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Washington Apple Pi

The Journal of Washington Apple Pi, Ltd.

Volume 6 October 1984 Number 10

Highlights

1001 BINARY TALES: MAC INNARDS
A GUIDE TO BUYING A PC
IS IT SAFE TO BUY A BARGAIN?
CODEMAP: A GUIDE TO PASCAL CODE FILES

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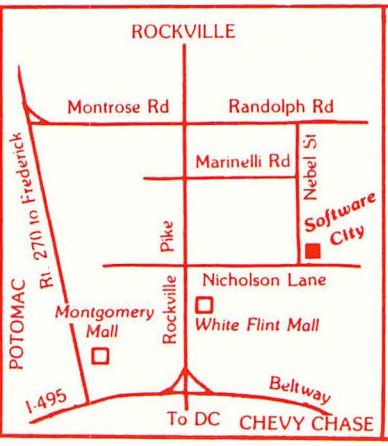

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	- Nancy Philipp	(301)	924-2354
	- Jay Thal	(202)	244-3649
	- Rich Wasserstrom	(703)	893-9147
Editor	- Bernie Urban	(301)	229-3458
Associate Editor	- Genevie Urban	(301)	229-3458
Journal Staff:			
Store Distrbtn.	- Ray Hobbs	(301)	490-7484
Columnists:			
Applesoft	- J.T. (Tom) DeMay Jr	(301)	779-4632
DisabledSIG	- Jay Thal	(202)	244-3649
EDSIG	- Peter Combes	(301)	251-6369
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Washington Apple Pi, Ltd.
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814
Office (301) 654-8060

ABBS (301) 986-8085 - 24 hours/day
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EDITORIAL

First and foremost, we thank you, Bob, Cara and Peter, very much for editing the September issue of the Journal. We have developed procedures over the years which were hard to come by and difficult to convey to others, so we know of the problems you experienced and overcame. A good job and well done!

Let me be the first to react to Bob Platt's immediate departure from the Washington area to Amarillo, Texas. Congratulations on your new job. I'm sure you will do well with Mesa. Their gain is our loss, however. The Pi is losing a tireless, truly dedicated volunteer who has added immensely to the quality and value of the organization. Almost immediately upon joining, Bob started attending Board meetings and participating in activities ranging from redrafting the Bylaws through giving monthly tutorials and preparing new disketeria releases to keeping track of our SIGs and editing a Pascal book of Pi member articles. Adios, hasta luego.

This issue covers, in addition to the usual SIG reports, Q & A, and other regular columns, three sections dealing with information on the Mac, business and word processing, and Pascal and Forth. We also have several articles which should be of interest and value to computer newcomers or aspirants. For those of you who have not yet purchased a system, George Sall provides a methodology which he used in choosing a //c. Merle Block suggests ways to make money with your new purchase. Mark Daniels whimsically offers ways to rationalize your purchase, and Stan Viet of Computer Shopper gives you the facts pro and con on buying by mail. And more...

PRESIDENT'S CORNER

by David Morganstein

BEGINS THE FALL. Once again, a restful summer makes way for a busy and active fall. Rumor has it that Apple plans to announce a new product, the Apple //x. We are making inquiries to learn if there is such a product and what it has to offer us.

THANKS TO THE SUMMER EDITORS. We wish to express thanks to Bob Platt, Peter Combes and Cara Cira for their successful effort to put together the September issue of the Journal. A job well done, folks! Each summer a special team is needed to assemble the issue while our Editor and co-Editor, Gena and Bernie, enjoy a month in Martha's Vineyard. (While we have their phone number, we try not to invade their peace and quiet.)

MEMBERSHIP DIRECTORY. Dana Schwartz is just about ready for a press run on the new membership directory. This, the WAP's third edition, will be the thickest yet. It has taken considerable effort to assemble and Dana is to be congratulated on the result. In the past, we have sent the directory to all members who expressed a desire to be in it. Because of the large numbers involved this year, we are discussing the need for collecting a small fee or requesting a modest donation to cover the printing costs. A figure of one or two dollars would no doubt be adequate. Would you be willing to contribute a modest amount for a copy?

ONE FREE TUTORIAL. To better serve our newest members and to acquaint everyone with the services of our office, we are thinking of offering every new member one free tutorial evening out of our four evening series. Such an offer seems to meet our primary objective of being an educational organization. What do you think?

GROUP PURCHASE. There is a healthy discussion underway about the nature and content of our group purchase program. Until the release of the Macintosh and //c, we had only brought in non-CPU items to our members, since just about every member already had a computer. The Mac group purchase took a tremendous amount of effort to coordinate; although, the club received not one penny from the effort. Because the only benefit accrued to those who have made a purchase, the club should consider whether such activities should continue and, if so, in what form. The Board perceives a division among the members. It is thought that some feel the focus should be on the review and recommendation of hardware and software while others are pleased to be able to make a purchase of items when an attractive price can be negotiated. Some members have expressed the view that all purchases should be made from local dealers only while others feel that the very best price available should be sought, regardless of the source (so long as we do not deal in stolen goods...) What do you want from the WAP group purchase program?

PASCAL BOOK. Bob Platt has sent to TAB books a collection of Pascal articles to be published under our name. We will receive a sizable number of copies to sell to our members as a fund-raising event. We want to thank Bob and the many contributing authors who are trying to bring the word about Pascal to the Apple user community. You have all helped us greatly.

BOARD MEETINGS. The Executive Board usually meets on the second Wednesday of each month, but occasionally it is necessary to change the date, sometimes with not enough time to notify members through the regular channels. If you are an occasional attendee at the meetings and would like to be notified by phone when the date is changed, please call the office and put yourself on a list.

VOLUNTEERS NEEDED. We are in need of a few volunteers. For some time we have been looking for someone to help index articles of the Journal. This is a non-technical task. It might take a dozen hours to complete. You could benefit by getting free copies of missing back issues. If you would be willing to help out, let's hear from you.

We need some help in the support of SIG activities. You would work with Bob Platt, our Vice President in charge of assisting SIGs. If you have two or three hours a month to help in this capacity, call Bob.

If you are knowledgeable about the Apple and like to teach, we can use your help. Our able Tuesday night instructors need some back-up. If you would be willing to do a 2-hour course, one Tuesday per month, every other month, please call Bruce Field. If you did this three times this year, it would be a big help! The topics are very introductory. An outline of each session can be found in the September issue.

Due to a temporary condition, Cara Cira will be unable to co-ordinate the monthly program during the next few months. Can you help? You need only contact the speaker and insure that the required audio visual aids are arranged through Jim Taylor. If you can help out, call our office and leave your name.

APPLE //c, A PORTABLE? Apple's widely displayed ad for the //c suggests that it is a 7 1/2 pound portable microcompter. A recent editorial in InfoWorld challenged that contention. We must agree with InfoWorld. The 7 1/2 pound figure includes neither the power supply nor the monitor (as noted in a fine print footnote in the ad). Since the light weight LCD screen shown in the ad is not even available at this time, it seems that Apple is doing itself a disservice by failing to "tell it like it is".

Several months ago, we mentioned the possibility of a serial interface timing problem. More recently, I have been faced with a known defect. The //c I use does not correctly communicate with a printer. Having tried two printers and two cables, it appears to me that the problem is in the printer interface hardware. Since the computer is sealed, there is no option but to take it in for repair, a disappointing situation. I have always been able to fix my trusty][+ since I could get at its innards.

THE SPEEDEMON cont. Two months ago we discussed a possible quantity purchase of the Speedemon speed up card for the][+ or //e. Unfortunately, the McT company is experiencing a problem making the card compatible with the 16K of RAM from D000 up. Until this problem is resolved, we will not arrange a group buy. We hope they are successful since the card, a low price peripheral which uses the Apple's own memory, more than triples the speed of your computer.

MINUTES

AUGUST GENERAL MEETING

Washington Apple Pi, Ltd. met at the USUHS on August 25, 1984 at 10:00 AM, with Bob Platt presiding. September Journal errata: page 35, Dave Harvey authored the report from Telecomm SIG. Volunteers are needed for SIG officers in the September elections. Members are reminded that the Tuesday evening tutorials start in September. Group Purchase announced future group buys - information is available at the WAP office. Paula Benson asked members to please volunteer to host Apple Teas. MacTea leaders are needed. Ed Myerson presented and explained the budget. The vote will be at the September meeting. There was a round of appreciation to Ed and Priscilla Meyerson. A special recognition was given to the member who traveled from Belview, Washington for the meeting. Dave Harvey and Ted Meyer volunteered to assist with the NewSIG meeting and the Thursday Help presentation at the WAP office.

SUMMARY OF SEPTEMBER EXECUTIVE BOARD MEETING

The Executive Board of Washington Apple Pi, Ltd. met on September 10, 1984 at the WAP office. The new Membership Directory is being prepared for distribution in October. The idea of offering a free tutorial to new members was discussed. Printing costs are being reviewed. The Frederick Apple Users Group has requested to be an associate of WAP.

JOB MART

HELP WANTED

TEACHERS: West Laurel Recreation Council, Laurel, MD needs teachers for classes in Logo and Apple Writer on Apple //e. Apple Writer class: Monday 7:00 - 9:00 PM, 4 weeks beginning October 1. Logo for Parent and Child: Tuesday 6:30 - 8:30 PM, six weeks beginning October 2. Call Mary Lou, 725-3257 or call 445-4500 and ask that your name and phone number be given to Mary Claire Madera.

FIRST AIDERS: West Laurel Recreation Council, Laurel, MD needs a high school or college student to assist in Logo, BASIC and Apple Writer classes. These are three separate classes and applicant would need to know the subject matter for that class, as well as basic operating procedures for the //e. Classes begin the week of October 1. Classes are held Mon, Tues, Thurs, Fri afternoons; and Mon, Tues, Thurs evenings. Call Mary Lou, 725-3257, or call 445-4500 and ask that your name and phone number be given to Mary Claire Madera.

APPLE //e, //c and MAC TUTORS wanted in the Fair Oaks, McLean and upper Montgomery Co. areas. Good pay, flexible hours. Call (301) 596-0707, Computer Tutor.

POSITION WANTED

Position wanted to (a) determine client needs for microcomputers, (b) select product options for client, (c) write report for client, and (d) provide client after-purchase support. Job finder fee available. Have MBA (Marketing), MS (Food Technology) and no private sector or paid computer experience. Know COBOL, FORTRAN, BASIC. Very sharp learning curve. Academic work in DBMS. Write E.L. Bouwkamp, P.O. Box 19142, Washington DC or call (w) 202-475-4945 or (h) 703-765-4303 before 9 PM.

SIGNEWS

APPLE /// SIG meets on the second Thursday of the month at 7:30 PM. The next meeting will be on October 11 at Universal Computers, 1710 Fern Street, Alexandria, VA.

APPLESEEDS is the special interest group for our younger members. They meet during the regular WAP meeting.

DISABLEDSIG - See the DisabledSIG column elsewhere in this issue. Call Jay Thal for details.

EDSIG - the education special interest group - see the EDSIG Page elsewhere in this issue.

FORTHSIG will hold its next meeting on Saturday, October 20 at 1:00 PM in the WAP office.

LOGOSIG meets monthly at 12:45 after the regular WAP meeting at the Barrie School, 13500 Layhill Road, Silver Spring, MD.

NEWSIG will meet just after the regular Washington Apple Pi meeting and conducts a "drop-in" for new Apple owners on Thursday evenings from 7:30-9:00 PM in the office. They will answer questions and try to help new owners get their systems up and running.

PIG, the Pascal Interest Group, meets on the third Thursday of each month at 7:30 PM at the Club Office.

PI SIG (formerly ASMSIG) meets on the second Monday of each monts at 8:00 PM in the WAP office. For further details, call Ray Hobbs at 490-7484.

SigMac meets on the 1st Thursday of each month at 7:30 PM and on the 2nd Saturday from 9:00 AM to 12:30 PM at USUHS, in the auditorium.

STOCKSIG meetings are on the second Thursday at 8:00 PM at the WAP office. See StockSIG News elsewhere in this issue. For further details call Robert Wood, (703) 893-9591.

Telecomm SIG usually meets after the regular WAP meeting.

EVENT QUEUE

Washington Apple Pi meets on the 4th Saturday (usually) of each month at the Uniformed Services University of the Health Sciences (USUHS), Building B, 4301 Jones Bridge Road, Bethesda, MD, on the campus of the National Naval Medical Center. Library transactions, journal pickup, memberships, etc. are from 8:45 - 10:00 AM. From 9:00 to 10:00 AM there is an informal "Help" session in the auditorium. The main meeting starts promptly at 10:00, at which time all sales and services close so that volunteers can attend the meeting. A sign interpreter and reserved seating are provided for the hearing impaired.

Following are dates and topics for upcoming months:

October 27 - Graphics Packages
November 24 -
December 15 - Swap Meet

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 during the first week of the month for any late changes.)

CLASSIFIEDS

APPLE //e WANTED by Hospital-based Adult Day Treatment Program for therapeutic purposes. Willing to sign for tax exemption if donated for this worthy cause. Please call Mrs. Mary Cress at 530-3030 between 8:30 AM and 5:00 PM, Monday-Friday.

FOR SALE: AJ 832 Keyboard Printer Terminal and Apple Super Serial Card for Apple][+. $525 total. Kip Hine, 431-6323 eves.

FOR SALE: Basis-108, "The German Apple" (manufactured by Basis Microcomputer, GMBH, Muenster, West Germany). CP/M, CP/M+ and Apple][compatible. Bankswitched 128K Ram, 2K monitor ROM (total room for 10K user ROM), selectable 40/80 col x 24 line display, separate NTSC composite color video, composite B&W video, and RGB video outputs, cassette I/O, RS-232-C serial I/O, Centronics parallel I/O, and 6 Apple][compatible slots all on motherboard. Two internal Micro-Sci A2 drives w/controller. Detached keyboard, u/l case, numeric keypad, cursor control block and 15 programmable special function keys. Diagnostic application, and CP/M+ (3.0) software, genuine Applesoft ROM set, parallel printer cable, Kraft 2-button joystick, 12" green 80-col. monitor, and Novation Applecat II 300 baud modem with firmware ROM, Novation communication/utility software, and all manuals. All items in "like new" condition. Package price $1550. Call Richard A. Stalls, work (202) 535-1000 or home (202) 543-1347, MCI Mail: R. Stalls 209-9606.

FOR SALE: Apple][+ with Microsoft 16K card, lower case chip and REPEATERRRR keyboard accessory. Excellent condition, clean. In original box with documentation including brand new Apple][Reference Manual (now out of print). $500 including UPS. Stephen Bach, Rt. 2 Box 89, Scottsville, VA 24590, (804) 286-3466.

WANTED: Apple Writer //e with manuals in good condition. Stephen Bach, Rt. 2 Box 89, Scottsville, VA 24590, (804) 286-3466.

FOR SALE: Epson MX 80F/T printer. Includes Graftrax+ Proms, tractor feed, manual and ribbons. Excellent condition, $320. Tymac PPC-100 parallel printer card with cable; MXPlus manual print contral commands (for Epson MX printer); Super-Text 40/80 (Apple][,][+) and documentation (used 2 weeks). Best offer. Call Claud DuVerlie, D(301) 242-8450 eves.

FOR SALE: RS-232 Serial cards $75. Works with any serial device up to 9600 baud. Any Apple][+, //e or clone. DOS, CP/M or Pascal. Great manual explains RS-232 for beginners. Pat McGee, 3916 Decatur Ave, Kensington, MD 20895, (301) 933-7097 eves.

COMMERCIAL CLASSIFIEDS

WANTED: Washington Software Developers Group Inc. is looking for persons who own either an Apple][series, IBM PC, or the various Tandy and TRS models, and use Multiplan, VisiCalc or SuperCalc. The group wishes access to the machines for 8 to 10 hours to implement developed spreadsheet templates on these systems. Reimbursement will be 2.5% of the net revenues realized from the sale of these templates. Interested persons should call Don Kornreich at 472-5840 work, or 292-9225 home.

DISABLEDSIG NEWS

by Jay Thal

* * * * * * * * * * * * * * * *

DISABLEDSIG OCTOBER MEETING

SPEAKER: Bob McKay
SUBJECT: Adaptive Devices for the Handicapped
THURSDAY, October 4, 1984, 7:00 P.M.
Chevy Chase Community Center
Connecticut Ave. & McKinley St., NW, D.C.

* * * * * * * * * * * * * * * *

Bob McKay will describe the process that Wisconsin's Trace Center goes through to prescribe adaptive devices for persons with handicaps, and he will demonstrate several such devices.

SPECIAL EVENTS

ACADEMY ON COMPUTERS

Maryland Public Television is offering an innovative 12-week course specifically designed for the busy professional who wishes to become computer-literate. The "Academy on Computers" is an easy, convenient and personalized introduction to the world of computer technology, concentrating on application rather than theory. Beginning Saturday, November 10, at 4:30 PM and repeating Sundays at 9:30 AM, "Academy on Computers" will air on TV 22, 28, 31, 36, 62 and 67.

The "Academy on Computers", through its hands-on, audience-participative approach, can help you become familiar with the workings of a microcomputer, understand basic computer technology, evaluate and select personal computers and software, and develop a simple computer program.

The price of the course is $70, including the 12 half-hour shows, resource materials and specific software for any of seven popular microcomputers, periodic quizzes and evaluations, and a special hotline for one-on-one consultation with a local professor of computer science. For an additional $55, individualized instruction and access to a college computer laboratory are available through Loyola College, Prince George's Community College and Northern VA Community College. For more information call (301) 337-4034 or write to: "Academy on Computers", Maryland Public Television, Owings Mills, MD 21117. "Academy on Computers" is underwritten by a general support grant from Frederick Computer Products, Frederick, MD.

SYMPOSIUM OF OPERATIONS RESEARCH/MANAGEMENT SCIENCE

The Washington Operations Research/Management Science Council will sponsor its Fall Symposium on Tuesday, October 16, at George Mason University's Student Union II in Fairfax, VA. The symposium will feature sessions on Soviet Operations Research, Telecommunications Modeling, Operations Research Software, DoD Mobilization Support, Non-linear Programming, Risk Assessment, Strategic Planning, Artificial Intelligence & Robotics, Reliability & Availability, and Policy & Operations Research. For further information contact Pete Malpass (703) 385-4300 or Alan Gleit (703) 642-6764.

EDSIG NEWS
by Peter Combes

EDSIG Calendar

Tuesday, October 2, at 7.30 p.m.

"Educational software". Demonstrations and discussions by EDSIG members.

Nominations for chairman and columnist should be sent to Bob Platt at the WAP office, by October 2.

All EDSIG meetings are held in the Auditorium, Building B, of the Uniformed Services University of the Health Sciences, on the campus of the National Naval Medical Center, 4301 Jones Bridge Road, Bethesda, MD.

Meeting Report

Tuesday, September 4, at 7.30 p.m.

"Videodiscs Transform Education" by Michelle Conyne.

Michelle Conyne, of the International Institute for Applied Technology (IIAT), gave a fascinating demonstration of the ability of an Apple //e to control a videodisc player.

The parameters are by now well known; a regular videodisc is the equivalent of 54,000 slides, or of 30 minutes of motion pictures, or any desired combination of these two modes. It offers slow motion, reverse, and step by step frame display. Above all, the videodisc is a device that offers rapid random access. The freeze frame facility has unlimited duration without damage to the disc surface. Indeed, it is difficult to damage the disc surface in any way.

IIAT has for a long time been sold on the features of the videodisc, and the potential for using it with a microcomputer. The Apple was an early choice; it had sufficient memory, good serviceability, and Apple Computer was very helpful in providing notes for the making of an appropriate interface. However, IIAT found that the public, particularly in point of sale and point of information applications, had a phobia against the use of keyboards.

IIAT uses a touch sensitive screen display, the signals being provided by an infrared bezel mounted on the video monitor. This works with fingers, styluses, and all kinds of pointers. Resolution is 80 points by 50. A program on a 5 1/4" floppy disc controls the system. Michelle showed programs made for the Naval Training Center that use this system.

She also described the graphics overlay capability which could combine computer generated graphics with the video from the disc, in a single frame. Since floppy discs can be updated much more quickly and cheaply than a videodisc, this is a useful facility.

Also presented were descriptions of projects being done for the Army, including a project done for the City of Milwaukee, in which an interactive disc enabled the user to find and view information on various aspects of that city. This videodisc is used at "point of information" outlets, and research shows that users on average spend half an hour at a time at the units.

One member of the audience remarked that a critical worry of any radiology department is "where to put the films", and any such department soon finds itself renting warehouses and other space to cope with the vast number of records that have to be kept. Transfer to videodisc is now being offered as a solution to this problem.

Michelle went into some detail on the issue of authoring languages and systems for running the microcomputer/videodisc combination. Pilot Plus has proved very satisfactory - some users have learned it in three days - and extended versions of Super Pilot, Applesoft, and Pascal are also available. C has also been used.

Future developments include a voice controlled authoring system, "Sound over Still", and the development of Artificial Intelligence and expert systems.

Interesting applications to education include "dry labs" in which the interactive videodisc offers a simulation of, for example, the dissection of a frog, without the necessity to make the prime materials available to each pupil.

