$2.50

Washington Apple Pi

The Journal of Washington Apple Pi, Ltd.

Volume 8 February 1986 Number 2

Highlights

Best (///) Picks in '86
Quad Thermometer
'EXCEL'ing With Your Mac
HFS Follies
New Apple Announcements

In This Issue

Officers & Staff, Editorial 3
President's Corner . . . . . Tom Warrick 4
Event Queue, General Information 5
New Meeting Format 6
WAP Calendar, SigNews 7
WAP Hotline 8
December Meeting Report . . . . . Adrien Youell 9
EDSIG News . . . . . Peter Combes 9
WAP Bulletin Board Systems 9
Q & A . . . . . .Bruce F. Field 10
Classifieds, Commercial Classifieds, Job Mart . . 12
Letter to the Editor 12
The Best (///) Picks in '86 . . . David Ottalini 14
GAMESIG News . . . . . Barry Bedrick 16
Enchanted Scepters:A Review...Barry & Ben Bedrick 17
Mindwheel: A Review . . . . . Steven Payne 17
Playing "Time Zone" . . . . . Steven Payne 18
Wildnerness: A Review . . . Beryl Swarztrauber 18
Baron: A Review . . . . . Chris Klugewicz 19
Gemstone Warrior: A Review . . . Thomas Johnston 19
Wizardry Transfer . . . . . Nicholas G. Carter 20
80-Column Card & Wizardry . . . . . Steven Pearce 21
Apple Teas . . . . . Amy T. Billingsley 21
Oldware Has Its Place . . . . . Jack Mortimer 22
Where to Put Your Computer . . . . Jack Mortimer 24
Quad Thermometer . . . . . Tom Riley 25
"Print Using" for Forth . . . . . Chester H. Page 32
Program Selector Review . . . . . Barry Fox 34
Pascal & Modula-2 Implementations.Robert C. Platt 36
Softviews . . . . . David Morganstein 38
The View From Durham . . . . . Chris Klugewicz 40
Frederick Apple Core 43
Macintosh & Scientific Environment.Lynn R. Trusal 43
Macintosh in the News, Etc. . . . Lynn R. Trusal 44
The New Mac - Is It an NBI? . . . Lynn R. Trusal 45
Book Reviews . . . . . Robert C. Platt 46
Computer Mail as Entertainment. . Bro. Tom Sawyer 47
Mac Q & A . . . . . Jonathan E. Hardis 48
OverVUE 2.0: Problem & Solution..James J. Derhaag 51
MacNovice . . . . . Ralph J. Begleiter 52
'EXCEL'ing With Your Mac . . . David Morganstein 54
Excel Power: Manipulating Cells. . . Tom Warrick 56
HFS Follies . . . . . Tom Warrick 58
Review Corner . . . . . James M. Burger 60
The Confessions of a Lurker . . . . . Zorro 62
Musements . . . . . Fred Seelig 63
Disketeria Dispatch . . . . . Jim Little 65
Apple Mac+ and LaswerWriter+ Announcements. . 67- 70
Disketeria Order Form 71
Tutorial Registration, Ad Index, Author Index . . 72

For information on joining WAP, see "General Information", page 5.

Now, For A Very Low Price, You Can

Up Your Mac™

With A 512K or 1, 1.5, or 2 Megabyte Ram Upgrade Direct From VOAD Systems

Examine These VOAD Advantages:

- No loss of use
- No shipping your MAC™
- 120-day warranty
- FREE Mac Memory Disc™
- Immediate availability
- Big savings on 512K to 2048K of memory

We ship you a complete, reworked board! Use our Tools to swap boards and return the old one to us, after you make the switch. That way you KEEP YOUR Mac™. We provide everything you need to make your Mac™ the machine you always wanted. Call us, now, for details.

Dealer Inquiries Welcome

Place Your Credit Card Order By Phone:
Call Us, We'll Ship C.O.D.

(213) 450-2929

VOAD SYSTEMS™

3304 Pico Blvd.
Santa Monica, CA 90405

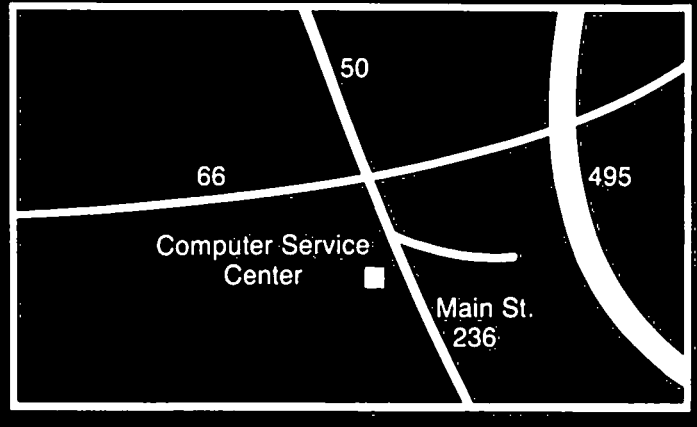
™ MacINTOSH is a trademark of Apple Computer, Inc.
™ Mac Memory Disk is a trademark of Assimilation Inc.

NOW AVAILABLE
...le HYPERDRIVE for
the MACINTOSH

WE FIX DOWN TIME IN NO TIME

The Computer Service Center, a division of Family Computer Centers, Inc., can service, diagnose and repair your Apple Computer. Our conveniently located service center can keep your computer system in top working condition. And we'll do everything we can to keep your downtime to a minimum.

- Walk-in repair service
- On-site repair service
- Service contract for all Apple Computers and Epson Printers
- AppleCare service Contracts available
- Apple Warranty and AppleCare Contracts purchased from other dealers honored



Computer Service CENTER
Authorized Dealer

A DIVISION OF FAMILY COMPUTER CENTERS, INC.
10807 Main St., Fairfax, Virginia,
273-0160

Clinton Computer --

Here to Stay and Stronger than Ever

Word from Our President

We want to thank the Washington Apple Pi members because so many of you shop at ***Clinton Computer***. This has helped to make 1985 our most successful year ever! This is important to both of us, especially since 1985 was a "shake out" year in our industry. You can count on us to be here when you need us!

In 1986 we will work with your new Dealer Relations Committee to discuss ways we can better serve your needs. I am a member of Apple's Dealer Council where I am a strong advocate of users' groups and consumers' concerns. If you have issues you would like me to address, please write.

Art Lundquist, President
Clinton Computer

2500 School Installations!

During 1985, Clinton Computer installed an amazing 2500 Apple computers in local area schools! Ginny Stange, a former teacher, is Clinton Computer's educational specialist and is recognized area-wide as an expert in computer-assisted instruction.

We are the designated dealer for five Maryland counties -- Montgomery, Prince George's, Calvert, Charles, and St. Mary's -- and for four Virginia jurisdictions -- Alexandria City, and Arlington, Fairfax, and Prince William Counties. We have also installed computers in a large number of private and parochial schools -- including those of the Washington Archdiocese.

Free Desktop Publishing Seminars

"The Quickest Route from Rough to Ready!"

An Apple desktop publishing system puts control in your hands, money in your procket, time on you calendar and quality within everyone's reach.

All you need is a Macintosh™ personal computer, a LaserWriter™ printer, and any of a wide variety of software programs.

Get that crisp typeset look in minutes instead of hours -- or days. And create illustrations, even if you're not artistically inclined.

This page, for instance, was created using MacWrite™ and MacDraw™. All of the advertisements we prepare and use in the *Washington Post* and other local newspapers and magazines are prepared in-house with MacDraw -- in camera-ready form. (This has not made our former ad agency very happy....) But it has given us the flexibility to make last-minute changes and still meet our deadlines with professional-quality presentations -- a necessity in this fast-moving industry!

To help you discover what Macintosh Desktop Publishing could do for your business, we are sponsoring a series of ***Free Seminars*** at our Alexandria, VA Store. Please call 838-9700 for information and registration.

Is AppleCare a Good Buy?

Have you wondered if an extended warranty on your Apple computer is a good buy or not? Eric McCullough, shop foreman of our Service Department, has put together some figures that illustrate just how good a bargain AppleCare can be.

If, for instance, your //e's main logic board needs replacement, the total cost is $134.40. If the power supply fails, the total is $125.76. A keyboard replacement is $130.80. On the other hand, a full year of AppleCare lists for only $60 and covers all costs to fix any or all of the above. In addition, as an Apple Pi member you receive a 25% discount on the cost of the AppleCare and pay only $45! Similar savings can also be illustrated for other Apple products.

For further information, please call Joan Okeefe at (301)856-2500. (P.S. Clinton Computer provides AppleCare services to more customers than any other Apple dealer in the world!)

Specials for Pi Members

Product	List Price	Pi Member Price
Apple Color Monitor //e	$399.00	$299.25
Apple //e 256K Memory Exp.	299.00	224.25
Apple Personal Modem**	399.00	299.25
Unidisk 3.5, //e and //c**	499.00	374.25
Apple Hard Disk 20 for Mac	1499.00	1124.25
ImageWriter II**	595.00	446.25
Sheet Feeder for ImageWriter II	225.00	168.75
**P-8 Cable, required for **	29.95	22.50
FlashCalc	99.00	19.95
Through the Looking Glass (for Macintosh)	39.95	4.95
BPI Software (in stock only)	As Marked	-50%
PFS Software (in stock only)	As Marked	-40%

** CLINTON COMPUTER is pleased to offer Washington Apple Pi members a 25% DISCOUNT OFF THE LIST PRICE on all Apple brand peripherals and software and on AppleCare. Discount is available to persons who have been Pi members for at least 3 months. Discount applies to cash and certified check purchases of Apple peripherals and software (no CPU's) and may not be applied retroactively. If product is not in stock, we can take your prepaid order. Pi members need to present their ID cards up-front. Discount cannot be used in combination with other promotions. Members should primarily utilize the Pi network of experts for after-sale support. No phone or mail orders, please.*

Clinton Computer

Authorized Dealer

Clinton, MD, 6443 Old Alex. Ferry Road (301)856-2500
Alexandria, VA, 277 S. Washington St. (703)838-9700

OFFICERS & STAFF

Board of Directors

President	- Tom Warrick	(301) 656-4389
Vice Pres-Programs	- Adrien Youell	(301) 951-0838
Vice Pres-SIGs	- Bruce Field	(301) 340-7038
Treasurer	- Edward Myerson	(703) 759-5479
Secretary	- Peter Combes	(301) 251-6369
Directors	- J.T. (Tom) DeMay Jr	(301) 779-4632
	- Raymond Hobbs	(301) 490-7484
	- Bob Platt	(806) 353-9723
	- Leon Raesly	(301) 460-0754
	- Jay Thal	(202) 244-3649
	- John Voglewede	(301) 460-3047
	- Rich Wasserstrom	
Past President	- David Morganstein	(301) 972-4263
Editor	- Bernie Urban	(301) 229-3458
Head Software Libr.	- Jim Little	(301) 762-3215
Office Managers	- Gena & Bernie Urban	(301) 654-8060
Journal Staff:		
Associate Editor	- Gena Urban	(301) 229-3458
Store Distrbtn.	- Raymond Hobbs	(301) 490-7484
Columnists:		
Apple ///	- Charlene Ryan	(703) 836-0463
DisabledSIG	- Jay Thal	(202) 244-3649
EDSIG	- Peter Combes	(301) 251-6369
GAMESIG	- Barry Bedrick	(703) 534-7891
LISA SIG	- John Day	(301) 621-7543
MacNovice	- Ralph Begleiter	(301) 340-3296
Pascal (PIG)	- Mike Hartman	(301) 445-1583
Q & A	- Bruce Field	(301) 340-7038
Mac Q & A	- Jonathan Hardis	(301) 330-1422
Meeting Reports	- Adrien Youell	(301) 951-0838
Softviews	- David Morganstein	(301) 972-4263
Telecomm	- Dave Harvey	(703) 527-2704
Review Coord.	- Jim Burger (day)	(202) 337-7900
Review Coord.	- Raymond Hobbs	(301) 490-7484
Review Coord.	- David Morganstein	(301) 972-4263
UBBS - Apple	- =Alexander-	(301) 474-5310
UBBS - Mac	- Regina Litman	(301) 585-0044
View from Durham	- Chris Klugewicz	
Disketeria Staff:	- Jim Little	(301) 762-3215
	- Dave Weikert, John Malcolm, Joy Aso,	
	- Ed Lang, Pat Foreman, Gordon Stubbs,	
	- John DeMarco, Fred Edwards, Andy	
	- Gallant, Allen Knapp, Shirley Weaver	
	- Nancy Little, Richard Langston II	

CP/M Librarian	- Joe England	(301) 953-1949
DOS 3.3 Lib.	-	
Pascal Lib.	- John Dyer	(703) 538-5636
ProDOS Lib.	- J.T. (Tom) DeMay Jr.	(301) 779-4632
SigMac Lib.	- Tony Anderson	(301) 277-0386
Group Purchases	- Rich Wasserstrom *	(703) 893-7143
	*(Evenings 7:00-9:30, M-F)	
Head Reading Lib.	- Walt Francis	(202) 966-5742
Apple Tea Coord.	-	
Arrangements	- Leon Moore	(301) 946-2642
Bulletin Board Opr.	- Leon Raesly	(301) 460-0754
Dealer Rel. Comm.	- John Alden	(202) 686-1656
	- Jim Burger (day)	(202) 337-7900
	- Rich Wasserstrom	
General Counsel	- Jim Burger (day)	(202) 337-7900
Membership	- Dana Schwartz	(301) 654-8060
Program	- John Alden	(202) 686-1656
Publicity Chairman	- Hunter Alexander	(703) 820-8304
Public Relations	- Leon Raesly	(301) 460-0754
Tutorials	- Oscar Kramer	(301) 384-5206
	- George Sall	(703) 768-0212
	- Steve Stern	(301) 881-2543
	- Ted Meyer	(703) 893-6845
Volunteer Coord.	- Sue Roth	(703) 356-9025
SIG Chairmen:		
Appleseeds	- Ian Thal	(202) 244-3649
Apple ///	- David Ottalini &	(301) 681-5792
	- Bill Rosenmund	(703) 941-5050
Apple //c	- Chuck Holzwarth	(703) 751-7575
CP/M	- Charles Franklin	(301) 997-9138
DisabledSIG	- Jay Thal	(202) 244-3649
EDSIG	- Peter Combes	(301) 251-6369
Forth SIG	- Kevin Nealon	(703) 280-1136
Frederick Slice	- Maj. Lynn Trusal	(301) 845-2651
GAMESIG	- Ronald Wartow	(301) 654-4439
LAWSIG	- John Weld	(202) 822-3354
LISASIG	- John Day	(301) 621-7543
Pie Ala Mode Slice	- Tom Kroll	(703) 368-1929
SigMac	- Don Landing	(703) 690-1010
SigMac Prog. Grp.	- Timothy Buehrer	(703) 548-8971
NEWSIG	- Bernie Benson	(301) 951-5294
Pascal (PIG)	- Larry Taborek	(703) 960-2250
PI-SIG	- Raymond Hobbs	(301) 490-7484
STOCKSIG	- Robert Wood	(703) 893-9591
Telecomm. SIG	- George Kinal	(202) 546-7270

Washington Apple Pi, Ltd.
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814
Business Office (301) 654-8060

Copyright 1986, Washington Apple Pi, Ltd.

EDITORIAL

Users Groups are in at Apple for the moment, and hopefully for a long time. The 1986 Apple World conference in San Francisco strongly conveyed that impression. There were many participants from many different disciplines intermingling for the purpose of generating a team spirit that should perpetuate the success of Apple, which John Sculley likes "to be considered the alternative technology corporation".

Dealers, developers, VARs (Valued Added Resalers), corporate accounts, educators, and user groups, Apple Canada and Apple Japan, were all represented and had ready access to Apple staff, up to and including Jean-Louis Gassée, John Sculley and .... of course, the Woz. Based upon words from these three and many others, Apple is seriously pursuing means for improved communications with and support of users groups.

What will come of this for you? Several things. A published 800 number for identifying the users group nearest you, guest speakers from Apple at our meetings, improved relations between dealers and users groups, access to Apple's extensive stores of product and technical information by means of Apple Link, and greater availability of Apple's technical staff at the regional level. ... And the prospects for more. Monthly conferencing, perhaps. Assistance from Apple in obtaining 501c3 status, and in choosing a video projector. Reference manuals, special course materials, and .... Let's give Apple and especially Ellen Leanse, the Apple Users Group Evangelist, a chance.

See pages 67 through 70 in this issue for the latest Apple information on the new Mac+ and LaserWriter+. Look for a complete report by our President and others next month.

PRESIDENT'S CORNER
by Tom Warrick

WAP's semi-annual "garage sale" in December was a big success. We had record attendance, as we have had each succeeding year, and everyone seemed to have a good time amidst all the tables, bartering and general confusion. Several things stand out, though, that are worthy of note. I'm not talking about the fact that our editor, Bernie Urban, bought a drill press (yes, a *drill press).* It's what people were and were not selling this year.

Offerings at WAP's garage sales provide an interesting barometer on the supply side of the aftermarket. High-demand products never appear, or at least not in numbers. You saw no copies of "Excel" or "Word Perfect." But you do get a good idea about what people no longer have a use for.

Surely the year's most-sold item, hardware or software, was the California Computer Systems 7710 serial card for the Apple II family. Now, there is nothing wrong with this card--it's quite adequate for many purposes. But in the last two years we have seen the emergence of the Apple Super Serial Card and its workalikes as the standard in serial cards. Prior to this time, there was no clear standard among serial cards, and even the Super Serial Card, Apple's own model, did not have pre-eminence. The Super Serial Card has its strengths, but--speaking realistically--are power and ease of use among them? Graphics screen dumps? Switch quickly from printer to modem? And the manual hasn't been revised in years. The reason for the Super Serial Card's rise is the ImageWriter printer. Sales of the ImageWriter, which is good enough to compete in the aftermarket in its own right, have driven parallel printer card manufacturers almost underground compared to the visibility they had when Epson was king in the Apple printer world. Once the Super Serial Card got a push from the ImageWriter, it took off. Other serial card manufacturers then wanted "Super Serial Card compatability" and you know the rest.

The second interesting hardware note was the absence of people selling Apple][systems. Last year I believe there were perhaps half a dozen people selling their][']s; most had purchased Macintoshes, or were about to. This year I don't recall seeing more than one or two full systems for sale, and at least one of those was a Franklin. I would like to believe this is due to the renaissance of the Apple II, thanks to the new products that Apple and others--particularly Applied Engineering--have come out with in the last year or so. There's life in in Woz's dream yet.

On the software side, there were the usual games one expects: how many times can you solve "Temple of Apshai"? It was interesting to note that there were quite a few more word processors for sale this year than last--but did you see any copies of AppleWorks for sale?

The other interesting software note was the many offerings of Macintosh programs released in 1984, the Mac's first year. I believe I saw more copies of "1st Base" than any other serious Mac program. Early Mac programming languages were also out in force--but not, interestingly, Microsoft BASIC. Did anyone at the garage sale actually sell a copy of "Mac Advantage: UCSD Pascal"?

Two other trends manifested themselves this year. First, fewer people had weird accessories they were trying to unload. (Kevin Nealon was there trying to sell a few of his mother's mouse covers, however.) Second, fewer people were selling off books and magazines than in years past. This could be due to the realization that nobody really wants to buy two-year old copies of **Creative Computing**, but it could also be due to the changes in people's magazine reading tastes. Although some good magazines have died in the last few years (**Softalk**, for example), many of the others that folded were, well, unlamented. The computer book market has likewise gone through an upheaval in 1985, with publishers printing fewer and fewer titles. This means, perhaps, that only the better titles got published. If this is a trend, let's hope it continues.

WAP's next garage sale will be in June. If you are a computer garage sale addict, let me put in an unsolicited plug for NovApple, which will sponsor semi-annual garage sales three months out of phase with WAP. The next one will be in March. Contact Dave Harvey or Mike Ungerman, both of whom are on the WAP BBS Committee, for more information.

Excel SIG: WAP is starting an Excel Special Interest Group. David Morganstein, WAP's immediate past president and author of the popular "Softviews" column, has agreed to chair it. Watch the Journal for announcements of meetings of Excel SIG.

The Apple Hard Disk 20 for Macintosh: I took the plunge and bought an Apple Hard Disk 20 for my Macintosh. Some of my adventures are recorded elsewhere in this issue, but there were several unheralded updates that got lost in the shuffle. ***The ImageWriter II printer driver*** is now out. There is also a little "v2.0" in the lower right corner of the print dialog box. The most obvious change is that the paper options "Continuous" and "Cut Sheet" have been replaced by "Automatic" and "Hand Feed" to take account of the new Apple sheet feeder. Incidentally, sheet feeders have to be the most troublesome part of office computer printers. My brother, who works as a systems programmer in the word processing group of a multinational computer company (not IBM) tells the story of a supervisor who pronounced the long "e" in "sheet feeder" as if it were a short "i". (Pronounce it to yourself and see why I don't spell it out for you.) This, he says, is an accurate pronunciation. From preliminary comments I've heard, it appears that Apple's sheet feeder is better than many but not perfect. Expect to have some trouble with heavy bond stationery.

Also on the Startup disk that comes with the HD20 is ***Font/DA Mover 2.5.*** I have not noticed any differences with 2.5 as opposed to 2.4, but neither have I tried to use 2.4 with the HD20.

Finally, an unsolicited testimonial: I bought ***Through the Looking Glass,*** Steve Capps' fabulous game that many of you have seen under the name "Alice," at Clinton Computer for the unbelievably low price of $9.95. If you have any money left over from Christmas, be sure to pick this up. It'll drive you mad as a hatter.

EVENT QUEUE

Washington Apple Pi meets on the 4th Saturday (usually) of each month, both Apple and Mac. Library transactions, Journal pickup, memberships, etc. are from 9:00-9:30 AM and during the Q& A sessions (times for these vary according to the main meeting topic). The business meeting is from 10:30 to 11:00.

A sign interpreter and reserved seating can be provided for the hearing impaired, but we need 5 business days notice. Call the office.

Following are dates and topics for upcoming months:

February	22	- SwyftCard for the Apple //e
		- Tax Preparation for the Macintosh
March	22	- Dvorak Keyboard for Apple // and Mac
April	26	- Education for Apple //
		- Spreadsheet Comparison for Mac
May	24	- Apple // open
		- Hierarchical File System for the Mac
June	28	- Garage Sale

The Executive Board of Washington Apple Pi meets on the second Wednesday of each month at 7:30 PM at the office. All members are welcome to attend. (Sometimes an alternate date is selected. Call the office for any late changes.)

General Information

Apple user groups may reprint without prior permission any portion of the contents herein, provided proper author, title and publication credits are given.

Membership dues for Washington Apple Pi are $27.00 for the first year and $20.00 per year thereafter, beginning in the month joined. If you would like to join, please call the club office or write to the office address. A membership application will be mailed to you. Subscriptions to the Washington Apple Pi Journal are not available. The Journal is distributed as a benefit of membership.

Mailing Notice: Change of address must be postmarked at least 30 days prior to effective date of move. Journal issues missed due to non-receipt of change of address may be acquired via mail for $2.50 per issue.

Current office hours are:

Monday - Friday	-	10 AM to 2:30 PM
Tues. & Thurs.	-	7 PM to 9:00 PM
Saturday	-	12 Noon to 3:00 PM

The Generic PC:

Fast Relief for IBM Sticker Shock

by Bud Stolker

Here's good news if you're shopping for an IBM PC-compatible computer: you can now buy more machine than you expected to get—for less money than you expected to pay.

You can, in fact, have your PC custom-tailored to your requirements, from software right down to the circuit board- and chip-level, at a price less than that of an off-the-shelf PC. And your machine will be not only cheaper; *it will be better.*

I can design for you an IBM PC/XT-compatible that adheres fully to IBM hardware and software standards, yet enhances those standards in ways that do not interfere with conventional operation or future expansion.

Your generic version of the IBM PC/XT will come with each component individually selected for cost-effectiveness, and tested for performance and quality. My PC's are better systems dollar-for-dollar than any other IBM clone you'll find.

And now you can get as much as three megabytes of free programs with the computer! Included is software for word processing, project, data base, and spreadsheet management, investment analysis, telecommunications, graphics for design, charting, and advertising, a Sidekick-like notepad and alarm clock, and even an array of video games. Hard disk systems have all software properly installed and linked by appropriate custom help screens.

Prices start at $1240 for a fully warranted, fully supported computer with 256K RAM, two floppy disk drives, multiple serial and parallel ports, clock/calendar, monitor, bundled software, and lots of room to grow with you. Each system is customized to your requirements, and built to the highest standards. Support includes a system analysis so you don't buy too much or too little, extensive component testing, integration of a vast array of useful software you can use immediately, personalized instruction manual, after-sale checkup, and my firm commitment to quality and client satisfaction.

Check with me when you're ready for a PC, and let's talk about why *a custom-tailored personal computer is the best buy you can make.*

Landmark Computer Laboratories
Suite 1506
101 South Whiting Street
Alexandria, Virginia 22304

Telephone (703) 370-2242 ☎ SourceMail TCB076

IBM PC, PC/XT, and PC/AT are registered trademarks of International Business Machines Corporation. Sidekick is a registered trademark of Borland International

Washington Apple Pi Meeting Schedule Beginning in January

For the January meeting on Desktop Publishing:

	9:30	10:30	11:00	12:00	1:00	2:00
Auditorium	Apple II Desktop Publishing	Business Meeting	Putting Together the Journal	Macintosh Desktop Publishing	Lisa/ Mac XL SIG	
Cafeteria	Macintosh Q&A Session			Apple II Q&A Session	Apple IIc, Telecomm SIGs	

For Most Future WAP Meetings:

	9:30	10:30	11:00	12:00	1:00	2:00
Auditorium	Apple II Program	Business Meeting		Macintosh Program	Lisa/ Mac XL SIG	
Cafeteria	Macintosh Q&A Session			Apple II Q&A Session	Apple IIc, Telecomm, other SIGs	

For Special WAP Meetings:

	9:30	10:30	11:00	12:00	1:00	2:00
Auditorium	Apple II Q&A Session	Business Meeting		Special Program	Lisa/ Mac XL SIG	
Cafeteria	Macintosh Q&A Session				Apple IIc, Telecomm, other SIGs	

Journal Distribution and Disk Sales at All Meetings: 9:00-9:30 and During All Q&A Sessions

* February 1986 *

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1 No SigMac Meeting - see Feb. 22
2	3	4 Apple// Beginning Tutorial #1 7:30-9:00PM Office	5 Deadline for Journal Articles	6 SigMac 7:30PM-Lady of Lourdes; GAMESIG 7:30 Off.->	<-Thursday 6 contd. DisabledSIG 7PM-CCCC	8
9	10	11 Apple// Beginning Tutorial #2 7:30-9:00PM Office	12 Executive Board 7:30 PM Office	13STOCKSIG 8PM Office; Apple /// 7:30PM-Conv Ctr. Inn ->	<-Thursday 13th contd. FAC Slice 7:30 MRIID Ft. Detrick	15 AW Tax Templates Tutorial 9AM-Office
16	17 Mac Beg Tutr. #1 7-10PM Off; PI-SIG 8:00 PM Office	18 Apple// Beginning Tutorial #3 7:30-9:00PM Office	19	20 Pascal SIG 8:00 PM Office	21	22 WAP Meeting - Apple // & Mac 9:30 USUHS
23	24 Mac Begin. Tutorial #2 7-10 PM Office	25	26	27 EDSIG 7:30 PM Office	28	

* March 1986 *

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1 No SigMac Meeting - see Mar. 22
2	3	4 Apple// Beginning Tutorial #1 7:30-9:00PM Office	5 Deadline for Journal Articles	6 SigMac 7:30PM-Lady of Lourdes; DisabledSIG 7PM-CCCC ->	<-Thursday 6 contd. GAMESIG 7:30PM Off.	8
9	10	11 Apple// Beginning Tutorial #2 7:30-9:00PM Office	12 Executive Board 7:30 PM Office	13STOCKSIG 8PM Office; Apple /// 7:30PM-Conv Ctr. Inn ->	<-Thursday 13th contd. FAC Slice 7:30 MRIID Ft.Detrick	15
16	17 Mac Beg Tutor.#1 7-10PM Off; PI-SIG 8:00 PM Office	18 Apple// Beginning Tutorial #3 7:30-9:00PM Office	19	20 Pascal SIG 8:00 PM Office	21	22 WAP Meeting - Apple // & Mac 9:30 USUHS
23	24 Mac Begin. Tutorial #2 7-10 PM Office	25	26	27 EDSIG 7:30 PM Office	28	29
30	31					

SIGNEWS

Apple /// SIG meets on the second Thursday of the month at 7:30 PM in the Convention Center Inn, corner of 12th & K NW. The next meeting will be on February 13.

Apple //c meets each month after the regular WAP meeting.

Appleseeds is the special interest group for our younger members, age 9 and up. They meet during the regular WAP meeting.

DisabledSIG meets on the first Thursday of each month at the Chevy Chase Community Center, 7:00 PM. The next meeting will be on Feb 6.

EdSIG - the education special interest group - meets on the 4th Thursday of the month at the office, 7:30 PM. The next meeting will be on February 27. See EDSIG News elsewhere in this issue.

ForthSIG meets on the third Saturday of the month at the office, 10:00 AM.

GameSIG meets on the first Thursday of each month at the office, 7:30 PM. The next meeting will be on February 6. See their news elsewhere in this issue.

LISA/MacXL SIG meets after the SigMac meeting on the 4th Saturday of the month.

PIG, the Pascal Interest Group, meets on the third Thursday of each month at the office, 8:00 PM. The meeting on February 20 will be a round-table discussion on Pascal Programming tools. On March 20, the topic will be Apple Pascal and Artificial Intelligence (AI) programming.

PI-SIG meets on the third Monday of each month at the office, 8:00 PM.

SigMac meets on the 1st Thursday of each month (programmer's meeting) at Our Lady of Lourdes School, 7500 Pearl Street, Bethesda, MD; and on the 4th Saturday (general meeting) at USUHS at 9:30 AM.

StockSIG meetings are on the second Thursday of each month at the office, 8:00 PM.

Telecom SIG meets after the regular WAP meeting on the 4th Saturday.

WAP HOTLINE For Use by WAP Members Only

Have a problem? The following club members have agreed to help other members. PLEASE, keep in mind that the people listed are VOLUNTEERS. Respect all telephone restrictions, where listed, and no calls after 10:00 PM except where indicated. Users of the Hotline are reminded that calls regarding commercial software packages should be limited to those you have purchased. Please do not call about copied software for which you have no documentation. Telephone numbers are home phones unless otherwise specified. When requests are made to return calls, long distance will be collect.

General	John Day	(301) 621-7543
	Dave Harvey	(703) 527-2704
	Robert Martin	(301) 498-6074
Accounting Packages		
Accountant(Dec.Sup.)	Mark Pankin	(703) 524-0937
BPI Programs	Jaxon Brown	(301) 350-3283
	Otis Greever	(301) 262-5607
Home Accountant	Leon Raesly	(301) 460-0754
Howardsoft (Tax)	Leon Raesly	(301) 460-0754
	Otis Greever	(301) 262-5607
APPLE SSC	Bernie Benson	(301) 951-5294
Apple TechNotes	Joe Chelena	(703) 978-1816
AppleWorks	Jay Jones (Balt.)	(301) 969-1990
	Ken Black	(703) 369-3366
	Ken DeVito	(703) 960-0787
Communications Packages and Modems-Telecom.		
Anchor Mark 12	George Kinal (7-10)	(202) 546-7270
	Jeremy Parker	(301) 229-2578
Apple Modems	John Day	(301) 621-7543
ASCII Express	Dave Harvey	(703) 527-2704
BIZCOMP Modem	Jeremy Parker	(301) 229-2578
General	Tom Nebiker	(216) 867-7463
Hayes Smartmodem	Bernie Benson	(301) 951-5294
MDM	Joe England (7-10)	(301) 953-1949
Robotics Modem	Joan B. Dunham *	(301) 585-0989
SeriAll Comm. Card	Joan B. Dunham *	(301) 585-0989
Smartcom I	Harmon Pritchard	(301) 972-4667
VisiTerm	Steve Wildstrom	(301) 564-0039
XTALK CP/M Comm.	Bernie Benson	(301) 951-5294
Computers, Specific		
Apple //c	John Day	(301) 621-7543
	Scott Rullman	(301) 779-5714
LISA/Mac XL	John Day	(301) 621-7543
	Don Komreich	(301) 292-9225
Macintosh:		
General	Steve Hunt	(301) 262-9080
	Scott Rullman	(301) 779-5714
	Donald Schmitt	(717) 334-3265
	Rob Clark	(804) 850-2016
Chart	Terry Monks	(703) 471-4610
Comm. & Modems	Steve Hunt	(301) 262-9080
Concertware	Skip Horvath	(703) 536-4091
Digitizers	JoAnn Stewart	(703) 527-4072
Excel	David Morganstein	(301) 972-4263
File Vision	Steve Hunt	(301) 262-9080
Hard Disk	David Jamison(day)	(301) 589-8841
Helix	Jim Berry *	(703) 662-0640
	Harvey Levine	(301) 299-9380
Inside Mac	Jon Hardis	(301) 330-1422
	Don Landing	(703) 690-1010
Lang.-C,Pascal,XLisp	Carolyn Komada	(703) 691-1986
MacDraw	Tom Berilla	(301) 434-3256
MacLion (DBMS)	Mark Miani	(202) 362-8123
MacProject	Jay Lucas	(703) 751-3332
MacTerminal	Jon Hardis	(301) 330-1422
Multiplan	John Boblitz	(301) 356-9384
	Don Landing	(703) 690-1010
	Steve Hunt	(301) 262-9080
	Walt Francis	(202) 966-5742
MusicWorks	Skip Horvath	(703) 536-4091
OverVue	J.T.(Tom) DeMay Jr.	(301) 779-4632
Spreadsheets	David Morganstein	(301) 972-4263
Spreadsheets&Graphcs	Bob Pulgino	(202) 797-0879
Sidekick	Ray Hobbs(7:30-10)	(301) 490-7484
Word	Marty Milrod	(301) 464-2154
Data Bases		
dBase II	Paul Bublitz	(301) 261-4124
	John Staples	(703) 893-5985
dBase II & III	Ray Hobbs(7:30-10)	(301) 490-7484
	Jim Kellock (day)	(301) 986-9522
	Leon Raesly	(301) 460-0754
DB Master	Dave Einhorn	(301) 593-8420
Data Perfect	Leon Raesly	(301) 460-0754
Data Factory	Bob Schmidt	(301) 736-4698
General Manager	Normand Bernache	(301) 935-5617
List Handler	Jon Vaupel	(301) 977-3054
PFS	Bill Etue	(703) 620-2103
	Ginny Spevak	(202) 362-3887
QuickFile II	J.J. Finkelstein	(301) 652-9375
DB contd.- Q-Pro-4	John Staples	(703) 893-5985
VisiPlot	Leon Raesly	(301) 460-0754
Games - Apple //	Charles Hall	(301) 330-4052
Games - Mac	Ron Wartow	(301) 654-4439
Hard Disks		
Corvus & Omninet	Tom Vier (ABBS)	(301) 986-8085
Sider	Jaxon Brown	(301) 350-3283
	Otis Greever	(301) 262-5607
Languages (A=Applesoft, I=Integer, P=Pascal, M=Machine)		
A	Louis Biggie	(301) 967-3977
A	Peter Combes	(301) 251-6369
A,I	Jeff Dillon	(301) 422-6458
A	Richard Langston	(301) 869-7466
A	Mark Pankin	(703) 524-0937
A,I,M	Richard Untied	(609) 596-8816
A,I,M	John Love	(703) 569-2294
M	Raymond Hobbs	(301) 490-7484
P	Donn Hoffman *	(412) 578-8905
Forth	Bruce Field	(301) 340-7038
LISP	Fred Nacf	(703) 471-1479
MS Basic	Ray Hobbs(7:30-10)	(301) 490-7484
Math/OR Applns.	Mark Pankin	(703) 524-0937
Monitor, RGB	John Day	(301) 621-7543
Operating Systems		
Apple DOS	Richard Langston	(301) 869-7466
	John Love	(703) 569-2294
	Richard Untied	(609) 596-8816
CP/M	Ray Hobbs (7:30-10)	(301) 490-7484
	Leon Raesly	(301) 460-0754
ProDOS	Richard Langston	(301) 869-7466
	John Love	(703) 569-2294
Printers		
General	Walt Francis	(202) 966-5742
	Leon Raesly	(301) 460-0754
	Joan B. Dunham *	(301) 585-0989
AJ 831 series	Joe England (7-10)	(301) 953-1949
Apple Color Plotter	John Day	(301) 621-7543
Apple Daisy Wheel	John Day	(301) 621-7543
Daisywriter 2000	Bill Etue	(703) 620-2103
	Henry Greene	(202) 363-1797
IDS 460	Jeff Stetekluh	(703) 521-4882
Imagewriter	John Day	(301) 621-7543
MX-80	Jeff Dillon	(301) 434-0405
NEC 8023	Bill Mark	(301) 779-8938
Okidata	Michael Proffitt	(301) 874-2270
	Dan Robrish	(301) 530-4202
Scribe	Phil Leber	(703) 378-4391
Silentype	Bruce Field	(301) 340-7038
Spreadsheets	Leon Raesly	(301) 460-0754
	Walt Francis	(202) 966-5742
Lotus 1-2-3	Walt Francis	(202) 966-5742
	Ray Hobbs(7:30-10)	(301) 490-7484
Multiplan	Terry Prudden	(301) 933-3065
VisiCalc	Walt Francis	(202) 966-5742
Sprdsht. 2.0(MagicCalc)	Leon Raesly	(301) 460-0754
SuperCalc Ver. 2.0	Leon Raesly	(301) 460-0754
Stat. Packages	Mark Pankin	(703) 524-0937
	David Morganstein	(301) 972-4263
Stock Market	Robert Wood	(703) 893-9591
Time-Sharing	Dave Harvey	(703) 527-2704
Word Processors	Walt Francis	(202) 966-5742
Apple Writer II	Dianne Lorenz	(301) 530-7881
	Leon Raesly	(301) 460-0754
Format II	Henry Donahoe	(202) 298-9107
Gutenberg	Neil Muncy Can.	(416) 298-3964
& Jr.	Harris Silverstone	(301) 435-3582
Letter Perfect	Leon Raesly	(301) 460-0754
& Simply Perfect		
Magic Window and II	Joyce C. Little	(301) 321-2989
Peach Text	Carl Eisen	(703) 354-4837
PIE Writer/Apple PIE	Jim Graham	(703) 643-1848
ScreenWriter II	Peter Combes	(301) 251-6369
	E. E. Carter	(202) 363-2342
Supertext II	Peter Rosden	(301) 229-2288
Word Handler	Jon Vaupel	(301) 977-3054
Word Juggler //e	Carl Eisen	(703) 354-4837
Word Star	Joe England (7-10)	(301) 953-1949
	Dana Reil	(301) 350-3283

* Calls up until midnight are ok.

DECEMBER MEETING REPORT
by Adrien Youell

Thanks to Joe Fuchs' inimitable organization, at least 550 members attended the garage sale. Numbers are accurate to plus or minus 10 based on the simple method of counting cash! The entry fee of $1 is a great way of recording attendance. The error factor relates to junior family members; the impromptu decision was not to charge children "shorter than your waist" – the shortest fee-collecter (my daughter) was chosen as the yardstick!

The traditional "Santa Fuchs Garage Sale" got off to an unexpectedly early start despite the first real snow of the winter. Vendors bedecked with goodies were setting up by 8.30, and selling between each other with considerable gusto by 9.30. Unfortunately a few members gained early admission bearing only one or two software programs as their 'passport'. The Club may have to legislate for such borderline antics which are unfair to the majority of members. Please respect the policy of maximum benefit to the most, by being a serious vendor to get in early.

The entry fee system also provided numbered tickets for claiming numerous valuable Door Prizes donated by the Club and Ron Wartow, among a few others. I hope the winner of "Wizardry" enjoyed his Christmas. One unfortunate member won a SigMac disk, but has an Apple //; he transferred it to me for cash. Joe made the Distress Sale a joy to behold in any auctioneer's handbook; "$15 please, no, $10 then, no, OK start at $5, no, allright $3". By shear enthusiasm and skill Joe managed to obtain $23 in this example. "Distress Sale" is for those members who were distressed not to have sold their wares, and some reported better prices than those originally asked. Thank you Joe and helpers for your efforts to make this a memorable morning.

The Business meeting was notable for Tom's announcement of customised WAPi lapel pins designed to be presented to enthusiastic volunteers and officers in recognition of hard work on behalf of the Club. I shall treasure mine, if I am deemed to have worked hard enough. To acclamation the first two pins were presented to Gena and Bernie Urban.

EDSIG NEWS
by Peter Combes

EDSIG Calendar

Thursday, February 27 at 7:30 PM
Thursday, March 27 at 7:30 PM

All EDSIG meetings are held in the Washington Apple Pi offices at 8227 Woodmont Avenue, in Bethesda, MD.

Meeting Report

There was no EDSIG meeting in December.

WASHINGTON APPLE PI BULLETIN BOARD SYSTEMS

Bulletin Board Operator	Leon H. Raesly, L.C.S.W.
SYSOP Emeritus	Tom Warrick
Special Consultant	Barry Fox
Hard Disk Consultant	Dave Harvey
Programming Consultant	Rich Mlodoch
Library files Programmer	Mike Ungerman
BBS Files List SYSOP	Jack Mortimer
Group Purchase Files SYSOP...	Rich Wasserstrom
Indexing Committee - Chairman.	Emil Levine
Member	Bonnie Walker
Member	Jeff Berger
SYSTEM 1 (986-8085) SYSOP..	Joe Chelena
Hardware, Software, General & Lafayette Park Boards SYSOP.	Joe Chelena
CP/M Board Board SYSOP	Joe England
dBASE II Board SYSOP	Nick Veloz
Apple /// Board SYSOP	Carl Bowman
Comments/Sugs. Board SYSOP.	Lee Raesly
SYSTEM 2 (986-8086) SYSOP..	Larry Halff
MAC Hardware, Software, & Gossip/Misc. Boards SYSOP..	Larry Halff
Telecomunications & Telecom SIG Board SYSOP ...	George Kinal
Games/GameSIG Board SYSOP.	Ron Wartow
BASIC Prog. Board SYSOP.....	Mike Ungerman
AppleWorks Board SYSOP	Ken De Vito
Comments/Sugs. Board SYSOP.	Lee Raesly
SYSTEM 3 (986-4715) SYSOP..	Mike Ungerman
Passwords Board SYSOP	Mike Ungerman
SYSTEM 4 (871-7978) SYSOP..	Lee Raesly
The Classified SYSTEM - Hardware, Software, Misc. & Employment & Pi Officers/Volun. Boards	
SYSTEM 5 (890-8984) SYSOP..	Alice Allen
The Journal & Indexes SYSTEM	
SYSTEM 6 (703-450-6822) SYSOP	John A. Gersic
(The Manassas/Great Falls Slice SYSTEM)	
Hardware Board SYSOP	Bruce Johnson
Sftwr., Misc., Gossip SYSOP..	John A. Gersic
BBS Committee - Charirman	Lee Raesly
Members - Joe Chelena, Mike Ungerman, Barry Fox, Dave Harvey, Larry Halff, Marty Milrod, Emil Levine, Dave Helfrick, Joan Dunham, Tom Warrick & YOU, if you attend!	

