you 80 x 48 resolution lo-res graphics. HGR6 Double-Res also lets you easily save double-res images on disk, either in standard form, or compressed to take less disk space. The slide show program included is used to display regular hi-

res, double hi-res, and compressed double hi-res images either sequentially or selected one at a time. Available from your local computer dealer, \$49.95.

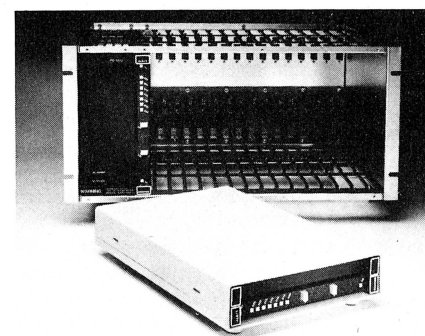
Circle HelpCard No. 214
ALF Products, Inc.
1315-F Nelson Street
Denver, CO 80215
(303) 234-0871

Input/Output/ Modems/ Networks

The **Prentice ALD/1** is a full- and half-duplex asynchronous (1200 to 9600 bps) limited distance modem (line driver), conforming to Bell specifications 43401 and 41028, making the use of Bell metallic, twisted-pair Local Area Data Service (LADS) possible at considerable line cost savings. Ideal for local offices and campus-like networks. The ALD/1 is available in stand-alone and rack-mountable versions at \$300.00, and \$200.00, respectively.

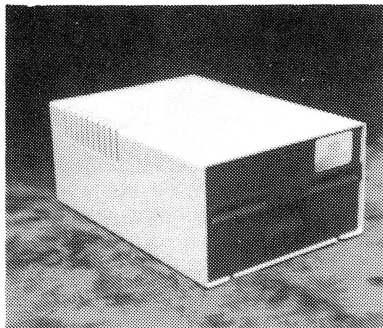
Prentice also has a high-speed synchronous (2400 to 19,200 bps) line driver meeting Bell specifications 43401 and 41028. The HSLD/1 is also available in stand-alone and rack-mountable versions at \$490.00, and \$390.00. For further information, contact Mark C. Evans, of Bricker Associates, at (415) 941-5980.

Circle HelpCard No. 108
Prentice Corporation
266 Caspian Drive
P.O. Box 3544
Sunnyvale, CA 94088
(408) 734-9810

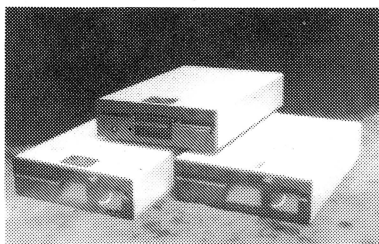


The **Apple II Interface for Ethernet**, by En-Link, is an interface board allowing information to be transferred between Apple II and other devices on a Local Area Network (LAN). This is useful for applications with several computers in one facility. Using this interface the LAN allows separation in excess of 4000 feet with only a single interconnecting coax. The design of the

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Circle HelpCard No. 23

Double Byte

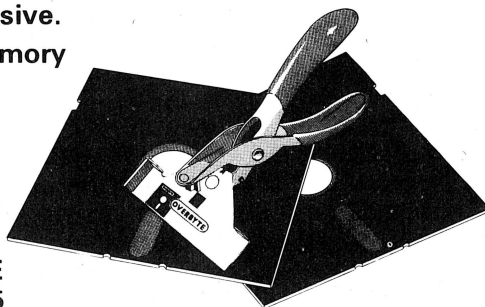
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Person-to-Person. The integrated communications database for the Apple II and //e from Trutek Software.™ Only \$69.95.

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Minimal system: 48K, 1 disk drive. Optional: modem,* printer, 16K card, 2nd disk drive, 80 column card, //e features. Capacity (64K) about 1400 listings per file. Also suitable for general filing.

*Modems supported: Hayes Micromodem II or IIe, Smartmodem 300 or 1200 (with Apple Super Serial Interface), Novation Apple-Cat II and compatibles of these.

Apple is a registered trademark of Apple Computer. Micromodem II and Smartmodem are registered trademarks of Hayes Microcomputer Products. Apple-Cat II is a trademark of Novation.



1700 Solano, Berkeley, CA 94707
Orders: 800-621-3744 (In CA 415-525-4901)

interface is compatible with Ethernet specification for Levels 1 and 2. This allows connecting computers and using existing software and changing or adding only the driver for this interface. For those users that do not have software, a file transfer program can be supplied. For further information on price and availability, contact the manufacturer.

Circle HelpCard No. 109

En-Link, Inc.

4706 Bond

Shawnee, KS 66203

(913) 268-6066

EasyLink(sm) is available through approximately 600 independent computer dealers around the country as part of an overall sales and marketing program by Western Union. Dealers generally supply the necessary message formatting software and modems to provide full communicating capability for the personal computer user who wishes to reach other EasyLink subscribers, access FYINews(sm) and communicate with Telex subscribers. Requirements for system use include having: asynchronous format, ASCII code, 110, 300 or 1200 Bps, 80 or 132 column character field, half or full duplex operation, and the ability to accept even parity. An electronic mailbox is available. For further information contact Jay Castergine, at (800) 336-3797, Ext. 168.

Circle HelpCard No. 110

Western Union

One Lake Street

Upper Saddle River, NJ 07458

Monitors

The **MJ-22** is a high resolution 13-inch color monitor that is switchable between RGB and NTSC composite video. The tilt-stand monitor operates at a bandwidth of 18MHz in RGB, and separated video at 5MHz. The 16 colors represented on the Apple /// color test pattern are matched precisely. For Apple /// and other personal computers. \$499.95.

(An optional MA-80R 80-column RGB board for the Apple //e, priced at \$199.95, provides additional medium and high resolution modes, and allows for selection of amber, green, blue, or white text characters.)

For further information contact Ken Neal, Frank Barth Inc., (212) 398-0820.

Circle HelpCard No. 111

Teknika Electronics Corporation

1633 Broadway

New York, NY 10019

(800) 223-2078

NY state (800) 522-5257

Printers/Plotters

ComRiter CR-III, a 132-column carriage, 23 character per second, daisy wheel printer. Hardware features include bidirectional printing, two color printing, a "copy mode" with a 5K memory/print buffer for document storage, and a 96-petal cassette-type print wheel. Ribbon options include single strike film, multi-strike film, fabric, and red bobbin. Advanced word-processing features include superscript, subscript, backspace, underline, bold-face, double strike, and proportional spacing. Uses Diablo 630 protocols. Optional equipment includes a cut-sheet feeder and a tractor feed. The CR-III is available with either a Centronics (parallel) or RS-232 (serial) interface. Priced at under \$1000.00.

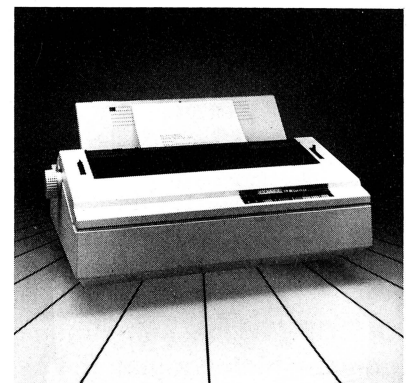
Circle HelpCard No. 112

Comrex International, Inc.

3701 Skypark Drive

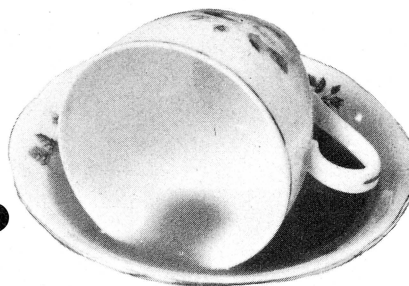
Torrance, CA 90505

(213) 373-0280



The **Qantex Model 7065 dot matrix printer** has full compatibility with both Epson and Anadex escape codes. (Diablo 630 compatibility is available as an option). The Model 7065 operates at a high speed draft copy rate of 300 characters/second; at 250 cps in the compose mode; and at 125 cps for near-letter quality(NLQ). Letter quality output for word processing is obtained at 65 cps. In the graphics mode, resolution of up to 144 x 144 bit-mapped dots/square inch. Standard features include proportional spacing, right-hand margin justification, auto underline, overprint and bold, downloadable fonts and an expandable buffer. Unit has two interfaces; a Centronics parallel and an RS232 serial with current loop. Baud rate is selectable from 110 to 19,200 bps. Deliveries are due by March, 1984, through the Qantex network of distributors. Contact S. Richard Rausch, Vice President Qantex Div. for further

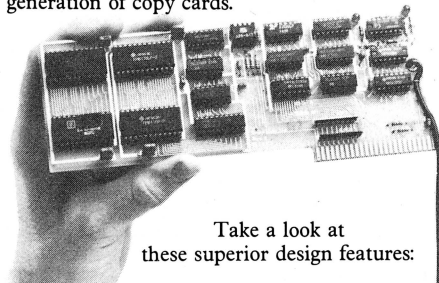
Accidents will happen...



Relax, you've got the Snapshot Copykit

We've taken the worry out of computer use. A damaged disk no longer means weeks of waiting for a costly replacement, because you can now backup your important software with the Snapshot Copykit.

Once again, Dark Star Systems have led the way with the introduction of the new generation of copy cards.



Take a look at these superior design features:

IT'S NEVER OUT OF DATE – The Snapshot Copykit exactly duplicates every byte of memory-resident programs up to 128k.

Other copy cards disturb several bytes of memory. Sophisticated copy protection schemes can detect these changes and make the resulting backup unusable.

Because all its software is in RAM rather than inflexible ROM, the system enhancements we develop can be made available to you at nominal cost.

A full 8k of on-board memory will make the Snapshot Copykit particularly expandable for future use as a printer buffer, a multi-tasking system, a communications dispatcher and much more.

IT'S COMPATIBLE – The Snapshot Copykit is a board for all systems. It sits in any slot on the Apple IIe and II+ as well as the Basis 108, the Franklin Ace and other "look-alikes".

The Snapshot Copykit doesn't need a language/memory card and won't interfere with any of your other peripherals. So, you never need to remove it after installation.

IT'S USER-FRIENDLY – We have a well-deserved reputation for providing easy to use products. The Snapshot Copykit is no exception.

Other copy cards force you to use complex, unreliable procedures and repeated booting of "utility disks" to copy larger programs.

Old fashioned "nibble-copier" programs involve endless trial-and-error parameter changes before they will work.

The Snapshot Copykit will backup memory-resident programs up to 128k with one simple menu and one press of the trigger – in seconds!

IT'S POWERFUL – The Snapshot Copykit gives you back the power over your computer that copy-protected software took away.

You can interrupt a running program, copy it, list it, disassemble it, step and trace it, modify it and resume running it. Great for debugging and customizing!

The program is not disturbed in any way, even if you suspend it for a while to run another!

All backups made with the Snapshot Copykit are automatically BRUNnable files which you can transfer to hard disk. Its state-of-the-art compression facility lets you stack several backups on one floppy.

IT'S GUARANTEED – All our products are covered by a 90-day, no-quibble guarantee for defective parts.

We also support you with free technical advice – all owners of the Snapshot Copykit receive our consultancy hot-line number.

The Snapshot Copykit is the "ultimate unlock system" for programmers, business users and hobbyists. Find out more by calling or writing for our info packet and the latest news on software updates and other new products.

SYSTEM REQUIREMENTS

SNAPSHOT IIe VERSION:

Copies memory-resident programs up to 128k.

Apple II, II+, IIe, Basis 108, Franklin Ace or other lookalike with disk drive.

