

Washington Apple Pi

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The Journal of Washington Apple Pi, Ltd.

Volume 7

June 1985

Number 6

Highlights

The Musical Apple
Mac project: A Review
Digging Into LOGO Part II
Bootstrap Actions Of DOS

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SigMac Lib.	- Tony Anderson	(301) 277-0386		- George Kinal	(202) 546-7270
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*(Evenings 7:00-9:30, M-F)

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EDITORIAL

Of shows and things. "Not another computer faire!", you say. Yes, not one but two. The first on August 21 - 23 and the second in mid-September. The MacWorld Expo which was held in February in San Francisco was, in this writer's view, a definite success - reminiscent of the early West Coast Computer Faires. MacWorld is sponsoring the second Expo, which will be held in Boston. For you Mac and LISA (oops - Max XL) enthusiasts, go see this one. All the latest in hardware and software will be intermingled under one roof, together with the personalities you hear and read about in the Mac publications. All this and Boston, too! While you are there, reserve some time to help out at the WAP booth.

A decision on the second has yet to be made. This one

promises to be quite different - a benefit fund raiser for a permanent home for the microcomputer clubs in the greater Washington DC area. Wouldn't it be nice to obtain permanent access to a facility with ample lecture and exhibit spaces, classrooms, offices, reading library, TV studio, storage facilities and more? All this with ample parking and easy access by parkway and public transportation. But in what way would the faire be different? Chautauqua comes to mind. That is, a continuing series of activities, meetings and events for educational and recreational purposes, blending symbiotically the arts, crafts, and computer sciences. The proceeds from this would be earmarked for site selection and design. As you have already concluded, there is much work involved in all this. Many volunteers will be needed. More on this later... 

PRESIDENT'S CORNER

by David Morgantstein



Garage Sale. The garage sale will be held at USUHS on the fourth Saturday in June. We were unable to find another equally suitable location with as low a rental rate. Joe Fuchs who has run our garage sales for several years is again seeking the assistance of four or five people to help organize the activities. There is a one dollar entrance fee which is used to defer our costs for guards, a requirement for the use of the University facility. If you are bringing something to sell or swap, you may be asked by the guards to log it in at the entrance and put a sticker on it so that they know which material was brought in by our members. An excellent suggestion was put forth at last month's Mac meeting to divide the cafeteria into two areas, one predominantly for Mac related items and the other for Apple // items.

ABBS. The board has approved the establishment of a multi-line ABBS. In order to fund the equipment, estimated at six to seven thousand dollars, there will be a modest fee, most likely in the five to twenty dollar range, to obtain a pass-word. There has been considerable discussion regarding a higher one-time fee versus a much lower annual fee. The arguments for the one-time fee are its simplicity of record-keeping. The annual fee, however, provides an insured on-going source of funding for improvement. We have been looking forward to this capability for some time. We will let you know of the start-up date so that we can begin processing requests for pass-words.

Member Number 7000. By the time you read this, we should know who member number 7000 is.

Questionnaire. The returns on the questionnaire we sent out to about 450 members were quite good. We are tabulating the results and will have a report on what they told us within two months. If you would like to help do the analysis, please give us a call!

Tutorials. There will be no Tuesday evening Apple // tutorials during the summer (July and August), giving our excellent tutors a few months of respite. Marty Milrod is organizing the Mac two-evening tutorial series and presented an excellent course outline at the May SIGMac meeting. Watch the Journal for a proposed trial date for the tutorial.

Where is Apple Headed? Recent events at Apple Cupertino are, to say the least, a bit disconcerting. The lack of Apple // activity, the departure of the Woz, creator of the Apple //, the departure of key Macintosh developers Burrell Smith and Andy Hertzfeld and the withdrawal of their top of the line Macintosh only three months after its illustrious unveiling (or should we say renaming), leave most Apple watchers confused. The Apple // has been for years Apple's bread and butter. They stood firmly in charge of the education market and were leaders in the home computer market. The personal computer market is too volatile to sit on your laurels for long. The Apple //c will shortly be outgunned by the release of under-one-thousand-dollar machines with very high resolution, color displays and operating systems using the Mouse and Icon interface. Perhaps Apple has done their market research and has a plan which will be revealed in time. Speaking for our four thousand Apple // owners, we hope so. Our almost fifteen hundred Macintosh owners wait longingly for the 20 Megabyte hard disk, double sided 800K drives and improved system ROM chips rumored to be in the offing.

Summer Time and the Living is Easy! The summer is usually a time to slow down and do a bit of relaxing. A time when families can vacation together and recharge their batteries. WAP activities will likewise be a bit quieter during the next few months while our many volunteer contributors catch up on the sun tan they started last year. Have a safe vacation! ☺

GENERAL INFORMATION

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

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

Current Office hours are:

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

* Note that the office will probably be closed on Tuesday evenings during the months of July and August. Call before going to the office on those evenings.

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 can be provided for the hearing impaired, but we need 3 or 4 business days notice. Call the office.

Following are dates and topics for upcoming months:

June 22 - Garage Sale
July 27 -

Dates for SigMac are:

June 4 - Programmer's Meeting - Our Lady of Lourdes
June 13 - General Meeting - USUHS

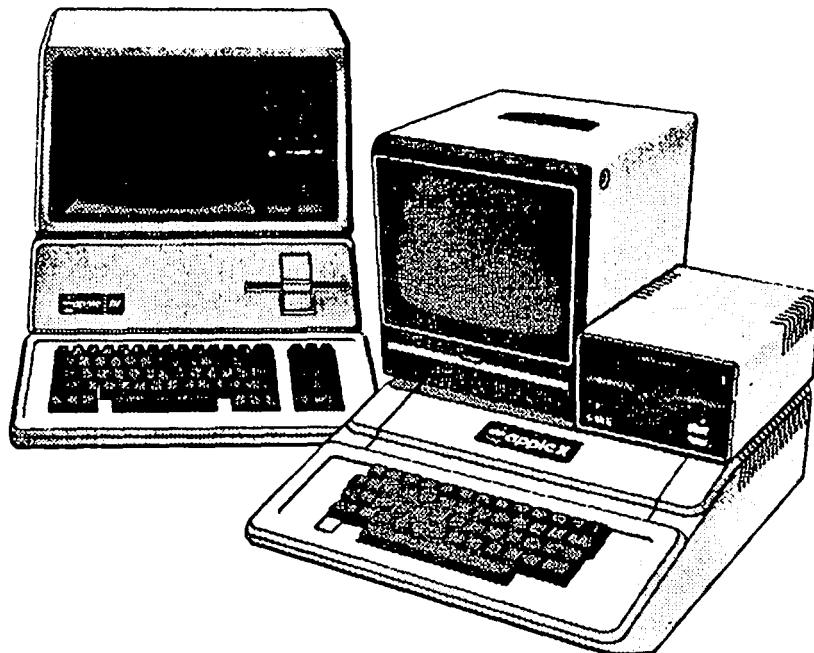
The Executive Board of Washington Apple Pi meets on the second Wednesday of each month at 7:30 PM at the office. All members are welcome to attend. (Sometimes an alternate date is selected. Call the office for any late changes.) ☺

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* June 1985 *

SIGNNEWS

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

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	12th & K NW. See Apple // News elsewhere in this issue.
							Apple //c meets each month after the regular Wap meeting.
							APPLESEEDS is the special interest group for our younger members.
							They meet during the regular WAP meeting.
2	1 5	1 4	1 5	1 6 SigMac	1 7	1 8	
		Beginning Deadline	17:30PM-Lady	17:30PM-Lady	18:00PM-SigMac		
		Tutorial #18 for Journal	of Lourdes; 16th contd.	19AM-USUHS;	DISABLEDSIG meets on the 1st Thurs-		
		17:30 PM	Articles	1GameSIG	1DisabledSIG/LISA/Mac XL	day of each month - See the Dis-	
		Office	17:30-Off.->17:30PM-Alex	17:30PM-Alex	1USUHS	abledSIG column elsewhere in this issue. Call Jay Thal for details.	
9	1 10	1 11	1 12	1 13 STOCKSIG	1 14	1 15 TelecomEDSIG	- the education special
		Beginning Executive	18PM Office;	18PM Office;	1SIG Tutor.	interest group - meets on the 4th	
		Tutorial #21Board	1Apple //	1	19:30AM-Off.	Thursday of the month at the	
		17:30 PM	17:30 PM	17:30PM-Conv	1Forth SIG	office. See the EDSIG page else-	
		Office	1Office	1Center Inn	110AM-Office	where in this issue.	
16	1 17	1 18	1 19	1 20	1 21	1 22	FORTHSIG will hold its next meeting
	API-SIG	Beginning	1	1Pascal SIG	1	1WAP Meeting	on Saturday, June 15 at 10:00 AM in
	18:00 PM	Tutorial #31	18PM-Office	1	19AM-USUHS	the WAP office.	
	Office	17:30 PM	1Animation	1	1Garage Sale	GAMESIG meets on the first Thursday	
	Office	1	1In Pascal	1	1	of each month at 7:30 PM at the	
	1	1	1	1	1	office. The next meeting is June	
23	1 24	1 25	1 26	1 27	1 28	1 29	6.
		Beginning	1EDSIG	1	1		
		Tutorial #41	17:30 PM	1	1	LAWSIG has been reorganized. Watch	
		17:30 PM	1Office	1	1	the Journal for more news.	
		Office	1	1	1		
30	1	1	1	1	1	1	LISA/Macintosh XL SIG meets after
	1	1	1	1	1	1	the SigMac meeting on the second
	1	1	1	1	1	1	Saturday of the month.
	1	1	1	1	1	1	LOGOSIG - watch for further details
	1	1	1	1	1	1	in a later issue of the Journal.

July 1985 *

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	They will answer questions and try to help new owners get their systems up and running.
1	1	2	3	4 See you	5	6	
				at the			PIG, the Pascal Interest Group, meets on the third Thursday of each
				Fireworks!			month at 8:00 PM at the Club
				Office			Office. The topics for the next
				Closed			two meetings are:
7	8	9	10	11 STOCKSIG	12	13 SigMac	
Deadline	Executive		8PM Office;		19AM-Georgetown	June 20 - Animation Considerations in Apple Pascal.	
for Journal	Board		Apple ///		University;		
Articles	7:30 PM		17:30PM-Conv		LISA/Mac XL	July 18 - Packed in Apple Pascal.	
	Office		Center Inn		TGU		
14	15	16	17	18	19	20	PI-SIG (formerly ASHSIG) meets on the third Monday of each month at
				Pascal SIG		Forth SIG	8:00 PM in the WAP office. For further details, call Ray Hobbs at
				18PM-Office		10AM	
				PACKED in		Office	490-7484.
				App. Pascal			
21	22	23	24	25	26	27	SigMac meets on the 1st Thursday of each month (programmers's meeting)
	Urbans			FEUSIG		WAP Meeting	at 7:30 PM at Our Lady of Lourdes
	Leave for			17:30 PM		19AM-USUHS	School, 7500 Pearl Street, Bethesda, MD; and usually on the 2nd
	Martha's			Office			Saturday (general meeting) from
	Vineyard						9:00 AM to 12:30 PM at USUHS.
28	29	30	31				STOCKSIG meetings are on the second Thursday at 8:00 PM at the WAP office.
							Telecom SIG usually meets after the regular WAP meeting. See Telecom SIG News elsewhere in this issue.

EDSIG NEWS

by Peter Combes

EDSIG Calendar

Thursday, May 23, at 7.30 p.m.

"Apples for High School English"

Thursday, June 27, at 7.30 p.m.

"The Educational Computer Press"

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

Meeting Report

Thursday, April 25, at 7.30 p.m.

"Making making lessons easy - some new authoring systems."

At this meeting, EDSIG looked at a series of authoring systems, produced by Instructional Design International, and programmed by Peter Combes.

Super Context

Cloze tests are a familiar technique of language teaching. In a text, various words are removed, and the student is invited to guess the missing words. The "Super Context" system allows the teacher to prepare existing texts for use as Cloze tests.

Super Context invites the teacher to insert various kinds of clues, that will be given to the pupil when requested. The clues may include the first or last letter of the "missing" word, the length of the word, or some explanatory sentences. Words in the text that are helpful may be highlighted. Some, all, or none of these clues may be selected by the teacher to be made available to the student.

For the hard pressed teacher, a "high speed mode" will automatically select text words at the rate the teacher wishes, and will make the first and last letter and length clues available. A "Pupil Disc Maker" function allows the teacher to select exercises which are then used in preparing a pupil's disc. Starting with a blank disc, the program will initialize it, and transfer all the files that will be needed. The pupil receives a disk which he can boot up and he can then select the exercise that he wants.

Super Skills

Super Skills is based on current theories on reading strategies. The student selects a particular text, and can then do reading exercises, "fill in the blank" puzzles, and "scramble" puzzles based on letters, words, and sentences. Unusually, the Super Skills system is content free, and works without teacher intervention, since the pupil may select any DOS 3.3 text file that he has available.

InterAudio

The Tandberg TAL812 and TCCR530 "interactive" tape recorders are audio cassette recorder/players which can be controlled by an RS232 interface. The Inter-Audio system is an authoring system which not only makes remote control of the recorder very straightforward, but enables the teacher to prepare CAI

lessons quickly and easily.

Like the Super Context system, InterAudio prepares lessons files and then uses them to make pupil's disks. The lessons themselves can use a combination of "presentation", "read along", "multiple choice", "fill in the blank" and "translation/dictation" modes. "Presentation" mode displays screens of information, synchronized to audio tape playback. "Read Along" is similar, and can synchronize the appearance of particular sentences in the screen display with points on the tape. "Multiple Choice" provides questions on screen or tape, and gives feedback when the pupil makes his choice. "Fill in the Blank" uses a technique similar to Cloze tests, and "Translation/Dictation" allows practice in typing while listening, with correct models available for comparison. The "stimulus" for each section can be a screen display and/or an audio section. The screen display may be text or graphics. Feedback, when appropriate, can also be screen and/or audio display.