Q & A
by Bruce F. Field

Q. I have a //e, a Niceprint interface card from Spies Laboratories, and an Epson MX-80 printer with Graftrax +. This interface produces near-letter quality print on an MX-80, and can be activated using embedded printer control codes within a word-processed document - I am using Apple Writer //e to write this letter. I would like to have the same print quality when using AppleWorks 1.2. However I am not able to use the AppleWorks custom printer option to install my printer codes. This is because the Niceprint card requires as an enabling (or initializing) command a sequence that includes a caret (^), which must be entered before using the printer codes themselves. Of course AppleWorks recognizes the caret (^) as the signal to end a sequence of commands or control codes: therfore I am not able to enter the proper enabling sequence, so I cannot set up the printer properly.

A. As you are aware, AppleWorks does not allow you to enter control codes directly into the text of your document. Instead these printer control codes are entered via the Custom Printer menus that permit any character to be entered EXCEPT the caret. One way around this is to split up the printer control sequence so that all the control characters are included in the printer setup sequence, and the caret is put in the AppleWorks document itself. I do not know the Niceprint command sequence you want, but suppose it to be as follows: ESC ^P1 (escape, caret,"P1"). The only actual control code here (with an ASCII value between 0 and 31) is the ESC. The others can be entered as standard text characters in an AppleWorks document. Therefore set up your custom printer choosing Boldface Begin (for example) and type ESC ^. (The caret is used only to end the sequence and is not included of course.) Return to your document and select Boldface Begin (open-Apple-O, BB) and immediately after the newly inserted caret (indicating the Boldface Begin printer option), type ^P1. This second caret is an actual character and will be sent to the printer right after the ESC code sent by the Boldface Begin option. If you have more than one control character you may need to use two or more printer options with regular characters sandwiched in between.

This method also provides a shortcut way of extending AppleWorks versatility in controlling the printer. For example many of the commands for the Imagewriter printer start with the ESC code and are followed by standard text characters. If you define one of the printer options as ESC you can use this in combination with text entered in the document to control foward and reverse line feeds, international character sets, slashed or unslashed zeroes, unidirectional or bidirectional printing, as well as the more conventional horizontal character spacing and print density options. One disadvantage of this method is that the extra added text characters will make that printed line too short as AppleWorks assumes they will be printed, whereas the printer gobbles them up and prints nothing. Apple Writer has this same problem too, as all printer codes are entered directly into the text and counted as printable characters. Thus, if possible, you should put the commands on a line by themselves.

Version 1.3 of AppleWorks has been released. The major change is the ability to work with the new 3.5" disk drives. You can get a mailer from your dealer to return your original AppleWorks disks (and a check for $20) to Apple for an upgrade to Version 1.3.

Q. To DRAW a shape using Machine Language many books give $F601 as the entry point for the Applesoft DRAW command. When I wrote a machine language program using $F601 it never worked. By trial and error I found the entry point is $F605. I herewith enclose a listing of the program I wrote. Why is it that so many books made the error in giving the entry point for DRAW?

A. The entry point for DRAW depends on how you use it. The entry point at $F601 assumes that the address of the shape to be drawn, not the start of a shape table, is in the X and Y registers (low byte in X, high byte in Y) and the rotation factor is in the accumulator. The first two instructions of this routine store the X and Y registers in memory locations $1A and $1B respectively. With the registers set properly it will work fine; thus the books are not incorrect. Your program on the other hand puts the address of the start of a shape table in location $E8 and $E9 and calls a routine at $F730 to determine the start of the desired shape in the table. This routine does not leave the shape address in the X and Y registers as required by the routine at $F601 but puts them directly in locations $1A and $1B. Thus as you found, you should skip the first two instructions in the DRAW routine (starting at $F605) to have it work properly.

Q. I've been having trouble with my power supply. It sometimes won't turn on. Once I get it to turn on it seems to run okay, so for now I leave it on all the time. I read on a local bulletin board that there is some capacitor, C7 or something that is probably the problem. Can you tell me how to replace this? Is it difficult?

A. Difficult is in the eye of the beholder. First you turn off the power and unplug the connector on the motherboard that comes from the power supply. Turn the Apple over and remove the four screws from the bottom plate that hold the power supply and remove it from the Apple. Now drill out the rivets in the case of the power supply... Still interested? Actually the power supply in the Apple is a switching type power supply and is somewhat more difficult to troubleshoot than a traditional linear type and has dangerous voltages inside. Also, aftermarket (non-Apple) power supplies are available for less than $50 so I recommend you consider

contd.

replacing the supply yourself. You just screw the new supply to the bottom plate of the Apple and plug it into the motherboard. Check the back pages of BYTE magazine for ads.

The power cord tends to work loose from the socket in the back of the power supply, so it's a good idea to make sure the plug is firmly seated in the power supply socket before looking for other problems. It's also possible that the switch is faulty. Once the computer is on and working satisfactorily, disconnect the power using another switch (on a plug strip) or by unplugging the Apple from the wall. If this cures your startup problem, consider replacing the switch. That is not too difficult after you get the power supply case open.

Q. I am working with the 64K version of the Apple Pascal 1.2 language disk set. I am not familiar with Pascal but need this to copy Tom Woteki's Puffin program to disk (Call -A.P.P.L.E., Nov-Dec 1981). My problem is that I am running out of memory with a page or more of input remaining. Can I split the program up and join them later? Or, is there a way to get the Pascal 1.2 to access the 128K memory which my Apple //e has available?

A. I am a little suprised that you are having problems, since the source code for Puffin is 28 blocks long and the editor in Pascal 1.1 will handle up to 34 blocks of text. I don't have the numbers for Pascal 1.2 but expect it shouldn't be too much less. Anyway, you can gain a little more room by turning on the swapping option (S) from the Pascal command line. There are two levels of swapping, 1 and 2. In Pascal 1.2 level 1 frees up 2262 bytes and level 2 frees up 3084. Both of these options will cause the system to run somewhat slower as portions of the system are repeatedly loaded from disk as necessary.

You can also use the INCLUDE compiler directive to combine smaller pieces of source code. The Apple Pascal Reference Manual has a description of how this works. Basically (pun intended) you put the include statement in your source with the name of a text file. At compile time the compiler goes to this file and compiles the code just as if it were in the original file.

Another option is to use the 128K interpreter that came with the Pascal 1.2 system instead of the 64K interpreter you are currently using. This will automatically use your 64K extended memory card and will permit editor files up to something on the order of 60 blocks.

A third option is to purchase the source code already on disk. This is available on WAP disk 308.

Mike Hartman (to whom I am indebted for the above information) also recommends that for serious work you get the Advanced System Editor from Volition Systems. This is a disk based editor and file size is not limited by RAM memory.

Q. I have a well-used Apple][+ with an ALS Smarterm II 80-column card installed, which I use with the Magic Window II word processor program. The Smarterm II works reasonably well except for the "one wire shift key" function which worked at first, but ceased abruptly one day. I would like to regain that capability, but have been hampered by the fact that the ALS company will not answer my letters or return my phone calls. I wonder if you can put me in contact with someone who might be able to help me with the problem.

A. The "one wire shift key" modification involves running a wire from the shift key on the keyboard to pin 4 of the game port connector (push button 2) on the motherboard. It's possible that this wire has worked loose, or you have recently plugged in a joystick or other device that also uses push button 2. First unplug anything from the game port other than the shift key wire and see it that cures the problem. If not, you can perform a quick test in Applesoft to see if the modification is working properly. From the Applesoft prompt type PRINT PEEK(49251) and hold down the shift key while you press the return key. The Apple should respond with a number between 0 and 127. Now do the same PEEK again but this time do not press the shift key. The Apple should respond with a number between 128 and 255. If it does not pass both tests then there is a problem with the wire or the connections to the wire. Review your Smarterm documentation to see how to connect it properly.

If the shift key mod is working properly check to see if you must enable the shift key feature in Magic Window. Check the documentation for Magic Window to see if there is some mention of the shift key mod or look for a configuration setup feature.

Q. I recently encountered an anomaly with the way DOS 3.3 saves TEXT files and I was hoping that you might be able to make a few comments about it in your column. The problem is not serious but it is strange. It appears that when a file is opened for writing, the first compound print statement encountered (i.e. PRINT W,X,Y,Z) causes the first three variables to be concatenated together in the text file. The elements W,X,Y can be numbers, numerical or string variables; it doesn't matter. Subsequent compound print statements work just fine with each specified variable separated by a carriage return. The program and its output on the enclosed page demonstrate the point more clearly.

A. Sorry, using your program I was unable to exactly duplicate your problem; I can NEVER get compound print statements to work. However I was caught in this trap a little while ago (in print yet!) and I believe I have at least a partial explanation for you. The first thing to remember about DOS 3.3 text files is that everything in the file is stored as ASCII characters. It makes no difference if you print a number as a number, X=11 : PRINT X, or print a string containing numbers, X$=STR$(X) : PRINT X$, in both these cases the file contains the two ASCII characters 177, 177. Also the PRINT statement will put a carriage return (ASCII 141) after the 177s. If we use a compound print, e.g. PRINT 11,22 the file will contain the ASCII values 177, 177, 160, 160, 160, 160, 160, 160, 160, 160, 160, 160, 160,

contd. on pg 66

CLASSIFIEDS

WANTED: A Big Brother for an Apple! Help a school for disadvantaged youngsters learn how to use their new, donated //c system! Be their special "hotline helper" - or visit the kids for hands-on teaching. Also, donations of hardware and software such as educational games and programs would be greatly appreciated and are tax deductible. Call Richard Davis (387-1143) at "For Love of Children" (FLOC), 1711 14th Street, NW, Washington DC. Sometimes even an Apple needs a friend.

HELP: Will the person from whom I bought a book on dBase II during the WAP garage sale and forgot to take home, please contact me at 229-3224. Mansur Froozan.

WANTED: Apple][+ or //e, disk drive, monitor, printer. Tom Davenport, RR 1, Box 527, Delaplane, VA (703) 592-3701.

FOR TRADE: MacDraft for MacDraw. The owner needs the compatability of MacDraw for destop publishing. **FOR SALE:** Imagewriter I, $350. Call Dan Adkins for information, 822-8052 (home) or 252-5990 (work).

FOR SALE: Neptune 192K extended memory 80-column card, $125. Micromodem II, $60. Call Paul Lewis at (703) 352-8519, 8AM-5PM or (703) 378-0750, evenings and weekends.

FOR SALE: Microsoft MacEnhancer, Assimilation MacPort, and Hayden's Ensemble. All unregistered, in original boxes, and used once. Call Rusty at (301) 565-8007 in Silver Spring (leave message).

FOR SALE: Unused copy of Howardsoft's Tax Preparer (1983 edition), send in warranty card for cheap upgrade to 86 version, $25. Echo Plus (music and speech synthesizer), $60. John Willis, (301) 694-9410 evenings or 353-4924 days.

FOR SALE: 64K Apple][+ with 2 Apple disk drives, Videx 80-column card, and 128K Ramcard, $690. Also available Mountain CPS multifunction card, $85; Microsoft CP/M board, $95; and AMDEK green monitor, $75. John Willis, (301) 694-9410 evenings or 353-4924 days.

FOR SALE: Applicard (burn-in only), $175; Wordstar (unregistered), $125; Grappler+, $65; Videx 80-column card, $50; 13" USI green monitor (door broken), $80; Harp II+ clone with blitzed keyboard, $75. Call William A. Block, MD at (301) 949-7384.

FOR SALE: Apple /// Computer, 256K, single drive, $750; with printer, monitor and Advanced Version VisiCalc, $850. Call Stuart Cohen, (301) 774-9182 evenings.

FOR SALE: General Accouting Software Modules (published by Software Dimensions), latest versions, suitable for Apple][,][+, //e and /// in emulation: 1) General Ledger-Accounting Module, $150; Payroll Module, $150; or both at $275. This is 55% off list. Call Norm Cohen at (301) 262-7823.

FOR SALE: Macintosh XL (Lisa) 512K memory card by Apple Computer, $425 (list is $700). Expand your 512K Mac XL to 1 megabyte and run Switcher or a Ram disk with plenty of work space. Call Scott weekdays at 223-4700 from 8:30 to 6:00.

COMMERCIAL CLASSIFIEDS

FOR SALE: Premium //e Softcard board for $250, or best offer. New in cellophane wrapper. This board replaces most all //e boards, opens up slots for new hardware boards, contains CP/M and extra memory. Open ends your //e and is a low-cost move to larger-capacity PC. Call Dick (703) 354-2741 after 7PM.

FOR SALE: Computer books at 20% discount, e.g. "Apple //e Tech. Ref. Manual" @ $15.95 (list $19.95), "Apple Roots @ $15.15 (list $18.95), or "Inside Macintosh @ $19.95 (list $24.95). Most popular titles available. Shipping $1.25/title (plus 5% sales tax in MD). EARTHWORKS/AP, 8135 Ball Road, Frederick, MD 21701.

JOB MART

POSITION OPEN: Computer knowledgeable person to input Job Costing and dBase II data. Full or part-time at manufacturing enterprise near Catholic University. Knowledge of dBase II programming desirable. Call Howard Stirling, (301) 577-4681.

POSITION WANTED: Apple Macintosh computer instruction in the general Frederick, MD area. Instruction on the Macintosh and assorted software. Help with pre-buy decisions. Personalized service and reasonable rates. Call Lynn R. Trusal, (301) 845-2561, evenings, with no calls after 10:00 PM.

LETTER TO THE EDITOR

Dear Editor,

I recently purchased an Epson AP-80 printer from a local computer store (December 24, 1985).

The ribbon for this printer is new and not available at any local dealers. A call to Epson America, Inc. in California confirmed the fact that the ribbon is different, and local dealers could order it for me. They further stated that they would not sell me a ribbon direct.

While I am happy with my printer, please advise your readers not to purchase the Epson AP-80 until the dealer can supply the purchaser with extra ribbons.

Steven E. Rosner

THE /// MAGAZINE
is THE source for
APPLE /// owners !

AN INDEPENDENT JOURNAL FOR:

/// INFORMATION
TECHNICAL DATA
SOFTWARE REVIEWS
BUSINESS TIPS
FUN

OUR 2ND YEAR

Our magazine, successor to THE /// NEWSLETTER and founded January 1, 1985, is an international monthly review of Apple /// tips, articles, rumors and news. we have published each and every month ON TIME AND WITHOUT FAIL.

All /// MAGAZINE subscribers begin their subscription as of the first of each year. You will receive copies of ALL of the back issues of the magazine for 1986 (copies of the 1985 issues are available). You won't miss a thing.

Return to: THE /// MAGAZINE
3201 Murchison Way

Attn: New subscriptions
Carmichael, CA 95608 (916) 485-6525

I want to subscribe to THE /// MAGAZINE. Enclosed is my check for $40.00 (2nd Class, USA only; Canada / Mexico / USA First Class, $50.00; outside USA, Canada and Mexico, $60.00) for 12 issues (one year).

Company Name :_____
Attention :_____
Address :_____
City :_____State :_____Zip :_____
Telephone # :_____

I am subscribing as a: Individual ☐ Business ☐ Vendor ☐

Signed: _____

THE BEST PICKS IN '86
by David Ottalini, /// SIG Co-Chairman

My penchant for listing things continues to get out of hand! This month and next, I'd like to provide you with my lists of the "best sources" of information, software, hardware, etc. for the Apple ///. I know many of you old-timers will already be aware of many of these folks. But I am hoping it will be useful for you, as well as our newer /// users. Sometimes it's nice to have things written down in one central location, with a few comparisons thrown in for good measure. That's what I'll be attempting to do this month and next, so let's get started!

THE BEST /// USER GROUPS

Ahhh. This, you are saying, is a highly selective and potentially controversial list. But where the /// community is concerned, there really are only a few groups that qualify as "the best" simply because of their level of activity and leadership. I'm going to do this listing alphabetically, so as not to hurt feelings, since I won't pretend to judge one single "best" group over another. I will say that I am a member of all these groups and can recommend any of them.

Apple /// Users Group International — Cost:$5.00/Year
H. Joseph Dobrowolski, President
Box 913, Langley AFB, VA. 23665

Apple Three Users of No. California — Cost:$20.00/Year
Chuck Schreiber, President
220 Redwood Highway #184, Mill Valley, CA. 94546

Third Apple Users — Cost: $15.00/Year
Lavona Rann, President — Initiation Fee: $ 5.00
1113 Wheaton Oaks Dr., Wheaton, IL. 60187

Washington Apple Pi — Cost: $20.00/Year
Charlene Ryan, /// SIG Secretary — Initiation Fee: $7.00
8227 Woodmont Ave. #201
Bethesda, MD. 20814

Both ATUNC and TAU get high marks from this author for their efforts on behalf of the Apple /// community. Both are excellent organizations with strong, knowledgable leaders who are working actively to expand the usability of the /// for all of us. Major Dobrowolski gets his listing here because of his single-handed efforts to continue getting information out about our computer. Additionally, he has developed both a newsletter and huge public domain library that are available at nominal cost.

As for our own /// SIG, I was hesitant to mention it at the risk of sounding self-serving. But I believe we have made some excellent strides this past year with new members and an increased level of interest that I think deserves mention. Having the backing of a 5000+ member organization like Washington Apple Pi also hasn't hurt!

I should also mention the Micronet Apple Users Group (MAUG) on Compuserve as one of the "best". Its Apple /// section provides a fantastic forum for information exchange, and its Data Library for the /// is full of excellent programs (which thanks to Bart Cable, will soon be part of our public domain library). Compuserve must be accessed by modem and you can purchase a starter kit at reasonable cost from local discount bookstores.

While I'm mentioning the best..this category also demands I mention a couple of the "worst" groups. In this case, I refer to the two big international Apple organizations: International Apple Core and Apple Puget Sound Program Library Exchange. Their level of support and caring for the /// community is abysmal and I can not recommend either at this point.

THE BEST SOURCES OF PUBLIC DOMAIN SOFTWARE

Not surprisingly, the groups listed above (with one addition) also provide the best sources for public domain software for the Apple ///. Costs for the software is minimal and the selection is good. All have some unique offerings while selling many of the same programs. You usually get the best deal by being a member of the respective group.

Apple Three Group International

About 70 disks. $3.00 each for members. No postage & handling fee. Literally an attempt to offer all available /// PD software with some unique offerings, like templates in different formats.

ATUNC

30+ disks. Available to non-members at double the cost ($3.00/$6.00). Postage and handling extra. Excellent source of /// documentation at reasonable cost.

TAU

45+ disks. Available to all. Includes some programs licensed exclusively to TAU for use by its members. $3.50 per disk. Postage & handling extra.

The /// Magazine

3201 Murchison Way, Carmichael, CA 95608

50+ disks. Available to all. More expensive than others ($10-$15 per disk). P&H extra. Customer and Newsletter mailing lists available.

WAP /// SIG

PD library expected in early 1986. $5.00 per disk. Postage and handling extra.

THE BEST SOURCES FOR HARDWARE AND COMMERCIAL SOFTWARE

As most ///ers know, the number of local Apple computer stores offering software or hardware is rapidly becoming non-existent. Many are going the "firesale" route we in the Washington DC area have come to know through the Rasmus organization (in December it was ten cents on the dollar!)

These won't be able to sustain us a whole lot longer, simply because the universe of Apple /// products at the local level is disappearing. However, there are still some places we can go to obtain not only the old-line products like VisiCalc, Apple Writer and /// EZ Pieces, but new hardware and software that is still being developed for us. It's those folks, especially, that deserve our strongest support in the coming years.

You can still get some products and upgrades directly through Apple, Cupertino, but you would do better with price by purchasing from one of those organizations listed below.

contd.

ASSOCIATION OF INDEPENDENT MICRO-DEALERS
3010 North Sterling Ave., Peoria, IL 61604,
309-685-4843

AIM has become a clearing house of /// products for its members. As such, it publishes a catalog and lists the software (and some hardware) that's available. Unfortunately, they have had to start charging $25.00 for a subscription ("Apple /// Is For Me" membership). They offer a wide range of /// products all at sale prices. Retail price is also listed for comparison. The only problem is that sale prices vary, even for the same software (ten listings, all different). Availability is limited to what's on hand, so you have to work fast if you want something listed in the catalog. Product descriptions are excellent.

CMC COMPUTER SYSTEMS
1514 East Edinger, Suite H
Santa Ana, CA 92705, 714-835-2462

Owned and operated by long-time /// supporter Charles McConathy, CMC has shown a penchant for saving /// users a lot of money. And it's not been afraid to develop new products for the ///, especially in the hardware realm. Offers some /// software at competitive prices. Apple ///'s and peripherals also offered. Best deals are with new hard disk systems...10 mb 5 1/4" drive with cable and card for $495, etc.

D.A. DataSystems
3792 Windover Drive, Hamburg, NY 14075
716-648-2462

An excellent source of new software and hardware. $10.00 for 75 page catalog on disk. Products include Power Keys Macro utility, MS-DOS co-processor using the PCPI Applicard and (has the rights to offer the) Omnis 3 DBMS. Tools Times 3 package is an excellent deal that includes a number of Business Basic utilities, Power Keys, and other programs.

ON THREE
4478 Market Street, Suite 701-702, Ventura, CA 93003

Another excellent source of both software and hardware. They offer a mixture of new and old. These folks have gotten so-so reviews in the past from the /// community, but have lately been coming on strong. Programs include Draw-On Three (a graphics program), ONTIME macro utility, and Selector /// (for hard disks). On the hardware front, there's a 512 K upgrade, hard disks, etc. They have also sold used ///s and peripherals. There's also a 3.5" unidisk offering for the ///.

SUN DATA
P.O. Box 4059, 150 E. 400 N
Logan, UT 84321, 1-800-821-3221

Sun Data has become the "official remainderer" for Apple where the /// is concerned and offers a host of products. They have a large selection of /// commercial software and hardware at decent prices. Sun Data also offers the Titan /// + 2e Card. Check prices against AIM for best deals. This company also offers nationwide service for the /// community. 256K reconditioned ///s offered for $749.00 with monitor. Software prices are reduced if purchased with the computer.

Well, that's about it for this month. Next time around, I'll discuss my choices for the best newsletters and magazines, books, utility and commercial programs and best add-ons.

ALL HOURS CONSULTANTS

APPLE SOFTWARE 5 % OVER COST. .
APPLE ADD-ONS 7 % OVER COST. .
MONITORS, MODEMS, PRINTERS AND BOARDS.
ALL ITEMS ADD 5% MD SALES TAX.
DISK SPECIAL BOX NASHUA 2D'S $11.75.

CALL ALL HOURS 384-5910

Paragon Technologies, Inc.

offers classes in our IBM PC laboratory and Apple IIe laboratory in McLean:

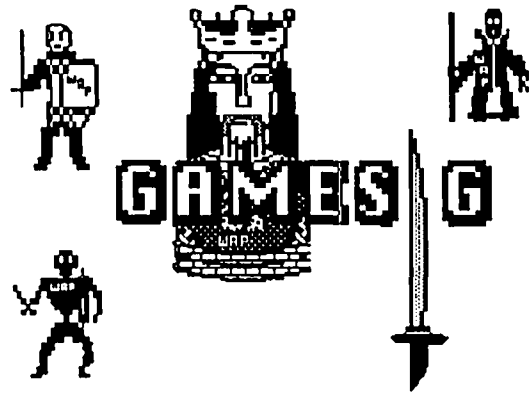
- Getting Started With The Micro Computer
- VISICALC, LOTUS 1, 2, 3
- d Base II
- WordStar
- Programming in BASIC
- Computer assisted SAT preparation

All classes are hands-on with one person per computer.

Call
556-9659
or write to us:
P.O. Box 6128
McLean, Virginia 22106

TYSONS CORNER CENTER'S
HomeInform
Information on Store Names, Sales, Events, Restaurants, Theatres, Gifts, Metrobus Schedules and Much More
Computer Access Number
(703) 893-0874

GAMESIG NEWS
by Barry Bedrick



JANUARY MEETING

First, I can only hope that no one read my column in the January issue attentively enough to notice that I gave the wrong date for the January meeting. Those of us who wisely pay no attention to this column showed up as usual on the first Thursday in January. **The February meeting, before I forget, will be on the 6th.**

Two new Origin Systems products--MOEBIUS and AUTODUEL--were demonstrated using the club's new projector. The former is a fantasy role-playing game, with unusual karate and sword combats, and looked most intriguing. The latter, based on Steve Jackson's board game CAR WARS, is a strategy role-playing game set in a future when fantastically-equipped cars battle, and "the right of way goes to the biggest guns." [AUTODUEL will be reviewed in next month's Journal.]

I called everyone's attention to the new respectability conferred on gaming by an article in the Sunday New York Times Magazine for December 29 on a Macintosh game previously reviewed in the Journal, BALANCE OF POWER (Mindscape). The article, written by a former Deputy Assistant to the President for National Security Affairs features an interview with Chris Crawford, the game's designer, in which Crawford says "Games are nature's way of educating." [Note to my son: no, this does not mean you can play LODE RUNNER in lieu of homework.]

Another interesting reference to Apple and gaming is the best-selling novel, THE HUNT FOR RED OCTOBER. In the book, the American nuclear attack submarine carries two Apple computers for the crew's recreation. The sonarman plays ZORK, and one feature of American life cited to prove to the defecting Russians that they have made the right decision, is the ability of a free society to play CHOPLIFTER on one's own Apple.

NEW SOFTWARE RECEIVED:

THE HALLEY PROJECT: A MISSION IN OUR SOLAR SYSTEM (Mindscape) for the Apple // series--a real-time simulation of the solar system that requires you to use your knowledge and pilot skills to locate and land on planets and moons. Appears to be educationally oriented.

A VIEW TO A KILL (Mindscape) for the Apple // series--an interactive text adventure where you become James Bond.

AUTODUEL (Origin Systems) for the Apple // series--See GAMESIG News for brief description.

WIZARDRY (Sir-Tech Software) for the Macintosh--See the December Journal for a detailed description.

These programs will be reviewed in next month's Journal.

SHORT TAKES FROM THE APPLE // SERIES GAMING FRONT

Because GAMESIG has a backlog of donated programs requiring full reviews and due to Journal space limitations (Even WE read the rest of the Journal.), the following are short commentaries and excerpts from reviews done on some recently-released gaming programs. Full reviews of some of these programs will be published in future Journals as space permits.

From RAY HAKIM:

ULTIMA IV...Quest of the Avatar (ORIGIN SYSTEMS)

.....star of the 1985 games for the Apple // series.....very large fantasy adventure....takes weeks.....requires you to keep track of numerous clues, that send you back and forth among the towns, castles and dungeons.....not simply a fighting game.....will become a classic..... [A Macintosh version will be released in the future.]

THE EIDOLON-- (Lucasfilm Games from EPYX)

An adventure.....through fantasy world of underground caverns, populated by strange creatures....drive the Eidolon by keyboard or joystick.....appropriate crystals break down the barriers that separate you from a guardian dragon, and the chance to enter the next level..... interesting....recommend primarily for real-time adventurers, especially those who like shoot-em-up type action games....little strategy....mapping....

From CHARLES DON HALL:

THE BARD'S TALE (Interplay Productions)

.....fantasy role-playing....size of WIZARDRY I and II combined.....generous supply of "specials": Riddles, messages, fixed encounters, dark areas, teleporters, and anti-magic rooms.....harder game than WIZARDRY.... Mapping is difficult and sometimes tedious.....little too hard....well worth buying.....9 out of 10.....

SPELLBREAKER (Infocom)

.....long-awaited conclusion to magic trilogy....similar in structure to previous two games.....maximum score of 600 points.....expert-level game.....Unconditionally recommended .....10 out of 10.....

A MIND FOREVER VOYAGING (Infocom)

.....not intensely puzzle oriented.....double-sided disk, requiring 128K.....three "Chapters"...first is trivial...second is trivial and boring...third, impossible and boring...2 out of 10.

From RONALD WARTOW:

MOEBIUS (Origin Systems)

.....something completely different in fantasy role-playing.....beautiful hi-res graphics with 3-D effect.... arcadish-type combat system with bare hands or swords..... several types of magic....real-time..... set aside a lot of time.

AUTODUEL (Origin Systems)

.....ROAD WARRIOR meets ULTIMA.....Review in next month's Journal.....

ENCHANTED SCEPTERS: A Review
by Barry and Ben Bedrick

Silicon Beach Software, the AIRBORNE! people, have released this Macintosh graphic adventure with a typical quest time (you must find the four scepters [we'll continue with their spelling] to save the kingdom), but with two unusual features. One is extensive sound effects. Closing gates, water dripping, birds chirping, and many other sounds are simulated. These are clever and amusing but not enough to make this game stand out.

The other, more noteworthy, feature is the incorporation of fantasy role-playing techniques. Specifically, your character has attributes (spiritual condition and physical condition) which vary with his/her experience. Your character can acquire and use a variety of magic spells. Many locations hold either objects which have magic qualities, weapons, or armor.

The mention of weapons brings us to another fantasy role-playing aspect of this game--combat. There are many fearsome opponents to vanquish throughout the game. A pull-down menu lets you choose a weapon or spell. If you decide to save your spells and slug it out with an opponent, an information display on the screen keeps you advised of your and your opponent's conditions through the fight.

Combat, by the way, is one part of this game in which, depending on your point of view, the sound effects really come into their own. The sounds include clashing swords and grunts and cries of pain when blows are struck. When you kill monsters, their final drawn-out death rattles. This may not be to everyone's taste.

The game does not take advantage of the Mac's features to the extent that another recently reviewed graphic adventure, DEJA VU, does. The graphics are fairly ordinary, although most objects are recognizable. Movement and save game are convenient but some commands must be typed in. There are puzzles and mapping, and inventory control is important. We liked the idea of combining the two genres, graphic adventure and fantasy role-playing. While there is room for improvement, we enjoyed playing the game.

MINDWHEEL (for Mac and Apple //) : A Review
by Steven Payne

Written by award-winning poet Robert Pinsky and programmers Steve Hales and William Mataga, MINDWHEEL (Broderbund/Synapse) is set in the near future, with the world teetering on the brink of self-destruction ("what, again?"). The only hope for survival lies in Dr. Virgil's recently developed "neuro-matrix mind travel," based on his discovery that all brain activities leave perpetual "synaptic echoes" in the fabric of the universe. By tapping into these traces, you the adventurer journey back through a labyrinth of four powerful, interconnected minds: *Bobby Clemon*, assassinated rock star; *The Poet*, composer of epics that represent the crowning achievement of earth's literature; *The Generalissimo*, dictator and war criminal; and *Dr. Eva Fein*, scientist and musician, the "female Einstein." Beyond this matrix you will encounter *The Cave Dweller*, a mysterious figure from the dawn of civilization responsible for the chief tools of our culture; he guards "the Wheel of Wisdom," the source of all human creativity and inspiration. By recovering the wheel and returning to the present you can save the world.

MINDWHEEL is like most all-text adventures in its overall structure and method of play. Once again you must discover and manipulate objects, interact with various individuals, solve puzzles and (naturally!) complete poems. The fact that other characters come and go, with minds and motives of their own, is clever but not new. It is neither the longest nor the most difficult adventure I have seen.

But what makes MINDWHEEL really special is the quality of the prose and the richness of the imaginary universes you enter. Each of the "minds" is like a new terrain, a landscape filled with phantasmagorical images and events operating according to a dream-logic of their own. You encounter an aging baseball team, a talking frog, a woman made of glass, a bird-headed child, a clever devil, a weeping soldier turned to stone from the waist down, and much, much more. The author is Poetry Editor of The New Republic, and here his literary talents are put to excellent use.

MINDWHEEL's parser is very good, comparable to Infocom's. The game disk itself is unprotected but comes with a 95 page hardback book; the program asks at the beginning for a given word from a certain line on a particular page. Synapse and Broderbund should be commended for this "novel" approach to copy protection, because it discourages theft (too many pages to copy) while allowing purchasers to make *themselves* as many disk backup copies as they might need without extra charge.

As far as I know, the Mac version I played is not appreciably different from the one already available for the Apple][series. In the former there are, of course, the familiar pull-down menus with certain standard commands (i.e., directions and inventory) and the possibility of creating your own. However, for all but the poorest typists I suspect it is usually faster to enter commands via the keyboard rather than shift to the mouse and go through the "point, click, drag, and release" routine. But in one form or another, if you have either kind of computer, MINDWHEEL is worth adding to your gaming library. Why, it even made GAMESIG's very exclusive list of recommended all-text adventures in the December 1985 issue!

PLAYING "TIME ZONE"
by Steven Payne

Since I have gained access to a computer only within the last 10 months, my newly acquired addiction to electronic adventure games is a belated one, and I have had to do a lot of "catching up." After cutting my teeth on "Adventure," "Transylvania," and the Zork series, I borrowed a copy of TIME ZONE, a 1982 Sierra On-Line release described by Ron Wartow in the March GAMESIG column. The following reflections are offered to other latecomers like myself who might want to try their hands at what is surely the most challenging adventure game to date, at least in terms of its size and complexity.

As TIME ZONE opens, you learn that for eons an advanced but stagnant civilization from the planet Neburon has been observing human progress with alarm, afraid that our technology will soon outstrip theirs. Accordingly, under the leadership of the evil Ramadu, they have constructed a giant ray gun to destroy our world. All is not lost, however. Benevolent forces in the universe have chosen you to save earth, and have provided a time machine. With it, you can travel to different periods and places of the past and future, collecting the items you will need to penetrate Neburon, battle Ramadu, and destroy the ray gun.

Sounds simple enough? It isn't. TIME ZONE covers both sides of six disks, and offers over 35 regions to visit even before you reach Neburon, with over 1200 separate scenes of hi-res graphics and text; there are likewise more than 50 objects to be discovered and manipulated, some of which will disappear forever if taken too far back in time. Many of the objects serve no real purpose, and nearly half of the regions need not be visited at all, but it is up to you to discover which these are. In the course of the game you meet Cleopatra and Julius Caesar, Robin Hood and Peter the Great, Christopher Columbus and Ben Franklin, lions, (saber-toothed) tigers, and (polar) bears; you travel from London to Tokyo, from Baghdad to Napoleonic Paris. As you soon discover, the most important interactions with other characters usually involve buying or trading objects, or getting past sentries and receptionists; some of the puzzles must be solved in a specific order, and often the solution to one problem can only be found in a totally different time and place. The graphics are bright and colorful, if a bit "cartoonish." The endgame on Neburon is particularly good, with fresh and surprising puzzles every few moves. A clever feature throughout is that while the obstacles encountered in each region often appear similar (e.g., uncooperative guards, locked doors, high fences and walls), the solutions in each case are different; breaking and entry may get you into a building in one setting, for example, but can get you arrested or killed elsewhere. This forces the player to deal with each situation in new and creative ways.

TIME ZONE does have its drawbacks. The parser is antiquated, often refusing to accept obvious synonyms, or insisting that you are <u>not</u> carrying objects which are nonetheless listed in your inventory. More importantly, there is no automatic scoring system, so it is difficult to gauge your progress, and you can waste hours trying to solve apparent puzzles or explore regions which in fact are only there for show. Red herrings abound, and you cannot be sure until the end whether you have found everything you will need to complete the game. That is why TIME ZONE often takes 3 to 6 months to play, though luckily you can save up to fifteen game positions on a spare disk. Still, I recommend it for every serious adventure game fan who wants the ultimate challenge. The satisfaction of finishing is worth the effort, though it may also cure you of the desire to tackle anything this size again.

WILDERNESS: A Review
by Beryl Swarztrauber

WILDERNESS, by Electric Transit for the Apple // series, is the "Flight Simulator" of survival games. It comes equipped with its own survival manual based on the manual used by the United States Air Force Survival School. It has two scenarios: in one you are the sole survivor of a plane crash in the Sierra Nevadas; in the other you are an archeologist looking for a "lost city" in search of a golden idol. In both scenarios you can program the height, weight, sex, and physical condition of the "player" into the computer which alters the amount that can be carried and the stamina of the player. It is necessary for the player to navigate using compasses, and topographic maps, find food and water after supplies are depleted, make shelter and administer first aid in the event of snake bites or wild animal attacks. Besides the danger of wild animals, the player is also confronted with rain, snow, disease and poison mushrooms.

WILDERNESS' "Pangraphics" system draws a picture with mountains, trees, rivers, and lakes for whichever direction you look. You can actually scan the horizon 360 degrees. The graphics are wonderful on a color T.V. or monitor but in black and white it is impossible to distinguish the rivers. Limitless maps can be made in the Sierra Nevada version but it is also possible to send away for the map disks of Bolivia, British Columbia, Burma, Chile and New Guinea. This game is a complicated, real life simulation which might not hold everyone's attention, but those who venture to test their survival skills will be rewarded for their efforts by the terrific views that can been seen from atop a mountain.

BARON: A Review
by Chris Klugewicz

BARON, from Blue Chip Software for the Apple // series and Macintosh, is the third in the company's market simulation games; it deals with the real estate market. The object of the game is to turn the $35,000 you start out with into a million dollars. Unfortunately, Blue Chip sent us a demo copy, not an actual review copy. The demo only allows you to play for 6 months, and the save functions are disabled. Thus, quite a few features of the game that are described in the documentation were not available for testing.

The game itself is not for those seeking instant gratification. You must actively search the wealth of information available in the game (ranging from "The Financial Journal" to graphs of every market trend imaginable) to find properties in which to invest. BARON also allows you to invest in second mortgages, take high-stakes gambles on limited partnerships, buy and sell options, and otherwise wheel and deal in the real estate world. Even so, it is remarkably easy to lose a lot of money!

I found BARON fairly easy to learn, but extremely difficult to master. There is a game generator routine in BARON which rearranges events from game to game, and which generates random happenings within each game. BARON should, then, be essentially a different game each time it is played. (The extent of this variability could not, unfortunately, be tested, since the demo copy we received gave the same game each time.) The game is so complex that I feel that a person who has never played this sort of simulation before would have a rough time of it.

BARON'S weakness is its complexity. It is a good simulation, but the amount of data provided by the game is a little overwhelming. Also, there are quite a few factors that BARON takes into account in figuring such things as your net worth that are not explained on-screen. (For instance, taxes are mentioned only briefly in the Detail windows, but they figure highly in your monthly cash flow.) I wish that a sort of spreadsheet window, showing all the transactions which affected your net worth, had been provided as an option in one of the menus.

BARON's strengths are more numerous. The documentation is excellent and very complete. There is even included a good introduction to the Mac user interface. (Why is it that game documentation is always so far superior to that provided with so-called "power" software"?) As I said, the simulation of the real estate market is good, as far as I can tell. The wealth of options and sources of information is amazing, and the game makes full use of the Macintosh user interface.

Overall, I recommend this game for those interested in financial simulations, but with the following *caveat*: Our copy is not a full-fledged, working copy of the disk sold in stores. All of the features of the game could not be tested for this review, though nearly all of those involved in actually playing the game were. One last remark: it may take you several games to finally reach Baron status, so if you like fast-paced, action-packed games, BARON is not for you.

GEMSTONE WARRIOR: A Review
by Thomas Johnston

Descend into the vast caverns of the underworld, fight your way through skeletons, ghosts, and shamblers, find the five pieces of the Gemstone, and restore them to the temple above. GEMSTONE WARRIOR, by Strategic Simulations for the Apple // and soon for the Macintosh, is an entertaining, two-dimensional shoot-em-up with action similar to AZTEC. Its simple graphics portray a vast cavern of interconnecting passages, containing treasure chests guarded by demons and ghosts. The warrior carries a crossbow and fireballs and can find and use a variety of magical items. These have special effects like invisibility, disguise, cures and poisons, shields, and some of unknown use. You control the warrior with either keyboard or joystick. A choice of skill levels is offered between Beginner, Normal, or Kamikaze.

The play consists of fighting your way through one passage after another, trying to discover the right route of doorways to the hidden pieces of the Gemstone. The cavern of some 6 or 7 dozen rooms is vastly complicated to try to remember. Once I discovered that I could map it I progressed much faster. Besides, I enjoy mapping vast caverns.

GEMSTONE WARRIOR is essentially an arcade style adventure, similar to AZTEC, with simple graphics and a simple plot. Though like AZTEC, I may have scoffed at its simplicity; also like AZTEC, I couldn't put it down.

Disk Conversion
Apple to IBM and Back
Over 90 formats
3-day turnaround
Manuscripts transmitted
at 2400 Baud to Typesetters

RAEDATA,Inc.
7411 Riggs Road # 104
Adelphi, MD 20783
301 439-4743

WIZARDRY TRANSFER
by Nicholas G. Carter

The new Macintosh version of Wizardry is a superb blend of the now-classic game of Wizardry with the ease and comfort of the Macintosh technology. While the maze is familiar, the game is subtly different (when was the last time you had to do battle at the entrance of the maze, or your level 8 thief guessed wrong on a first level treasure chest in the Apple][version?). Even the most veteran Apple][player will be entranced by the Macintosh edition, and will find it quite challenging. However, after I had played it for several days, I began to wonder how my experienced Wizardry characters on my Apple][would fare on the Macintosh version. The question then was, how to transfer them. Not having a MALOR spell handy, I had to devise a computer method. Undoubtedly someone will write a program to do this, but it will not be easy, as character files on both machines are in binary which would have to be translated into ASCII for transmission. As I am not a crack programmer on either machine, I began to search for a means of making the transfer manually. This article is a description of how this can be done in a reasonably reliable fashion.

To make the transfer you will need "zap" utilities for both machines - I used Bag of Tricks and MacTools. In order to avoid problems, the transfer is accomplished on the backup files of both versions of Wizardry. You will find the Apple files on tracks 0-2 of your backup disk and the Macintosh files under the specific file name you have used for your backup. You will also need a pencil and paper or a print utility to record the Apple data you will be transferring.

Start by running your Apple][version of Wizardry and recording the "vital statistics" of the characters you want to transfer. You will need the name (the password is not needed), the race, class, orientation, characteristics (strength, IQ, etc.), gold, experience points, hit points, and level. Next, get out the zap utility and search for sectors on tracks 0-2 of the backup which have the names of your characters at the beginning. You can identify these easily if your zap provides the ASCII equivalents of the code you are looking at, otherwise you will have to look for the codes yourself, noting that the first byte of the sector will be the number of letters in the character's name. For example if your character is called FRED, you would look for the bytes 04 46 52 45 44 at the beginning if a sector. For reference I will designate the first byte of the sector as 1 and count in decimal rather than hex. The age of your character will be found in bytes 38 and 39. Byte 58 contains the number of objects that the character possesses, while bytes 66,74,82,90,98,106,114,and 122 have the hex codes for the objects themselves. N.B. if the character has less than 8 objects, the extra bytes will be garbage.