PRICE: \$159.95

SNAPSHOT II VERSION:

Copies memory-resident programs up to 48k.

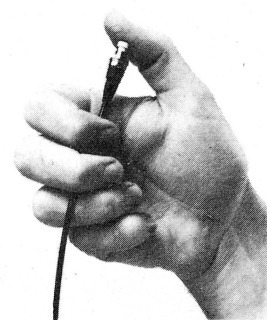
Apple II, II+ (RAMcard required – please specify brand when ordering), Basis 108, Franklin Ace or other lookalike with disk drive.

PRICE: \$119.95

TO ORDER: Mail check payable to Dark Star Systems. Add \$3 for shipping in the U.S. (\$7.50 to Canada, \$15 elsewhere). Mass. residents add 5% tax. COD costs \$5 extra (not available outside U.S.).

darkStar
SYSTEMS

R39A South Street,
WILLIAMSBURG, MA 01096
Telephone: (413) 268-7351



information.\$1,995.00.
Circle HelpCard No. 113
 North Atlantic Industries, Inc.
 60 Plant Avenue
 Hauppauge, NY 11788
 (800) 645-5292



Smith-Corona's new offerings include four new printers. The new **TP-II Plus daisy wheel printer** offers both RS232 Serial and Centronics Parallel interface ports. Features include: bi-directional printing at 10, 12, or 15 characters per inch, X-on/X-off capability plus hardware hand-shake protocol, self test switch, easy setting of baud, parity and character length switches, automatic underscoring and carriage return, programmable margins and tabs, a 570 character buffer, and easy-to-change ribbon cassettes and printwheels. \$645.00. Optional tractor feed attachment is \$149.00. See this printer at

Smith-Corona qualified office equipment and computer dealers. For further information contact Mort Gutman, director of printer marketing.
Circle HelpCard No. 114

The **D-100 dot matrix printer** has print speed of 100 characters per second, and prints 80 columns wide at 10 pitch. Features include: a 132 character buffer, parallel interface port, six different pitches, emphasized or elongated print, bit image graphics, true descenders, bi-directional printing, friction feed and tractor feed, and self-test capability. \$395.00.

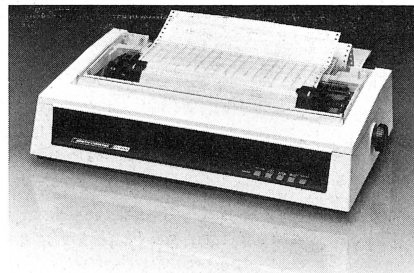
Circle HelpCard No. 115
 Smith-Corona

The **D-200 dot matrix printer** prints at 120 characters per second. Features include those of the D-100 (above) except for a 2K buffer, and both serial and parallel interface ports, and near letter-quality print performance. \$595.00.

Circle HelpCard No. 116
 Smith-Corona

The **D-300 dot matrix printer** prints at 140 characters per second. Features are as above, with addition of controls for on-line, line feed, form feed, adjust up and adjust down, and a 132 column line at 10 pitch. \$795.00.

Circle HelpCard No. 117



Smith-Corona
 65 Locust Avenue
 New Canaan, CT 06840
 (203) 972-1471

The **Alphacom 42** is a thermal printer, with 40 columns (upper and lower case characters) and full graphics capabilities. The unit prints two lines per second. The \$99.95 price includes an interface cable.

Circle HelpCard No. 118
 Alphacom, Inc.

The **Alphacom 81** is an 80 column thermal printer, with print speeds of one hundred characters per second. \$214.95.

Circle HelpCard No. 119
 Consumer Sales Department
 Alphacom, Inc.
 2323 South Bascom Avenue
 Campbell, CA 95008
 (408) 559-8000

Ricoh has announced new lines of printers and plotters, which include:
Serial impact printers, including the RP1600Q (50 cps), RP1500Q (40 cps), and the RP1200Q (20 cps). All models feature low noise operation at 50 decibels (max.), a double-daisy printing wheel for typeset print quality, and bi-directional printing. Options include forms tractor feeder, letter guide, and a cut sheet feeder.

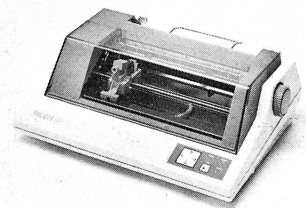
Circle HelpCard No. 120

A **thermal printer**, the TP-X, which prints at 100 characters per second. The printer accepts 10-inch wide roll paper that cuts to sheets of any length and prints to an eight inch width. Font density can be adjusted to suit various print-out needs.

Circle HelpCard No. 121

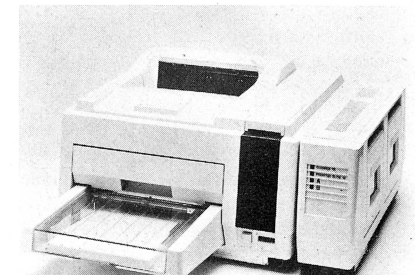
A **tabletop laser printer**, the LP 4120 prints at 12 pages per minute. Two 128-character internal fonts can be readily changed. The unit weighs 112 pounds.

Circle HelpCard No. 122



A **four-color ballpoint pen plotter**. The GP-1 can print in black, blue, red, and green ballpoint and felt-tip pen type. It features 26 plotter commands and an oil pen that lasts 1000 meters.

Circle HelpCard No. 123



For further information, pricing and availability, contact Jack Gannon.
 Ricoh of America, Inc.
 20 Gloria Lane
 Fairfield, NJ 07006
 (201) 575-9550

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APPLESEED^{T.M.}

Apple Compatible Hardware for Dedicated Applications

Design and program a system on a standard Apple computer and then market it with the low-cost APPLESEED system...

Designed for use in systems where a full Apple computer may not be necessary or desired, the APPLESEED Bus system retains all the essential features of an Apple system, including mother board compatibility with almost every plug-in board available for the Apple II.

Programs are developed in assembly language on a standard Apple II. Upon completion, a set of EPROM's are blown and inserted into the APPLESEED Bus system, which then takes control of program execution.

You buy only what you need for your application; gone are the built-in keyboard, the consumer-oriented packaging and graphics subsystems. Cost, size and power consumption are substantially reduced while flexibility is greatly increased. Compatibility with a multitude of sophisticated programming and hardware add-ons, widely available for the Apple II, has been fully retained, providing a wide range of options for designing customized systems. (Applesoft[®] PROM's are not included.)

A sampling of APPLESEED Bus components:

CPU BOARD The 6502 has been removed from the mother board and included in this card, which also contains the clock circuitry for the system.

64K RAM BOARD 64K of dynamic RAM with provision for control to be used in the normal Apple II conventions; deleting COOO-CFFF and software control over the DOOO-FFFF area.

EPROM BOARD Jumper selectable for 2716 (EPROM) or 34199 (PROM); blow 2716 assembly language programs and then run them in this EPROM board. Jumpers allow selection of software on/off, initialize on/off and other controls.

UART BOARD Software/hardware select all standard EIA baud rates. The board supports four 6850 UART's which allow four independent input and output EIA lines. Each UART is fully programmable for parity, bit length, baud rate, etc.

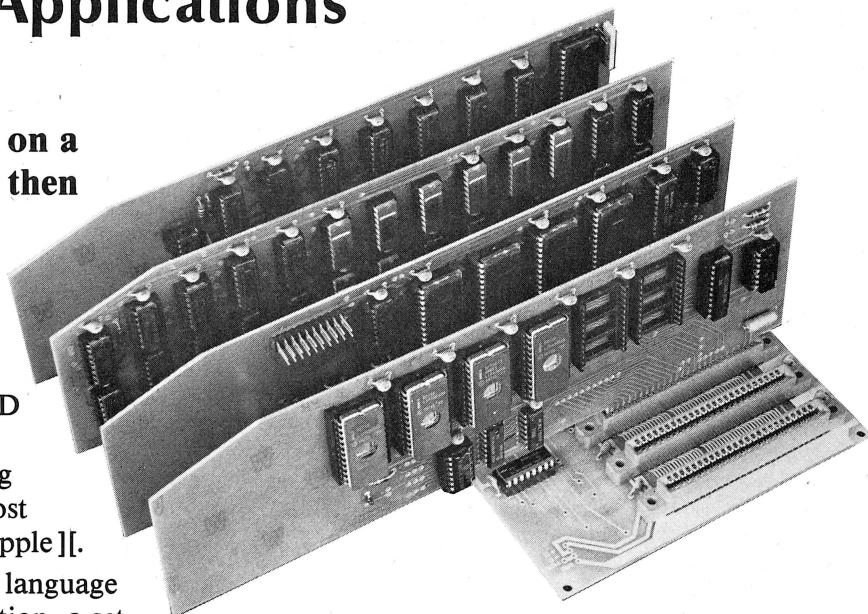
UNIVERSAL BOARD The APPLESEED Universal board contains the following: One 2716 socket for an F8 PROM, one 2K × 8 bit RAM (0-7FF), one UART channel for serial communications, 8 parallel INPUT lines (TTL), 8 parallel OUTPUT lines (TTL), device decode for one additional standard slot-dependent board, support for standard Apple II style keyboard, and a power supply connection. Each feature is independent and any combination may be used simultaneously. The Universal board is designed to be used with the APPLESEED CPU board.

TEXT BOARD The TEXT board is designed to add the conventional TEXT (page 1 and page 2) to an APPLESEED system. The board generates composite video to plug into a standard monitor or T.V. modulator. The board provides 40 columns × 24 rows in each page and is not slot dependent.

MOTHER BOARD 10-slot motherboard is fully compatible with most Apple add-on cards currently available.

Please call or write for prices and more detailed information on these and other APPLESEED Bus products.

DOUGLAS ELECTRONICS 718 Marina Blvd. • San Leandro, CA 94577 • (415) 483-8770
APPLE is a registered trademark of Apple Computer Corporation



Surge Protection

Bits Power Systems of Dallas has two new **"True" uninterruptible power supplies (UPS)** for critical computer applications requiring a totally dedicated, absolutely continuous and completely isolated source of electrical power. These units are always on-line; utility line power is used only to maintain a full charge on the internal gel type batteries. Both units have visual, audible and remote alarm functions. Model UPS-200 (200 watt) retails for \$795.00, and the UPS-400 (400 watt) is \$995.00.

Circle HelpCard No. 124
Bits Power Systems, Inc.
11020 Audelia Road
Suite B114
Dallas, TX 75243
(800) 527-1378

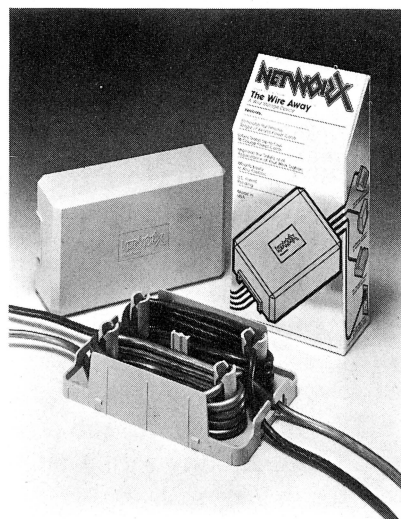
The **Wire Tree** offers continuous protection through surge-limiting solid-state circuitry built into its four grounded outlets. Unit's power cord is nine foot long. Power is controlled from a single, illuminated on-off switch, which is recessed to prevent inadvertent computer shutdown and loss of on-line programs. System uses an eight ampere

fuse. Available through computer and office-supply retailers. \$69.95.