During preparation of lesson files, the recorder is totally controlled from the computer. Start and stop times for the audio sections may be typed in from the Apple keyboard, or established by running the recorder remotely and indicating the times by single key operation.

The system has been beta tested in New York and in the Washington area, and will shortly be on the market. ☺

DISABLEDSIG NEWS



BY -- JAY M. THAL

* * * * * * * * * * * * * * * * *
DISABLEDSIG JUNE MEETING
THURSDAY, JUNE 6, 1985, 7:30 PM
RADISSON MARK-PLAZA HOTEL
ALEXANDRIA, VA

* * * * * * * * * * * * * * * * *
The DISABLEDSIG will be having its meeting in conjunction with the Council for Exceptional Children's software conference.

* * * * * * * * * * * * * * * * *
For those of you not planning to attend the full conference, admission to the exhibit area, and various demonstrations will cost \$5.00. The open exhibits and demonstrations will take place between 5:30 and 7:30 p.m. on Thursday. Simultaneously, there will be a chance to mingle with many of the conference presentors at a social gathering.

* * * * * * * * * * * * * * * * *
Following the gathering, at 7:30, the DISABLEDSIG has arranged for a separate meeting room so that our members may meet with individual conference participants. Y'all come. ☺

WAP HOTLINE For Use by WAP Members Only

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

Hotline Proctor	Paul Koskos	(301) 279-0671	Hard Disks	Tom Vier (4-11AM) {202} 887-7588
General	John Day	{301} 672-1721	Corvus & Omnitel Sider	Jaxon Brown {301} 350-3283
	Dave Harvey	{703} 527-2704	Languages (A=Applesoft I=Integer, P=Pascal M=Machine)	Barry Fox (BBS) {703} 553-0821
	Robert Martin	{301} 498-6074	A	Peter Combes {301} 251-6369
Accounting Packages			A,I	Jeff Dillon {301} 422-6458
Accountant(Dec.Sup.)	Mark Pankin	{703} 524-0937	A	Richard Langston {301} 869-7466
BPI Programs	Jaxon Brown	{301} 350-3283	A,I,M	Mark Pankin {703} 524-0937
Home Accountant	Leon Raesly *	{301} 460-0754	A,I,M	Richard Untied {609} 596-8816
Howardsoft (Tax)	Leon Raesly *	{301} 460-0754	M	John Love {703} 569-2294
APPLE SSC	Bernie Benson	(301) 951-5294	P	Raymond Hobbs {301} 490-7484
Apple TechNotes	Lance Bell	{703} 550-9064	Forth	Donn Hoffman * {412} 578-8905
	Shirley Weaver	{301} 761-2479	LISP	Bruce Field {301} 340-7038
AppleWorks	Carl Eisen	{703} 354-4837		Fred Naef {703} 471-1479
	Jay Jones (Balt.)	{301} 969-1990	Math/ O.R. Applns.	Mark Pankin (703) 524-0937
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	Jeremy Parker	{301} 229-2578	Apple DOS	Richard Langston {301} 869-7466
Apple Modems	John Day	{301} 672-1721		John Love {703} 569-2294
ASCII Express	Dave Harvey	{703} 527-2704		Richard Untied {609} 596-8816
	Marv Redd	{301} 944-2150	CP/M	Robert Fretwell {703} 971-2621
BIZCOMP Modem	Barry Fox (BBS)	{703} 553-0821		Ray Hobbs {301} 490-7484
General	Jeremy Parker	{301} 229-2578	ProDOS	Leon Raesly * {301} 460-0754
Hayes Smartmodem	Tom Nebeker	{216} 867-7463		Richard Langston {301} 869-7466
Smartcom I	Bernie Benson	{301} 951-5294		John Love {703} 569-2294
VISITERM	Harmon Pritchard	{301} 972-4667	Printers	
XTALK CP/M Comm.	Steve Wildstrom	{301} 564-0039	General	Walt Francis {202} 966-5742
	Bernie Benson	{301} 951-5294	Apple Color Plotter	Leon Raesly * {301} 460-0754
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Apple //c	John Day	{301} 672-1721	Apple Dot Matrix	John Day {301} 672-1721
	Jorge Osterling	{703} 671-5797	Daisywriter 2000	Joan B. Dunham * {301} 585-0989
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Comm. & Modems	Terry Monks	{703} 471-4610	Spreadsheet	Michael Proffitt {301} 874-2270
Digitizers	Steve Hunt	{301} 262-9080	Scribble	Dan Robrish {301} 530-4202
File Vision	JoAnn Stewart	{703} 527-4072	Silentlype	Phil Leber {703} 378-4391
Hard Disk	Steve Hunt	{301} 262-9080		Bruce Field {301} 340-7038
Inside Mac	David Jamison(day)	{301} 589-8841	Spreadsheets	
MacDraw	Jon Hardis	{301} 330-1422	Lotus 1-2-3	Leon Raesly * {301} 460-0754
MacLion (DBMS)	Don Landing	{703} 690-1010	Multiplan	Walt Francis {202} 966-5742
MacProject	Tom Berilla	{301} 434-3256	VisiCalc	Walt Francis {202} 966-5742
MacWrite	Mark Miani	{202} 362-8123	Spreadsheet 2.0	Leon Raesly * {301} 460-0754
MacTerminal	Jay Lucas	{703} 751-3332	(MagiCalc)	Leon Raesly * {301} 460-0754
Multiplan	Mary Hockmeyer	{301} 897-5495	SuperCalc Ver. 2.0	Leon Raesly * {301} 460-0754
	Jon Hardis	{301} 330-1422		Statistical Packages
	Mary Hockmeyer	{301} 897-5495	Jim Carpenter {301} 371-5263	
	John Boblitz	{301} 356-9384	Mark Pankin {703} 524-0937	
	Don Landing	{703} 690-1010	Stock Market	Robert Wood {703} 893-9591
	Steve Hunt	{301} 262-9080	Time-Sharing	Dave Harvey {703} 527-2704
Multiplan/Chart	Walt Francis	{202} 966-5742	Word Processors	
MusicWorks	Bob Puigino	{703} 379-0512	Apple Writer II	Walt Francis {202} 966-5742
Word	Skip Horvath	{703} 536-4091		Dianne Lorenz {301} 530-7881
	Marty Milrod	{301} 464-2154		Leon Raesly * {301} 460-0754
Data Bases			Format II	Henry Donahoe {202} 298-9107
dBase II	Paul Bublitz	{301} 261-4124	Gutenberg	Neil Muney Can. {416} 298-3964
	John Staples	{703} 759-3461	& Jr.	Harris Silverstone {301} 435-3582
DB Master	Leon Raesly *	{301} 460-0754	Letter Perfect	Cara Cira {301} 468-6118
Data Perfect	Dave Einhorn	{301} 593-8420		Leon Raesly * {301} 460-0754
Data Factory	Leon Raesly *	{301} 460-0754	Magic Window and II	Joyce C. Little {301} 321-2989
General Manager	Bob Schmidt	{301} 736-4698	Peach Text	Carl Eisen {703} 354-4837
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PFS	Leon Raesly *	{301} 460-0754	ScreenWriter II	Peter Combes {301} 251-6369
QuickFile II	Jon Vaupel	{301} 977-3054	Supertext II	E. E. Carter {202} 363-2342
Expediter Compiler	Bill Etue	{703} 620-2103	Word Handler	Peter Rosden {301} 229-2288
	Ben Ryan	{301} 469-6457	Word Juggler //e	Jon Vaupel {301} 977-3054
	Ginny Spevak	{202} 362-3887	Word Star	Carl Eisen {703} 354-4837
	J.J. Finkelstein	{301} 652-9375		Leon Raesly * {301} 460-0754
Graphics	Peter Rosden	(301) 229-2288		Dana Reil {301} 350-3283
Visiplot	Bill Schultheis	{703} 538-4575		
	Lee Raesly	* {301} 460-0754		

* Calls up until midnight are ok.

TELECOM SIG NEWS

by Dave Harvey

The Telecom SIG was held after the WAP meeting on April 27 and was conducted by George Kinal. About 15 members were in attendance at the meeting.

The first question concerned how to have two computers talk to one another using a direct connection from modem to modem. In this particular instance, the two computers were a Radio Shack Model 100 and an Apple //. In most cases this connection would not work because the modems require voltage supplied from the telephone line. But in this case, the member did manage to connect without any trouble but he couldn't figure out how to download files from one computer to the other. One solution is to use ASCII Express, put it in the copy-buffer-on mode and then start transmitting to the Apple from the Model 100. By using a command from the model 100, the file can be transferred.

There has been a lot of interest in communications with the Radio Shack Model 100 and the Apple, and it was agreed that a special workshop on using the Model 100 with the Apple was in order and will be held on Saturday morning, June 15, 1985.

Barry Fox announced that there is a ROM update for the Prometheus 1200A modem which corrects the bug in the built-in communications software which didn't allow you to save a file to disk. It also provides for the ability to leave the communications program and go to DOS without being disconnected from the phone line. To get the new ROM, call the company and ask for the upgrade giving the serial number of your modem.

One member was having trouble using AEPROM and could not figure out how to save a file that he was trying to download from the WAP Bulletin board. The solution is to turn on the copy buffer by typing control R, and when transfer is complete, save to the disk by hitting the terminal abort key to get into the ASCII Express command mode and then type W to write the file to disk.

There was discussion of some of the lower priced modems available for use at 1200 baud. It was suggested that Novation owners who would like to upgrade to 1200 baud have two alternatives. One is to buy the Novation upgrade which consists of a new card that plugs into a spare slot in the Apple. The other is to get an external 1200 baud modem and connect from the printer port of the Novation to the external modem. ASCII Express supports this configuration and a description of how to make a special cable for this is covered in the manual.

Further discussion centered around the new 2400 baud modems and the advantages and disadvantages of the higher speed. Prometheus people now have a 2400 modem undergoing beta testing.

For those seeking good novice-level books on communications, some suggestions are "The Complete Handbook of Personal Computer Communications" by Alfred Glossbrenner, "The Small Computer Connection" by Neil L. Shapiro, and "The Joy of Computer Communication" by Bill Cook. B. Dalton seems to have the best selection of computer books. Dave Harvey announced that a new mail order service was recently started in Arlington, where computer books are offered by mail, all at a discount. The new company is called MRI Books, 230 West Glebe Road, Alexandria, VA 22305. They just

published their first catalog of computer books and anyone can get the catalog by writing to them or by calling them at 549-5537.

Barry Fox announced that the Micronet Apple Users Group (MAUG) that is now on Compuserve will be moving to another data service called Delphi. The name "MAUG" is copyrighted by Neil Shapiro, the SYSOP of MAUG. All of the people connected with the users group will be moving with him. There is a possibility that WAP might be able to get a group buy on joining Delphi at little or no cost. One of the attractions to this new service is that there is no price differential between 300 and 1200 baud.

Is it possible to use a serial card with both a modem and a printer, not necessarily at the same time? After some discussion, we generally agreed that it is not such a good idea because of the different functions and since serial cards are relatively low priced. Two cards is the way to go.

Mike Ungerman described a conference called "FACE TO FACE" that was recently held in New York. The conference was held to promote electronic networking in ways that enrich individuals, enhance organizations, and build global communities. It was also the purpose of the conference to form an organization called "The Electronic Networking Association". He passed out copies of a report of the conference, which went into a lot of detail on how the organization would be run and how communications would be handled between the new "global community". He mentioned that reports on the previous conferences and future conferences will be available on the NOVAPPLE bulletin board system. The prime network where discussions will be held is on the UNISON system with importing and exporting to other systems by people who have volunteered to perform this service. This activity closely parallels the Amateur radio type of global communications.

George announced that he has a copy of a TURBO Pascal version of Modem 7 that was downloaded recently from a BBS in Canada. This program runs under the CP/M operating system. He will donate the program to the WAP Disketeria.

TELECOM TUTORIAL

On Saturday morning, June 15, the Telecom SIG is sponsoring an informal tutorial on communications between the Radio Shack Model 100 and the Apple. The tutorial will be conducted by George Kinal, Dave Harvey, and others who have had experience in this area. To register, see the form in the back of this issue.

Two basic applications will be covered here. The first involves transferring from the "Lap Computer" to a larger machine, the Apple or Mac; e.g., word processing that you have done "on the road" and would like to transfer to a larger computer for more sophisticated editing and/or printing. The second is transferring from the larger machine to the Lap Computer. For example, an Applesoft program that you have written on the Apple can be transferred for debugging or running on the Lap Computer. The two BASIC languages are quite compatible. Transfers between the two computers can be accomplished by a built-in modem or by the RS-232 port with a cable.

Q & A

by Bruce F. Field



A little while ago I had a question about making a backup of a text file from an Applesoft program. I suggested that the person write two text files at the same time effectively creating a backup. Dale Meyn has another solution. He says copying a file can be accomplished easily by alternately READING from and WRITING to the previously opened files. He included the program below as an example.

```
20 D$ = CHR$(4) : RT$ = CHR$(13)
30 HOME
60 INPUT "WHAT IS THE ORIGIN FILE NAME?"; FO$
80 INPUT "WHAT IS THE COPY FILE NAME?"; FC$
100 INPUT "WHAT IS THEN ORIGIN DRIVE#?;OD
110 INPUT "WHAT IS THE COPY DRIVE#?;CD
150 PRINT D$"VERIFY";FO$;"D";OD: REM DON'T CREATE
    EMPTY FILE
160 PRINT D$"OPEN";FO$
170 PRINT D$"OPEN";FC$;"D";CD
190 ONERR GOTO 300 : REM STOP WHEN END-OF-FILE MARKER
    DETECTED
200 A$="" : PRINT D$"READ";FO$
210 GET AA$: IF AA$<>RT$ AND AA$<>"," THEN A$=A$+AA$:
    GOTO 210
250 PRINT : PRINT D$"WRITE";FC$ : PRINT A$
270 M=FRE(0) : REM CLEAR UNUSED STRINGS
280 GOTO 200
300 POKE 216,0 : REM TURN OFF ONERR
310 PRINT : PRINT D$"CLOSE": PRINT : PRINT CHR$(7)
```

Dale's program uses GET to read the origin text file rather than INPUT as INPUT can't handle things such as colons and commas. Dale says his program is by no means as fast as FID, but it may be fast enough for reasonable-length files.