Next, move to the Macintosh, and enter the Training grounds of MacWizardry. Create new characters with the names, race, class, and orientation of your Apple][characters. Don't worry if you can't create the correct class (for example lord). This can be fixed later. Once created, take them into Boltac's trading post and buy as many objects as they had in the Apple. It does not matter what the objects are, the codes will be changed later, the important thing is to get the program to make room for the right number. Having done this, make a backup of your roster and then quit the program.

Now, using the Macintosh zap utility, go into the backup file. You will find the names of your characters, coded exactly as in the Apple][version, spread out across the file, the big difference being that the file is measured in blocks and is in it's entirety smaller than a sector. Thus only the name of the first character in the roster will be at the beginning of a screen. As before, let the first byte of the character be called 1 (note that MacTools shows bytes in pairs, in what follows I refer to bytes not to pairs). Byte 35 contains the code for the class of your character (0-fighter, 1-mage, 2-priest, 3-thief, 4-bishop, 5-samurai, 6-lord, 7-ninja) if you didn't get the class correct in the training grounds, then change it now. Put the gold into bytes 53-56, in hex, right justified. The coding in the Apple][is different, so it is not possible simply to copy it; you will have to get out your decimal to hex converter and work it out. The same applies to experience points which are located in bytes 107-110. The number of objects owned will be found in byte 58. The hex codes for the objects themselves should be put into bytes 64,70,76,82,88,94,100,and 106. You will find when you get back to Wizardry that the objects may have slightly different and usually more colorful names (for example a long sword+2 has become the Sword of Slashing) but their function and power is identical. Note that I have not yet covered level, hit points, age or spells. The problem is that the spells have a very complex coding (would you believe that there are at least 128 separate combinations of known spells for mages alone?) and it will be easier to let the program do the work.

Return now to MacWizardry, restore your roster from the backup, and send your characters to the hotel. Now that they have their real experience points, but only the level (1) that they got at the training grounds, the program will want to advance their levels, hit points, and knowledge of spells. Unlike the Apple][version, when the maximum hit points are increased on a healthy character, so are the actual hit points; this means that your character can stay at the hotel for free! At the end of this process, the level should be correct as should the spells known. The characteristics are unlikely to be correct, the same goes for age (which is not even shown on the Macwizardry display). Thus we will need to go back to to code, having saved a backup roster once again.

Once into the code, bytes 37 and 38 contain the character's age. The Apple][coding has the two bytes reversed, so put Apple bytes 39 and 38 into Mac 37 and 38. For reference, a newly minted 18 year old should have a code of 03A8 (936 weeks) in the Mac version. The six characteristics, in hex equivalents, go into bytes 41 to 46 (eg. an IQ of 15 requires a hex code of 0F in byte 42). As the Apple][coding is quite different you will have to make the decimal to hex translations yourself. Finally, the hit points and the maximum hit points are in bytes 115-6, and 117-8 (hex coded, right justified), if the hotel didn't give you the correct number, then make the changes at this time. If your character changed classes while

contd. on pg 35

ADAPTING AN 80-COLUMN CARD TO WIZARDRY

by Steven Pearce

Several months ago I purchased the first Wizardry disk ("Proving Grounds of the Mad Overlord"), after hearing what a great game it is. The first thing I found was that it did not properly use the 80-column card on my //e. It turned the 80-column card on, but then did not use the auxiliary memory. The result was 40 columns in 80-column mode. After doing some reading, I found the reason for this. The program uses the "Run-time" Apple Pascal operating system. This is an abbreviated version of Apple Pascal 1.1 designed to be used on machines with only 48K of RAM (i.e. an Apple]["minus"). This system would let anyone with an Apple computer (even without the 16K RAM card) play the game. Normally, Apple Pascal requires 64K of RAM. The problem occurs because the operating system "turns on" an 80-column card but does not use it. With a Videx Videoterm, there is no output on the screen at all unless the card is physically removed. Since the disk is copy-protected, it can't (easily) be moved to the standard Pascal system.

The solution to the problem is to patch the operating system so that it won't find an 80-column card (you only need 40 columns to play the game). Bill Cook (alternate SYSOP 76703,1030) on CompuServe, came up with this patch: "Use a disk utility to search the boot disk for the following sequence of bytes: 03 18 38 48 3C 38 18 38. Change the first 38 to either 00 or FF (actually any value will do but there are some new, strange signature bytes out there and I don't know them all, but 00 and FF can't be used). If the board still turns on then change the last18 as well."

The sequence of bytes is found on block 167 of the boot side, starting with byte number 218. This occurs in the file WBV2.1:RTSTRP.APPLE. To make the process automatic, I wrote a program (listed below) which will do the patch. I assume that the user either has the Apple Pascal operating system, or has access to it. First, make a copy of the Wizardry disk using any of the standard bit-copy programs (I used Copy][Plus). Type in and compile the program, then insert the Wizardry disk in one of the disk drives and run the program. The first byte will be changed. If there are still problems, run the program again and the the second byte will be changed. **Remember that the boot side of the disk must have a write-protect tab on it.** Part of the copy-protection scheme used by Wizardry checks to see if the disk is write-protected and crashes if it isn't.

My Wizardry disk works fine in 40-columns now.

```
PROGRAM WIZ_PATCH;
TYPE BYTE=0..255;
VAR F:FILE;
      BUFFER:PACKED ARRAY [0..511] OF BYTE;
      BLOCK,BLOCK_XFER:INTEGER;
BEGIN
   WRITELN(CHR(12));
   WRITELN('INSERT WIZARDRY DISK. REMOVE
            WRITE-PROTECT TAB FIRST.');
   WRITELN;
   WRITE('PRESS RETURN WHEN READY.');
   READLN';
   {$I-}
   RESET(F,'WBV2.1:RTSTRP.APPLE');
   IF IORESULT <>0 THEN
   BEGIN
      WRITELN('INSERT FLIP SIDE AND TRY AGAIN.');
      EXIT(PROGRAM);
   END;
   {$I+}
   BLOCK_XFER:=BLOCKREAD(F,BUFFER,1,18);
   IF BUFFER[218] <>0 THEN
   BEGIN
      BUFFER[218]:=0;
      WRITELN('IF 80-COLUMN CARD STILL GETS
               TURNED ON, RUN THIS PROGRAM
               AGAIN.');
   END
   ELSE
   BUFFER[222]:=0;
   BLOCK_XFER:=BLOCKWRITE(F,BUFFER,1,18);
   CLOSE(F,LOCK);
   WRITELN('DONE.');
END.
```

APPLE TEAS

by Amy T. Billingsley

Washington Apple Pi
Apple Tea
Wednesday, February 19, 7 - 9 PM
501 Hawkesbury Lane *
Silver Spring, MD 20904

Would you like to have a Question & Answer session like those so helpful at our monthly meetings, only in a smaller setting within a home atmosphere, with refreshments?

R.S.V.P. to above address or 622-2203 (be prepared to leave message). Mention what you would like to discuss and what you're interested in learning more about, what your expertise is, and what software you are using. Also, if you can't make this Tea, would you be interested in one another time? Would you be willing to host an Apple Tea in your home.

* Directions: Take Route 495 to New Hampshire Avenue North exit. Drive 4 miles to Randolph Road. Turn left. Drive to 1st traffic light, Locksley Lane, and turn right. Drive 1/2 mile to elementary school (Hawkesbury Lane). Turn left. 501 is 1st house, righthand side, on corner after Whittingham Drive.

OLDWARE (or LOWTECH) HAS ITS PLACE

by Jack Mortimer

Through the pages of this or other publications dedicated to microcomputer news and information, it is very easy to find many discourses on the latest and greatest software which has just been released (or will soon be delivered). There is a vast market for this information. Most of us are quite interested in reading this information because the latest program that we have has lost its initial interest to us or won't quite accomplish a specific purpose that we have in mind. With some of the recently developed microcomputers, the only software available is the latest and greatest because these machines are so new on the market.

Those of us with the Apple // family of microcomputers have a relatively long list of software packages available that span the years. This span had its beginning with the experimenters who were learning how to make their machines jump through hoops. As newer and flashier programs were developed, the old software that we learned on and grew up with, were left in the back of the box or collecting dust on the dealer's shelves. Many of us don't even see the old software on those shelves as we search for the newest game from our favorite software house. There is no problem with that and in fact, this keeps the programmers interested in developing more programs to serve us. But what about the people who are just now getting into recreational computing? Or more to the point, what about the next generation of computing hobbyists?

This group of people can be defined as anyone who is not now deeply involved with computers. However, probably the largest group of new Apple // computer users will be the children. Many of these children can't read or are just learning to read. Their motor control and eye-hand coordination are still in the early stages of development. How can anyone expect the average seven-year-old to do anything except become completely frustrated with the newest arcade game which taxes the finely honed reflexes of the best game players today? Of course they can't use those programs, and in most cases, the bigger folks in the home seldom release the Apple so that these youngsters can also enjoy playing with the computer. What can we do to accommodate the seven-year-olds in our lives so that they can know the thrills available through the magic of computers?

On a recent trip to the local shopping mall, I discovered one answer that seems to fit this need very nicely for me. While being dragged into one of the chain toy stores (Kay-Bee) to be shown the newest addition to one of the series of robot toys, I spied a shelf which contained software for many microcomputers including the Apple computer. On my first glance I quickly determined that these were old titles which the store was dumping. I also noticed that there were no titles or manufacturers that I remembered hearing of before in the Apple world like Broderbund or Infocom. Just before I started for the door to continue with the day's events, I noticed the discounted prices. I expected them to be low but these were only $2.99 to $5.99! At that price for software I'll take a chance. I decided on three different games for this gamble and paid the cashier less for three programs than what I expect to pay for one low-priced current program in a computer store. When was the last time that you got three disks, each with an operating system and the possibility of a program on them for under $15.00 total?

When I got home that day, I opened the first package and read the instructions. There were only 4 paragraphs of instructions, and two of these were how to insert the diskette and boot the program but the directions were understandable. I booted this first diskette on my Apple][+ and to my surprise, IT BOOTED AND RAN the program. The actual program was not much compared to the current software available, but for $3.00 I had gotten my money's worth. On to the second package.

This package had only loading instructions on the cover. The games' instructions were on the diskette. Number two diskette also booted and ran the program. This game was, at one time, a high resolution search and catch type game. By today's standards, it is very slow and has some other problems that are not in your typical move-your-man type program of today. Again, for the price, it was a bargain. What about package three?

I'm glad you asked that question. By now I'm batting 1000 and facing the last pitcher. Will I get thrown a curve? On opening the package I found an instruction sheet with five lines of actual instructions. Following these were the usual warranty and copyright information. This diskette also booted and ran. A clean sweep! Now, what did I gain in getting these three old programs?

My seven-year-old has three games that he will log the most time on and ultimately get the highest score. Being the best at something is important to everyone and these programs will be some of the things that fill this need in one young boy's life this year. The delight in his eyes the first time that he caught the man in the second program was worth much more than the small price paid for all three disks. For me, there doesn't need to be any other reason to haunt the toy stores for discount software games. There is, however, another audience that can be served with this type of software.

This audience is the group of people who are just getting started in computers. Those people need some training software that will allow them to become friends with their computer. The Ultimas, Zorks, Wizardrys, Flight Simulators and the rest of the current games are lots of fun and provide many hours of entertainment. However, the current masters of these games cut their computer games teeth on the old slow simple programs. Shouldn't future masters be told of these hidden gems that can lead them to computer games mastery? I think that they will benefit in the long run. And if there is some diskette that won't work at all and even the disk zap programs can't retrieve anything from them? Re-initialize it and use it for very temporary storage, or better still, give the diskette to the trash man because that is where any bad apple (diskette) should wind up.

A footnote to this information is that I have had the opportunity to shop in Kay-Bee stores in several areas of the country. In each store I found the same type of display of these discounted computer software products. I feel that it is safe to assume that any of the Kay-Bee stores will have these products. However, at those prices, and in light of this article, they won't have them for long.

DISCOUNTS

MACINTOSH CORNER

- SS/DD, BOX OF 10 ..... 19.00
- 10 DISK STORAGE BOX 2.50
- 36 DISK STORAGE BOX 9.00
- THUNDERSCAN DIGITIZER $185.00
- OPTICAL TEXT READER .. $475.00

5¼ INCH DISKETTES & STORAGE

- SS/DD, BOX OF 10 ..... $9.00
- SS/DD, PAK OF 25 ..... $20.00
- SS/DD, CASE OF 100 ..... $70.00
- SS/DD, CARTON OF 500 ... $300.00
- 2-NOTCH/DS/DD, BOX OF 10 . $10.00
- 2-NOTCH/DS/DD, PAK OF 25 . $22.50
- 2-NOTCH/DS/DD, CASE OF 100 . $80.00
- 10 DISKETTE CASES .. $2.25 EACH 5 for $10.00

(SPECIFY COLOR CHOICES: BEIGE, BLACK, BLUE, GREEN, GREY, RED, YELLOW; COMPACT CASES: CLEAR, SMOKE, AQUA)

- 70 DISK CASE $11.00
- 140-DISKETTE LOCKING WOOD FILE CABINET $29.00

PRINTERS

- PANASONIC P1091 ..... $259.00 *
- PANASONIC P1092 ..... $349.00
- CITIZEN 120D ..... $199.00 *
- CITIZEN MSP-10, 160 CPS . $269.00 *
- CITIZEN MSP-15, WIDE .... $389.00 *
- CITIZEN MSP-20, 200 CPS . $369.00 *
- SILVER REED 500, LQ $249.00
- STARWRITER A10-30 ..... $375.00 *
- PANASONIC P3151, LQ $399.00
- CITIZEN PREMIERE 35, LQ . $489.00 *
- TOSHIBA P1340 DOT/LETTER . $449.00

PRINTER ACCESSORIES

- 2500 SHEETS OF PAPER ... $31.00
- STANDARD PARALLEL INTERFACE $49.00
- GRAPHICS PARALLEL INTERFACE CARD $59.00
- FINGERPRINT PUSH-BUTTON GRAPHICS CARD $109.00
- MICROFAZER BUFFER $139.00
- PRINTER STAND $14.00
- SWITCH BOX 3 PARALLEL OR 3 SERIAL PORTS $79.00
- UNIVERSAL SWITCH BOX .. $99.00

DISK DRIVES

- FOURTH DIMENSION $149.00
- DISTAR $109.00
- CONTROLLER ..... $49.00 *

MONITORS

- 12-INCH GREEN/AMBER $89.00
- AVT AMERICA, 22 Mhz $149.00
- XTRON COLOR $149.00

*** DENOTES NEW PRICE OR ITEM**

LONG DISTANCE; CALL TOLL-FREE FROM ANY TONE-GENERATING PHONE: DIAL 950-1088; (IF YOU RECEIVE A RECORDING, DIAL 800-446-4462 INSTEAD); WAIT FOR TONE; DIAL 363-1313.

MODEMS

- ZOOM TELEPHONICS 300 .. $99.00
- IIe MODEM & SOFTWARE . $139.00
- CENTAURI 300 ..... $125.00
- US ROBOTICS 1200 ..... $219.00
- PROMETHEUS 1200A $289.00
- US ROBOTICS 2400 ..... $399.00 *

GRAPHICS DEVICES

- POWER PAD & STARTER KIT $125.00

VIDEO & DISPLAY EQUIPMENT

- DIGITIZER $299.00
- B & W CAMERA $195.00
- COMPUTEREYES $109.00

CHIPS

- EPROMS 2716/2732/2764 .... $4.00
- EPROMS 27128/27256 ..... $7.00 *
- 64K, SET OF 8 ..... $9.60
- 256K, SET OF 8 ..... $24.00

GENERAL ITEMS

- SURGE PROTECTOR $7.00
- SURGE PROTECTOR, 3 OUTLET $11.00
- 6-OUTLET POWER STRIP .. $19.00
- 6-OUTLET WITH SURGE PROTECT $25.00
- RF MODULATOR $49.00
- CABLE GENDER CHANGER $9.00

COMPATIBLE COMPUTERS

- LASER 3000, 80 COL., 1 DR. . $475.00

GAME I/O DEVICES

- CH PADDLE STICKS $33.00
- CH MACH II JOYSTICK $33.00
- CH MACH III JOYSTICK $39.00
- I/O PORT EXPANDER $25.00
- 9-16 OR 16-9 ADAPTER $9.00

SPECIAL!!
VF ASSOCIATES PC: BOTH APPLE & IBM COMPATIBLE, 640K, COMPLETE:
$1395.00

PLEASE NOTE!
BECAUSE U.S. DOLLAR IS DROPPING, SOME PRICES MAY INCREASE. PRICE ON DATE OF PURCHASE APPLIES.

SLOT EXPANSION

- 16K RAM CARD (FOR II +) .. $49.00
- 128K RAM CARD (FOR II +) . $185.00 *
- 80 COL CARD ..... $69.00 *
- 80/160 COL. CARD ..... $209.00 *
- SUPER SERIAL INT. CARD .. $69.00
- SERI-ALL $99.00
- TITAN ACCELERATOR IIe .. $249.00
- WILDCARD II COPY CD ... $109.00
- MULTIPLE-SLOT CHASSIS . $149.00
- SINGLE-SLOT EXTENDER ... $29.00
- QUICK-LOADER PROM BD . $149.00
- PROM BURNER $119.00
- APPLICARD FAST-Z-80 .... $129.00
- APPLICARD PLUS WORDSTAR $199.00
- 64K MEMORY ..... $129.00 *
- 128K MEMORY ..... $148.00 *
- 320K MEMORY ..... $164.00 *
- 512K MEMORY ..... $199.00 *
- 1 MEG MEMORY ..... $379.00 *
- CLOCK CARD $109.00
- MODEM CARD ..... $49.00 *
- Z-80 BOARD ..... $49.00 *

SPECIAL PERIPHERALS

- COOLING FAN WITH SURGE PROTECT $39.00
- 58 W. POWER SUPPLY $59.00
- SHIFT KEY MOD KIT $8.00
- SCREEN SWITCHER/ DRIVE STEPPER $74.00
- RF MODULATOR $19.00

APPLE SOFTWARE

- PLUSWORKS (RUNS APPLEWORKS ON II +) $19.00
- "WRITE CHOICE" WORD PROCESSOR $39.00
- WORDSTAR 3.3 ..... $99.00
- INCOME TAX PREPARER .. $175.00
- TURBO PASCAL $39.00
- PRINT SHOP $39.00
- SIDEWAYS $48.00
- COPY II + ... $29.00
- ESSENTIAL DATA DUPLICATOR $59.00
- DISK DRIVE ANALYZER $29.00

APPLE IIc CORNER

- SECOND DISK DR FOR IIc . $119.00
- HOTLINK TO PARALLEL PRINTER $55.00
- GRAPPLER C $95.00
- FINGERPRINT $109.00
- IIc SERIAL PRINTER OR MODEM OR DISK DRIVE CABLE $20.00
- 9-16 GAME I/O ADAPTER $9.00
- CPM FOR IIc: Z-80 BD ..... $99.00 *
- 256K MEMORY ..... $239.00 *
- 512K MEMORY ..... $271.00 *

(301) 652-4232

VF ASSOCIATES

8231 WOODMONT AVENUE, BETHESDA, MARYLAND 20814

STORE HOURS: Monday through Thursday: 12 noon until 8 p.m. Friday: 12 Noon until 6 p.m./Saturday: 11 a.m. until 5 p.m.

CALL FOR OUR FREE CATALOG!

UPS SHIPPING: $4.00 per order plus $6.00 per printer or monitor.

2 86

WHERE TO PUT YOUR COMPUTER

by Jack Mortimer

Many of the fine articles in the pages of this journal discuss the technical aspects of the hardware or software associated with the Apple family of microcomputers. This is great because many of us can't spend the time or money to be able to gain this information on our own. We therefore rely on others to tell us their reactions and results on these various items. There is one item on which I have seldom read any article, an item which is not only useful with most brands of microcomputers but is required for their efficient use. This item is a computer desk.

When I got my new Apple computer, I went through all the standard options trying to find a permanent home for my newest hobby. I was smart enough to not even suggest using the kitchen table. There is just enough space at my place for my food without an extra Apple sitting there. Also in my house, the kitchen table is the site for many activities such as sewing, school projects and the occasional repair to some household device which has decided to malfunction. For a time I used my regular desk as a computer desk. The top of this desk has some extra drawers for pencils, stamps, and a variety of desk type collectables which made the surface too small for the new Apple to rest on for very long. Therefore, this was only a very temporary resting place for the Apple. During some family expansion, the Apple took over our folding card table. It seemed to all concerned that this was likely to be a permanent installation. When the computer moved from the den, where some construction was in progress, to the living room (so the television could be used for the color graphics of course) the card table moved with the computer system.

I started looking for a desk for the Apple shortly after I had worked through the manuals which came with it. In the dark ages, Apple computers came with manuals on programming, the hardware, and all sorts of neat stuff. This search took a long time, measured in years, and was so fruitless that I was beginning to consider designing and building my own computer desk. After finding, and then rejecting several computer desks for various reasons, I finally found one that would not require me to design and build my own desk.

The desk that I found and am now using is made by Bush Industries. This company produces three series of desks of which I am aware; the 120 series, the 140 series and the 170 series. Each of these are good looking pieces of furniture that would be a positive benefit to most computer systems. The desk that I bought is the Bush 170 series desk, model CT170. While I like the looks of the other series from Bush, the 170 series has features which, to me, made it the most attractive of these three series of desks.

This desk fits the bill for me in the following areas. A majority of this desk is made of real wood. Many of the desks in the discount stores use a vinyl covered particle board. While this can be a sturdy material, I am not interested in having an important (to me) piece of furniture made entirely from that material. The construction of the pieces of the 170 series are well finished with rounded edges and a satin finish on the oak wood. The CT170 desk comes knocked down so it was easy for me to transport it in my station wagon the 75 miles from the store to my home. Had it been assembled, I would have needed to use a truck for this transportation.

Oh, it is a kit!?! I know that this has a negative connotation but please hear my comments. There is a minimum of "tab A into slot B" instructions. There are plenty of pictures to accompany this easy to assemble desk. The fastening hardware is of the hidden, quarter-turn type fasteners, for the most part, so the parts will stay together unless you decide to disassemble them. While I didn't NEED the maximum supervision which I had for the assembly of this unit, a helpful hand is strongly recommended during some of the assembly steps.

This Bush model CT170 desk has a pencil (and almost everything else) drawer on the right hand half of the desk. Behind this drawer is a slot in the top through which continuous form paper for your printer may be fed. The left side of this desk is designed for the computer. The front 12 inches of the desktop on the left can be adjusted for various heights (or even tilted). This allows you to set the keyboard at the proper height for you. This lets you type more comfortably. Under the desk is a shelf which is handy for paper storage on the right and feet on the left.

Actually, I have the optional locking door kit, model CTA174, positioned under the left part of the desk. The instructions and mounting hardware allow you to put the doors into the hutch or under the desk. If you save the instructions and extra parts, you can move the doors at a later time if you want to move your system around. Because these doors are optional, you may defer buying them until some later time or you may choose to do without them. If there are small fingers around that love to explore into computer materials when the parents are not looking, locking doors may be required to protect your diskettes, joystick, etc.

I also got the Bush model CTA 171 hutch. A hutch is a set of shelves like a small book case which sits on top of a desk. This hutch is divided into two sides with adjustable shelves on both sides. The monitor shelf on the left side can be tilted. This would allow a book or other paper to be put on the shelf, over the monitor (like an Apple //c monitor). I have an Apple monitor /// and Disk // sitting side by side on this shelf in its level position. They do fit although snugly. There are two adjustable shelves on the right side of the hutch. In fairness to the particle board industry, the shelves are vinyl covered particle board. If I get to the point that I want all wood grain showing, I can buy some oak and replace those shelves. For now, the contrasting color shelves enhances the units appearance. Maybe I can come to really like these shelves in time.

The back of the desk and hutch are open. This allows easy routing of all interconnection cables. There are even holes with plastic sleeves in a couple of places so that you can get cables through some of the shelves. The pieces which come with the doors include a back so that the space covered by the

contd. on pg 64

QUAD THERMOMETER
by Tom Riley

We have come to rely on our personal computers for a great many tasks. This article will point out yet another task at which our computers are very good indeed. With the addition of the simple device whose construction is described in this article, your personal computer can be turned into a powerful tool for doing many scientific experiments. For a materials cost of about $35, this device will let your computer read four independent temperatures, log these readings, and reduce the resulting data so that meaningful conclusions can be drawn. This device will be most useful to students and amateur scientists but can also be used to evaluate a home heating system or could even control an industrial process.

The construction of this device is very simple, if a little diminutive. The electronic circuit is also simple, but the software is more sophisticated. There is a reason for this. This article goes beyond a simple construction project to become an introduction to a new field. That field is Personal Instrumentation.

The personal computer is drastically changing the way people in science and especially industry run experiments. Long gone are the days of long hours writing down data by hand, and soon the days of expensive single purpose experimental apparatus will follow. General purpose computers with specific attachments for a task are simply taking over all but the most complicated experiments. Where the special purpose machines sat gathering dust after the experiment was over, the personal computer keeps on contributing to every part of the effort.

A number of personal instrumentation systems are commercially available for the Apple and IBM PC. Some are bare boards with a spec. sheet or two and others are full blown systems with hardware, software, and documents but with a much higher price tag. The Quad Thermometer is an inexpensive starting point, yet one which has practical applications.

A personal instrument system is of course more than just a few hardware attachments. It must include the software to support you in every step of the experimental process. A good personal instrument system must help in the design of the experiment, the calibration of the sensors, the logging of data, the reduction of that data into comprehensible form, the writing of the report, and the generation of supporting graphics. What's more, at every step along the way it must encourage good scientific method. A personal computer can do all this and do it with style.

Description of the Hardware

The quad themometer can be easily adapted to any personal computer which has paddle inputs of the timer type. The prototype was tested on an Apple][+ but Apple //c & //e, Atari, Commodore, and IBM all use similar systems with only slight changes in component values and cable connectors. The software can be easily adjusted to different machines by entering the correct parameters into Program #1. This will be covered later.

The heart of the sensors are four tiny thermistors the size of sesame seeds. These devices are ceramic resistors which change their resistance markedly with temperature. They are supported by correction caps to adjust the available thermistor resistance values to the needs of your system.

The Software

The supporting software is not intended as a complete professional personal instrumentation system but as an introduction to the field. We invite you to modify the programs provided to suit your own needs. With only a few personal touches, this software should however be adequate for a undergraduate science project, to evaluate a home heating system, or to run down hot spots in electronic equipment.

The programs use many of the structured Basic techniques discussed by Arthur Luehrmann in his excellent series of "**Creative Computing**" articles (May to July 1984). The programs are broken down into self contained blocks which have only one entrance and one exit. The main program is then an outline of the order in which these blocks are used. This structure should greatly facilitate your understanding of the programs and ease your job of adjusting them to your own needs.

Scientific Method

When properly designed, personal instrumentation supports correct scientific method. Scientific method is the body of procedures which insure that an experiment can be repeated by other workers and yield the same results. This method is supported by a tradition several hundred years old and is at the core of science and technology today.

Using scientific method, however, requires a person to do two very different types of tasks. First the person must doggedly follow an experimental procedure through, even if it means hours of tedious hand data logging, and then the person must engage in flights of imagination to envision the underlying forces of nature. Few people can do both tasks well.

A good personal instrumentation system relieves the experimenter of the tedium of data logging and data reduction while promoting understanding of the phenomena. Such a system need not however support the running of an experiment when the experimenter does not understand the the underlying theory and math.

Experimental Design

In designing an experiment, as in any designing task, you must first answer the question, "What exactly is it that I am trying to do?". This question must be answered first by a general overview and then by tens, if not hundreds, of details. As you work out your experimental design you should keep coming back to this simple question.

The experiment we use in this article to demonstrate the quad thermometer is to measure the temperature of key components inside the Apple, first with, and then without a fan, -- Doctor heal thyself --. We are trying to determine how much the fan lowers the temperature of the components and

contd.

whether the difference is enough to reduce the likelihood of component failure.

We will need to measure the temperature of the room air and of the several internal components within the Apple. The temperature range to be expected is from room temperature about 76° F (22° C) to 200° F (90° C), and we will need a resolution of about 1.5° F (1.0° C). The first program (Program #1, Choosing Thermistors) helps us design the sensors for the required temperature range. It helps us choose thermistors from the suppliers catalog and gives us an idea of what to expect from the finished device.

The thermistors I used were minute glass coated beads made by Fenwal Electronics (see parts list). They were purchased from Newark Electronics, as this distributor has a minimum order of $25 and the manufacturer has a minimum order of $75. We could also order the heat shrink tubing from them. Our local Newark distributor has since changed its policy and no longer sells directly to the public. They are still a good supplier for schools and businesses, and your local representative may still accept small orders.

You should also be able to obtain a catalog from your supplier, perhaps for free, or for a few dollars. Newark includes a few pages of thermistor parameters in its general catalog and these will do nicely. If you have difficulty obtaining the thermistors, write to me at the address listed at the end of this article. I will try to organize a group purchase but will be able to order only a few types. The thermistors cost about $5.00 each.

We tried cheaper thermistors without the glass coating but their readings were affected by moisture even when the units were covered with epoxy. You may certainly use thermistors from other manufacturers and of other designs. They should however be small single thermistors intended for temperature measurement.

If you are using an Atari or Commodore computer the value for the paddle resistance (Program #1, step 105) should be RX = 1000000 and the internal cap (step 110) CN = .01. IBM CP's use RX = 100000 and CN = .01. All Apple's use the values in the listings. The Mac will not, however, accept the Quad Thermometer since it has no game port. Some manufacturers of thermistors use different reference temperatures for the resistance ratio (Step 115), so check the catalog entry for a note on this.

Choose a thermistor from the catalog that you guess is about right then run Program #1 and answer the questions. The calculated parameters Beta and Alpha are used to compare various thermistors.

The next step is to determine the value of correction cap needed. When thermistors are used in the paddle circuit their temperature measurement ability has these peculiarities. First they have a low temperature limit below which they cannot measure, and second they have their greatest resolution just above this low limit. They have no high limit except for what the cabling can thermally withstand, but their resolution becomes very poor at high temperatures. Typically, .1° C resolution and accuracy are possible just above the low limit but 5° C resolution is all that is available at 80° C or higher. This means that you must carefully choose the low temperature as close to the expected experimental low as possible but not so close as to lose data. The combination of thermistor parameters and correction cap value set this low limit.

Run #1 is a example of the use of Program #1. You may either give Program #1 a value for the correction cap or give the low temperature limit and the correct cap will be calculated.

A chart of the resistance and pot reading versus temperature is then calculated. This chart will give you a good idea of the performance of your chosen thermistor and correction cap over the range of the experiment. Note the change in resolution, number of pot reading steps per degree, over the temperature range.

You will want to try several thermistor values from the catalog to find one requiring ony a small correction cap for your temperature range. As the numbers on the data sheet are only about 10% accurate, it is best to plan on a least a .01 microfarad correction cap to give yourself some adjustment capability. You can now place an order for the thermistors with confidence.

Construction

When the thermistors arrive (3 to 6 weeks), the construction of the hardware is straight forward and fast. Figure 1 shows the main parts, a game I/O plug, main cable, circuit board, and thermistors.

The circuit board is 1/3 of a general purpose circuit board from Radio Shack with predrilled holes and copper lanes. The area for the correction caps for each channel were marked with a permanent marker. The exact caps required will be determined in an automatic calibration test later. The foam block around the board was a single piece of shipping foam, flexible but stiff, and is held on with rubber bands. The foam protects the board and helps keep the correction caps at a stable temperature.

The cables can be of as small a wire size as will mechanically survive your experiment (#24 was used on the prototype). The main cable needs a minimum of 6 wires, but you may wish to double the ground and add +5, or your experiment may have use for the computer's pushbutton inputs and annunciator outputs which will require additional conductors. All the cables on the prototype were 4 feet long, as this unit was intended for use only on a workbench. The timer circuit used for reading the paddles is very slow and only has an accuracy of 8 bits, but it is very insensitive to electromagnetic noise. We would therefore expect cable lengths of a few tens of feet to work just as well as the prototype. I would not however leave long cables permanently attached from my computer to the outside world as lightning surges might enter the computer through them.

The only difficulty in constructing the thermistor sensors is the very small size of the devices. Figure 2 shows the detailed steps in the assembly. First separate, trim, strip, and tin the cable wires. Place a 1/4 inch piece of heat sink tubing over the long wire. Wrap either lead of the thermistor around this wire and solder. Trim off the extra wire. The thermistor leads sometimes contain platinum, and the trimmed bits may be worth saving to use as a catalyst in other experiments. A pair of pointed tweezers proved very helpful at this point. Shrink the tubing with either a small flame or a heat gun.

The second solder joint can then be made and the outer heat shrink tubing installed. A small amount of epoxy seals

contd.

the end of the tube but the tip of the thermistor must be allowed to stick out. The outer heat shrink may be any length from 1/4 inch to several inches to serve as a handle. For some experiments you might wish to mount the thermistors in metal or glass tubes.

Electrical Wiring

Figure 3 shows the electrical schematic. Cap C4 is included to reduce electrical noise. The Apple][+ connector is a 16 pin dip header. For computers other than the Apple][+, you need to use a different type of connector and different pin numbers. This information should be in the system documents or in other magazine articles about your machine. You may write to me if you have difficulty finding this information.

The exact value needed for the correction caps is usually easier to achieve with several small caps in parallel so allow some room on the circuit board. The caps themselves will be installed during the calibration procedure.

Correction Cap Adjustment

The thermistors vary about 5% in their electrical properties, and computer readings in response to a particular resistance will vary at least as much again. The accuracy we need, about .5% of the absolute temperatures, can however be obtained despite these limitations by calibrating our sensors with a simple bench top procedure.

The first step is to set the lowest readable temperature by choosing the correction cap values. Program #2 lets the computer instrumentation system calculate the required cap values from a single temperature reading. To use this program you will need a thermos of cold water and a reference thermometer.

The thermometer I used was a Fisher Scientific 14-983-10B glass bulb type costing about $20.00. In the calibration procedure, which follows the installation of the correction caps, this thermometer sets the precision of the finished thermistor sensors. The computer will be able to test no more accurately than this referenced thermometer so you want to use a good one. As you will only need it for a few hours however, students will wish to try to borrow one from their school even if this means having to move your computer system temporarily into the school lab. These glass thermometers are easily broken so be careful. The correction cap adjustment and calibration must be done on the computer which will do the data logging as each computer will read its paddles a little differently.

To adjust the correction caps, run Program #2, and follow the instructions. I attached the sensors to the thermometer with a rubber band and wrapped the assembly in plastic film closed with another band to keep out the water bath. I then placed them in the thermos and adjusted the water temperature by adding warm and cold ice water until the thermometer read 2 degrees below the lowest temperature of interest for our experiment 76°F (20°C). I then waited 10 minutes to be sure the temperature was stable, then ran the Program #2.

The computer was then turned off, the I/O cable unplugged, and small disk caps were installed on the sensor PC board. Choose the available cap value just smaller than the value suggested by Program #2. Check your bath temperature and run the program again. You can stop with one cap or add smaller ones to the sensors which need them. These caps do not affect the accuracy of the finished sensors. They only set the lowest temperature that the sensors can read.

Calibration

The final calibration procedure is a bit involved but accuracy is what is needed and accuracy always takes work. Program #3 is the calibration program. It guides you through the calibration procedure, then calculates calibration parameters for each thermistor and stores them on the disk.

If you are using a computer other than an Apple, you will need to rewrite the disk storage routine (sub 1400) as well as all disk routines in Programs 4 and 5. The calibration file consists of (1) a description of all the thermistors with the calibrator's name and the date, (2) the game I/O reading at 25°C, and (3) the Beta parameter for each of the four sensors.

Instructions are given in this program but let us emphasize a few points. The procedure is to immerse the thermistor sensors in a water bath and raise the temperature of that bath in steps. The reading of the thermistors are taken automatically but the bath temperature must be taken with a reference thermometer and entered from the keyboard. As mentioned earlier, the accuracy of the sensors can be no better than the accuracy of this thermometer.

The sensors were again rubber banded to the thermometer and wrapped in plastic film. You will need the reference thermometer, a container of hot water, a container of cold water, the thermos, a empty bucket for waste water, and a towel for spills. I spread the towel on the floor beside the computer desk and placed the water containers on it. The program suggests you start with the coldest temperature and work your way up. You can, if you like, start at any place in the temperature range of interest and enter the temperature steps in any order, but cold to warm is easiest. With each step pour a little water from the thermos into the bucket, replace it with water from the hot or cold supply, and wait for the temperature to stabilize, at least 2 minutes.

The smallest number of points that will run is 3. The largest is 50. Any number above 10 should produce accept able accuracy. Taking many small steps near the cold end of the range will improve the accuracy.

When you complete the temperature steps (type "E" on the keyboard to end calibration), the program will fit the points to an exponential curve and calculate two key parameters for each sensor. The first is GC (25C) the game control reading for that sensor at 25°C, and the second is Beta the exponential parameter. The Betas calculated here should agree with the Betas from the first program within about 10%. These values may then be printed out and stored on the disk.

The mathematical procedure for calculating the parameters of the sensors (Program #3, Sub 800) uses the Least Squares Fit of an Exponential Function Technique. The data is first linearized by taking the logarithm of each pot reading. This step is shown graphically in Figure 4. The linearized data points are then fitted to a straight line using a least squares fit. The slope of this line becomes Beta and its value at 25°C becomes the first calibration parameter. Even more sophisticated math may be desired for experiments having large temperature ranges to insure that the accuracy of the reading is

cont'd.

uniform over the entire range.

Data Logging

We are now at a point that we can run experiments. Program #4 is the data logging program. It allows you to set up the experiment, record reference data, retrieve the calibration parameters from disk, automatically read the data, add running notes, and record the completed data on disk. Scientific method is supported by the methodical prompting for information (date, experimenters name, etc.) and by the inclusion of this information and notes from the keyboard directly in the data.

In our example experiment, I mounted the 0 sensor on the Apple's 6502, Number 1 on a central RAM memory chip, and Number 2 on the center of the power supply. Number 3 was mounted by its wire so that the sensor was in the room air on the outside of the computer near the fan intake. The first three were attached with a small piece of scotch tape and a match head blob of heat sink grease (Radio Shack #276-1372). The cables had to be carefully bent with the fingers and taped to the computers case until the sensors would stay in place. The heat sink grease helps transfer the heat from the target to the sensor.

Program #4 was then run, and its printout is Run #2. For the first 30 minutes the fan was on, then it was turned off, and a note to that effect was entered in the data. At the end of about an hour and a half, 73 data points had been taken at one minute intervals, the experiment was ended and the data stored on disk.

This program keeps track of the time between data points with a FOR/NEXT loop (Program #4, lines 845 to 875) during which it also looks for the keystrokes of notes to be entered from the keyboard. The delay constants are set on lines 120 (P1%, printer off) and 125 (P2%, printer on) which will have to be adjusted for your machine. You will have to set up a simple trial experiment just measuring the air temperature. Time the taking of 10 data points at one minute intervals and adjust the delay constants until the time intervals is correct. Since the printer is slower than the monitor, the printer constant P2% will be the slightly smaller of the two.

This program begs for a real time clock. The use of the FOR/NEXT loop for timing is not really satisfactory, particularly if notes are being typed in from the keyboard. Such clocks are regularly advertised at about $130.00 and we would certainly recommend this expense for any experiment which is to be published. A programmable interrupt from the clock would be a most useful feature for this program.

Data Reduction

One of the biggest problems with computer aided experiments is the reams of raw data they output. Until meaningful conclusions can be drawn from this data, all the work to this point is for naught. Program #5 is a simple data reduction program designed specifically for evaluating hot electronic equipment. It reads the data from the disk, prints out the data, and calculates means for selected sections of the data.

This Data Reduction program is the program which must be customized to the needs of your experiment. This is particularly important for a student where a personally written data reduction program clearly demonstrates a sound understanding of the experiment.

The personal computer is capable of quite sophisticated data analysis, although it is at times a bit slow. I have had success with fitting several types of equations to data points, (lines, polynomials, and nonlinear functions), taking a Fast Fourier Transform for spectral analysis, and drawing contour charts. The major limitation in addition to the speed is the number of data points which can be placed in memory and yet have room for the program and math operations.

Experimental Results

To evaluate my fan experiment, I reviewed all the data graphically and chose two blocks of data which best represented steady-state conditions with the fan on and off. The mean and standard deviation for these data blocks were then calculated.

The 3-inch fan mounted inside the Apple][+ (equipped with 16K memory card, printer card, and disk controller card), was shown to lower the 6502 and power supply surface temperatures less than 10 degrees but it lowered the memory chips by over 20 degrees F. We feel this is a significant temperature reduction, particularly in the memory chips, and justifies the expense, noise, and dust accumulation associated with the use of a fan.

The Ideal Personal Instrument

These programs are a long way from being the ideal personal instrumentation system. In fact the word processing and graphic development functions are left to commercial software. Still these programs should be adequate for learning and for straightforward experiments. What would the ideal system be like?

First the system would have to be completely integrated so that control and data could be passed from one section to another with ease. This takes a lot of memory and sophisticated programming. Smooth transfer between the data reduction, word processing, and graphics development capabilities is particularly important. The point of the whole exercise is to produce the final report with data, graphics, equations, and explanations in a fast, accurate, and professional manner.

The system must be fast and accurate. A 32-bit mini with a 12 meg clock and a math co-processor would of course be very desirable, but in truth only very sophisticated and expensive experiments would require this kind of capability. A common personal computer with well-supported calibration procedures and less expensive hardware, like real time clocks and A to D boards, will do wonders.

The system must be easy to learn, easy to use, and easy to modify to the needs of different experiments. As the experimenter is released from the monotonous task of writing down numbers, more effort can be placed on using more advanced math and better analysis of the data. The experimenters must be able to quickly surpass the original functions supplied with the system and add routines of their own. The system must be able to grow in complexity as the user's skill grows.

Above all the ideal personal instrumentation system must support the experimenter at every step of the way and facilitate

contd.

the use of good scientific method.

(Ed. Note: The programs referred to in this article will be available soon in the WAP disketeria. Tom's address is 607 Winans Way, Baltimore, MD 21229, phone number (301) 233-2140.)