Circle HelpCard No. 125
Networkx
203 Harrison Place
Brooklyn, NY 11237
(212) 821-7555

The **Wire Away**, is a hand-size unit that accommodates up to four 18-gauge power cords--14 feet in all of excess wire--which wrap around posts inside the device and are neatly concealed behind a snap-on lid. Four screws attach it easily to the underside of a table or desk. Available at computer retailers. \$12.95.

Circle HelpCard No. 126
Networkx
203 Harrison Place
Brooklyn, NY 11237
(212) 821-7555



Miscellaneous

The **Apple Thermometer**, is an inexpensive, new 'space-age' liquid crystal thermometer that can tell computer owners instantly if their equipment is operating at normal levels, higher than normal, or perhaps dangerously overheating. The device tells temperature in vivid spectral colors ranging from brown, tan, tan-green, green and blue-green at safe temperature levels to blue, dark blue and purple when caution is indicated for continued computer operation. Three units are supplied in each package. User installs units in seconds by removing tape from the pressure sensitive backing. Price is \$3.95 for 3 Thermonitors, plus 35 cents for postage and handling. All orders will be sent the same day as received via first class mail.

Circle HelpCard No. 127

Phillips Computer Systems
P.O. Box 40273
Indianapolis, IN 46240

Wildcard 2, a back-up device for Apple II family computers, has been licensed by Central Point Software, Inc. to East Side Software of New York City.

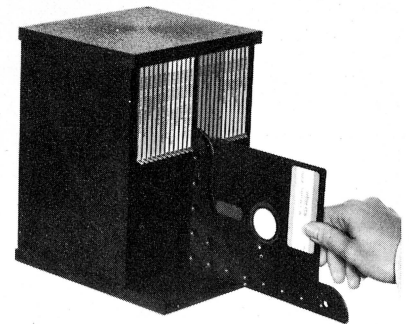
Circle HelpCard No. 128
Central Point Software
P.O. Box 19730-No. 203
Portland, OR 97219
(503) 244-5782

Orange Micro, Inc., announces a price reduction on its basic **16K Buffer-board**, from \$175.00, to \$149.00. This board is available, at your local dealer, for use in Apple II and Apple /// family computers.

Circle HelpCard No. 129
Orange Micro, Inc.
1400 N. Lakeview Avenue
Anaheim, CA 92807
(714) 779-2772

The **#5-25 Flexible Disk File** is a protective storage system for 5¼ inch floppy disks. Up to twenty five disks are held in an upright position. 48 labels and 168 tabs are included.

Under \$40.00.
Circle HelpCard No. 130
Micro Development, Inc.
2013 Orange Street
Alhambra, CA 91803



The **Magellan Light Pen System** interacts directly with the monitor or television screen to produce high resolution detail (single-dot editing) on the Apple II Plus and //e computers. The pen connects to the game port. Included are two software packages. Quick Draw is a complete graphics-creation program which allows the user to easily create and edit commercial-quality graphics designs. Amper-Pen provides the means to incorporate light pen operation into programs written in Applesoft BASIC. \$189.95.

Circle HelpCard No. 131
Magellan Computer, Inc.
4371 E. 82nd Street, Suite D
Indianapolis, IN 46250
(317) 842-9138

Intelligent Disks from Omni Re-



**GAMES
COMPUTERS
PLAY**



"For the game addicts, one of the best resources for computer fun."
Games Magazine

Here are two great volumes — with 185 games in all — that pit you against your Apple home computer. Written in easy-to-use Microsoft BASIC, you can play everything from conventional games like bowling, basketball, craps, blackjack, football, and checkers — to more daring adventures like evading man-eating rabbits, taming wild horses, landing on the moon, and playing the stock market. (Edited by David H. Ahl, publisher of *Creative Computing Magazine*.)

PLEASE SEND ME:

____ (copy/copies) of **Basic Computer Games** @ \$7.95 each.

____ (copy/copies) of **More Basic Computer Games** @ \$7.95 each.

____ both books for special price of \$15.00.

____ free catalog of Apple instructional books.

ADD \$1.00 POSTAGE FOR FIRST BOOK.
50¢ FOR EACH ADDITIONAL.

Make checks payable to:
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NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Circle HelpCard No. 43

sources, Inc. have unique temperature and humidity sensors which warn users when a disk has been exposed to high temperature or excessive humidity. For more information, contact C.J. Anand, Director of Marketing for The Marketing Force, (617) 865-4451.

Circle HelpCard No. 132

Omni Resources, Inc.

50 Howe Avenue

Millbury, MA 01527

Apple Armor encloses any Apple II series computer, disk drives (two max.) and fan in a heavy steel, key locked cabinet, securely fastened to any surface. The enclosure grips the monitor cord and locks the main power cord during off hours. The eight tumbler key lock can be "keyed alike" for multiple units. \$115.00 plus \$10.00 handling/shipping.

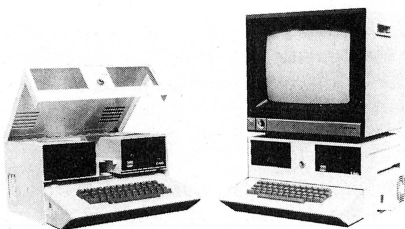
Circle HelpCard No. 133

Omni Tech Corporation

1455 North Barker Road

Brookfield, WI 53005

(414) 784-4178



SOFTWARE

Integrated Packages

Jane, by Arktronics, is an "integrated" software package that combines a word processing program with spreadsheet and file/list management software. Each application is interactive with the others, and users may work with each (or all) of the programs through the display of up to four on-screen "windows" whose dimensions may be changed at the user's discretion. Ease of use is assured by use of a "mouse" (a pointer device) to select graphic options/choices from symbolic screen representations (icons?). Jane runs on Apple II and II Plus (64K), //e and Apple /// computers. The package includes "integrated" software, mouse, a mouse controller card, and an installation/ user's guide. \$295.00. For further information contact Susan Stone at (213) 552-6922.

Circle HelpCard No. 134

Rogers & Associates

Public Relations

Marketing Communications

2049 Century Park East, Suite 4060

Los Angeles, CA 90067

Business (General)

Habadex enables Apple /// Business System (256K) users to accurately track telephone costs, which are automatically calculated, stored, billed to a specific account or recalculated as required. Built-in costing tables are included (and will be updated for a nominal fee). The program stores as many as 6,000 names, addresses and phone numbers. It automatically dials numbers, including prefix and access codes for systems such as Sprint, MCI, and others (with a Habaphone plug-in interface phone card installed). A detailed computer print-out enables users to keep accurate records of numbers called, their duration, and cost. A calendar package and appointment book can provide an audio signal to remind users of upcoming daily appointments. A hard disk version is available. The complete system including the card and software is \$595.00; software alone is \$295.00.

Circle HelpCard No. 135

Haba Systems, Inc.

15154 Stagg Street

Van Nuys, CA 91405

(213) 901-8828



Superex Business Software, a division of Superex International Marketing, has released the following software packages for the Apple II family of computers. Modules released include:

- **Payroll**, generates employee checks and W-2 forms for up to 5,000 people. It produces all required information for reports to government agen-

BACK UP YOUR DISKS

EDD is the most powerful disk duplicator available for your Apple™ computer. Unlike the copycards, which only copy single load programs, EDD backs up more your entire disk. EDD can back up more protected software than all other copy programs or copycards put together. Since EDD is automatic, you will no longer have to change parameters to duplicate most disks, although every parameter is fully documented in our extensive manual. We also provide updated EDD program lists.

\$79⁹⁵

Plus \$2 postage (Overseas \$5)
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Runs on: 48K Apple II, II plus, IIe, or III (emulation mode) with 1 or 2, 3.3 drives

ESSENTIAL DATA DUPLICATOR III™

- EDD rarely needs parameter changing
- Automatically finds the beginning of each track
- Unlike any of the Copycards, EDD backs up the entire disk, not just what is in memory
- Accurately finds "auto-sync" bytes and their lengths
- Can copy 1/4 and 3/4 tracks

TO ORDER OR FOR MORE INFORMATION, CALL (707) 257-2420

UTILICO MICROWARE

3377 Solano Ave., Suite 352, Napa, CA 94558

Circle HelpCard No. 48

cies.

- **Accounts Receivable** keeps track of open invoices, aging of receivables and year-to-date payments and sales. It can issue statements to delinquent accounts, maintain credit information, show available credit and flag customers who reach their limit, and generate invoice information.
- **General Ledger** is automatically updated from all other Superex modules. Trial balances and balance sheets are automatically updated. Profit/loss statements can be run at any time for individual profit centers. Double journal entries that balance one another can be entered automatically, and any entry that creates an imbalance is immediately flagged.
- **Accounts Payable** permits partial

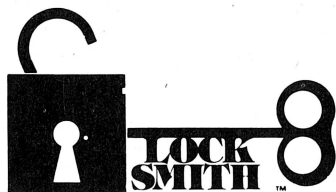
payments, COD shipments (issues immediate checks) selects payments by due date or manually. Module maintains complete vendor history, including year-to-date purchases and payments.

- **Cash** module, to handle transactions dealing with payments or writing checks. Maintain up to ten bank accounts; all remain on-line. The Cash Module is included with each Superex Accountant module, which sell for \$300.00 each. Other Modules released include:
- **The Service Center**, written for any repair business, including automotive, electronic and appliance fields. Up to 20,000 inventory items can be stored on hard disk. Program performs order entry, inventory control, labor billing, invoicing, and accounts receivable. It also updates customer

mailing lists, generates sales and inventory reports on a daily, weekly, monthly or yearly basis, automatically calculates and maintains three different labor rates and keeps track of back orders. \$500.00.

- **The Retailer** is for varied retail operations selling items such as furniture, electronic parts, clothing, computers, toys, and hardware. Program issues sales receipts, automatically updates inventory, tracks back orders, generates invoices and tracks receivables. It also creates receiving reports, calculates sales receipts, adds customers to a mailing list, and keeps track of sales per item or sales per salesman. \$300.00 on floppy disk, or \$450.00 for hard disk version.
- **The Retailer with Rental** software package automates rental operations as diverse as video tapes, tuxedos and heavy equipment. On rental transactions, the program checks to see if the customer is a club member and, if not, prompts for a deposit. On return of goods, program puts items back into inventory, and calculates the amount owed. Overdue items are tracked, and back order are listed automatically. Program also allows for discounts and generates reports on sales and rentals per item and the performance of sales personnel. \$600.00.
- **Importer/Exporter** software allows complete control of order entry, inventory and profit and loss on items in daily operations. Program also tracks up to ten currencies, restructures price schedules as currency changes occur and tracks resultant profits and losses. \$600.00.
- **The Mail Order House** computerizes the formerly "manual" tasks of order entry, inventory control, billing and accounts receivable. Program tracks back orders, and prepares shipping and billing documents to process goods when they arrive. \$600.00.
- **The Wholesaler** handles order entry, inventory control, billings and accounts receivable, updates customer mailing lists, tracks customer's credit line, and updates reports on sales and inventory profit. Orders that can't be filled are back ordered, and when stock arrives, the item is automatically sent out.
- **The Real Estate Broker** matches client preferences and financial capability with a suitable property. A Mortgage Analyzer calculates the financial options available to the client for a specific piece of property. The program can maintain rentals, with a capacity of 900 properties and clients on a floppy disk. \$450.00. An optional billing and receivables mod-

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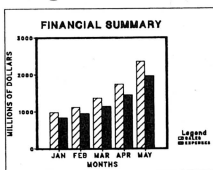
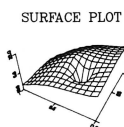
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The Graphics Terminal Program



Now your favorite spread sheet machine can display mainframe graphics!

TEKALIKE is a program for your Apple Computer that allows it to operate as a terminal to a host computer.