A few months ago I had a question on using Artsci's Magic Office System on the Apple II+ with an 80-column card. Robert DeFrancesco was kind enough to write with the following solution.

"I, too had similar startup problems with this program on my Apple][+. A quick call to Artsci gave me the information that I should boot the data disk that comes with the package.

"Doing this brought into action a configuration program which lets the user choose from a large number of 80-column cards and various other computer configurations. This lets the user customize their copy of the program to run on a particular computer.

"I must comment that this information was not anywhere in the Magic Office System package, but must be learned by calling Artsci. Also, the manual for this program is written around the Apple //e and //c keyboards but will definitely work with a][+ if a few tricks are used. I only knew about these since I had the manual for MagiCalc and Magic Window, which are part of this program. Artsci did say that they should have a new manual out by this time, but I never bothered to check with them again."

Donald Ruch of beautiful downtown Burbank has written with some more information about the S. H. Lam routine that allows you to imbed monitor commands in Applesoft programs.

"The article omitted clarification of "N D9C6G" and its application in loading lengthy binary files, namely:

```
30 GOSUB 63000
40 REM REST OF PROGRAM
50 END
63000 A$="8000:A9 0C 85 38 ... (35 additional bytes)
    ... A9 01 8D"
63010 GOSUB 63200
63020 A$="802A:A2 00 8A 20 ... (35 additional bytes)
    ... B1 28 C9"
63030 GOSUB 63200
.
```

```
63050 RETURN
63200 A$=A$ + "N D9C6G" : FOR I = 1 TO LEN(A$) :
    POKE 511+I,ASC(MID$(A$,I,1))+128 : NEXT
63210 POKE 72,0 : CALL -144 : RETURN
```

"Since CALL -144 scans the buffer and executes its contents, "N D9C6G" is a return in RUN mode to Applesoft control. Put another way, "D9C6G" permits the use of CALL -144 within a subroutine without compromising the return address.

"As you undoubtedly already know, loading large binary files with this device is not as fast as a separate BLOAD directly from code, but "D823G" works fine in the range of 50 bytes in one line. Anyway it's hats off for S. Harvey Lam and his cute tricks!"

Q. What is "pre-boot"; what does it do; and where can I read more about it?

A. Pre-boot is an operation such as running a utility program before running the main application program. This is usually done to change or modify the application program to work with specific hardware that the program was not originally designed to use. A typical example with Apple][computers is a pre-boot program to modify a word processing program to work with a particular 80-column card. The pre-boot program is available from the manufacturer of the 80-column card and will only work with the exact 80-column card and word processor specified.

The term pre-boot comes from the term "boot" or "boot up" a computer system which means to start it up, load in any required operating utilities, and start a program. Most pre-boot programs are designed to operate with commercial application programs that completely control the operation of the computer once they are "booted" or started. Thus if the application program is to be modified, the pre-boot program is run first to load the application program and modify it before it turns control of the computer over to the application.

Q. I have used the Micromodem modem and Smartcom I terminal program to download an Applesoft file from the transfer system. When I go to run the program I get a message "PROGRAM TOO LONG". The catalog indicates that the program is only 31 sectors. Help!! What's wrong?

A. When an Applesoft program is stored in a disk file the first two bytes in the file are the number of bytes in the program. The program follows these two length bytes. It sounds like these two bytes are either missing or incorrect. The DOS checks these two bytes before loading the program and if

contd.

— Operant Systems —

— HARDWARE —

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---	-----

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--	----

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M

Chart (presentation business graphics).....	85
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A

File	125
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C

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I

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N

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T

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O

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S

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H

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M

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H

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they indicate a length that is too large, you get the "PROGRAM TO LONG" message. Fixing this can be difficult.

There are several possibilities as to what is actually stored on the disk. The file could actually be an Applesoft program with the length bytes missing or the length bytes incorrect. Normally Applesoft programs are saved with keywords and commands replaced by one byte numbers. However the file may actually be a text file listing of the Applesoft program where the file type was later changed from text to Applesoft. Text files start out directly with the text, there are no length bytes at the beginning. Applesoft programs saved as text files are saved exactly as they are listed on the screen with all the keywords spelled out. In any case you will need a Disk Zap program that allows you to read individual sectors on the disk. Refer to your DOS manual to find out where on the disk (in which sectors) the file is stored. Then you will need to examine the file and add or change the first two bytes. If the program is actually stored as a text file you should be able to EXEC it into memory after changing the file type from Applesoft to text. I'm sorry, I can't be of more help without knowing exactly what is stored on the disk.

Q. I have a spare J[+ that causes any good disk drive to act flaky only in slot six. Any direction pointing towards the problem would be greatly appreciated.

A. Most likely the problem is a bad electrical connector for that slot. The first step is to spray some contact cleaner on the contacts and inspect them to make sure none of the contacts are bent or broken. If everything looks okay you could try replacing the 74LS138 decoder chip at location H2 on the motherboard. The 74LS138 controls the "device select" signals to the slots. If this still doesn't work I think it's time to replace the 50-pin connector for slot 6. This is a little tricky to unsolder and remove without damaging the motherboard. The best way I have found is to break up the plastic part of the connector with a pair of pliers leaving only the spring contacts still soldered to the board. Then you can heat and remove each contact individually.

Q. I have an Epson FX80 printer with a Quadram APIC-G parallel interface card. How do I get it to print in 80-column format?

A. This question comes up regularly and is not adequately discussed in any manual. In general from within a BASIC program you should be able print as many characters as will fit on one line of the printer. Try this program.

```
100 PRINT CHR$(4)"PR#1"
110 FOR I=1 TO 80 : PRINT "A"; : NEXT I : PRINT
120 PRINT CHR$(4)"PR#0"
```

This should print 80 A's across the page. When you are LISTing a BASIC program the LIST command checks to see if the printing is getting near the edge of the screen, and if it is, the BASIC interpreter forces a carriage return. This means you get those hard to read program listings where the lines are all shorter than 40 columns. To stop this you need to send a command to your printer interface card to tell it to send the listing only to the printer and not also to the screen. Most printer interface cards will accept the command PRINT CHR\$(9)"80N". This should be done each time after the printer is

turned on, i.e. after PR#1, but before you print the listing.

Q. The manual for my Apple 1200 baud modem says on page 25 that F1, a default, is full-duplex transmission mode. On Page 26, under "General Commands", it says F0 sets the transmission mode to full duplex, and F1 sets it to half duplex. So, which one is full duplex, F1 or F0?

A. According to informed sources who wish to remain anonymous F1 is full duplex. Half-duplex and full-duplex are terms used to identify how information is sent back and forth between your computer and modem and the host computer on the other end of the line. Most bulletin board systems use full-duplex so you won't have to change from the default mode. Full-duplex means that when you type a character on your computer it is sent down the line to the host computer but your computer does not yet print it on your screen. The host computer then sends the character back to your computer which prints it on the screen; thus you can verify that what you typed was received correctly by the host computer. This operation requires that the transmission line (the telephone line in this case) be capable of simultaneous two-way data transmission because you continue sending characters at the same time the host computer is sending the earlier characters back. For systems where two-way data communications is not possible you need to use half-duplex. In the half-duplex mode when you type a character it gets sent to the host computer and also printed on your screen. The host computer simply accepts the character and does not echo it back to you, thus you have no way of knowing if it was received correctly. If you are using a modem, the modem usually determines whether you are operating in full or half-duplex by either echoing the character back to your computer or letting the host computer do the echoing.

Both your computer or modem and the host computer need to be operating in the same transmission mode, however it is easy to tell if there is a problem. If you have your modem set to half-duplex and the host computer expects full-duplex you will get double characters printed on your screen each time you type a character. The modem will send one back and so will the host computer. If you have your modem set to full-duplex and the host computer expects half-duplex you won't get anything appearing on your screen when you type characters. In both cases though anything the host computer sends to you will be printed correctly.

Q. How does one go about saving the contents of the J[+ ROMs onto disks as a set of binary files?

A. The ROMs occupy memory addresses 53248 (\$0000) to 65535 (\$FFFF). To save this memory area you can use the command BSAVE ROMS,A53248,L12288. This technique won't work with //e's and //c's because not all of their ROMs are turned on all the time. There is only room reserved for 12288 bytes in the address space for these ROMs and more than that is needed for the //e and //c. So, bank switching is used to turn on only part of the ROM as that part is needed. Soft switches (memory addresses) in the range \$C001 to \$C00F are used to control which ROMs are turned on.

Q. I am writing in reference to the new Dvorak keyboard. I am interested in knowing if there is a device similar to the Eprom which would allow socketing into the existing character generator

contd.

socket to change the keyboard entry accordingly?

A. You don't say what model computer you have so I'll try to answer for all three][+, //e, and //c). For the][+ you can get the Videx Keyboard Enhancer which is a modified keyboard encoder that plugs on the back of your][+ keyboard. The Enhancer provides for a programmable keyboard so that you can rearrange the keys in any order you wish. In addition it provides a type ahead buffer so you can continue typing while the Apple is busy with other tasks. You can define sequences of keystrokes (macros) that are "typed" whenever you press a couple of keys. Also, a 16 button function strip can be attached to provide 16 additional keys that can be programmed to perform different functions.

For the //c of course there is a switch on the top of the case to choose the Dvorak keyboard layout or the traditional QWERTY. To get the Dvorak keyboard this switch should be pressed before turning on the computer.

For the //e the situation is less clear. The //e contains a ROM (like the //c) that maps the keyboard into ASCII characters. On the //c the input to this chip is connected to the language switch. On the //e this input is connected to +5 volts by an X-shaped solder pad on the motherboard labelled X2. This solder pad can be found near where the keyboard cable plugs into the motherboard. To switch to the other keyboard set stored in the ROM (equivalent to pushing the language switch on the //c) the X2 solder pad must be filed so the two ends are no longer connected. Also, the solder pad X1 right next to it is presently in two pieces, the space between the pieces must be filled with solder. Assuming the ROM is the same as in the //c you should have a Dvorak keyboard. I don't know if the ROMs are in fact the same, but if not you should be able to obtain the correct one from your Apple dealer.

Q. Over the past few months I have been frustrated to find that some of the software available for the Apple //e (mostly games) require or suggest the use of two joysticks, unfortunately my Apple only has one joystick port, I have seen such a mechanism as the "paddle adapple" and the "select-a-port". Again unfortunately, I do not have an extra \$70 to throw around for these and an extra Apple joystick. I do have two Atari joysticks from my old Atari 2600. Can I use these with some sort of accessory (to make the plugs mate) with my Apple?

A. I am afraid you are out of luck in using your Atari joysticks with the Apple. The Apple joysticks have potentiometers that provide two continuous signals based on the X and Y positions of the handle. The Atari joysticks on the other hand have only eight contact switches one of which is closed whenever the handle is moved to the side. There is no indication how far the handle is moved, the switch is either closed if the handle is moved far enough, or it is not. So, even if you could find some way to plug them in to the Apple, they still wouldn't work.

CLASSIFIEDS

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FOR SALE: Word Star and Mail Merge. Never used. \$140 or best offer. Call Lynn at 439-4330 (9 AM - 5 PM) or at 445-3868 after 5 PM.

FOR SALE: VisiCalc advanced version, //e, never opened, \$200; Supertext word processor for Apple][+ and //e, used once, \$37.50; Odesta Chess (Ver 7.0), \$20; Dow Jones Market Manager, \$125. All prices above are one-half or less. Call Newt Steers at (301) 320-5820, 9 AM to 9 PM.

FOR SALE: Transtar 130 Letter Quality Printer, 19 cps, perfect condition, used infrequently, extra ribbons, printwheel, \$400. Will also consider trade for DM printer. Robert Diamond (202) 296-6710, M-F 9-5.

FOR SALE: Magic Video Digitizer complete with camera and tripod. Used only twice. A \$570 value for only \$430. Please contact MacTography at (301) 424-3942 between 10 AM and 3:30 PM.

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FOR SALE: Apple //e 80-column card, in original box never used, \$65 or best offer. Call Joe Mainey, 256-5765, 9 - 11 AM daily, except Wednesday.

FOR SALE: Interface cards - CCS 7710, serial with cable for Smartmodem, \$75; Videx Enhancer][programmable true lower case for][or][+, \$75; Lisa dual port for ProFile, parallel printer, etc., in unopened shrinkwrap, \$200. Call Bruce 387-6022.

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APRIL 27 MEETING REPORT:

Hard Disks

by Adrien G. Youell

"Hard and Massive" or "Elephantine Memory - Gargantuan Headache?"

To the rumble of four hard disks driving across Auditorium B in the Uniformed Services University of the Health Sciences, in comes wee-priced (\$695), tiny-whine SIDER, from Nevada (First Class Peripherals; tel: toll free, 800-538-1307, starting 0900 hrs, EST). Oops! The planned four hard disks were not there. The Sider team took over the meeting. On the prior Friday evening, much to our amazement, First Class Peripherals sent their "A" team from CA, instead of the tame rep we expected, and naturally they wanted a big slice of the action; thus a last minute reshuffle. Your ever-busied Program Coord succeeded by diplomacy beyond the calling, but was ably assisted by profound sympathy and understanding from Jaxon Brown (Sider), Don Schmitt (Profile), David Gifford (Sunol) and John Kolego (Corvus) to give up their slots. They postponed their contributions to a "Hard Disks Revisited" meeting some months from now. The fine detail of a more general meeting is currently obscure but will receive due consideration. We wish to anticipate ill-feelings by thanking these gents for so graciously accepting the rearrangement. So, onto the Sider 10MB hard disk.