Parts List

Number Req.	Description of Part	Suggested Supplier	Total Cost
4	Thermistor GA45J1 by Fenwal Glass coated beads Resistance at 25C - 50K Ratio 0C to 50C - 9.53	Fenwal	$20.00
1/3	Circuit Board #276-157	R.S.	$ 1.50
20ft	Cable twin wire #22 stranded #278-1385	R.S.	$ 1.00
5ft	Cable 8 conductor #24 stranded two runs of #278-365	R.S.	$ 1.20
1ft	Heat shrink tubing polyolefin 1/16 ID	Local	$ .50
2ft	Heat Shrink tubing polyolefin 1/8 ID	Local	$ 1.00
8	Disk capacitors (values calculated by program)	R.S.	$ 3.00
1	DIP Header 16 pin #276-1980	R.S.	$ 1.70
misc.	Epoxy, foam, etc.	Local	$ 1.10
		Approx. total	$31.00

Suppliers:
R.S. - Radio Shack
Fenwal - Fenwal Electronics, 63 Fountain Street, Framingham, MA 01701
Local - A local electronics store

Run #1 - Program #1
Choosing a Thermistor

Note: Give all resistances in Kohms.
-Thermistor parameters from data sheet-
Type Number : GA45J1
R0 @ 25 (Kohm) : 50
Ratio (0C/50C) : 9.53
-Calculated Parameters-
Beta = 3980 Deg.K
Alpha (0) = -5.53 %/Deg.C
-Temperature units ? (F or C) : F
-Correction Caps-
Calculate value ? (Y or N) Y
Lowest temp. needed : 60
Maximum resistance = 77 Kohm
Correction cap. = .0206 UF
-Temperature & Resistance Chart-
Low temperature : 60
High temperature : 110
Temperature step : 1

Temperature		Resistance	Read
15.6 C	60 F	77.3 KOHM	255
16.1 C	61 F	75.3 KOHM	248
16.7 C	62 F	73.3 KOHM	242
17.2 C	63 F	71.4 KOHM	236
17.8 C	64 F	69.6 KOHM	230
18.3 C	65 F	67.8 KOHM	224
18.9 C	66 F	66.1 KOHM	218
19.4 C	67 F	64.4 KOHM	212
20.0 C	68 F	62.7 KOHM	207
20.6 C	69 F	61.1 KOHM	202
21.1 C	70 F	59.6 KOHM	197
21.7 C	71 F	58.1 KOHM	192
22.2 C	72 F	56.6 KOHM	187
22.8 C	73 F	55.2 KOHM	182
23.3 C	74 F	53.8 KOHM	178
23.9 C	75 F	52.5 KOHM	173
24.4 C	76 F	51.2 KOHM	169
25.0 C	77 F	50.0 KOHM	165
25.6 C	78 F	48.7 KOHM	161
26.1 C	79 F	47.5 KOHM	157
26.7 C	80 F	46.4 KOHM	153
27.2 C	81 F	45.2 KOHM	149
27.8 C	82 F	44.2 KOHM	146
28.3 C	83 F	43.1 KOHM	142
28.9 C	84 F	42.1 KOHM	139
29.4 C	85 F	41.0 KOHM	135
30.0 C	86 F	40.1 KOHM	132
30.6 C	87 F	39.1 KOHM	129
31.1 C	88 F	38.2 KOHM	126
31.7 C	89 F	37.3 KOHM	123
32.2 C	90 F	36.4 KOHM	120
32.8 C	91 F	35.6 KOHM	117
33.3 C	92 F	34.7 KOHM	115
33.9 C	93 F	33.9 KOHM	112
34.4 C	94 F	33.1 KOHM	109
35.0 C	95 F	32.4 KOHM	107
35.6 C	96 F	31.6 KOHM	104
36.1 C	97 F	30.9 KOHM	102
36.7 C	98 F	30.2 KOHM	100
37.2 C	99 F	29.5 KOHM	97
37.8 C	100F	28.8 KOHM	95
38.3 C	101F	28.2 KOHM	93
38.9 C	102F	27.6 KOHM	91
39.4 C	103F	26.9 KOHM	89
40.0 C	104F	26.3 KOHM	87
40.6 C	105F	25.7 KOHM	85
41.1 C	106F	25.2 KOHM	83
41.7 C	107F	24.6 KOHM	81
42.2 C	108F	24.1 KOHM	79
42.8 C	109F	23.5 KOHM	78
43.3 C	110F	23.0 KOHM	76

Run #2 - Program #4
Data Logging

Data File Name - Apple Fan Test 6
Date - 1/29/84
Description of Experiment - Fan On/Fan Off. T0-6502. T1-Memory. T2-Power Supply. T3-Room Air.
Experimenter - J. T. Riley
Time Interval (min) - 1
Temperature Units - F
Thermistor Parameter File Name - T1
Description of Thermistors - 7/24/84 JTR 0 - GA45J1 .02 / 1 - GA45J1 .02 / 2 - F A41J .25 / 3 - GA45J1 .02

contd.

You may enter notes between data points (do not use comma or quotes).

#	Time	T0	T1	T2	T3	PB	
0	1169	85.17	79.91	89.44	73.16	4	System & fan on
1	1170	85.43	80.37	89.44	73.16	4	10 min before test
2	1171	85.70	80.84	89.69	73.37	4	
3	1172	85.97	81.08	89.94	73.16	4	
4	1173	85.97	81.32	90.20	72.95	4	
5	1174	86.24	81.32	90.20	73.59	4	
6	1175	85.97	81.56	90.45	74.45	4	
7	1176	85.43	81.56	90.45	71.51	0	Room lights reduced
8	1177	85.43	81.56	90.45	70.91	4	
9	1178	85.43	81.56	90.71	70.71	4	
10	1179	85.70	81.56	90.71	70.71	4	
11	1180	85.70	81.32	90.71	70.12	4	
12	1181	85.70	81.32	90.71	70.12	4	
13	1182	85.70	81.32	90.71	69.93	4	
14	1183	85.70	81.08	90.71	70.12	4	
15	1184	85.70	81.08	90.71	70.32	4	
16	1185	85.70	81.08	90.71	70.12	4	
17	1186	85.70	81.08	90.71	69.93	4	
18	1187	85.70	80.84	90.71	70.12	4	
19	1188	85.70	80.84	90.71	70.12	4	
20	1189	85.70	80.84	90.71	69.74	4	
21	1190	85.70	80.84	90.45	69.74	4	
22	1191	85.70	80.84	90.71	69.74	4	
23	1192	85.43	80.84	90.45	69.55	4	
24	1193	85.70	80.60	90.45	69.74	8	
25	1194	85.17	80.60	90.45	69.55	4	
26	1195	85.17	80.60	90.45	69.17	4	
27	1196	85.17	80.60	90.45	69.36	4	
28	1197	84.90	80.60	90.45	69.93	4	
29	1198	84.90	80.60	90.45	69.55	4	Fan off
30	1199	84.90	82.78	91.24	70.51	4	
31	1200	85.17	85.37	92.04	71.11	4	
32	1201	85.43	87.31	92.86	72.12	4	
33	1202	85.70	89.06	93.41	72.74	6	
34	1203	85.97	90.89	93.98	73.59	4	
35	1204	86.24	92.17	94.56	74.23	4	
36	1205	86.52	93.50	94.85	74.67	4	
37	1206	86.79	94.88	95.14	75.12	4	
38	1207	87.07	95.59	95.14	75.80	4	
39	1208	87.35	96.68	95.44	75.34	4	
40	1209	87.64	97.42	95.73	75.34	4	
41	1210	87.92	98.18	96.03	75.80	4	
42	1211	88.21	98.96	96.34	76.03	4	
43	1212	88.50	99.75	96.34	76.03	4	
44	1213	88.50	100.15	96.64	76.49	4	
45	1214	88.79	100.56	96.95	76.96	4	
46	1215	89.09	100.97	96.95	76.96	4	
47	1216	89.39	101.39	97.26	77.20	4	
48	1217	89.69	101.81	97.58	76.49	4	
49	1218	89.69	102.24	97.58	76.96	4	
50	1219	89.99	102.67	97.89	77.20	4	
51	1220	90.29	102.67	97.89	77.20	4	
52	1221	90.29	103.11	98.21	76.96	4	
53	1222	90.60	103.11	98.53	76.96	4	
54	1223	90.60	103.55	98.53	76.96	4	
55	1224	90.91	103.55	98.86	76.96	4	
56	1225	90.91	103.99	98.86	76.96	4	
57	1226	91.22	103.99	99.19	76.96	4	
58	1227	91.54	104.45	99.19	77.20	4	
59	1228	91.54	104.45	99.19	76.49	4	
60	1229	91.54	104.45	99.52	76.72	4	
61	1230	91.86	104.90	99.52	76.49	4	
62	1231	91.86	104.90	99.85	76.96	4	
63	1232	92.18	104.90	99.85	77.20	4	
64	1233	92.18	104.90	99.85	76.96	4	
65	1234	92.18	105.37	100.19	76.72	4	
66	1235	92.50	105.37	100.19	76.03	4	
67	1236	92.50	105.37	100.19	76.26	4	
68	1237	92.50	105.37	100.19	76.26	4	
69	1238	92.83	105.37	100.53	76.49	4	
70	1239	92.83	105.37	100.53	76.49	4	
71	1240	92.83	105.84	100.53	76.26	4	
72	1241	92.83	105.84	100.53	76.26	4	

Data complete. 73 points taken.

Run 3 - Program #5
Data Reduction

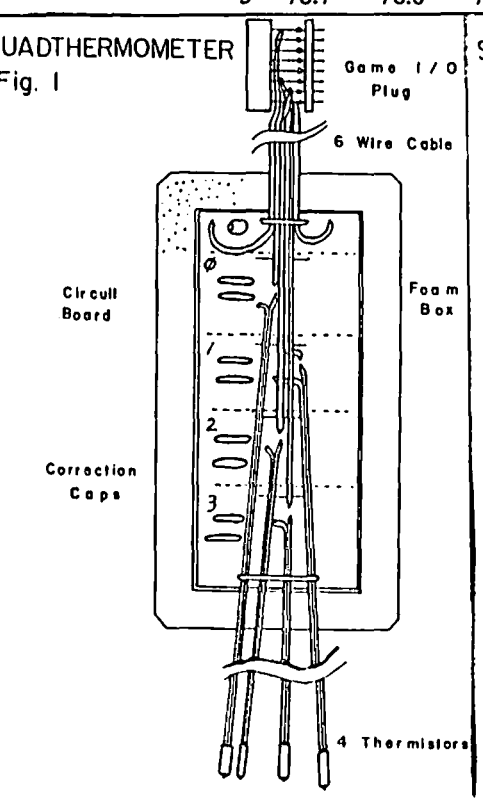
Statistical Parameters
Low Limit - 0, High Limit - 28
Number of Points - 29; Elapsed Time - 28 Minutes

#	Mean	Min	Max	S
0	85.6	84.9	86.2	.29
1	81.0	79.9	81.6	.41
2	90.4	89.4	90.7	.37
3	70.9	69.2	74.5	1.55

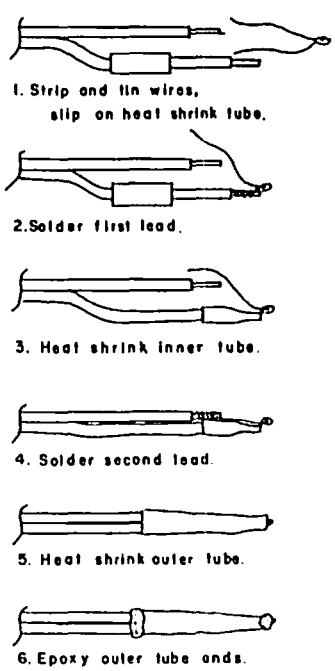
Statistical Parameters
Low Limit - 50, High Limit - 72
Number of Points - 23; Elapsed Time - 22 Minutes

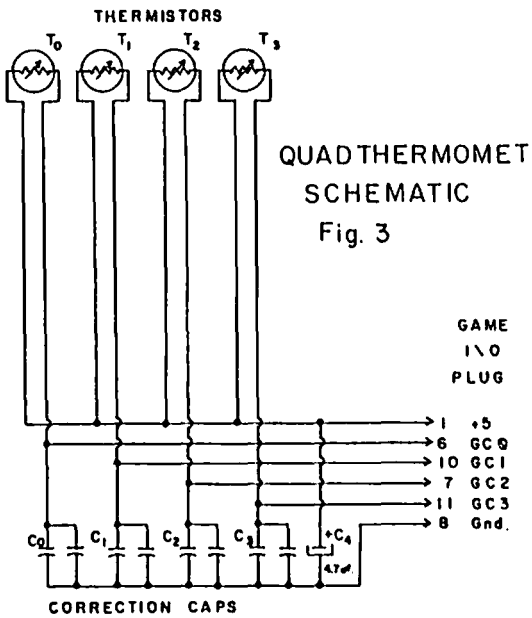
#	Mean	Min	Max	S
0	91.7	90.0	92.8	.92
1	104.5	102.7	105.8	.99
2	99.5	97.9	100.5	.86
3	76.7	76.0	77.2	.36

QUADTHERMOMETER
Fig. 1



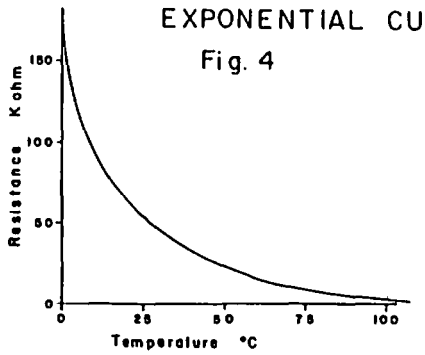
STEPS TO WIRE A THERMISTOR
Fig. 2

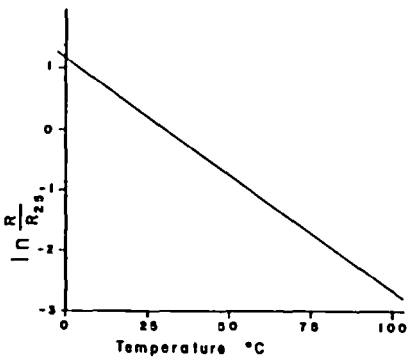




QUADTHERMOMETER SCHEMATIC
Fig. 3

LINEARIZING AN EXPONENTIAL CURVE
Fig. 4





THE PRICE IS RIGHT ON.....

Apple™ Software		Macintosh™ Software		Apple™ Software		Macintosh™ Software	
	Accounting				**Communications**		
AR/AP/PR(BPI) ea.	$235	MacOneWrite ea	$165	ASCII Pro	$88	Straight Talk	$55
Dollars&Sense(64K)	69	Back to Basics ea.	105	Compuserve Starter	26	Market Mgr Plus	159
	Database				**Education**		
PFS: file, report ea.	86	OverVue	200	Barron's SAT	74	Mind Prober	35
DB Master 4+	200	Megafiler	120	Create w/Garfield	21	Word Challenge	2
	Graphics				**Leisure**		
Fontrix 1.5	95	ReadySetGo 2.0	85	Karataka	24	Hitchikers Guide	28
Printographer	28	DaVinci: Interiors	35	Microleague B'sball	28	Spellbreaker	35
	Programming				**Spreadsheet**		
Terrapin Logo 3.0	69	MacForth II	150	Multiplan	75	Excel	260
Let's Explore Basic	28	Turbo Turtle	42	PFS: Plan	86	Spreadsheet Link	81
			Wordprocessing				
MouseWrite	86	MS Word	132	Screenwriter II/Dict	90	Think Tank 512	145
			Miscellaneous				
Micro Cookbook	31	Smooth Talker	68	Newsroom	42	Mind Prober	33
Pinpoint	43	TK Solver	198	Music Construction	32	HabaCalc N' Graph	68

Ask for a copy of our Apple or Macintosh catalog containing hundreds of other programs. Also, ask about our volume discount prices for10 or more of any one item.

$3 shipping and handling per order (UPS-$4). MD residents, add 5% sales tax. No charges or COD's. Prices subject to change. Call for items not listed. **(301/854-2346)**

COMPUTER WARE UNLIMITED P.O. BOX 1247 COLUMBIA, MD 21044

"PRINT USING" FOR FORTH

by Chester H. Page

This application provides for right-justified "pictured" printing of numbers, for example, as tabular output in the form $ 12.34, or as " 12 dollars and 34 cents", when the data returned from a calculation is simply the number 1234. The word .USING can be used in the execution mode, as in

```
1234 .USING $ ###.##
```

or in compilation mode

```
: DOLLARS .USING $ ###.##" ;
```

to be used in

```
12345 DOLLARS <CR>
```

etc. In compilation mode, the picture string must be delimited by a quotation mark; in execution, the delimiter is not necessary if an end-of-line <CR> is entered. If another command follows on the same line, then the delimiter must be used to prevent the following word from being interpreted to be part of the format.

For right-justified output, use .USING.R and put the desired width on the stack, thus

```
: COLUMNS 20 .USING.R ##,###" ;
```

For large numbers, present as double-precision numbers, the words are D.USING and D.USING.R . For example,

```
: PHONE D.USING (###)###-####" ;
```

The format picture can include words, as in

```
: MONEY .USING # dollars and ## cents" ;
```

which will give outputs like

```
"12 dollars and 34 cents"
```

from entering "1234 MONEY".

The columnar outputs can be both right and left justified, as with

```
: $COL 30 D.USING.R $ ######.##" ;
```

which will align the $ signs as well as the decimal points.

Note in some of the above examples that there are fewer digits pictured than used. The use of #S in the program continues the digit conversion until all digits are used. #S always converts at least one digit, so if there are none left, it will return a leading 0. Similarly, if there are fewer digits than the picture calls for, leading 0's are supplied. To avoid the annoyance of leading 0's, the word TYPE has been modified to *TYPE which ignores zeros until a non-zero digit has been encountered. If there is limited space for digits, as when the leading $ is used, the presence of too many digits gives an overflow which will be printed before the $. Without the use of #S, such an overflow would be discarded with no warning.

```
SCR # 1
 0 \ TYPE without leading zeros          19DEC85CHP)
 1 VARIABLE 0FLAG
 2
 3 : *TYPE  ( addr n---)
 4   1 0FLAG !
 5   -DUP IF                        \ if n=0, ignore command
 6   OVER + SWAP                      \ calculate limits
 7   DO I C@                         \ fetch each character
 8   DUP 48 = IF 0FLAG @                \ if 0, check flag
 9   IF DROP BL ENDIF \ if no prior non-zero digit, change to
                                                        blank
10   ELSE DUP DUP 48 > SWAP 56 < *        \ check for 1 to 9
11     IF 0 0FLAG ! ENDIF                \ if 1 to 9, clear flag
12          ENDIF
13     EMIT LOOP                      \ print character or blank
14   ELSE DROP                         \ if n = 0, clear stack
15   ENDIF ;  -->

SCR # 2
 0 \ Right-justified pictured output of double number
                                                      19DEC85CHP)
 1
 2 : D.WITH.R  ( d n---)
 3 >R                              \ set width aside
 4 SWAP OVER DABS                    \ convert to absolute value
 5 <#                              \ prepare conversion
 6 PAD DUP DUP C@ + DO  \ set up loop from string-end down
 7 I C@                         \ fetch a character from picture
 8 DUP 35 = IF DROP #           \ if #, compile #, else
 9 ELSE HOLD ENDIF          \ insert character into output string
10 -1 +LOOP                       \ continue down-loop
11 #S SIGN #>                     \ finish conversion
12 R> OVER -                     \ recover width, compute padding
13 SPACES
14 *TYPE SPACE ;                    \ output formatted number
15 -->

SCR # 3
 0 \ Runtime picture handling                    19DEC85CHP)
 1 : (PICTURE)  ( n w 1---| d w 0---)  \ w is width
 2 R  \ Copy the pointer to tne next word from the return stack.
 3     \ That location holds count byte of the picture string.
 4 DUP C@ 1+                    \ duplicate and increment length
 5 DUP                \ leave picture address and count on stack
 6 R> +               \ add length to next-word pointer, to skip
 7                    \ over inline text (picture string)
 8 >R               \ put new next-word pointer on return stack
 9 PAD SWAP CMOVE                        \ move picture to PAD
10 IF >R S->D R> ENDIF \ if single-precision number, convert to
11                          \ double-precision format
12 D.WITH.R ;                       \ convert and output number
13 -->

SCR # 4
 0 \ Store picture string at PAD                 19DEC85CHP)
 1 : PICTURE     ( n w 1---| d w 0---)
 2 34                        \ leave ASCII  code for " delimiter
 3 STATE @                    \ check for compilation vs. execution
 4 IF COMPILE (PICTURE)       \ compile a pointer to run-time
 5                     \ routine into the next dictionary location
 6 WORD       \ copy picture from input stream into word buffer
 7 HERE C@ 1+ ALLOT   \ move dictionary pointer to compile
                                                          string
 8 ELSE                                      \ executing
 9 WORD                                 \ input format picture
10 HERE DUP C@ 1+    \ find its address and length including
                                                          count
11 PAD SWAP CMOVE               \ move format string to PAD
                                                          contd.
```

```
12 IF >R            \ if single-precision number, set width aside
13 S->D             \ convert number to double-precision format
14 R> ENDIF                                   \ recover width
15 -->

SCR # 5
 0 \ Store picture string, cont.                        19DEC85CHP)
 1 D.WITH.R                \ convert digits to ASCII and print
 2 ENDIF ;
 3 IMMEDIATE
 4 -->

SCR # 6
 0 \ "Print using"                                      19DEC85CHP)
 1 : .USING.R  ( n w--)                                 \ number, width
 2 STATE @ IF COMPILE 1 ELSE 1 ENDIF
 3         \ put 1 on stack to indicate single-precision numbers
 4 [COMPILE] PICTURE ; IMMEDIATE
 5
 6 : D.USING.R  ( d w--)                    \ double number, width
 7 STATE @ IF COMPILE 0 ELSE 0 ENDIF
 8         \ put 0 on stack to indicate double-precision numbers
 9 [COMPILE] PICTURE ; IMMEDIATE
10 \ for next two words, width is preset to 0 (left justify)
11 : .USING STATE @ IF COMPILE 0 ELSE 0 ENDIF
                                              [COMPILE] .USING.R ;
12    IMMEDIATE
13 : D.USING STATE @ IF COMPILE 0 ELSE 0 ENDIF
                                              [COMPILE]
14    D.USING.R ; IMMEDIATE
15
```

The words PICTURE and (PICTURE) are patterned after the familiar ." and (."), to provide the function in execution mode, or to compile it into a word being defined. Since this dual execution/compilation use of a single word is rather complicated, it is worthwhile to explain it. In execution, lines 9-11 of PICTURE (Scr # 4) read the format string from the input stream as a dimensioned string into the word buffer, then move this string, together with its count byte, to free RAM starting at PAD.

In compilation mode, with PICTURE used in a colon definition of <name>, it compiles a pointer to (PICTURE), then reads the next word in the input stream (the format picture) and|compiles that string of text into the parameter field of <name>|just as though it were a string of component word address pointers. When <name> is executed, (PICTURE) is executed as a component. When (PICTURE) is called, the Generic Execution Procedure common to all colon words puts the address of the following parameter cell on the return stack, to be used as the word to be executed when (PICTURE) is finished. But (PICTURE) (lines 2-8 of Scr # 3)takes this address off the return stack, adds the length of the string, then puts the increased address back onto the return stack, so that the first word|after|the string becomes the next component of <name>. (PICTURE) also puts the address and count of the format string on the stack, just as (.") does, for use in further manipulation of the string. (.") calls TYPE to output the string; (PICTURE) moves the string to RAM at PAD. Thus in both direct use in execution, and indirect use via compilation, the effect of PICTURE is to put the format string at PAD at the appropriate time. D.WITH.R is then called for the actual output routine.

The execution/compilation duality of PICTURE gets passed along to .USING.R because it is compiled into the definition of .USING.R by [COMPILE]. [COMPILE] kills the precedence bit of PICTURE and keeps it from being executed when .USING.R is defined. Similarly, the IMMEDIATE word .USING.R is forced to be compiled into the IMMEDIATE word .USING.

Thus PICTURE doesn't get used in the compilation mode until a formatting word is defined with .USING.R or .USING ; for example in

```
: DOLLARS .USING $ ###.##" ;
```

given above. The IMMEDIATE word .USING causes execution of PICTURE during compilation of DOLLARS, with the result that (PICTURE) is a component of DOLLARS (but not of .USING).

In the last screen, .USING.R has to put a 1 on the stack for PICTURE, in both direct execution mode and in compilation mode. This is the reason for the "tricky" second line.

The following article is reprinted from the January 1986 issue of **Washington/Northern Virginia Scanner**, a publication of The Institute of Electrical and Electronics Engineers, Inc. Dr. Chester H. Page is WAP's Forth Columnist.

Chester Page Wins IEEE Steinmetz Award

Dr. Chester H. Page (LF), a member of the Washington Section, has been selected as the recipient of the 1986 Charles Proteus Steinmetz Field Award by the IEEE Board of Directors "for contributions to terminology, quantities and units in national and international standards."

Dr. Page received his A.B. and Sc.M. degrees from Brown University in 1934 and his Ph.D. in physics from Yale University in 1937. From 1937 to 1941 he was instructor and then assistant professor of physics at Lafayette College. He joined the National Bureau of Standards in 1941 and contributed significantly to the development of the proximity fuze. In 1945 he became chief of the Ordnance Research Section, and in 1947 headed the Electronic Computer Section, where he helped direct the development of SEAC, one of the first fully-electronic digital computers. He became electronics consultant in 1948, and from 1953 to 1960 a general consultant to the Director of the Bureau, and taught in the NBS Graduate School.

From 1960 to 1973 he was chief of the Electricity Division, which establishes, maintains, and disseminates the electronic units for the USA. Under his leadership NBS was in the forefront of major advances in the methods of determining these units. From 1973 until his retirement in 1977, he was the Institute for Basic Standards Coordinator for International Standardization Activities.

Dr. Page has been a leading participant in national and international standards activities since 1949 in the IRE/IEEE, the International Committee on Weights and Measures, the Consultation Committee on Units, the International Electrotechnical Committee, and the International Standardization Organization.

PROGRAM SELECTOR REVIEW

by Barry Fox

(This review has been updated to reflect the new 2.0 version of Glen Bredon's ProSEL. Information concerning it is at the end of the review.)

This is a review of four program selectors available for the Apple // series computers. The opinions expressed in this review are my own and do not reflect approval of any product by any outside groups. (You know - standard legal disclaimer type stuff). The programs reviewed are: ProSEL by Glen Bredon, Mouse Desk by International Solutions, and Catalyst versions 2.1 and 3.0 by Quark, Inc. All programs have the capability of using a mouse, but Mouse Desk and Catalyst 3.0 use the mouse and Mac-like pull down menus to work.

Let me start first with a brief listing of the hardware in my system used to do this review. I have an Apple //e, Rev B motherboard that has been enhanced with the new monitor ROMs, mousetext ROM and 65C02. Inside it I have a Titan Accelerator //e, parallel printer card and Radix 10 printer, Ramworks card with 512K RAM, Super Serial Card and US Robotics Courier 2400 modem, Apple Mouse //, Pro-Clock, Disk][controller and 2 Disk][drives, and CMC Computer Systems Quick 20 - 20 Megabyte hard disk. The following paragraphs will review the capabilities and limitations of each of the program selectors mentioned.

The first thing that comes to mind when one mentions program selectors is what do they do for you and do you need one? The answer is, if you are only using floppy disks, you probably don't need one. A program selector uses the QUIT code in ProDOS to allow you to move easily from one system program (interpreter) to another. As an example, when leaving AppleWorks or Filer, you get a 40-column display that prompts you for the prefix and pathname of the next application to run. That is the normal unmodified ProDOS QUIT code. A program selector replaces that with an easier way to switch to the next program. One note: the next program has to be a system file or run using the Startup capability of Basic.System 1.1 through the Basic Interpreter. On a hard disk, such as mine, I have over 30 different system programs I can use, ranging from AppleWorks, to AE Pro, to Filer and Backup //. I also have about a hundred basic and binary programs I work with which makes remembering where everything is a real pain without a selector already set up to find them. On a Unidisk 3.5 or on a large RAMdisk you may also want to use the selector for similar reasons.

The first program selector I used (and still use) is **ProSEL** by Glen Bredon. This is the least feature-packed, simplest and least expensive of the program selectors available today. It is also the most "bullet-proof" since it traps Ctrl-Reset without dying (more about why that is important later). It uses a simple 40-column text only display and will allow the listing of up to 48 programs directly on its main selection menu. It supports the protocol of redirecting the Startup path for Basic.System, meaning you can run an application 2 or 3 subdirectories deep from Basic.System on the root directory. It also doesn't play around with ProDOS (except to install itself in the QUIT Code) and leaves /RAM alone too! It has the capability, if you have several system files in a subdirectory, of allowing you to "catalog" the subdirectory and only show the type SYS files, almost on a sub-menu. ProSEL has two main files associated with it. One, Prosel. System, will install the program selector and bring you to its select menu, and the other, ProSEL, is the file containing the program information itself and can be run from Basic without invoking the selection menu but installs itself ready when needed. This capability allows you to install it and run another program all from a Basic program. I use this arrangement to allow me to reboot my BBS on loss of power and still install a program selector.

ProSEL has an editor which allows you to add, delete, edit or save your list of programs. To add programs you are prompted for a name to display on the selection menu and then the prefix, application pathname, and finally startup path (if you are using, say, the Startup capability to run something from Basic other than STARTUP). You then save your entries and away you go. The program will use a mouse if installed, and if not it will use the cursor keys to highlight the program to run and then either clicking the mouse or hitting RETURN will run it. For more information on ProSEL, contact Glen E. Bredon, he is a "regular" on MAUG, on Compuserve. His PPN is 72245,636 or you can write to him at 521 State Road, Princeton, NJ 08540.

The next program selector is **Mouse Desk**, by International Solutions. This is a mouse-based program (although it can be used from the keyboard) which runs on an enhanced Apple //e with 128K minimum, or on an Apple //c. It uses Mac-like pull down menus and icons to run programs. It is not copy protected, can be run from Basic or from another program selector (like ProSEL), and if you install a RAMdrive using Ramworks and lock out at least the lower 64K bank, it will recognize the RAM disk as well. The version I have was specially modified for use by CMC Computer Systems with its Quick Series hard disks. The program takes about 15 seconds to invoke itself when you quit from an application (using the Accelerator and accessing the Quick 20 at 3.6 Mhz).

Mouse Desk will recognize any type of file present on the disk selected (you have to click once to select a volume to work with and then double click the mouse to open a window) and uses different icons for binary files, text files, Basic programs, system files and .System files (it uses an Apple icon for these) and a separate icon for other file types. Its built-in utilities make copying files easy - you select the volume, subdirectory or files to copy and then drag the icon to the destination volume and it then copies them. Similarly it will delete files by dragging the icon to the trash can and it will delete files. It also can lock, unlock or rename files, making it an easy to use file utility. To run a program, all that is needed is to select its icon, then double click to run. If the program is a Basic program, you must have Basic.System on the subdirectory or volume containing the program. You can easily swap disks and by pulling down the Check window,

contd.

you can update the disk on the desktop. It also allows you to create run lists of programs so you can run them either by pulling down the Run window or (if in the main run list) by pressing Open-Apple and the appropriate number. The program is very easy to use and to master and only contains a few minor inconveniences - you must have multiple copies of Basic.System around and if you hit CTRL-Reset, it reboots the system. For more information contact: International Solutions, 910 West Maude Ave, Sunnyvale, Ca 94086, (408)-773-0443.

The last two program selectors are two versions of the same program - **Catalyst** - by Quark, Inc. **Catalyst 2.1** is a text oriented program selector similar to ProSEL and **Catalyst 3.0** is a mouse- and icon-based program selector similar to Mouse Desk. Both programs are copy protected and must boot from the master disk.

Catalyst 2.1 uses an 80-column text display to which you add new selections in a manner similar to ProSEL. It will allow you to install some copy protected software (primarily other Quark products like Word Juggler) and allows you to group the selections by topic and to add a title to make it easier to work with. It will display the time on screen if you have a compatible clock card and will allow the use of the mouse to highlight a program for running, similar to ProSEL. The program will allow you to redirect the startup path like ProSEL but if you hit Ctrl-Reset it will cause a reboot. It is compatible with most software but there are a few that will not run. This is due to the way that Quark modifies ProDOS to keep their copy protection intact. One program that will not run is Universal Bulletin Board System, which is the BBS program that I use. Quark is sending those folks copies of Catalyst and the Catalyst technical specifications in the hope of correcting the incompatabilities.

Catalyst 3.0 is the new mouse- and icon-based program selector that is being distributed with all new Unidisk 3.5's, much the same way Catalyst 2.0 was distributed with all Profiles. It uses special Catalyst desktop files to create icons and in most cases requires updated versions of popular software (e.g. Appleworks 1.3 and Word Juggler 2.9, both just released) to install. For user (or custom) installed programs it uses a generic icon. To use Catalyst 3.0 you must add the programs to the desktop much like version 2.1 or ProSEL. It also has the ability to delete and copy files, but not with the ease of Mouse Desk. It includes the ability to change the desktop screens, put up a clock display (if you have a compatible clock), use a calculator and future expansion space. It will recognize a Ram Disk if one has been set up and again needs to reserve the lower 64K bank of auxiliary memory since it use double high resolution graphics to create the desk top. Again due to copy protection it may not support all programs and if you hit Ctrl-Reset it will reboot. For further information contact: Quark, Inc, 2525 West Evans, Suite 220, Denver, CO 80219, (303)-934-2211.

RECOMMENDATIONS

If you are using an Apple][+ or unenhanced Apple //e, and need a program selector, then ProSEL is your best choice. If you have an enhanced //e with 128K or a //c and need a program selector, then choose Mouse Desk. If you want to support the use of copy protected software and to lock yourself into dependence on booting from floppy, then feel free to support Quark and its Catalyst programs. Personally I use both ProSEL and Mouse Desk interchangeably and have been laughing all the way to the bank!

PROGRAM SELECTOR UPDATE:

This paragraph outlines improvements to ProSEL which now make it superior as a program selector. The new version 2.0 of ProSEL incorporates an option to update an old version and to install either a 40-column or 80-column version. I updated to the 80-column version and was pleased with the results. It allows up to 54 entries in three neatly spaced rows. If you have a clock card, it will continuously display the time in the bottom of the screen and, as always, will support a mouse. You can easily use it to run system files out of other slots and drives and also easily configure it to run out of Unidisk 3.5's without taking up much space. The program loads in about 1/2 second, making it the fastest of all the program selectors reviewed. It is still the least expensive and contains a disk full of useful utilities to manage ProDOS files and disks (hard, floppy or Uni). A word of note: If you intend to run a Basic program that will invoke ProSEL 2.0, instead use an Exec file as ProSEL loads at $0800 which is where Basic loads programs. Also include in your Exec file a POKE 2048,0 after BRUNing ProSEL to allow Basic programs to work properly. All in all, it is a great improvement and has my full endorsement as the best program selector available for the Apple today.

If you have any questions or comments leave an Easyplex on Compuserve to Barry Fox, 75016, 3103 or call my BBS, THE CONNECTION, Harrisburg, Pa, 717-652-4364.

Wizardry Transfer contd. from pg 20

on the Apple][, the level attained in the previous class will be found in byte 131; the corresponding location in the Mac is byte 112.

This should be sufficient to complete the transfer successfully. I have assumed that your character is in the castle and that he or she is not in need of the services of the Temple of Cant. You should remember to equip before venturing forth into the maze; this will also get you the correct armor class. The actual coding of characters is somewhat more subtle and complicated than outlined in this article. The transfer procedure works for ordinary characters, but I can't guarantee it for exotics or for those who have already found Werdna's amulet!

Excel Power contd. from pg 56

Additional macro commands can virtually eliminate the risk of changing fields that should not be changed. Another problem is that the macro shows the user every change as it is made. This is acceptable on small areas, or when first using the macro to get an idea how it works. But when you get into large areas, it is much faster to turn off the screen display using the =ECHO(FALSE) macro command before entering the loop now at A4:A8. Also, the macro does not alert the user that he or she has probably made a serious possible error if the user selects entire rows or columns and then tries to run the macro. Doing so makes the macro go through all of Excel's16,384 rows or 256 columns--and that can take a long, long time!

PASCAL AND MODULA-2 IMPLEMENTATIONS

by Robert C. Platt

This month's column will take a step back to provide Apple // and Mac owners with an overview of the numerous implementations of Pascal and Modula-2 available. These two languages have much in common--both were created by Niklaus Wirth to promote structured programming. If you are about to learn your first programming language, you are much better off learning Pascal or Modula-2 than learning BASIC. (Given that BASIC is not burnt into the Mac, there is no inherent advantage to using BASIC on the Mac--far more programs are available in Pascal!)

This column will focus on the different implementations of these languages on both computers. Because of minor differences between different publishers' implementations, translating a program from one implementation or machine to another can be tricky. Both past and future installments of this column cover such translation problems in greater detail. But this month, I want to point out the lay of the land so that you will be able to see how the different implementations fit together.

Pascal on the Apple //

At least four different Pascals can run on the Apple // family. The latest and the best to learn with is **Instant Pascal** by Think Technologies. Apple is publishing this package for $140. Instant Pascal has excellent debugging features such as the observe window and breakpoints. Because Instant Pascal is an incremental compiler, programs can begin executing at once without the delay caused by compiling the program into machine language. Instant Pascal follows the ISO Pascal standard. Apple also publishes **Apple Pascal (version 1.3)** which includes the UCSD p-System (an operating system alternative to DOS 3.3, ProDOS or CP/M.) Version 1.3 supports the 800K unidisk 3.5 and permits procedures to be arbitrarily long (earlier versions had a 1200 byte limit). Apple Pascal is based upon the UCSD version of the language--the one in widest use. List price is $250.

Even though Apple Pascal claims a version number of 1.3, it is based on Version II of the p-System. An advanced version of the p-System (Version IV) is offered by Pecan Software for the Apple //. Pecan's implementation allows more units and eliminates a number of other artificial limitations found in Apple Pascal 1.3. Since Pecan acquired all of UCSD's rights to its Pascal, it is fully UCSD compatible. Prices start at $79.95 (call 800-63-PECAN.)

The final version is **Turbo Pascal** from Borland International for $69.95. Turbo requires a CP/M card, and does not follow either the ISO or the UCSD standard.

Pascal on the Lisa-MacXL

Apple's Lisa Pascal compiler is the standard for all Lisa - Mac system development programming. Both Inside Macintosh and Macintosh Revealed contain examples written in Lisa Pascal. Lisa Pascal is a true compiler which generates "native code" 68000 machine language for execution on the Lisa or Mac. Lisa Pascal follows the ISO standard. The **Lisa Pascal Workshop 3.0** lists for $395. (A version for the Mac has been long-promised.)

Pascal on the Macintosh

The most popular implementation is **MacPascal** developed by Think Technologies and published by Apple. It lists for $125 and follows the ISO standard. MacPascal supports most of the ROM Toolbox calls either through built-in procedures or by calling the INLINE function. MacPascal is virtually the same incremental compiler as Instant Pascal on the Apple //, making conversion of programs just a matter of translating ROM Toolbox and I/O commands. I covered conversion between MacPascal and Apple Pascal in the April 1985 WAP Journal p. 56.

Pecan Software offers two versions of UCSD Pascal on the Mac. The Designer Series is a 68000 implementation of Version IV of the p-System. Thus, programs can be ported from the Apple // family without significant modification. (I understand that the order of storing the high and low byte of integers are reversed between the Mac and Apple, but that is the subject of a future article.) Prices begin at $79.95. The principal drawback to the Designer Series is that it represents an alternative operating system and its files will not be recognized by the finder.

In my view Pecan's more interesting product is **MacAdvantage version 1.1**, which is a UCSD Pascal that runs under the finder and supports all ROM Toolbox calls. I have discussed MacAdvantage and conversion of MacPascal programs to MacAdvantage in the August, October and December 1985 WAP Journal. I understand that the list price for MacAdvantage was recently reduced and is worth your consideration. (Note that although the same compiler is used in the Designer Series and MacAdvantage, they use different editors to enter programs--Designer Series uses the familiar UCSD editor while MacAdvantage uses a Mac-like editor. As a result a quick conversion program is used to transfer between source file formats.)

The latest arrival is TML System's **MacLanguage Series Pascal** 1.0 which lists for $99.95 (call 305- 242-1873). TML follows the ISO standard and supports ROM Toolbox calls in both Lisa Pascal and MacPascal formats. This is the best of all worlds, because you can work directly from Inside Macintosh or can port over a MacPascal program with little translation difficulty. The principal drawback is that TML does not support separately compiled units. TML is a true compiler that produces MDS-compatible assembler source or 68000 machine code. Although I have had it for only a week, it looks good so far and will be the subject of future articles.

One final Pascal on the Mac should be noted, but has priced itself out of the market. Step-Lively Software, Inc. offers **On Stage Developer's System Pascal** and also a personal system for $119.95 to $399.95. The ads promise full Lisa (ISO) Pascal compatibility, MDS-compatible assembly output and access to all ROM Toolbox routines.

contd.

Step-Lively includes the new QUED editor for entering programs from Paragon Courseware. (Call 518-785-7214).

Modula-2 on the Apple//

After Wirth conquered the world with Pascal, he perfected it to create Modula-2. (For a fuller account of Modula-2 see the January through May 1984 WAP Journals or Knepley & Platt Modula-2 Programming, Reston Books 1985.)

Only Volition Systems implemented Modula-2 on the Apple. That compiler ran under the p-System, so Apple Pascal or Pecan Software's Pascal is a prerequite to using this compiler. Unfortunately, Volition fell on hard times and I am not sure how to purchase their compiler. Probably the most complex program I ever wrote in Modula-2 translates Pascal programs into Modula-2, but it of necessity must leave 5% of the converting to human intervention. (Again, wait for a future article....)

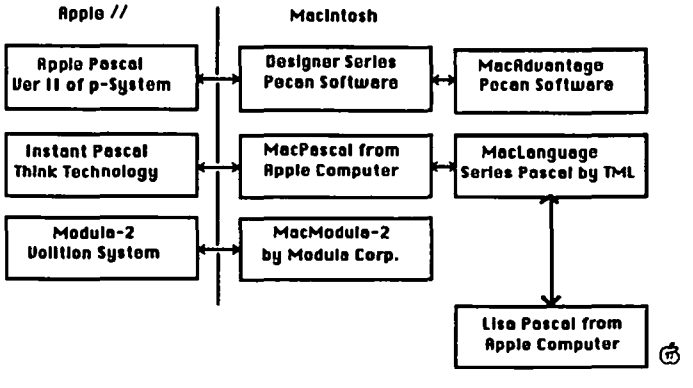
Modula-2 on the Macintosh

There are at least two versions of Modula-2 on the Mac. The ETH (Wirth's University back in Switzerland) public domain version can be downloaded from CompuServe or copied from other WAP members onto three disks. Although the price is right, this four-pass compiler is rather slow. At least two different people have written interfaces that will call all ROM Toolbox routines.