TEKALIKE lets your computer 'simulate' a Tektronix 4010 graphics terminal for both graphic input and output.

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TEKALIKE requires an Apple IIe or 48K II+ personal computer, one disk drive, and a modem for connection to a host computer. **TEKALIKE** is supplied with an intuitive users manual.

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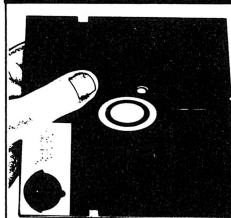
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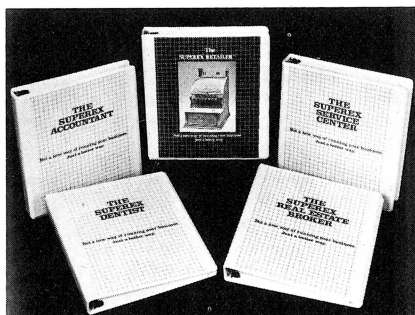
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ule is an additional \$150.00.

- The **Pharmacist's Assistant**, designed to run a small to medium size pharmacy, can handle 16,000 prescriptions, 6,000 inventory items, 1,000 customers, 1,000 doctors, and up to ten pre-programmed Special Billing Plans. With a ten megabyte hard disk these numbers double.



\$2,000.00. Demo disk and documentation available for \$30.00.

- The **Dentist** replaces present card filing systems. Datafiles are maintained on up to 10,000 patients (with 10Mb hard disk) Medical backgrounds and treatment records are stored. A graphics module allows the dentist to view a patient's dental makeup without maintaining paper charts. Program functions include statement mailings, aging of receivables, on-the-spot processing of insurance claim forms, and thorough monitoring of a multiple provider dental practice. \$1,200.00 for the single provider practice, and \$1,800.00 for the multiple provider.
- The **Financial Analyst** can evaluate securities, loans, mortgages, bonds, certificates of deposit, discount securities and sinking funds. Finan-

cial information is also generated for money market securities. \$300.00.

- The **Personnel Agency** maintains a file of up to 900 job seekers and up to 900 job offers. Software searches for matches on up to 150 specifications. \$450.00, billing option is and additional \$150.00.

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Superex Business Software
151 Ludlow Street
Yonkers, NY 10705
(800) 862-8800

Communications

Netmaster is a high-speed communications program for Apple II family computers (and look-alikes). Program requires 48K RAM and a disk drive; it can be used with 300 baud modems. The software will receive and transmit any DOS 3.3 file, and it provides a 40K buffer from 64K RAM to record on-line conversations. Netmaster costs \$79.00. It is sold with Zoom's Networker modem (including a free membership to The Source database) for \$179.00.

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Zoom Telephonics, Inc.
207 South Street
Boston, MA 02110



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1984, 1985, and future years as well. TAX BREAK PLANNER will also check your 1982 return for missed benefits!

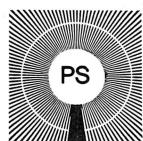
The TAX BREAK ANNUAL and TAX BREAK PLANNER programs are described in the October 1983 issue of TAXATION FOR ACCOUNTANTS as the most inexpensive, cost-effective tax software available for the APPLE and IBM-PC® computers. Don't be fooled by advertisements of other tax programs. These are late in delivery, SLOW, and waste time in repetitive "pauses to refresh" memory. Ask anyone who owned one last year! Also see the tax software review article in the March 1983 issue of Apple Orchard.

- TAX BREAK ANNUAL - 1984 Edition is available now for \$130.00.
- TAX BREAK PLANNER - 1984 Edition is available now for \$180.00
- 1983 FEDERAL OFFICIAL FORMS module is available now for \$75.00.
- 1983 CALIFORNIA OFFICIAL FORMS module is available for \$75.00.

(California residents add 6% sales tax. Shipping and Handling added.)

The Official Forms modules will prepare forms with either the ANNUAL or PLANNER. Inexpensive annual updates are available to prior purchasers for only \$50.00/program or module.

Purchase your program at your local software dealer or order directly from Proforma Software. Dealer inquiries welcome.



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2706 Harbor Bl. Suite 200
Costa Mesa, Ca. 92626
(714) 641-3846
All-Year Hot-Line
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Educational

TeloSchool is the first student record-keeping and report generation system designed especially for elementary schools. The system maintains 48 data items per student, storing 400 student records on one diskette. Up to 1100 student records can be processed at one time.

Twelve student data item categories are built into the system. The remaining 36 "special programs" are determined by

Money Street™

CHECKBOOK FINANCIAL SYSTEM

For Apple® II, II+, IIe, III emulation, and Apple look-alikes - 48K DOS 3.3

TAX WHACKER!

Whack your taxes with Money Street. You get neat, clean reports of income, deductions, and tax credits... all automatically. No more lost deductions or unreported income.

Money Street cuts the data-gathering taut from hours to minutes. Besides saving time, Money Street saves CPA write-up fees and ends tax-time frustration.

Money Street also tracks business or farm income, capital gains, and more. You get ready-to-transfer totals for your 1040.

If you file a Schedule "A", Money Street tallies all your deductions: medical, interest, taxes, and more. You get "ready to post" totals, plus a listing of all detail items.

If you run a small business, Money Street will automatically list and total all income and expense items for Schedule "C".

Money Street also keeps records of estimated taxes paid, tax credit items, and credit card expenses.

Besides all this, you can generate detailed lists of unusual income or deductions to include with your tax returns. (Some items, such as extra large medical expenses, can trigger an audit, but a detailed listing can sometimes forestall such an audit.)

In case of audit, you'll be glad you've got Money Street to print important back-up information: (1) An easy-to-access cancelled check file, (2) A month-by-month "proof of balance" report, (3) A check and deposit register, (4) An item-by-item listing of your entire checkbook.

You'll walk into your audit with bullet proof records that will impress the most cynical IRS agent. You'll have fast, accurate answers to any question about checking account records.

And remember, Money Street prints everything as a by-product of checkbook balancing. The data is already in your computer, so all reports discussed can be printed by pressing but three keys.

Money Street won't replace your CPA or calculate your taxes, but it will make tax time much easier since it automatically gathers most of your tax data.

Delighted Users

- "After having struggled with Home Accountant, The Accountant, and PFM, I finally have a simple, straight forward, speedy program. The flexibility of the program and the ease of error correction is especially noteworthy. You deserve the warm support and approval of those who recognize the beauty of simplicity." Alan Thal, M.D. Las Vegas, New Mexico.
- "As promised, it is not only easy to learn but an extremely valuable tool for keeping tax deductible items readily at hand." H.M. Stover, Yountville, Calif.
- "I'm having more darned fun with Money Street. I don't know why either because I hate numbers." Harry Teasedale, NYC
- "The program has proved the hype of Money Street is really too modest." Dan Thomas, Elgin, Ill.

- Michael Salesin of West Bloomfield, Michigan wrote: "When next year's tax season rolls around, my accountant will send you love and kisses."
- Hisher Logic of San Luis Obispo, California wrote: "It's doing all my bookkeeping (six accounts) — what a time-saver."
- "I think the phrase 'as promised' sums up my reaction to the program. I wound up balanced to the penny. This from someone who hasn't looked at a bank statement in ten months!" Glenn Pironlick, Charlotte, NC.
- "I'm impressed with the well conceived error-trap warnings. Also it instills confidence having every exit move also a save move." Edward Simmons, Los Angeles, Calif.
- "I'm very pleased with Money Street and can easily recommend it to others. It is fun to use, and, at the same time, very practical and time saving." Henry Poterucha, M.D., Effingham, ILL.
- "I've tried seven other checkbook programs and have not had the satisfaction that I have with this one." Leo Wong, D.D.S., Calgary Canada.
- "In my law office, the real cost of a program is the time it takes to learn and set it up. Money Street is great." Buzz Bruggerman, Orlando, FL.
- "The program is both easy to use and a very helpful addition to my software library. The most useful features are the automatic totaling of categories and the automatic retrieval of split entries." Louis Wofsy, Burk, Virginia.

Saves money eight ways:

1. Find tax deductions and credits.
2. Saves CPA write-up fees.
3. Allows "before year-end" tax planning.
4. Saves accounting time; provides input for journals, ledgers, and reports. The program also doubles as a mini-accounts receivable, inventory keeper, and job cost system.
5. Saves interest expense by keeping exact balances.
6. Saves NSF charges.
7. Saves credit card interest charges.
8. Changes your financial attitudes; puts you in control.

PROGRAM FEATURES

- 100 user-defined accounts • On screen chart of accounts • Account sub totals, grand totals • Handles unlimited checking accounts • Three minute year-end rollover • Credit card accounting • Full editing, even after entry • Check search and scan screen • Help screen • Wildcard searches

PROGRAM LIMITS

- 2400 Checks per data disk • 200 uncleared items • Scan speed: 6 per second • Amount limit: \$999,999.99 • 100 account categories

DOES MANY JOBS

- Finds tax deductions • Single entry accounting • Job costing • Budgets and estimates • Mini accounts receivable • Mini inventory • Tracks personal loans • Real estate rentals • Stock purchases/sales • Increases "float"

CHECKING ACCOUNT MANAGER

- Prints trial reconciliation • Balances checkbook and statement • Creates cancelled check file • Prints detailed audit trail • Includes check register • Prints checkbook "history" • Captures monthly income • Easy to use

15 Ready-to-print reports!

- Monthly code totals • To-date code totals • Sort by amount • List code dictionary • List by payee • List deposits • List uncleared checks • List uncleared deposits • List all entries • Sort by date cleared • Print check registry • Print selected month • Print selected code • List code totals • List monthly totals

How it works On your computer screen, you create a facsimile of your checkbook. You see 17 items per screen and can scroll for more. As the computer balances your checking account, you give each check or deposit its own category code. You get 100 you name'em codes. Press Ctrl-O and see a code dictionary. To set up codes, just type them in. You can add, delete, or change codes any time without affecting data.

--- 2) ENTER ITEMS/BALANCE CHECKBOOK ---

#	MO/DA	PAYEE	CODE	AMOUNT
101	01/01	CAL LEMON CO.	00	- 10.00
102	01/01	ARZ LEMON CO.	00	- 5.00
103	01/01	NYC SUGAR CO.	01	- 10.00
104	01/01	A B P (STRAWS)	02	- 5.00
D	01/07	DEPOSIT/SALES	05	50.00
105	02/04	CAL LEMON CO.	00	- 20.00
106	02/04	NYC SUGAR CO.	01	- 10.00
107	02/04	A B P (TZ CUPS)	02	- 10.00
107	02/04	A B P M @ 45	01	- 5.00
D	02/07	DEPOSIT/SALES	05	50.00
D	02/07	DEPOSIT/TAXES	11	5.00
DEBIT	02/08	SAFETY DEPOSIT	02	- 5.00
D	02/08	DEPOSIT/TIPS	06	20.00
108	03/12	BIG SHOT CORP.	00	- 5.00
108	03/12	BIG SHOT CORP.	01	- 5.00
109				
ENTRY #0016			BALANCE	135.00
CODE 01			- 30.00	SUGAR PURCHASES

Money Street's most amazing feature is its "real time" data bank. It accumulates year-to-date totals for each of the 100 categories. You see these totals instantly. Just enter a check, and look at the bottom of the screen. The year-to-date total will flash into view with each new entry.

Pays for itself. Money Street keeps things simple and keeps them honest. It can pay for itself ten times over just by saving the cost of organizing and totaling data. As one customer put it: "Why pay my \$100-an-hour CPA to count beans?"

Money Street...It's totally new.