A well-received, reasonably-priced, working product gets much of its advertising legwork done for it by other people, and the Sider is a superb example in the genre. I cite several reviews, three of which are recent WAP Journals, saving space in this column. Arsen Darnay paid scant attention to the subject in J WAP, Feb, 85; 42, being rather sensitive to noise. Jim Kellock gave a very thorough review in J WAP, April 85; 36, and the Pres discussed the matter briefly in May, page 19. Chris Albertson was like Jim, very thoroughly in-depth, in At, May 1985, page 68. Personal Computing made a readable article on hard disk strategies, in general, in May 85, page 113 (by Christopher O'Malley). Rather than relating 'tech specs' therefore, I need only make note of particular remarks, made publicly at the meeting, or to a select few afterwards; the Mac proposal being one of them (vide infra).

Where can I start, but at the middle, and I will not tell any of David's very silly stories! Settle into your seat, let your hang-ups hang, and call the folks at FCP. We were shown photos of the people who will take your order, but were not told their names. Impermanence? Well no. I was reasonably convinced that First Class Peripherals (FCP) as a 'mail-order' arm of XEBEC, is a legitimate, active hard disk company and the references, in varying degrees of propinquity, testify to their commitment. I was persuaded that Sider is here to stay, and is going to make more money from the IBM Sider (\$795; Hurray?). Two 10MB Siders can be daisy-chained, and FCP is bringing out a 20MB drive. Just listen in; they are pricing the MacSider at \$995; due in September. They are booked to present the MacSider in Boston, August 21. (Eastern Mac Expo, remember!). But stay listening, they might just offer us beta-testing of the disk, and might come to a Mac fall meeting. (Earth to Steve; the Director of Marketing is Judy Sappington, 2158 Avenue C, PO Box 6187, Bethlehem, PA 18001; 1-800-538-1307.). The printer port accesses the MacSider which has a port for the printer.

After Leon Raesly made some disparaging remarks about

the ill-fated IBM "chicklet", Judy stepped 'front and centre' to kick-off, introducing the Sider team and concept, explaining the 12 year prestigious history of Xebec in controllers for hard disks and storage sub-systems. She suggested Xebec is an industry leader in hardware peripherals and is an OEM to IBM, TI, Toshiba and Hewlett Packard. She explained the group's interest in CAD, in Reno, and the magnificent plant in Gardnerville, Nevada. The highly automated, high volume assembly line results in lower prices, and FCP was split off for efficiency in marketing. The Sider supports the][+ and //e. Though Franklin machines, and the][may work (with Sider) they are not guaranteed. Sider for the //c is planned, as is a stand alone tape back up. There are no plans for the ///.

Judy handed over to Olen Whitson, the technical guru, to 'mess around with the disk'. He demonstrated the partitioning set-up, to mild applause, where a graphic slot expands or shrinks four (25% default) partition boxes with the right or left arrow keys, indicating % memory, MB's and number of volumes (as depicted). Boxes are scrunched up with the up and down arrows, or Return, for allocation of DOS 3.3, ProDOS, Pascal and CP/M partitions. With the Sider controller card in slot 7, where the Apple first looks for an O/S, the Sider boots. This has relevance to copy-protected software. If the boot disk drive is slot 6, the Sider is disabled, and 'unhooked'. Goodbye Sider! The Sider controller can be in slots 5 or 6. I took a reasonable audio recording of the proceedings, with thanks to Jim Taylor, and a copy of this is available for use in the office. Olen went into great detail about CP/M and Pascal partitions, referring to available versions. Bootstrap from DOS 3.3 was a snap, as was "Quit" to the main menu, and the same for other O/S's, or files. The Sider formats 306 cylinders (thought of as tracks with depth, in 3-D) with 4 heads. Volumes can be regarded as cabinets for games, letters etc. With scant regard for delicate feelings, Olen asked respectively, who used "AppleWorks" and "BPI Accounting", proceeding to flash appropriate 'screens' with oscilloscope-like rapidity. There was a truly electrifying sense of awe, and this for 'my' Apple, under \$700? You shall be consigned to the Stygian Abyss for even thinking I am getting a free ride to California out of this, this apparent preferential advertising. Look at David's article in May on page 19; the price is right and the goods deliver. Unused O/S partitions can be assigned a minimal 24K, or 0.9% (at variance with David's article, due to developments), or expanded to 8, or 16 MB; silly remarks from the audience about 10MB machine were easily quashed; buy more bytes! Though two volumes are required per O/S, sizes may be different in the future, associated with continuing development.

Erica Meyer, as the advertising lady, stayed unfortunately hidden, but collected 'reader response cards', registering those who will receive a newsletter. Sider advertisements will be less 'flashy' in future with more information 'up-front'. FCP donated a Sider to The Club; of this, more news from El Presidente. I am indebted to Leon, who moderated the meeting with crisp precision, and who sat down Jim Kellock, Jaxon Brown, Barry Fox, Steve Pearce and Chris Jackson, to tell of their uses of the Sider. Some eight Sider owners were in the audience. Jim, using Wordstar, Multiplan and dBaseII, said storage and access time were "just dandy". His problem with PCPI CP/M drivers

contd.

was solved by a \$5 overlay from PCPI. Jaxon uses ProDOS, BPI accounting packages mainly, but has used Appleworks, AE Pro Comms, and FlashCalc, with the Titan //e accelerator card. He also uses Wordstar on A and B floppies, with hard drives C, D, E and F as backup. Steve said Pascal is very fast, but regretted the paucity of tech info, and that some disk utilities were difficult to figure out. The 800 number supplied excellent help. He gave really good advice when he enjoined us to check 'our plugs'; make sure all four 50-pin connectors are pushed all the way in (his were not!). Also, sit down and think out each volume size carefully, because copying and reformatting the disk is a pain. Olen had said dynamic partitioning is 'nice', but slows performance. A new owners manual will be available in weeks, free of charge to current owners. Barry, a 'full service' hobbyist, has 'blown' his slots; he uses ProDOS predominantly with a little DOS 3.3, but has dedicated one volume to a BBS taking up 2 megs so far, saving a lot of disk access. He has all slots filled and the Sider purrs like magic. Regarding Quark's Word Juggler, which is copy protected, he could have bought their Catalyst program for installation on a hard disk, but it has to boot Catalyst from the floppy, so therefore not worth its salt. Chris has 2 megs of Wordstar and accesses 40K files in seconds. His problem with CP/M on a Franklin, when the R/W heads apparently didn't 'reach' the MS section was solved by hitting Reset. Sounds 'Greek' to me, but speak to Chris (who unfortunately is not listed in the members directory; Mrs. Urban may be able to help). He has the rest of his disk in DOS, in small and large volumes. Also, he uncovered larger files than the 106 files restriction with the Beagle Brothers' Silicon Salad program, 2-Track Cat (Ad. At May 85, page 201), modified to allow extended catalog tracks giving more file names; "overall a beautiful system". Remember the time-break is on our side, 8pm Washington is 5 o'clock in CA. Chris is impressed with the immediate and helpful telephone response. Reference RAM disk use; it has no ID bytes, so FID program doesn't find it; Olen has a new release which will allow an option to lie to the program, to copy files to a RAM disk.

David Morganstein received a 'dead' Sider. Judy Sappington admitted that they are having some losses due to shipping damage; if it does not work call FCP within the 15-day trial period, and return. Sounds like a program listing? They are changing their packaging. They guarantee turnaround in 10 days from receipt of a faulty unit, but will ship a replacement 'next day' if a credit card number is called as security. After the one-year warranty, Sider has a \$150 flat-rate fee for fixing sick disks. One omission I thought, was no mention of Comms. It would be nice to auto-dial an order, and then 'complain' to the wife that the 'stupid' computer ordered its own hard drive!

There seems a need for a Sider Hotline member, to add to the list that already requires a magnifying glass to read, and maybe a Sider SIG. We spent much time listening for the 'noise' of the Sider drive, amplified by the microphone, and basically decided it is not obtrusive (sorry, hypersensitive Arsen Darnay). The Sider does not have a fan. However, some machines are noisier than they should be and FCP will replace these. I would say, buy the Sider if you need quick access, and mass storage, if you use your Apple for multiple applications, in day to day life. It seems to be equal to the competition, at a lower price, and as effective. Tape-streaming backup will be a definite plus. As it turned out it was a most presentable meeting, well attended, and enthusiastically received. Here's hoping the Sider will give Apple a new lease on life, again.

"God did not shine favorably on the preparation of this issue of the Journal."

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

DO I NEED A HARD DISK FOR MY APPLE?

by Randy Pasley

"Should I buy a hard disk or be content with a 5 1/4 inch floppy?"

Most of us are probably under the impression that DOS 3.3 copy-protected software is difficult to put on hard disk. However, we have thought that with a proper copy program, like "Locksmith," "Nibbles Away", or some other sophisticated copy software, we would be able to get our favorite software onto the hard disk. This is not true! In fact, the copy programs are not designed to transfer any files to any hard disk. According to both "Locksmith" and "Nibbles Away" programmers, it is not practical to produce such software. (If anyone knows of such software, please let me know.)

Quark, Inc. does provide a software program, "Catalyst" for transferring some copy-protected software to hard disk. However, you are still required to boot Quark's software in your 5 1/4 drive prior to running your selected protected software, so you are not free of the floppy drives.

Copy programs used to transfer DOS 3.3 files that are not copy-protected to hard disk are FID (File Developer) programs. FID programs allow you to catalog, copy, delete, lock and unlock files, which means that you must be able to catalog the programs on the floppy disk to transfer them to hard disk. I also found that many programs that are transferable to hard disk, and at first appeared to be runnable on hard disk, would not run for a couple of reasons. The most obvious is that the DOS for the program is different from the standard DOS. Alternately, the program addresses a particular dirve slot that the hard disk does not occupy.

Pascal, CP/M and ProDOS are transferred under their normal copy programs.

Once the hard disk has been formatted and the programs are installed, the next step is to back up the drive. Usually, the software provided with the hard disk has a program for drive backup. The frequency that files are backed up depends on the individual.

It is important that the hard drive be brought up and secured properly, as an incorrect procedure could crash the disk. Also, loss of power to the computer or drive could crash the disk. Basically, you can have the same problems with hard drives that occur with floppies; it is just more dramatic when a problem arises.

If your files are backed up, you can re-install the files. However, prior to going through a complete re-installation, you might try getting into the drive and backing out; sometimes this will save you a lot of unnecessary work. When you have to re-install the files on a hard drive or you decide to reformat the drive for change in operation, you basically follow the procedure you did initially. However, if you have a backup or make a backup, your job of re-installation is easier.

I purchased my hard disk from a company in the Chicago area, Mercury Megabank Corp. They provide a 10 meg hard disk for the Apple for \$995. This hard disk provides for formatting DOS 3.3, ProDOS, Pascal and CP/M at the same time, by providing four partitions within the disk. The space allotted to each operating system is determined when you initialize the disk, and it is set up by your needs.

When using the hard disk, it is turned on and brought up to speed in about 30 seconds. When you turn on your Apple the hard drive is booted automatically. At this time you may select Pascal, CP/M, DOS 3.3, ProDOS, Boot Slot 6, DOS CATALOG, Hard Disk support utilities or Quit and Park heads. This HELLO program can be easily modified as needed.

Megabank's drive is 5 inches high, 6.62 inches wide, and 14.75 inches long. It weighs 16 pounds. The hard drive has its own power supply and a fan for cooling. A controller card is also provided. It resides in slot seven. This hard drive is quieter than my 5 1/4 inch drives.

At first I had a problem initializing the disk, partly due to the Megabank instruction manual and partly due

contd. on pg 15

THE SIDE.FILER

by David Sacks

I needed a data base that would handle an "unlimited" number of fields and records, that would be fast, and easy for an inexperienced person to use. After spending hundreds of dollars on data bases, I finally found it. The Side.Filer.

The Side.Filer can handle any number of fields (I use over 250) and handles as many records as I have disk space, and with the Sider 10meg Hard Disk it's in the thousands. With this program I can change the formats of reports any way I want, and view as many fields as I want on the screen. The main problem with the Side.Filer is that it is not available. That's right - no one has such a program for the Apple //e. Apple's new ProDOS allowed me to write a program that would do all this and more (I only learned ProDOS a month ago).

Basically, using the new commands in ProDOS I can save records by any name and subname, onto the hard disk, and retrieve these records as fast as I hit a key. I've always been happy using AppleWorks for the past year and finding a record in only seconds, within a file of hundreds of records (with 30 fields), but with ProDOS and the Sider I can find a record with hundreds of fields within thousands of records in milliseconds. And with the RAM disk on the Extended 80-column card I can chain to another part of the program just as if I have virtual memory.

Basically using the knowledge of Applesoft programming with ProDOS and the Sider, and of course taking FULL advantage of the Hotlines and BBS's available through the WAP, I have been able to design, build and have in full operation the most versatile and powerful data base I've seen.

Setting records on any field is done as fast as AppleWorks, since the hard disk is almost as fast as RAM and the Basic programs I can write require far less 'housecleaning' than AppleWorks and can be customized and changed at my every whim. (AppleWorks is by far the fastest sorting data base on the market - seconds to records.)

By building different programs and chaining to them from other programs (carrying all the variables with them) I can do all types of things with my data. I have five basic steps in my program: one for entering the data, another for updating and changing the data, the third lets me inquire on data, with the option of changing or deleting it. The fourth allows me to release the data for different files, such as invoicing, at the time of release. With the last I can print all types of reports, to pre-set forms. All the maintenance is done through Basic programming, all password protected.

Since the report formatting is done with straight Basic, I can use my printer/interface card to the fullest. (If only my printer would pour me a drink with a control character, I'd be set.)

With the release of Appletalk, I'll set a few Apples reading the same files, and adding to or changing them. And with an Auto answer modem I want to set up computers in our out-of-state locations to access the information.

I would just like to say one thing about the Sider. With such a great product, why are they only getting

40 to 50 orders a day, after the 4-star review in Cider? I wish I knew. The noise is no problem; it is slightly louder than a System Saver fan, but a lot quieter than a floppy drive. And for the sake of just keeping your disks up to date and not misplacing them on their sleeves, why not have one disk that can hold as much as 70 floppies. The manual is fine for set-up; besides you can sit on the 800 phone with them, and ask them specific questions. Try that with a manual.