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
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or write to us:
P.O. Box 6128
McLean, Virginia 22106

* October 1984 *

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2 Begin. Tutorial #1 7:30PM-Off. EDSIG-USUHS 7:30 PM	3	4 Sig Mac 7:30 PM USUHS; DisabledSIG 7 PM CCCC	5	6
7	8 PI SIG 8:00 PM Office	9 Beginning Tutorial #2 7:30 PM Office	10 Exec. Board-Off. 7:30 PM; Deadline - Jrnl Art.	11 StockSIG Apple ///	12	13 Mac SIG 9:00 AM USUHS
14	15	16 Beginning Tutorial #3 7:30 PM Office	17	18 Pascal SIG 7:30 PM Office	19	20 Forth SIG 1:00 PM Office
21	22	23 Beginning Tutorial #4 7:30 PM Office	24	25**NEWSIG "Help"** Every Thurs 7:30-9:00PM Office	26	27 WAP Meeting 9 AM-USUHS Graphics Packages
28	29	30	31The gob-lins will get you if you don't watch out!			

* November 1984 *

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1 Sig Mac 7:30 PM USUHS; DisabledSIG 7 PM CCCC	2	3
4	5 Deadline for Journal Articles	6 Begin. Tutorial #1 7:30PM-Off; EDSIG-USUHS 7:30 PM	7	8 StockSIG Apple ///	9	10 Mac SIG 9:00 AM USUHS
11	12 PI SIG 8:00 PM Office	13 Beginning Tutorial #2 7:30 PM Office	14 Executive Board 7:30 PM Office	15 Pascal SIG 7:30 PM Office	16	17 Forth SIG 1:00 PM Office
18	19	20 Beginning Tutorial #3 7:30 PM Office	21	22 Happy Thanks-giving!	23	24 WAP Meeting 9:00 AM USUHS
25	26	27 Beginning Tutorial #4 7:30 PM Office	28	29**NEWSIG "Help"** Every Thurs 7:30-9:00PM Office	30	

CP/M TIDBITS

by Jim Kellock

I have discovered a couple of useful things about the CP/M PIP.COM utility and Word Star that don't seem to be in any documentation, and on the chance that other people don't know about them either, I'd like to share them. I have a //e with the APPLICARD with CP/M 2.0, two 128K RAM extenders and PCPI's 2.0 utilities.

First, about Word Star. Even though the WS.COM & . OVR files ordinarily run only on the A: drive, WS can be fooled into working just fine on my big PCPI RAM.DISK if I stay logged to the RAM drive and keep all of the files being worked with on RAM.Disk. The speed with which WS works in RAM more than makes up for the time spent PIPping the .COM, .OVR and data files there.

While moving data files into and out of the RAM.DISK I learned something new (to me) about PIP. I write a lot of proposals, and generally use a separate disk for each one, keeping individual sections of the proposal in its own file. For these files, I don't generally bother to assign any "file-type", just call them XXXXX. With the standard PIP *.* command, it is easy to PIP a disk into the RAM drive, but it was time consuming to isolate files with different, or no file-types back to the floppy after editing, until I discovered an ideosyncrasy of PIP.COM that is not documented in any of my manuals. If you type:

A:=B:.<return>

instead of PIP*.*, or the other variations, all files with no file-type will be copied from B: to A:, and files with a file-type will not be copied.

Experienced users probably already know these things. However, enough people have helped me overcome my initial lack of knowledge about computers, on the road to becoming a true "end-user", that I like to pass on whatever small things I find out on my own.

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Q & A

by Bruce F. Field

Please folks, don't send me a disk with your latest 50,000 line program and ask why it doesn't work. Seriously, I realize that many readers have problems and no where else to turn, but I get many more questions a month than I have space or time to answer. This is an apology of sorts to those people whose questions don't get answered or take a long time to get answered. I try to answer questions that are likely to be of interest to as many people as possible. Questions on product availability are especially tough as I get my information the same way everybody else does, by reading magazines and talking to other people. So much for the soapbox, on to the questions and a few letters.

Dave Pyne of Kalamazoo Michigan wrote in response to a question of using double HI-RES with an Apple][or][+.

> "There is a hardware mod available which gives your APPLE][(+) the ability to do double HI-RES graphics, and it is one of the real bargains in this world.
>
> The reference for this system is BYTE, November, 1983, and the article is "Double the APPLE][' s color choices" by Robert H. Sturges Jr., on pages 449-463. Mr. Sturges also offers a disk of demonstration programs for $14.95 and a kit for the hardware mod at $25.00 (November 1983 prices).
>
> The resolution is not great, a bit grainy perhaps, but you can expand the colors on your APPLE with the modification, and it seems to work in similar ways to the //e HI-RES graphics."

Patricia Gowland wrote to correct an answer I made regarding multi-function cards for the Apple. A dual function interface card is available from Videx, PSIO, which she is using to drive two printers. The Videx card works with CP/M and Wordstar.

A number of months ago I published a little routine to allow C. Itoh printer users to have anything typed on the keyboard printed immediately on the printer. I am still not sure of the usefulness of this as the printhead does not necessarily remain at the last character printed but instead apparently moves to the margin. However there seems to be a lot of interest in this; I've had requests for a program for other printers. If anybody knows how to do the same thing with an IDS 560 printer I'll pass it along. Paul Pagel of Enfield, CT says that Apple Writer //e can also be used as an ET (electronic typewriter).

> "Apple Writer //e provides a means (via the Additional Functions Menu, selection I) to connect the Apple //e keyboard to the printer. This option is described (incompletely) on p. 138 of the Apple Writer //e manual. What is not mentioned is that, if you have an "intelligent" printer-interface card, you must turn off the screen echo or you'll get a jumble of letters on the screen, and eventually wind up with nothing but unintelligible junk on the display. Some time ago, John Morand of Apple Computer clued me in on this. After selecting option I from the Additional Functions Menu, type CONTROL-I D (you can use the TAB key to generate the CONTROL-I code). The screen now will behave itself."

Paul's CONTROL-I D code is specific to the interface card he is using. Yours may be different, for example Grappler uses CONTROL-I 80N, check your printer interface card manual to be sure.

Q. I have a //e. When the Koala Pad is plugged into the internal game I/O port, the joystick plugged into the back does not function properly. How can I use both without removing one or the other?

A. The two game I/O sockets on the //e are wired in parallel. That is, the joystick connections are electrically wired together so that plugging in two devices will cause them to interfere with one another. What you need is some kind of switch that will let you select which device you want to use. TG Products makes such a switch, called Select-A-Port, that lets you plug in up to about 4 devices and select which one is connected to the computer. One problem with this is that the connecters on the switch are all similar to the connector inside the //e, i.e. a 16-pin DIP connector, so that your joystick with a DB-9 connecter will have to be modified to work with this switch.

A simple adapter can be made to convert the DB-9 connector to a 16-pin DIP. Radio Shack sells a female DB-9 connector that you can plug your joystick into (part no. 276-1538), and a 16-pin DIP Header (part no. 276-1980) that will plug into the Select-A-Port. You will need to solder 9 wires (to make sure you have all the functions) between different pins on the two connectors. The pin numbers are listed on page 168 of the Apple //e Reference Manual and I will repeat them here.

DB-9 pin #	16-pin pin #
2	1
7	2
1	3
6	4
5	6
8	10
4	7
9	11
3	8

Q. From the Monitor program (in my Apple][+) I can activate my language card with two references to memory location $C083. This is accomplished by typing the address, a carriage return, typing it again, and hitting carriage return again. I am unable to do this after booting with ProDOS, entering Basic and CALLing -151 from there. I suspect it has something to do with the stack. What's wrong?

A. The problem is that turning on the language card causes the memory on the card to replace the ROM memory that contains the Monitor program and the Applesoft interpreter. If you have not previously loaded a copy of the Monitor program into the language card the Monitor program will cease to operate and the computer will hang or do other strange things. When you boot the Apple with

contd.

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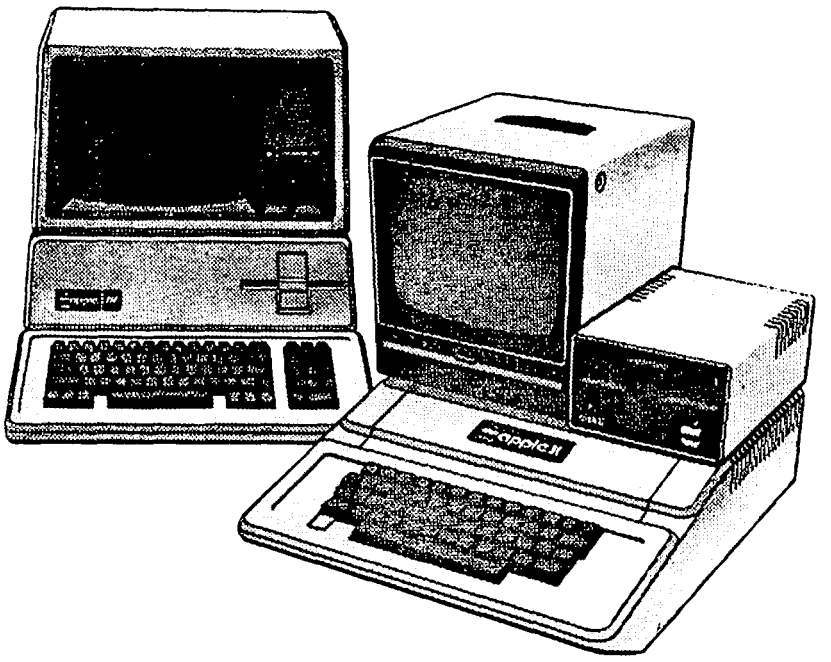

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ProDOS, most of ProDOS loads into the language card and there is no copy of the Monitor program. It is possible to write a machine language program that turns the card on, manipulates the memory, turns the card off, and returns to the Monitor. This may of course destroy ProDOS will cause the Apple to do strange things when the machine language program returns to the Monitor. The bottom line is that ProDOS uses the language card, and in general you should leave it alone.

The same problem can occur even when using DOS 3.3. Booting DOS 3.3 from the System Master diskette also loads Integer Basic and the Monitor program into the language card. Then you can switch back and forth between the card and main ROM memory and whichever copy of the Monitor program is turned on will be used. If you do not boot from the System Master diskette or otherwise copy the Monitor program to the language card, you will not be able to access the card from the Monitor. A quick way to copy the Monitor program to the card (from the Monitor) is as follows.

```
C081 <cr>
C081 <cr>
F800<F800.FFFFM <cr>
```

The two C081 addresses turn the card on so that it can be written to, but still allow the ROM memory to be read. This is unusual; you are reading from and writing to two physically different memories at the same address. The last line reads the Monitor ROM starting at $F800 and copies it to the language card at $F800. After this you may want to write protect the language card; typing C080 <cr> will allow you to read the RAM memory on the card but not write to it. Typing C083 <cr> will allow you to read and write to the RAM memory on the card.

Q. As you are probably aware, several other computer systems write out multiple fields per record, and in free field format, a blank is used to separate each field. DOS 3.3 or Applesoft can't read this type of file, unless an elaborate looping program using GET is used to branch after reading a blank. This method is real slow. Is there a way to change Applesoft so that a blank can be used as a string or numeric delimiter?

A. I don't know of any simple way to use a blank as a delimiter as this is tied in with routines in ROM as well as DOS. It is possible to write a short program (preferably in machine language for speed) to break a string with blanks into a series of smaller strings once it has been read in from disk. But it is possible, and even easier, to use DOS 3.3 and Applesoft to create the equivalent of multiple fields per record. First we need to remember how sequential text files are stored with DOS 3.3. Whenever we write a string to disk it is saved with a carriage return following the characters, and then the next string saved starts immediately after the first string. This works fine until we want to make the first string longer, then we have to rewrite all the strings in the file.

Suppose instead that we use a random-access text file. In this case when the file is created we have to specify a record length. Each record starts the specified number of bytes after the last one. Now we are free to save several strings (fields) in each record as long as the total number of characters for the strings doesn't exceed the record length. If we want to change any one of the strings in a record we will only need to rewrite all the strings in that individual record. We are not limited to a particular number of strings for each record; some records can have more than others. And, we don't have to completely fill the record, since the total number of characters in each record can be less than the record length. Here's an example to show how this works.

```
100 D$ = CHR$(4)
110 PRINT D$; "OPEN FILENAME,L100"
120 PRINT D$; "WRITE FILENAME,R1"
130 FOR I=1 TO 3
140 PRINT "RECORD 1 - FIELD ";I
150 NEXT I
160 PRINT D$; "WRITE FILENAME,R2"
170 FOR I=1 TO 4
180 PRINT "RECORD 2 - FIELD ";I
190 NEXT I
200 PRINT D$; "CLOSE FILENAME"
```

Line 110 opens a random-access text file with a length of 100 bytes per record. Line 120 prepares the system to write in record number 1. Lines 130 through 150 write three strings into record number 1 with the strings separated by carriage returns. Line 160 prepares the system to write in record number 2 and lines 170 through 190 write four strings in record number 2. Line 200 finishes by closing the file. To read the data back from disk the following program can be used.

```
300 D$ = CHR$(4)
310 PRINT D$; "OPEN FILENAME,L100"
320 PRINT D$; "READ FILENAME,R2"
330 FOR I=1 TO 4
340 INPUT A$ : PRINT A$
350 NEXT I
360 PRINT D$; "READ FILENAME,R1"
370 FOR I=1 TO 3
380 INPUT A$ : PRINT A$
390 NEXT I
400 PRINT D$; "CLOSE FILENAME"
```

This program works like the first one. Line 310 opens the previously created data file. You must remember the record length specified when the file was created and use the same record length here. Line 320 prepares the system to read record number 2 first. I just did this to prove that the records are truly random access and can be read in any order. Lines 330 to 350 read the four strings in record 2 and print them out. Lines 360 to 390 read the three stings in record 1 and print them out. You must also remember exactly how many strings were stored in each record; if you try to read too many strings from the record you may get garbage or an END OF DATA error message. Normally this won't be a problem because you'll probably have the same number of strings in each record. If not, you could have the first string in each record contain the number of strings in that record.

We have the same limitations on using the Applesoft INPUT statement with strings as we normally have, i.e. you can't have any punctuation in the strings. If this is a problem replace the INPUT command with one of the ubiquitous input anything routines. (One can be found in Call -A.P.P.L.E. In Depth, Number One, All About Applesoft.)

Q. What approach is required to modify the Apple //e KEYIN routine as described in "Write-A.P.P.L.E.," June 1984 (p. 67, "Keyboard Compatibility" by John Russ)? You can't key it in using the MONITOR. As John describes, I'd like to have the DELETE key do just that. It's confusing to jump from Apple Writer to normal operation and find little checkerboard cursor blocks on the screen when I use the DELETE key.

contd.

A. For those who don't remember, John's routine was designed to trap the delete key in the KEYIN routine in the monitor and replace it with a backspace. A small problem is that John's routine is supposed to overlay the normal KEYIN routine in the Monitor, but this routine has been moved in the //e to handle lower case input and output. Thus, if you copy the Monitor program to the language card and then type in the routine from the Monitor you usually mistakenly get dumped back into Applesoft after the changes are made. Although parts of the Monitor program have been destroyed, Applesoft sometimes works correctly in the 40-column mode. But, if you try to enter the Monitor with CALL -151, the computer hangs. I don't see any simple way out of this, as the KEYIN routine has been moved to a bank switched ROM and cannot easily be used from the language card.

I have played around with this routine a little bit without much success in creating a reliable routine for both 40 and 80 columns. Perhaps John Russ will write a sequel routine to correct this problem.

On behalf of a member in Australia I would like to make a plea to the readership. This fellow is having problems getting Vista 1200 6 MB. drives to work with CP/M or ProDOS. Vista Computers has informed him that they no longer support Apple products and are concentrating only on IBM products. Doesn't sound like a very good policy to me to drop support for a product because you're no longer interested in it. If any one has any experience with these drives and can help I'll put you in touch with him.

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- Texas Instruments TI-855 (150 cps draft, 35 cps NLQ)... 795
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- Gemini 10X (120 cps, tractor/single sheet, graphics)... 289
- 15X (wide-carriage, same features as Epson MX).. 409
- C.Itoh F-10 Starwriter (40 cps daisywheel, best for $) 1049
- A-10 (18 cps version of the above)..... 559
- Silver-Reed 550 (18 cps daisywheel, best at this speed) 459
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SIG MAC NEWS

by Ellen L. Bouwkamp

QUESTION AND ANSWER SESSION

September's SigMac meeting at the USUHS Auditorium again attracted about 90 members. Programs available now (yes, NOW) for the Mac include: Microsoft Chart, Dollars & Sense, PFS: File and Report, FileVision, Microsoft Multiplan version 1.02, MacFORTH levels 1 and 2, Soft C compiler, Desk Accessory Mover and Calendar Desk Accessory, as well as the games: Daleks, Run for the Money, Frogger, Millionaire, and MacJack. Programs for which we are holding our combined breaths for include: MacTerminal, MacPascal, MacBASIC, MacProject, MacDraw, Lotus Mac Product, and all future releases!

Bernie Urban suggested that we try to document the questions and answers which take place from 9 to 10. You are encouraged to contact me (see the end of this article for how), Bernie (at the office), Steve Hunt (see the Wap Journal Hotline), or to mail in your contribution to the WAP office. Because we are on the frontier of MacKnowledge, we need all the help we can get.

If you are new to BASIC, a good resource is Learning Microsoft BASIC for the Macintosh by David Lien. B. Dalton in Denver (that's right, Denver) had it for $19.95. It is part of the Compusoft Learning Series, Compusoft Publishing, San Diego, CA 92119.

There will be a fifth SigMac disk coming out soon. It will contain assembly language based programs - so you won't need BASIC to run them.

Group buys continue to be popular. Again, you need to contact Kevin at the office to keep current. As of the meeting date, orders were being taken for FORTH, level 1 and update level 2, and FileVision. Call the office for information about the Macintosh buy. Members have been pleased with the service of several mail order discount houses. Mentioned were: 800-MAC-LISA, 800-MAC-Only, Programs Plus, and East Coast Software (in Pennsylvania).

Members had mixed reviews for Millionaire, the game that simulates getting rich on the stock market. One player can play up to 15 levels, which took one member five hours. There is no variety; once you've played the game through you've used up your real investment!

The latest version of Multiplan, 1.02, still contains bugs. When one attempts to use the calculator and the Multiplan data is over 30K, a system error will occur. There is no known solution to this problem.

There is sufficient interest in a SigMac Directory and I will report the status of this idea to the membership in October.

SOFTWARE DEMONSTRATIONS

The main meeting began with a demonstration of a Desk Accessory called Desk Calendar, which was downloaded from CompuServe. This utility presents a perpetual calendar with about 25 lines for making notes to yourself for each day. It takes up about 20K of memory and can be loaded to the Apple menu of any disk or run as an application. This utility is written in assembly and will be on a future SigMac disk. An article about this is being prepared for the November Apple Pi Journal.

A new Desk Accessory Mover utility allows you to remove unneeded Desk Accessories or to add new Desk Accessories as they are developed. You are cautioned not to remove all the accessories unless you have a thorough understanding of Mac's innards.

Many programs and files are available through services such as CompuServe. Some of them are distributed free with the request that if you find them of value you pay the developers. As conscientious WAP members, we appreciate that you honor this request when the programs are provided to you through a SigMac disk.

FILEVISION REVIEW

We all srunched around Steve Hunt's Mac to watch what was described as one of the most revolutionary programs to be developed for the Mac. FileVision is a visually oriented data base management system which uses pictures (or icons) that are linked to more detailed information stored on the disk. The demonstration disk shows a map of the 48 contiguous states. A user can then ask FileVision to show only those states which satsify certain criteria (e.g. population greater than 100 million, admitted to the Union after 1900, etc.). FileVision makes creating a new data base, creating new fields, modifying existing fields, deleting fields, and other critical functions, as easy as typing and/or clicking. The approach used sets a new standard for easy use.

You can build your own icons, load data under icons, search on icons, and move icons. FileVision will search on up to four fields using "and". There is no Boolean "or". The search function can find records which match the selection words without regard to upper/lower case distinctions or can search for partial words.

Each record (in the case of our demonstration, the picture of a state) is a unit unto itself. Therefore, you cannot use MacPaint to first draw the picture. We speculated that in the future one might be able to use MacDraw.

FileVision"s specifications limits include: 999 objects per file, 16 types, 30 fields per type, 15 characters per data field name, and 2K for data. Documentation for this program is excellent. Overall, this program was extremely well received by the membership.

The games MacJack and Run for the Money were demonstrated by Tony Anderson. Judging by your reactions, games run high on the list of Mac owners' uses. MacJack simulates a casino blackjack game; Run for the Money simulates an economy on an alien planet. Thanks to a young man in the front row, whose name is unknown to us, Tony was able to create "sananas" for the first time (you had to be there). Run for the Money is complicated, but has a built-in tutorial. It costs $49.95.

ODDS AND ENDS

A recent issue of Byte magazine contained an announcement of a forthcoming product that is truly wild! The product, which will replace the head of your Imagewriter, will allow you to place a document in the printer and have its digited data sent back to the Mac. Think of the possibilities, folks!

contd.

There was considerable interest in Mac upgrades to 512K. On Monday September 10 (two days after the meeting) Apple announced the policy. The upgrade will be available from your dealer (beginning in late September) with a retail price of $995 (though at least one dealer in the area is dicounting to $795). Current Mac owners buying the upgrade will receive free copies of MacDraw and MacProject.