If you own real estate, Money Street tracks rents, tallies repair costs, and helps establish "cost basis" for capital gain tax treatment. It's also ideal for trust accounting, retail stores, and home budgeting.

Money back no matter what. Why not give us a try? If you aren't delighted, we'll give you a full refund on any mail order purchase from us.

Includes tutorial and program map.

Money Street includes Program Map, complete documentation, on-screen demo, plus tutorial. For Apple® II, II+, IIe, III emulation, and Apple look-alikes. Requires 3.3 DOS, 48K. Money Street works with one drive, but two are preferred. It's also okay without a printer, but you'll miss a few reports. Master Charge, Visa, COD okay. Add \$2.50 on all orders for postage and packing. To order or get additional information: call 24 hours and leave your name with our answering machine.

The program is copy protected. We sell back-up disks for \$10. We also offer a special utility disk that makes two back-up copies, transfers code labels, and allows screen sorts of a single month or code category. Price is \$25.

Computer Tax Service
P.O. Box 7915
Incline Village, NV 89450
(702) 832-1001

\$99⁹⁵

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Dealers: Write or call for price list.

the school on installation. These data items are used to create profile reports by room, grade, or for the entire school.

Special reports may also be created by using the "inquiry" function. This allows the user to group students by virtually any criteria to create a variety of custom reports.

TeloSchool runs on the Apple II plus or the Apple //e with at least two floppy drives and a printer. Training Course includes sample Student Record Database. Contact Robert W. Allen, Product Specialist, for further information. \$549.00.

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Telos Software Products
Education Division
3420 Ocean Park Blvd.
Santa Monica, CA 90405
(213) 450-2424

Headmaster is a fully integrated, eleven-program school operations system. The programs are useful to both school administrators and teachers. Modules include the Attendance Officer, Grade Keeper, Budget Manager, Activity Fund Manager, Demographer, the Standardized Test Scorer, and Profiler. Three Teacher's Aids units are the Test writer, the Test Scorer, and the Record Book with Calculator. Programs are available individually or as a unit.

Full integration permits one-time data entry for efficiency and economy. All programs are written for Apple or Apple compatible machines, 48K or greater. For pricing and further information, contact Charles Elliott.

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A Sound Training Kit, an audio cassette training package for *Word Processing with Wordstar 3.3*, comes complete with detailed printed reference materials. \$69.95.

Mini Sound Training Kits are available for topics including: *Visicalc*, *Applewriter*, *Multiplan*, and *Apple II/IIe*. The only requirement for this training is for the user to sit at the micro's keyboard, turn on the audio cassette player and work along, at a comfortable pace, listening to the recorded voice of the instructor. \$37.95. For further information contact Jean Nash, at (612) 452-7913.

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Information System Resources
1444 Balsam Street
St. Paul, MN 55122

Apple Writer //e and WordStar for the Apple are **audiocassette and Disk**

tutorials offering step-by-step audio instruction from bootup to printout. Disk exercises include all cursor and block moves, page formatting, use of boilerplate, creating footnotes and more. Apple Writer //e also includes special glossaries for Apple Dot Matrix and Epson printers, plus WPL print code embedding routines. \$49.95 each.

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How to Use Multiplan is an **audiocassette course** designed for the busy executive who needs an in-depth working knowledge of Multiplan, but who doesn't have the weeks or months required to learn it with other methods. The course consists of four spoken voice tapes of about one or two hours each, allowing self-paced instruction at the user's convenience. The cassettes and an indexed Lesson Summary are available, packaged in a vinyl album. Any standard cassette player may be used, with no computer hookup required. \$75.00.

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D-LABELS+™

Tired of typing catalog to see what files are where? Use **D-LABELS+** to print **sorted** and **formatted CATALOG** labels. Uses printer enhancements for professional looking labels. Special option allows printing of Mailing and Shipping labels. Comes with manual and supply of labels. Fast and easy to use. Runs on Apple II+, //e. Cost \$39.00

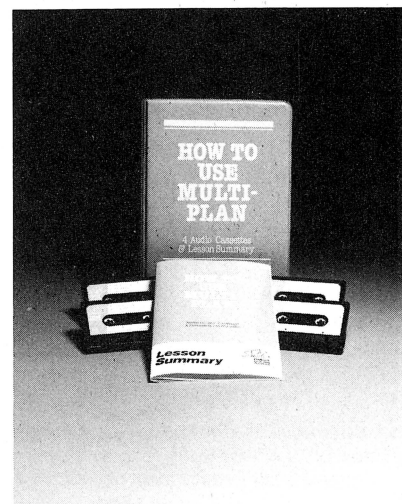
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FlowerSoft

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The **HBJ Computer Preparation for the GRE** package includes three double sided diskettes, a 517-page textbook, and a 50-page User's Manual. This package is available on the Apple II family of computers (and the Apple /// in emulation mode). It diagnoses the students' strengths and weaknesses in 15 skill areas and then sets priorities for drills and review exercises to gain study efficiency. By simulating the exam environment and giving in-depth explanations of proven test-taking strategies, the program builds confidence and lessens test anxiety for the



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Micro-DSS/Finance (DSS/F), a sophisticated microcomputer financial modeling software package, is now available at a reduced price. This package combines financial modeling, graphics, and reporting in one package. \$795.00 for Apple computer versions. For further information contact Marjorie S. Perry, Applications Software Marketing, at (617) 944-3700, Ext. 2253.

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Addison-Wesley Publishing Co., Inc.
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The **Bill Payer System** writes checks and pays your bills. It was designed for the home and small business user. Up to 50 payees including address and account numbers are stored on disk, and can be recalled by number. Checks may be put into one of 99 user-defined account categories at the time they are written. The check register features an easy to use reconciler, and a search feature by check number, payee, date or account category. The entire register, or the results of any search may be printed. There is space for a note at the bottom of each check. The unprotected disk uses Diversi-DOS(tm) from fast disk access. \$49.95

Circle HelpCard No. 145

Pleasure Point Enterprises
5483 Pleasure Point Lane
Bellevue, WA 98006
(206) 644-4342

Supertax is now available in three versions:

Supertax I uses either screen or printer for output. It generates summaries of Page 1 and 2 and Schedule A of Form 1040, calculates moving expenses, investment credit, taxable capital gains, political and child care credits, and medical care limitations. (The program prints overall summary of return.) \$29.50.

Supertax II (all of the above features plus...) prints the actual income tax return, including Page 1 and 2, Schedules A, B and G (income averaging), as well as Form 3468 (investment tax credit). \$49.95.

Supertax III (all of the above features plus...) calculates and prints Schedule C. Also includes a stand alone depreciation program which calculates and prints your depreciation schedule using both the old rules and the new ACRS rules. Output from the depreciation program is designed to serve as a supplement to IRS Form 4562. \$59.95.

Add \$2.00 for postage & handling.

Circle HelpCard No. 146

Rockware Data Corporation
P.O. Box 365
Plano, TX 75074
(214) 596-0588

F.A.S.T. (Financial Analysis Statement Templates) is a series of templates which convert VisiCalc(R) data into useful comparisons and reports for analyzing a variety of financial statements. The 12 templates are: Financial Statement Data Entry; Price/Quantity Data Entry; Ration Analysis Report; Valuation Analysis Report; Financial Summary Comparison; Performance Summary; Balance Sheet Comparison Report; Income Report Comparison; Profitability Analysis; Statistical Analysis; Price/Cost Report; and Productivity Analysis Report. For Apple II and //e computers with 48K RAM, one or two disk drives, and a printer (132 columns optional). \$99.95. For further information contact Linda Feldman.

Circle HelpCard No. 147

Continental Software

11223 South Hindry Avenue

Los Angeles, CA 90045

(213) 410-9466

Games/Simulations

Chez 21 simulates play at Caesar's Palace, and the rules are simple but strict. This Blackjack program supports up to five players and saves their scores to disk. Two card sets are available; one for B/W screens, and the other is show-cased, Las Vegas style, by a color monitor.

Apple II compatible. \$39.95.

Circle HelpCard No. 148

Microcolon, Inc.

P.O. Box 1529

San Marcos, TX 78666

(800) 531-5137

in Texas 1-800-252-8005

Hallowe'en is a high-resolution arcade-style game for a 64K Apple II or //e (or Franklin Ace). The object of the game is to lead a wizard through a 10-screen kingdom, snatching pumpkins and killing spiders and skulls along the way. A novice wizard will fall prey to the pouncing spiders, bouncing skulls, and deadly choppers. For one or two players using joystick, paddles, or keyboard. \$29.95.

Circle HelpCard No. 149

Microsparc, Inc.

10 Lewis Street

Lincoln, MA 01773

(617) 259-9710

Graphics

Attention Lisa owners:

Art Department is a ready-to-use graphics library for use with Apple LisaDraw. Over 300 ready-to-use illustrations, figures and symbols are included on a single diskette. LisaDraw features such as sizing, on-line customizing of images with graphics and text, and the ability to change shading or select portions or groups of images can customize items from this library. \$150.00.

Circle HelpCard No. 150

Business & Professional Software, Inc.

143 Binney Street

Cambridge, MA 02142

(800) DIALBPS

Flow Charting, a professional business program, allows flow charts and personnel charts to be created, edited, and printed using Apple II Plus, //e, and Apple /// computers. Symbols can be created, relocated, and replicated (duplicated) quickly. Epson, Gemini,

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For further information contact:

Patton & Patton

340 Lassenpark Circle

San Jose, CA 95136

Languages (Programming)

Lazer's Interactive Symbolic Assembler, LISA v2.6, is fast, interactive, and easy to use. LISA v2.6 runs four to thirty times faster than all other assemblers available for the Apple II and //e family computers. Program can assemble code as fast as 20,000 lines/minute. It contains an interactive editor that catches syntax and addressing mode errors at input, thus eliminating most of the time wasted fixing bugs. Available at your local dealer. \$79.95.

Circle HelpCard No. 152

Lazerware

925 Lorna Street

Corona, CA 91720

(714) 735-1041

The **Krell Turtle Pak** brings the "turtle" (MIT LOGO) to the Apple II computer. The Pak is available in two sizes, a 20 Pak and a 40 Pak containing 20 and 40 disks respectively. Each turtle pak also contains Alice in Logoland disks and primer, and utility disks with MIT's valuable programs: Dynatrack, Shape Editor, Music Editor and Sprite Drivers. In addition, the pak contains Krell Logo commands wall charts, Learning with Logo, by Daniel Watt, and the official MIT technical manual, Logo for Apple II. \$499.95 for the 20 pak, and \$899.95 for the 40 pak. For further information contact Mark Friedland, at (516) 751-5139.

Circle HelpCard No. 153

Krell Software Corporation

1320 Stony Brook Road

Stony Brook, NY 11790

Music

What do you get when you combine Syntauri's background in the technology of computer music systems with Hal Leonard's music teaching (Medley Way for Piano) and publishing expertise? The **Simply Music learning system** for keyboard instruction's first course takes the student from introductory keyboard exercises through advanced classical selections (books one through four, at \$29.50, each). The entire Level 1 package, including books and recorded music is \$99.00. The Level

2 package is also \$99.00, and includes six workbooks and four diskettes of music. Available from Syntauri dealers worldwide.

(Syntauri's Simply Music computer music system consists of a 4- or 5-octave keyboard, software [Simply Music, self-demonstration, and sounds diskettes], and sound synthesizers plus cables and manual. The system requires a 64K Apple II Plus or //e with disk drive. The Syntauri 4-octave Simply Music keyboard system is available for \$995.00. The 5-octave is priced at \$1295.00. Apple II computer system is sold separately.)