My Mac XL (LISA) is great, but when it comes to productivity, the //e/SiderProDOS combo is fantastic! ☺

Hard Disk contd. from pg 14

to the provided software. The program names in the instruction manual were different from the program names in the software provided. I've been assured that this problem has been resolved. Megabank says that they were consolidating the formatting diskette down to one diskette and had not updated the instruction manual.

In conclusion: If you're using your computer for games, utilities and other general use, stay with the floppy. If you are a hard core hobbyist or you want to run a BBS, then you may have a use for a hard drive. But, really, only if you are using your computer for word processing, spreadsheets, and database management programs on a routine basis, is the hard disk the way to go. ☺

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GAMESIG NEWS

by Ronald Wartow

In the last few weeks, a veritable flood of new games has hit the streets. The last few months have not been particularly exciting in terms of gaming software, but the drought has ended, at least for the time being. While we still don't have the long-awaited Wizardry IV, Ultima IV, or ARCHON II, some companies have filled the void. This new software consumed much of the May 2 GAMESIG meeting, and most of the games below were demonstrated at the meeting. I'll now briefly describe what's come out. Look for more extensive reviews of selected games in future Journal issues.

1. GATEWAY (Priority Software) - Macintosh (Full review in July)

This is the first extensive graphic adventure for the Macintosh. It will be available on the // series. Aside from the interesting storyline, impressive graphics, and art prints containing essential views of key locations, GATEWAY contains on-line hints. If you're stuck, you can get three types of hints (subtle, substantial, or the answer). This should definitely appeal to many of our Mac owners who, according to the demographics, are first-time computer owners and have probably done few, if any, adventure games before.

2. MINDWHEEL (Synapse/Broderbund) - // series

This is an all-text adventure game that has been hailed as having a parser (that part of the program that recognizes and acts on your commands) the equal of Infocom's, the ZORK people. The company calls this the first in a series of electronic novels and you can order people around while infiltrating the minds of 4 deceased notables and while searching for the elusive thing of the title. The game comes with its own novel as an introduction.

3. GATO (Spectrum Holobyte) - Macintosh and other 128K Apples

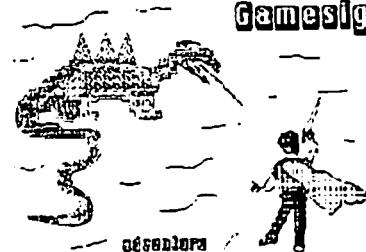
This is a World War II submarine simulation that has flirted with the top of the IBM best-seller lists for quite a while. This isn't just a practical simulation but involves battles with other ships at many difficulty levels.

4. SWORD OF KADASH (Penguin) - // series

An arcade/fantasy game involving a search for the sword of the title in an over 200-location color "dungeon." Despite the following caution, the game is entertaining, poses many interesting strategic problems, and is very playable with joystick. CAUTION: Because you must make a new player disk when you use up your lives searching, this game is tedious on a 1-drive system, and slow on a 2-drive system. Moreover, you cannot save the game, but can only interrupt to start again, whereupon your "save" is destroyed. Some might consider the last point just making the game more of a challenge.

5. ALICE IN WONDERLAND and BELOW THE ROOT (Windham-Spinnaker) - // series

Joystick-operated role-playing games where all commands are carried out via a menu. Commands such as tease, coax, sing, examine, etc. are among the many actions that can be carried out. ALICE is a bigger



descension

game. BTR takes between 5 and 10 hours, so plan on spending some time. Comment from David Hakim: "Alice is a very good graphic adventure game, like Below the Root, but better. The object of the game is to get out of Wonderland in 60 days. In this game, you are Alice. You can run, jump, glide and get bigger or smaller. As you go through Wonderland you meet people (and animals) who give you items, clues or riddles. It has very hard puzzles. Every character in the game has a clue for you, if you can get them to say it. It is much easier if you read the book "Alice in Wonderland". It is one of the best games I've played."

6. PHANTASIE (Strategic Simulations) - // series

Several GAMESIG members are enjoying this one. A combination of WIZARDRY and ULTIMA, this is the first extensive fantasy role-playing epic to come out in ages. According to the box, the playing time is 30-60 hours. Believe it!

7. MINDSHADOW and TRACER SANCTION (Activision) - // series

Two relatively ordinary graphic adventures.

8. CHIPWITS (Brainworks) - Macintosh

This is a real gem. You program your little robot to go on adventures by creating chips using what's called an "Icon Based Operating Language." The first few scenarios are fairly easy. The rest seem to involve some knowledge of programming. Entertaining, nonetheless and entirely mouse-run. For want of a better description, it's a kind of ROBOTWAR with icons with ROBOT ODYSSEY thrown in.

9. AIRBORNE (Silicon Beach) - Macintosh

Hang on to your ears! You won't believe the sound that comes out of the Mac in this arcade/war game. The opening song is about a 10-second rendition from a Wagnerian opera that sounds like a whole orchestra. Loud, too.

10. ULTIMA II (Sierra On-Line) - Macintosh

The first fantasy role-playing game to come out for the Mac. Utilizes the mouse in large measure. If you've played it on the // series, be reminded that it is exactly the same game. If you have never played it, it is a wonderful game, but takes quite a long time to finish - tens of hours.

All of the above games are owned by one or more GAMESIG members. Don't hesitate to call for their reactions before buying.

NEXT GAMESIG MEETING IS JUNE 6 AT THE OFFICE STARTING AT 7:30.

PRINTING SARGON'S CHESSBOARD ON THE APPLE II/II+

by Paul Moore

For a long time before I got my Imagewriter printer, I had been refereeing a number of games between Sargon and a friend. This turned out to be quite a tedious process; for, having no printer and therefore no way to use Sargon's "Print Game" or "Write Game" options, I kept the score on a couple of increasingly dog-eared index cards. It was also quite inconvenient for my friend, who had to play through all the moves of the game in order to reach its current position and inevitably made some slight mistakes in moving the pieces where they should have been.

When I did finally get the printer, I thought that things would be much better, since my friend could not only see the position at a glance but could also analyze directly from the excellent graphics chessboard which Sargon displays. To my chagrin, however, when I exercised Sargon's "Write Game" option (Ctrl-W), I got the quite unimpressive printout below:

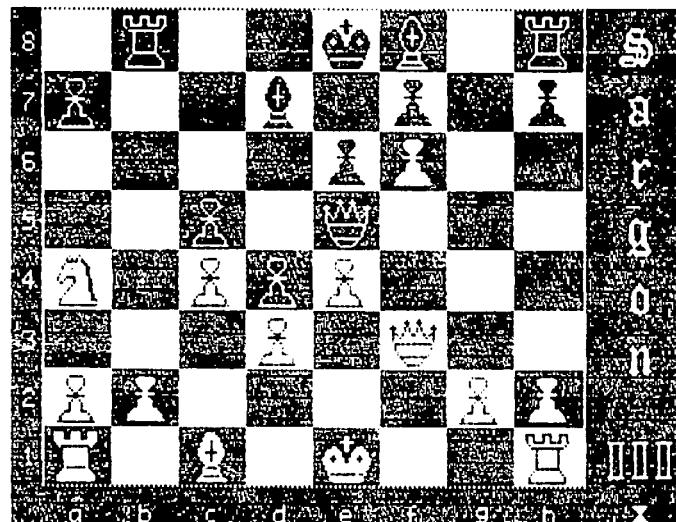
	A	B	C	D	E	F	G	H	
8	--	BR	--	--	BK	BB	--	BR	8
7	BP	--	--	BB	--	BP	--	BP	7
6	--	--	--	--	BP	WP	--	--	6
5	--	--	BP	--	BQ	--	--	--	5
4	WN	--	WP	BP	WP	--	--	--	4
3	--	--	--	WP	--	WQ	--	--	3
2	WP	WP	--	--	--	WP	WP	2	
1	WR	--	WB	--	WK	--	--	WR	1

A B C D E F G H

This would certainly allow you to set up the pieces quickly, but it would be very risky to attempt to analyze such a printout. After some poking around in my II+'s memory, I discovered that the "real" chessboard is stored at \$4000 in memory (Graphics Page Two). I found that I could use the following admittedly clumsy procedure to print an acceptable useful picture of the chessboard:

1. Use Sargon's "Save Game" feature to save the game in progress to an initialized data disk.
2. Press Ctrl-Q, which cause Sargon to respond with the prompt, "Quit Chess?".
3. Swap a disk initialized with DOS 3.3 (the DOS on the Imagewriter Tool Kit caused distortions) for the Sargon game disk.
4. Respond "Y" to Sargon's "Quit Chess?" prompt, which causes Sargon to boot the disk in drive 1. Hitting Reset causes the computer to beep twice and then boot drive 1, but one of those beeps wipes the area of memory that you need.
5. Type "BSAVE ANYNAME,A\$4000,L\$2000, which writes a binary file to your disk. You can then later dump this to the printer with a graphics print utility such as the Imagewriter Tool Kit.
6. Swap the data disk for the Sargon game disk and keep on playing.

Doing it this way allows you to get this type of printout rather than the disappointing one above:



It sure is inelegant, but it does work. And it's also a lot of fun to pit Sargon against friends and co-workers who aren't lucky enough to have an Apple. ☺

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CROSSWORD MATRIX PROGRAM

by L. Aronow

While it may seem highly unlikely that someone who is both a diagramless crossword puzzle solver and a microcomputer freak will not have had the ambition to write his/her own program to generate a matrix for solving these puzzles, I nevertheless offer the following short Applesoft program just in case there's somebody out there who hasn't gotten around to doing it yet.

The program "CROSSWORDS" doesn't require a great deal of explanation. The program should run on any of the Apple][series machines. It requires a printer in Slot #1, but should work with any card and printer - my hardware happens to be a //e with a PKASO card and an Okidata printer. The program issues a form feed after each printing. If you don't want this feature, remove the CHR\$(12) from line 210.

The Sunday New York Times magazine section publishes diagramless puzzles on a regular monthly cycle. They're not so hard, once you have a few copies of this neat matrix on which to work them out!

```

10 HOME
20 REM CROSSWORDS
30 REM BY L ARONOW
40 REM POTOMAC, MD
50 INVERSE : VTAB 10: HTAB 6: PRINT "THIS PROGRAM
PRINTS A MATRIX"
60 VTAB 12: HTAB 6: PRINT " FOR DIAGRAMLESS
CROSSWORDS "
70 NORMAL : PRINT : PRINT
80 INPUT "HORIZONTAL SPACES? (MAX 26)";H
90 PRINT : IF H > 26 THEN HOME : GOTO 80
100 INPUT "VERTICAL SPACES?";V
110 PRINT : PRINT "DO YOU WANT A PRINTED COPY?"
120 PRINT " (PRINTER MUST BE ON) "
130 INPUT "(Y/N)?";D$
140 IF D$ = CHR$(89) OR D$ = CHR$(121) THEN GOTO
480
150 IF D$ = CHR$(7P, OR D$ = CHR$(110) THEN GOTO
170
160 GOTO 110
170 GOSUB 370
180 FOR Y = 1 TO V - 1
190 GOSUB 400
200 NEXT Y
210 PRINT CHR$(12): PRINT CHR$(4); "PR#0"
220 PRINT : PRINT "DO YOU WANT ANOTHER COPY"
230 PRINT " OF THE SAME GRID?"
240 INPUT "(Y/N)?";R$
250 IF R$ = CHR$(89) OR R$ = CHR$(121) THEN GOTO
110
260 IF R$ = CHR$(78) OR R$ = CHR$(110) THEN GOTO
280
270 GOTO 220
280 PRINT : PRINT "WOULD YOU LIKE TO"
290 PRINT "SET A NEW MATRIX?"
300 INPUT "(Y/N)?";S$
310 IF S$ = CHR$(89) OR S$ = CHR$(121) THEN
HOME : VTAB 5: GOTO 80
320 IF S$ = CHR$(78) OR S$ = CHR$(110) THEN GOTO
340
330 GOTO 280
340 PRINT CHR$(4); "PR#0": HOME
350 HTAB 10: VTAB 12: PRINT " SIGNING OFF"
360 END
370 FOR X = 1 TO H
380 PRINT CHR$(32); CHR$(95); CHR$(95);
390 NEXT X: PRINT
400 FOR X = 1 TO H

```

```

410 PRINT CHR$(124); CHR$(32); CHR$(32);
420 NEXT X
430 PRINT CHR$(124)
440 FOR X = 1 TO H
450 PRINT CHR$(124); CHR$(95); CHR$(95);
460 NEXT X: PRINT CHR$(124)
470 RETURN
480 PRINT CHR$(4); "PR#1"
490 GOTO 170

```

6

VISICALC PRINTING TIP

by Merle Block

The "standard" VisiCalc program, on the Apple][+ equipped with the Epson MX80 printer and Graphtrax, prints 80 characters per line. That permits eight cells, each 9 characters wide, across an 8" page. You can get more cells by glueing pages together, OR - this tip will tell you how to print 132 characters per line, and 8 lines per inch (rather than the standard 6 lines per inch). Then, you can get up to fourteen 9 character cells across a page.

When you are ready to print the VisiCalc sheet, do the following:

STEP NO.	YOU TYPE	PROGRAM RESPONSE	NOTES:
1.	>A1 <CR>		SET VISICALC TO THE UPPER LEFTHAND CELL
2.	/	COMMAND: ---	
3.	P	PRINT:FILE,PRINTER, #(SLOT)	
4.	<CR>	PRINT:PRINT:LOWER- RIGHT "(SETUP) - IF PRINTER IS (NOLF) & (CRLF) IN SLOT #1	TYPE THE <CR> RIGHT "(SETUP) - IF PRINTER IS (NOLF) & (CRLF) IN SLOT #1
5.	"	PRINT: SETUP OR RETURN	
6.	"EA"CI"CA"CI"CO (same as #4)		FOLLOW WITH <CR>
7.	- CELL # OF LOWER RIGHT HAND CELL <CR>	(start of printing)	EG: -Q176 <CR>. MINUS SIGN GIVES SINGLE LINE SPACING

The double quote sign, "", which you type at Step 5, tells the VisiCalc program that the next string of characters will be the "setup" string. Then, the caret, "^", with the letters that follow will be sent to the printer to setup the printer response. The "CA sets the printer linefeed to 1/72" which gives the 8 lines per inch; the "CO turns on the compressed (132 characters per line) mode. Notice that is Oh, not Zero.