The most popular commercial compiler is from Modula Corporation, called MacModula-2. Both ETH and MacModula-2 are interpretive compilers which produce M-code rather than 68000 machine instructions. A book is about to be published called Macintosh Graphics in Modula-2 by Russell L. Snapp (Prentice-Hall, 1986) that is allegedly based on the MacModula-2 implementation. MacModula-2 supports all ROM Toolbox routines.

Needless to say, it is easier to convert between Modula-2 on the Apple or Mac than to convert between Pascal and Modula-2 on either machine. Conversion problems would have been particularly minimized if Volition had released their Mac compiler. However, internal feuding prevented its official release. Because input/output libraries differ from each software publisher, input/output is the principal item that must be converted when porting a program between ETH, Volition or MacModula-2.

Although the degree of choice is impressive, the lesson should be clear that structured languages are now well within the price level of every Apple or Mac owner.



COMPUTER DEN Ltd.

30% or more off on all software for all APPLE computers, including Mac

C.Itoh Color, 180 CPS	$530.00
Panasonic 1091	$245.00
Epson FX-85F/T	$360.00
FX-185F/T	$495.00
JX-80.....	$489.00
LQ-1500 w/par. interface...	$950.00
Ribbons ... call for discount prices	
Paper 20#, 2500 sheets	22.50
20#,microperf.	26.00
Rainbow Packs	call
Grappler + ...	80.00
Buffered Grappler+	156.75
Serial Grappler+ (Imagewriter)	83.50
Grappler C	83.50
Hotlink	51.75
Print it! Interface	175.00
JVC FORTIS 12" amber monitor .	80.00
XTRON Comcolor 14" Composite monitor color switchable to green .	150.00
TAXAN COLOR MONITOR	260.00
ShuffleBuffer (64K)	270.00
ShuffleBuffer (128K)	340.00
Printer Stand: short--25. long--30.	
Disk holder for 3-1/2"	10.00
Disk holder for 5-1/4"	10.00
Alphabits Card	75.00
SuperSprite Graphics Pkg. ...	290.00
Koala Pad Touch Tablet	80.00
Koala Pad Adapter for II	6.00
Micro-Sci Disk Drive, A2	165.00
Mac Enhancer (Microsoft)	186.75
Verbatim diskettes	
SS/DD --17.00/10 --160.00/100	
DS/DD --22.00/10 --210.00/100	
3-1/2" -16.00/5 -- 30.00/10	
Buy 5 boxes of 5-1/4" disks and receive a DataCase	FREE
Head Cleaning Kits	1.20
FingerPrint (MX Series)	45.00
(FX Series)	52.50
Record Master (Complete Data Base System)	40.00
Special on Scholastic Ed. Series: Story Tree, Agent USA, Mystery Sentences, Tales of Discovery, & Math Man	28.00
COPY II PLUS for II, IIe, IIc	28.00
COPY II MAC	28.00
DAVID-DOS II	32.00
DOLLARS & SENSE for MAC	105.00
MacModula-2 Language System .	100.00

This ad is written a month in advance. Since prices are subject to change, please call for current pricing. We attempt to meet all advertised prices.

COMPUTER DEN Ltd.
11716 KEMP MILL ROAD
SILVER SPRING, MARYLAND 20902
301-649-6868

Call to order
Sunday - Thursday, 10 A.M. - 9 P.M.
Free delivery to Crystal City
UPS shipping
Quantity Discounts Available

Softviews

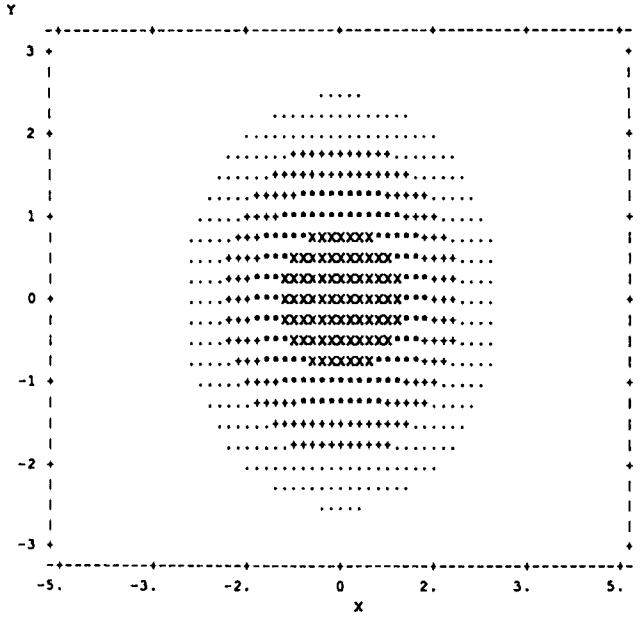
David Morganstein

This month a few words about Systat, a very complete statistical package available for both the Apple][and the Macintosh and about Notes for Jazz, a support program for Jazz users.

SYSTAT (Lee Wilkinson). I consider this program to be one of the most powerful statistical packages available to Apple][(under CP/M) or Macintosh users. It contains many characteristics of software found on mainframe systems. The CP/M and Macintosh versions are identical. Systat consists of separate modules, amounting to about 900K of code, each of which uses a surprisingly simple set of commands given the powerful procedures it supports. Considering the amount of program code, a hard disk is recommended to avoid swapping disks when switching between modules.

SYSTAT is not a new-comer to the statistical package market. The current release, version 2.1, contains a much expanded manual, a full-screen editor with spreadsheet capabilities and three new procedures. The documentation contains 373 well-written pages including both a table of contents and an index. The manual presents examples of runs using all the commands. This is a nice touch as it will help to avoid the confusion that often results when trying to learn what commands are required for what functions.

The package provides all of the commonly used univariate statistics and analyses including multi-way tables, multiple regression and ANOVA models. Its graphics displays consist of two-way plots, histograms, stem & leaf plots, as well as, box, probability and quantile plots. All of these, as you can see, come in a "text" format. However, an informative graph can be provided in this manner. The contour plot, for example, reveals much of the interaction between three variables.




```
 STEM AND LEAF PLOT OF VARIABLE:          Z
 SMALLEST VALUE AT TOP OF PLOT IS:        0.205
2   00000000000000000000011111111222222222222333333333333333333*
2   55555555555555556666666666666666777777777777888888888888888*
3 H 00000000000011111111222222222222333333333344444444444
3   55555555666666666666667777888888888888888899999999
4 M 00001111222222223333333333334444444444
4   55556666666666777777779999999999999999
5   00111122223333444444444
5   55555555555566666666666688889999999
6   00001111222233333334444
6 H 55555555666677777777777888899
7   00001111111144444444
7   55555566666666777777799999
8   00001111112222444
8   55555555666666669999999999
9   1111113333333333
9   5566667777778899
```

SYSTAT is among the few packages on any personal computer which test the multivariate general linear hypothesis. This module, MGLH, includes multivariate analysis of variance, profile analysis of repeated measures, principal components analysis, and canonical correlation. It also provides modules for factor analysis with rotation and scoring, and for multidimensional scaling. The TABLES module permits four-way and larger contingency tables, with analysis of log-linear models.

The modules are written in compiled Fortran. Unfortunately, for those using the Mac version, Systat does not support the Mac interface. There are neither menus nor desk accessories available. On the plus side, complex transformations of data are possible using an internal BASIC-like language. The following Systat code generated the data used to produce the plots shown earlier.

```
SAVE BIVAR
HOLD
REPEAT 1260
  1 IF CASE = 1 THEN LET X=-4.65
  2 IF CASE = 1 THEN LET Y = -2.5
  3 LET X = X + .15
  4 IF X > 4.5 THEN LET Y = Y +.25
  5 IF X > 4.5 THEN LET X = -4.5
  6 LET Z = EXP(-(X^ 2 + Y^ 2)/4)
  7 IF Z<.2 THEN DELETE
  8 ELSE IF Z<.4 THEN LET C$='.'
  9 ELSE IF Z<.6 THEN LET C$='+'
  10 ELSE IF Z<.8 THEN LET C$='*'
  11 ELSE LET C$ = 'X'
RUN
```

The programs can import ASCII text files where each record is a case terminated by a carriage return and each field is a variable delimited by at least one space. The output can be redirected from the screen to the printer or to a text file for merging with a report.

contd.

The first of the new procedures is CLUSTER which provides several cluster analytic techniques falling broadly into two categories: hierarchical tree or linkage methods and k-means splitting methods. Several graphical displays provide the analyst with visual feedback on the effectiveness of the clustering procedures. The NPAR module contains most of the commonly used non-parametric procedures including a sign test, the Wilcoxon signed ranks test, the Kruskal-Wallis one-way and Friedman two-way ANOVAs based on ranks and the Kolmogovov-Smirnov one and two sample distribution comparison methods. A very complete time series module provides for the computation of auto and cross-correlation coefficients, fourier analysis and ARIMA model fitting and prediction. To perform necessary transformation, the data can be smoothed with moving averages, medians or general linear filters with user supplied weights.

Another nice feature is the speed with which the various modules execute their calculations. Interestingly, the author told me that Systat running on a micro-diskette equipped Macintosh was faster in performing large-scale regressions than an IBM-XT equipped with a hard disk. Upon exiting each module all run commands from the current session are printed automatically to provide permanent documentation. Its features will be valued by users in professional research and business environments. Systat, Inc., 603 Main St., Evanston, IL. 60202. Phone (312) 864-5670. Price $495.

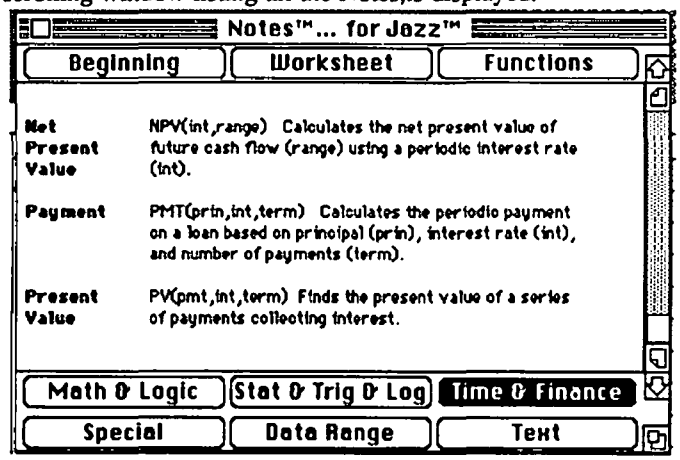
Notes for Jazz. This package provides useful support of two kinds for users of Lotus' Jazz package. One disk provides a handy set of on-line notes to assist the Jazz user while the second disk contains 12 business templates. The notes contain information that can help both the novice and the experienced user. The notes are similar to the "About" menus provided with Microsoft products. They consist of scrolling windows of topics which summarize Jazz' many features.

Installation, Use & Documentation. Both the Notes and the templates documentation (called Companion) are accessed as two desk accessories installed in the System file of your Jazz start-up disk (or of your hard disk.) You do not use Apple's Font/DA Mover to install the programs; rather, an easy-to-use installation program is included on the disk. In addition to the desk accessories, two data files which contain the text for the accessories must be moved to the Start-up disk, all of which is done automatically by the installing program.

If you should call up either desk accessory while not in Jazz, you will get a message that you must be running Jazz (with your serial number) in order to use the programs. Your Jazz serial number is read from your Master, which must be inserted during installation of the desk accessories. In addition to the on-line help, the programs come with a short manual containing the installation instructions. Adding the DA's to a hard disk is a bit trickier, but went smoothly for me. I successfully installed Notes onto: a Jazz Master diskette, Jazz moved onto Apple's HD 20 and Jazz moved onto a Lisa.

Description. Since Jazz has no on-line help files, an omission not suffered by some of its competition, Notes serves a useful purpose. It provides both introductory and detailed information. For example, I never remember which parameters go where in different functions. Take the PMT function for computing interest payments. It has three parameters representing the principal, interest and period of the loan. Notes provides a quick look-up to remind the user which parameter is which.

The screen shot below demonstrates what a Notes Help window looks like. The three topics at the top are part of a tree, Beginning is the highest level under which Worksheet and other options presented themselves at the bottom of the window. Selecting Worksheet brought forth another set of selections of which Functions was my choice. As you can see, a selection can now be made of which type of function Notes are desired. Having clicked on Time & Finance, a scrolling window listing all the Notes,is displayed.



Notes provides the useful option of appending your own notes to the notes data file for later reference.

Companion. The business templates provide help in three areas: Accounting, Finance and Administration. While I did not evaluate everyone for accuracy, the ones I used seemed to perform acceptably. Some of them are a bit simplistic, e.g., the Payroll template would serve only the smallest of businesses and handles only the computation of pay (i.e. multiplying hours worked for each of several rates by the rate and making a few subtractions for taxes and FICA). There are templates for a Cash Journal, Receivables and Payables. The finance category includes templates for profit and loss analysis, cash flow, breakeven analysis, loan amortization and depreciation. I must mention that the accompanying manual contains only a two sentence, description of each template.

Summary. My overall impression was that the notes were helpful and the templates well designed. However, I think the product suffers in several important ways. First, even at an introductory price of $79, it is a bit expensive for what it provides. Second, the desk accessories should have been set up to install into the Jazz program, rather than in the System file where they take up two precious positions of the fifteen permissible desk accessories. Since the programs only work with Jazz, it seems that installation in Jazz is the right place to be. In this way, they will only be available to you when you are in Jazz. Third, the installation is awkward and clearly aimed at the copy protection issue. Apparently, the package will read your Jazz serial number and write it to the Notes disk, thereby preventing installations on other Jazz Masters. I can appreciate Layered's not wanting the program to be used in an unauthorized way, but there must be a better way. Layered, 85 Merrimac St., Boston MA. 02114. (617) 423-9041. $99.

The View from Durham

by Chris Klugewicz

P. O. Box 22171
Duke Station
Durham, NC 27706

Hello again from Durham! After a two-issue absence, I've returned to the pages of the Journal. I won't make excuses for the absence of my December column, but I have a good reason for missing January's deadline...

Nothing can go wrong wrong wrong wrong... When the Mac was first released, part of the rationalizing concerning the closed architecture of the machine had to do with reliability: if they closed it up and soldered everything to the main logic board, failure rates would be very low. Well, my Mac must have been part of the "very low," because just before the January Journal deadline, my Macintosh (with Red Ryder running and me connected to CompuServe) fizzled. It was actually rather spectacular: the keyboard suddenly quit working and the cursor disappeared; annoyed by what I thought was one of Red Ryder's rumored fatal errors, I grabbed my mouse to "Quit"--and noticed that parts of the pointer remained at various places on the screen, while the right hand side of the screen started to lose pixels at random spots. Alarmed, I pressed my Reset button. I was greeted with the "Sad Mac" and the error code 040020 (which the people at Clinton Computer informed me means "absolutely nothing"; now come on, guys...). I tried another disk, but it seemed that the problem was in hardware. (I guessed it was the digital board, and, as it turned out, I was right.) Well, I was in Durham at the time all this happened, and for those of you who have been in that part of the South know that it ain't exactly on the cutting edge of high technology; besides, I had final exams coming up, so I decided to wait until I got home to fix it.

MacService. When I got home for Christmas break, I called around to see how much it would cost me to fix the Mac; my worst fears were realized: the logic board would cost me about $150, and labor ran about $30. I brought it up to Frederick Computer Products, which has a very large, experienced service department, and it took them a half hour to replace the main board. The total bill? $170.70, including tax.

What's going on here? In the course of my researching repair costs for the Mac, I inquired about 512K RAM upgrades (my machine is still Thin, for reasons I've mentioned earlier). The price is nearly reasonable now, and since I needed a new logic board anyhow, I figured I might as well get one with four times the memory (for only twice the price). Wrong: it seems that Apple has stopped shipping the upgrade kits for some reason, and none are available in the D. C. area. Alack, Thin still is my Mac.

Some mail from way back when:

Mail order blues, continued. From Bob Soule: "In one of your earlier columns, you raised questions about the service offered by Programs Plus. Based on my experiences, I was all set to rush to their defense until my most recent order. I ordered a software package and two disk holders on September 13. My feeling [mine, too! --CK] is that the goods ought to arrive in three or four days unless they tell you in advance that the item is not in stock. I'm willing to wait a week before I get really impatient. A week came and went; no delivery. I called on September 24. A salesman promised that someone would call me back. No return call. I called again today [September 25] and was put on terminal hold--until I was disconnected. Still no delivery. Tonight I've had to write a letter to Programs Plus about the problem." Ordering by mail can be one of the most harrowing experiences a computer owner ever faces. I'd like to collect all of your experiences--both bad and good--with various mail order houses so that I can put together some sort of "consumer advisory" article to be printed here in the Journal. Write and tell me what kind of service you've received for your money.

It's so hard to get good help these days. Some of you may remember the rebate that Verbatim was offering this summer: if you bought one or two boxes of disks, you got some money back, and if you bought three boxes, you got one more box free. Well, I sent my three proofs of purchase to Verbatim along with my rebate card, on which I had indicated that I wanted double-sided disks for my free box (I figured that the Mac would soon be using double-sided disks, so I might as well get started on converting everything to the new disks). Well, my free box of disks arrived this week (after four and a half months, I might add): ten brand new, double-sided *5.25"* disks! One rather hopes that this is an isolated incident, but I suspect otherwise.

The future of the Apple //. Hints from Cupertino suggest that the Apple // series is due for a major overhaul which will make the //'s more "Mac-like." Apple has begun calling the Macintosh user interface "the Apple user interface," and it has suggested to developers that their software should be able to work with the AppleMouse //. Rumor has it that a "Finder" for the // will be announced in January, and it wouldn't surprise me a bit. This seems to me to be a very intelligent decision on the part of Apple's management (i.e., John Sculley), especially if data compatibility between the Mac and the // is a goal of this strategy.

The Apple lawsuit. Apple's threatened lawsuit against Digital Research concerning the similarity of GEM to the Macintosh--I mean "Apple"--user interface was recently settled in Apple's favor. GEM will be substantially modified, and Apple will receive compensation from DRI. Personally, I'm glad Apple won this fight; however, my reasons are completely and absolutely selfish ones: I bought a Mac, and I don't want cheaper, Mac-like computers around. From a more

—— Operant Systems ——

-- HARDWARE --

DOT-MATRIX PRINTERS—
- Epson FX-85 (160 cps, 32 cps NLQ mode)..... 369
- FX-286 (200 cps wide carriage upgrade of FX-185). 549
- LX-80 (100 cps, 16 cps NLQ mode)..... 249
- LQ-1500 (200 cps, fantastic letter-quality mode). 899
- LQ-1000/LQ-800 (quality of LQ-1500 for less $) (call)

Okidata 192 (160 cps replacement for Oki 92)..... 359
- 193 (132 column version of above)..... 519

Toshiba 1340 (144 cps draft, BEST letter-qual matrix).. 459
- 351 (288 cps, wide carriage version of above). 1149

Texas Instruments TI-855 (150 cps draft, 35 cps NLQ)... 675
NEC P2/P3/P5 Pinwriter (24 wire high quality matrix) (call)
Citizen MSP 20 (200 cps matrix, Epson-compatible)..... 349
Panasonic 1091 (120 cps, Epson compatible)..... 259

DAISYWHEEL & LASER PRINTERS—
- Epson DX-35 (35 cps daisywheel, Diablo compatible)..... 675
- Citizen Premier 35 (35 cps, fastest for the money)..... 449
- Canon Laser Printer (8 pages/min, Diablo compatible).. 2095
- Silver-Reed 800 (40 cps, Diablo-compatible)..... 695
- 550 (18 cps daisywheel, wide carriage)..... 419
- NEC Elf (16 cps, par & ser interface, NEC/Diablo emul). 439
- 8830 (55 cps daisywheel, built like a tank)..... 1399
- Diablo 630 API (40 cps daisywheel)..... 1549
- Qume LetterPro 20 (20 cps daisywheel)..... 419

MODEMS—
- Hayes Microsodem JCe (tone dialing/speaker/Smartcom I). 145
- Smartsodem 2400 (2400/1200/300 baud, RS-232)..... 599
- Smartsodem 1200 (1200 baud, RS-232, auto-dial)... 389
- Smartsodem 300 (300 baud, as above)..... 145

Novation Apple-Cat II (w/ Conware; 1200 baud capable).. 199
Prometheus Promodem 1200 (300/1200 baud, RS-232)..... 289
- Promodem 1200A (300/1200 card w/ software).. 289

Microcom ERA 2 (300/1200 baud card with software)..... 345
ZoomModem JCe (300 baud Microsodem compat w/software).. 125
US Robotics Password (300/1200 baud, auto-dial/answer). 229
- Courier 2400 (2400/1200/300, autodial/ans). 439

Anchor Automation Express (300/1200 loaded w/ features) 249
- Volkssodem 12 (300/1200 baud, RS-232) 199

DISK DRIVES—
- MicroSci A2 drive (100% Apple-compatible)..... 169
- A.5 (half-height, 100% Apple compatible)..... 169
- A.5c (half-height for Apple JCc)..... 179

Corvus Winchester drives..... (call)

CP/M & 6502C SYSTEMS—
- Applicard (6 Mhz Z-80, 64K to 192K RAM, 70-col video).. 125
- Microsoft Softcard JCe (Z-80, 80 col & 64K on one card) 265
- Softcard II (includes CP/M 2.2 and MBASIC)... 239

Titan Accelerator JCE (3.6 Mhz 6502C coprocessor)..... 229
Speed Demon (6502C high-speed coprocessor)..... 195
Applied Engineering Z-Ram (256K, CP/M, Ramdisk for JCc) 325

MONITORS—
- Amdek 300G/300A (12" green/amber anti-glare, 18Mhz).125/139
- NEC JB-1201/1205 (green/amber anti-glare screen, 20Mhz) 145
- JB-1260 (12" green, 15Mhz, best value for money).... 99
- USI PI-2 (12" green anti-glare screen, 20 Mhz)..... 125
- PI-3 (12" amber anti-glare screen, 20 Mhz)..... 125

INTERFACES & BUFFERS & CLOCKS—
- Pkaso/U printer interface (superior graphics & more !!). 99
- Quadram Microfazer (8K to 128K parallel buffer)..... 139
- Grappler+ printer interface (parallel w/ graphics)..... 85
- Buffered Grappler+ (16K to 64K buffer plus graphics)... 149
- CCS 7711 Super Serial (for printers & modems)..... 99
- Practical Peripherals Graphicard (parallel w/ graphics). 79
- Printerface (std par w/o graphics) 59
- ProClock (PRODOS compatible)..... 109

VIDEO BOARDS—
- Videx Ultraterm (upto 160 column/48 line display !!)... 209
- MicroSci 80-col card (w/64K RAM, AppleWorks-compatible). 79
- Applied Engineering RamWorks II (64K to 3 meg + 80 col) 139
- Viewmaster (80 col for II+)..... 119

MEMORY EXPANSION—
- Microtek 16K RAM card..... 79
- Titan Technologies 128K RAM card..... 179

-- SOFTWARE --

WORD PROCESSING—
- Wordstar 3.3 (includes 6 mhz Z-80 Applicard)..... 149
- Word Perfect (BEST IBM prog now avail for Apple II). 95
- Bank Street Writer or Speller..... 45
- pfs: Write JCe 79
- ScreenWriter II (40/70/80-col display w/speller).... 85
- HomeWord / HomeWord Speller..... 49/35
- Sensible Speller IV (DOS or PRODOS versions)..... 79
- The Word Plus (super spelling checker for CP/M).... 109

SPREADSHEETS—
- Multiplan (state-of-the-art spreadsheet)..... 70
- SuperCalc 3a (powerful spreadsheet for the JCe).... 135

INFORMATION MANAGEMENT—
- dBASE II (the best Apple database, requires CP/M).. 289
- pfs: File, Report, or Graph..... 79
- The General Manager 2.0..... 149
- Thinktank (electronic thought organizer)..... 95
- DB Master 4+ (latest version)..... 185

BUSINESS & ACCOUNTING—
- Dollars & Sense (accounting w/graphics)..... 69 & 79
- Managing Your Money (accounting + investment mgmt). 115
- Peachtree Back to Basics Accounting (GL/AR/AP)..... 115
- BPI Accounting (GL/AR/AP/PAY/INVENTORY).....each 245

COMMUNICATIONS—
- Ascii Express Professional (best DOS/PRODOS program) 80
- Z-term Professional (for CP/M)..... 90
- CompuServe Starter Kit (password & 5 free hours).... 25

ODDS & ENDS—
- Print Shop/Print Shop Companion.....36/29
- Newsroom/Clip Art Collection.....39/19
- Pinpoint..... 42
- Typing Tutor III..... 36
- Flight Simulator II..... 36
- Curtis Emerald Surge Protector (6 outlets & cord)... 45
- Kensington System Saver Fan (w/surge protector)..... 66
- Kraft Joystick / TG Joystick / Hayes Mach III. 35/35/39
- KoalaPad Graphics Tablet (with graphics software)... 85

- Filevision (graphics database system)..... 119
- Odesta Helix (database for the serious user)..... 249
- Dollars & Sense (accounting w/graphics)..... 95
- Microsoft Word (what MacWrite should have been).... 125

MACINTOSH
- Excel (best Mac spreadsheet available)... 255
- Basic interpreter 99
- Chart (presentation business graphics).... 85
- File..... 125
- Multiplan..... 125
- MacEnhancer (has the ports Apple forgot). 175

- Assimilation Process Mac Memory Disk..... 24
- Iomega Bernoulli Drive (5 meg removable cartridge) 1395
- MacLion (programmable database for Mac)..... 239
- MacForth Level II..... 169
- Hippo C..... 99
- Kensington MacModem (300 baud)..... 99
- Surge Protector (replaces power cord).... 39

CALL FOR PRICES OF ITEMS NOT LISTED

—— Please Compare Our Prices ——
If you find a lower price, give us a chance to beat it.

Feel free to call for answers to technical questions.

TO ORDER: Call Jeff Dillon at (301) 434-0405
or
Write or visit:

OPERANT SYSTEMS, 7676 New Hampshire Ave, Suite 312
Langley Park, Md 20783

Md. sales add 5% tax. UPS shipping is available.
All items carry full manufacturer's warranties.

objective viewpoint, Apple's arguments that theirs is a proprietary user interface are questionable at best. For one thing, most of the Mac user interface was taken from research being done at Xerox Corporation's Palo Alto Research Center (PARC). This settlement isn't going to help the standardization of a user interface, either. I'm just waiting to see what happens now that Microsoft's "Windows" has hit the market, and I'm curious about what's going to happen to the Atari 520ST and the Commodore Amiga, both of which use GEM as their operating environment.

An answer to "Mac Q & A." I was somewhat dismayed by Jon Hardis' answer to the opening question in his December Q & A column. Although a surge suppressor certainly will not protect your computer's digital components from nearby lightning strikes or correct ground faults in your home wiring, I firmly believe that an ounce of prevention is worth ten pounds of cure. In other words, I'd much rather pay $30 to $35 for a decent surge suppressor (which is all a perfectly adequate one costs; Radio Shack carries one for $30, and SGL Waber makes one for $35) than $170 for a new digital board. Bernie Urban and Lee Raesly have both written on behalf of surge protectors in previous Journals, and I, for one, agree that they are a worthwhile investment.

Hmm... I got a very interesting phone call the other morning (just as I stepped out of the shower, of course). It was from a market research firm in Boston, and they wanted my opinions on a new product called MacCharlie. (At this point, all sorts of negative thoughts popped into my mind--I *really* don't like MacCharlie, which is a piece of hardware that you attach to your Mac to enable it to run IBM PC programs.) However, the product he described sounded very unlike the MacCharlie that has been advertised in the literature and that some of us have seen at various computer shows and the like. This MacCharlie included an internal hard disk and an external 5.25" disk drive. It would be mounted similar to the HyperDrive (clamped directly to the 68000 microprocessor in the Mac), but it would also provide true IBM compatibility! The suggested retail price was amazingly low (unfortunately, I've forgotten the exact figure I was given), with discounts available. The chap on the phone had no expected release date. To me, all of this seems just wonderful for Mac owners who want a hard disk and a PC XT, but Jonathan and its slots may eliminate the need for such a product. It'll be interesting to see what comes of this.

Speaking of hard disks. There's a new internal 20 megabyte hard disk for the Mac. It's called the "Warp 20" (dumb name--I'm constantly reminded of a certain television program of the late sixties: "Warp factor ten, Mr. Sulu"), and it costs $895 (GREAT price!). Like the now-legendary HyperDrive, it clips onto the 68000 in the Mac to provide direct memory access, which makes it faster that any external disk. Best of all, you can install it yourself (if you know what you're doing) or the people at Warp Nine Engineering will do it for you. Evidently there's also a 10 megabyte version, but when you can get 20 megabytes for less than a 10 megabyte HyperDrive...!

In search of.. In my never-ending quest for the best programming language for the Mac, I've begun to look into C. (Yes, Ron, the one that's descended from B.) I've borrowed a friend's copy of the Megamax C compiler, and I've started playing with it (I'm floundering, mainly; I'm going to have to borrow her manual, as well). Purely as an intellectual exercise, I'm collecting opinions on programming languages for the Mac and for the // (and ///). Please send me your comments, and I'll publish the results in this column.

The Mac Plus. A recent *InfoWorld* article carried the news that a substantially improved Macintosh would be introduced at the MACWORLD Exposition in January. This new machine will have a megabyte of RAM (expandable to four megabytes!), a double-sided disk drive, 128K ROM, and a new keyboard (with numeric pad built in, *à la* IBM PC). A Small Computer Systems Interface (a sort of standard peripheral interface--not a bus connection) will be added as well. Upgrading is possible, and I'll be one of the first in line!

Jonathan. Or whatever they're calling it now. "Jonathan," the successor to the Macintosh will be revealed probably in June or July. Apple will call it a "Mac" of some sort (I heard "Turbo Macintosh," which I think is simply hideous), but it will be about as different from an original model Mac as the Mac was from the Lisa. My most recent information has Jonathan with a large screen (taller than wide so that more of a page can be displayed at a time), a double-sided disk drive (maybe two), a megabyte of RAM, and a bus connector on its back (which will give Jonathan the slots that the Mac should have had). The latest *InfoWorld* has Jonathan as a three-piece computer, but I'm not as sure of that as of the above. More insubstantial rumors concern the processor (68020?), clock speed (I've heard up to 12 MHz), and price (rumors about prices are generally wildly inaccurate, reflecting mainly users' wishful thinking; I would be willing to pay about $3000 for such a machine, but I suspect that Apple will price it somewhat higher, probably competitive with the IBM PC AT). Before present Mac owners start looking to sell their machines, there are many rumors circulating about Apple's upgrade policy to the equivalent of the Jonathan. I don't know whether Apple will offer an upgrade, but one would hope so.

What happened to the Plastic Diskettes? Due to massive reader apathy and a lack of time on my part, the awards were not bestowed upon anyone. I want to thank those of you who did offer your suggestions (I won't mention any names for fear of forgetting somebody). Sometime in the indeterminate future, I may try again.

T-t-t-that's all, folks! Next month brings the Mac Plus and the MACWORLD Expo, among other things. It also brings the opening of "You're a Good Man, Charlie Brown!", for which I am lighting designer; if any of you are in Durham between the 27th of January and February 8th, come see the show! Next month's column is going to be written in between rehearsals!

Post Script. As I finished typing this on my newly-repaired Mac, I reconnected my five month-old Prometheus Promodem and switched it on in order to call a couple of the area bulletin boards--and lo, nothing happened. With curses aimed in the general direction of Silicon Valley, I took the cover off and checked for signs of electronic disaster: there were none. I then gently pushed on all of the socketed chips and prayed. A flip of the power switch told me that heaven was busy elsewhere. More on this rather infuriating development next month.

FREDERICK APPLE CORE

A SLICE OF THE WASHINGTON APPLE PI

OFFICERS & CHAIRMEN for 1986

President	- Scott Galbraith
Vice President	- John Lee
Secretary/Treasurer	- Bruce Taylor
Librarian	- John Lee
Newsletter Chairman	- Lynn R. Trusal
Newsletter Editor	- Kathy Kenyon
SIG MAC Chairman	- Lynn R. Trusal
Bulletin Board - SYSOP	- Scott Galbraith

The Frederick Apple Core meets the second Thursday of each month in the large conference room of the U.S. Army Medical Research Institute of Infectious Diseases, Ft. Detrick, Frederick, MD 21701-5011 at 7:30 PM.

Frederick Apple Core's BBS System is called the "Cracker Barrel" and Scott Galbraith is the SYSOP (301) 662-3131. The BBS has software and bulletins that cover Apple //, Macintosh, IBM, Atari, Commodore and other microcomputers.

HOTLINE MEMBERS

Lynn R. Trusal	- (301) 845-2651
Kurt Holter	- (301) 663-4199
Bruce Taylor	- (301) 371-8181
Scott Galbraith	- (301) 865-3035

The above members of the "Frederick Apple Core" (FAC) have agreed to field questions on Apple computer hardware and software for FAC members. Please no calls after 10:00 PM.

The SIG MAC of the Frederick Apple Core meets on the fourth Tuesday of each month in the same location and at the same time. MAC owners in the local area are welcome. Call Lynn R. Trusal at (301) 845-2681 for details.

SIG MAC Upcoming Programs

February 25 - Demo of Macintosh plotter software

March 25 - To be announced

THE MACINTOSH IN A SCIENTIFIC ENVIRONMENT

by Lynn R. Trusal (Frederick Apple Core)

In the December issue of the Newsletter, Dr. Peter Markiewicz of our Institute discussed various uses he has put the Macintosh to in a scientific environment. Since my article in the September, 1985 Washington Apple Pi Journal, entitled, "Circle the Macintoshes - Survival in an IBM Environment: Memories of the First Year", I have received several phone calls inquiring how we use Macintoshes on a daily basis. This article is in response to those calls and an extension of Peter's article on how Macintoshes can be used in a research environment. Although many of the uses that I will discuss will refer to specific laboratory applications, the general principles apply to many working environments.

Word Processing of Scientific Manuscripts

We now have about 20 Mac's in our research institute and most are employed on the desktops of Institute scientists and administrators. Most of the administrators (Department Heads and Division Directors) use the Macintosh for word processing and memo writing. The scientists also tend to start out with word processing as the primary use, with preparation of scientific manuscripts and abstracts the main use. Although some individuals feel that word processing is "secretary's work", most individuals have found it easy to process ideas directly from the brain to the keyboard. The instant editing capability speeds the process and thoughts can be easily re-organized on the screen. Most scientific journals accept dot-matrix output, and I have had no problem with journal editors in this regard. For those with "letter-quality hangups", we can easily send the manuscripts by modem to the NBI word processing system used in the Institute. Once the Apple LaserWriter is installed on the AppleTalk local area network (LAN), this will no longer be necessary.

Preparation of Scientific Poster Sessions

Another use under the general category of word processing is the preparation of scientific posters. Many scientific meetings employ only poster sessions because of the large number of people wishing to present their work. It is no longer possible to afford everyone the luxury of a verbal presentation. Posters are bulletin-board layouts of scientific data and usually consist of Abstract, Introduction, Materials and Methods, Results, and Discussion sections. Results are often presented in table or graphics format. Prior to arrival of the Macintosh, we used the NBI and an "orator" ball on a Qume letter quality printer to process these written presentations. The results were often unsatisfactory because the

contd.

orator ball often did not strike the ribbon properly and only provided one point size for text. The Macintosh has changed all that and we now compose text on the screen and print it out on the LaserWriter. We can use various fonts and point sizes where, before, we were restricted in this regard. At a recent international meeting, a scientist from Australia commented that we had the best posters at the meeting.

Date Notebook Preparation

Word processing can also be used to format scientific experimental protocols for later inclosure in data notebooks. Often only minor changes are made in protocols and an experiment is re-run. Therefore, the protocol may be loaded into the computer and minor changes made without the need to re-do it from scratch.

Data Analysis by Spreadsheet

The Macintosh application used almost as often as word processing is the spreadsheet. Custom templates are set up to analyze research data and provide means, standard deviations, and standard errors. Data that can be analyzed this way include scintillation counter results, cell counts, viral plaque assays, enzymatic assays, ELISA's etc. Various custom templates can be prepared and stored for repeated use. In reality, this is the real time saver in using the Macintosh in the laboratory. Again, once the template is prepared and saved, it does not have to be redone each time.

Graphing of Scientific Data

If data are entered into the spread heet in the proper format, Switcher may be used in conjunction with the "cut and paste" technique to quickly switch to Chart for instant graphing of the data without re-entering the numbers. The resulting graphs may then be "copied and pasted" into MacWrite for enclosure in data notebooks. The use of graph paper is now a thing of the past unless we have a need for certain kinds of log plots which cannot be done with Chart. Also, I have used both MacDraw and MacDraft to make needed changes in graphs prepared with Chart. We use these programs to add standard error bars to the graphs and to turn the Y-axis label sideways. We are also starting to use Excel, which combines the graphics and spreadsheet into one easy-to-use program.

Scale Drawings of Room Layouts

More recently I have had the need to use both MacDraw and MacDraft to do scale drawings for room layouts. In one case, we were setting up a Division computer room, and in the other we needed to determine the best layout for the Institutes's Graphic Arts Department. Both programs fit the bill nicely but MacDraft has more options — like rotational capability and automatic dimension lines (see WAP January, 1986 Journal).

MACINTOSH IN THE NEWS & OTHER ODDS AND ENDS

by Lynn R. Trusal (Frederick Apple Core)

In the January issue of "High Technology" Magazine (pp.31-35), Cary Lu has written an article, entitled "The State of the Micro". Cary is a well-known, microcomputer free-lance writer and also microcomputer editor of "High Technology." He is also the author of one of the best-selling books on the Macintosh but he also writes about a wide variety of microcomputers.

In his article Cary discusses the current state of the microcomputer market and capabilities of a wide range of machines, including the Mac. He says, "The overwhelming advantages of graphics-based software are evident from the Apple Macintosh. In virtually every category, Macintosh software outperforms IBM PC software. Mac programs have always been easier to learn and use, and now they are getting more powerful as well. For example, Excel is the best spreadsheet now available for any computer, far superior to Lotus 1-2-3 or any other MS-DOS spreadsheet--in power and ease of use alike. And Macintosh programs can exchange data (both words and pictures) much more readily than MS-DOS programs."

He points out two major areas that the Macintosh needs improvement: amount of memory and a better interface for hard disks. I add double-sided drives to this list. It is interesting that all three of these concerns are evidently being addressed in the new Macintosh designs.

One additional bit of information of which I was unaware dealt with the amount of memory that the Macintosh can address. If you have followed the memory upgrade market, you know that 4 MB is the largest memory offered by third-party developers. It is also known that the Motorola 68000 micorprocessor can address 16 MB and, therefore, the obvious question is why only 4 MB of memory are discussed as the maximum addressable amount of RAM. According to Cary, this is due to a design decision that saved the addition of two wires on the circuit board. Remember that it was not too long ago that 128K seemed like enough memory for the Macintosh.

ADC 1200 Baud Modem Update

I have received many calls concerning my articles on the ADC 1200 baud modem in the December and January issues of the WAP Newsletter. Most people have asked if I have received the modem and like it. On both counts, I have to say yes! The only negative factor seems to be the speaker of the modem. It does not totally cut out once the connection is made and a static sound is heard. This is in spite of sending it a software command to cutout once the connection is made. I turned the speaker volume control down until dialing tones are just audible and it is not a problem. This appears to be the only problem, and I think a minor one.

I am told that If you call the phone number listed in the modem manual you get Prometheus on the other end.

contd.

Another owner of a Prometheus modem says that the manual is identical to his Prometheus manual. Therefore, Prometheus may be the "leading competitor" who makes the modem discussed in the article. By the way, the modem is still being advertised so it is not too late. There is a full page ad in the January issue of Byte magazine.

As I mentioned, I receive many phone calls about the articles that I have written for the WAP Journal. I do not mind the calls and will be glad to help with advice or hopefully answers to questions, but please call before 10:00 P.M. Also don't be surprised if the voice on the other end of the phone is a male one. I have gotten used to the pregnant pauses and "I saw the article your wife wrote for the newsletter" comments when I answer the phone.

Macintosh RAM Upgrades

Several people have asked me what RAM upgrade to get for their Macintosh after my article appeared in the January Journal. They were having trouble finding the conclusion in my article. That may have been because there was no conclusion. I couldn't find it either, which is why I am waiting to see what Apple announces at the 1985 Annual Stockholders meeting in early January. By the time you read this, Apple's plans will be known and it may just be best to go with a 1 Megabyte upgrade which should be comparable to existing 3rd party upgades. It will also eliminate the compatibility problem with some ROM upgrades and future Apple changes.

20 Meg Internal MacDrive for $895

One note in closing deals with an ad in the January issue of MacWorld magazine. The ad caught my eye because it was for a 20 megabyte internal hard disk for the Macintosh for $895 (Warp-Nine, Minneapolis, MN; 612-426-9769). I called the company and they are offering a Rodine 20 megabyte internal hard disk. They supply the tools and instructions for self installation or they will do it for you for $150. The drive electrically attaches to the motherboard with two solder connections and includes a fan and its own power supply. They also uses the identical hierarchical file system used by Apple for the HD20. Like the Apple drive, it is not self-booting. This drive is one-half the price and should be comparable in speed to the 20 M internal Hyperdrive. It is also $200 to $300 less (wholesale prices) than you can buy Apple's new external HD20 for and uses Apple's new hierarchical file system. Can this be the best of all possible worlds? Only time will tell. As for me, I am holding off on the purchase of a hard disk until I can check this out more thoroughly.

THE NEW MACINTOSH--IS IT REALLY AN NBI

by Lynn R. Trusal (Frederick Apple Core)

I was recently invited to see a demonstration of the new NBI Integrated Work Station (IWS). At first glance, it looked like the old NBI professional word processor, but then again, it looked more like a Big Mac (no pun intended). There was a full size screen with icons, bit-mapped graphics, mouse, and integrated software. The IWS is based on the Motorola 68010 microprocessor running at 8 MHz. It comes standard with 1.5 megabytes (MB) of RAM memory expandable to 2 MB and the memory management unit provides access to 4 MB of virtual memory. In addition, the IWS comes with a 3-button mouse, a battery back-up for date and time functions, a large keyboard with numeric key pad and function keys, one 5.25" floppy disk drive, and one 22 MB Winchester hard disk drive. A 40 MB hard disk is optional.

The integrated software includes word processing, chart graphics, design graphics, spreadsheet, data base management, asynchronous communications, system utilities, and document management. The system is based on the Unix 4.2 BSD operating system. The screen display is "what you see is what you get" (WYSIWYG) and screen management functions are similar to a Macintosh with multiple windows, resizing capability, and split windows within applications. Unlike the Macintosh, multitasking and print spooling are also supported.