Apple also announced that a new disk-based version of MacWrite will be available from dealers in November. The update will be free, as was the update in May.

INSIDE MAC

Mitchell Jaffee explained some of the utilites found on the three disks that come with Inside Mac. SETFILE will create invisible files. HEXDUMP will provide you with a designated file in hexadecimal code sent either to the screen or to your printer. He illustrated the beauty of changing one small piece of code so that you can use MacWrite options to edit and expand on BASIC files. The code "MSBA", for Microsoft BASIC, must be changed, via a utility, to a code for MacWrite documents, "MACA", Mac application.

Mitch explained that Mac has its internal files set up as two "forks", a Data Fork and a Resource Fork. You can see these forks when you run HEXDUMP. Try using a simple document, e.g. "a,b,c,d" in MacWrite and then look at this document in hex. When you know how, you can use the Resource Fork to change the fonts. You can also create your own fonts. If you wish further information, Inside Mac is at the WAP library, and you can look for Mitch at future meetings.

ASSIST PLEASE

I repeat last month's request for your experiences with the Mac. I might add that I will also accept comments and correction to this column. You may reach me by writing P.O. Box 19142, Washington, DC 20036, or by calling me at work (202) 475-4945, or at home (703) 765-4303 (before 9:00 PM).

ELECTIONS

Be prepared for SigMac's next election at our October meeting. Tom Warrick, who has served as our leader these past few months, has asked not to be considered for Chairman. Volunteer your time as a SigMac officer!

WAP JOURNAL DEADLINE

We strongly encourage members to write articles for the Journal. Please note the deadlines shown on the WAP Calendar for submitting articles. You should submit the articles to the office (typewritten or Mac disk) by the deadline. Articles received after the deadline will be included in the next month's Journal.

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A NEW MACINTOSH BOOK by Robert C. Platt

("Using & Programming the Macintosh Including 32 Ready-to-run Programs" by Frderick Holtz, Tab Books, 243 pp. $12.50)

Macintosh books can be classified by generations. The first wave of books were written before the Mac was announced, largely by people with some form of inside contacts. These books fell victim to last minute product changes and the rapidly evolving scene for third party Mac software. The second generation, which is just appearing in book stores has the benefit of the experiences immediately following the Mac's introduction.

Holtz's book belongs to this second generation. In general, it is better researched and more current that a number of introductory books from the first wave. (Although he does fall for some of the "vaporware" claims that surrounded the Mac's introduction. For example, his introduction claims, "There are already more than 500 software packages on the market for the Macintosh.")

Holtz starts his book with separate chapters on MacPaint, MacWrite and the finder. The remaining 140 pages are devoted to Microsoft Basic. Holtz does a good job of explaining the various windows available in MS-Basic and how to type in programs. The book assumes no prior knowledge of BASIC. Two BASIC chapters that are particularly useful cover disk files and graphics. The final chapter presents the 32 programs. (Most of these programs are less than 10 lines.) The programs offer several interesting examples, including the use of the Mouse for input, graphic output, animation, and POKEing into the screen memory buffer.

EVALUATION

Given the level of documentation and "guided tours" supplied from Apple, this book's primary audience will be people who are thinking about purchasing a Mac. (It may also appeal to persons with access to MS-Basic but not Microsoft's documentation.) The book does a good job of introducing MS-Basic to non-programmers. For those who hate typing in listings, a disk with the sample programs is available from Tab for $20.

The book does not pretend to be a complete and technical description of Microsoft Basic. For example, the rules for naming files are not covered. Nor are the ways to control the amount of RAM available for program storage. Single dimension arrays are covered without discussing higher dimension arrays.

In summary, this book offers a first glance at the Macintosh and MS-Basic. It is a good book for someone thinking about buying the Mac, but a serious user will probably want a text with greater detail.

1001 BINARY TALES : Mac Innards

by Raymond Hobbs

Before the start of summer, I promised readers an article on the innards of the Mac. Those of you who know me are well aware that I don't write about hardware (I can't tell a rectifier from a tea-biscuit), and so you will realize that this article must, indeed, be about the 64K ROM inside the Mac. Actually, I'm only going to address a third of it in the present article.

Perhaps you've wondered why so little has been written about programming the Mac. Several score articles on using MacWrite and MacPaint have appeared in various journals and periodicals, a few on MS-BASIC and a few more on how to interface with the Mac itself. Why not full-blown programming? Is the 68000 chip all that difficult? Well, no. The 68000, while quite a bit more to chew than the 6502, is not appreciably more difficult than, say, the 8088, other than offering more indirect addressing. Certainly, there are enough assembly-language programmers adequate to the task who could forge ahead and break trails through MacChips for the rest to follow. The programming problems lie elsewhere, in the maze of development languages, Apple Computer policy and system documentation. Since our understanding of programming the Mac is greatly influenced by developments in these areas, we will look at those developments. I will refer to each area in turn as MacBabble, MacApple and MacDoc, and hopefully we will come to an understanding of the problems encountered by MacProgrammers in trying to bread MacTrails. Such an understanding is fundamental to dealing with the box itself.

MACBABBLE.

The Macintosh was planned and constructed as a users' machine. It was envisioned that the user would insert packaged applications into the Mac in order to accomplish specific tasks for which the machine would be considered a helpful appliance. It was not intended that the end user would necessarily write his or her own programs, and what with ROM space being rather densely populated real estate as it was, a resident language (read: BASIC) was deemed an unnecessary luxury by Apple. Microsoft filled the void with MS-BASIC, which is, for reasons to be made abundantly clear shortly, NOT a developer's language. So far, Microsoft is one of only two entrants in the language contest, the other being the $150 - $2500 implementation of FORTH by Creative Solutions, Inc. The bottom line is that to begin to access those features of ROM that make the Macintosh the exciting machine that it is, it takes an investment of $250 or so at a minimum, and that does not include the licensing necessary to market programs created using the language. For marketing purposes, the cost of the language would (at present) be on the order of ten times that amount. Currently, programs written in BASIC are unsuitable for marketing because they suffer from two primary ailments: 1) they are NOT faster than a speeding abacus; and 2) they have extremely limited access to ROM routines provided by the Mac. In other words, most independent programmers have been sitting around since January sucking on ice cubes in four-four time.

What about assembly language? Can't you gee-whiz programmers POKE in assembly language programs and BSAVE them like we all did on the Apple? The answer here is that yes, we can and yes, I have. However, the game has changed from the programmer-friendly environment of Apple][days, and this leads us to the second area of concern.

MACAPPLE.

As I mentioned earlier, Apple Computer has viewed the Mac strictly as a user's appliance. To that end, all application programs which follow Apple Computer's guidelines will interact with the user in the same way. That is, the "normal" Mac features will be accessed in the same way and with the same generic results, no matter which application the user is in. Menus will pull down and look about the same across applications. The title bar will always be across the top of the Mac screen, the scroll bar down the right side, the close box in the upper left-hand corner, etc. The tools for accomplishing this are available in the handy-dandy programmers' tool box (which is locked up in ROM). O.K., so what? Just access the tool box, right? Wrong. With the 512K Mac looming large on the horizon, Apple Computer reserves the option to relocate ROM and RAM in memory. With relocated RAM and ROM, programs written for the 128K Mac would normally be unable to run on later, upgraded Macs. However, utilizing the considerable capacity of the 68000 chip for indirection, Apple has reserved an area of low RAM for what is, in effect, a large jump table which contains the addresses of all ROM routines needed by the programmer. The Mac-OS simply loads up that table upon coldboot, and all the hooks are tied up. In future upgrades, the new OS will do the same, so if any addresses change, the changes will take the form of a rewritten jump table. The jump table will always load into the same address space. Perform a CALL indirect, and off to the races you go. Now, it seems as if I have gone on to present the problem and its solution, so what's the trouble? Where are those POKEd-in assembly language programs? Enter the third area we talked about.

MACDOC.

There are probably 113 books on the Mac on the market by now. Of those (however many), all but one are over-written and under-informative tutorials on the basic operation of the Mac and a few currently available applications. In these books, there is not one scrap of information (to my knowledge) of any real value to the programmer (assuming he has the Mac reference books which come free with the purchase of the machine). The one remaining book, however, is a gem entitled "Inside Macintosh", by Apple Computer, and is available to certified developers for the modest price of $150. I doubt that any words I might conjure up could adequately describe the way it is written, but phrases like "the sound of one hand clapping" and "the course of milk through a tuba" come to mind. I also do not know how many people who have purchased the thing understand it. As it happens, I do understand it (I took 32 hours of foreign language in college), but I have been an assembly language programmer since the days of the 7094 and have made my way through IBM documentation for years. In any event, the two volumes of "Inside Macintosh" are pitched directly to PASCAL programmers (PASCAL is still not available for the Mac as of this writing, despite the fact that it is touted to be on dealers' shelves), with a few crumbs tossed to assembly language programmers along the side. Unfortunately, in all the pages of this masterwork, the one small bit of information which was omitted was the location of the routine CALLs in the jump table. The bottom line is that even through heroics, access to the famous ROM routines in the toolbox is still a matter of trial and

contd.

error, and the job is roughly 16 times larger than that of accessing the Apple]['s ROM routines without the benefit of documentation.

A BRIGHTER DAWN IS BREAKING.

Despite the gloomy picture I have painted above, prosperity is just around the corner. Apple Computer inadvertently left enough information in the documentation to allow us to take a (small) peek inside the machine. Keep in mind that a lot of what I will explain is incomplete, particularly with respect to the location of the appropriate access locations, but that information will follow as soon as I have chipped it out with pick and shovel. For now, there is plenty of material to cover, since the concepts behind programming the Mac are sufficiently different from those we are used to in the Apple][to warrant serious study prior to trying to access individual routines.

The area that I will cover in this installment is the most popular, and also the area that will be used in one form or another no matter what the application is. It is also probably the one remaining thread that is keeping the initial excitement generated by the appearance of the Mac in the marketplace still alive. Of course, I am referring to Bill Atkinson's QuickDraw package.

QUICKDRAW.

A discussion of QuickDraw could begin in any one of a hundred places, but I think that the best way to begin is by making a few analogies. In order to best follow the discussion, I recommend that you turn on your Mac and insert a disk. Don't run a MacPaint or MacWrite (or Macblob or anything), just get to the basic Finder screen, and open up your disk. Now, move the disk info window around a little (if the window fills the entire screen, use the window size box at the lower right-hand corner to make it smaller). What you are seeing on the screen actually represents a minimum of five screens (in Mac parlance, "grafports") of various sizes. If you have more than one folder in your disk, or if you have scattered icons in the disk without folders, add one grafport for each additional icon or folder. Now for the analogies:

Imagine that you have a sheet of paper on which you have drawn the blank (except for title bar) Finder screen. Now draw the disk icon onto transparent film and cut it to size. Next draw the disk window onto the transparent film. Since the window may vary in size, you had better cut the film larger than the screen size (yes, grafports can be larger than the screen). Similarly, cut transparent film drawings for each icon in the disk. You also need a transparency for the cursor (never forget our little arrow). Now, except for resizing the disk window, you can duplicate the Macintosh screen. Each transparency you made would be similar to the Mac's grafports. The way objects show through the transparency is similar to the way they show through the Macintosh screen. Notice that the disk window completely obliterates the Finder screen. This means that when drawing the disk window, the background as well as the foreground covers whatever is overlaid by the window. It is important to remember that what is manipulated is not the drawings themselves, but rather the grafports (in our analogy, the transparencies).

If this is the case, then obviously the drawing itself must be strongly associated with the grafport, since the drawing is subject to some autonomous changes, such as change of color (when selected, de-selected or inactive). In fact, the drawing may be considered to be a property of the grafport itself (or more properly, several properties of the grafport result in the drawing on the screen). By manipulating objects on the screen, we can see that grafports must also have several other properties. Notice how the cursor can go anywhere except off the screen entirely. Therefore, the cursor must be associated with the Finder grafport. Notice also, how the window may be moved off the screen. If this were to be done on an Apple][, the window would be subject to wrapping (it would disappear off one side of the screen and reappear on the other side). This is not true on the Mac. That means that there must be some mechanism which associates grafports to the visual screen in relative, rather than absolute terms. Selection and deselection of windows demonstrates that there is also a mechanism for determining how overlays are graphically represented within grafports, and since we can add text to the screens within each grafport we must conclude that they have textual properties as well as graphic and positional ones. Finally, the sizing capabilities of the windows indicates that such features are also properties of the grafports (since we already determined that what we were manipulating were grafports rather than images).

Confused? Re-read the above paragraph, then play with the Mac screen, then re-read it again. I read the manual five times in order to get this far.

O.K. Now that we've gotten this far, we can begin to define some of the properties of grafports, and see how these properties result in screen magic.

Grafports are defined as records of 25 fields. For our purposes, we can simply say that each grafport has 25 properties. These properties tell us things about the grafport's size, shape, visual area, draw-enabled area, location in RAM, background and foreground patterns, what happens to the visual area during overlays, features of text that appears within the grafport and the current location of the pen (which is an invisible drawing cursor) and the type and size of the lines which the pen will draw. There isn't enough room in this column to go into these properties in great detail this month, but I will cover them thoroughly next month. For the present, I will touch on one or two of the more obtuse points.

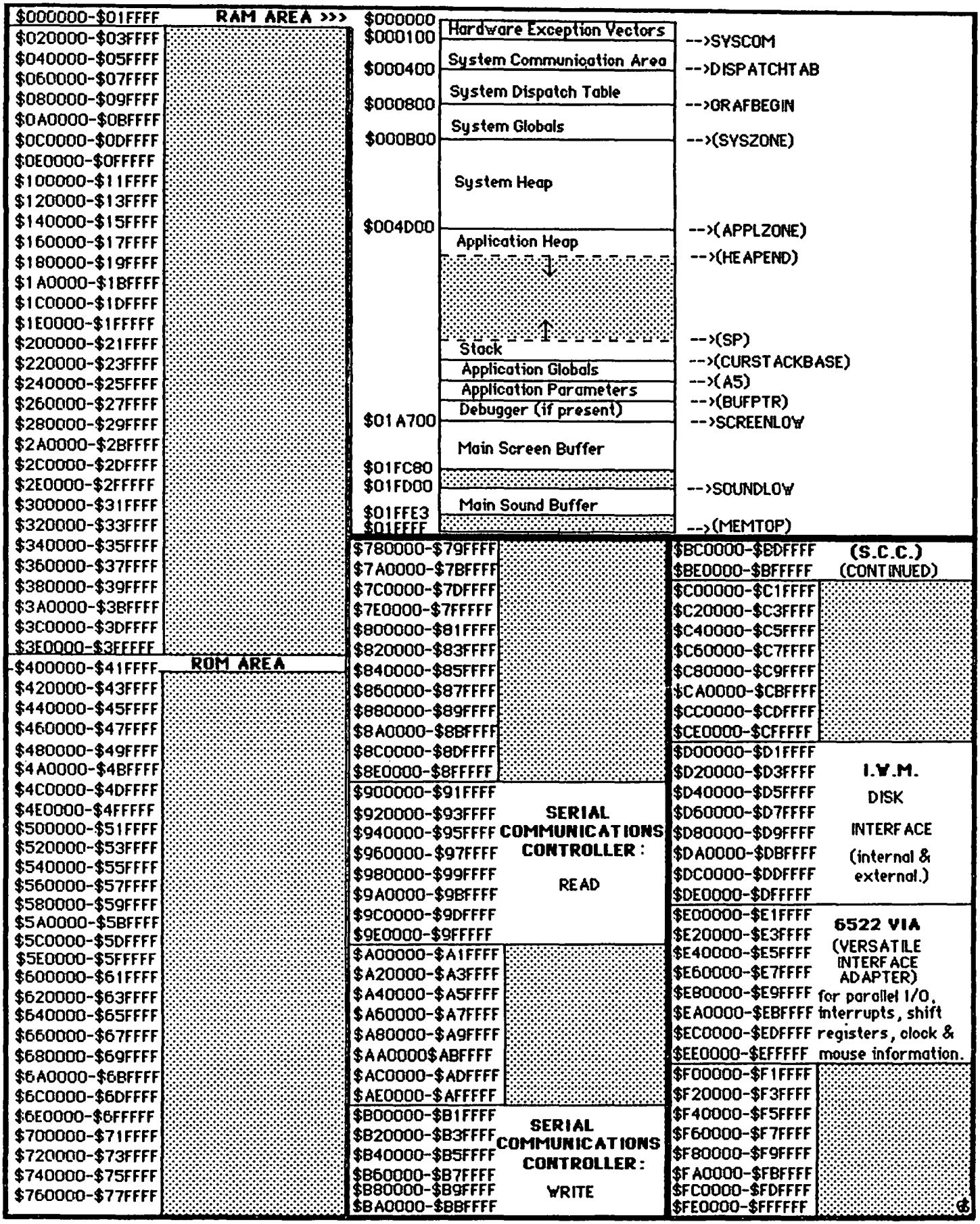
First, the grafport's shape is defined as a rectangle. The drawing within the grafport may be any shape at all, but the port itself will be a rectangle. This ties in closely with the next two points.

Second, the visual area refers to that area of the grafport which can be seen by the viewer. It may or may not actually be seen, since the grafport need not be on the screen (it may reside totally within non-screen RAM). Also, the visual area may be all or part of the grafport itself. That is, the visual area may be congruent to the grafport, or a subset of it.

Third, the draw-enabled area is that area of the grafport which may be accessed by pen operations. In other words, the image contained within the draw-enabled area (which is called the clipregion) is subject to change. The image which is not within the clipregion is not subject to change. An example of this is the edges of the Finder window. While you may move icons around and type things in the window, the window borders will not accept graphic changes (although menu windows may be pulled down from such areas - but this is just another grafport, isn't it?).

One final point: One grafport may be congruent with another, or it may be a subset or intersect with another. This means that grafports may be placed anywhere, just as you can move the transparencies we talked about earlier all over the paper. This is why the grafport must also define overlay properties, and why background and foreground must be defined for each grafport.

contd.


$000000-$01FFFF
RAM AREA >>>
$020000-$03FFFF
$040000-$05FFFF
$060000-$07FFFF
$080000-$09FFFF
$0A0000-$0BFFFF
$0C0000-$0DFFFF
$0E0000-$0FFFFF
$100000-$11FFFF
$120000-$13FFFF
$140000-$15FFFF
$160000-$17FFFF
$180000-$19FFFF
$1A0000-$1BFFFF
$1C0000-$1DFFFF
$1E0000-$1FFFFF
$200000-$21FFFF
$220000-$23FFFF
$240000-$25FFFF
$260000-$27FFFF
$280000-$29FFFF
$2A0000-$2BFFFF
$2C0000-$2DFFFF
$2E0000-$2FFFFF
$300000-$31FFFF
$320000-$33FFFF
$340000-$35FFFF
$360000-$37FFFF
$380000-$39FFFF
$3A0000-$3BFFFF
$3C0000-$3DFFFF
$3E0000-$3FFFFF
$400000-$41FFFF
ROM AREA
$420000-$43FFFF
$440000-$45FFFF
$460000-$47FFFF
$480000-$49FFFF
$4A0000-$4BFFFF
$4C0000-$4DFFFF
$4E0000-$4FFFFF
$500000-$51FFFF
$520000-$53FFFF
$540000-$55FFFF
$560000-$57FFFF
$580000-$59FFFF
$5A0000-$5BFFFF
$5C0000-$5DFFFF
$5E0000-$5FFFFF
$600000-$61FFFF
$620000-$63FFFF
$640000-$65FFFF
$660000-$67FFFF
$680000-$69FFFF
$6A0000-$6BFFFF
$6C0000-$6DFFFF
$6E0000-$6FFFFF
$700000-$71FFFF
$720000-$73FFFF
$740000-$75FFFF
$760000-$77FFFF
$000000
$000100
Hardware Exception Vectors
-->SYSCOM
$000400
System Communication Area
-->DISPATCHTAB
System Dispatch Table
$000800
-->GRAFBEGIN
System Globals
$000B00
-->(SYSZONE)
System Heap
$004D00
Application Heap
-->(APPLZONE)
-->(HEAPEND)
-->(SP)
Stack
-->(CURSTACKBASE)
Application Globals
-->(A5)
Application Parameters
-->(BUFPTR)
Debugger (if present)
$01A700
-->SCREENLOW
Main Screen Buffer
$01FC80
$01FD00
-->SOUNDLOW
Main Sound Buffer
$01FFE3
$01FFFF
-->(MEMTOP)
$780000-$79FFFF
$7A0000-$7BFFFF
$7C0000-$7DFFFF
$7E0000-$7FFFFF
$800000-$81FFFF
$820000-$83FFFF
$840000-$85FFFF
$860000-$87FFFF
$880000-$89FFFF
$8A0000-$8BFFFF
$8C0000-$8DFFFF
$8E0000-$8FFFFF
$900000-$91FFFF
$920000-$93FFFF
$940000-$95FFFF
$960000-$97FFFF
$980000-$99FFFF
$9A0000-$9BFFFF
$9C0000-$9DFFFF
$9E0000-$9FFFFF
SERIAL COMMUNICATIONS CONTROLLER: READ
$A00000-$A1FFFF
$A20000-$A3FFFF
$A40000-$A5FFFF
$A60000-$A7FFFF
$A80000-$A9FFFF
$AA0000$ABFFFF
$AC0000-$ADFFFF
$AE0000-$AFFFFF
$B00000-$B1FFFF
$B20000-$B3FFFF
$B40000-$B5FFFF
$B60000-$B7FFFF
$B80000-$B9FFFF
$BA0000-$BBFFFF
SERIAL COMMUNICATIONS CONTROLLER: WRITE
$BC0000-$BDFFFF
$BE0000-$BFFFFF
(S.C.C.) (CONTINUED)
$C00000-$C1FFFF
$C20000-$C3FFFF
$C40000-$C5FFFF
$C60000-$C7FFFF
$C80000-$C9FFFF
$CA0000-$CBFFFF
$CC0000-$CDFFFF
$CE0000-$CFFFFF
$D00000-$D1FFFF
$D20000-$D3FFFF
$D40000-$D5FFFF
$D60000-$D7FFFF
$D80000-$D9FFFF
$DA0000-$DBFFFF
$DC0000-$DDFFFF
$DE0000-$DFFFFF
I.W.M. DISK INTERFACE (internal & external.)
$E00000-$E1FFFF
$E20000-$E3FFFF
$E40000-$E5FFFF
$E60000-$E7FFFF
$E80000-$E9FFFF
$EA0000-$EBFFFF
$EC0000-$EDFFFF
$EE0000-$EFFFFF
6522 VIA (VERSATILE INTERFACE ADAPTER) for parallel I/O, interrupts, shift registers, clock & mouse information.
$F00000-$F1FFFF
$F20000-$F3FFFF
$F40000-$F5FFFF
$F60000-$F7FFFF
$F80000-$F9FFFF
$FA0000-$FBFFFF
$FC0000-$FDFFFF
$FE0000-$FFFFFF

For those of you who MUST do some immediate screen drawing or go bat out of your minds, I have included a memory map of the Macintosh with this article. You may use MS-BASIC to POKE in values directly to the screen, if you wish. The pattern used by the Mac is really straightforward: all eight bits are used, and they read from left to right. Each byte can therefore set eight pixels on the screen. There are 64 bytes per line and 342 lines on the screen, with no "lost addresses" in between lines. In other words, the screen map is just what you always wanted the Apple][screen to be. One word of caution: If you do this from MS-BASIC, remember that the graphic screen is the only screen - in other words, you will be writing over the screen that MS-BASIC is using to interact with you, so try not to bomb out your own interface!