The easiest way to reset the printer to the usual 80 characters per line and 6 lines per inch is to turn off the printer.

DISKETERIA DISPATCH

At the June garage sale meeting, we expect several new DOS 3.3 disks. Be sure to stop at the Disk Sales Table to see what's new for you. Also, we are going to make copies of the alphabetical sort of 3.3 disks available for sale, at both the office and the monthly meetings. We have not yet determined the price, but it will be very reasonable.

New DOS 3.3 Disk by Fred Edwards

This month we are introducing a new DOS 3.3 disk called RECIPE FILES which has been requested by a number of you. We are indebted to the following members who contributed several of the sample recipes included on the disk; Peggy Falica, Pasha Marsh, Anne Moeller, Gladys Pearson, Nancy Philipp and last but in no way least our own Tom Warrick's Mom.

VOLUME 159: RECIPE FILES

As with all other disks we recommend that you make a copy of this disk before beginning to use it.

This disk is intended for your use in entering YOUR favorite recipes. Sample recipes have been included so that you may see how others have formatted their entries. You may, however, use any format you choose in entering your own. The main program includes subroutines for adding, deleting, printing to screen or printer, and Help.

All good cooks have their theories on how a set of recipe files should be categorized. Arbitrary choices had to be made in writing the main program and the decision was made to use the following 14 categories:

Appetizers	Fruits
Breads	Meats
Cakes	Poultry
Casseroles	Salads
Cookies	Soups
Desserts	Vegetables
Fish	Misc

As this disk comes to you many of these categories do not contain recipes and you may choose not to ever use some of them. Except for having to look at the unused ones on the 'choice' screen this will not cause you problems. **HOWEVER** the main program is highly interactive with all of the text files supplied and you should not lock them, rename them or delete them except through the routines built into the main program.

Entering Recipes:

The sub-routine in the main program which 'adds' recipes uses a carriage return as a delimiter. In practical terms this means that you may use the left and right arrows to move back and forth in editing your input ONLY between carriage returns. Once a recipe has been entered you may use a text editing or word processing program to further edit it or you may 'reenter' it through the main program by choosing the 'add' routine and giving it the same name.

File Limitations:

As supplied the disk will take between 50 and 88 recipes depending on the length of each one. This is another good reason for making a copy of the disk and retaining the original to make more copies if your recipes more than fill one disk.

New SigMac Disks by Tony Anderson

This month SigMac is introducing five new disks, one of which (SigMac 16) is the long-awaited New Members Disk for the Macintosh. Those of you who have not redeemed your "new member disk chit" given to you when you joined may now do so at the office, at the Saturday meetings, or by mail. If you have lost your "chit" you will have to handle this through the office so that your name can be checked off the "list".

SigMac 16: New Members Disk 1985

In the Desk Accessory folder:

Desk Accessory Mover (by Donald Brown) - This is the font mover of desk accessories. Now all you who have been dying to recover the disk space taken up by that silly puzzle can reclaim your 2k of disk space. This application allows you to remove desk accessories or add new ones like the ones listed below. This is distributed under the MacHonor* System, which means that the author expects you to pay \$15.00 if you like the program and are going to continue using it. Many other desk accessories are available both commercially and on other SIGMAC disks. One word of warning - Do not remove the Control Panel desk accessory! Doing so would create chaos.

D.A.M. Instructions (by Donald Brown) - Instructions for the Desk Accessories Mover.

New Key Caps - A new version of the Key Caps desk accessory. When this accessory is selected it adds a menu item to the menu bar. The menu allows you to choose from all the fonts on the disk one font to be displayed by Key Caps.

ArtThief - This little gem of a desk accessory will save you lots of time and disk swapping. It allows you to look at a MacPaint document and place any part of it on the clipboard. Since this is a desk accessory, you do not need to leave the current application. Great for use with MacWrite! Now effectively use two documents in MacPaint.

Install Calendar - This is a very neat calendar/appointment/memo desk accessory which many of us use to keep our records of birthdays, a perpetual-type calendar, and other goodies. Please note that by double-clicking directly on its icon you will install a calendar in the desk accessory portion of the screen (under the Apple icon,) and you should not do so on this disk. Open it up to look at it, but we recommend that you move it onto another disk to see how easy it is to install the calendar.

In the "Wanna Play ?" folder:

Daleks (by Johan Strandberg) - DALEKS was written during the middle stage of the Macintosh development project, when Johan Strandberg was at Apple. The name Daleks comes from the British Broadcasting System television program "Dr. Who" which was (is) broadcast in the U.S.A. by the Public Broadcasting System. This game is based on an old game of similar design called "Escape". For an interesting demonstration of the 3-D routines in the QuickDraw ROM package, select "About Daleks" from the Apple menu. The compiler of this disk has seen a score as high as 7350. Most good players will routinely score in the 1,000+ range, often reaching into the 2,000's.

Daleks Instructions (by David S. Rose) - The rules for the game in a MacWrite document.

contd.

Reversi (by Robert J. Woodhead) - Reversi is an extremely simple game in concept but difficult to master. This is an old game that one of the game companies now markets as Othello*. The author offers this program with the request that you make a donation to the Donald Beaulieu Vision Fund.

Reversi Instructions (by Robert J. Woodhead) - The rules of the game in a MacWrite document.

Megaroids - Have I got a game for you! This is considered by many to be the best implementation of Asteroids ever, on any machine anywhere. Smooth flicker-free animation of whole screens full of 3D asteroids. Megaroids was written in MegaMax C as a demonstration of that product.

In the Fonts folder:

FontDoubler - When you use a font in a size that is not shown in outline on the style menu, the Mac will scale the closest size that it has to the needed size. Unfortunately, this is seldom satisfactory. FontDoubler will scale the font you have to twice the normal size. The advantage is that the scaling routine in FontDoubler is much better than the Mac's routine.

Font Mover - The font mover inserts or removes various type fonts into your system. Included are two samples which you can install. There are many different fonts available through commercial sources or on SIGMAC disks, including specialized fonts, foreign languages, scientific and math symbols, and fancy fonts.

Mars 18, Stencil 24 - These fonts are but two of the many fonts available in the public domain. For more, check out SigMac Disks 11 and 12.

In the Utilities folder:

Fedit 2.0 - A disk sector editor. Allows you to read any block on the disk, edit that block and write it back out to the disk.

DiskUtil - An Apple utility to clone disks. Unlike "Disk Copy" on the Mac "System" disk, this works on a 128K or 512K Mac.

Blank Disks Initialization - This initiates (initializes and formats) new disks. If you have a box of 10 disks, you can feed them into this open application one at a time and format and name each of them. We recommend that you name your blank disks Blank #1, Blank #2, and so on, to avoid getting yourself confused about which disk you are using. A word of caution: You will destroy data on a disk by reinitializing it. So be careful about placing disks with data you wish to keep into this application.

System Folder Note: This is a minimal system implementation, stripped of most desk accessories (the stuff under the Apple icon in the upper-left hand corner of your screen). Also stripped out are many of the fonts in the Fonts Menu listing.

SigMac Disk 17: Red Ryder 5.0 (no system)

This disk is devoted to Scott Watson's Red Ryder terminal emulation program for the Mac. Red Ryder is not public domain software. It is distributed as a user-supported product. We offer it as a service to the membership. The Macintosh has lots of high-caliber software of this type. Your support for good products like this one will encourage many more. Please read the license agreement in the documentation and abide by it.

Several utilities and games on this disk are duplicated elsewhere in the SigMac Library. At the request of Red Ryder author Scott Watson this disk, with the exception of this note, is unmodified from the version he distributes.

SigMac Disk 18: MusicWorks Collection I

New from Wap-tel, the biggest collection of all hit MusicWorks files in the universe. Not available in any store. Order early for maximum enjoyment. This selection of 31 blockbusters is sure to make you the envy of all your friends. Think of the many hours of musical fun you'll have with hits like "Busters" from the movie of a similar name, "Maple Leaf Rag" by Scott Joplin, and that piano-bar favorite, "My Funny Valentine". And if you call before midnight tonight, we'll throw in this deluxe ginsu disk drive cleaner...

The following musical selections are included in this collection:

A 5th of Beethoven	Breaking Us in Two
Bumble Boogie	Busters
Canon in D	Chrysanthemum
Grantchester Meadows	Great Gig in the Sky
It Came Upon a Midnight Clear	Louie Louie
Mag. Men in Flying Mach.	Maple Leaf Rag
Money	My Funny Valentine
Mystery Song	Raiders of the Lost Ark
Rainbow Connection	Ralph
Rockit	Scarlatti
Star Wars	Study #3 for Guitar
Study #6 for Guitar	Study #7 for Guitar
Study #12 for Guitar	Sultans of Swing
The Spider	The Eyes of Love
The Entertainer	Toccatina
Yesterday	

SigMac Disk 19: Mock Accessories

Desk accessories are popping up all over. You will find they do all sorts of useful things. This disk contains CE Software's incredible Mock series of desk accessories. The series has three components. MockWrite is a scaled down, text-only version of MacWrite. MockPrint allows you to print any text file while you use your Mac for other things, and MockTerminal emulates a simple telecommunications terminal. The accessories are basic no-frills applications that are always available under the ever-present Apple menu.

These accessories are not in the public domain. They are distributed through what the author calls the MacHonor System. SigMac is distributing this disk as a service to the membership. The author states: "We encourage you to make all the copies you want, and give it to everyone you know. Try out this software at absolutely no risk whatsoever. If you like our packages and want to keep them, just send \$25 total for the licenses to MockTerminal, MockWrite, and MockPrinter (yes, that's less than ten dollars per program!) to CE Software, Department M, 801 73rd Street, Des Moines, Iowa 50312, (515) 224-1995."

SigMac Disk 20: MacPainting II

This disk is the second in our series of the best Mac-Paintings we can find. These paint documents come to us from the Public Domain collection of the Drexel University Macintosh Users Group, Dusers. We wish to thank Dusers and all the MacArtists who have created these bit patterns to delight the eyes. For more delightful bits, be sure to try SigMac Disk 6.

Is The Goose Dead?

Reprinted From The MacStreet Journal, May 1985

by Steven Bobker



AVE YOU EVER BOUGHT A PROGRAM THAT proved to be a turkey, not even coming close to the claims in its ads? Wouldn't you like the opportunity to obtain programs free, use and evaluate them for whatever time periods you need to see if the programs work for you, and only then pay a very reasonable price for them? Such software does exist, often being called Freeware, Shareware, or MacHonorware.

NYMUG distribution disk 6 consists entirely of shareware material and some shareware material has appeared on each of NYMUG disks 8 and 9. Shareware is also available on all bulletin board systems including NYMUG's BBS and the New York Mac BBS. Many of the programs are of extremely high quality and most of you have probably seen or used one or more. The problem is that very few of us have paid the requested amounts. And so the writers have either ceased producing shareware or will never produce shareware again.

I conducted a telephone survey of shareware authors and discovered that the response figures are absurdly low. For example, the Diskinfo desk accessory appears on CompuServe, the New York Mac BBS, and our disk 8. It has been around since the beginning of the year. How many people in the New York/New Jersey area have sent in their \$10. Two. Yes, two (both NYMUG members). I don't know how many people are actually using this bargain utility, but I know it's a lot more than me and the other person. My survey indicated that the ratio of users to payers varies between 50 to 1 and 100+ to 1. Similar ratios for IBM products are much better, ranging from 50 to 1 down to 20 to 1. Several shareware publishers of IBM products actually support themselves by shareware (some have actually become fairly wealthy, no crime in today's overblown software world). The products are not much different from Mac shareware products and certainly weren't when they were first introduced.

Why has this concept succeeded in the stuffy IBM world and failed miserably in the Mac world? One possible explanation is that IBM users are often a bit more computer sophisticated (have to be to use the thing) and thus understand the software development process better. They see the value offered, realize what went into producing the software, and understand that the prices asked are bargains. And so they pay. And are rewarded with more and better shareware products. We Mac users, on the other hand, often came to the Mac without much computer experience. The shareware programs often look "small" and "simple" and so not worth money. Not so. Polished Mac programs are hard to write and what you see as

shareware are polished products. I know of one shareware program (the Red Ryder 4.0 communication program--\$40) that took 6 months of basically full-time effort to write.

Another possibility is that users feel that shareware lacks proper documentation and support. This is simply not true. Once you pay for your shareware you'll find the user support exceeds anything you've seen from a store-bought program. In general you just call the author up. Documentation has always been adequate and is often better than the slick, incomplete stuff that comes with the expensive programs. Support and upgrading of shareware has always been superior to software sold through stores.

I fear that shareware is dead in the Mac world, killed by ordinary users. The only thing that I can suggest is that you look at your software. Are you using shareware products that you haven't paid for? Don't say I don't know or I can't tell: all shareware lets you know. Check the "About..." dialogs under the Apple menu; they will tell you if the product is shareware, what donation is requested, and where to send it. Don't be embarrassed to send in a donation for a product you have been using free for 6 months--the authors don't care. If enough people respond quickly maybe there will be more cheap, good Mac software that you can look at before you have to pay for it, and fewer turkeys taking up your space, time, and money.

PI SIG NEWS

by Raymond Hobbs

Meeting Time - 3rd Monday of month, 8:00 P.M.
Meeting Place - WAP Office, Woodmont Avenue
Information - Call R. Hobbs, (301)490-7484

At the last meeting, we were treated to a demonstration of Concertware, the new music synthesizer software package for the Macintosh by Great Wave Software. John Gardner gave the demo, and was able to give us a lot of insights into the program, since his brother was a co-author of the package. This tied in very well to our ongoing investigation into music synthesis on Apple computers. Thank you, John!