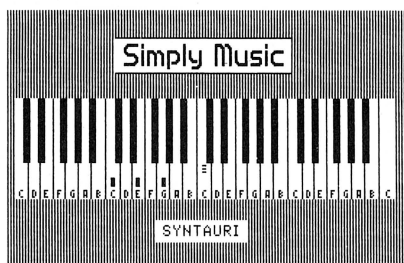
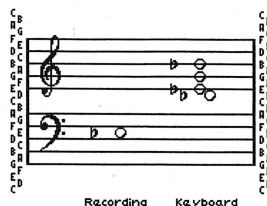
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Syntauri Corporation

4962 El Camino Real, Suite 112

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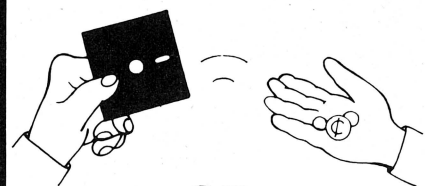


Polywriter, written by Phil Farrand, lets user get accurate printout of whatever is played on the Soundchaser keyboard in any desired score format: Single Treble Line, Single Bass Line, Piano Score, Choral Score, Treble Clef with Piano, Bass Clef with Piano and full Orchestral Score. The program writes in standard music notation and accurately handles note division, seconds, accidentals, ties, flags and beams, split stemming, triplet brackets, rests, any time signature (up to 15 including complex and asymmetrical), any key signature, transposition up or down 9 half steps, and logical allocation of space. It has a full scale editor that allows for all standard features as well as Lyrics and Chord Symbols. Requires a Soundchaser Basic System, an Apple II, II Plus, //e (or equivalent) with one disk drive, monitor, Grappler printer interface card, and a dot-matrix printer with graphics. For further information contact Chris Albano, VP of Marketing. \$595.00.

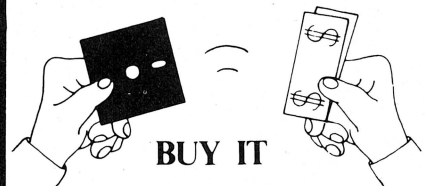
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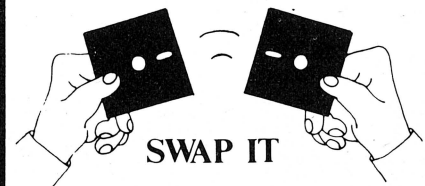
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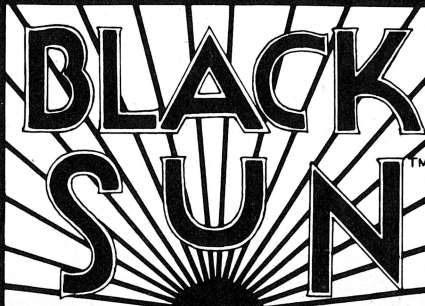
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indices at once, and has fifty user-defined fields. The manual includes a tutorial. Designed for Apple II and //e family computers with one or two disk drives and DOS 3.3. \$195.00.

Circle HelpCard No. 156

Cyclone Software

3305 Macomb Street, N.W.

Washington, D.C. 20008

(202) 362-8740

The **Restoration Record** program, written by James Choate (a book of the same name, by David Moe, was basis for the program) provides all the essential information required to completely document a vehicle's historical data, costs of restoration, condition of parts used, and maintenance performed. The program is a very comprehensive, menu driven, record keeping system. For Apple II and II Plus computers. \$34.95 (includes shipping).

Circle HelpCard No. 157

Carsoft Company

Box 28313

Tempe, AZ 85282

(602) 820-3775

Horoscopes will calculate for any birthdate the exact astronomical conditions for the sun, moon and planets and from this basic data it then will provide a horoscope chart and other information giving an astrological reading. Output from the program will print out on any 80 column printer. *No graphics capabilities are required. Any Apple II with 64K of memory and one disk (or an Apple ///) are required. \$24.95.

Circle HelpCard No. 158

Zephyr Services

306 South Homewood Avenue

Pittsburgh, PA 15208

(412) 247-5915

Utilities

Work Force II is a collection of six programs for home or office. The program features:

- The **Balancing Act**, a once-a-month checkbook balancing program.
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All six programs support printing. Master menu controls all six programs. Manual included. For Apple II, II Plus,

//e with at least 48K and DOS 3.3, \$29.95.

Circle HelpCard No. 159

Core Concepts

P.O. Box 24157

Tempe, AZ 85282

(602) 968-3756

The **Spreadsheet Auditor** helps to create more reliable spreadsheets by displaying the formulas behind your spreadsheets in an easy to read grid. Long formulas can be wrapped-around for easier reading. Each page is numbered and is displayed with column labels and row numbers for easy reference. Program audits Visicalc and SuperCalc spreadsheets, and is available for Apple II Plus and //e computers. \$99.00.

Circle HelpCard No. 160

Consumers Software, Inc.

314 East Holly St., Suite 106C

Bellingham, WA 98225

(800) 645-5501

EZQ solves differential, difference and algebraic equations. It is intended for college level science and engineering students but will also be useful to advanced high school science students and scientific professionals. **EZQ** accepts problem descriptions from the keyboard or previously saved disk files. It generates both graphical and tabular output on the CRT screen or a printer. The manual includes a tutorial. Requires an Apple II Plus or //e (or equivalent) with 64K and a disk drive. \$79.95 plus \$3.00 P&H.

Circle HelpCard No. 161

Gerald L. Gottlieb, Ph.D.

708 Forest Avenue

Evanston, IL 60202

(312) 942-6412

Three programs from **Flowersoft** for Apple II family of computers:

D-Labels+ is a multifunction utility for printing sorted and formatted disk catalog labels. Uses printer enhancements for professional looking labels. \$39.00 includes manual.

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Basic List-O-Matic prints out professional basic program listings. Allows for left margin and variable line lengths, page numbers, and titles. \$19.95.

Circle HelpCard No. 162

Flowersoft

564 Tara Ct.

Manteca, CA 95336

(209) 239-2116

The **Retriever**, a software package for the Apple /// computer, restores accidentally deleted data files, automatically. No knowledge of disk

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For those who want cadillac quality we have the Loran Floppy Disk. Used by professionals because they can rely on Loran Disks to store important data and programs without fear of loss! Each Loran disk is 100% certified (an exclusive process) plus each disk carries an exclusive FREE REPLACEMENT LIFETIME WARRANTY. With Loran disks you can have the peace of mind without the frustration of program loss after hours spent in program development.

100% CERTIFICATION TEST

Some floppy disk manufacturers only sample test on a batch basis the disks they sell, and then claim they are certified. Each Loran disk is individually checked so you will never experience data or program loss during your lifetime!

FREE REPLACEMENT LIFETIME WARRANTY

We are so sure of Loran Disks that we give you a free replacement warranty against failure to perform due to faulty materials or workmanship for as long as you own your Loran disk.

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Just like a record needle, disk drive heads must travel hundreds of miles over disk surfaces. Unlike other floppy disks the Loran smooth surface finish saves disk drive head wear during the life of the disk. (A rough surface will grind your disk drive head like sandpaper). The lint free automatic CLEANING LINER makes sure the disk-killers (dust & dirt) are being constantly cleaned while the disk is being operated. PLUS the Loran Disk has the highest probability rate of any other disk in the industry for storing and retaining data without loss for the life of the disk.

Loran is definitely the Cadillac disk in the world

Just to prove it even further, we are offering these super LOW INTRODUCTORY PRICES

List \$4.99 ea. INTRODUCTORY SALE PRICE \$2.99 ea. (Box of 10 only) Total price \$29.90

\$3.33 ea. (3 quantity) Total price \$9.99

All disks come with hub rings and sleeves in an attractive package.

DISK DRIVE CLEANER \$19.95

Everyone needs a disk drive doctor

FACTS

- 60% of all drive downtime is directly related to poorly maintained drives.
- Drives should be cleaned each week regardless of use.
- Drives are sensitive to smoke, dust and all micro particles.
- Systematic operator performed maintenance is the best way of ensuring error free use of your computer system.

The Cheetah disk drive cleaner can be used with single or double sided 5¼" disk drives. The Cheetah is an easy to use fast method of maintaining efficient floppy diskette drive operation.

The Cheetah cleaner comes with 2 disks and is packed in a protective plastic folder to prevent contamination.

List \$29.95 / Sale \$19.95

Add \$10.00 for shipping, handling and insurance. Illinois residents please add 6% tax. Add \$20.00 for CANADA, PUERTO RICO, HAWAII orders. WE DO NOT EXPORT TO OTHER COUNTRIES.

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Please check one box in each category:

1. This copy of Apple Orchard came to me through

- A. ☐ User Group
B. ☐ Computer Store
C. ☐ News Stand
D. ☐ Borrowed
E. ☐ Subscription
F. ☐ Book Store
G. ☐ School

2. I personally use most:

- A. ☐ Apple II/II Plus
B. ☐ Apple ///
C. ☐ Apple Workalike
D. ☐ Apple //e
E. ☐ Lisa
F. ☐ IBM PC or workalike
G. ☐ Don't own yet
H. ☐ Other

3. I have owned a microcomputer since

- A. ☐ before 1977 F. ☐ 1977
B. ☐ 1978 G. ☐ 1979
C. ☐ 1980 H. ☐ 1981
D. ☐ 1982 I. ☐ 1983
E. ☐ not yet

4. I use my computer primarily for

- A. ☐ Home
B. ☐ My Business
C. ☐ Hobby
D. ☐ Education
E. ☐ Other

5. I use my computer primarily with

- A. ☐ Word Processor
B. ☐ Business Software
C. ☐ Modem
D. ☐ Graphics
E. ☐ Electronic Spreadsheet
F. ☐ Data Base
G. ☐ Games
H. ☐ Control of other Devices

6. I spent on software in the past 12 months:

- A. ☐ less than \$100
B. ☐ \$100 - \$300
C. ☐ \$300 - \$600
D. ☐ \$600 - \$1,000
E. ☐ More than \$1,000

7. Regarding User Groups:

- A. ☐ I belong to a local group
B. ☐ I'm active in a User Group
C. ☐ I have never belonged to a local group
D. ☐ I used to belong to a local group, but don't now

8. My vote for the best article in this issue is

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010	050	090	130	170	210	250
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013	053	093	133	173	213	253
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015	055	095	135	175	215	255
016	056	096	136	176	216	256
017	057	097	137	177	217	257
018	058	098	138	178	218	258
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021	061	101	141	181	221	261
022	062	102	142	182	222	262
023	063	103	143	183	223	263
024	064	104	144	184	224	264
025	065	105	145	185	225	265
026	066	106	146	186	226	266
027	067	107	147	187	227	267
028	068	108	148	188	228	268
029	069	109	149	189	229	269
030	070	110	150	190	230	270
031	071	111	151	191	231	271
032	072	112	152	192	232	272
033	073	113	153	193	233	273
034	074	114	154	194	234	274
035	075	115	155	195	235	275
036	076	116	156	196	236	276
037	077	117	157	197	237	277
038	078	118	158	198	238	278
039	079	119	159	199	239	279
040	080	120	160	200	240	280

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C. ☐ Apple Workalike
D. ☐ Apple //e
E. ☐ Lisa
F. ☐ IBM PC or workalike
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H. ☐ Other

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D. ☐ 1982 I. ☐ 1983
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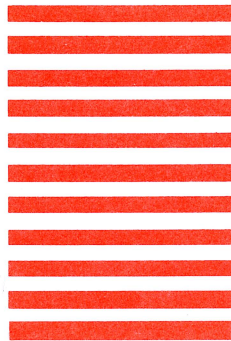


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Direct Help Department

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CLINTON, IOWA 52735



formats or of any other details of machine operation is required. The user simply enters the name of the inadvertently deleted data file and the retriever does the rest. \$100.00. From selected Apple dealers.