All in all, I felt that I was looking a one of the several versions of new Macintoshes talked about in such publications as "InfoWorld." The larger screen, more memory, 68010 CPU, and enhanced keyboard are all features discussed or rumored to be included in the new Macintosh Plus or a newer version rumored for release later in 1986. Will IBM come on board in 1986 with some of these features in the PC II? Only time will tell!

Tax Pro™
For the Macintosh
Includes Forms 1040,2441 and Schedules A,B,C, E,G,SE,W. Forms linked for easy recalculation.
Requires Multiplan™. Send check or money order to
$34.95 (DC Res. Add $2.10 Tax)
Chesapeake Software
236 Maryland Ave., NE,Suite A
Washington, DC 20002
(202)-546-5994
Special WAP Price!
$29.95 (DC Res. Add 1.80)

Macintosh™ Services
• LaserCopies 50¢ each for WAP
• ColorCopies 8-colors • 1-pass
• DeskTop Publishing
Word-processing → Typesetting → Quality Reprographics
• Digitizing & Peripheral Rentals
Macintizer™ • ThunderScan™ • Mouse Stick™
PC Resources • Appointments & Messages • 860-9600
Reston Copy Center • 11800 Sunrise Valley Dr • Reston, VA 22091
Complete service information & price sheet available on request.
Appointments Required • Clients responsible for disk back-up • Prices subject to change without notice. 851006

BOOK REVIEWS
by Robert C. Platt

Welcome back to the Book Review corner. This month's column will cover a book on the history of microcomputing and several books on programming the Macintosh.

Hackers is now available in paperback. Steve Levy has traced the development of the "hacker ethic" from the late 1950's at the MIT Model Railroad Club, through the first kit home computers, to the founding of Apple, and finally the growth of the microcomputer software industry.

Contrary to recent usage in the press, the word "hacker" is not a derogatory term applicable to kids who break into the Pentagon computer. Rather, the term originated at MIT to mean techincally inclined people who explore and create innovative systems. Levy identifies the following key elements in the hacker ethic:

- The Hands-On imperative - people should have access to all things which can teach how the world works.
- All information should be free and shared.
- Mistrust authority - promote decentralization.
- Hackers should be judged by their workproduct, not bogus creditials such as college degrees, age, race, or position.
- You can create art and beauty on a computer.
- Computers can improve your life.

I believe that **Hackers** provides insights not only into the creation and growth of the microcomputer industry, but also to the mission of WAP. WAP offers a local vehicle for sharing and learning similar to the Boston and California environments that spawned the industry. The people presented in **Hackers** share the enthusiasm and dedication that I see in WAP's volunteers. If you want an appreciation of how we got to the micro's current advanced state or what WAP can contribute in the future, read this book!

I should note that certain anecdotes are rather explicit and unsuitable for younger readers (e.g. the marketing of the first "soft-core" adventure game on the Apple.) **Highly Recommended.** [Dell, 448 pp. index $4.50]

BASIC Programming on the Mac

The documentation for Microsoft BASIC 2.1 on the Macintosh (MS-Basic) is almost adequate as a reference tool--it presents and summarizes all keywords and commands in alphabetical order. However, the order of presentation is not well suited for a novice BASIC programmer. (If you do not already know BASIC and are looking for a book, I urge you to stop and learn some other language instead--see my Pascal columns.) Hence, a number of step-by-step books have entered the market to fill the void left by Microsoft.

The key to buying a BASIC book is to realize that there are three different implementations of BASIC for the Mac. MacBasic, which was to be released by Apple, but is instead circulating in the underground, offers an excellent debugging environment. Apple got a number of publishers and authors to commit to printing books on MacBasic before the project was buried. (One such book hit the shelves from Osborne/McGraw-Hill written by WAP's own Richard Norling.) MacBasic books are only helpful to those with access to an underground copy of MacBasic. Another BASIC interpreter was MS-Basic version 1.0 which was hurriedly released by Microsoft in the spring of 1984. This version does not support windows or menus. Any book on MS-Basic printed in 1984 will not address these important features. Check any book for coverage of the most widely used implementation: MS-Basic versions 2.0 or 2.1 which came out in 1985 and which permit access to the Mac's ROM Toolbox.

The Waite Group's track record for producing high quality computer books is impressive. **Microsoft Macinations** by The Waite Group, Mitchell Waite, Robert Lafore and Ira Lansing [Microsoft Press $19.95] is intended as the introductory text of the series. It covers what people who have used BASIC on other machines already should know. I would recommend skipping **Macinations** and purchasing instead the second book in the series: **Macintosh Midnight Madness** by The Waite Group, Mitchell Waite, Dan Putterman, Don Urquhart and Chuck Blanchard [Microsoft Press, 420 pp. $18.95]. **Madness** features a detailed presentation and explanation of 17 different game and utility programs that were selected to feature most significant ROM Toolkit routines. These programs are rather lenghty, and the publisher offers a source code disk for $20. A few of these programs were reprinted in **Nibble Mac** last fall.

Among the utilities are 1) a MacPaint graphics mover, 2) a cursor editor, 3) a program to convert MS-Basic version 1.0 programs by removing line numbers, 4) a simple animation editor (ála Video Works), 5) a MacDraw-like drawing construction set, and 6) a music editor (ála Music Works). I found each program to be well presented both as to use and design. Waite picked interesting examples. **Recommended.**

One worthy alternative is **Macintosh Game Animation** by Ron Person. The book is intended for programmers who wish to include graphics and animation in Mac programs such as games. The book begins with an explanation of animation and computer graphic techniques. The sample programs are presented in slightly less detail than in **Madness**, but are still adequate and appropriate to a primary focus on animation. One advantage of Person's book is that although the text is geared toward MS-Basic version 2.0, appendices present equivalent techniques in MacPascal and MacBasic. The author offers a source disk that includes: a Satellite Interceptor game, an animation of a car engine, a pattern maker, a cursor editor, a MacPaint to BASIC converter, and an animation editor for $20. Thus, Person's book overlaps significantly with the Waite **Madness** book. If your primary interest is game design or learning about animation, you may prefer Person over Waite. [Osborne/McGraw-Hill, 254 pp. $16.95]

Until next month, happy hunting at the local bookstore!

COMPUTER MAIL AS ENTERTAINMENT

by Brother Tom Sawyer, csc

My computer mail comes in flurries. The rule here is, if it's got "computer" on it, it goes in my mailbox. Actually, it's a mail drawer, and I need it. Once a month the flurries turn into an avalanche of computer magazines and catalogs. For me that means six magazines and three software reviews. I am a glutton for computer digests and like all gluttons often get indigestion. Everyone is selling something that I would love to have. I feel guilty not having the money to fill my computer with cards and my room with software. I am embarrassed to have only 128K of RAM. I am perturbed that the software package (why package?) that I bought last week has been upgraded beyond recognition and now does everything it should have done in the first place. Every month there is an endless procession of word processors, coprocessors, image processors and data processors. The latter come in integrated, relational and window flavors and are liberally sprinkled with "user friendly" commands (yummy). Some come with mice but never (they say) with bugs.

Every product is either a super, + , II, III, IV or rev 9.4. "New improved" is okay for detergents but computer wares must be zowie, wizzbang, superduper, penultimate, and absolutely awesome. They are final, master, electro, micro, ultimate, powerful, techno, high-techno and personal (personal??). They all do what no computer was ever meant to do and with the greatest of ease to boot. Soon we will have software that will boot itself, do everything in the universe, and finally shut itself off; all while the user is asleep and having a nightmare about being attacked by POWERFUL, user-friendly software. Every product is compatible with the compatibles, look-alikes and clones. The products all seem to be clones of other products. Do we really need 15 varieties of RAM boards or umpty-eleven word processors, none of which is compatible with any of its clones? I'll bet that the artificially intelligent software won't be smart enough to recognize its own clone. It will demand the "real thing" or at the very least, a friendly Sidekick.

All computer wares come enhanced with jargon and it is now clear that the language has been muddied beyond recognition. If "software" means "computer program", then what is a software program? Is it a program that makes software or software that creates programs? Where are the hardware drives? Can you get firmware at a health spa? Microsoft makes Microsoft and MicroSparc makes Macrosoft. Microzine has Wizware and Peachtree has Eduware and Dragonware which are not to be confused with EZ-Ware, Appleware, Design-ware, and Stoneware (isn't that some kind of dinner plate?). Then there's Data Link, Datamost, and Datasoft (is there a Dataware?). Good Grief! Where do all these wares come from? As hard disks proliferate will we be subjected to Microhard, EZ-hard, Softhard, Hardsoft, and Stonehard? How about a portable hard drive called "Rock 'n Roll"?

If my lunch hasn't come up the way it went down after trying hard to digest the wares and softs, it does when I try to eat the alphabet soup. CP/M, MS-DOS, IBM PC, C, Z80+, PDQ//, 68000, Q-68, UNIX, 8088, 80387, CPU, UCSD, RX-80F/T, RS-232, 5MHz, HELP. This is from the general reader magazines. The professional trade mags must include a grand smorgasbord of indigestible morsels. Menu driven is one thing but must we also be driven to drink or drowned in the broth?

At the bottom of the barrel (no, not the Apple barrel) are those who are trying to be clever and/or cute with the names they cook up. I actually saw "Egghead Softwear Software" which gives you "eggsactly" what you want. So sue me already, but Softwear Software is dumb. There are also many plays on the word "byte" and every word in the English language that contains the syllable "mac" has been used to name a Macintosh software package program (program package?). How about Nibbleing on some Silicon Salad with Diskquik Muffins. Wash it down with InCider which is at least Piracy Pruf if not 80 pruf. What's a pruf, an asthmatic dog's woof? Wouldn't you like to have a Software Automatic Mouth or take a trip into the Edu-Cave? Can you believe Software Banc, Plexa-Lok, Dollars and $ense, The Write Stuff, and all the Trixes. Why not sell Edukashunul Paques like Spel-Quik, Arith-matic, or Pro-grammar? No wonder there's a market for word processors with built-in spelling checkers like Screditor III and Microsoft MultiTool Word. I'll give scredit where scredit is due but what's a multitool word, one with many uses or many meanings or both or neither or something in between? Does it come with drills or am I hammering away at the obvious?

So much for the problem. Is there any hope for a solution? I think not. We might just as well have a good laugh because the industry is never going to stop babbling. It may make it easier if we look upon computer advertisements as light entertainment. It is better to enjoy imaginative but illiterate jargon than to have everything in the computer world come in grey and blue packages. So byte the bullet, ware a smile, keep the extra Mac-Z-Mum strength whatever handy, and enjoy watching the making of Babel II. Hey, that's a catchy title...for an Apple // speech synthesizer, perhaps.

* *
* Brother Tom Sawyer, csc is a *
* Holy Cross Brother who teaches *
* computer programming at *
* Bishop McNamara High School *
* in Forestville, MD *
* *

MAC Q & A
by Jonathan E. Hardis

Mac Section

Old business: Due to the tight production schedule of the December Journal, the bottom lines of four columns of this column were omitted. On page 57, the left column should end with the line "have obtained a copy of the new Finder (5.0) or", and the right column should end with the line "your most recent backup or repair or remove the offending". On page 58, the missing lines are, "independent bodies which form standards committees.)" and "there a way I can digitize sound and music, too." I'm sorry, too that I was unable to meet the shortened deadline for January. The new date for Mac meetings should help us a lot.

The mails last month brought a letter from Fr. Leo Sprietsma at the San Antonio Mission in Jolon, California: "In the Oct. Q & A Column, I noticed someone else shared a problem that I had. When attempting to convert a series of documents on St. Paul, created with the old MacWrite, so that I could have a complete Epistle as one document in MacWrite 4.5, I kept getting messages about 'disk full', 'Can't be opened', or a symbol to switch disks appearing up in the menu bar which sort of 'locked' the Mac. I had created the original MacWrite 2.2 [documents on a disk] with the old Finder [and System File], and the problem seems to be that the new Finder [and System File] did not recognize it. Luckily, I still had a copy of the old Finder 1.1 on a disk, and when I put MacWrite 4.5 and the old Finder on a disk [together], the conversion worked OK. Later, transferring it to a disk with the new MacWrite and the new Finder on it, it all opened as expected. Rather tedious, and a lot of switching disks, but it works." Thanks for your help!

I would also like to amend an answer given in December:

Q: Is HFS worth getting right now?

A: No. Lots of software on the market now, especially those products written in C, fail under HFS. The reasons are not profound, and are easy for the programmer to fix. But in the meantime, it will drive you crazy to find out that your favorite programs and desk accessories no longer work.

Needless to say, programs specific to the old MFS file structure, such as FEdit and Copy II Mac & Hard Disk Utility, will have to undergo major overhaul.

Another troublesome program is MacTracks, which appears to kill the HD-20. You can recover, however, by replacing the System File.

Q: How can Apple do this to us? IBM would never treat their PC customers this way.

A: IBM *did* treat their customers this way. When PC users had to upgrade from version 1 to version 2.0 of PC-DOS, they had to go through exactly the same thing, for exactly the same reasons. This is par for the course in order to bring to you a better product.

Q: I have the Apple Hard Disk 20 and I have to use HFS now. Any suggestions?

A: If you have trouble, try putting the program and all the files it uses into the root directory, i.e., not within any folder. This will work around most of the difficulties. If you have trouble, know that you are not alone. A call to the software house involved may speed an updated version to you.

Q: Any hints for the Red Ryder user?

A: Get the latest version, 7.0 (7.1 ?).

Q: Amy hints for the MDS programmer?

A: In all the MDS applications (even PackSyms), use FEdit to change 41EE FFB0 to 4E71 4E71. (What you are doing is removing a test in the filter proc of the standard file package which was there to fix a bug in the older version, but which causes trouble, itself, now.) Don't forget to alter spare copies, only! You also have to keep all files out of folders.

Q: I've been able to get around the copy protection on the early Microsoft products by also copying the invisible, protected files to the target disk. Will this also work for the HD-20, under HFS?

A: No, the new HFS Finder (5.0) doesn't like those files at all.

Q: Do you have any shopping suggestions for a Mac owner this time of year?

A: I would avoid buying: any disk drive, hard or floppy, any memory upgrade, Apple's or otherwise, and any software that doesn't advertise itself as HFS (or HD-20) compatible. The January announcements promise to make these obsolete, that is, worth much less than they sell for today. While it is not the purpose of this column to dwell on rumors, my remarks on page 75 of the Dec. Journal are essentially correct. The Mac will be getting a SCSI (Small Computer Systems Interface) port as part of an upgrade package that will "open up" the Mac to many more fast and inexpensive hard disks. (The port is a 1.5 MHz, 8-bit parallel interface.)

Q: What is the difference between the Haba 800K floppy drive and the rumored, upcoming Apple 800K floppy drive?

A: The original Mac floppy drives required the "Integrated Woz Machine" on the Mac's main circuit board to control all of its functions, such as speed selection and head seek. The newer Apple 800K drives (out in January for the Mac, out now for the //) have a controller built into the drive itself. This will speed up disk operations considerably, allowing, for example, both drives to spin at once. The Haba 800K drives rely on the old, slow method.

What's worse, the new HFS software distributed with the HD-20 assumes that all 800K drives are of Apple's new design, and that all 800K disks use HFS, the new file system. The Haba's don't work with it. Whether Apple commits this restrictive code to silicon in the new ROMs

contd.

remains to be seen. But Haba owners risk incompatibility with both Apple's new firmware and the disk protection schemes of software publishers. (I hope that Haba will supply RAM based HFS software for their customers, who will need it.)

Q: Now that Apple is providing a SCSI interface, will there be other internal hard disks (besides Hyperdrive) marketed?

A: Yes, there are rumored to be a few new entrants to the market, which can only drive down prices. One in particular to watch for is from Micah. They will be using rugged disks manufactured by Hewlett-Packard (Hyperdrive has less expensive Rodime drives, as does the HD-20). And the software is being written by Steve Brecher, an extraordinarily talented contributor to both MAUG™ and MacTutor magazine. Tentative suggested retail prices vary from $1400 for 10 Megabyte to $2500 for 30 Meg.

Levco is also interested in entering the market at "very reasonable" prices since GCC won't cooperate with them on their memory upgrade product. If you don't mind an external disk, 10 Meg SCSI disks go for as low as a few hundred dollars on other computers. And SCSI disks meant for engineering workstations are available in many capacities, even over 100 Meg each. I don't know if Apple is putting SCSI software into the ROM, or whether you will have to buy it as a separate item. (Just to avoid confusion: SCSI is the way the hardware is connected; HFS software refers to the way the files are stored on the disk.)

Q: What is a good way to compare the speed of different hard disks?

A: I don't have a good answer, but I can tell you what not to look for. Don't compare data transfer rates, and don't compare times to launch an application or to return to the Finder. Data transfer rates take only a small part of the time of using a hard disk. You also have to consider how fast the read head moves radially to different tracks (the seek time), and how fast the motor spins the disk, among other factors. Launch times can be deceptive because a file scattered in sectors all over the disk will take longer to read than one laying on just one track. This demonstration is at best random, and at worst, it can be deliberately skewed to make a product look bad. Disks can also be made to appear faster by incorporating "caching" as part of the driver. Caching is a technique which uses a chunk of RAM memory to hold duplicate copies of recently accessed parts of the disk.

I haven't seen the January MacWorld, but their comparison of the Apple HD-20, I'm told, is at best based on preliminary software, and at worst, totally off-the-wall.

Q: What's new with the HyperDrive?

A: As you know, GCC changed the design a bit when they started shipping the 20 Meg version. From what I see on MAUG (not a scientific sampling), lots of people have been having trouble with them. Not only have there been hardware failures, but a lot of software failures as well. Last month I mentioned problems with OverVUE and ThinkTank. Business Filevision and RMaker fail as well. The root of the problem is that GCC expanded the area of memory called the "System Heap" to hold the HyperDrive's cache, but did not make other necessary changes to tell programs what they had done. Without thoroughly testing their new software, they began to distribute it. On the other hand, not all of the fault is with GCC, since some of these programs shouldn't have been doing what they were doing, anyway.

One workaround is to boot your system from a floppy disk, instead of the HyperDrive, to get the standard size of the System Heap. In the case of ThinkTank, you can order version 1.2, which is a non-production version that exists only to fix the HyperDrive problem. Call Living Videotext at (415) 946-6300. (It also allows ThinkTank to work with some RAM disks.)

Q: Is there another workaround for RMaker?

A: Andy H. (RMaker's author) suggest that you set the "System Heap" attribute on the MDEF 0 resource in the System file. Resource Editor lets you do this easily, in one of the "Info" dialogs.

Q: Help! My Apple Hard Disk 20 is totally messed up.

A: Shift-Option-Tab is a magic combination that somehow either reformats or cleans up the HD-20. I don't know precisely what it does, but I offer this as a clue to those willing to experiment. After they back up their files. Twice. Holding down Command and Option while starting the Finder also has been reported to help in clean-up; and you don't lose your folders under HFS.

Q: Will there be a "Flight Simulator" for the Mac?

A: Yes, subLogic is writing it, and Microsoft has bought the distribution rights. It was demonstrated at COMDEX.

Q: What happened to MacAdvantage Pascal?

A: Pecan Software Systems, Inc., acquired the assets of Sof-Tech Mircosystems and is now supporting MacAdvantage Pascal. They can be reached at 1410 39th Street, Brooklyn, NY 11218, or at (718) 851-3100 (800-63-PECAN for orders). Current owners should be getting a mailing soon. Because they are starting up and gung-ho, they are receptive to your ideas about the p-System line of products.

Q: How well does the new ImageWriter II work?

A: Lofty Becker has been comparing the Imagewriter I and II, and he still prefers the I. Some of the differences may be due to the new ImageWriter driver, version 2.0, which Apple is including on their newer product disks. (See your dealer if you want a copy.) So, try both the old and new drivers for best results. The IW-II rocks the platen back and forth a bit at the top of the paper, tending to scrunch the top print line. It also doesn't print line fonts (such as Geneva) as well at standard resolution. (The bidirectional printing doesn't properly line up.) There have been reports that it loses the top-of-form position in the middle of long documents, and it is more prone to paper jams. On the other hand, it is both faster and

contd.

sharper than the ImageWriter I.

Harry Starr recommends lubricating the ImageWriter II rails with light oil to improve the registration on bidirctional printing, though this has not helped everyone.

Q: Are any more high-resolution fonts for the LaserWriter on the way?

A: Yes. Casady Company (of Fluent Font fame) is developing a collection of fonts based on the Fontographer editor, under development by Altsys (of Fontastic fame). One hold up is Apple, which is expected to release a new LaserWriter driver that will better support downloaded (as opposed to built in) fonts. Century Software has both new LaserWriter fonts and new screen sizes for the original ones. Harvey Lam reports that they have started working on a Laser version of the Princeton font. Cary Lu reported at the December SIGMac meeting that Adobe Systems also has a dozen new font families about ready to ship at roughly $200 each. He wasn't too confident, however, that there will be as large a cottage industry in LaserWriter fonts since it is tough to artistically design high quality, detailed fonts, and to proportion their differing sizes correctly. (It isn't simple magnification.)

Q: Can I use a Canon copier cartridge in a LaserWriter?

A: No, but HP LaserJet cartridges fit. By the way, the cartridges can be refilled by third-party suppliers, such as Toner Distributors of Carlsbad, CA.

Q: Help! My LaserWriter won't print a dark black when I install a new toner cartridge.

A: Try gently shaking the toner cartridge from side to side, and then print about 25 copies of the same page to get the juices flowing.

Q: Where can I find more information about the PostScript language that runs on the LaserWriter?

A: Both the PostScript Lanuage Reference Manual and the PostScript Language Tutorial and Cookbook are published by Addison-Wesley and are distributed nationally by B. Dalton.

Q: What's the story on MacTerminal 2.0?

A: Mike Boich delivered the "golden master" to Apple on December 6. Expect it at your dealer within the next month.

Q: Where is the "creation date" information about a file kept? I'd like to change some incorrect dates that now read 1904.

A: I assume the questioner has honest intentions, and nothing stops you from mis-setting the system clock, anyway. Using FEdit (SIGMac disk 21 - pay up!), open the disk volume and search for the file's name in the disk directory. To do this, display the sectors in hex. The directory starts in disk block 4, the fifth sequential block on the disk. The byte before the file name contains the length of the file name. The longword (four bytes) before that contains the date and time the file was last modified. The longword before that is the date and time the file was created. Both dates are expressed as a count of seconds since midnight, January 1, 1904. So, if your system clock was zero or a low number the date would appear to be in 1904, the root of your original problem.

Q: Last month, you explained how to generate special printing characters. Is there a way to include "control characters" in my document too?

A: It's iffy whether a particular word processing program can handle these characters. MDS Edit would be a good first choice to try. But Lofty Becker suggests two good workarounds. First, you could generate the control characters with the same BASIC program given last month, and keep them either in a special document or in the Notebook. Since they would be non-printing characters, they would all appear the same, as a box, so you might want to add extra text to remind you which was which. From the Notebook, you could copy them to the clipboard and paste them into your work. Secondly, you could edit a document in the normal way using a rarely used printing character in place of the control character. After editing, you could search for and change occurances of this place holder with FEdit. (Note that MacWrite 4.5 encodes the 15 most commonly used characters, but not the rest.) (If you don't know what control characters are, don't worry. They are used principally by computers other than Macs as signals for special functions. Like characters, they are single bytes, but unlike characters, they don't have a corresponding printing graphic.)

Q: How do I obtain Apple's Smalltalk?

A: Assuming you have at least a megabyte of memory, request a Smalltalk order form from Eileen Crombie, Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014 (408) 996-1010.

Q: Does Don Brown (of CE Software, the Mock This'n-that people) now work for Borland?

A: No. While he licensed some programs to Borland for the Sidekick package, he still expects individuals to honor their shareware obligations.

Q: How do I use Click Art Effects on a HyperDrive?

A: Copy MacPaint to the HyperDrive *without* the effects installed. Then reinstall it. This prevents a conflict of DRVR resource numbers.

Q: Is DEC VT-240 simulation available on the Mac?

A: As far as I know, not yet. At the Boston Mac show, two products in development were demonstrated. The one I remember was from White Pine Software, (603) 673-8151, and you can phone for current information.

Q: Can you put MacPaint pictures "on the same line" as text in a MacWrite document?

A: No, not without the help of a page make-up program such as Page Maker, Ready-Set-Go, or MacPublisher. At the meeting, somebody remarked that version 2.0 of Ready-Set-Go is much better than version 1, but not perfect.

contd.

Q: Can you recommend MIDI (Musical Instrument Digital Interface) software?

A: Not personally, but MacUser magazine had a comparative article in their December issue.

Q: What is MultiMac, and how can I get it?

A: The second part is easy - you can't get it. MultiMac is an application that is supposed to make the Mac "multi-tasking", allowing it to run more than one program at the same time (as opposed to Switcher, which runs only one program at a time, while keeping the others in limbo). Presumably, you could see different programs in different windows, all doing their work.

MultiMac was (is ?) being developed by a company called Aubrac Systems. Around the end of November, a version of MultiMac started making the rounds (illegally) on the BBS circuit. Many who tried it got what they deserved.

In my opinion, the idea is fatally flawed, and you'll not see MultiMac as a viable product. Considering all the work Andy Hertzfield put into Switcher, I don't see how someone, not as familiar with the Mac's workings as Andy is, can leapfrog beyond Switcher so easily. Andy splits the Mac's memory up into disjoint pieces so that each application won't step on the others. He says that MultiMac, however, tries to share the one "Application Heap" between all the applications, which causes problems in memory sizing and out-of-memory situations. Lots of programs, and combinations of programs, have apparantly failed to work right, to date, under MultiMac.

However, one can, in principle, build on all the knowledge gained while writing Switcher. I think that Apple could enhance Switcher to fulfill the goals of MultiMac.

Q: Can you get shared hard disk storage for the AppleTalk network?

A: Yes, check out MacServe and XL/Serve from Infosphere. Also, Corvus' Mac Omninet is now completed, mixing Macs, PCs, //s, many kinds of printers (including the LaserWriter), and other things on one network.

Q: Help! I've written a program in MS Basic, but the last line never prints on the printer.

A: A line won't print on the ImageWriter until you are done sending it to the printer. "Done" means that you linefeed or formfeed to advance to the next line. Assuming that you did an Open#1 to the printer, you can either print an extra, blank line with Print#1, or better, do a Close#1 when you are done with your print routine.

Q: Is it safe to keep secret information, such as passwords, on my floppy disk?

A: No! Not only then do you have to guard the physical security of the disk, even after you trash the file, but you risk hitting a bug in the current ROM. Certain files (those with resource forks) incorporate a bit of whatever was previously recorded on their space on the disk when you first create them. If you copy such a file to another disk, or send it via modem, that little extra bit of junk tags along for the ride. There is a very unlikely possibility of you being unlucky if the recipient looks at the file with a disk editor, such as FEdit. (As an example look at the files that came on the MacTerminal disk. You will see portions of Mike Boich's terminal sessions on his VAX.) (By the way, I reported this to Apple a while back.)

If you do like to record private matters on your disk, be sure to choose "Erase Disk" from the Finder when you are done with it. Do not just trash the files.

Addendum: In the November Issue, p. 63, I discussed the problem of light printing when putting MacPaint pictures into MacWrite documents. I'm told that a workaround is to use MacDraw instead of MacPaint. You might try to route your MacPaint picture through MacDraw first, to see what happens. Also, try the new Imagewriter Driver (2.0).

Quickies: If your game program displays maps you'd like to keep, try to print them out with Caps Lock-Cmd-Shift-4 ... There are many known bugs in Finder 5.0; do not use it unless you have to with a HD-20 ... The current Font/DA Mover is version 2.5 ... The current version of MacDraw is 1.9; your dealer can copy an upgrade disk onto your old, original diskette ... LaserPrep II, from your Apple Dealer, allows LaserWriters to better handle manual sheet feeding.

OVERVUE 2.0: A Problem and Solution

by James J. Derhaag

This is a report of a problem and a solution on OverVUE 2.0. I have a vintage 128K Mac. Among its tasks is keeping mailing lists, and printing labels when needed.

We have used Habadex--much too slow. We have used Main Street Filer and have had problems with it. After seeing the remarkable demo by ProVUE, I felt it would be the answer to our mailing list problems. I ran a test list of 58 records on OverVUE. I could get only about one-half of them printed as mailing labels. As a list, I could get about 33 to print correctly. Then in both cases, I would get a line or two of garbage, and printing would stop.

In desperation, I called Steve Hunt to see if he had any ideas--or if he knew of someone who might have an answer. His reaction was that it was a printer problem. We tried a few "fixes" including substituting a new system folder for the one on my work copy of OverVue. No luck.

When all else failed, I reverted to the manual. Lo and behold, in Appendix A, *Printer Interfacing*, of the **OverVUE Manual**, I read: "If your Imagewriter is printing garbage characters instead of your report, here are two possible solutions ... A number of early Imagewriters were shipped with switch 3 on SW2 in the closed position ... flip it forward so that it is facing you in the open position." A diagram on page 302 shows correct positions of each switch on SW1 and SW2. On my Imagewriter, switch 5 on SW1 was "open" and switch 3 on SW2 was "closed". According to ProVUE, both should be in opposite positions. I changed them, and the program and printer worked perfectly.

Quickly, I called Steve and passed on the good word. He asked if I'd write a little squib for use in the WAP Journal.

MacNovice Column

by Ralph J. Begleiter

Hot Tips

Many of you are still new to your Macintoshes, so you're probably still getting to know your computer's capabilities. There are a number of shortcuts available to you to perform often-used small tasks. These shortcuts, while not earth-shaking, are nonetheless useful if you remember them.

Here's a list of some of the most commonly-used and most commonly forgotten shortcuts:

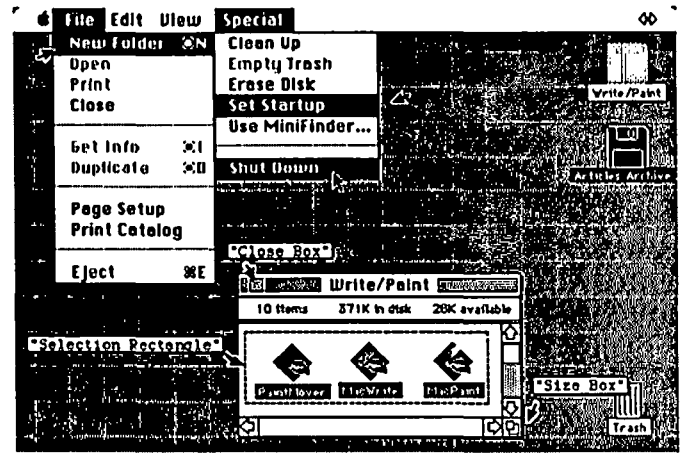
• On the **desktop**, don't overlook the "Shut Down" command in the "Special" menu. It can save you time and mouse-tracks when you're ready to quit a job. Simply choose "Shut Down" and the Mac will automatically make a note of any changes you've made to document names, locations within folders and windows, and messages you've added to the "Get Info" windows of documents and folders. After recording those changes on your disks, the Mac will automatically eject all disks (from external disk drives, too!) and "reset" itself by turning off its own power and turning it on again. This allows you to simply turn off the power (if you're leaving the Mac) or insert a new disk if you decide to keep working. This shortcut saves the need to choose "eject" for each disk when you're ready to quit. The command is especially useful when you're using more than one disk drive, since it cycles through them all without forgetting to make notes on the changes you've made on each disk.

• Still on the **desktop**, don't forget about using the "Set Startup" command. Select an "application" (a computer program/tool such as MacWrite), and choose "Set Startup." The next time you insert that disk into the Mac at startup, the computer will skip the desktop altogether, taking you directly into the "application" you've selected, saving time and mouse-steps. "Set Startup" is particularly useful if you set up your disks with just one application per disk. You'll always move directly to the desired application, without having to wait for Mac to draw the desktop to find your documents. (Remember, you can still open any document you wish from within the application by choosing the "Open" command.)

Incidentally, if you change your mind and want to change which application starts up automatically, just "Quit" from the application (you'll be returned to the desktop), open the "System Folder" and select the "Finder." Now choose "Set Startup" again... and the "Finder" (desktop) will become the "startup" application!

• Again on the **desktop**, remember that when you create a "New Folder" using the command by that name in the "File" menu (or by typing COMMAND-N), you can begin typing the name of that folder immediately. Mac automatically "selects" the new folder for you and activates the feature which allows you to type a name. So, select "New Folder" and begin typing its new name immediately. Then click outside the new folder...or press "Enter" and the new name will be attached to the new folder.

• On the **desktop**, remember to use the "selection



rectangle" (marquee). When you want to "select" more than one adjacent item, simply click and drag the mouse over all the adjacent items you want. The "selection rectangle" will substitute for pointing-and-clicking on each item.

The Double-Click

Perhaps the single most useful shortcut of all is the "double-click." Try it, you'll like it! Whenever you want to "Open" anything (a document, a folder, an application, or even a tool (in MacPaint), try the "double click" instead of reaching with your mouse for the "Open" command in the "File" menu. (Double clicking saves a lot of steps in the course of working with a document.) Keep in mind that deciding to "open" something can have a very liberal interpretation:

• "Open" folders, documents, applications, disk icons, the "trash" by double-clicking on the icon.

• In MacWrite, double-click on a word to instantly and automatically select the entire word!

• In Microsoft File and some other applications, double-click on the window-size box in the lower right-hand corner of your screen to instantly resize the window to full screen!

• In MacPaint, double-click on the paintbrush tool icon to instantly "open" the "brush shape" window! (Saves pulling down the "Goodies" menu.)

• In MacPaint, double-click on the "grabber" hand to instantly open the "show-page" window from "Goodies" (without having to pull down the menu).

• In MacPaint, double-click on the selection rectangle (the "marquee") to instantly select the entire drawing window. (Short cut for drawing the selection rectangle around the entire window.)

• In MacPaint, double-click on the eraser to instantly erase the entire drawing window.

• In MacPaint, double-click on the pencil tool to instantly enter "FatBits" (without having to choose it from the "Goodies" menu). You can also enter or leave FatBits by

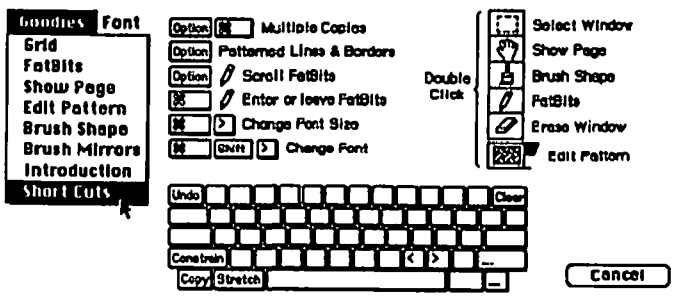
contd.

clicking once on the pencil and holding down the "COMMAND" key!)

• In MacPaint, double-click on the "current pattern" window to alter the current pattern, or double-click on any of the patterns to create your own paint designs!

Other Shortcuts

• In MacPaint, choose the "Short Cuts" command from the "Goodies" menu to see even more hot tips. They include, for example, being able to switch instantly from using the pencil to using the grabber hand by simply holding down the "Option" key while using the pencil. Very handy when you're doing a detailed drawing larger than the drawing window!



• In MacWrite, remember to use the shortcut keyboard commands to make a line of text flush left, flush right, centered or justified. These commands are in the "Format" menu, and eliminate the need to insert rulers for just a line or two of unusually-formatted text.

• In MacWrite, don't forget about the "Goto Page #" command in the "Search" menu. It's a quick substitute for dragging the scroll bar. Simply type COMMAND-G, the page number and "Enter." MacWrite will take you there instantly.

• Don't forget to use the "Close Box" at the top-left of every window. It'll save you the trouble of mousing through the "File" menu to "Close".

Other readers and other information sources may have discovered more shortcuts. If you've found one, be sure to share that "find" with other MacNovices! Read about and explore your Mac to learn its surprising ability to help you move quickly through your work.

MacCord Keyboard Cables

External Drive and Peripheral cables made to order.
Call for prices

Jay Heller, Adaption Electronics
20315 Grazing Way
Gaithersburg, MD 20879
301/948-7440

HIPPO COMPUTER ALMANAC™

It understands English, thinks fast, and knows over 35,000 useful, intriguing facts. Uses an AI parser to understand and answer questions in plain English. A brief listing of topics include an 800 number directory, world time zone and area code info, loan calculations, metric conversions, calories of food, historical trivia, Olympic winners, World Series, Super Bowl, etc....

$34.95

HIPPO JOKES & QUOTES™

Fast access to thousands of insulting jokes, dirty jokes, rude jokes, silly jokes, one-liners, puns and quotations. Search for specific jokes or quotes by keyword or author. Digitally recorded laugh sound track. Select jokes with a rating of PG, R, or X.

$34.95

HIPPO-C™ LEVEL 1

Two great Macintosh K&R C compilers. Both have HOS—Hippo's UNIX™-like Operating System. Level 1 includes a symbolic debugger, on-line tutorial, and over 250 pages of helpful documentation. Level 2 also includes an optimizer, a 68000 assembler, and floating-point for $399.95. Available non-copy protected.

$149.95

HIPPO SOUND STUDIO I™

A fun collection of realistic, digitally-recorded sounds. Play sounds directly on the Macintosh keyboard, or create multi-track sequences. Use regular Macintosh speaker, external speaker, or any home hi-fi for great sounds. Modify and mix sounds using sound "processors" such as echo and reverb. Use sounds in your own programs. Includes snare and bass drums, toms, cymbals, hihats, cowbell, claps, shaker, block, thunder, wind, sirens, etc.

$49.95

HIPPOPOTAMUS SOFTWARE INC
985 University Ave., Suite #12
Los Gatos, CA 95030
408/395-3190

See your local dealer,
or contact Hippopotamus. California residents add local sales tax. Please include $3.00 for shipping. Allow 1-2 weeks for delivery. Macintosh is a trademark of Apple Computer, Inc. Hippo Computer Almanac, Hippo Jokes & Quotes, Hippo-C, and Hippo Sound Studio I are trademarks of Hippopotamus Software, Inc. UNIX is a trademark of Bell Labs. Price, availability, and specifications subject to change without notice.

'EXCEL'ing WITH YOUR MAC

by David Morganstein

Microsoft's Excel program is just about the most powerful, yet easiest to use, Spreadsheet program for any personal computer. In addition to being a spreadsheet, Excel incorporates both graphics and database functions. While Lotus' 1-2-3 and Microsoft's Excel can perform many of the same operations, manipulating data between 1-2-3's three separate programs is awkward, at best. As one example of its power, Excel, in just a few keystrokes, allows you to combine data from many sheets into an automatically updated, aggregate sheet. It calls upon the Mac's exceptional interface to make complex tasks easy to perform.

In this article, we will discuss one useful task you can perform with Excel, obtaining a cross-tabulation from a database. This kind of operation is usually thought of as requiring a statistical packages or an intricate database program. As you will see, using the DCOUNT function and the idea of a two-way table, this problem (and others like it) are "just a piece of cake".

Before getting into the DCOUNT function and the Table command, let's spend a few seconds on Databases. Say we have some information consisting of purchases made by companies:

Date	Company	Product	Amount	Price
Jan 7	Zenith Ltd.	Widgets	100	$9
Jan 15	Acme Inc.	Widgets	200	$7
Jan 15	Apex Corp.	Widgets	400	$3
Jan 18	Acme Inc.	Widgets	200	$7
Jan 22	Best Co.	Widgets	200	$7
Jan 22	Apex Corp.	Sprockets	200	$8

and so forth. Let's enter these items in Excel in five columns. Your screen will look like this:

File Edit Formula Format Data Options Macro Window

A13 Database

Widgets.db

	A	B	C	D	E	F
13	Database	Date	Company	Product	Amount	Price
14		Jan 7	Zenith Ltd.	Widgets	100	$9
15		Jan 15	Acme Inc.	Widgets	200	$7
16		Jan 15	Apex Corp.	Widgets	400	$3
17		Jan 18	Acme Inc.	Widgets	200	$7
18		Jan 22	Best Co.	Widgets	200	$7
19		Jan 22	Apex Corp.	Sprockets	200	$8
20		Jan 27	Best Co.	Sprockets	100	$10
21		Jan 31	Zenith Ltd.	Sprockets	200	$8

By using the cursor to select the entire collection (all the rows and columns), and then choosing the Set Database option under the Data menu item, we establish a file of information that can be analyzed. Since Excel can handle up to 16,000 rows, its data base capabilities to search, extract and summarize might prove valuable in many situations containing a fair number of records.

DCOUNT. Later, we will see how to fill a two-way table with a function evaluated at all possible combinations of two variables, each of which takes on a set of values. In our example, we will count the number of sales records from each company and for each product they bought. Before getting to the table, let's look at the function which is used to count records in a subset of a data base.

The DCOUNT function (like the DAVERAGE, DSUM, DMAX, DMIN, DSTDEV & DVAR functions) requires three arguments. The first argument is the database under analysis. If you have used Excel to define a Database, you can type or Paste in the name "Database" for the first argument. The second parameter is the variable being counted (averaged, summed, "max"ed, etc.). Since we are just counting records, this entry can be ignored. If we were averaging, we would enter the variable being averaged, etc. The last parameter con- tains the criteria for selection. In the simple case of one count for a subset of the records, we would have to establish criteria, first, and then use the Set Criteria function under the Data menu.

At the top of your screen, say in field C1 enter the word "Company" and in the cell below this, C2, type "Acme, Inc." Select these two cells (C1:C2) and then choose Set Criteria under the Data menu option. You are now ready to have Excel count all the records in the data base which have the "Company" field filled with the entry "Acme, Inc." If you are wondering what "Set Criteria" did, select Paste Name and, when the list of defined names appears, select the name Criteria. Notice that the name "Criteria" has been defined as the two cells you entered with a field name and a condition ("Company" equal to "Acme, Inc.").

As an aside, Excel can handle some fairly fancy criteria when selecting, extracting or summarizing. The criteria can contain wild cards so that you can find all companies beginning with "A" or ending with "Inc.". They can use logical checks on values, such as "Price < $9". In addition, it can work with various conditions which are "and/or"ed together, such as companies which bought more than 200 parts at prices above $10. I guess there is enough to say about criteria to fill another article! Stay tuned later...

To obtain the count of records with the "Company" field equal to "Acme, Inc.", select the cell where you want the answer and issue the command:

=DCOUNT(Database,,Criteria)

If you want to get a count for Zenith Ltd., change the entry "Acme Inc." that appears in the criteria field C2 to "Zenith Ltd." and the DCOUNT result will be revised instantly to reflect sales to the other customer.