Next month: Quickdraw Details.

(Ed. Note: The opinions expressed in this article do not necessarily represent the opinions of Washington Apple Pi, Ltd.)

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SYSTAT: A Review

by David Morganstein

SYSTAT is one of the most powerful micro-based statistical packages I have tested. It has characteristics of statistical systems found on mainframes. It runs on the Apple under the CP/M operating system. It is command driven and while it is easy to use, it provides a surprisingly powerful set of options. The accompanying 249 page manual presents examples of output using all the commands. This thoughtful approach prevents the confusion that may result when generic commands are presented.

SYSTAT is supplied on eight diskettes: DATA, for entering and manipulating data; STATS, for computing descriptive statistics; GRAPH, for graphical output; CORR, for computing correlation matrices; TABLES, for conducting analyses of tabular data; FACTOR, for computation of factor analyses; MGLH, for the multivariate general linear hypothesis; and MDS, for multidimensional scaling.

In addition to all of the commonly used univariate statistics, SYSTAT provides a multivariate general linear hypothesis module which includes multivariate analysis of variance, profile analysis of repeated measures, principal components analysis, and canonical correlation. It also provides for factor analysis with rotation and scoring, and multidimensional scaling. The TABLES module permits four-way and larger contingency tables, with analysis of log-linear models.

User data may be either numeric or character. Standard functions (algebraic, logical, transcendental) can be performed to transform data. SYSTAT provides commands to obtain ranks, sort data and standardize variables. More complex transformations of the data are possible using an internal "BASIC-like" language. Most procedures will accommodate up to 50 variables and, since SYSTAT is disk-based, unlimited records.

The GRAPH module provides for: two-way scatter plots, histograms, stem and leaf plots, box plots and probability plots. Unfortunately, none of these plots are in high resolution. Rather they are of the text variety.

Since the program is written in Fortran, you may not be surprised by the speed with which the programs execute their calculations. Double-precision variables are used along with special algorithms to insure accuracy. A test of a well-known "trouble-some" data set, the Longley data, revealed the SYSTAT can be depended upon for high accuracy.

A HELP command is provided to assist the user. This is quite useful in any command based program since the new user will not be familiar with all the many options. A few statistical packages (not SYSTAT) use a menu or command language approach. This makes it even easier on the new user who can begin with the menus and move on to the command language as they master it.

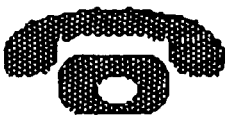
SYSTAT comes with a well-written and thorough manual which includes both a table of contents and an index. It is chock full of references. The beginning of each chapter discusses the various commands available for that module. The system data files are described, thereby permitting the user to generate data from their own program for use with SYSTAT.

SYSTAT's features will be valued by users in either professional research or business environments. It should be given serious consideration by anyone looking for a professional statistical analysis program. Versions are available for other computers, as well.

SYSTAT, INC., 1127 Asbury Ave, Evanston, Ill. 60202. (312) 869-7282. Price is about $500.00

TELECOMM SIG NEWS

by George Kinal



The Telecommunications SIG met on August 25 in the USUHS cafeteria, after the main WAP meeting. A request was made for nominations and/or volunteers for chairman, recordist and librarian, but no one at the meeting volunteered any names. Therefore, Dave Harvey and George Kinal will continue to serve as recordist and chairman, respectively. For the time being, the librarian's position is being filled by Bill English, as a de facto result of his very graciously volunteering to collect and document various versions of the CP/M "MODEM" program.

Much of the meeting was devoted to discussing CP/M communciations once again, and the various versions of MODEM as configured for the Apple][. The difficulty arises from the fact that there are so many different internal modems and serial interface boards for the Apple. The MODEM code must be properly "patched" for each. The matter has become much worse recently, with the arrival on the market of Z-80 boards different from the original Microsoft Softcard. Once again, patches are required. Our various members have a number of different versions of MODEM already configured. The intention in developing the SIG's library is to collect on one or two disks as many different patched versions of MODEM.COM code "ready to run" under different combinations of serial card (or internal modem) and Z-80 cards as can be found.

The SIG is particularly interested in the program configured for use with rare interface cards, or with some of the new extended memory Z-80 boards. We will also want owners/users other than those submitting the programs to test the code. It was suggested that the SIG use some of the funds allocated to it to obtain blank disks to support this testing program. One attendee who is also a participant in the CP/M SIG agreed to convey a request for support of this project to the CP/M SIG. When a reasonably comprehensive set of versions has been developed, copies will be submitted to the WAP library for wider availability. (Note that the WAP disks 403 and 409 contain versions of MODEM, but in source code format. Frequently, the beginning CP/M user does not know how to modify and assemble this code to make it usuable. The SIG's collected programs will be "ready to run" . COM files.)

The SIG would like to develop a meeting program for the coming year. Suggestions as to meeting topics are invited. In case you didn't know, any WAP member is automatically a potential Telecomm SIG member. You don't have to sign up in advance. So, if you have an interest in telecommunications, come by one of our meetings.

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LETTER TO THE EDITOR: A Guide to Buying a PC

by George W. Sall

Dear Editor,

By way of introduction, I am a brand new owner of an Apple //c, a recent member of Apple Pi, and a fledgling in the world of personal computers. After devouring two issues of the Journal, attending two Apple Pi meetings and one WAP tutorial, I would like to contribute to the objectives of WAP in whatever way I can.

As someone who continues to have problems understanding the technical jargon and who worries about making a fool of myself by asking obvious questions, I have great sympathy with what I perceive to be a large body of computer novices out there who are not sure what computers are all about but have a growing interest in getting involved. I, therefore, offer for your consideration as a Journal article, the enclosed material. The letter was originally written to my 83-year-old father-in-law who asked me what I knew about computers because he thought he might get one. The spec sheet was prepared from my own purposes when my wife and I "got the bug".

Dear Roy,

If there is one piece of advice on selecting a personal computer that comes through loud and clear from the material I have read and the knowledgeable people I have talked to, it is "pick your software first and then select the hardware with which it is compatible." In this context, software is defined as the program that does the thing you want it to do, i.e. keep a check balance, maintain a ledger, perform word processing, guide a rocket to the moon, etc. Hardware is the conglomeration of chips, circuits and other things you can physically feel, like nuts, bolts, wire and screws that go into the calculating device itself - the computer system. In one sense, the computer is a fast Monroe calculator and the software, or program, tells the calculator what to do.

In the early days of computers, individual users developed their own way of telling a computer what they wanted it to do. Thus developed such languages as Fortran (especially suited for solving engineering problems), COBOL (a business language), BASIC (an attempt to create a more 'user friendly' language), etc. Erik uses four different languages to write his programs. Now, however, a whole host of people have designed a myriad of programs to do special tasks, thus relieving people like you and me of the job of telling the machine what to do. A complication, however, is that these programs are written for specific machines, or series of machines, and aren't always understood by other machines. That is why you should know what programs you want to use before you select the machine on which you want to use them.

In the following analysis, I have assumed what you would really like a computer to do is to assist you in maintaining a double entry bookkeeping system and in performing a word processing function (letter writing). To do that you would need:

- A computer to do the work.
- A monitor to see the work.
- A tape or disk drive with which to feed the proper instructions (the program) to the computer.
- A printer to print out the results.

All of the above are called hardware.

Plus you would need:

- A bookkeeping program.
- A word processing program.

These are called software.

Now for a few words about each:

Computers:

All computers do essentially the same thing. That is, they take the raw information you feed them through a keyboard and massage the information in the way the program instructs it to do. It is important that the computer has enough 'memory" (capacity) to store all the information you give it and to run the programs you want. I am told that it requires about 64K of memory to properly handle either a bookkeeping or word processing program satisfactorily.

Monitors:

This is essentially a television screen (a cathode ray tube) that displays work in progress. In fact your television set could serve the purpose. TV sets, however, have a big shortcoming. They will only display 40 characters across, which is about half of what you would want for word processing. Monitors come as integral parts of some computer systems, and as separate units that plug into the computer in other systems.

A Drive:

This is the device that feeds program directions into the computer. While tape drives will do the job, they are much more cumbersome and considerably slower to use than are disk drives. If you want only to play games, tape drives are adequate (as are TV sets used as monitors). Disk drives are a better choice if you want to use 'business' or word processing programs.

Printers:

These utilize either a dot matrix or 'daisy wheel' to print out the end product. Dot matrix printers are less expensive and will print faster. Daisy wheel printers produce 'letter quality' work, are slower, and more expensive. The legibility of dot matrix printer output depends on how many pins there are in the matrix - the more pins, the better the printing - and the more expensive the printer.

Programs:

Programs to do specific assignments have been prepared for use on most, if not all, readily available computers. They, however, tend to be computer specific and a given program is not compatible with all computers.

Some programs are much less complicated than others to use. They are called 'user friendly'. Some programs are not 'user friendly' and are irritating to work with. For example, our office is equipped with IBM personal computers and a word processing program that is not user friendly. As a result we have had problems weaning some secretaries from typewriters to

contd.

word processing.

.....

Consumers Report ran a two-part series on personal computers within the past eight months. You may want to go to the library to review it. I was going to copy it for you at our library, but decided that it was confusing - too much detail, and written in overly technical language. I came away without a clear idea of what I would buy myself.

After doing the homework to write this letter, I have decided that were Delores and I to buy a computer, we should give serious consideration to:

1. The Commodore system at about $1213, including the better dot matrix printer;

2. An Apple, which I assume would cost about $1800 in a comparable configuration, or

3. An IBM PC which would cost about $2500.

Probably the best advice to give you is:

1. Decide what you want your computer to do.

2. Go to a dealer that will let you sit down and give his system a 'hands-on' tryout with the programs in which you are particularly interested. His availability for later consultation is also important.

Another thing you should consider is space. Each piece of hardware takes up some space - something that is more of a premium in your case than ours. Some systems take up more space than others.

I hope the above fits the definition of the advice you were seeking. I learned a lot. Now I know better what to ask for from Santa.

Sincerely,

George

PC SELECTION GUIDE

I. What we want a personal computer system to do.

A. Double entry bookkeeping to keep track of income from 40 investments.

1. Post dividend checks as received.
2. Post to individual ledgers.
3. Record costs as they arise.
4. Keep track of gains and losses.
5. Summarize aggregated gains and losses to determine income, including short and long term capital gains.

(Note: we assume that a good spreadsheet program will do all of this.)

B. Word processing for a home environment - personal letters, memos, etc. (4 or 5 pages).

C. Calculate federal income taxes.

1. Form 1040.
2. Schedule A.
3. Schedule B.
4. Schedule D.
5. Schedule E.

D. Miscellaneous.

1. Address lists.
2. Household accounts.
3. Other unknown but similar tasks.

II. Assumed hardware needs:

A. Basic computer with minimum of 64K RAM.

1. Would be convenient if keyboard has a 10-key numerical pad. (A trade-off item.)
2. Should be as user-friendly as possible.
3. Compatible with software to satisfy needs listed above.

B. Disk drive rather than tape drive.

C. Monitor

1. Don't see need for color.
2. Eye ease important.

D. Printer

1. Speed not important.
2. Want acceptable readability, but not necessarily letter quality.
3. Single sheet feed with friction drive seems logical.

III. How much are we willing to spend?

A. Cost is not the driving force, although it is a concern.

B. We are not computer 'fanatics'.

C. We see the benefits of an adequate system, but don't want to spend money on capabilities that we don't require.

IV. For Baseline Comparisons:

We have made general inquiries by telephone and have concluded that something along the lines of the following would satisfy our needs. Please understand that we haven't seen or felt any of the hardware listed below and well understand that we may have really missed the boat. For what it is worth, though, we believe the following as starters:

Machine	Cost
Commodore "64"	$ 274
Disk Drive (Commodore 1541)	289
Monitor	150
Printer (Okidata Model ?)	500
Computer System Cost	$1,213

V. Feedback:

A. Dealer:
Salesperson:

B. Software recommendations:

	Program	Compatability	Cost
1.	_____	_____	____
2.	_____	_____	____
3.	_____	_____	____
4.	_____	_____	____
5.	_____	_____	____
6.	_____	_____	____
7.	_____	_____	____

contd. on pg 28

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SO WHY OWN A COMPUTER ANYWAY?

by Mark Daniels

A "beep beep beep" pulls me out of auto drive just as I brake for the exit ramp. Late for work again! The Zodiac Car Computer, installed in a hair-brained attempt at automotive futurism, is now an embarrassment. As it lost its highly touted functions one by one, I've often wanted to mash my foot into it just for the pleasure of seeing its peices crumble into the carpet. Now it is permanently set to beep at 9:30 every morning, and that is the only thing it does very well. It is maddeningly on time, reminding me that I will be 5 minutes late for the third time this week. I pull into the parking lot next to the loading dock. Unpacking my Apple and Macintosh makes me speculate about further miniaturization, "Won't it be great when all this can be put in a box the size of a bar of soap?" As I lose myself to the excitement of digits and silicon, a disturbing thought moves forward in my brain, peeks out at the hairline and asks, "But why own a computer anyway?"

It's a sticky question for one who has welcomed the new vision of the future with a bright smile and an open checkbook. I cringe when party conversation comes around to that point. The person you just met, who has no interest in bits or bytes, turns to you with a smile, fully expecting to be enlightened once and for all, and asks, "Well, what do you use your computer for?

Even though I've hidden the fact that I own several of the beasts, I always hope that I can come up with the exciting reply that fulfills their expectations. But there they are, waiting. The exciting answer rarely comes. By now they've heard about checkbook balancers, recipe holders, filing systems and mailing list makers. Almost all of us agree that a pencil and paper is more practical for many of these home chores.

Many people see the computer as a way to straighten out their messy lives. They will try to log and list everything they know so it will be neatly out of sight, but only split seconds away. I know - I did it. If fun for you is the facts and people of your life whizzing about on the screen, rearranged by first name, gross weight, zipcode, purchase date, waist size, serial number and eye color, then here is one reason to own a computer. Everyone wants to feel as though he has some control over his life, and a data base program can give you that feeling. But not everything is reducible to a simple listing of vital statistics or nicely tailored headings.

The romantic notion that the computer is the be-all-to-end-all machine is not yet a reality. I've disappointed several people by telling them that the stern face on the screen speaking random sentences has no idea what it is talking about, and yes, it must be loaded again from the disk everytime the machine is turned off. Another disappointment was revealing that the program which draws wonderful spiral galaxies was not plotting star points from a radio telescope it might have on the roof, but merely from a mathematical formula.

There are definite limits to the home machines. These are brought into acute perspective as people see micro computers do things in the movies that the mainframes would strain to do. Hollywood isn't going to make an audience wait for the slick new operating system to load, or allow a search through a billion files take more than a split second. You just push a button, and the job is done. After all, it's a computer.

By now, it's natural to expect magic from a black box with buttons, and I must confess, it's still magic to me. Everytime I think I'm making headway in understanding the mountain of technology packed into these little grey mystery chips, I'll read something about indirect indexed addressing and it keeps me humble. The results of genius programming will always make me marvel that zeros and ones could ever do so much.

But before I get too far off the track, let me compile a list of reasonable ideas for and against computer ownership:

FOR COMPUTER OWNERSHIP	AGAINST COMPUTER OWNERSHIP
electronic communication	alienate your friends
keeping up with technology	it's still cheaper not to own one
word processing	hand written letters get answered
status in ownership	maintains the status quo
computer games	trivial pursuit
train the logical brain	TV is more relaxing
computer art	pencil and paper are available
feel the future	bask in the past

I guess there's not an overwhelming case for the machines. It's funny that I can't think of many logical, financially sound reasons for owning a machine that is the embodiment of logic itself. But there is something about the present time that just seems right for owning one. Think of the cheap software that would develop as the hamburger market went electronic.

Yes, I'm encouraging computer ownership. Waiting for next year's model will just get you the latest box for a week or two. Computers will always be faster, cheaper and more powerful as time races by. For the people out there wrestling with the decision of if they should?... I say yes! And as for the question of when should they?... I say now!

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MOONLIGHTING WITH YOUR PC: A Book Review

by Merle Block

MOONLIGHTING WITH YOUR PERSONAL COMPUTER - An Insider's Advice on How You Can Earn Thousands of Extra Dollars, by Robert J. Waxman, World Almanac Publications, New York, Copyright 1984 by Quarto Marketing Ltd., 159 pages, no graphics, paperback, list price $7.95.

Mr. Waxman is a graduate of the University of Pennsylvania. He has been a computer consultant to many major corporations and project manager for many computer systems. Currently he teaches at Baruch College (CUNY) and is an internal consultant to Standard and Poors.

Chapter One covers the requirements necessary to "moonlight", including knowledge, attitude, available time and hardware. The book includes a chapter on each of the areas of "moonlighting":

1. Freelance Writing;
2. Service Bureau, in which assistance is given in the installation and operation of packaged (or modified) software;
3. Packaged Programs;
4. Contract Programming;
5. Consulting;
6. System Houses, where custom software is created.

As each of those chapters were written to provide all information on the subject of the chapter heading, there is a great deal of duplicate information throughout the book. There are also chapters on the "Tools of the Trade", "Business Considerations", and a summary "Last Words".

Possible "pitfalls" and potential problem areas and how to avoid them are well covered. Examples of ranges of charges for the services are given. Three very useful sample documents are included:

1. A Personal Resume;
2. A Query Letter to a Prospect;
3. A Consultant Proposal Letter.

The six appendices and glossary provide some useful supplemental information, including an appendix on how one should limit the warranty on the work. However, Appendix D, a listing of Personal Computer Clubs and Users Groups, is incomplete, as the WAP is not listed.

I think that the information on copyrighting documentation and programs is incomplete. Also, information should have been provided on the use of literary agents to market some of the work.

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IS IT SAFE TO BUY A BARGAIN: A Reprint

by Stan Viet

(Ed. Note: The following is a reprint, by permission, of an Editorial by Stan Viet which appeared in the September 1984 issue of Computer Shopper.)

People often ask me this question because I am Editor of Computer Shopper and I should know about such things. The other thing they ask me is: "When I check prices in all the computer magazines, the ones advertised in Computer Shopper are the lowest. Tell me, what's the catch?" They often do not believe me when I tell them, "No catch. They are real bargains." Of course the next question is "How Come?" "Is it safe to buy bargains?"

The answer to these questions is yes and no. It depends who you are and what you are buying. The companies who advertise the low, low prices in Computer Shopper are independent, mail order operations who have very low overhead and are in a very competitive business. This benefits the buyers who are looking for the lowest prices. But they must understand what they are buying and what they are not buying. They are buying the merchandise offered with the manufacturer's limited warranty. Some dealers extend this to include the right of return if they are not satisfied, some do not. If there is a problem with the equipment the purchaser must deal with the manufacturer, not the seller. It should be pointed out that many stores work the same way. You buy a sealed carton and if there is a problem after you buy it, you deal with the manufacturer. Your discount price from the mail order vendor seldom includes the kind of hand holding that is offered by some stores.