Circle HelpCard No. 163
D A Data Systems
229 Ravenwood Avenue
Rochester, NY 14619
(716) 328-3661

Word Processing

Select: The Word Processor, in its new version 3.0, has been reduced in price from \$495 to \$295. Several new features include Cursor Memory, Punctuation Positioning and Key Files.

Circle HelpCard No. 164
Select Information Systems
919 Sir Francis Drake Blvd.
Kentfield, CA 94904
(415) 459-4003

MegaSpell, a spelling checker for the MegaWriter word processing program, spots misspelled words in MegaWriter documents. It comes complete with a 40,000 word dictionary and the user can add 10,000 more words. The program displays misspelled words in context and checks corrections against its dictionary. Corrections are also shown in context. It ignores MegaWriter's in-text formatting commands, alleviating needless "false alarms." \$59.95.

Circle HelpCard No. 165
Megahaus Corporation
5703 Oberlin Drive
San Diego, CA 92121
(619) 450-1230

Data Base Management

The Data Bank is a professional quality, data base management system. Ideal for small businesses, professionals, schools, or personal information management. Features include: sorts, 12 types of searches, easy record editing (with default input and automatic update keys), fast find, report generator, global math functions, interfaces with spreadsheets and word processors, prints forms at point of entry, totals and subtotals. Runs on Apple II Plus, //e and Apple /// (emulation mode) computers. \$170.00.

Circle HelpCard No. 166
Flowersoft
564 Tara Ct.
Manteca, CA 95336
(209) 239-2116

The Institute for Scientific Information has released two products:

The Sci-Mate Personal Text Manager creates a "mini-data base" with a flexible file that can assimilate textual information such as jotted research notes, abstracts, bibliographical citations, file headings and other documents. User can search the file by characters, words or phrases. Features include: random access storage, a menu-driven command system, and a tutorial subsystem. \$540.00.

Circle HelpCard No. 167

The Sci-Mate Universal Online Searcher, lets the user search five major host systems for medical, scientific and social scientific research: SDC, DIALOG, BRS, NLM, and ISI (these systems contain over 300 databases). Program features include automatic dial-up and log-on access to any online host system. For Apple II, II Plus, and //e computers and other personal computers. \$440.00. (Both programs together for \$880.00)

Circle HelpCard No. 168
Institute for Scientific Information
3501 Market Street
University City Science Center
Philadelphia, PA 19104
(215) 386-5305

Documax is an electronic file cabinet which combines the functions of access-

ing, storing, and organizing documents. Searching for strings (one or two phrases of up to 30 characters each in length) is done at the rate of 15,000 words per minute. Documax includes a proprietary text compression scheme which doubles the capacity of an Apple II disk (up to 60 pages of text). File directories can be sorted into as many as 10 subgroups. Subgroup directories can be sorted. For Apple II, II Plus, //e with 48K of memory, and Apple /// in (emulation mode). Retail license fee is \$175.00.

Circle HelpCard No. 169
Signum Microsystems
Software For Personal Computers
120 Mountain Avenue
Bloomfield, CT 06002
(800) 642-7611

BOOKS/ CATALOGS

Computers are talking, and two new books from Sams tell how:

Introduction to Electronic Speech Synthesis (ISBN 0-672-21896-8) by Neil Selater is a nontechnical-language investigation into how human-sounding speech is being recreated synthetically by new electronic methods. 134 pages. \$8.95.

Circle HelpCard No. 170
Howard W. Sams & Co., Inc.



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Electronically Speaking: Computer Speech Generation (ISBN 0-672-21947-6) by John P. Cater is a practical guide to current technology and circuitry, with hardware and software presented that permit synthetic speech generation on popular microcomputer systems. 230 pages. \$14.95.

Circle HelpCard No. 171

Howard W. Sams & Co., Inc.

4300 West 62nd Street

Indianapolis, IN 46268

(317) 298-5400

The *Apple II Basic Handbook*, by Douglas Hergert, shows "advanced beginners" to intermediate-level programmers how to get more out of the Apple II, II Plus, and //e. The entire Applesoft and Integer BASIC programming vocabularies are explained (alphabetically), and DOS commands are included. 250 pp., \$13.95.

Circle HelpCard No. 172

Sybex

2344 Sixth Street

Berkeley, CA 94710

(415) 848-8233

The *CP/M Primer, Second Edition* (ISBN 0-672-22170-5) by Stephen Murtha and Mitchell Waite, is now available with updated information on new versions of CP/M. \$16.95.

Circle HelpCard No. 173

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DEALERS INVITED

Circle HelpCard No. 3

4300 West 62nd Street
Indianapolis, IN 46268
(317) 298-5400

Two releases from Dilithium Press:

Computers for Everybody, Third Edition (ISBN 0-88056-131-9), by Jerry Willis and Merl Miller, is an introduction to microcomputers. It concentrates on the things you really want to know: what computers are and what they do. Lots of colorful photographs are included. 300 pages, \$7.95.

Dilithium Press

Circle HelpCard No. 174

Computers for Everybody 1984 Buyer's Guide (ISBN 0-88056-132-7), by Jerry Willis and Merl Miller, describes 143 computer models in detail. Information is included on repairs, service and support. 300 pages. \$19.95.

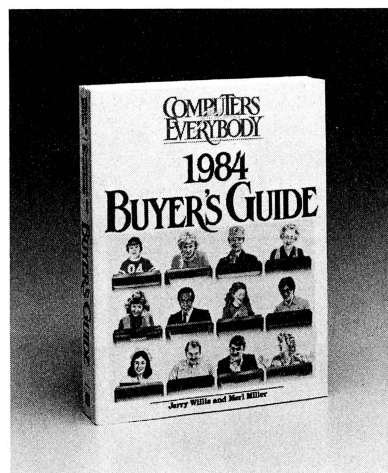
Circle HelpCard No. 175

Dilithium Press

8285 SW Nimbus, Suite 151

Beaverton, OR 97005

(800) 547-1842



Celestial BASIC: Astronomy On Your Computer, by Eric Burgess, contains numerous astronomical computer programs designed to be used on a personal computer. The programs were written on an Apple II computer. For further information contact Mike Alves, Sybex Public Relations, (415) 848-8233.

Circle HelpCard No. 176

Sybex

2344 Sixth Street

Berkeley, CA 94710

Two new books from Addison-Wesley help schools enter the computer age: *Computers and Reading Instruction*, by Leo Geoffrion, brings together the many ways in which computers can be used to teach reading. The emphasis throughout is on the relationship between sample programs and relevant teaching techniques and reading skills. \$13.95.

Addison-Wesley Publishing Company

Circle HelpCard No. 177

Computers in Teaching Mathematics, by Peter Kelman, et al., provides teachers with a wealth of ideas including the basic information mathematics teachers need to introduce computers into their schools. \$13.95.

Circle HelpCard No. 178

Addison-Wesley Publishing Company

Computer Software and Applications

Reading, MA 01867

(617) 944-3700

The *Interference Control & Electronic Products Catalog*, presents numerous products designed to eliminate problems most often blamed on software. Protective Devices for smooth software performance include Equipment Isolators, AC Power Line Filter/Suppressors, AC Line Voltage Regulators and Modem Protectors. 40 Pages. Catalog 831-A.

Circle HelpCard No. 179

Electronic Specialists, Inc.

171 South Main Street

Natick, MA 01760

(800) 225-4876

The *Computer Database Thesaurus & Dictionary* is a comprehensive user guide which documents (explains) how to access the *Computer Database*, an on-line database that provides comprehensive coverage of the computer, telecommunications and electronics fields. The publication was designed for use by researchers, business people, scientists, librarians or anyone who needs information about hardware, software, peripherals or services. It contains 3,500 key computer, telecommunications and electronics terms and definitions. Also included are abstracts from over 600 periodicals, newsletters, weekly trade papers, proceedings and research reports as well as self-study courses and coverage of thousands of books. (About 5,000 new records are added to the database each month. The *Computer Database* is available as File 275 through DIALOG Information Services, Inc., Palo Alto, California and is produced by Management Contents.) For further information, contact Ron Cornick, at (800) 323-5354. \$120.00.

Circle HelpCard No. 180

Management Contents

2265 Carlson Dr., Suite 5000

Northbrook, IL 60062

The *Computer Phone Book*, by Mike Cain, is a comprehensive directory of all "on-line databases" for personal computer users. An on-line database is a source of information that can be tapped into by dialing your telephone; the information is then transmitted over the telephone line. This book shows the personal computer user how to get access to the databases, what kinds of information are available, and how to expand home-computing horizons. Database areas of

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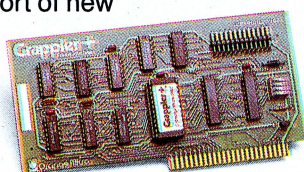


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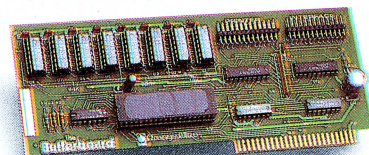
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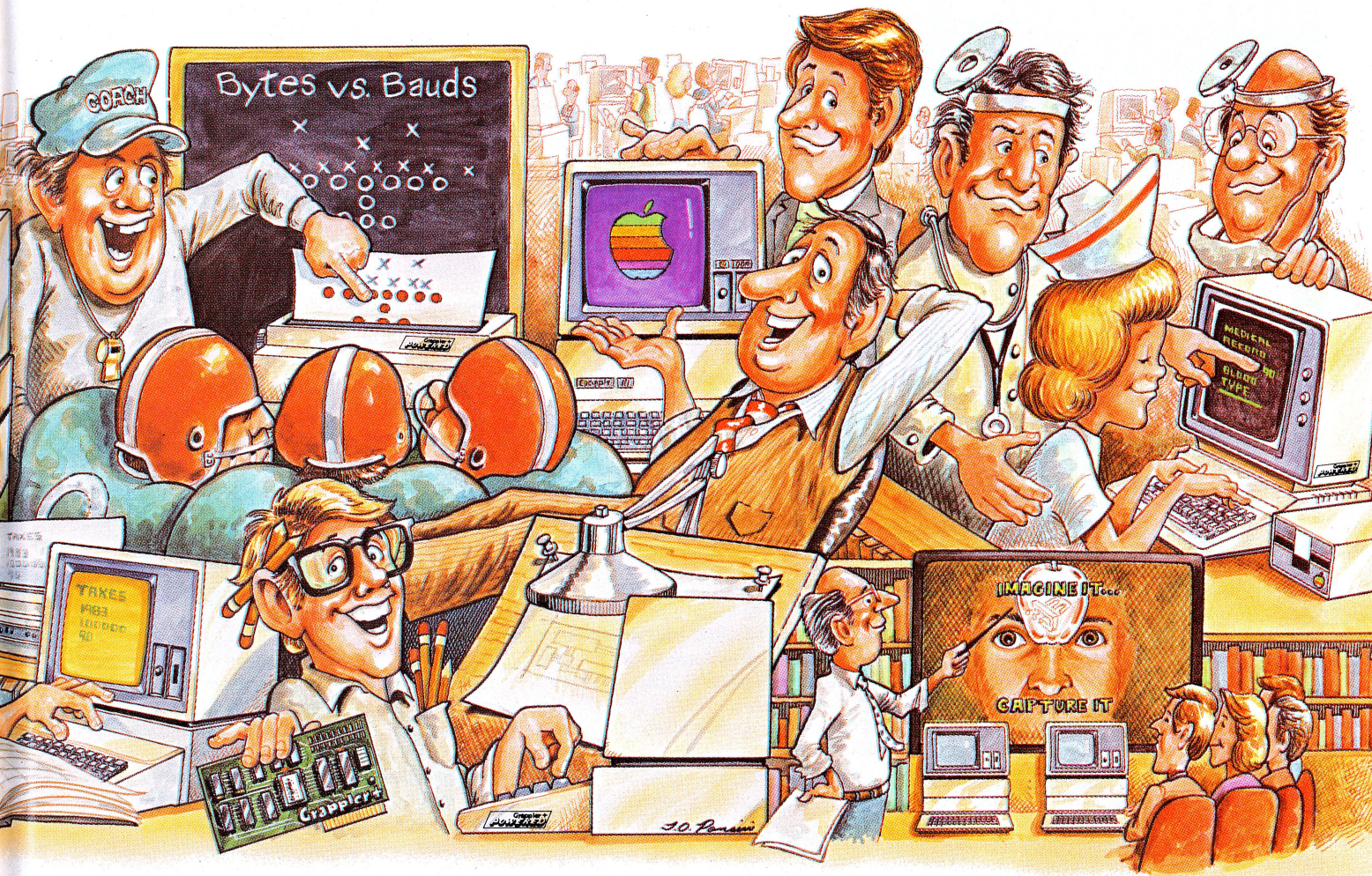
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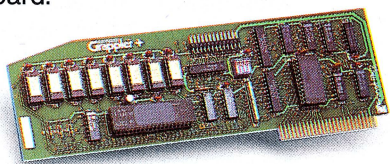
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Tax Breaks for Computer Buyers, by Ver-
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which discusses tax regulations. Tax
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4500 West 72nd Terrace
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(913) 362-9667