To obtain the total number of items purchased by Acme, you can use:

=DSUM(Database,"Amount",Criteria)

The second parameter, in this case "Amount", identifies the variable to be Averaged, Summed, Minimized, etc. When using DCOUNT to count i records, it is superfluous.

Table. With a little bit of time and pencil and paper, you could build a Criteria consisting of Company and Product, enter all the different combinations and recompute the DCOUNT for each one. As Ed Myerson likes to say, that drudgery sounds like the perfect job for a computer doesn't it? The Table command can do just that job.

Begin by building as the left-most column and top-most

cont'd.

row of the table, the various combinations. In our case, there are four companies and three products. The table shown below contains the names of the companies at the left side (in :A7) and the names of the products along the top (in B3:D3). The criteria will be constructed from two fields, Company and Product. Set Criteria as the two by two selection containing these names along the top with a blank cell beneath each one, in our case select C1:D2 and then issue the Set Criteria. At this point, we have not given specific Company or Product names. These will be fed, automatically, by the Table command into the cells C2 and D2.

A3 =DCOUNT(Database,,Criteria)

Widgets.db

	A	B	C	D
1	Criteria	Date	Company	Product
2				
3	base, Criteria)	Cogs	Widgets	Sprockets
4	Zenith Ltd.			
5	Acme Inc.			
6	Apex Corp.			
7	Best Co.			

Building the Table Area

see in the above picture. We are ready for the Table command, found under the Data menu. When we pick the Table option, we will have to tell Excel where the various combinations of the row and column choices are to be stored while it does its counting. As you may have guessed, the answer will be that the column entries (Company) will go o cell C2 and the row entries (Product) will go into cell D2. Select the table area, A3 to D7 and choose "Table". The following Table window appears requesting the Row and Column Input Cells. (If this were a one dimensional table, we would have to supply only one response). You can either type in the answer or click in the appropriate cells in the Criteria area, that is, in C2 and D2.

Record	Date	Company	Product	Amount
2	Jan 15	Acme Inc.	Widgets	200
Criteria	Date	Company	Product	Amount
			Widgets	
29	Cogs	Widgets	Sprockets	
Zenith Ltd.	29	29	29	
Acme Inc.	29	29	29	
Apex Corp.				
Best Co.				
Database				

Table

Row Input Cell: D2 OK

Column Input Cell: C2 Cancel

Defining the Criteria Locations

When you click OK, Excel will take a few seconds as it completes its counting process, filling the table counts into cells B4 to D7.

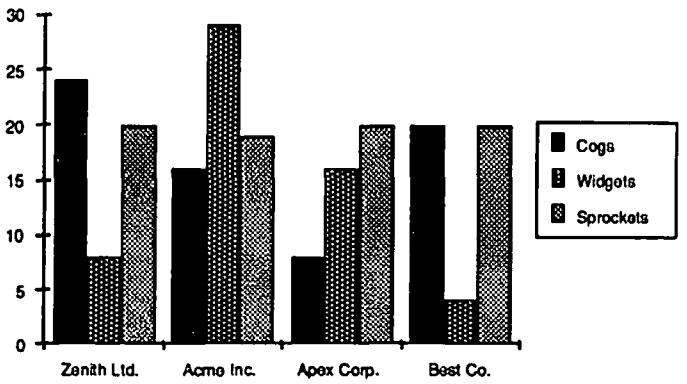
At this point you can compute percentages, chart the values or examine the counts to your hearts content...

To chart the values, you need only select the rectangle rom A3 to D7 and click on New from the File menu. Choosing a "Chart" type of window, you will be greeted with the following bar chart, nicely labelled. The legend which

	A	B	C	D
1	Criteria	Date	Company	Product
2				
3	204	Cogs	Widgets	Sprockets
4	Zenith Ltd.	24	8	20
5	Acme Inc.	16	29	19
6	Apex Corp.	8	16	20
7	Best Co.	21	5	18

Completed Table

appears at the right is not included in the standard chart but only takes a single click to add.



Excel Bar Chart

Undocumented "Features". Having learned of the following "features" the hard way, I encourage you to take note. Since the program requires one entire disk, many Excel users tend to store files on the "Data" disk containing the System Folder. By so doing, disk swapping is reduced dramatically. (As the following experiences of several users indicates, I would recommend against storing data files on the Start-up disk.) The down-side is that, as the Data disk becomes filled, you may encounter either of the following symptoms. When you attempt to print, you get a message indicating you can't. The Mac system writes a "Print file" to the Start-up disk, assuming there is space on the disk for the file. If there is not enough space, you will get the error message. While this difficulty has nothing to do with Excel, it is a situation exacerbated by the need for three disk drives while running it (or Jazz, or any other program that practically fills one disk). As soon as you can, get a hard disk!

The second situation has more dire consequences. It is, though, precipitated by a similar condition, this time affecting the data storage disk where you are saving your Excel files. If you read a previously opened file from a disk, then enlarge it sufficiently such that it will no longer fit on the original disk, Excel will issue a message that there is inadequate space on the disk, save to another. Unfortunately, at this point, Excel has erased your original file! If you should "foolishly" exit from Excel at this time without re-saving to another disk, your original work will be lost...a word to the wise.

EXCEL POWER: MANIPULATING CELLS

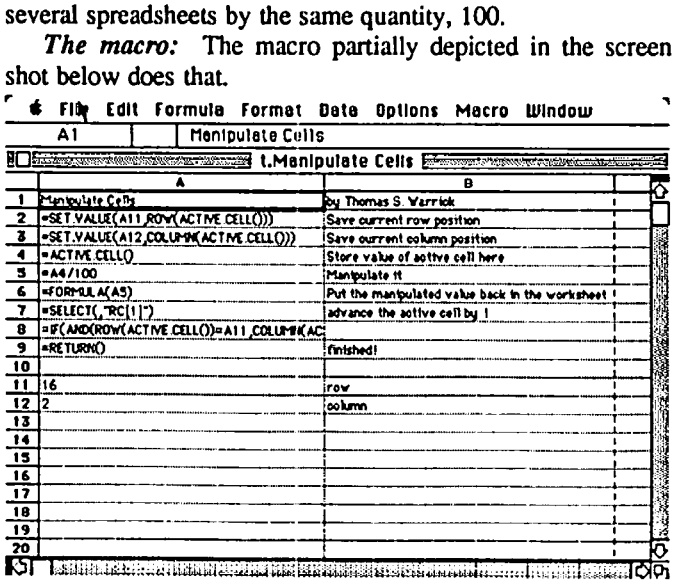
by Tom Warrick

To carry out a formatting operation on a number of cells in Microsoft's powerful integrated spreadsheet Excel, one simply selects the desired areas by dragging the mouse or shift-clicking and then selecting the proper format from the Format menu. But what do you do when you want to carry out a mathematical operation on a number of cells? Using Excel's powerful macro language, this can also be done quickly and (relatively) simply. This article gives a few preliminaries about macros and then shows how.

What is a "macro"? A "macro" is a series of pre-recorded instructions that Excel carries out in a logical sequence. In many ways, it acts very much the way the user would in following the instructions of a teacher or book in carrying out a series of operations. The macro language of Excel, however, is somewhat more difficult than the rest of Excel's features. Mastering it is one of the most important hurdles to becoming a "power user," that fabled species of spreadsheet guru that holds sway over the American business computing community.

Why use a macro? Macros are often the only way to save hours of time and trouble. In my case, I had just finished transferring several disks worth of data from Apple II VisiCalc and THE Spreadsheet 2.0 files into Excel. (To do this was also no easy feat, as Excel does not have the capability to read VisiCalc or DIF files. I had to write a Microsoft BASIC program to convert DIF files into the type of text file that Excel could read, i.e., one with each column separated by a tab and each row separated by a Return. This program will be written up in a future issue, but as it is very slow in BASIC, I'm hoping I can rewrite it in Pascal before next month.) Many columns of these data were percentages expressed in 0.00 format, e.g., with 25 percent as 25.00. Excel can show the percent sign with numbers as part of its formatting options, but it requires 25.00% to be 0.25, not 25.00. This approach is also more useful for calculations, too. The need existed to be able to divide the numbers in several columns on several spreadsheets by the same quantity, 100.

The macro: The macro partially depicted in the screen shot below does that.



How does it work? Row 1 just contains some information about the file; it is not part of the macro proper. The macro starts at A2. Cell A2 says:

=SET.VALUE(A11,ROW(ACTIVE.CELL()))

This takes the current row of the active cell, returned by the function ROW(ACTIVE.CELL()), and stores this in cell A11 on the macro sheet. Cell A3 is executed next; it does the same thing for the starting column:

=SET.VALUE(A12,COLUMN(ACTIVE.CELL()))

Now the macro is ready to start looping through all the selected cells, making adjustments in each cell. Cell A4 stores the value of the currently active cell:

=ACTIVE.CELL()

Cell A5 then does the actual computation:

=A4/100

To make your own manipulations, you would substitute other commands in cell A5 or insert additional rows with commands. Cell A6 then stores the new value, held in A5 on the macro sheet, back into the active cell on the worksheet:

=FORMULA(A5)

Cell A7 then moves the active cell down one position, as if the Return key had been pressed:

=SELECT(,"RC[1]")

Remember that when you are at the bottom position in a group of selected cells in Excel, pressing Return moves you to the top of the next column. When you are in the last row of the last column, pressing Return moves you to the first cell of the first column. In that way, this one command can move you through the entire selected area. The trick, obviously, is to know when to stop. That is why the macro saved the initial row and column position before beginning. The test whether the macro is finished is in cell A8:

=IF(AND(ROW(ACTIVE.CELL())=A11, COLUMN (ACTIVE.CELL())=A12), GOTO(A9), GOTO(A4))

This rather complicated-looking statement is actually just like an IF statement from Excel's worksheet. It says, "If the current active cell's row and column match the numbers stored in A11 and A12 respectively, continue executing the macro with cell A9. If not, continue executing the macro with cell A4." Until the last cell has been manipulated, this function will return FALSE, and execution will resume at cell A4 on the macro sheet, which is what fetches the value of the (new) active cell. When the statement is true, cell A9 is executed:

=RETURN()

and the macro is finished. Control returns to the user.

After you enter this macro, you select the first cell of the macro, A2, choose Define Name... from the Formula menu, type the name of the macro (e.g., "Manipulate Cells"), click "Command," and, if you desire, select an Option-Command key equivalent. Then click "OK" and the macro is ready to use.

There are a number of enhancements that could be made to this macro. Right now it does no error checking to make sure that the selected area contains only numeric data. As a result, it will fill non-numeric fields with zeros if not used carefully.

contd. on pg 35

ON JAN 22d WE WILL INTRODUCE THE MAC PLUS TO WASHINGTON.
A FIRST.
ON JAN 25th WE WILL INTRODUCE THE NEW SCSI HARD DISKS & UPGRADES*.
ANOTHER FIRST.
AS ALWAYS THE MOST INNOVATIVE PRODUCTS REACH YOU FIRST THROUGH US, YOUR Macintosh Only STORE...

MacCORNER

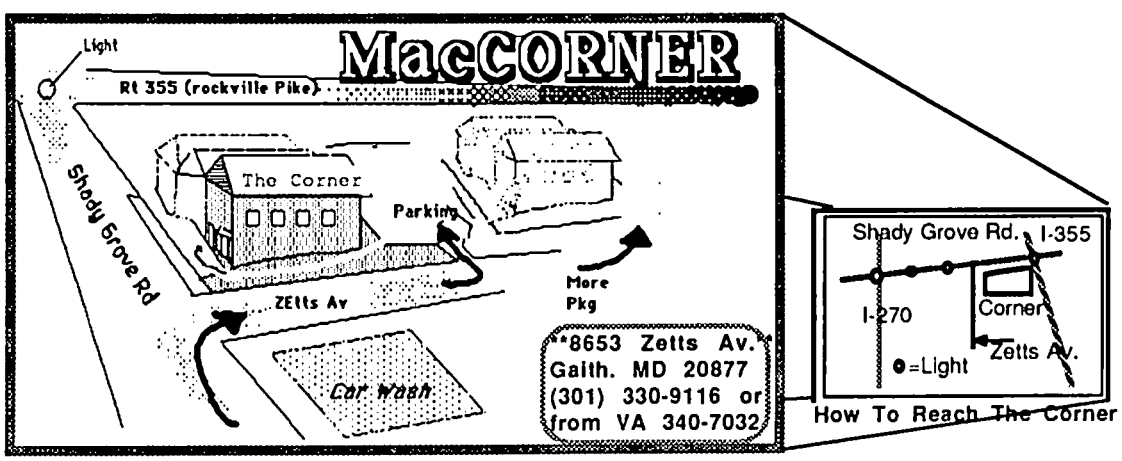
Local (301) 330-9116
From n.VA 340-7032
*Upgrades avail. March/86

ODESTA HELIX 2.0 $149.95

Sale Specials

ImageWritter Ribbons $3.95ea

Sony & Maxell disks (Box Of 10 3 1/2"): 21.89



CALL US ABOUT AOUR NEW BBS, USER PD LIBRARY AND BULETIN BOARD SYSTEM ALL BEING INTRODUCED FEBRUARY 1ST

MacCORNER :The Macintosh Software and Peripherals Source

HFS FOLLIES
by Tom Warrick

Apple's new Hierarchical File System (HFS) for the Macintosh is so unlike the file system Macintosh users are familiar with (call it MFS, for Macintosh File System) that many users will experience difficulty running their favorite applications and desk accessories. All the software publishers WAP contacted said their programmers are working on fixes. When publishers figure out how to make their programs run under HFS, it will be a powerful system. For now, though, it pays to be cautious about jumping on the HFS bandwagon yourself.

For old Apple][hands, HFS right now is to MFS something like ProDOS was to DOS 3.3 during ProDOS's early days. The power is there in HFS, just as in ProDOS, and eventually HFS will prevail. But there is no reason to rush to convert all your old data disks to HFS. Unless you get an HD20, MFS will do just fine for now.

This article is not intended as a full-scale review of HFS or a description of how it works. Instead, it is an impressionistic report of some of the problems reported by HFS users working with the Apple's new Hard Disk 20. (Thanks go to Don Landing, Ed Myerson, David Morganstein and Jim Burger for their assistance in preparing this article.) Most of the problems with HFS will be (or have been, by the time you read this) solved by rewriting the software, but until that is done, HFS users will have to be patient and learn the techniques for working around some of the problems. This may become a monthly column for a while. Please write or leave BBS messages for me with your own experiences so that we can share them with our fellow members.

Do you want to use HFS? Unfortunately, owners of Apple's HD20 hard disk must use HFS unless they want to put all their files in the disk directory rather than in a folder. Other hard disks, such as the Paradise, can use HFS now, and many more will in the near future. The new double-sided floppy disks will use HFS and may require it. HFS will also work with single-sided floppy disks, contrary to the impression conveyed by the January 1986 *MacWorld*, although the advantages of doing so at present are nil. Users with a choice--including prospective HD20 purchasers--will want to think carefully whether you want to use HFS until the software is ready to work with it. Specifically, you should consider holding off buying an HD20 until then unless you are prepared to cope with some inconvenience.

How can you tell if a disk is HFS or MFS? Macintosh directory windows (the windows on the desktop that show the contents of an open disk or folder) have, just below the line of text that indicates the number of items in each disk or folder, two parallel black lines separated by a one-pixel wide white line. On MFS disks, this white line runs to the left edge of the window. On HFS disks, what would be the left-most white pixel on an MFS disk is black instead. Riiiight. About the only way to learn the difference is to open up an HFS and an MFS window at the same time and compare the two. (Thanks to Don Landing for reporting this.)

Some annoying HFS quirks to expect: When you double click on a document icon under MFS, the cursor quickly changes to the wristwatch while the Finder locates and loads the appropriate application. Under HFS you can expect a noticeable delay before the Finder shows the wristwatch, particularly when the application is not in the same folder as the document. This is because the program is searching for the application throughout the various folders on the disk. Even though this search procedure has been optimized, it is still long enough to make you wonder sometimes whether you actually double-clicked on the document. If nothing happens immediately after you double-click on an icon, move the cursor to the File menu and hold down the mouse button. If nothing happens, the Finder is searching for the application. If it turns out that the Finder did not recognize a double-click, you will already be close to the Open menu command and can select it quickly.

Another quirk is that the Finder 5.0, ImageWriter, Scrapbook File, and the System file should be in the same folder. (Having them all in the disk directory window, i.e., not in any folder, counts as being in the same folder.) If Finder and System are not in the same folder, HFS will not eject the HD20 Startup disk. In fact, it will then use the HD20 Startup disk as the system disk rather than making the HD20 itself the system disk as you usually would want. If ImageWriter is not in the same folder as System, you can't print. Similarly, Scrapbook File must also be in the same folder as System Apparently, however, the special file Hard Disk 20 can be in any folder.

Problems--an overview: Problems seem to occur most frequently in two situations. The most common problem occurs with applications that use files directly rather than having them selected by the the user. For example, Microsoft's Word will automatically load a file called "Standard Glossary" when Word itself is opened. Under HFS, it will not find the file unless it is in the same folder as Word itself. This eliminates some of the advantages of a hierarchical file system, as it requires desktops to be cluttered with files that are used by the application but never needed by the user. This is particularly true with program development tools that require the availability of dozens of files during a compilation or assembly. Another simple work-around, particularly if you always open an application by opening a document rather than the application itself, is to put the application and all of the files it needs in one folder and all of your documents in another folder.

The second most common problem is with programs that do not follow Apple Computer's guidelines for using files. This is particularly acute with programs written in the C language, although not all programs written in C have this problem. To understand this problem a bit of background is required. There are two ways an application can keep track of disks after they have been inserted. The first, and easiest, is by the disk name. The second is by something that users never actually see called a volume reference number, which programmers call vRefNum. This is the "correct" way for the

contd.

Macintosh. The C language, however, has powerful built-in file-handling commands that use the equivalent of disk names, and many C programmers used those techniques or carried over those habits to the Mac environment.

The problem arises in the way MFS locates files. It uses the form:

disk name:file name

Note the colon between disk name and file name. This allows MFS to distinguish between the name of the disk and the name of the file. MFS ignores folders for the purpose of locating files.

Under HFS, however, folder names are interposed between the disk name and the file name, like this:

disk name:folder1:folder2:

folder3:file name

Why this is so is worth another article, as it is the heart of HFS's advantage over MFS. What it means, though, is that if the file is located within a folder, using "disk name:file name" will omit the folder names that are essential to finding the file under HFS. So long as the file is not within any folder it can be found using the old convention. One thing to try, therefore, if your application doesn't work using other techniques, is to put it and all the files it uses in the principal disk directory window and not in any folder.

What can you expect problems with? This is a partial list of programs with problems running properly under HFS, as well as--in some cases-- ways to work around those problems. (A longer list is available on CompuServe.)

512K Mac Disk Copy won't work, not even if not in any folder.

Catalog Keeper from Dreams of the Phoenix Quick and Dirty Utilities volume 1 won't find files in folders. A spokesperson for Dreams of the Phoenix said that Apple does not regard Finder 5.0 as "official," and that when Apple releases an "official" Finder, they will update Catalog Keeper.

Click-On Worksheet won't install. Version 1.3 works, however. Call T-Maker (the number is on the original documentation) and mention that you are having problems with HFS. (Thanks to Ed Myerson.)

ConcertWare+: Put "Player" and all the instruments in the same folder. You can put "Instrument Maker," "Writer" and the music anywhere.

Copy II Hard Disk version 4.3 won't work.

DiskInfo desk accessory won't find files in folders.

Edit (the Macintosh Development System editor used by many other development systems): You can't double-click on a document to open Edit unless the document is not in any folder. Opening documents from within Edit will work. The Transfer menu won't work.

Excel: Resume Excel does not work unless the file to be loaded is not in any folder.

Fedit won't work unless you have version 3.5 or later.

File: The Help file should be in the same folder as File. I keep my index files in the same folder as the files they index, but I wouldn't be surprised if that were required under HFS.

Font/DA Mover bombs if a chosen file is in a folder and its name is too long. There does not seem to be a hard and fast rule as to what constitutes "too long."

Font Librarian won't work; it bombs with ID=02 (address error).

Link won't allow you to open anything. This was my nemesis for a week, as it is impossible to write any MDS or TML Pascal applications without Link. Even Consulair's new Linker has the same problem. Thanks to Don Landing who (indirectly) found the patch on the Mouse Hole BBS run by the excellent Macintosh programming magazine MacTutor. Use Fedit 3.5 to search in Link for the bytes (in hex) 41 EE FF B0.Replace them with 4E 71 4E 71. This sequence occurs only once.Also, keep the .Rel files in the same folder as Link.

MacSpell+ (with Microsoft Word): This program invariably bombs for me at around 2,000 words into a document. This may be a program bug, not an HFS problem.

MacTools 4.2 won't find files in folders.

MacTracks won't work (reported by David Morganstein).

Megaroids won't work; it bombs with ID=03 (illegal instruction error).

Microsoft BASIC 2.0 and 2.1: The FILES$ command will list only those files in the disk directory window.

Overvue 2.0: Even version 2.0c won't work. A fix may be ready by the time you read this. (Reported and investigated by Ed Myerson and Jim Burger.)

Red Ryder version 6.2 won't send or receive files. *Get version 7.0*; it works with HFS.

RMaker puts the output .Rel file in the same folder as RMaker itself, rather than in the source document's folder as you might expect. This is a particularly insidious surprise, especially if you do as most programmers do and fail to delete files you expect and want to be overwritten anyway.

Sidekick desk accessories that require the files in the "DataPhiles" folder, i.e., Area Codes, MacDialer, QuikSheets and Calendar Book require you to insert a floppy disk with the appropriate file on it. You can get them to work *at times* by putting all the DataPhiles files in the disk window. Even then, however, performance is erratic. I strongly suggest closing MacDialer after you use it to call up one phone number, even if you do nothing with that number. Do not attempt to add to the Phone Book from within MacDialer. A Borland representative said that they are aware of the problems and their programmers are working on fixes.

TML Pascal: The Interface files must be in the same folder as the source file.

Word: Standard Glossary and the Help file should be in the same folder as Word itself. If you are using version 1.05, expect to use the key disk.

Another note: There is an application out recently called Hard Disk Utility that, among other things, has patches to popular applications that "unprotects' those applications or otherwise allows them to run from a hard disk. Although this would seem to be the ideal solution for many, it should be regarded with *extreme caution.* (The legal status of such a solution is somewhat dubious as well.) Patches to applications modify the instructions to the application in order to work, and if one of those patches should be wrong, you could lose (in order of most-likely-to-least-likely) the data in memory, the application itself, the last saved version of the data on the disk, other files on the hard disk, or the entire contents of the hard disk itself. Let someone else experiment with *their* hard disk.

REVIEW CORNER

by James M. Burger

APPLE'S HD-20 & DASCH

HAPPY NEW YEAR

It's hard to believe. Another year gone. It has been a roller coaster year for Apple. It started out with a great, record '84 Christmas selling season. Then, the drastic fall-off in microcomputer sales throughout the industry. Then dissention at the top. Steve Jobs, who propelled Steve Wozniak's Apple from garage to a billion dollar plus company, was first "upmoted" to Corporate Visionary, losing control of the Mac division. Jobs quits, sets up NEXT, Inc., and is sued by Apple. Apple lets 1200 employees go and has the first red ink quarter ever. But, like the brilliance of the sun after a storm, Apple goes into the New Year predicting a record $52 million profit for the last quarter of 1985 and offers an exciting, new product filled 1986.

What will 1986 bring. If I knew for sure, I would be on the phone to my stockbroker. But, I cannot resist making guesses. By the time you read this, Apple will have made the first round of announcements: the 1-megabyte Macintosh+ with new 800K drive, keyboard with integral keypad, new 128K ROMs and Small Computer System Interface (SCSI), and the new LaserWriter+ with 8 megabyte memory, 20 embedded fonts, downloadable fonts and full page bit mapping for speedy graphics. Apple is clearly working on dominating the desktop publishing field. For the Apple //, harder to know. Most rumors have been for the Mac. But, the // will most likely get a new, speedier CPU that will address more memory.

But pricing is the question on most of our minds. My prediction for the Mac+ is easy. Apple will probably maintain the current list price of $2499. The price for upgrades is hard. My thought, for a reasonable price to loyal users, would be $600 for the new drive, ROMs and memory upgrade. But, the rumor mill runs prices all the way up to $1200.

The next machine should be the exciting one which rumor has it on the marketplace this Spring (my guess would be next Fall). This is the machine that Lisa should have evolved into - the open Mac. It will not look anything like today's Mac. It will have larger screen sizes available. It could even have a full page size screen (talk about going after the desktop publishing industry). It will have slots, a faster CPU and memory up to 8 megabytes. Rumor has it with a 68020 CPU (which can do true multitasking, e.g. running a communications program receiving data while you manipulate a spreadsheet, while printing) with a 12 megahertz clock speed. Also, there are rumors of color capability. While Apple does have color Macs in the lab, color capability doesn't make a lot of sense until inexpensive color laser printers are available. So, I would not be surprised if the Mac stayed monochrome for awhile.

1986 is a critical year for Macintosh. It's under attack from both sides. The inexpensive Atari and the Amiga are appealing to the home and "hacker" market. At the same time, Mac still has not made a very large dent into the business world. The jury is out on the Atari and Amiga, since there is little software available. The open Mac could push the door open further in the business market, particularly if the 3.5" disk becomes popular in the IBM world, and, someone like Dayna Communications makes a card to fit in a super Mac slot that will run MS-DOS programs.

The information received section is pretty sparse this month. Most of Silicon Valley was closed over the Holidays. Hopefully, the new Apple products and the AppleWorld Exposition in San Francisco should produce a number of new product announcements.

APPLE'S HD-20

Finally, I got my hands on an HD-20 to review. One major accomplishment of the HD-20 has been a round of lower hard disk drive costs. Before the HD-20, 20 meg drive prices were $2000+, and 10 meg drives at $1500. With the HD-20 listing at $1499, and street prices of under $1200, other drive manufacturers have been lowering their prices. Techmar offered their 10 meg at $750. With the SCSI port to be available on the Mac+, by next summer, hard disk drives should be faster and prices should be lower.

Performance. Setting up the HD-20 is very easy. The drive has the same footprint as the Mac. It's a little over 3 inches high, which, on a desk, raises the Mac screen closer to eye level. The HD-20 is very portable. It weights only seven pounds. It is simplicity itself to set up. The HD-20 attaches to the external drive port. An external drive or another HD-20 can hook-up behind the first HD-20. It has no separate power supply.

The HD-20 holds 20.77 megabytes. From a cold start the drive takes 15 seconds to startup. Launching and quitting from programs on the HD-20 is considerably faster than from a floppy disk. It exchanges data at 500K bits. From the desktop (finder), with five megabytes on the HD-20, compare the following times:

	HD-20	Floppy
To Desktop From Boot	36	20
Open MacWrite	14	26
Quit MacWrite to Desktop	11	22
Open ThinkTank 512	24	40
Quit ThinkTank	14	14
Open MacPaint	8	15
Quit MacPaint	8	8

Of course, as I wrote about the Paradise Mac10, it is not just the access time. The beauty of a hard disk is the ability to have all your programs and files in one place that are quickly accessible. With over 20 megabytes of storage, it should take a long time to fill up the drive. (I just

cohtd.

downloaded a .5 meg data file off an online service; try that on floppies and then try to edit it).

The drive appears to be solid and reliable. With two weeks of extensive use, it has performed flawlessly. There is some fan noise, but not as loud as either the Corvus or the Paradise. But, I wish someone could work a piezoelectric fan into a hard disk drive. After a while, almost any fan noise can be annoying.

Flexibility. Unlike all the other drives, the HD-20 does not require the creation of volumes. Instead, it comes with Finder 5.0 which has a Hierarchical File Structure (HFS). HFS will keep track of all the programs on the Finder. But, more than twenty or more icons on the desktop can become confusing (although 5.0 has a new "View" by small icons). Programs and files can be organized by using Folders. In his article in this issue, Tom Warrick describes some of the problems with HFS. Some of them are annoying. But, these problems will be fixed. The ability to do away with volumes is a significant improvement.

Utilities. Unlike the Paradise or the MacBottom, the HD-20 does not have print spooling. But, like the Paradise, it does not have a backup utility. Backup for data files would be extremely useful; particularly a backup that has the ability to update only changed files. On the HD-20, all backups must be done manually on the desktop.

DASCH

Memory, memory and more memory. Western Automation's DASCH (Disk Acceleration/Storage Control Hardware) is an external RAM disk for the Mac. The DASCH comes in 512K, 1, 1.5 and 2 megabyte flavors. The DASCH permits increasing RAM without surgery on your Mac. DASCH allows significantly larger RAM disks than on a 512K Mac. It is slightly smaller than the MacWrite/MacPaint box that came with your Mac (9" deep, 7" wide and 2" tall).

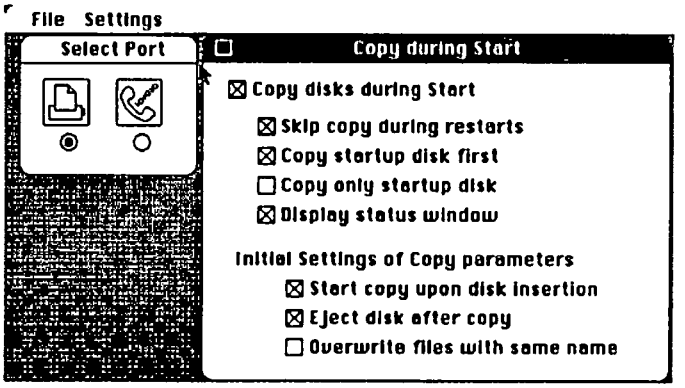
Performance. Physical setup is simple. The portable power supply is a small transformer that plugs into the wall and into the DASCH. The connection to the Mac is hardwired into the DASCH and plugs into either the printer or modem port. It has a small red LED on the front to indicate when power is on. (Remember, it is RAM. Whenever power is turned off whatever is in memory will be lost). Western Automation supplies a startup disk. The start and configuration utilities can be copied on a hard disk.

The first time you turn on the DASCH and boot with the startup disk, the entire contents, including the system folder, will be copied to the DASCH. A dialogue box then allows you to continue copying other disks to the DASCH. Since there are extensive fonts and desk accessories in my hard disk system folder, after powering up the DASCH I used the desktop to copy my system folder to the DASCH and other frequently used applications. Then I don't turn it off, so I have a permanently (absent a power failure) installed RAM disk. I just need to run the startup application.

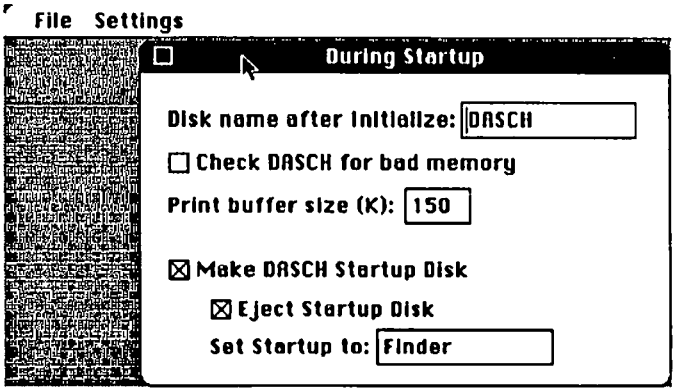
As the following numbers show, the DASCH is fast:

Open MacWrite	10
Quit MacWrite to Desktop	4
Open ThinkTank 512	13
Quit ThinkTank	4
Open MacPaint	4
Quit MacPaint	8

Flexibility. Configure offers many alternatives in using the DASCH.



The above dialogue boxes allow port selection and control over copying during Start. The dialogue box below names the DASCH disk icon on the desktop. In addition, you can check for bad memory, set a print buffer size and make DASCH the startup disk. The latter is important if you want the system disk in RAM to be the DASCH's to give more speed.



Just like a RAM disk inside the Mac as long as the power to the DASCH remains on, the DASCH retains all the programs and files. Even if the Mac is turned off, as long as the DASCH remains on it holds everything put into it. Western Automation does not yet sell a battery backup, which would be useful.

Utilities. DASCH does have a backup utility. The backup utility will check to see if a file has been modified since the last time it was backed up. If not, it will ask for the original disk holding that program. The utility replaces the old file with the modified version. In the second stage of backup, the program identifies files previously not backed up and asks for instructions. At that point you can decide on which disk to backup the file or instruct the program never to backup the file. It is a very useful utility for a volatile storage medium.

Conclusion. The DASCH works well, as advertised. It is a quick and clean way of adding chunks of extra memory. The question is one of a price/performance trade off. My only major criticism is that you cannot add memory yourself

contd.

without major surgery, since the RAM chips are soldered to the DASCH's printed circuit board.

Price. 512K - $495. 1 meg - $795. 2 megs - $999.

DASCH by Western Automation, P.O. Box 3438, Boulder, CO 80307. (303) 449-6400.

FOLLOWUPS

ThinkTank 512K 1.20NP. As promised by Peter Winer of Living Video Text, I have received a copy of the latest version of one of my favorite programs. One of my big complaints was that ThinkTank could not be used with RAM disks (such as DASCH and other RAM disks). Shortly after Comdex, I received version 1.20NP. Lo and behold, as promised, it works just fine with both DASCH and all the RAM disk programs I could try. Now, on my 2 meg Mac (with another meg in DASCH) I can have Word, Paint, Draw, AppleLink, ThinkTank and system files all in RAM and really hum. Thanks LVT.

PRODUCTS RECEIVED:

Unless otherwise indicated, the products are for the Mac and the price, if indicated is the suggested retail price.

SOFTWARE -

NEC Information Systems, Inc., 1414 Mass. Ave., Boxborough, MA 01719. **Colormate.** Software to turn images or text in Mac applications into color output on the NEC Color Pinwriter printers.

HARDWARE -

Jay Heller, 20315 Grazing Way, Gaithersburg, MD 20879. **MacCord.** $12.50 + $1.50 shipping. One of our own members puts together 12' keyboard cords to replace the short cord supplied by Apple; Jay will also make cords for peripherals and the external drive.

BOOKS -

The Cobb Group & Microsoft, PO Box 24480, Louisville, KY 40224. **Hands-On Microsoft Excel.** $50. Workbook of exercises for Microsoft Excel including exercise disk.

INFORMATION RECEIVED:

SOFTWARE -

Fingertips, 830 N. Riverside Dr., Renton, Washington 98055. **Fingertips.** $34.95 (Intro Offer). Desk Accessories for the //: Calculator, Calendar, Notepad, Roladex, Telecom, Planner, DOS, Help, Display and Quit.

Little Green Software, P.O. Box 1190, Columbia, MD 21044. **Super Eamon Starter Set.** $37.00. For the //. Set of six of the famous Eamon adventures designed for beginner adventurers.

Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062. **Rambo.** $39.95. For the // and the Mac; It finally had to happen, a text adventure game based on Syl Stallone's shoot 'em up Vietnam MIA/POW movie.

Odesta Corporation, 4084 Commercial Avenue, Northbrook, IL 60082. **Helix 2.0.** $395.00. Relational database with extensive query and manipulative functions.

THE CONFESSIONS OF A LURKER

I visit many BBSs. Late at night usually. When others are asleep and when I can find the time and not get a busy signal. I prowl around seeing what's available, what people are talking about: my Mac and I are great listeners. I set my telecommunication program on "Redial" and wait until I am admitted. Then I move through the BBS quietly and perhaps a little furtively: I prefer not to be noticed.

I enjoy studying the "feel" of a BBS: the complex organization of issues and personalities that seems to define a given board. I like to notice the individuality of the boards, their Sysops, and their contributors. Generally, I just read what is available as if I were unobserved. But I know that is not the case.

Since there is generally a log-on message from the Sysop which must be read upon entering a BBS, I have become familiar with the issues which Sysops think important enough to stick under your modem's nose. This gives me a sense of their concerns. I also read the bulletins to find out what other people are interested in talking about. I find this interesting because it gives me insights into people and their concerns, insights I would not be able to get otherwise.

As a visitor to BBSs, I try to be a nice guest (I think of a BBS as someone else's home and try to act accordingly) but this is not easy because the rules of etiquette are unlike those to which I am accustomed. I always observe the rules about using my real name and telephone number, etc.; that is straight forward enough. But there is an expectation that I cannot fulfill: It seems that one must always talk (read "type"), that one must always have something to say. This is a real problem, especially when I am new on a BBS, because I have little or nothing to say or contribute.

I cannot have something intelligent to offer all the time, especially when I am just learning the system. I try not to be a "taker", but I am so confused part of the time that I cannot contribute anything. Perhaps this will change with experience but I doubt that it will change much because most of the people who use BBSs seem to be more technically adept than I am. Thus, the most that I can contribute will be questions -- leaving me as a taker of answers.

Call me Reading-Tom if you will. (I always was one, but in libraries no one complained; there my behavior was regarded as appropriate.) I find no shame in being an electronic voyeur because I think that the demands placed on all users to talk, talk again, talk repetitively, and talk mindlessly, are unfair and unwise. I wish to contribute but, as some people are shy in groups, I am shy when my personality is transmogrified by a modem.

Perhaps that blinking red light intimidates me; perhaps I don't have what it takes to survive in the rough and tumble world of telecommunications. Whatever it is, I can't seem to make the grade with Sysops whose standard is endless babble from everyone -- or else. And the or-elses are quite real, since Sysops command quite god-like powers over access and use of a BBS. Messages from Sysops usually present their title (and

contd. on pg 64

MUSEMENTS

Fred Seelig

Macintosh PASCAL

MacWrite, MacPaint, Word, and all those games are all right, but some of us users think that the best software to come out on the Macintosh is Macintosh PASCAL, by THINK Technologies. Since having bought MacPASCAL a year ago I have used it much more extensively than I have used any other piece of software. The reason is that MacPASCAL is so easy to use. You probably bought your Mac instead of that other PC for two reasons: ease of use, and great graphics. For the same reasons MacPASCAL offers a programming environment superior to other PCs and even mainframes: ease of use and access to the Macintosh graphics capabilities.

I bought MacPASCAL because I wanted to learn the PASCAL programming language. Learning to program in a high level language like PASCAL can be a rewarding/confusing/frustrating experience on other machines. Programming in PASCAL on the Macintosh is a snap. It is especially easy if you use the Macintosh PASCAL programming environment (as opposed to UCSD: The MacAdvantage - which is *not* recommended for beginners). Its use of multiple windows and excellent debugging tools makes Macintosh PASCAL the perfect environment within which to learn PASCAL by yourself.

Here is how I got started. At the beginning of 1985 I did two things: bought a Macintosh and vowed that I would learn PASCAL. This was no small resolution. My freshman year in engineering was made especially miserable by having to learn FORTRAN using punched cards. I survived the ordeal and became reasonably proficient at FORTRAN but the purist in me was looking for a more structured programming language, one which was at once more modular and yet at the same time more flexible. The software engineers at Harris Corp down in Melbourne, FL., were especially high on PASCAL. At the time I didn't care, being a digital hardware designer. But in the Washington area I have been doing more simulations using my old nemesis, FORTRAN. The time had come to learn a new language. In the middle of a project involving a 14,000 line FORTRAN simulation program I learned PASCAL.

A few days of trying to learn it on the VAX minicomputer at work was enough to convince me that there must be a more painless way to learn. The diagnostic (the term is used loosely) error messages that the VAX compiler came up with after looking at my source code left me utterly baffled. I couldn't even write small 'getting-started' programs.

The Macintosh was to solve the problems of getting started in PASCAL. After buying the Apple-authorized Macintosh PASCAL for $99 at Clinton I started writing PASCAL programs almost immediately. It was wonderful, a breath of fresh air after the VAX experience. The text editor detects line syntactical errors immediately and puts in bold face the portion of the line not correct. This is great for beginners, who make syntactical errors more than any other type of error. Automatic indent of lines when in a control loop was a pleasant surprise, as was automatic boldfacing of PASCAL key words like **begin...end** and **if...then... else**. A symbolic debugger checked for the existence of variables declared in the VAR section, constants in the CONST section, etc., just before run time. If the symbolic debugger found anything wrong a tiny hand would point right to the offending line. Windows for graphics and text were provided. QuickDraw graphics commands made things like graphs a snap - ideal for scientific applications. (See Figure 1) I found the Observe window especially handy for tracking down the values of variables in loops, when things did not go quite right. (Figure 2 shows an example of using the Observe window.) When software developers at Linkabit saw this their reactions were a mixture of delight and jealousy, jealousy because they wished that the VAX had such user-friendly features. Anyone who has suffered through a session with the VAX debugger for FORTRAN and PASCAL knows that DEC's debugger is positively user-intimidating, and makes a very hard job of fixing a sick program. (Pretend that the Greaseman is saying this: "BAP! BAP! Don't! You! Ever! Try! To! De! Bug! A! Program! On! The! VAX! Ever! Again!")

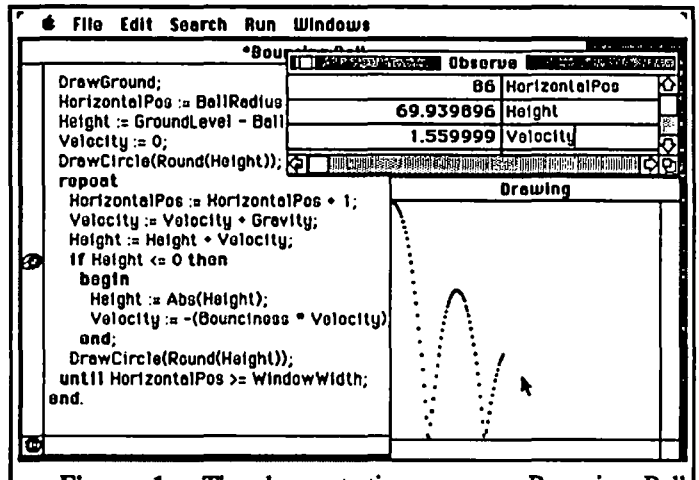


Figure 1. The demonstration program Bouncing Ball shows a ball bouncing in the Drawing window. The animation is very fast. A Stop sign is placed by the If statement. This is a break point. The program halts execution and the instantaneous values of the variables HorizontalPos, Height and Velocity are shown in the Observe window.

MacPASCAL is done quite well. It seems absolutely crash-proof at run-time. I have never been able to crash MacPASCAL at runtime using the standard MacPASCAL commands. This from a person who has filled five or six disks with PASCAL programs and worn out one of his master disks.

Note: MacPASCAL *does* allow you to have direct access to the Toolbox routines, but that's a different story. When you do that, all bets are off. You can crash the system quite easily because there is no type checking going on when you pass

contd.

parameters to Toolbox routines. At this point you are really programming in assembly language, and that is painfully slow and prone to frequent crashes. If you want to do this, use the BUDF rule: Back Up Disks Frequently!