Another factor is timely delivery. In a store you see something, buy it and take it home. In some cases, there might be a short delay for a special order, or for a new item not yet delivered. Again, you are paying for this availability. It is part of the store's overhead. When you are buying mail order, the item may, or may not be in stock. If it is, most dealers ship promptly. If not you may be in for a wait.

In order to sell at low prices, dealers must buy in fairly large quantities to get the manufacturers' quantity discounts. If an item is out of stock, the dealer may wait until orders pile up to a point where they meet the quantity discount level. Also, the manufacturer may be out of stock. In some cases the dealer buys from an importer, or is an importer. If a shipment is coming by a slow boat from Japan or Hong Kong, there is nothing to do but wait. The U.S. Government has strict laws about this situation. If the vendor can not ship within 30 days, he must write you and tell you when you will get your merchandise. In addition, he must offer you your money back if you decide not to wait. This magazine also has a Customer Service Representative who may be able to help you with vendors who advertise with us. However, it is up to you to be an intelligent buyer. Call the vendor to find out when they can ship your merchandise before you buy. If one vendor can't supply it on time, another might have it in stock. This might take more than one phone call, but it is worth it when you need something. Recently, I had a disk drive go out of alignment and I decided to buy a spare. I made a few calls and had my new drive within a week. I did not get it from the advertiser with the lowest price. He had sold out and was waiting for a new lot of drives. I paid a little more but still saved a great deal of money. In this case, I also saved a lot of time because the local dealer had his service department jammed up.

Last month, I talked about the problem of buying software from stores where they don't know anything about the packages they are selling. Since this is a widespread condition, why not buy mail order and save money?

The most important thing about buying by mail is to know what it is that you are buying. Reading the ads of the manufacturer is not enough. Find someone who has used the software or equipment and ask them about it. That is the best reason for going to computer clubs. Reviews in magazines or books are a big help, but there is no substitute for "ask the man who owns one."

Don't rush to be the first to buy a new product even if it seems to be just what you were waiting for--and a great bargain. It costs so much to develop equipment or software that the pressures to release it to the market are great. This is often done before all the tests are completed. Bugs really don't show up in tests! They hide, waiting for the customer. It takes several revisions for everything to be right. Don't pay to do someone's testing.

When it comes to repair work on hardware, many manufacturers now have contracts with third party service organizations to perform this work on a national basis. It is therefore not a local store who fixes your computer, but a service organization. They don't care where you bought the equipment. They will fix it within warranty, and charge you for service after the warranty period is up. Find out how much they charge before you use them.

To sum it up, there are real bargains in Computer Shopper but to take advantage of them you must become an informed consumer. Know what you are buying, find out when you will get it and who will take care of any problems you have. We will help, but it is largely up to you.

Guide to Buying a PC contd. from pg 23

C. Hardware:

	Make and Model	Cost
1. Computer	_____	____
2. Monitor	_____	____
3. Drive	_____	____
4. Printer	_____	____

D. Comments (including reaction to thoughts spelled out in I, II and III above.

E. Other considerations:

1. Training programs.
2. Post purchase service.
3. Trouble shooting counsel.

EMBER! HOT OR COLD?

by Robert Baltz

Some of you with extended ram cards may be considering the purchase of EMBER. Here is a brief summary of what to expect based on my experience with the program.

EMBER (Extended Memory Basic Interpreter) is a software preload that automatically stores variables in the extended memory and frees up the standard Apple memory for program storage. This is very useful if you have a large program that handles a large array or large number of variables. Based on experience, here are a few words of caution.

First, you must have a memory board of at least 16K in slot (0) to hold several of the overhead routines. Second, it takes about 2 to 3 times as long to load the variables using Ember. Also if you are one of those people who like to use fre(0) in your programs, you will probably want to take it out. It can take up to twenty minutes to return from fre(0) and allow you to continue. As usual with most preboot routines, you have to be careful mixing programs that change HIMEM.

The master disk should not be used for the preboot; instead you should use the "Turnkey maker" program to make an everyday preboot disk or add to a disk as the HELLO program. Overall the routine works very well if you need the features; however I would not use it in conjunction with programs not requiring the extra memory.

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A PAGE FROM THE STACK

by Robert C. Platt

Upon liberation from duties as interim Journal Editor, I return with renewed vigor to WAP's halycon disk library stacks. Only a continuous stream of new library donations will keep our staff of stack elves busy in anticipation of a pre-Christmas expansion of our library collection. Please donate! Remember, you will receive a free 5-1/4" library disk for every one you donate, or a free SigMac library disk for every 3-1/2" donation.

At this point in my column, I traditionally promise to stand ready at the "disketeria" sales table before the monthly meetings to meet you in person and discuss your contributions. However, by the time that you read this I will have moved to Amarillo, Texas. I can't express how much I have enjoyed working with all of you on improving the WAP library. It is something we can all take pride in. I will be handing over our many submissions and disks-in-progress to Dana Schwartz who will become our fourth New Disk Librarian. I trust that you will continue to give him the support that makes the WAP Library so special.

Three new disks premiered in September: SigMac 5: Desk Accessories; the long-promised Disk 93: VisiTrend VisiPlot; and Disk 158: Apple Logo programs.

DISK 158: APPLE LOGO PROGRAMS

This disk requires Apple Logo to run the routines. A review will appear in a future Journal issue.

Disk 93: Visitrend Visiplot

Lee Raesley has reviewed this Comm Center disk and offers the following discription.

This disk is a tutorial by Brett E. Parks of Columbia, MD, on trend analysis using VISIPLOT/VISITREND. It is applicable to any of the trend analysis programs.

The tutorial presents an introduction to trend analysis, provides a specific command-by-command description on using VP/VT to create and print your work. It also includes the graphic plots that VP/VT normally creates (hi-res screen presentations) as a part of the program. The tutorial will take you through the concept of trend analysis, and the "smoothing" function in trend analysis, in a straight forward, easy to understand manner.

The disk also includes a neat little "HI-RES DUMP" for the Epson MX80 and MX100 printers that will probably also work with all other Epsons, and any Epson compatible printer, although I have only tested it on the Epson MX80 & 100. In addition, there are the necessary printer drivers for the Epson ("EPSON BIG&DARK" - for the 100, and "EPSON SMALL&DARK" - for the 80); and an inverting program which inverts the hi-res screen.

This graph printing program can be used to print any hi-res picture that has been saved to disk. If you have an Epson printer, this utility alone is worth many times the cost of the disk. Brett is to be thanked for the quality work he has done, as well as thanked for placing it in the public domain. I hope that I see more programs from him.

Disk SigMac 5: Desk Accessories

Tony Anderson prepared the following description of his latest addition to the SigMac library series:

This disk serves up five tasty treats sure to whet your appetite for more MacSoftware. The disk introduces two new fonts, two new games, two new applications, nine new desk accessories and a database generator. Now that is a mouthfull. SigMac 5 has five folders:

In the bits & pieces folder are two applications: JOBS and a MiniFinder.

In the Desk Accessory folder:

Desk Accessory Mover (by Donald Brown) - corresponds to the Font Mover but works on desk accessories. Now all of you who have been dying to recover the disk space taken up by that silly puzzle can reclaim an extra 2K on your disk. This application allows you to remove a desk accessory or add new ones to a disk. This program is distributed under the MacHonor System. The author expects you to send him $15 if you like the program and are going to continue using it. Instructions for the Desk Accessories Mover are in file D.A.M. Instructions.

The Accessory Folder contains the following desk accessories:

Corvus Calendar	Old Calculator
Exec. Decision Maker	Original Clock
FRP Die Roller	RPN Calculator
Hex Calculator	System Bugs
Magnifying Glass	

In the MS-Basic folder:

Creator (by Bruce W. Tonkin, TNT Software, Inc.) This is another example of "user supported software." You may have a copy of this program for free but you are requested to pay for it if you decide to keep it for long-term use. Creator is a MS-Basic data base management package. It claims to be able to handle up to 45 fields per record. A record can be as long as 32,767 bytes.

In the Games folder:

Daleks (by Johan Strandberg) was written during the middle stages of the Macintosh development effort, while Johan was at Apple. The name Daleks comes from the British Broadcasting System's television program "Dr. Who" which has also been shown on PBS in the states. [Old time WAP members should note that this Dr. Who is no relation to Howard Lefkowitz or HLA.] Daleks is based upon an old game similar to "Escape." For an interesting demonstration of the 3-D QuickDraw routines, select "Abou Daleks" from the Apple menu. The compiler of this disk has seen a score as high as 7350. Most good players will routinely socre in the 1,000+ range, often reaching into the 2,000's.

Daleks.Doc (by David S. Rose) is a MacWrite set of game rules.

Reversi (by Robert J. Woodhead) is a simple game played with two colored disks. It's simple, but difficult to master. A board version of the game is

contd.

marketed under the tradename "Othello." Bob Woodhead is a fellow alumnus of the Cornell University PLATO project. He is best known for his co-authorship with Andy Greenberg of the "Wizardry" Apple][game series. The rules of the game are in the MacWrite file called Reversi.Doc

In the Fonts folder:

Broadway - a font in 12 and 24 points that will bring back that feeling of the smell of greasepaint and the roar of the crowd.

Silicon Valley - a 12 point font designed to look like computer type. Of course, no computer really types like this font except in B grade si-fi films. It looks most like the OCR numbers on the bottom of a check.

REPEATERRRR - AN HONEST PRODUCT

by Robert M. Ketchell

The advertisement said "... Auto - Repeat: ... Repeats any keypress including control characters for scrolling, rubout etc. ... Easy Installation ... ".

The REPEATERRRR consists of a 2 1/2" by 1 1/4" printed circuit board, an installation tool and well-written instructions. To use the REPEATERRRR you must have an Apple][+ with a Rev. 7 or later motherboard, and a keyboard that has an encoder board. The REPEATERRRR board fits over the encoder board on the twenty-five pin connector that couples it to the keyboard. For one that gets sweaty palms plugging a card into an Apple slot, I was very concerned when I read that it was necessary to unplug the encoder board from the keyboard. Not to worry. The instructions were clear, the sketches invaluable, and the charge to not use force but to apply slow and even pressure is the name of the game. After removal of the encoder board using the installation tool, (a plastic piece used to compress the keeper of the plastic retaining clip) slip the REPEATERRRR on the connector and connect a wire from the REPEATERRRR to the encoder board. No soldering, as the connection is made with a force fit. Reassembly of the encoder board to the keyboard requires care but the instructions have the key words "SLOWLY and EVENLY". Two added features of the REPEATERRRR are a connection for the shift key modification, and an adjustable delay control that controls the delay time to start the repeat function. With the installation complete, a test program is provided to determine the delay time. The REPEATERRRR can also be used with the REPT key to double the speed of movement. It's now called the "ZIPP KEY".

Is the REPEATERRRR necessary? Probably not, but it is a handy addition to the Apple][+ and it closes one more gap on the Apple //e. The manufacturer is High Order Micro Electronics Corp., and has a list price of $27.95. I purchased mine on a recent trip to California for under $20.00. Does it work? Just watch! REPEATERRRRRRRRRRRRRRRRRR.

HARDWARE HELPERS

If you are having hardware problems with your Apple and/or peripheral equipment, the following persons have agreed to help. It will be at the discretion of the Hardware Helper just how involved he becomes. He may only suggest things for you to do, or he may actively assist in cleaning, removing or replacing parts.

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(804) 779-2553 (till 10)

Gene Cartier
6026 Haverhill Court
Springfield, VA 22152
(703) 569-8450 (till 10)

J.T. (Tom) DeMay Jr.
4524 Tuckerman Street
Riverdale, MD 20737
(301) 779-4632 (till 11)

Bruce Field
1402 Grandin Avenue
Rockville, MD 20851
(301) 340-7038 (till 10)

Lyman Hewins
Route 2, Box 26
Leonardtown, MD 20650
(301) 475-9563 (till 11)

Pete Jones
1121 N. Arlington Blvd.
N. Arlington, VA 22209
(703) 430-1606 (7-10)

Bob Kosciesza
2301 Douglas Court
Silver Spring, MD 20902
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Mark Pankin
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Arlington, VA 22201
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Richard Rowell
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CODEMAP: A GUIDE TO PASCAL CODE FILES

by Brother Tom Sawyer, CSC

An Overview: In my previous article, I gave an introduction to code files and a skeleton of the program which appears now in all its whatever. This program performs the first two functions of my "dream machine," the Decompiler.

Procedure Blockzero produces the segment directory (Figure #1). Procedure Analyze produces the procedure map of each segment (Figure #2). The main program is simplicity itself. Call Blockzero and then Analyze. Both procedures are independent SEGMENTS. They do what they have to do and get out of the way. The variable parameters carry the data from one segment to the next. The program has ample room for further procedures that will decode the codefile and eventually save the results to the disk.

Parameters: Three arrays (TYPE locarray), a RECORD variable "head" and a BOOLEAN "print" carry data from segment to segment. They do this because they are VARiable, i.e. whatever happens to them inside a segment, happens to their "parent" in the main program. They are essentially global variables but passing them as variable parameters shows more clearly their place in the program. A glance at the program listing shows that I prefer passing to global although at times it is more convenient to do the opposite. In such cases, the domain of the variable is (* documented *). There is a further special case of passing parameters which I will comment on shortly.

Declarations: The CONSTant "blocksize" is used throughout. It is the number of bytes in a Pascal block. Maxproc = 149 gives the maximum number of procedures a segment can contain, although the most I've seen so far is seventy-five. Cutting the number back to 100 or 90 would save a lot of memory but right now it isn't necessary to do so.

"Filename" is my own invention. I wanted to attach the file name to the Header record so that it would be easier to pass around. The same is done with other parameters later on.

"Header", with one addition - "finame," is taken from the Pascal OPSYS manual. Thanks to Apple for publishing it.

The variables "starloc", "endloc", and "offset" are the workhorses of the program. They contain the starting, ending, and offset block (row 1) and byte (row 2) of each procedure in a segment. Once the decoder is added to this program some alterations will have to be made in the program flow since these arrays can only accomodate the data from one segment at a time.

The untyped file "H" is required for the BLOCKREAD function. "Print" tells the procedures whether to send output to the screen or printer. The output file is called Epson because that's my printer.

FIGURE #1: Segment Directory

SEGMENT DIRECTORY OF....Codemap.Code

Name	Start block#	End block	End byte	length in bytes	seg#	type	versn	kind	txtaddr
CODEMAP	12	12	102	102	1	2	2	0	0
BLOCKZER	1	4	58	1594	7	2	2	0	0
ANALYZE	5	11	426	3498	8	2	2	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0

(the rest of the Directory is empty)

FIGURE #2: Procedure Map

CODEMAP Seg# 1 # of Procedures 1
Start block 12 Last block/byte 12 102 total bytes 102

proc#	offset blks	offset bytes	proc start block	proc start byte	proc end block	proc end byte	length bytes	prog. level	code type
1...	-0	2	12	1	12	98	98	0	p

BLOCKZER Seg# 7 # of Procedures 6
Start block 1 Last block/byte 4 58 total bytes 1594

proc#	offset blks	offset bytes	proc start block	proc start byte	proc end block	proc end byte	length bytes	prog. level	code type
1...	-0	12	3	471	4	44	86	1	p
2...	-3	6	1	1	1	48	48	2	p
3...	-2	380	1	49	1	184	136	2	p
4...	-2	258	1	185	1	304	120	2	p
5...	-2	24	1	305	2	24	232	2	p
6...	-0	88	2	25	3	470	958	2	p

ANALYZE Seg# 8 # of Procedures 7
Start block 5 Last block/byte 11 426 total bytes 3498

proc#	offset blks	offset bytes	proc start block	proc start byte	proc end block	proc end byte	length bytes	prog. level	code type
1...	-0	14	11	311	11	410	100	1	p
2...	-5	508	5	1	5	426	426	2	p
3...	-5	430	5	427	5	502	76	2	p
4...	-4	422	5	503	6	508	518	2	p
5...	-3	28	6	509	8	388	904	2	p
6...	-1	316	8	389	10	98	734	2	p
7...	-0	102	10	99	11	310	724	2	p

contd.

About Memory: Throughout this piece I will refer to saving memory space. It can be saved by making the program code shorter or "tighter" or it can be saved by choosing methods which reduce the space that variables and file buffers must occupy. Tighter code does not automatically produce smaller variable space. I will refer to either code memory space or variable memory space depending on which is the case. It's a useful distinction to keep in mind.

SEGMENT PROCEDURE Blockzero: This segment gets the file name from the user (bad name = fatal error), opens the file and reads block zero as a file of record type Header. File "headfil" is declared locally. This non-standard practice will cause no problem with variable memory space since this is the only segment in memory and there is plenty of room for the file buffer. It has the advantage of freeing buffer space once the segment is ended.

After the file is read and closed, the three locarrays are initialized for use in the next segment (takes a second or two). Then the user may choose screen or printer output for the codefile's segment directory. The presence of a printer interface is checked and the Boolean "pr" ("print" in the main program) is assigned a value. The record HR is taken apart and the results are output. Before leaving the segment the user is asked the printer question once again, this time for the segment to follow. As it is now, this is an "all or nothing" proposition. One can not choose to print the procedure map of one segment on the screen and another on the printer.

Blockzero will output the entire directory no matter how many segments are actually present. You can alter that if you wish. However, be sure to run through all 16 segment locations rather than stop when a zero is encountered. Some directories have a zero in the first position (for data) and others have a series of empty cells and then a segment (System.Pascal, for example).

Some discoveries I made: Literals take a lot of memory (code) but this was reduced by adding the procedure Center. It takes less code to Center ('whatever') than it does to WRITELN ('whatever'). You get the added benefit of a line centered on the screen. I used Center seven times in the segment and the space saved was more than the space required for the procedure itself. In general, you can save code by defining often-used literals as a variable or you can write a procedure that gives a message you will want to use often during a program. (e.g.'Press <RETURN> to continue".)

It takes more code to use a global variable in a procedure than it does to declare one locally and use it. Using globals also decreases the amount of variable space available for every procedure within that level since space is kept for them even if they aren't being used. Thus, using local variables is not only good programming practice but it can be more efficient.

For a choice of only two things (e.g. TRUE or FALSE) it takes less code to use IF THEN ELSE than it does to use CASE. That is why the procedure Ptoutdir has no CASE statements for TRUE and FALSE. It did, but that took more code.

The first statement in Putoutdir contains the table headings just as they will appear, spaces and all. It is harder to read but I experimented with using field widths ('Name':10, etc.) and that took more code.

SEGMENT PROCEDURE Analyze: This segment picks up the initialized arrays, the Header (along with its imbedded file name) and the print/screen control variable "print" and breaks each segment down into its procedures. This is done in steps and may be difficult to follow unless you have experienced the "joy" of counting bytes in an ASCII dump of a codefile. I wrote this program so no one else would have to do such a mindless thing. The arrays are passed as variables so that they can be used later on in other segments. It is not necessary to have "head" and "print" declared as variable parameters since the segment does not change either of them. My reason for using the VAR declaration is going to get me in trouble with some Pascal programmers. Nevertheless, here's why I did it.

Time out: VARiable parameters are my favorite things. They give better control of a program's actions on the data, they inform others that a given procedure is having an effect outside itself, and they save lots of variable memory space. Briefly, when a parameter is declared as VARiable it is like giving another name to the same memory location. Whatever happens to name #2 also happens to the first name because both are referring to the same object. Actually, there aren't two names at all. The compiler simply replaces the name we use in the procedure with the original name that is passed. The name in the procedure is for us humans. The compiler does not put it in the code file.

Since a VARiable parameter uses no extra memory, it really saves space if you pass arrays in as variable, even if the procedure is not going to change them. This is heresy. It makes a program listing less understandable when you use such pseudo variables. I compensate for this by making sure that I document what I'm doing in the program. Further, I do not use this trick every time I pass parameters. I use this device in procedures that require data which is not changed but would require a lot of variable space to duplicate locally (a 2 x 150 array of INTEGERS is nothing to sneeze at). I am not championing this bending of the rules and recommend that if it is done, it should be documented and worth it in terms of saving variable memory space. There will be no side effects as long as the variables passed are not changed by the procedure using them. Naturally, you can't do this "no-no" if you are going to operate on the parameters locally but don't want a global effect. Enough said. End of time out.

Analyze continued: The first step in Analyze is to get the procedure offsets from the code file. Getoffs gets the codeaddr and codeleng from the record, HR, calculates the location of the last segment byte and then does a correction for the "pathological case" where the last byte is zero (first byte in a block). Next, four important values are stored in the zeroth column of the start and end arrays. This makes it possible to pass the starting block, total number of bytes, ending block and ending byte simply by passing the arrays. It has the disadvantage of being less obvious to the reader, even though it is documented. Documentation is my next favorite thing, by the way. Two more important values, the number of procedures and the segment number are stored in the offset array for later use. Getoffs then outputs the segment's name, BLOCKREADS the end of the code file, and stores the procedure ending location in the endloc array. When Getoffs is finished, Analyze checks to see if there is a segment to process (ending block > zero) and if so, sends it on to Fixnout.

About bytes and INTEGERS: Integers occupy one word (two bytes) of code. After Procedure Getoffs the array "endloc" contains the bytes that were read (backwards) from the codefile. They are not integer values. These must be calculated (in procedure Fix). Sample segment ending: Last twelve ASCII numbers in a segment's code.

contd.