Attention Apple retailers:

*The Most Popular Book Ever Written on
Making Apples Grow*, is a 48 page, color
illustrated book, written by Microtek.
The book is targeted at the computer
novice, and provides basic information
on what computers can do. It is an
educational piece, the third tier of a
marketing approach. (The first level is a
4 color poster describing seven areas in
which Apple computers may be enhanc-
ed and expanded. The second level is a
set of six informative brochures explain-
ing each area.) Sets of brochures and
books are available to participating
retailers in smoked plexiglass counter-
top, point-of-purchase displays.

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Microtek, Inc.
4750 Viewridge Avenue
San Diego, CA 92123
(619) 569-0900

*The Random House Microcomputer
Catalog for Fall 1983* gives a lengthy list-
ing of software available for microcom-
puters (includes twenty new programs).
Focus is on education.

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Random House
7307 South Yale Ave., Suite 103
Tulsa, OK 74136
(800) 331-5469

The Micro Center's *Focus on Quality
catalog for spring, 1984*, is a source of
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The Microcomputer Software Directory

contains software for the Commercial,
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both the current microcomputer user,
and executives who are looking at
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Princeton-Forrestal Center
101 College Road East
Princeton, NJ 08540
(609) 452-8090

The Apple Index is published bimonthly;
format is loose-leaf style. The index is a
subject guide to articles found in twelve
magazines that cover Apple computers.
Each index is fully cross-referenced by
subject, application, name of hardware,
software and manufacturer. Full cita-
tions are given for page, issue, and
magazine titles with an indication of
illustrations, charts, vendor lists, screen
displays, schematics, instructions,
bibliographies, program listings and
directories. Each index entry contains a
brief description of the article. Subscrip-
tion for 1984 is \$22.00 for 6 issues, \$32.00
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A manual has been written to guide pro-
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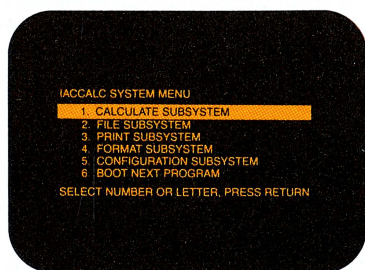
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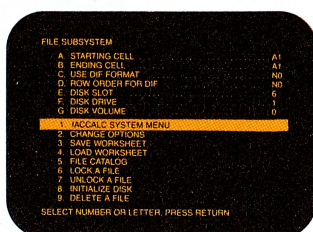
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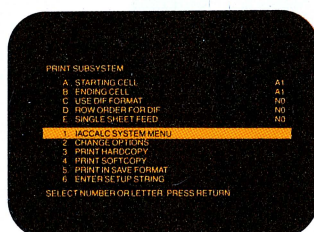
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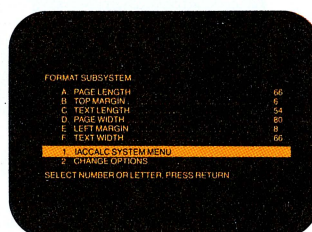
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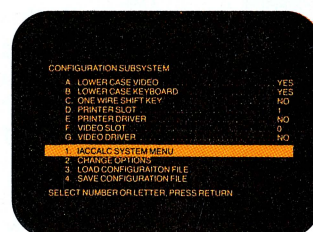
File Subsystem handles disk operations.



Print Subsystem manages data printing.



Format Subsystem defines page layout.



Configuration Subsystem structures IACcalc to your Apple.

ers. Even the Apple //e. It supports multiple RAM cards in any combination up to 512K. And has a 70-column video display with upper and lower case (when not using an 80-column board). This is only an option with other programs.

You can read VisiCalc® models directly and store your data on hard disk. Or create invisible columns for confidential information. Protect cells to prevent inadvertent erasure or to setup templates. And make individual column widths to fit your text and data entries.

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California Design Works
Box 3052
Monterey, CA 93940

etches a "fingerprint" into the surface of the diskette. A "master" diskette is kept by the software vendor, and a "remote" diskette is required by each buyer receiving software. Telelok will be available soon in APPLE DOS and CP/M 80 formats. For further information, contact Dixon Smith (805) 496-6602.

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Joseph Nathanson/David Radoff
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Staff Computer Technology Corp. has released a serial version of **The Key**, a hardware module which protects software products from being pirated. The Key, which fits on the end of an RS232 cable, ensures that only one user runs protected software at a time. Each computer is given a unique identification. The interactions of the software and The Key are used to form inquiry/response pairs. The use of many inquiry/response pairs enhances the security. The availability of many pairs allows more than one software package to be utilized with the same Key. For Apple and other computers. For further information contact Mary T. Gibson.

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Staff Computer Technology Corporation
10457 J Roselle Street
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Copyrightier is a hardware-based protection system using encryption technology to provide a workable protection system. Software is first encoded using a Data Encryption Standard (DES) type algorithm which scrambles the machine code of the program. The customer, on the first use of the protected program, calls an 800 number and obtains a code which will unlock the program. The user types in this enabling number to decode the DES encryption, and prepare it for use with the Copyrightier CPU. This CPU has a different decoder built into each unit. (It is installed by a dealer on owned equipment or at the factory on new computers.) The software protection boundaries are flexible to allow the publisher to leave certain portions of their software, such as I/O routines, unprotected and modifiable by the user. All unprotected portions may be written in any programming language, such as BASIC, or in machine language. A protected program may be freely backed-up by the user and the program will run on only the user's computer. Contact Ken Witham, Director of Marketing, at (603) 924-9471 x 113.

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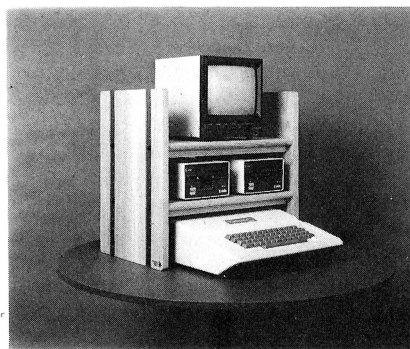
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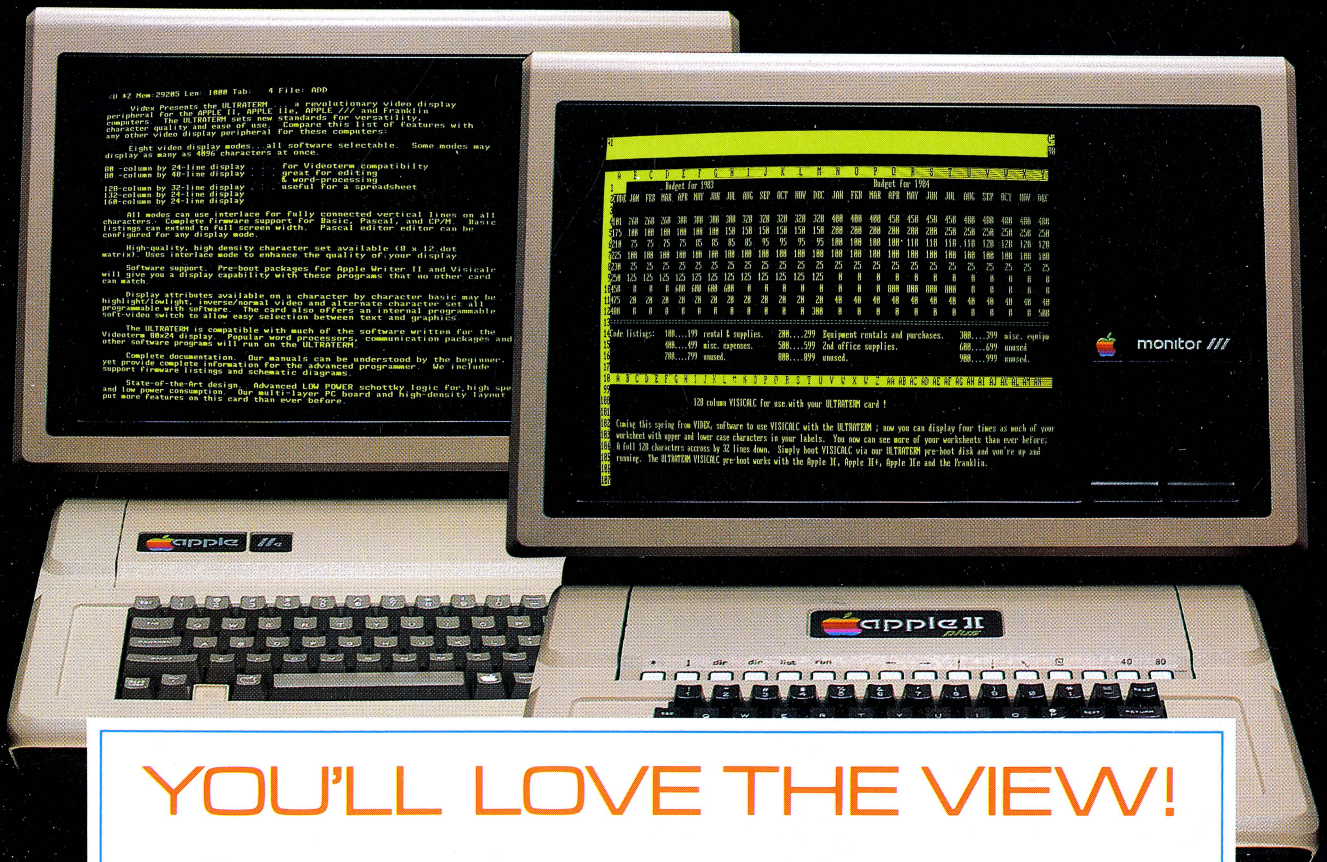
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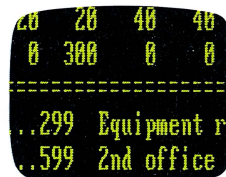


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