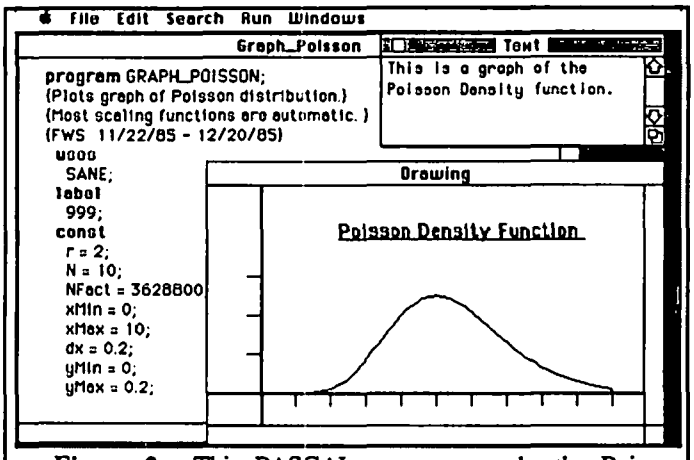


Figure 2. This PASCAL program graphs the Poisson density function, a function which comes up frequently in the mathematics of communications between members of a local area network. Shown here is the program window which has the name of the program in its title bar, the Drawing window, where graphic statements are executed, and the Text window, used for interactive input/output(I/O). The text window is handy for giving prompts and asking for program inputs, like graph titles or graphical constants.

One thing on which every PASCAL novice who went through the Class of MacPASCAL Self-Instruction will agree with me is that the Macintosh PASCAL manuals are written for Venusians. They were plainly not written for the average person. It's a perfect Catch-22: You have to already know PASCAL to be able to read the manuals. But, if you already know PASCAL, then you don't need to read the manuals. I was thinking that perhaps Milo Minderbinder coauthored the manuals. To be fair, the manuals are valuable for describing the various Macintosh procedures that allow access to the graphics and text ROM libraries of functions and procedures. I am only now beginning to appreciate their value, 8 months later, as I delve into the lower levels of Macintosh operation. But a beginners' manual the PASCAL manuals are not.

If you want to learn PASCAL, and you want to buy MacPASCAL, you need to supplement your manuals with a good textbook on PASCAL. Here is one I highly recommend: **Macintosh PASCAL**, by Lowell A Carmony and Robert L. Holliday of Lake Forest College. It is wonderfully readable, complete, accurate, nicely laid out, and a bargain at the twenty-odd dollars that Crown Books is charging. My copy is getting tattered from overuse. This book is ideal for absolute beginners, yet is so complete that it makes a good reference book, too. It has lots of examples, and lots of little mini-program listings. The problems are funny. And most importantly it is a darn good textbook. Next month I am going to review the **Macintosh PASCAL** software package. Following that a review of Carmony and Holliday's book of the same name.

There are lots of Macintosh PASCAL books on the market right now. Some are quite good. Some are horrible. In the subsequent months I shall review the following: **Mac PASCAL Programming**, by Drew Berentes, and **The First Book of Macintosh PASCAL**, by Paul A Sand. Related Macintosh book reviews will be on: **PASCAL Plus Data Structures, Macintosh Assembly Language Programming, Programming the 68000**, and the Chemicoff Bible: **Macintosh Revealed, Vols I and II.**

If someone twists my arm I may reveal my favorite physics textbook, favorite Mathematics textbook, and favorite book for laymen on cryogenics and superconductivity. A sort of "Everything you didn't want to know about Scientific Textbooks" column. But for now you'll just have to wait.

Confessions of a Lurker contd. from pg 62

only they have a title, all others must use complete names!) in all capitals: SYSOP. If bold print could be readily telecommunicated it would be easy to guess how Sysops would put it to use.

There is an awful frustration in wanting to communicate with people but not being able to think of anything to say. It's like a dream where you are in a group of people, listening to interesting conversation and enjoying yourself. But everytime you try to speak, no words come forth from your mouth; only silence. You move your lips but no one notices. It is as if you aren't really there.

I am aware that at least some of my problems are of my own creation but for all that, I would ask for mercy for shy people. We can't all be talkers, all the time. For those of you who feel in a silent mood now and again (or even for that matter, most of the time), don't be downcast; remember what Milton (nearly) said: "They also serve, who only lurk and listen."

/Signed/ Zorro Tel. No. 800-555-1212.

P.S. I am posting this plaint here because it may be the only BBS I can still get on. I have been summarily dismissed from at least one BBS in the very act of attempting to download the BBS's help files. Is it my fault that I am so inept that it took me so long just to find them that I was labeled a "lurker", and cast into the electronic oblivion of "NO CARRIER" or the more politely phrased "PLEASE HANG UP" (read "Buzz off banana nose")?

Computer Desk contd. from pg 24

doors will be completely enclosed.

The store where I bought this Bush desk, The Price Club in Richmond, Va., does not carry the optional casters for this desk. These are available through companies like Computer Mail Order or probably directly from Bush. This is one item which I will get soon because I want to be able to easily move this desk. A solid 1-inch thick oak desk is heavy and difficult to move without casters.

If you need a desk on which to position your microcomputer and if you want a good looking, solid piece of furniture, I recommend that you strongly consider one of the desks from Bush Industries, Inc., Box 23, Little Valley, New York, 14755. (716) 938-9101. These desks are also available from: Computer Mail Order, 477 E. Third St., Williamsport, PA17701, (800) 233-8950 or (800) 242-4215 in PA; and The Price Club, 1957 Westmoreland Street, Richmond, VA 23230.

DISKETERIA DISPATCH

by Jim Little

Happy New Year! This month is the start of the ProDOS library! A beginning, thanks to the efforts of Tom DeMay.

Public domain disks are donations by authors whose only reward is a credit line in the program. Some are real gems, rivaling the best of commercial software with extensive testing, example problems and understandable documentation. Others are not quite so good, and some are plainly dogs with faults, bugs and perhaps an infinite loop thrown in (inadvertently). Everyone is not a programmer and it is frustating for the user to see a useful program idea that does not quite work. Speaking from experience, it takes at least three times the effort to debug or fix a non-functional program that someone else wrote. It is also time consuming. We encourage anyone who finds bugs, crashes and other undesirable results to let us know about it. Sometimes a fix will be easy, but not always. There will be a time lag, even when we find a volunteer to get right to it. Be understanding that we do not have the resources that a good commercial software operation should have.

Disks /WAP800 - 805: ProDOS

Disk /WAP800 will be issued later as the **catalog of the ProDOS collection.**

Disk /WAP801 is **Procmd (THE COMMANDER)** utility. This is a set of utilities that Apple left out of system. A "donation ware" disk - send the fee to the author for validation, and update if this is not the latest version. Both sides of the disk are used, the reverse contains the documentation (and the address of the author). New commands include 'type filename' which lists the file directly to the screen or printer, date provides timestamps, using allows numbers to be printed with commas and decimals all lined up i.e. 1,234.56. Other routines include dump, sort, copy, renumber, merge, xref, find etc. Gold mine for the ProDOS user.

Disk /WAP802 is **Utilities (A).** Included are catalog listers for a couple of printers, a type command for listing files, 40 and 80 column menus, an Applesoft lister, Miniassembler, file cabinet, and last but not least, Freewriter. Try it and see what it's worth to you

Disk /WAP803 is **Filecabinet.** A complete system from IAC disk #49. Exploiting the ProDOS file extensions, this program is an improvement over the similar 3.3 DOS system.

Disk /WAP804 is **Shareware.** Take a test drive using a series of useful additions to the ProDOS system. Another Type command usable in a program as well as the keyboard. Diskworks is a sector editor working on 3.3, ProDOS, Pascal or CP/M disk. Sorry not on a][+. The.Executive will turn any file into an executable text file. With documentation too! Dir will catalog anything in less than 3 seconds. Copy will do just that, file to file, one rectory to another, or one disk to another. Test first, then pay the modest fee.

Disk /WAP805 is **1985 Tax Templates for AppleWorks.** The following description is submitted by Paul Koskos: "This disk contains two new tax templates for the 1985 Federal Tax Returns. Both are in AppleWorks format. The first, by Rocky Ragano, consists of Form 1040 and Schedules A and B. It requires about 22K of AppleWorks Desktop, easily provided by a 64K extended 80 column card, or equivalent. The second, by Paul Koskos, is considerably longer (80K) and requires a 128K RamWorks card, or equivalent, to provide a large enough AppleWorks Desktop to accommodate it. The long template includes Schedules A, B, C, D, E, G, SE, W, AND FORMS 1040 AND 6251 (Alternative Minimum Tax). Both templates contain the 1985 Tax Schedules for all combinations of singleness, marriedness and in between. The various forms in both templates are interlinked, so that figures need to be entered only once by the user, and will then be entered automatically as appropriate in the other forms. At the end, pressing the re-calculate option of AppleWorks will cause the tax to be calculated."

On February 15, a tutorial on the use of these templates is scheduled at the PI office. Please call the office to reserve your place at this tutorial, if you are interested.

New disks in the **DOS 3.3** library are:

WAP Disk 500: Master Catalog Listing.

Almost everything in the 3.3 library (hello's, Eamon utility names, and menus removed). First is the sequence list by disk catalog number in three groups. Each group can be accessed by the master catalog program on disk #43. Four additional lists contain alphabetic sections of the program names. This permits the catalog program to contain one section in memory. The entire list exceeds 3000 items at present, and the whole thing won't fit. Work with copies of these listings so you do not alter the order of the catalog on the disk. This catalog program allows sorting by volume, alpha order of name, and type of file. We will update periodically as disks are added, or you may add your own disks at any time. Using this program you may find that it appears to do nothing for several minutes. BASIC has to clear out space for strings when memory runs out. This garbage collection is time consuming with a large number of strings.

WAP Disks 222 - 226: Eamon Adventures

Disk #222 is reserved for **Utility IV.**

Disk #223 is **Temple of the Undead.** Joel Cranston has created this new adventure for your enjoyment. It's a take off of a 'Temple of Doom" theme. A map of the area is a nice touch to begin the quest. Good hunting! Thanks to Joel.

Disk #224 is **Quest for the Holy Grail.** Darkness and a howling wind engulf you... and you find yourself in England in the year 926 A.D. in the time of King Arthur. A bilingual discourse follows, concluding with the admonition, "You must find the Holy Grail or never see the Master Disk again!"

Disk #225 is **Caves of the Mondamen.** A message from the King contains an appeal for help. His Highness needs a trustworthy, strong, brave adventurer to save the kingdom. The evil, deposed King Mondamen is building an

contd.

army to attack the kingdom. He has enlisted the aid of a wizard to call up the evil spirit "vaprak". A brave warrior will have to kill the wizard before the spell is cast to animate the spirit. Oh, and the daughter of the neighboring king is hostage. Rescue her too!

Disk 226 is The Orb of Polaris. As you left the Main Hall you felt a strange wrenching in your stomach and something made your vision blur. When you regain your eyesight you find that teleportation has moved you into the chamber of a mighty warlock. He relates that his spell was to get the best and strongest adventurer in the business. That means you! His orb has been stolen and you will be rewarded beyond your greatest dreams if you return it. On the other hand failure could be costly. At the entrance of an ice cave the air is a bone chilling -20 degrees....

More disks are in process for next month!

The following description of this month's new SigMac disk is taken from the notes of Tony Anderson.

SigMac 33: Desk Accessories II

"Be fruitful and multiply." Well, Macintosh programmers seem to live by that statement when it comes to desk accessories. There are desk accessories to do everything. Soon I expect to see desk accessories for desk accessories. Here is an all new collection to help you work better and have more fun doing it.

In the ScrapBook Folder:

Choose Scrapbook - Lets you choose any scrapbook on any disk.

Multi-Scrapbook - More of the same here. This one is slightly better.

In the Fun Stuff Folder:

3D Tic-Tac-Toe - As the name says.

Abacus - A working abacus on screen. Learn the oriental art.

AnalogClock - A cleverly designed clock.

Bagels - Guess the four digit number.

Collapse* - That's what it causes your screen to do.

Crabs2* - They start from the menu bar and work their way down.

Cube - Much more challenging than the puzzle. A cube ála Rubick's.

Flow* - Watch as the menu flows into the sea of fat bits.

Fun House - Welcome to the Mac hall of mirrors.

Halloween - Don't worry. It's only a trick.

Knockout - A little bit of the the old arcade days right here on the desktop.

Measles* - At least whatever Mac catches is lost with a reset.

Rays - Draw rays from a common point.

Wrap* - Most annoying. The mouse arrow wraps around the edges.

(Those DA's with an * after their names will require that the Mac be rebooted to deactivate them.)

In the Utilities Folder:

Reader 1.06 - Read any text only document.

DAFile - Delete, rename, etc. from within applications.

DAFont - See samples of all the system fonts.

Freemem - Shows the memory free.

FatMouse - Gives a closer look at what the mouse sees.

Change Application Font 1.03 - Change the font for general use.

Icon Maker - Make an Icon resource file any time.

Procount - Will give the word count for any text or file.

Utilities - Set the finder attribute flags and other things.

SegWatch - Look at the segments allocated in the system heap.

SegWatch Documentation.

Ruler - Measure in pixels, cm, and inches between any two points.

RasNIX - A DA that puts a Unix-like interface on the Mac.

RasNIX Documentation.

In dCAD Folder:

CRAY3P.BIN - An advanced Scientific Calc as a stand alone program.

CRAY3A.BIN - Same as above but as a desk accessory.

CRAY3D.BIN - Documentation for above.

In DA Tools Folder:

Install DA KEY - Install this and use command shift 7 to try a DA.

DA Problems - Document describing a common DA problem.

DA Mover 2.5 - Apples Font/DA Mover latest version.

DA Sampler - One of two sampler programs. Great for a quick look.

Sampler - Here's the other one.

Convert Desk ACC. - Converts from DAM format to Font/DA Mover.

Q & A contd. from pg 11

160, 160, 160, 160, 160, 178, 178, 141. The 177s are the 1's, the 178s are the 2's, and the 141 is the carriage return, but what are all those 160s?? They are spaces equivalent to spacing over to the next tab field on the screen. If you were to read this back using an INPUT statement with a string as an argument, e.g. INPUT A$, then A$ would contain

"11 22".

If instead you used a numeric argument, INPUT X, then X would contain 1122, because the string to numeric converter ignores spaces. The only safe way to use compound print statements is to explicitly print a delimiter, such as a comma, between the elements. For example, PRINT X;",";Y, with X and Y equal to 11 and 22 respectively produces a file containing 177, 177, 172, 178, 178, 141 where 172 is the comma. This can be read back properly with INPUT X,Y or by executing INPUT X twice. All the ASCII values in DOS 3.3 text files are stored on the disk with the "high bit on", this means that if you use a Disk Zap type program to inspect the disk (as I have done above) you will have to subtract 128 from the values before you can look them up in a standar ASCII code table, such as the one in the back of the old Applesoft Reference Manual. If you read the file with a GET A$ command Applesoft will do the subtraction for you.

MACINTOSH™ PLUS SPECIFICATIONS

PROCESSOR:
MC68000, 32-bit internal architecture
7.8336 MHz clock frequency

MEMORY:
1 megabyte RAM
128K ROM
Includes 256 bytes of user-settable parameter memory

DISK CAPACITY:
800K per formatted double-sided disk
3 1/2-inch, hard-shell media

SCREEN:
9-inch, diagonal monochrome display
512 by 342 pixels, bit-mapped

INTERFACES:
Synchronous serial keyboard bus
Two RS232/RS422 serial ports (230.4K baud maximum)
Mouse interface
External disk interface
SCSI interface (320K bytes per second maximum)

SOUND GENERATOR:
4-voice sound with 8-bit digital-analog conversion using 22 KHz sample rate

INPUT:
Line voltage: 105 to 125 volts AC, RMS
Frequency: 50 or 60 Hz Power: 60 watts

KEYBOARD:
78 key, 2-key rollover, software mapped, detachable, with built-in numeric keypad and direction keys

MOUSE:
Mechanical tracking, optical shaft encoding 3.54 pulse per mm (90 pulse per inch) of travel

CLOCK/CALENDAR:
CMOS custom chip with 4.5 volt (Eveready No. 523 or equivalent) user-replaceable battery backup

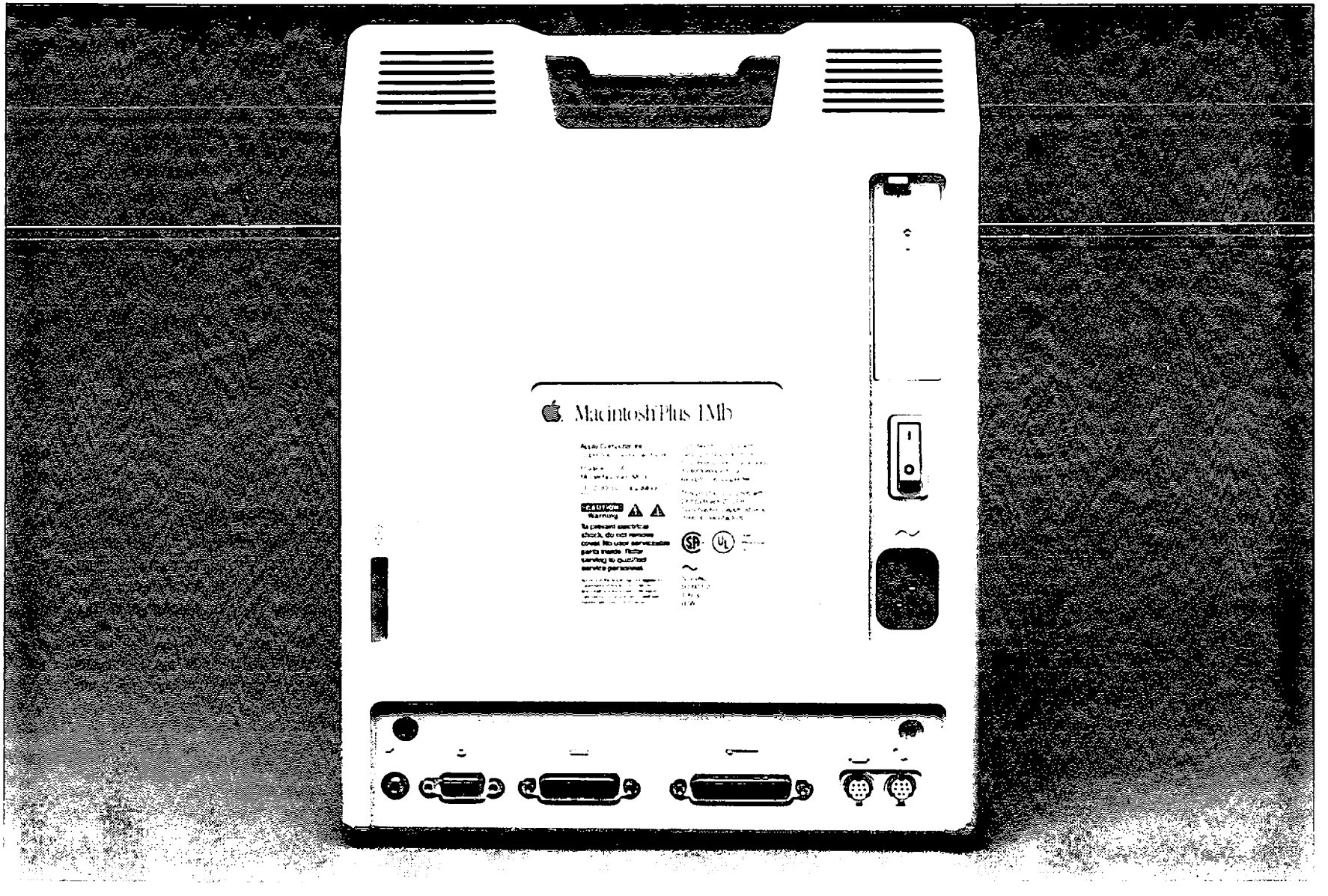
SIZE AND WEIGHT:

	Weight	Height	Width	Depth
Main Unit	7.5 kg 16 lb., 8 oz.	344 mm 13.5 inches	246 mm 9.7 inches	276 mm 10.9 inches
Keyboard	1.2 kg 2 lb., 10 oz.	65 mm 2.6 inches	395.4 mm 15.6 inches	146 mm 5.8 inches
Mouse	.2 kg 7 oz.	37 mm 1.5 inches	60 mm 2.4 inches	109 mm 4.3 inches

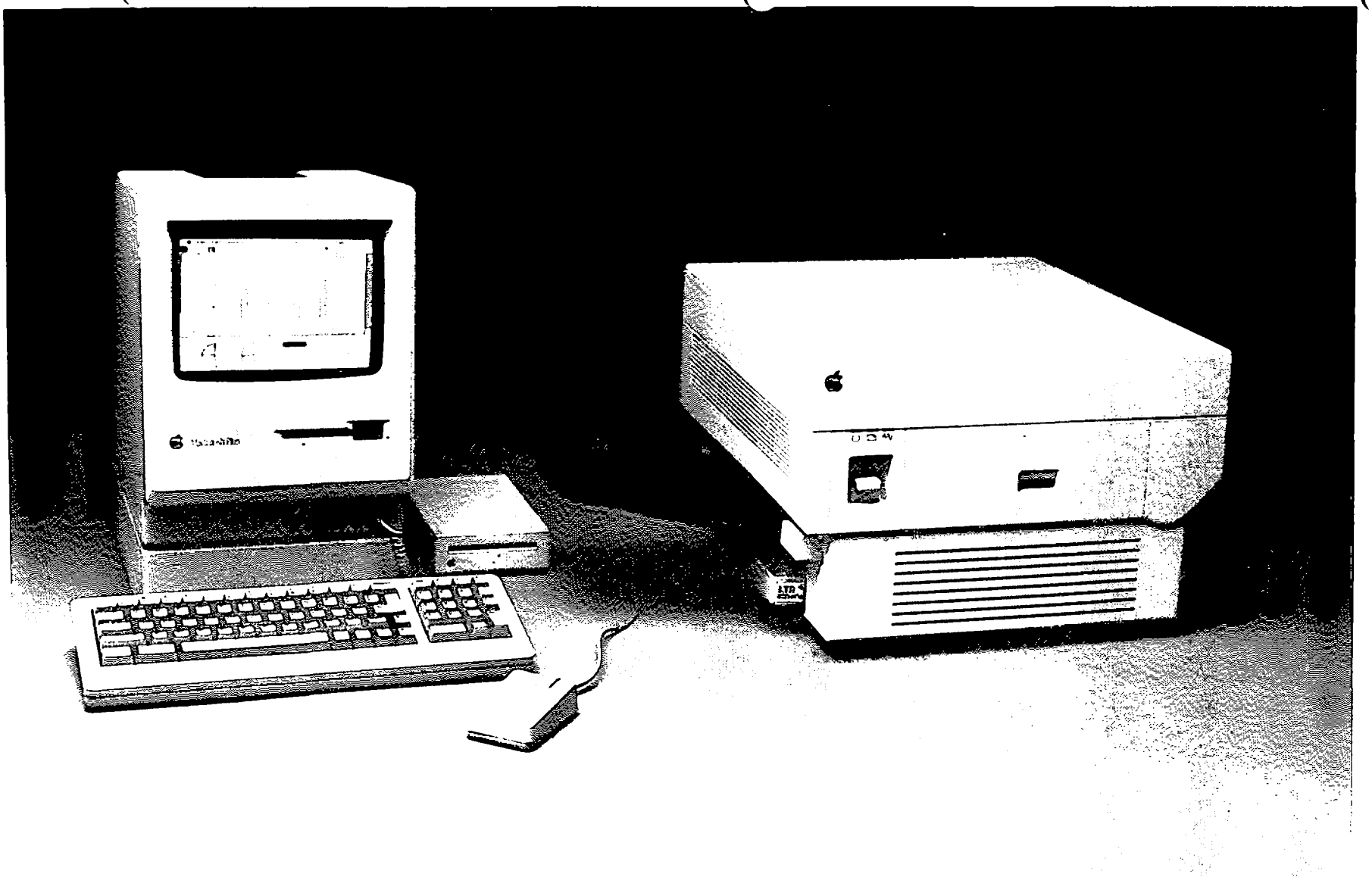
ENVIRONMENT:

Operating Temperature:	10-40 degrees Centigrade 50-104 degrees Farenheit
Storing Temperature:	-40-50 degrees Centigrade -40-122 degrees Farenheit
Humidity, all conditions:	5% to 90% relative humidity
Altitude:	0 to 4615 m (0 to 15,000 feet)

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171576 TWX 9103382054



The back panel of the Macintosh™ Plus computer includes all of the original Macintosh ports, as well as a high-speed peripheral port (third from the right) that uses the Small Computer System Interface (SCSI) standard. The SCSI port transfers data three times faster than the external drive port, and allows up to seven peripherals to be connected together and operated through this single port.



Apple Computer's LaserWriter™ Plus printer provides seven new font families in addition to the four that are built into the LaserWriter. The seven new font families are available in a variety of typefaces and point sizes, providing Macintosh users with a sophisticated desktop publishing system for producing typeset-quality text and graphics.

These are the additional typefaces available in the LaserWriter Plus:

ITC Avant Garde Gothic Book
ITC Avant Garde Gothic Book Oblique
ITC Avant Garde Gothic Book Demi
ITC Avant Garde Gothic Demi Oblique

ITC Bookman Light
ITC Bookman Light Italic
ITC Bookman Demi
ITC Bookman Demi Italic

Helvetica Narrow
Helvetica Narrow Oblique
Helvetica Narrow Bold
Helvetica Narrow Bold Oblique

New Century Schoolbook
New Century Schoolbook Italic
New Century Schoolbook Bold
New Century Schoolbook Bold Italic

Palatino
Palatino Italic
Palatino Bold
Palatino Bold Italic

ITC Zapf Chancery Medium Italic

ITC Zapf Dingbats ✓✓✗✖✗✗✙✎✪▲✻✻✻✻✻✻●✢

WASHINGTON APPLE PI DISKETERIA MAIL ORDER FORM

Software for Creative Living

This form is only for ordering disks that you want mailed to you.
5 1/4" DISKETTES: - Members $ 5.00 each; Non-members $ 8.00 each. Plus $1.00 each postage up to a maximum of $ 5.00.
3 1/2" DISKETTES: - Members $ 6.00 each; Non-members $ 9.00 each. Plus $1.00 each postage up to a maximum of $ 5.00.
A $1.00 per disk discount on the above prices is offered for oders of 5 or more disks. Postage remains as above.

DOS 3.3 Volumes

( ) 41 IAC 25 Mach.Lang.Util.
( ) 42 One Key DOS ***
( ) 43 IAC 29 Utilities H
( ) 44 Utilities I
( ) 45 Diversi-Copy ***
( ) 70 Business/Math/Statstic.
( ) 71 Music
( ) 72 Keyboard Games
( ) 73 Text Adventure Games
( ) 74 Paddle Games
( ) 75 Color Graphics for Fun
( ) 76 Education
( ) 77 Utilities
( ) 90 Spreadsheet C Gen. Bus.
( ) 91 Spreadsheet D Investmt.
( ) 92 Spreadsheet E Bus. Rec.
( ) 93 VisiPlot & VisiTrend
( ) 94 CALCULINK ***
( ) 100 Utilities A
( ) 101 Utilities B
( ) 102 Games A
( ) 104 Business A
( ) 106 Science Engineering
( ) 107 Games B
( ) 108 IAC 10(Graphics)
( ) 109 IAC 11(Applesoft Tutr)
( ) 110 Personal/Education
( ) 111 Games C
( ) 112 Utilities C
( ) 113 Business B
( ) 115 IAC 12/13 Misc.
( ) 116 IAC 14 MicromodemII
( ) 117 Picture Packer
( ) 118 Utilities D
( ) 119 IAC 15 Misc.
( ) 120 IAC 16 Misc.
( ) 121 WAPABBS 1.1 Doc.**
( ) 122 IAC 17 Misc.
( ) 123 French Vocabulary
( ) 124 Utilities E
( ) 125 IAC 18 Misc.
( ) 126 Sights and Sounds
( ) 127 Math/Science
( ) 128 Games D
( ) 129 GLAQ
( ) 130 Diversi-DOS ***
( ) 131 Personal/Educ. 2
( ) 132 IAC 19-Utilities F
( ) 133 IAC 20-Pascal&DOS 3.3
( ) 134 New Members Disk
( ) 135 WAPABBS1.1 Disk 1**
( ) 136 WAPABBS1.1 Disk 2**
( ) 137 IAC 21 Spreadsheet A
( ) 138 IAC 23 Utilities G
( ) 139 IAC 24 Education 3
( ) 140 Education 4
( ) 141 Special Data Bases
( ) 142 IAC 28 Pinball Games
( ) 143 Sports
( ) 144 IAC 27 Applesoft Prog.
( ) 145 Apple Logo Tool Kit
( ) 146 Logo Documentation
( ) 147 App. Logo Samp.Prog.
( ) 150 EDSIG1 (Elem. Math)
( ) 151 1983 Tax Template
( ) 152 IAC 31 Miscellaneous

DOS 3.3 contd.

( ) 153 Investments A
( ) 154 Investments B
( ) 155 IAC 33 Miscellaneous
( ) 156 IAC 35 Applsft-AW//e
( ) 157 IAC 36 Arcade Games
( ) 158 Apple Logo Programs
( ) 159 Recipe Files
( ) 160 Utilities & Games
( ) 161 Wizard Worker
( ) 162 Games E
( ) 163 Graphs and Displays
( ) 164 Games F
( ) 165 Happy Holidays
( ) 166 Charts and Graphs
( ) 167 IAC 40 - Pilot Lang.
( ) 168 IAC 41&47-AW Util.
( ) 169 Hayes Term. Prog. ***
( ) 170 Love's Follies (Util.)
( ) 171 Cat-Graphix
( ) 172 Print Shop Graphics
( ) 500 Master Catalog Listing

Eamon Series Volumes

( ) 180 Dungeon Designer
( ) 181 Beginners Cave
( ) *182 Lair of Minotaur
( ) *183 Cave of the Mind
( ) *184 Zyphur Riverventure
( ) *185 Castle of Doom
( ) *186 Death Star
( ) *187 Devil's Tomb
( ) *188 Caves of Treas.Isl.
( ) *189 Furioso
( ) *190 The Magic Kingdom
( ) *191 The Tomb of Molinar
( ) *192 Lost Isl. of Apple
( ) *193 Abductor's Quarters
( ) *194 Quest for Trezore
( ) *195 Underground City
( ) *196 Merlin's Castle
( ) *197 Horgrath Castle
( ) *198 Deathtrap
( ) *199 The Black Death
( ) *200 The Temple of Ngurct
( ) *201 Black Mountain
( ) *202 Nuclear Nightmare
( ) *203 Feast of Carroll
( ) *204 The Master's Dungeon
( ) *205 The Crystal Mountain
( ) *206 The Lost Adventure
( ) *207 The Manxome Foe
( ) *208 The Gauntlet
( ) *209 Caverns of Langst
( ) *210 Future Quest
( ) *211 House of Secrets
( ) *212 Sewers of Chicago
( ) *213 Slave Pits of Kzorland
( ) *214 Alternate Begin. Cave
( ) *215 Lifequest
( ) *216 Swordquest
( ) *217 Priest of Xim!
( ) *218 Heros Castle
( ) *220 Utility II
( ) *221 Utility III
( ) *223 Temple of the Undead
( ) *224 Quest for Holy Grail
( ) *225 Caves of Mondamen
( ) *226 Orb of Polaris

ProDOS Volumes

( ) 801 Procmd (THE CMDR.)
( ) 802 Utilities (A)
( ) 803 Filecabinet
( ) 804 Shareware ***
( ) 805 '85 Tax Templates-AW

Forth Volumes

( ) 700 Assembler/Disassemb.
( ) 701 Full Screen Editor
( ) 702 GoForth Tutorial
( ) 703 Fig-Forth
( ) 704 Floating Point Arith.

Pascal Volumes (See also 133)

( ) 300 PIG0:ATTACH 1.1/BIOS
( ) 301 PIG1:
( ) 302 PIG2:
( ) 303 PIG3: (PIG0:, PIG2:,
( ) 304 PIG4: PIG4:, and
( ) 305 PIG5: PIG11: are
( ) 306 PIG6: re-issues)
( ) 307 PIG7:
( ) 308 PIG8:
( ) 309 PIG9:
( ) 310 PIG10:
( ) 311 PIG11:
( ) 312 PIG12:
( ) 313 PIG13:Guerilla Guide
( ) 314 PIG14:

CP/M Volumes

( ) 401 Master Catalog
( ) 402 Utilities 1
( ) 403 Communications
( ) 404 Utilities 2
( ) 405 Utilities 3
( ) 406 ZCPR2 Install
( ) 407 ZCPR2 Documentation
( ) 408 ZCPR2 Utilities
( ) 409 Modem 730
( ) 410 Essential Utilities
( ) 411 Text Editor
( ) 412 Spreadsheet
( ) 413 MDM740AB(SSC&Com)
( ) 414 MDM740CD(7710&A-Cat)
( ) 415 Orig. 350 Pt. Adventure

MacIntosh (SIgMac)
- @$6.00 (see above)

( ) 1 MS-BASIC Pgms
( ) 2 Atkinson's Goodies
( ) 3 Fonts
( ) 4 MS-BASIC Pgms
( ) 5 Desk Accessories
( ) 6 Mac Paintings
( ) 7 Desk Calendar&MS-Basic
( ) 8 MacFORTH Programs
( ) 9 Not One Byte
( ) 10 Mostly BASIC
( ) 11 MacFonts} Recommended
( ) 12 MacFonts} as a pair.
( ) 13 RAM Disk&Altrd. Finder
( ) 14 Filevision Templates
( ) 15 Progammer's Playground
( ) 16 New Members Disk 1985
( ) 17 Red Ryder 5.0 ***
( ) 18 MusicWorks Collectn. I
( ) 19 Mock Accessories ***
( ) 20 MacPaintings II
( ) 21 Utilities I (ResEd)
( ) 22 Desk Tools
( ) 23 Fonts III
( ) 24 Telecom I
( ) 25 Util. II (Switcher 4.4)
( ) 26 Am. Sign Lang. Font
( ) 27 Cyclan Develop. Sys.
( ) 28 World Mapping Prog.
( ) 29 Fun and Games
( ) 30 Education I
( ) 31 Dungeon of Doom/ Eliza Talks
( ) 32 Fun and Games II
( ) 33 Desk Accessories II

NOTE: New discount pricing on orders of 5 or more disks. See above.

* Vol. 181 required with these disks. ** Vols. 121, 135, 136 must be purchased together. DATE: _____
*** Use of this disk requires sending money directly to the author.
Note: Allow 2 to 3 weeks for mailing. Total Order = ____ Disks; Postage $_____; Total Amount Enclosed $_____.

NAME: _____

ADDRESS: _____

CITY, STATE, ZIP _____

Make check payable and send to: (U.S. funds payable on a U.S. bank.)

Washington Apple Pi, Ltd.
Attn. Disketeria
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

Telephone _____

WAP Membership No. _____

WAP TUTORIAL REGISTRATION

The following three WAP tutorials are being offered to Apple // owners on Tuesday evenings from 7:30 to 9:00 PM, at the office, 8227 Woodmont Ave., Bethesda, MD. (The tutorials start promptly at 7:30; if you bring your computer please arrive 15 minutes early to set up.) You may sign up for any or all of the series. They are designed for the "beginner" and will be repeated monthly. A revised outline of the tutorials was given in the October 1985 issue of the WAP Journal. However, the 3rd tutorial has been changed as follows: It will introduce AppleWorks, Apple's integrated Word Processor, Database and Spreadsheet, for use with Apple //c, //e and][+ when patched by Norwich Plus Works or similar software. An AW Data Disk will be available for use (or copying) during the tutorial. It contains several small (less than 10K) examples of databases and spreadsheets, in addition to instructions in the form of an AW word processor file. The tutorial is designed to guide new AW users through the procedures for using, adding to, and altering existing files. The particular files used will be chosen in response to requests from registrants.

( ) February 4 - WELCOME TO THE WORLD OF APPLE - ( ) March 4
( ) February 11 - HOW TO USE YOUR APPLE SOFTWARE - ( ) March 11
( ) February 18 - POPULAR APPLICATIONS FOR YOUR APPLE - ( ) March 18

The fee for each tutorial is $10.00 with an Apple, monitor and disk drive, $15.00 without (monitors available for 1st 5 registrants - call office). Please note that WAP does not have equipment for you to use; if you do not bring your own, you will have to look over someone's shoulder.

__ Tutorials at $10.00 (with equipment) __ Tutorials at $15.00 (without equipment)

SigMac is sponsoring a series of two monthly tutorials for the beginner. The fee for two tutorials is $30.00. They will be held at the office, from 7-10 PM on Monday evenings. You are strongly urged to bring your Macintosh. These tutorials fill up quickly - call the office to verify space before mailing in your registration.

( ) Monday, March 17 and 24 ( ) Monday, April 21 and 28

The following "non-regular" tutorials are being offered at the office on Saturday mornings at 9:00 AM for the Apple // family. Attendees should bring their computer, monitor (if one has not been reserved for you) and other special equipment noted below.

February 15 - 1985 Federal Tax Return AppleWorks Tax Templates - Paul Koskos. 128K of memory is needed, plus AW startup disk, a copy program and four blank disks.

( ) $15 with Apple, member ( ) $20 with Apple, non-member
( ) $20 w/o Apple, member ( ) $25 w/o Apple, non-member

Please check the desired tutorials and return this form with fee(s) made payable to Washington Apple Pi, Ltd. to:

Washington Apple Pi, Ltd.
Attn. Tutorials
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

Name _____

Daytime Phone _____ Evening Phone _____

Total Enclosed $ _____

INDEX TO ADVERTISERS

Adaption Electronics 53
All Hours Consultants 15
Anderson Jacobson . . . . . Back Cover
Chesapeake Software 45
Clinton Computer Center 2
Computer Den Ltd. 37
Computer Service Center 1
Computer Ware Unlimited 31
Eastman Kodak . . . . . .Inside Back
Hippopotamus 53
Landmark Computer Laboratories 5
MacCorner 57
Operant Systems 41
Paragon Technologies Inc 15
PC Resources 45
Raedata, Inc. 19
The /// Magazine 13
Tysons Corner Center 15
VF Associates 23
Voad Systems. . . . . Inside Front
Wheaton Plaza 12

INDEX TO AUTHORS

Bedrick, Barry 16, 17
Bedrick, Ben 17
Begleiter, Ralph J 52
Billingsley, Amy T 21
Burger, James M. 60
Carter, Nicholas G 20
Combes, Peter 9
Derhaag, James J 51
Field, Bruce F 10
Fox, Barry 34
Hardis, Jonathan E 48
Johnston, Thomas 19
Klugewicz, Chris . . . 19, 40
Little, Jim 65
Morganstein, David . . 38, 54
Mortimer, Jack 22, 24
Ottalini, David 14
Page, Chester H. 32
Payne, Steven 17, 18
Pearce, Steven 21
Platt, Robert C. . . . 36, 46
Riley, Tom 25
Sawyer csc, Brother Tom. . 47
Seelig, Fred 63
Swarztrauber, Beryl . . . 18
Trusal, Lynn R . . 43, 44, 45
Warrick, Tom 4, 56, 58
Youell, Adrien G 9

FIFTEEN POPULAR SOFTWARE PACKAGES

With coupons from the Super Software Savings booklet, you can save on these popular software packages:

Sublogic	Flight Simulator II	$4.00 Rebate
Scholastic	12 Software Products	$5.00 Rebate
Sierra	Disney Educational Software	Free Storymaker ($29.95 value)
Davidson & Associates	Word Attack and Speedreader II	Free Supplementary Data Disk ($19.95 value)
Random House	Alpine Encounter	$4.00-$6.00 Rebate
CompuServe	CompuServe Subscription	Free Starter Kit ($59.95 value)
Thoughtware	Trigger and Sell, Sell, Sell	$10.00 Rebate
Simon & Schuster	J.K. Lasser's—Your Income Tax	$10.00 Rebate
Funk	Sideways	$8.00 Rebate
MECA	Managing Your Money	Free Demo Disk
Barron's	Barron's Computer SAT	$20.00 Rebate
Brøderbund	Bank Street Series and Where in the World is Carmen Sandiego	$5.00 Rebate
Multimate	Just Write	$10.00 Rebate
Scarborough	Your Personal Net Worth	$10.00 Rebate
Innovative	Smart Systems	$50.00 Rebate

ACT NOW!

Stop in today to buy KODAK Diskettes—they're certified 100% error-free. And look for the Super Software Savings counter display. It will tell you exactly how to take advantage of this great offer from Kodak.

But hurry. This is a limited-time offer. Kodak Diskettes must be purchased by January 31, 1986, and requests for Super Software Savings booklets must be postmarked no later than February 15, 1986.

WASHINGTON APPLE PI, LTD.
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

FORWARDING AND ADDRESS CORRECTION REQUESTED

BULK RATE
U. S. POSTAGE
PAID
PERMIT # 5389
Silver Spring, MD
20910

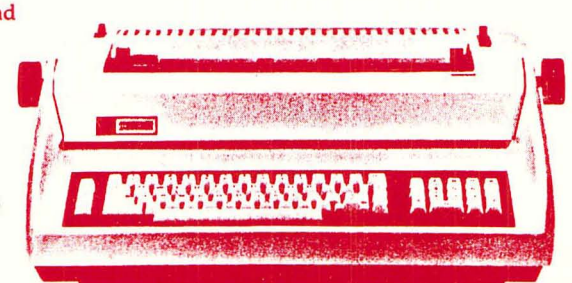
A REFURBISHED DAISY WHEEL PRINTER
FOR PERSONAL COMPUTER USERS AND SMALL BUSINESSES.

Three-In-One Offer! Just $295 (Includes On-Site Warranty)

- A 30 cps **letter-quality** printer
- A timesharing keyboard terminal (when modem equipped)
- A Selectric*-style keyboard typewriter

AJ daisy wheel printer terminals are renowned for exceptional performance, high reliability, and applications versatility. Now you can have all this for only **$295**** in our special limited offer.

- Optional 45 characters per second
- Changeable type faces
- Full ASCII keyboard with numeric pad
- High resolution X-Y plotting
- Complete electronic forms control
- 256-character buffer
- Asynchronous RS-232 interface
- Printwheel, ribbon cartridge, and cable included
- 30-day parts/labor warranty



We service IBM personal computers and peripherals at your home or office.

And you can choose from a list of options including forms tractor, pin-feed platen, paper trays, side shelves, extra printwheels, APL keyboard and 2K buffer.

For information telephone
Sean Belanger
(301) 840-5700

**Suggested selling price, excludes options and is subject to change without notice. Model shown includes certain options. Offer available only in the contiguous U.S.

*Selectric is a trademark of IBM.

ANDERSON JACOBSON
8653 Grovemont Cir.
Gaithersburg, MD 20877
-4191