... 90 0 1 0 128 2 195 3 6 0 1 3

Reading back from the end we get the following information: There are 3 procedures in this segment which is segment #1. Then come the offset pairs:

Procedure #	Offset	
	*halfblocks	bytes
1 (Main)	0	6
2	3	195
3	2	128

*halfblock = 256 bytes

Finally we reach the last four bytes of procedure #1 (Level 0, Procedure #1) which begins 0 halfblocks and 90 bytes back, counting from the 90. If the code were machine language the bytes would be 90 0 0 0, i.e. level 0, procedure 0 and then offset.

The Fix procedures change bytes into Integers. For example, the bytes 195 3 are converted thusly: Integer := 3 * 256 + 195. There is an upper limit (127) for the second or high byte after which it becomes negative. 127 * 256 + 255 = 32767 or MAXINT. 128 * 256 + 0 = (-)32768 or -MAXINT. What a difference a bit makes.

On to Fixnout: This procedure drives the rest of the segment (two fixes and two outputs). The values for starting block, total bytes and number of procedures are extracted from the arrays and sent off to Putoutpa, which prints the heading for the procedure list. VAR was used to save memory. Nothing is changed in Putoutpa. Next, each procedure offset is Fixed using the method described above. The LONG INTEGER section is used if the byte totals are going to exceed MAXINT. The CONSTant, "fudge," is just what it says. When the backward offset goes beyond the beginning of the segment's code it is changed to forward by adding the number 21396 to the offset. The result is the location of the last byte in the forward referenced procedure. Fudge is empirical at present. I'll be able to explain it someday, I hope. Fix returns the converted values in endloc and offset. The other parameters are left unchanged. Fixnout then adjusts any endings which contain a byte address equal to zero by making them equal to 512 of the previous block.

The "Off by One" bug: The OBYB is a familiar insect. It is hatched as a result of a peculiarity in the way we learn to count. Remember the time you had to count from one to ten for Aunt Mildred? We learned about counting and fingers and so assumed that if you go from here to there you have counted "there minus here" things. Try counting from ten to twenty. ... Suprise! There are eleven objects - ten fingers and the "off by one" bug. From here to there includes "there - here + 1" objects. The bug also appears when bytes and such are numbered from zero. Byte zero is the first, byte one is the second, and we're off (by one). This program requires a lot of counting (backwards) so to ease the bug problem I declared the block 1..512 rather than 0..511. If you wish to use the latter then you will have to make many other changes in Analyze. Good luck.

Return to Fixnout: The end of a procedure is located so we do another BLOCKREAD to get its last four bytes. These tell the type and level as well as the offset to the beginning of the procedure. This offset is in the same form as the previous one so it is stored in starloc and then sent to Starfix first, to convert it to blocks and bytes and second, to calculate the actual location with reference to block zero. Starloc returns carrying that information. The last step is to output the start, end and length and then return for another round. The three arrays store the data on all the procedures in the segment. When the decoder is added, these arrays will have to be sent off and decoded before the next segment is analyzed. An alternative is to write the data to a file and call it back later.

Fixnout outputs the data as soon as it is determined. This saves a lot of time. Between BLOCKREAD and printout the system will be busy. Blockreading takes time but the program will execute without any delays. The output keeps coming even as the disk drive is turning to access the next block. The output rate is 115 lines/min on the screen and 70 lines/min on the FX-80 (160 cps). The output rate to a disk (see below) is 65 ln/min to Corvus and 57 ln/min to Disk //.

Odds and ends: Local variables were used where feasible. The names of variables and passed parameters are similar and passed in the same order to each procedure. The return value for BLOCKREAD is ignored because all values will be in range (he said confidently). A bad block will abort the program. The arrays are not reinitialized to zero after each segment because the variable "count" controls which values are looked at for each case. The original zeroing was "pro forma." Further, each variable is assigned before it is used and no assumptions are made about any variable's value. This is standard programming practice. There are comments galore which were inserted as the code was written. This is also standard practice. In Procedure Fix only the sign of the block offset is negative. The byte value comes from the MOD function which returns positive values. I left it that way and made the last line of the procedure change long integer results to conform to this.

The output can be sent to the disk by making a few alterations. Declare Epson as TEXT, change Checkprint to REWRITE (Epson, (*whatever*)), delete last three statements in Blockzero, and change last statement in Analyze to IF pr THEN CLOSE(Epson,LOCK). The LOCK saves the file.

The program will run on one disk drive as long as source and object codefiles are on it. If you include a text file, you may run out of room. I admire anyone who has the patience to do Pascal with one drive.

A final note: This program should be helpful to those who want to experiment with Pascal. It lets you write alternative control structures and then compare their length. The same can be done with local vs global declarations, etc. Combine this with words of storage available and you can discover how to make your programs more efficient. The frequently mysterious [1259 words] message that the compiler produces tells the number of words (one word = two bytes) of variable storage space available in the procedure being compiled. After two years of watching this message go by, its meaning is finally clear to me. I don't mind learning slowly - as long as I keep learning.

contd.

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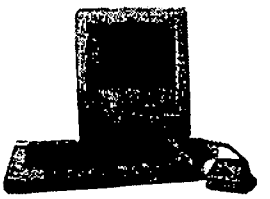

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```
PROGRAM CODEMAP;
  (* An anatomy of a Pascal Code file *)
  (* Produces the segment directory of any code file *)
  (* Then gives offset, location and length of each procedure in each segment*)
              (* bts 4/20/84   rev 7/17/84 *)
CONST
  blocksize = 512;  (* number of bytes in a Pascal block *)
  maxproc   = 149;  (* maximum # of procedures per segment *)

TYPE
  filename = STRING[24];
  Header = RECORD                (* from Apple Pascal OPSYS Manual p 266 ff *)
      diskinfo:ARRAY[0..15] OF
                RECORD
                  codeleng,codeaddr:INTEGER
                END;
    segname :ARRAY[0..15] OF PACKED ARRAY [0..7] OF CHAR;
    segkind :ARRAY[0..15] OF (linked,hostseg,segproc,unitseg,
                              seprtseg,unlinked_intrins,
                              linked_intrins,dataseg);
    textaddr:ARRAY[0..15] OF INTEGER;
    seginfo :PACKED ARRAY [0..15] OF
                PACKED RECORD
                  segnum : 0..255;
                  mtype  : 0..15;
                  unused : 0..1;
                  version: 0..7
                END;
    intrinseg: SET OF 0..31;
    finame   : filename       (* my own creation *)
    END                    (* the rest of the record is undefined *)
  locarray = PACKED ARRAY[1..2,0..maxproc] OF INTEGER;

VAR
  print : BOOLEAN;
  head : Header;
  starloc,endloc,offset : locarray;
  H : FILE;
  Epson : INTERACTIVE;

SEGMENT PROCEDURE Blockzero(VAR stloc,enloc,ofst:locarray;
                            VAR HR:header; VAR pr:BOOLEAN);
  (* Initialize and get block zero of the codefile *)
  (* Send segment directory to screen (pr = FALSE) or printer (TRUE) *)
VAR
  headfil : FILE OF header;  (* not GLOBAL because used only in this Seg.*)

  PROCEDURE Center(st:STRING);   (* center the string on the screen *)
  VAR len : INTEGER;
  BEGIN
    len :=  LENGTH(st) DIV 2 + 40;  (*width of field*)
    WRITELN(st:len)
  END; (*Center*)

  PROCEDURE Checkprint(VAR pr:BOOLEAN);
    (* See if printer is on line.  Set print to TRUE or FALSE *)
    (* Printer must be CLOSED by calling procedure. *)
  VAR ans : CHAR;
  BEGIN
    READ(ans); PAGE(OUTPUT);
    IF ans IN ['Y','y'] THEN
    BEGIN
      (*$I- *)                        (*error check off*)
      RESET(Epson,'PRINTER:');
      IF IORESULT <> 0 THEN
      BEGIN
        WRITE(CHR(7));  (*beep*)
        Center('You don''t have a printer!');
        pr := FALSE
      END
    ELSE
      pr := TRUE
    (*$I+ *)                          (*error check on*)
  END (*if ans*)
  ELSE pr := FALSE
END; (* Checkprint *)

PROCEDURE Initloc;   (* Initialize arrays for following segments *)
VAR
  j,k : INTEGER;
BEGIN
  FOR j := 1 TO 2 DO
    FOR k := 0 TO maxproc DO
    BEGIN
      stloc[j,k] := 0;
      enloc[j,k] := 0;
      ofst[j,k]  := 0
    END
END; (*initloc*)

PROCEDURE Initseg; (* Say "hello", get finame, load block zero into HR *)
VAR
  name : filename;
BEGIN
  PAGE(OUTPUT);
  Center('b.t. enterprises presents...');
  Center('Codefile header analysis');
  Center('Produces segment directory and procedure offsets');
  Center('Type in the complete file name.');
  READLN(name);
  RESET(headfil,name);   (*no error check so... bad name = fatal error*)
  HR := headfil^;
  CLOSE(headfil,LOCK);
  HR.finame := name;     (* not part of Apple's header *)
END; (* Initseg *)

PROCEDURE Putoutdir;     (* output the segment directory *)
VAR
  stbl,enbl,enby,tbyte,j,k : INTEGER;
BEGIN
  IF pr = FALSE THEN     (* Headings to screen *)
   BEGIN
     WRITELN('SEGMENT DIRECTORY OF....',HR.finame);
     WRITELN;
     WRITE('  Name      Start         End        length');
     WRITELN('    seg#  type  versn kind txtaddr');
     WRITELN('            block#    block  byte   in bytes');
     WRITELN
   END
  ELSE                   (* Headings to printer *)
    BEGIN
      WRITELN(Epson,'SEGMENT DIRECTORY OF....',HR.finame);
      WRITELN(Epson);
      WRITE(Epson,'  Name      Start         End        length');
      WRITELN(Epson,'    seg#  type  versn kind txtaddr');
      WRITELN(Epson,'            block#    block  byte   in bytes');
      WRITELN(Epson)
    END;
  WITH HR DO
    FOR j := 0 TO 15 DO  (* output data for all segments *)
    BEGIN
      WITH diskinfo[j] DO
      BEGIN
        stbl := codeaddr;
        tbyte := codeleng;
        enbl := stbl + (tbyte DIV blocksize);
        enby := tbyte MOD blocksize
      END;
```

contd.

```
      FOR k := 0 TO 7 DO
        IF pr = FALSE THEN
          WRITE(segname[j,k])
        ELSE
          WRITE(Epson,segname[j,k]);
      IF pr = FALSE THEN
        WRITE(stbl:8,enbl:9,enby:7,tbyte:10)
      ELSE
        WRITE(Epson,stbl:8,enbl:9,enby:7,tbyte:10);
      WITH seginfo[j] DO
        IF pr = FALSE THEN
          WRITE(segnum:8,mtype:6,version:6)
        ELSE
          WRITE(Epson,segnum:8,mtype:6,version:6);
      IF pr = FALSE THEN
        WRITELN(ORD(segkind[j]):6,textaddr[j]:6)
      ELSE
        WRITELN(Epson,ORD(segkind[j]):6,textaddr[j]:6)
    END  (*for j*)
  END; (*Putoutdir*)

BEGIN (* Blockzero *)
  Initseg;
  Initloc;
  Center('Type <Y> to send segment info to printer. ');
  Checkprint(pr);
  Putoutdir;
  IF pr THEN CLOSE(Epson);
  Center('Type <Y> to send procedure analysis to printer.  ');
  Checkprint(pr)
END; (*Blockzero*)

SEGMENT PROCEDURE Analyze(VAR starloc,endloc,offset:locarray;
                          VAR HR:header;pr:BOOLEAN);
  (* Calculate and output the offset, location, and *)
  (* length of each procedure in each segment *)
  (* HR and pr used globally *)
CONST
  halfblock = 256;
VAR
  j : INTEGER;
PROCEDURE Putoutpb(VAR sbl,sby,ebl,eby,obl,oby, k:INTEGER;
                                    lvl,kind:CHAR);
  (* output values to screen or printer *)
  (* VAR parameters NOT changed by Putoutpb *)
VAR
  prolen : INTEGER;
BEGIN
  prolen := (ebl - sbl) * blocksize + (eby - sby) + 1;   (*num = diff + 1*)
  IF pr = FALSE THEN  (*screen*)
  BEGIN
  IF obl <> 0 THEN
    WRITE(k:6,'...',obl:5,oby:6)
  ELSE
    WRITE(k:6,'...   -',obl,oby:6);  (*formatting gimmick*)
  WRITE(sbl:9,sby:6);
  WRITE(ebl:9,eby:6);
  WRITELN(prolen:9,lvl:9,kind:7)
  END
  ELSE                (*printer*)
  BEGIN
    IF obl <> 0 THEN
      WRITE(Epson,k:6,'...',obl:5,oby:6)
    ELSE
      WRITE(Epson,k:6,'...   -',obl,oby:6);
    WRITE(Epson,sbl:9,sby:6);
    WRITE(Epson,ebl:9,eby:6);
    WRITELN(Epson,prolen:9,lvl:9,kind:7)
  END
END; (*Putoutpb*)
```

```
PROCEDURE Starfix(VAR sbl,sby,ebl,eby:INTEGER);
  (* ASCII values sbl ,sby are returned as INTEGERS *)
  (* ebl & eby remain unchanged *)
VAR
  total : INTEGER;
BEGIN
  total := sbl*halfblock + sby + 3;   (* +3 is correction for offset *)
  sbl := ebl - (total DIV blocksize);
  sby := total MOD blocksize;
  IF sby <= eby THEN          (* proc. begins in same block *)
    sby := eby - sby
  ELSE                        (* it begins in previous block *)
  BEGIN
    sby := blocksize - (sby - eby);
    sbl := sbl - 1
  END
END; (* Starfix *)

PROCEDURE Fix (VAR ebl,eby,ofbl,ofby,k,stbl,tbyte:INTEGER);
  (* ASCII values ebl, eby returned as INTEGERS *)
  (* also returns offset ofbl,ofby. *)
  (* k, stbl, tbyte remain unchanged *)
CONST
  fudge = 21396;   (* fudge term for forward offset procedures *)
VAR
  total,temp : INTEGER;
  ltotal,ltemp,lsbl : INTEGER[8];
BEGIN
  IF (ebl < 128) AND (endloc[1,0] < 64) THEN     (*values < MAXINT*)
  BEGIN
    total := -(ebl * halfblock + eby);
    temp := tbyte + total - 2*k;
    IF temp >= 0 THEN
      temp := temp + stbl*blocksize
    ELSE                                  (* forward offset *)
    BEGIN            (* got fudge by counting bytes - can't explain it *)
      total := fudge + total;
      temp := temp + fudge + stbl*blocksize
    END;
    ebl := temp DIV blocksize;
    eby := temp MOD blocksize;
    ofbl := total DIV blocksize;
    ofby := total MOD blocksize
  END
  ELSE               (* ebl,eby & stbl must be promoted to LONGINT *)
  BEGIN
    ltotal := ebl; ltemp := oby; lsbl := stbl;
    ltotal := -(ltotal * halfblock + ltemp);
    ltemp := tbyte + ltotal - 2*k;
    If ltemp >= 0 THEN
      ltemp := ltemp + lsbl*blocksize
    ELSE                                 (* forward offset *)
    BEGIN
      ltotal := fudge + ltotal;
      ltemp := ltemp + fudge + lsbl*blocksize
    END;
    ebl := TRUNC(ltemp DIV blocksize);
    eby := TRUNC(ltemp - blocksize * (ltemp DIV blocksize));  (*MOD*)
    ofbl := TRUNC(ltotal DIV blocksize);
    ofby := TRUNC(ltotal - blocksize * (ltotal DIV blocksize));
    IF ofby < 0 THEN ofby := - ofby
  END                (* the "-" used to produce MOD results i.e. + *)
END;  (*Fix*)

PROCEDURE Putoutpa(VAR sbl,sby,ebl,eby,obl,oby:INTEGER);
  (* put procedure heading on screen or printer*)
  (* VAR parameters NOT changed *)
BEGIN
  IF pr = FALSE THEN      (*screen*)
  BEGIN
```

contd.

```
    WRITELN('Seg#':10,oby:3,'# of Procedures':20,obl:3);
    WRITE('      Start block',sbl:5,'     Last block/byte');
    WRITELN(ebl:4,eby:4,'    total bytes ',sby);
    WRITELN;
    WRITE('  proc#      offset       proc start    ');
    WRITELN('   proc end     length    prog.   code');
    WRITE('            blks bytes     block byte  ');
    WRITELN('   block byte    bytes     level   type');
  END
  ELSE                    (*printer*)
  BEGIN
    WRITELN(Epson,'Seg#':10,oby:3,'# of Procedures':20,obl:3);
    WRITE(Epson,'      Start block',sbl:5,'     Last block/byte');
    WRITELN(Epson,ebl:4,eby:4,'    total bytes ',sby);
    WRITELN(Epson);
    WRITE(Epson,'  proc#      offset       proc start    ');
    WRITELN(Epson,'   proc end     length    prog.   code');
    WRITE(Epson,'            blks bytes     block byte  ');
    WRITELN(Epson,'   block byte    bytes     level   type');
  END
END; (*Putoutpa*)

PROCEDURE Fixnout(VAR starloc,endloc,offset:locarray);
  (* Driver for Fix, Starfix, Putoutpa, and Putoutpb *)

VAR stbl,enbl,enby,tbyte,k,count,dummy : INTEGER;
    level,kind : CHAR;
    block : PACKED ARRAY[1..512] OF CHAR;
BEGIN
  stbl := starloc[1,0]; tbyte := starloc[2,0];  (*retrieve values from*)
  count := offset[1,0];                         (* arrays *)
  Putoutpa(stbl,tbyte,endloc[1,0],endloc[2,0],count,offset[2,0]);
  FOR k := 1 TO count DO
  BEGIN
    Fix(endloc[1,k],endloc[2,k],offset[1,k],offset[2,k],k,stbl,tbyte);
    IF endloc[2,k] = 0 THEN
    BEGIN                          (*correct for the pathological case*)
      endloc[2,k] := blocksize;
      endloc[1,k] := endloc[1,k] - 1
    END;
                          (* find starting block/byte and put in starloc *)
    enbl := endloc[1,k];  enby := endloc[2,k];
    dummy := BLOCKREAD(H,block,1,enbl);
    dummy := ORD(block[enby]);
    IF dummy < 10 THEN level := CHR(dummy+48)      (*number to digit*)
    ELSE level := '?';
    dummy := ORD(block[enby-1]);  (*Apple Pascal: proc# or 0 is put here*)
    IF dummy  = 0 THEN kind := 'a'
    ELSE IF dummy = k THEN kind := 'p'
    ELSE kind := '?';                 (*code type: 6502 (a), p-code (p)*)
    IF enby >= 4 THEN        (*offset to proc. start is in present block*)
    BEGIN
      starloc[1,k] := ORD(block[enby-2]);
      starloc[2,k] := ORD(block[enby-3])
    END
    ELSE                        (* last 2 bytes of previous block have data*)
    BEGIN
      dummy := BLOCKREAD(H,block,1,enbl-1);
      starloc[1,k] := ORD(block[blocksize]);
      starloc[2,k] := ORD(block[blocksize-1])
    END;
    Starfix(starloc[1,k],starloc[2,k],enbl,enby);
    Putoutpb(starloc[1,k],starloc[2,k],enbl,enby,
             offset[1,k],offset[2,k],k,level,kind)
  END (* for k *)
END; (* Fixnout *)
```



```
PROCEDURE Getoffs(VAR endloc,offset:locarray; j:INTEGER);
  (* get/store segment parameters in [1,0] [2,0], output name, get offsets*)

VAR
  stbl,enbl,enby,tbyte : INTEGER;
  k,count,dummy,bytesleft : INTEGER;
  block : PACKED ARRAY[1..512] OF CHAR;
BEGIN
  WITH HR.diskinfo[j] DO
  BEGIN
    stbl := codeaddr;
    tbyte := codeleng
  END;
  enbl := stbl + (tbyte DIV blocksize);
  enby := tbyte MOD blocksize;
  IF enby = 0 THEN
  BEGIN                          (* pathological case correction*)
    enby := blocksize;
    enbl := enbl - 1
  END;
  starloc[1,0] := stbl;
  starloc[2,0] := tbyte;       (* NOTE: values stored in arrays  *)
  endloc[1,0] := enbl;         (* are passed to other procedures *)
  endloc[2,0] := enby;
  IF enbl > 0 THEN             (* there is a segment to process *)
  BEGIN
    IF pr = FALSE THEN         (* send procedure name to screen *)
    BEGIN
      WRITELN; WRITELN;
      FOR k := 0 TO 7 DO
        WRITE(HR.segname[j,k])
    END
    ELSE                       (* send procedure name to printer *)
    BEGIN
      WRITELN(Epson); WRITELN(Epson);
      FOR k := 0 TO 7 DO
        WRITE(Epson,HR.segname[j,k])
    END;
            (* The BLOCKREAD return value (dummy) is ignored. *)
            (* Pray for all good blocks *)

    enbl := endloc[1,0]; enby := endloc[2,0];
    dummy := BLOCKREAD(H,block,1,enbl);     (* NOTE: values stored in offset*)
    offset[1,0] := ORD(block[enby]);        (* #of procedures in segment*)
    offset[2,0] := ORD(block[enby-1]);      (* segment number *)
    bytesleft:= enby - (2 * offset[1,0]) ;
    IF bytesleft < 0 THEN  bytesleft := 2; (* offsets in previous block*)
    count := 0;