Beginning this month, we will be investigating techniques and business aspects of producing commercial software. We plan to cover designing applications, program development and coding techniques, documentation, packaging, marketing and distribution. If you are planning to write software for the market, or are just interested in what to look for in a well-made software package, you will want to participate in the upcoming meetings.

As usual, we will be conducting our regular exchange of system information and will be entertaining questions. We would also like to extend an invitation to Alfred Rumble to attend our meeting, and feed us the particulars of the problem which he offered PI SIG as a challenge. It's a challenge we would like to take on! Others are welcome to make suggestions for future topics for us PI SIGers.

VIEWS & REVIEWS

by Raymond Hobbs

My thanks this month to Mike Vore and Grant Ellsworth, for their help in reviewing the two flight simulators and the AE Z-80 Card. The other product reviewed is Copy II Mac, which I did.

FLIGHT SIMULATION - A Review of Two by Mike Vore

Although WAP does not have enough pilots to warrant forming an AVSIG, there are two programs which might interest the pilots we do have. The two programs are Flight Simulator II by Bruce Artwick, distributed by Sub Logic, and Skyrace by Reginald DeConti, distributed by Marche Software. Let me begin by saying that I am not a game player and that the only other games involving hi-res graphics I possess are Fast Gammon and Cribbage, so I don't have a large basis for comparing hi-res graphics.

Flight Simulator II is pretty close to an honest-to-goodness flight simulator. The plane simulated is a Piper Cherokee Anchor II, and the documentation includes aircraft specifications and characteristics. The instrument panel is fully loaded and the avionics package includes six radios (one, the Emergency Locator Beacon, is under the pilot's seat). I have not flown a light plane in about a dozen years so my first take-off was a bit shaky. The plane seems to be quite pitch sensitive - a sign that the center of gravity is a bit too far aft.

The pilot can select simulations in various modes, from an easy flight in VFR (Visual Flight Rule) conditions to night flight and even a 1918 WWI battle. These and other flight parameters can be easily called up from a setup menu. FSII can be used with a joystick or the keyboard - I have found that using the keyboard is a bit clumsy, but after some practice I haven't crashed too often. If you are a pilot you may like to play with FSII. The take-off point at the beginning is Megs Field in Chicago, and the simulation of the skyline is good in B/W. Flying out of that field at night gives one a view of the lights of Chicago - an impressive sight.

Buy it - you'll like it. It runs on the] [+ , //e and //c.

Skyrace is another flight simulation, but unlike FSII it is not limited to one plane; it includes over a dozen different sailplanes. That's right - Skyrace simulates soaring flight. After getting Skyrace loaded the pilot selects his plane. He has a choice of 13 different sailplanes, or he can construct flight parameters to suit his mood. After accepting or changing the weather and other conditions, the flight begins at an altitude of 3000'. The object of the "game" is to complete the day's task - soar around a designated course. The instrument panel is adequate, though sparse, but the inclusion of an "audio vario" is a nice feature.

"What's an audio vario?", you ask. Well, it's a very sensitive rate-of-climb indicator that "beeps" when the sailplane is climbing. It lets you fly while looking around outside instead of watching the instrument panel all the time.

There are three "screens" to Skyrace - the instrument panel and a "map" are in hi-res, while a "cloud" screen is in lo-res. Flying Skyrace is a bit tricky since there is no feel. I soar by the seat of my

pants and the feel of the plane plays a large part of soaring. Flying is by the keyboard or joystick, and the audio vario can be turned off. Documentation is good and even includes instructions on how to make backups, plus patches to make monochrome displays easier to see.

I recommend this to all pilots, just as I recommend that all pilots get a ride in a sailplane. This also runs equally well on a] [+ , //e and //c. Both programs will provide hours of enjoyment for anyone who has an interest in aviation. FSII comes with a rather good book on flying, while Skyrace has a book on soaring. Both include a bibliography on their respective areas of aviation.

APPLIED ENGINEERING Z-80 CARD by Grant Ellsworth

The Applied Engineering Z-80 Card is a coprocessor card for the Apple to run Z-80 chip-based software. In terms that anyone can understand, that means CP/M software. I have used the Microsoft Z-80 card for several years now, so I had a good basis for comparison. The AE Z-80 Card appears to be fully compatible with currently available CP/M applications, is easy to install and runs well.

Installation of AE Z-80 is quickly accomplished. Plug in the card and go. There are no extra wires to thread, sockets to pop or other nonsense. Once installed, simply run your CP/M software - the compatibility is there from the start.

I tested AE Z-80 with all the CP/M software I had and found no running problems - this includes Wordstar, dBASE II, PC-Talk, Turbo Pascal and Z-Term Professional. The best part is that all these packages seemed to like AE Z-80 better than the Microsoft version I had installed previously - I noticed a marked increase in speed.

The one problem with AE Z-80 is the lack of the CP/M operating system - of course, I already had CP/M with my Microsoft card, but anyone purchasing the AE Z-80 package as a first-time system will need to get a copy of the CP/M operating system software to make anything run. [Applied Engineering is now including its own version of CP/M with the Z-80 Card, at no extra cost. This change of packaging occurred after Grant had submitted his review. - rfh]

At \$113, the AE Z-80 card really looks like a good buy. I prefer the Applied Engineering version to the Microsoft - so much so that I bought the card I received for review and kept it. How much more of a recommendation can I give?

COPY II MAC by Raymond Hobbs

Copy II Mac, by Central Point Software (\$39.95) is a disk backup package for Macintosh. I have mixed feelings about such packages, since I know that they are used extensively by software pirates, as well as honest folk who are hyper to a near-psychotic degree about blowing program disks out of the water and being stuck for several weeks waiting for a backup to arrive from the publisher. I won't get into the copy protection argument here (although I am quite opinionated on that subject), but I will mention that there are numerous products on the market for backing up copy protected software. These products normally have a

contd. on pg 23

NEWS NOTES FROM THE VEEP

by Robert C. Platt

Modula-2. Congratulations to long-time WAPer Tom (Dr. Wo) Woteki on his appointment to the Editorial Board of the Journal of Pascal, Ada & Modula-2. The Journal, which is now published by John Wiley & Sons, 605 Third Ave, NY, NY 10158 is worthwhile reading for structured programming fans.

The January issue has an interesting article by Niklaus Wirth announcing a few revisions to his Modula-2 programming language. The changes include:

- All objects declared in a definition module are now exported. You no longer need to use an EXPORT statement.

- When defining a variant record, a colon must be present even if the tag field is missing (for example, after the word CASE in):

```
TrixRec = RECORD
CASE :BOOLEAN OF
True: POINTER|
False: INTEGER END; END;
```

- When defining a subrange of an enumeration, you may optionally specify which enumeration type you are using:

```
Type Days=(Mon,Tue,Wed,Thur,Fri,Sat,Sun);
Var Day : Days;
Working : ARRAY Days[Mon..Fri] OF BOOLEAN;
```

- The elements of sets had been restricted to constants. Now constant expressions can be used to specify set elements.

Open Apple. Softalk fans with a thirst for Apple][knowledge should consider "Open Apple", an informal

newsletter by Tom Weishaar who formerly wrote Sof-talk's DOStalk column. For a sample issue write: Open-Apple, 10026 Roe Ave, Overland Park, KA 66207.

Insurance. Most people assume that home owner's insurance covers their Apple gear as well as their stereos. This varies with insurance companies and with the "business use" of the home computer system. In many cases, the least costly form of insurance is a rider on your homeowner's policy. But some companies will not give special computer coverage, and a new crop of computer insurance companies sprouted up. I thought that the deal I found with Compusurance of Miami FL was too good to be true - they even covered power surge losses! It was, and I just got a letter saying that they were leaving the business. I suspect that this is a trend, and would like to hear from other WAP members.

Mindboggling. I always thought that C programmers were the most cryptic coders on the computer scene. Then I tried to understand "object oriented" languages such as SmallTalk. An object oriented language describes the behavior and communication between "actors" rather than the usual procedure oriented languages that spell out a task for a computer in a step-by-step fashion. I now discover that both of my nightmares of complexity have joined forces: Apple has accepted delivery of an "Objective C" compiler which it hopes to use on its Lisa SmallTalk project!

Adios. As my term as a Veep draws to a close, I would like to thank all of the WAP staff and volunteers who made my job so pleasant. I hope to keep active with WAP and look forward to continue hearing from you. My new address is: 7517 Tripp Ave., Amarillo, TX 79121. Drop me a line or send a disk!

Views & Reviews contd. from pg 22

program for making disk copies, along with one or more "on-the-side" utilities such as sector editors, attribute editors and the like.

Copy II Mac is fairly simple-minded. It allows the user to back up disks by sector copying or by bit copying. Sector copying is quicker, but will generally fail to back up protected sectors. The bit copier, which makes precious few assumptions about the form and veracity of the data it is copying, will generally back up those data areas which the sector copier could not handle. With the Macintosh, which has a rather flaky operating system (don't get so defensive, Mac owners!), the ability to back up software is in itself enough to make Copy II Mac a useful sideboard item. I've blown two disks myself on the Mac, and I've been into computers for ... well, for a long time.

Copy II Mac also includes "MacTools", a utility which is handy for performing auxiliary operations on disks, such as formatting, erasing, renaming, read-verifying and disk copying (the MacTools version of disk copying is not the powerhouse that the regular Copy II Mac program is, though). MacTools can handle both internal and external drives simultaneously, although only one at a time can be active.

MacTools also contains a file utility which displays the finder's information (file size, name, attributes, last modification date) for you and allows you to change file names and attributes. If you make the desktop file visible, your disk will definitely

acquire an attribute which I call "The Great Flake". You can also copy files from within MacTools.

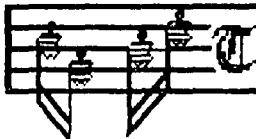
I find the lack of a sector editor discouraging, but I'm aware that Central Point Software does not normally include sector editors with their disk utilities. Trouble is, if you have a flaky disk, a sector editor will allow you to modify the disk, and you may be able to repair it in that way (not for the faint of heart, of course!). In short, I think that Copy II Mac could be improved as far as utility is concerned, but I guess that for \$39.95 it has all the utility it needs, at least until the Mac OS is revised to give the user more control over what he or she is doing.

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The Musical Apple

.... by Raymond Hobbs

Musical synthesis on a computer consists of the description of instrument sounds, composition of musical events and the reproduction of the finished product. There are several excellent packages available for both the Apple and the Macintosh computers for accomplishing these goals. In past articles, I have been addressing the most difficult of the tasks - that of instrument definition.

Last time, we looked at how the instrument envelope shapes the soundwave into the desired playing environment. It is convenient to think of the envelope as defining how an instrument is played, while the soundwave itself defines the attributes of the individual instrument tones.

The soundwave characteristics are determined primarily by the instrument's shape. This is due to the fact that instrument sounds are rich in overtones (harmonics). The shape of the instrument is the prime determinant of the presence or absence of harmonics, as well as their relative strengths (the muting effects of instrument shape on harmonics is a rather technical topic which space precludes me from getting into here). In this regard, the composition of the instrument - the material of which it is made - is another important determinant of the presence or absence and relative strengths of harmonics.

The upshot of all this is that the instrument's shape and composition can be identified by the instrument's composite waveform. This means that if we can describe the composite waveform to the computer, we can "teach" the computer how to make the instrument. Note that the above discussion is irrespective of the method and style of playing - the computer does not yet know if the instrument is bowed, blown or struck. However, the addition of the envelope information (see previous Musical Apple articles) will supply the missing information.

This is all on a theoretical level. There are a number of serious limitations to implementing this approach on the computer, which we will go into later; however, we can utilize this straightforward approach for now, keeping in mind that the instruments we describe will not result in exact reproductions of the instruments' sounds. As the various problem areas arise, we will discuss them.

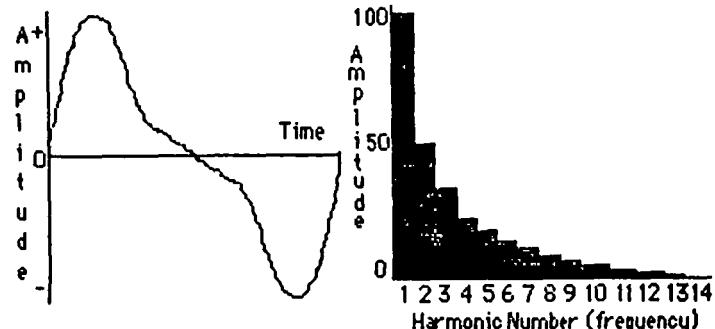
We will deal with simple waveforms initially. As a matter of fact, most instrument sounds are based on these simple waveforms, so we lose little by restricting ourselves in this way. The simple waveforms we will be creating are the sawtooth, square and triangle waves. The sounds typically associated with them are those of the bowed string family, the electronic organ, and the woodwinds.

SAWTOOTH. The sawtooth wave is the most easily created. Its formula is:

$$A/H_1 + A/H_2 + \dots + A/H_n$$

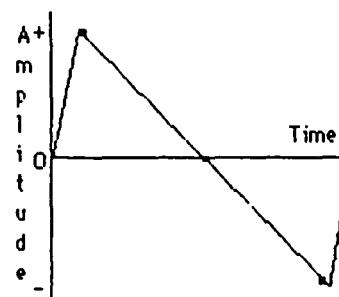
where A represents the amplitude of the 1st harmonic (the fundamental), and H_n equals the harmonic number ($H_1 = 1$ st harmonic, $H_2 = 2$ nd harmonic, etc.). These values may be added together to form the composite, or additive waveform. This is, in fact, the method used by most of the synthesizers available for Apple

products. This function is graphed below, both in the time domain and in the frequency domain:



The waveform depicted above is typical of a sawtooth containing twenty harmonics. As we add more harmonics, the wave approaches a perfect sawtooth, without the slight perturbations seen in the model. An instrument such as the violin would, in fact, produce up to fifty or sixty harmonics within a single tone. Unfortunately, here is where the first of our problem areas is encountered.