    FOR k := enby - 2 DOWNTO bytesleft DO  (*get offsets in present block*)
    BEGIN
      count := count + 1;
      endloc[1,count] := ORD(block[k]);
      endloc[2,count] := ORD(block[k-1]);
      k := k - 1
    END;
    IF count < offset[1,0] THEN     (* read previous block for offsets*)
    BEGIN
      dummy := BLOCKREAD(H,block,1,enbl-1);
      dummy := blocksize - (offset[1,0] - count)*2;
      FOR k := blocksize DOWNTO dummy+2 DO       (*get offsets remaining *)
      BEGIN                                      (*in previous block *)
        count := count + 1;
        endloc[1,count] := ORD(block[k]);
        endloc[2,count] := ORD(block[k-1]);
        k := k - 1
      END
    END  (*if count*)
  END (* if enbl>0 *)
END; (*Getoffs*)
```

contd. on pg 41

STOCKSIG NEWS
by Marvin Hass

****

STOCKSIG OCTOBER MEETING
THURSDAY, OCTOBER 11, 1984 8:00 P.M.
SPEAKER: Thomas A. Rorro,
author of the new book,
"Assessing Risk on Wall Street"

****

The August 14 meeting of the STOCKSIG consisted of a discussion of the Elliott Wave Principle by Marvin Hass, along with mention of books relating to computerized investing. The following books may be of interest to those concerned with this approach.

1. "Automating Your Investment Portfolio" by D. R. Woodwell. 254pp. Dow Jones-Irwin, 1983. $19.95. This book reviews some of the elementary concepts of the use of microcomputers in investing and money management. It provides a useful compilation of the most popular types of investment software along with sample printouts. It does not go into details of fundamental or technical analysis.

2. "Your Personal Computer Can Make You Rich in Stocks and Commodities" by C.M. Arnold. 310 pp. Weiss Research, Inc. 2000 Palm Beach Lakes Blvd., Suite 200, West Palm Beach, Florida 33409, 1984. $34.95. This book has received some laudatory comments from various experts. Although the title can turn people off, this is a serious volume containing a very good description of technical analysis and technical indicators. Program listings in Applesoft are given and are also available (for $49.95) on disk.

3. "Assessing Risk on Wall Street" by T. A. Rorro. 202 pp. Sobaro Publishing Company, 7855 Colonial Village Row, Annandale, VA 22003, 1984. $17.95. The author of this book will discuss the concepts at the October STOCKSIG meeting. It attempts to deal with the risk/reward relationships of various investment vehicles such as stocks, convertible bonds, and options. The author has implemented this approach using a microcomputer, although this is not treated in the book.

4. "Elliott Wave Principle" by A. J. Frost and R. R. Prechter, Jr. 189 pp. New Classics Library, P. O. Box 1618, Gainesville, GA 30505, 1981. $21.00. The July 16, 1984 issue of BARRON'S indicated that certain aspects of the Elliott wave principle either fascinate or repel investors. However, there is no question that the stock market, gold, and interest rate predictions of Robert Prechter, editor of the Elliott Wave Theorist newsletter have been remarkably accurate during the past few years. The Elliott Wave Principle is based upon the empirical observation that bull markets involve a five wave movement with three up and two corrective down trends, with a small number of cataloged variations. Bear markets involve the inverse with three down waves and two corective up waves. The time and amplitude variations along with some other characteristics can sometimes be predicted with the aid of Fibonacci numbers, although this might seem to be numerical mysticism. Most followers of this approach tend to rely upon Robert Prechter's insights, which also incorporate cyclical and other factors into the analysis.

The September 13 meeting of STOCKSIG will feature WAP member Dr. Ronald M. Brown who will demonstrate his own programs (including color graphics) on stock selection using fundamental analysis. A brief discussion will appear in a future issue.

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ADVANCED PASCAL: A Book Review by Robert C. Platt

(Advanced Pascal: Programming Techniques by Paul A. Sand. Osborne/McGraw Hill, 370 pp. $19.95)

With the book market crowded by so many introductory programming texts, it's refreshing to see a book for an "advanced" reader: someone who knows the fundamentals, but is still struggling to put the pieces together.

Paul A. Sand addresses this audience deftly. This is not surprising, for Paul knows both Pascal and this audience well. Until Paul's departure from the DC area, he was an active member of the WAP and its Pascal Interest Group, and many of his sample programs grew out of his interactions with the PIG. (You can still find some of them on our PIG disks.)

Paul's examples are Apple-Pascal based (although he includes instructions on converting them into "standard Pascal.") He covers the trickier aspects of input/output under the Apple Pascal operating system and includes examples that use Turtlegraphics. Even without the sample programs, the "software tools" and minor routines make the book worthwhile.

But the sample programs! Paul offers a tour de force through a maze game, Orthello, a desk calculator, a text file formatted print program, a graphic simulation of the effects of gravity on planetary orbits, and even a Pascal-based spreadsheet program! In the process, the book covers all major programming techniques including disk files, data conversion, dynamic memory allocation, link lists and high-precision arthmetic with user defined data formats.

Paul Sand writes well. His style is easy to follow and this presentation is paced so as to avoid boring even the most experienced reader. I highly recommend his book as the second book to read about Pascal.

p-Source: A Book Review by Robert C. Platt

("p-Source: a Guide to the Apple Pascal System" by Randall Hyde, Reston Publishing Company 462 pp. $24.95)

Did you ever wonder about how the inner workings of an operating system or compiler functioned? Well, p-Source by Randy Hyde unveils some of the mystery surrounding the operation of the Apple Pascal p-System. Not only does it describe the system, but the book offers useful hints on writing more efficient code. The book also includes suggested patches to improve the operation of the p-System.

The p-System originated at the University of California San Diego. Kenneth Bowles, a professor there, determined that if a user-friendly operating system was developed for a hypothetical computer, it could be transported to a number of different models of microcomputers. The hypothetical computer was called a p-machine, and machine language programs for the p-machine are written in "p-code." Bowles wrote "interpreter" programs to make a variety of machines, including the Apple, execute p-code programs. In this way, only one program had to be written on each make of microcomputer, because once the microcomputer could execute p-code programs, it could run the p-system and all of its compilers that are written in p-code.

Hyde explains each p-code, and shows what p-codes are generated from each type of Pascal source statement. Hyde then demonstrates why some programs will run more efficiently than others based upon an analysis of the p-codes generated by the compiler. Hyde includes a 40 page analysis of the different machine language routines that he disassembled from version 1.1 of the Apple Pascal p-system. (Note that this analysis does not apply to the recently released version 1.2.) Hyde's final chapter suggests patches to improve the interpreter.

The appendix to the book is the documentation for the ATTACH utility found on WAP disk PIG0:. (The documentation is also included verbatim on PIG0:) The ATTACH routine will allow non-standard input/output devices to work under Apple Pascal.

p-Source is an excellent book. Hyde writes well. Although p-Source is not for the novice, I recommend it for anyone intending to do extensive Pascal programming on the Apple][.

PI SIG NEWS by Raymond Hobbs

The new meeting time for PI SIG is the second Monday evening of every month at 8:00 PM. We will be meeting at the WAP office on Woodmont Avenue.

Current topics under discussion at PI SIG are:

Computer-generated music;
Macintosh internals;
IBM-PC interfacing.

We welcome additions to this topic list!

At the conclusion of our topical discussion each month, we have an open Q&A forum. If you have a nagging question, why not bring it to PI SIG?

For those of you who are new, or have taken the summer off in Rio or somewhere else, you may not have heard of the new PI SIG. The name stands for "Program Interface" SIG, and our emphasis is on problem-resource matching. We use all languages, most microcomputers, and a lot of areas of interest. While most of us are Assembly Language programmers, we have quite a few members who primarily use PASCAL, BASIC, FORTH, C and even a few antiquarians who use COBOL and FORTRAN!

A new project which PI SIG is undertaking is to compare diskettes. This project will involve actually taking diskettes apart to examine the surfaces. In order to complete this project, we would like to have some samples of every brand of diskette used by WAP members. If you would like to participate, or have an old (perhaps crashed) diskette which you would like to donate for a worthy cause, please call Mike Vore at 992-4953, evenings.

For more information about PI SIG, call Raymond Hobbs at 490-7484, evenings.

TURNKEY FORTH PROGRAM

by Chester H. Page

There are many programs for which it would be convenient to boot the disk, press RETURN, and be in operation. For example, a word-processing program which would immediately be ready to accept text. In some languages, this type of autostart is straightforward; in FORTH, the procedure is not obvious.

In FORTH, the final operation after booting is to set up an infinite loop which looks for keyboard commands (and executes them). The normal situation is to boot and then enter START, or whatever the name of the starting command happens to be. The object of this investigation is to use a RETURN press to activate START.

My first attempt (with a word-processor program) was to insert a detour at the end of the initial screen legend display, by inserting a call to START. This worked fine as long as only pre-determined commands were required, i.e., while entering text. When the first keyboard command was needed, e.g., to change justification mode or line spacing, the program would not respond exactly as expected - it hadn't been "told" how to handle keyboard input.

After many false starts, I finally found a procedure that works properly. The inner interpreter loop is established by QUIT, normally the last word in both cold- and warm-starts. The interpreter loop is roughly " BEGIN QUERY INTERPRET AGAIN ". The trick is to effectively insert a flag test and response between QUERY and INTERPRET, so that when QUERY obtains a command from the keyboard, the test and response are made.

For the time being, assume that on a cold start the initilization flag contains a "true" (1) and on a warm start, a "false" (0). We plan to replace QUERY with NEWQUERY. QUERY is given by

```
: QUERY TIB @ 80 EXPECT 0 IN ! ;
```

and its replacement will be

```
: NEWQUERY TIB @ 80 EXPECT 0 IN ! INITFL C@ IF 0
  INITFL C! START ENDIF ;
```

(Note that this is DECIMAL 80 - HEX will cause trouble!)

The location at which QUIT issues the call to QUERY is found by first learning how to recognize it:

```
HEX ' QUERY CFA .
```

gives the address which is called. Then ' QUIT . gives us an address where we start our (visual) search of the machine code. (Enter the monitor by -151 CALL or other appropriate command.) Listing machine code starting at the QUIT address quickly reveals the call to QUERY. For example, if we denote the code field address (CFA) of QUERY by N1, and find N1 in the listing of QUIT at N2, then we make the substitution by

```
' NEWQUERY CFA N2 !
```

The remaining change is to modify HEADER, which prints the opening legend to prevent it from resetting INITFL as it normally does. Decompiling HEADER shows that it ends with

```
0 INITFL C! ;S
```

The easiest way of finding the end of HEADER is to find the beginning of the next word in VLIST, namely, DOCALL. All that is needed is to move the call to ;S up to the address where the 0 is called. The call to ;S is readily identified by looking at / ;S CFA. With these patches we now have a system that needs only booting plus <RETURN> as the first command to be up and running, yet performs a normal warm-start.

When these changes are made by an added screen at the end of a program, and ADDNEW used to permanently include them, there are no unexpected problems. But doing all this from the keyboard leaves the added words unprotected, even if you move FENCE, because a cold start sets FENCE and LATEST from boot-up values in the $800 page. This wipes out NEWQUERY and makes the program crash. The way around this is to use ADDNEW to store the values of HERE and LATEST in the proper places in $800 page.

DEMONSTRATION PROGRAM

Boot a system disk.
Enter

```
: START ." DEMO" CR ;
: NEWQUERY TIB @ 80 EXPECT 0 IN ! INITFL C@ IF 0
  INTFL C! START ENDIF ;
: ADDNEW LATEST 12 +ORIGIN ! HERE 28 +ORIGIN ! HERE
  30 +ORIGIN ! VOC-LINK @ 32 +ORIGIN ! HERE FENCE !;
' NEWQUERY CFA ' QUIT 12 + !

SROM
1CDB:95 0B (This address depends upon the system)

RESET
```

From now on, COLD<CR> followed by <CR> after the header is displayed will print "DEMO", whereas a warm start, as by RESET, will give the usual short display.

Codemap contd. from pg 38

```
BEGIN (*analyze*)
  RESET(H,HR.finame);
  FOR j := 0 TO 15 DO
  BEGIN
    Getoffs(endloc,offset,j);
    IF endloc[1,0] > 0 THEN
            (*there's a segment to process*)
      Fixnout(starloc,endloc,offset)
  END;
  CLOSE(H);
  IF pr THEN CLOSE(Epson)
END; (*analyze*)

BEGIN  (* MAIN PROGRAM *)
  Blockzero(starloc,endloc,offset,head,print);
  Analyze(starloc,endloc,offset,head,print)
END.
```

VIEWS & REVIEWS : Three Multiplans

by Raymond Hobbs

Views and Reviews is going to be a regular (semi-regular?) feature of the WAP Journal. Software for both the Apple and the Macintosh will be given the once-over here. My thanks to all of the 28 people who volunteered to assist in reviewing products. I will try to distribute items for review such that everyone has an ample opportunity to get involved.

Our first sampler is concerned with Multiplan, a spreadsheet program by Microsoft. We are fortunate in that we had copies for native Apple, Apple CP/M and Macintosh to review simultaneously. Mike Vore and Grant Ellsworth assisted in the preparation of these reviews.

MULTIPLAN.

Microsoft's Multiplan is a spreadsheet program, similar to VisiCalc. I won't bother to go into the functions of spreadsheet programs, since we all should be (more or less) familiar with them. If you are not sure of what spreadsheet packages do, ask virtually anybody at your next WAP or SIG meeting, and the odds are pretty good that they'll tell you in a few thousand words or more.

Multiplan works pretty much the same, whether you are using native Apple, Apple CP/M or Macintosh, so I'm going to lump the bulk of the review into talking about how Multiplan works in general. Later on, I'll score the differences between versions. Also, I'm going to use two benchmarks for the review, VisiCalc (originally by Software Arts, distributed by Personal Software and now by VisiCorp) and Lotus 1-2-3, by Lotus Development. Throughout the review, I'll refer to Multiplan, Visicalc and Lotus 1-2-3 as "Mplan", "Vcalc" and "1-2-3" to save both WAP Journal space and my fingers.

There are few products that have affected an industry as much as Vcalc. It was the first commercially available micro-spreadsheet, and it changed the way a lot of business was done. The standard microcomputer setup runs a word processor, a database of some sort, and a spreadsheet. Therefore, it is fitting that the original spreadsheet (Vcalc) be used as one of our benchmarks. The other benchmark I have selected is 1-2-3, since it represents the Cadillac of spreadsheet programs. Since 1-2-3 requires a raftload of memory to work properly, we Apple owners can't put it on our machines at present. The product will be available for the 512K Macintosh in the future, however.

Here are the basic statistics:

1) Computer used for testing:
   Vcalc --- Apple][+, 64K, 80-col.
   Apple Mplan --- Apple][+, 64K, 80-col.
   CP/M Mplan --- Apple][+, 56K CP/M
   Macintosh Mplan --- Macintosh, 128K, 2 disks
   1-2-3 --- IBM-PC, 640K

2) Usable memory for spreadsheet:
   Vcalc --- 32K
   Apple Mplan --- 21K
   CP/M Mplan --- 9K
   Macintosh Mplan --- ???
   1-2-3 ---500K

3) Cells available for spreadsheet:
   Vcalc --- 256 x 58 = 14,848
   Mplan --- 256 x 63 = 16,128
   1-2-3 ---2048 x 230 = 471,040

4) File transfer from other spreadsheet?
   Vcalc --- no
   Mplan --- from Vcalc
   1-2-3 --- no

5) Cell range name?
   Vcalc --- no
   Mplan --- yes
   1-2-3 --- yes

6) Copy-protected?
   Vcalc --- yes
   Mplan --- yes, except for CP/M
   1-2-3 --- yes

7) Programmable?
   Vcalc --- no
   Mplan --- no
   1-2-3 --- yes

8) Graphing capabilities?
   Vcalc --- no
   Mplan --- no
   1-2-3 --- yes

STARTUP (Native Apple and CP/M versions only)

After loading the boot disk (the native Apple version is protected, but with the ability to clone itself ONCE; the CP/M version is unprotected), you are taken through a setup program to configure your disk to your system. The CP/M version tends to run you through the same process as the Microsoft CP/M Operating System itself does - apparently Microsoft still believes that everyone has either a Hazeltine or Televideo terminal - and it may be a struggle to get the screen to react the way you want it to. After this is done, the user may go on to the system disk to get the program up and running. Both CP/M and native Apple system disks are unprotected.

The onscreen command menu is across the bottom with no overhead space used at the top. Even with Mplan's menu on the screen, it displays one more row than Vcalc, and is the same as 1-2-3. The menu is in plain English, with no abbreviations to remember. After each selection the option menu appears, also in English. 1-2-3 does this a little better, with the options appearing before you select, rather than after. Mplan tries to guess your choice and suggests the proper entry for menu options - it is usually very close to right - but you can override its suggestion easily, by simply typing in your choice. When the help file is brought up with a "?", the proper help screen is displayed - a nice feature, and one of the selling features of 1-2-3.

The cursor and editing movement is done with control characters on the][+ and open/closed apples and arrows on the //e. 1-2-3 uses the 4 arrow keys for this. Vcalc uses the arrows in combination with the space bar, which takes a bit more getting used to (but keep in mind that I'm using Vcalc distributed through Personal Software, so it's an old one!).

contd.

CELL REFERENCES

Now on to the spreadsheet itself. Cells can be referenced absolutely, e.g., R3C10, meaning row 3, column 10. Vcalc's letter/number arrangement mirrors the 1-2-3 grid in this respect and is, for me, a lot easier to use. Cells can also take on a relative reference, such as R[-2]C[+5], meaning up 2 rows and to the right 5 columns. 1-2-3 defaults to relative, which I find easier, since I use this mode more. Vcalc gives you a menu choice for absolute or relative. Like 1-2-3, Mplan allows you to mix relative and absolute references within a cell reference. Mplan also allows you to name a cell or a range of cells, like 1-2-3. This has a decided advantage in that long calculations can be formulated in a more readable fashion. For example, after naming cell R3C4 as "sales" and R4C4 as "cost", you would define R5C4 as "sales-cost" and name it "profit". Mplan will find the reference to the proper cell locations.

ONSCREEN FORMATTING:

"Windowing" has become a computer buzzword lately and Microsoft seems to be leading the pack in implementing that facility into all of its packages. However, the split-screen windowing was present in early Vcalc days: with Vcalc you can split the spreadsheet window either vertically or horizontally. This capability is quite extended in Mplan, which allows you to have up to 8 spreadsheet windows open simultaneously. Nevertheless, more than 3 or 4 windows on an 80-column screen is rather impractical from the standpoint of information displayed.

Column width can also be altered in all of the spreadsheet packages. This is quite handy when adding labels to the spreadsheet, but Vcalc sets the column width globally, while Mplan and 1-2-3 allow it to be done to individual columns.

DOCUMENTATION:

The Mplan documentation is first-rate. In my opinion, it is even better than 1-2-3's, which is saying a lot. The 420-page looseleaf manual includes a sample application, which is used throughout the book. The only shortcoming is the rather brief explanations given to the functions. The newcomer to spreadsheets might become a bit befuddled in this area. Also, the "aftermarket" books are not as plentiful for Mplan as they are for Vcalc or 1-2-3.

MACINTOSH DIFFERENCES:

The major differences in the Macintosh version of Mplan and the native Apple and CP/M versions is in the user interface. Microsoft has used the Macintosh mouse interface quite well, with mouse pointing for cell and cell range identification and insertion of values or text. The full range of menus is available from the Mac Multiplan, including an onscreen Format menu, which contains the functions for setting alignment and type of display (dollars, percents, general) for values. Although the mouse interface always has the potential for getting in the way of using the program, Microsoft's package carries it off unobtrusively, and if that isn't enough, most mouse commands have keyboard counterparts which employ the command and shift keys (along with a number or letter key, of course). One notable omission to the Mac Mplan is the ability to delete files from within the application - if you have an old worksheet hanging around and you want to get rid of it, you must trash it from the Finder menu. This could cause you grief if you get stuck with a large application worksheet and not enough room on the disk to store it. However, keep in mind that half of that problem lies with the Mac itself, rather than with Mplan. Another minor irritation is that the Mac Mplan window only displays 14 rows and 6 columns in default mode. This allows 84 cells to be visible on the screen. The other versions of Mplan display 20 rows and 7 columns (140 cells), as does 1-2-3. Also, the Mac Mplan split screen, which can be effected vertically and horizontally once, cannot be scrolled independently for all four screen areas. That is, both upper quadrants will display the same rows, as will both lower quadrants, and both left quadrants will display the same columns, as will both right quadrants. This means that only the diagonally opposite quadrants can display totally different spreadsheet areas.

SPEED:

I did not conduct recalculation speed tests on the various spreadsheets, since too much depends upon application of the worksheet. However, to give you an idea of the range of difference available, and in a totally unfair test, I re-ran my income tax return calculations, after setting up the three Mplans and Vcalc (I calculate income tax on 1-2-3 normally). After setting up, running and printing the spreadsheets, I came to the following conclusions:

1) Mplan and Vcalc in native Apple mode run very much the same;

2) Mplan CP/M and Mplan on the Mac are memory-poor, but files can be linked together to form very large spreadsheets (if you spend the time to do it;

3) 1-2-3 is in a different league, both with respect to speed and to size.

PERSONAL:

I experienced problems with Mplan in two areas. The first was when I discovered that the 2-disk package contained two copies of the system disk instead of a system and an installation disk. When I called Microsoft about it, they promised speedy action on replacing the errant installation disk, but in the end it took two phone calls and a letter to get the action started. In defense of Microsoft, I must say that they are currently reorganizing consumer support services, and as we all know, during reorganizations some foul-ups do occur. Also, when the support finally came around, it came quickly and in quantity - I received no less than four phone calls from Microsoft to check into my problem and to effect its resolution, and the replacement disks arrived within 48 hours of the first call. The second problem was probably mainly with me. I never saved a printout of my original CP/M install parameter list, and so I had some amount of trouble getting a good installation on Mplan. As I say, a lot of that problem is with me, but I still think that Microsoft should have a preset installation for a Videx Videoterm, since it is rather common on Apple][']s.

OVERALL RATING:

Package:	Documentation:	Ease of Use:	Other:
Apple Mplan	A	B	C-
CP/M Mplan	A	B	C-
Mac Mplan	B	A-	C+

QUICK RECOVERY FROM WORD STAR BDOS ERROR

by L. Benner

Does your heart sink when you see that "BDOS ERROR ON B:" message after you have been typing away on a Word Star file? Relax - here's a quick recovery that works with the Microsoft CP/M card and DDT utility installed in an Apple][+ with two drives. Elapsed time: about two minutes.

Step 1. When the BDOS ERROR 1/2 prompt appears, replace the WS disk in drive A: with a CP/M system disk that has DDT on it.

Step 2. Enter A:DDT. See - prompt.

Step 3. Find the beginning and end of your WS file in memory by entering D return, and keep entering D return to scroll the screen until you see the beginning of your WS file on the right end of a row.

Step 4. When you see it, write down the 4 digit hex number you see in the left end of the line in which you see the beginning of your file on the right end of the line.

Example:

84A0 00 0A 00 00 00 00 00 C1 D5 C7 A0 AE B1 B9 ....
aug,.8..19 (Write down 84A0)

Step 5. Enter Dxxxx where xxxx is the beginning line number you wrote down in Step 4. You should see the first line with WS text at the beginning of the 12-row blocks on your screen.

Step 6. Keep scrolling with the D return entries, and count the number of 12-row blocks holding your WS file as they flop by on the screen. This is a critical count so make sure it is right. If in doubt, add 1 to your count.

(Note: If you happen to know the approximate number of bytes in your WS file, and you know how to convert the difference between the beginning hex number of your WS file and the ending hex number of the last line containing that file into 256 byte blocks, enter the estimated ending hex line number after the D and that will take you directly to that place in your memory. Keep entering Dxxxx until you spot the last row with WS text in your memory.)

Step 7. Write down the line number of the line below the last line (1111) that holds any of your WS file. Multiply the number of blocks you counted (include the first and last blacks) by 1.33 and write down that number (nb) for use in Step 10.

Step 8. At the - prompt, enter M(xxxx),(1111),100. This will move your WS file to the beginning of your memory for saving in Step 10.

Step 9. At the - prompt, enter Ctrl-C to go back to the > CP/M prompt.

Step 10. Enter B:SAVE (1space) (nb) (1space) WOW.ONE or whatever file name you want to use to save the memory block to your disk. Example command:

B:SAVE 60 WOW.ONE to save a file that had 45 screen blocks.

As soon as the disk stops writing you are ready to run WS again and load your saved file for editing out any extraneous characters that might have been left on the lines you saved. Now, smile again.

Wap T-shirts for Sale

$7.00

Support your club! Buy a WAP T-Shirt. Background color is "Apple" tan - lettering is in green and red. Available at the WAP office or by mail for $7.00 each. If ordering by mail add $1.50 postage and handling per order. State size: Adults Small, Medium or Large; Children's Small, Medium or Large (the sizes run a little on the small side). Send check or money order payable to Washington Apple PI and mail to Washington Apple PI, 8227 Woodmont Avenue, Suite 201, Bethesda MD 20814.

APPLE TECH NOTES

by Richard Langston II

This month, Apple][and Apple /// software will be the topic for Notes.

APPLE WRITER II - SENDING AN ESCAPE CHARACTER TO A PRINTER

Apple Writer II will allow embedding of control characters in the text of a document with the Ctrl-V option. However, it is not obvious how to insert the escape character into the text. The first time escape is pressed after a Ctrl-V, the cursor will change to the "^" character, indicating that the next character will be capitalized. Pressing the escape key again will cause an inverse "]" character to be displayed and the cursor will move to the right. The "]" is the escape character. (NOTE: this is only true if shift key mod is not being used.)

APPLE WRITER II - PRINTING WITH PARALLEL PRINTERS

Apple Writer version 2.0 may not work properly with some parallel interface cards. Often the interface requires a Ctrl-I sequence if it is to print wider than 40 columns. This is easy in Apple Writer II. All that is needed is Ctrl-V, Ctrl-I, Ctrl-V 80N at the start of each file. "80N" will result in 80 column output.

APPLE WRITER ///- FOOTNOTES

Footnotes longer than 132 characters will stop Apple Writer /// and print WL "FOOTNOTE OVERFLOW" error. There is no fix available at this time. (NOTE: this tech note is dated 7 Jul 82!)

When a footnote is inserted in the text, the character immediately following the note is omitted. For example: ...Apple User's Groups (<See answer book>)are good...WILL PRINT: ...Apple User's Groups re... This problem can be worked around by adding a space after the footnote. Also, footnotes do not obey the right margin. (NOTE: these two problems seem to be shared by Apple Writer II.)

QUICK FILE ///- STRING OVERFLOW ERROR

When a file is saved, Quick File /// asks for a date for the file catalog. If eight or more characters are entered, and Quick File /// can't convert them to a valid date, the program will stop with a STRING OVERFLOW ERROR and all the data just entered will be lost.

This is easy to avoid by checking the date that is entered before pressing return. There are examples of what Quick File /// considers to be valid dates on page 41 of the manual. [NOTE: this note is dated 4 Aug 82. If you have an old version with this problem, your dealer should be able to update it for you.]

QUICK FILE ///- LONG LISTS OF NUMBERS

When a Quick File file contains only one field, the Arrange command may not work properly. Quick File may stop with a Pascal runtime error or just not sort the data.

DOS TOOLKIT- GENERATING OUTPUT FILES WITH EDASM

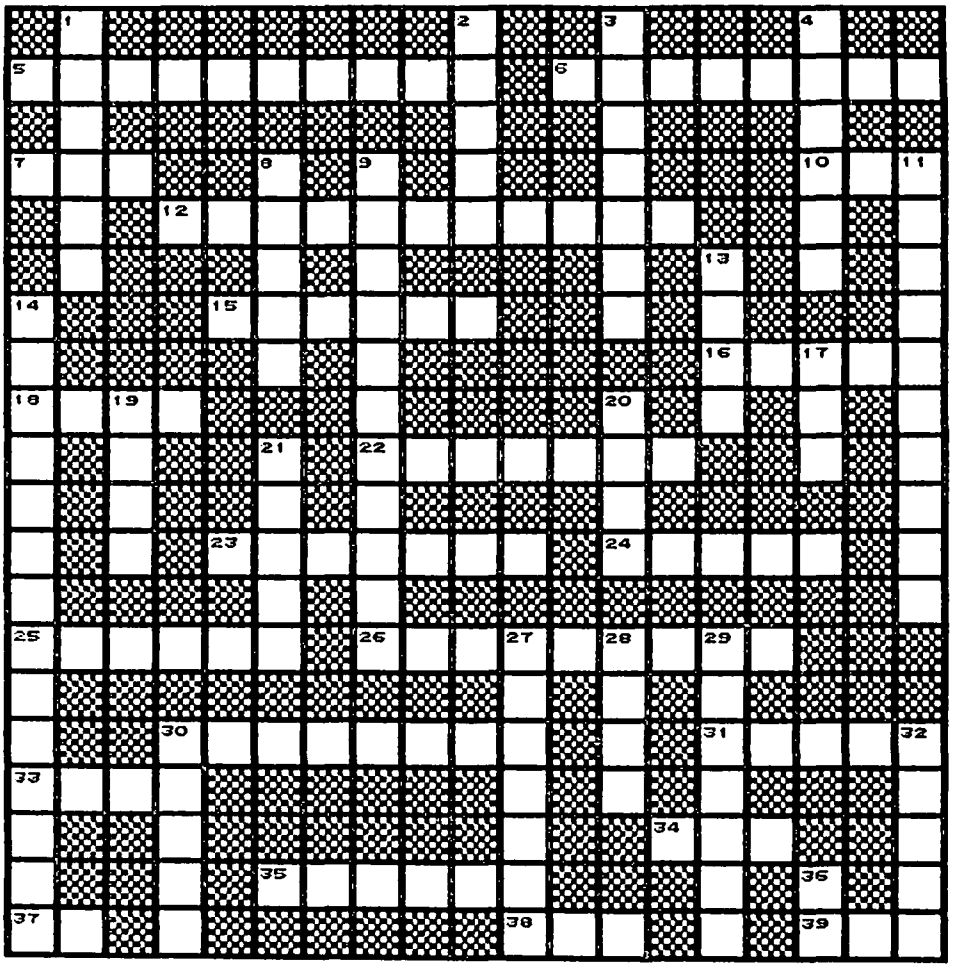
EDASM will assemble a program and send its assembly listing to the screen or printer. However, EDASM will not generate an OBJect file until it encounters an ORIGin command. This is true for relocatable files too. (NOTE: this note also applies to the ProDOS assembler.)

VOLUNTEERS NEEDED FOR PANEL DISCUSSION

We need persons to participate in a panel discussion on graphics packages at a WAP general meeting. If you can help, please contact the office, 654-8060.

CROSSWAP PUZZLE

BY BOB COSGROVE

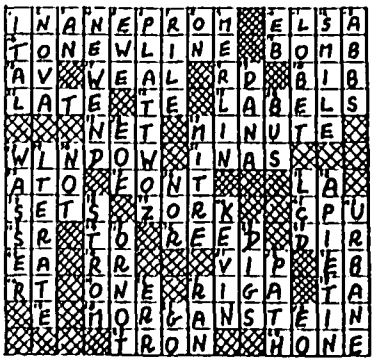


ACROSS CLUES

5. ANTI-APPLE AUTHOR OF "THE PERSONAL COMPUTER BOOK"
6. DISPLAY DEVICES
7. BINARY DIGIT
10. READ-ONLY MEMORY
12. WAP PRESIDENT
15. WAP PUBLIC RELATIONS CHAIRMAN
16. HE LETS YOU DESIGN YOUR OWN PINBALL GAME
18. TO REQUEST THE EXECUTION OF A SUBROUTINE OR FUNCTION
22. PRESIDENT OF APPLE COMPUTER, INC.
23. ASSISTS "MR Q & A" AT WAP MEETINGS
24. ONE OF THRITY-FIVE ON A 3.3 DISK
25. INFORMATION TRANSFERRED FROM A COMPUTER TO AN EXTERNAL DESTINATION
26. IT WILL GET 'FAT' SOON
30. THIS PROGRAM LEGITIMIZED THE APPLE FOR BUSINESS PURPOSES
31. A.P.P.L.E. DOCTOR WE CAN CALL OUR OWN
33. -CONDUCTOR
34. MEMORY IN WHICH THE CONTENTS OF INDIVIDUAL LOCATIONS CAN BE REFERRED TO IN A RANDOM ORDER
35. "THE REFERENCE FOR APPLE COMPUTING", THIS MAGAZINE HAS MANY PROGRAMS TO KEY IN
37. MODULATOR USED TO CONNECT THE APPLE TO A TELEVISION
38. COMMAND TO EXECUTE A PROGRAM
39. ELECTRONIC DEVICE THAT PRODUCES IMAGES ON A SCREEN

DOWN CLUES

1. APPLE'S PRINTER FOR THE IIc
2. WAP MONTHLY MEETINGS ARE HELD HERE
3. HE STARTED IT ALL
4. McLEAN, VIRGINIA INFORMATION SERVICE
8. EDITOR, WAP JOURNAL
9. HE GETS STUFF CHEAPLY FOR WAP MEMBERS
11. BEST-SELLING TYPING PROGRAM
13. "INSANELY GREAT!"
14. THE 6502 IS ONE
17. DISK OPERATING SYSTEM
19. TO TRANSFER INFORMATION FROM A PERIPHERAL STORAGE MEDIUM INTO MAIN MEMORY
20. INFORMATION PRESENTED IN THE FORM OF CHARACTERS READABLE BY HUMANS
21. SIG COORDINATOR
27. GREEN'S APPLE MAGAZINE
28. DISABLED SIG COLUMNIST
29. OFFERED FREE TO NEW APPLE II OWNERS FOR SIX MONTHS
30. COMPANY THAT MAKES "ULTRATERM" CARD
32. ONE OF THE CHARACTERS 0 TO 9, USED TO EXPRESS NUMBERS IN DECIMAL FORM
36. INTEGRATED CIRCUIT



Answer to Last Month's Crossword Puzzle

WASHINGTON APPLE PI DISKETERIA MAIL ORDER FORM
Software for Creative Living

Disks from Washington Apple Pi's Disketeria are available for purchase. This form is only for ordering disks that you want mailed to you.

5 1/4" DISKETTES: - Members $ 5.00 ea.; Non-members $ 8.00 ea. } Plus $1.00 ea. postage
3 1/2" " - Members $ 7.00 ea.; Non-members $ 10.00 ea. } up to a maximum of $5.00.

DOS 3.2
( ) Volume 1 Utilities I
( ) Volume 2 Utilities II
( ) Volume 3 Games I
( ) Volume 4 Games II
( ) Volume 5 Games III
( ) Volume 6 Games IV
( ) Volume 7 Games V
( ) Volume 8 Utilities III
( ) Volume 9 Educational I
( ) Volume 10 Math/Science
( ) Volume 11 Graphics I
( ) Volume 12 Games VI
( ) Volume 13 Games
( ) Volume 14 IAC Utilities IV
( ) Volume 15 Games VII
( ) Volume 16 Utilities V
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( ) Volume 35 Garden Management
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( ) Volume 40 IAC VIII

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( ) Volume 41 IAC 25 Mach. Lang. Util.
( ) Volume 42 One Key DOS ***
( ) Volume 43 IAC 29 Utilities H
( ) Volume 44 Utilities I
( ) Volume 45 Diversi-Copy ***
( ) Volume 70 Business/Math/Statistics
( ) Volume 71 Music
( ) Volume 72 Keyboard Games
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( ) Volume 90 Spreadsheet C Genl. Bus.
( ) Volume 91 Spreadsheet D Investment
( ) Volume 92 Spreadsheet E Bus. Recd.
( ) Volume 93 VisiPlot and VisiTrend
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( ) Volume 101 Utilities B
( ) Volume 102 Games A
( ) Volume 103 Merry Christmas
( ) Volume 104 Business A
( ) Volume 105 FIG-FORTH/Utilities

DOS 3.3 contd.
( ) Volume 106 Science Engineering
( ) Volume 107 Games B
( ) Volume 108 IAC 10 (Graphics)
( ) Volume 109 IAC 11 (Applesoft Tutorial)
( ) Volume 110 Personal/Education
( ) Volume 111 Games C
( ) Volume 112 Utilities C
( ) Volume 113 Business B
( ) Volume 115 IAC 12/13 Misc.
( ) Volume 116 IAC 14 MicromodemII
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( ) Volume 118 Utilities D
( ) Volume 119 IAC 15 Misc.
( ) Volume 120 IAC 16 Misc.
( ) Volume 121 WAPABBS 1.1 Doc. **
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( ) Volume 123 French Vocabulary
( ) Volume 124 Utilities E
( ) Volume 125 IAC 18 Misc.
( ) Volume 126 Sights and Sounds
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( ) Volume 128 Games D
( ) Volume 129 GLAQ
( ) Volume 130 Diversi-DOS ***
( ) Volume 131 Personal/Educ. 2
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( ) Volume 133 IAC 20 - Pascal & DOS 3.3
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( ) Volume 136 WAPABBS 1.1 Disk 2 **
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( ) Volume 139 IAC 24 Education 3
( ) Volume 140 Education 4
( ) Volume 141 Special Data Bases
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( ) Volume 143 Sports
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( ) Volume 145 Apple Logo Tool Kit
( ) Volume 146 Apple Logo Sample Prog.
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( ) Volume 152 IAC 31 Miscellaneous
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( ) Volume 156 IAC 35 Applesoft-AW//e
( ) Volume 157 IAC 36 Arcade Games
( ) Volume 158 Apple Logo Programs

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( )*Volume 184 Zyphur Riverventure
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( )*Volume 186 Death Star
( )*Volume 187 Devil's Tomb
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Eamon contd.
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( )*Volume 194 Quest for Trezore
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( )*Volume 198 Deathtrap
( )*Volume 199 The Black Death
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( )*Volume 201 Black Mountain
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( )*Volume 203 Feast of Carroll
( )*Volume 204 The Master's Dungeon
( )*Volume 205 The Crystal Mountain
( )*Volume 206 The Lost Adventure
( )*Volume 207 The Manxome Foe

Pascal (See also Volume 133)
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( ) Volume 301 PIG1:
( ) Volume 302 PIG2:
( ) Volume 303 PIG3:
( ) Volume 304 PIG4:
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( ) Volume 310 PIG10:
( ) Volume 311 PIG11:
( ) Volume 312 PIG12:
( ) Volume 313 PIG13: Guerilla Guide
( ) Volume 314 PIG14:

CP/M
( ) Volume 401
( ) Volume 402
( ) Volume 403
( ) Volume 404
( ) Volume 405
( ) Volume 406 ZCPR2 Install
( ) Volume 407 ZCPR2 Documentation
( ) Volume 408 ZCPR2 Utilities
( ) Volume 409 Modem 730

Forth (See also Volume 105)
( ) Volume 700 Assembler/Disassembler
( ) Volume 701 Full Screen Editor
( ) Volume 702 GoForth

Macintosh - @$7.00 (see above)
( ) SigMac Disk 1 MS-BASIC Pgms
( ) SigMac Disk 2 Atkinson's Goodies
( ) SigMac Disk 3 Fonts
( ) SigMac Disk 4 MS-BASIC Pgms
( ) SigMac Disk 5 Desk Accessories

* Volume 181 required with these disks. ** Vols. 121, 135, 136 must be purchased together.
*** Use of this disk requires sending money to the author ($30 for Diversi-disks and $9 for One Key Dos.)

(NOTE: ALLOW 3 TO 4 WEEKS FOR MAILING.) Total Order = ___ disks.; postage $____; Total amount enclosed $____

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8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

DATE _____

WAP TUTORIAL REGISTRATION

The following four WAP tutorials are being offered on Tuesday evenings from 7:30 to 9:00 PM, at the office, 8227 Woodmont Avenue, Room 202, 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 detailed outline of the tutorials was given in the September 1984 WAP Journal.

( )	October 2	- INTRODUCTION TO APPLE COMPUTER HARDWARE	( )	November 6
( )	October 9	- HOW TO USE YOUR APPLE SOFTWARE	( )	November 13
( )	October 16	- BEGINNING APPLESOFT BASIC	( )	November 20
( )	October 23	- INTERMEDIATE APPLESOFT BASIC	( )	November 27

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)

Please check the desired tutorials and return this form with fee(s) made payable to Washington Apple Pi, Ltd. to:

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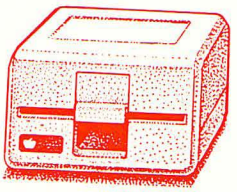

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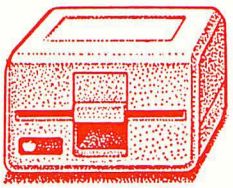

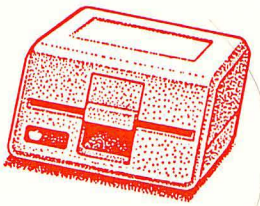

There are many third party drives for the Apple //. Most of them have a low initial price, but are more expensive over the life of the drive because they are not widely serviced or supported. The Apple Disk ///, on the other hand, was built as an improvement over the Disk //. The Disk /// works better and quieter, it looks nicer and it can be serviced by any authorized Apple dealer. A disk controller is also available for $69, if you need one.

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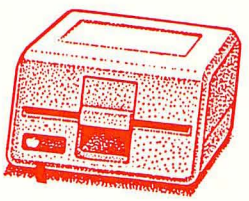

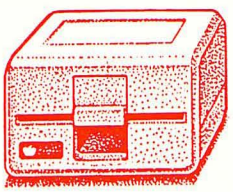

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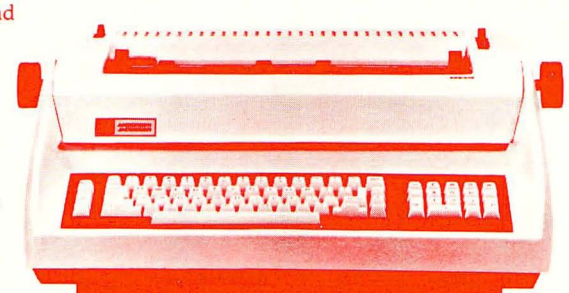

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