The re-creation of waveforms in a digital computer necessitates the conversion of digital information into an analog signal. The digital information is stored as a table of values representing discrete points along the plotted waveform. These points form the basis for the creation of a simulated sound, which is made up of impulses consistent with the values supplied. This technique is known as sampling. While the resulting sound is not technically identical with the desired waveform, it easily passes the test of the sound reproduction equipment and the human ear, both of which fill in missing information as the sound passes through. However, in order to produce the best sound possible, the number of digital samples passed along to the digital-to-analog converter should be as large as possible - the greater the number of points sampled, the more accurate the reproduction of the waveform. Obviously, the minimum number of samples required for reproduction of the waveform would be two. That situation is depicted in the graph below.



From the two points sampled, the sawtooth could be (more or less) accurately drawn. The upshot of this, however, is that for a sample of at least two points per waveform to be passed to the digital-to-analog converter, the waveform must be sufficiently low (or slow) for the two points to be passed. A case in point is a frequency of 10,000 cycles per second, with two points plotted would require 20,000 pieces of information to be passed each second. If the second harmonic were included (remembering that the second harmonic is twice the frequency of the first), then 40,000 pieces of information would have to be passed. Imagine the situation of an 8,000 cycle-per-second tone with sixty harmonics! The information required to reproduce that tone, with harmonics, would exceed the processing

contd.

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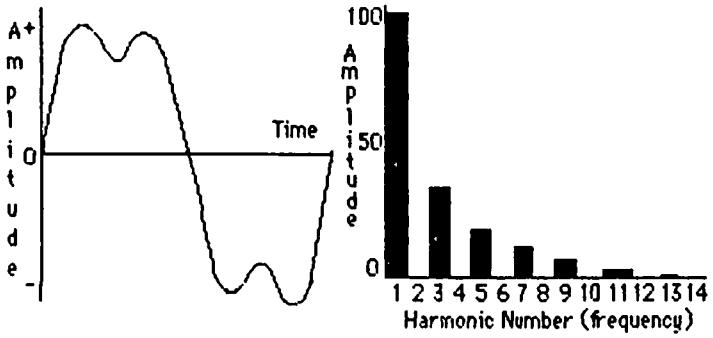
capacity of the computer's microchip! What actually happens is worse: the computer doesn't merely forget what it can't handle - it processes it in turn as soon as possible. Unfortunately, by that time we are in another cycle (at 8,000 cycles per second) and what we hear being reproduced is a residual frequency, or what is termed a foldover. If you have tried creating instrument sounds and found that after a certain high pitch is reached an extra tone is created in the lower registers, you are hearing the "aliasing" created by the foldover. The solution is to drop one or more of the higher harmonics.

Therefore, we see that we must content ourselves to imperfect waveform re-creation, or be subject to foldover effects caused by the inability of our microprocessor to deliver the digital sampling information fast enough. This is just as true on the Macintosh as it is on the Apple. I have found that the limit is about fifteen to sixteen harmonics on both computers.

SQUARE. The square wave is reminiscent of organ music (the skating rink variety). The square wave formula is identical to the sawtooth formula, but is applied to the odd-numbered harmonics only:

$$A/H_1 + A/H_3 + \dots + A/H_n \text{ where } n \text{ is odd.}$$

The resulting waveform is graphed below, in both frequency and time domains.

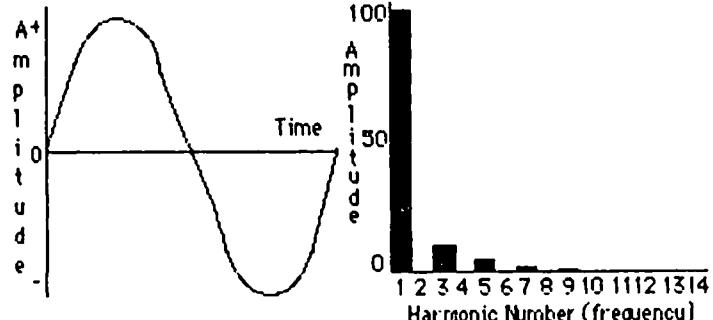


Naturally, the same sampling considerations apply to the square wave, in order to prevent foldover.

TRIANGLE. The triangle wave is frequently used to simulate the double reed woodwinds (for the others, such as clarinet and flute, the simpler square wave, or a combination wave can be used). The formula for the triangle wave is the same as for the square wave, except that the harmonic number is squared:

$$A/H_1^2 + A/H_3^2 + \dots + A/H_n^2$$

The triangle wave is plotted below:



It should be noted that in a perfect triangle wave, every other harmonic is out of phase (the value is multiplied by -1). However, tests have proved that while the human ear is quite sensitive to differences in frequency, it is rather insensitive to phase differences. Therefore, the phase changes may be safely

ignored.

COMPLEX WAVEFORMS. In order to simulate the characteristics of instruments dealing with tone color or timbre, it is frequently necessary to create waveforms that do not conform to the relatively simple models drawn above. As mentioned previously, the material of which an instrument is made, as well as its shape, determine the final shape of the composite waveform. This is because certain materials and certain shapes will tend to mute some harmonics relative to others.

The characteristics of instruments which affect the shape of the waveform deal with the shape and curvature of the resonating chamber, the tapering of that chamber toward the hole from which the sound exits, and the flare of the exit hole itself. In the case of a violin or piano, this is quite a complex set of variables to consider. However, in the case of the woodwinds and brasses, it is much easier. There we simply distinguish between cylindrical instruments such as the flute and oboe and the cylindrical ones such as the saxophone and euphonium. The flare of the bell is also important, ranging from the absence of a bell, as in the cor anglais or flute to the large flares representative of the brasses. In any event, these characteristics lead to some generalizations about instruments and representative waveforms.

1. Sweet, pure and simple tones are characteristic of instruments in which the fundamental (first harmonic) dominates, and in which the upper harmonics are largely absent (flute, piano).
2. The absence of even-numbered harmonics gives the instrument a hollow sound (clarinet).
3. If the upper harmonics are present, the sound will be richer and fuller (brass).
4. If the even-numbered harmonics are absent and the upper harmonics are present and full, the sound will be both hollow and nasal (oboe).

The following chart summarizes my findings with respect to waveform characteristics and instrumentation:

<u>HARMONICS</u>				
Waveform	first	lower(2-6)	upper(7+)	tone characteristics
Sawtooth	strong	present	present	sweet, strong, rich
	strong	present	absent	sweet, strong, poor
	present	present	present	sweet, thin, rich
	present	present	absent	sweet, thin, poor
Square or Triangle	strong	present	present	hollow, nasal, rich
	strong	present	absent	hollow, rich
	"	present	present	hollow, nasal, poor
"	present	present	absent	hollow, poor

Of course, this discussion has omitted any mention of envelopes in instrument construction, and we know from previous articles that the envelope is extremely important in defining instrument sounds. We will return to this topic in another article, but for now I will briefly mention the following problem area which combining waveforms and envelopes entails.

We saw in the preceding paragraphs how some instruments are characterized by the absence of even-numbered harmonics. However, that was a simplification of the true situation. Actually, those harmonics are not absent, but are muted to a greater or lesser degree by the shape of the resonating chamber of the instrument. It turns out that each harmonic of an instrument tone carries with it a unique envelope which pertains only to that harmonic. Naturally, this presents us with an enormous problem - the synth-

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BEST OF THE WAP ABBS

by =Alexander=

From WP3432 to ALL 04/10 Joysticks

Going to buy a joystick and would like to know which is the "best?" for my //e. Thanks for any help!
Joe Chelena

From WAP371 to:WP3432 04/10 Joysticks

I have a TG and think it is very good. I also have friends who own Kraft and they are pleased with it. The TG requires removing springs to defeat self-centering, while the Kraft has switches to do that.

From WP5340 to:WP3432 04/10 The Best Joystick...

I bought a Kraft joystick. Besides being expensive, it really doesn't work very well. I've tried an "Apple joystick on a friend's //c, and it appears to be the best around.]Tim[

From WP2521 to:WP3432 04/12 Best Joystick

I have had a couple of Apple joysticks and they have been VERY unreliable and will not stand up to any abuse at all. Now I am very happy with a Hayes Mach J[, which is very durable and a nice j-stick. Also, you might want to try the Mach 3, which has another fire button (button 0) on the handle, but it gets in my way. hope this helps. -=/\Pete/\=-"

From WP1399 to:WAP001 04/01 Mailing Lists

Dave, Are WAP mail lists now being sold? I just received a notice of a computer software & hdwe auction in the mail. The address label was identical to the label on the WAP journal. What gives? Have I missed something? Ell Geib

From WAP008 to:WP1399 04/01 WAP Mail List

No, WAP is not selling its Mailing List. We are selling service to selected advertisers. We retain full control of our list (the labels are never given to the advertiser). Membership was asked if they would object to occasional mailings from screened advertisers. Most said OK. Bernie Urban.

From WP5181 to ALL 04/08 Mailing Lists

I too was annoyed to receive "junk mail" with my WAP label on it. Instead of leaving a msg. here, I left one on the WAP answering machine. WAP008 called me and said that this was the 1st time WAP had done this, after taking a vote. The new membership form has a place to check to not get this mail. They have promised to note on my record that I don't want it in the future. I suggest that others who don't want to receive such mail call or write to the WAP office to get their files updated now and to be sure to check the appropriate box on the new membership renewal form when it is time for you to renew.

From WP3195 to ALL 04/14 ????? on Msg 182

Msg 182 says WAP sells 'services' not the mailing list. Does that mean that advertisements are delivered to WAP already stuffed, sealed and stamped and that the WAP office then prints mail labels, applies them and mails???

From WAP008 to:WP3195 04/15 Mailing List Service

You got it! We do exactly that. We print the labels and have the Centers for the Handicapped who do all our bulk mailing do the rest (including taking it to the post office). The commercial outfit never sees the list. The Centers for the Handicapped are bonded and trustworthy. Thanks. Gena

From WP3269 to ALL 04/01 Accelerator //e ????

I may be interested in upgrading my //e with an Accelerator //e card. Before I buy, I wonder if anyone out there has one and does or doesn't like it, or has found any incompatibilities. Will it work with Appleworks, CP/M, and Apple Pascal operating systems? I would really appreciate any comments. Thank you. David

From WP2243 to:WP3269 04/02 Accel //e

David, acc card will be of -no- help with CP/M, as that runs on a different chip all together. Should work with any program that runs on the main 64K of the Apple system. Programs that use extra RAM (like the ext 80 col card) will not run those particular operations faster. Brett

From WP4795 to:WP3269 04/02 ACC //e

It will not work with CPM unless you know of a way to run CPM on a 65C02/6502/6502C. I have had one for about 3 months now and would not be without it for Appleworks, and some other programs I use (a tax program which was VERY slow without the ACC //e is now livable). I use Dollars/Sense and Smartcom I which are Pascal based and they run fine. Smartcom I has a few extra cursors if you are running a //e that has been enhanced but runs fine otherwise. Actually the Acc //e has dip switches which must be turned off for Modems and Disk drives as the //e is too fast for them.

From WAP580 to:WP3269 04/02 Accelerator //e

I have the card and like it a lot. According to the manual it will not work for those Z-80 cards that use direct memory access. Consult your Z-80 manual if in doubt. Works with Pascal. Not compatible with Corvus, Omnimex or other direct memory access devices.

From WP1333 to ALL 04/10 Volksmodem 1200

Is anyone using the Volks 1200? What are your experiences with it? Can you switch between 300/1200 without changing jumpers (switches or software pokes)?

From WP6630 to:WP1333 04/10 Volksmodem 1200

Just bought the Volks 1200 about three weeks ago, and think it's the greatest device since the toaster. Use it with ASCII 'Pro,' and have no problem switching baud rates. The only difficulty I had was setting it up. Its manual shows two switches on the rear: Data Carrier Detect and Data Set Ready. But if you look carefully, there appear to be 3 switches, not two. Actually, the third switch is not connected to anything and is only there because it's cheaper for Anchor Automation to buy 3-switch modules as opposed to 2-switch modules, don't ask me why. Also the up position is the OFF (default) position, contrary to contd.

popular opinion.

From WP4772 to:WP1333 04/10 Volks 1200

I have been using a Volksmodem 1200 for about two months of heavy usage, and so far no problem. I just started to use the PFS:Access Program, and am not having the traditional 80-column drop off with the Apple //e. Have had to take the text card out when using MDM730 with systems that I could not put nulls into.

From WAP580 to ALL 04/02 Can You Top This?

Remember the old show, CAN YOU TOP THIS? I've got one. Today I received a hotline call from Tokyo. Yes that's right, Toyko, Japan from a WAP member no less, asking a question about ASCII EXPRESS. He wanted to know if there was any way to print out the macros. I told him that the only way I had found was to use something like the PRINTIT card which prints whatever is on the screen. I realized after hanging up that there is another way. Use the TLIST command from DIVERSI-DOS to list the file. This command works on "S" files as well as text files.

From WAP261 to ALL 04/10 Price of Used Apples

According to an article in InfoWorld (1 Apr, p17) used Apples sell for the following: //c-\$750, //e-\$845, Macintosh (128K)-\$1244, LISA 2/10-\$2,710. This is for a "typical" configuration based on recent actual prices paid. Info gathered from dealers, classified ads. Price typically includes software and common peripherals. Walt

From WP2243 to:WAP261 04/11 Sale Price's(?)

Walt, I've seen those kinds of articles before, and I just can't seem to figure out where they are getting their info. Must be they are doing all their info gathering on the West Coast or something. When was the last time you even saw a used //e for sale, much less one with 'software & periph's for less than \$850? Brett.

From WP5158 to:WP4292 04/18 AW Config

You may find it near impossible to config AppleWorks to some printers. When it first came out, I could not get any assistance to config to the Gemini/Delta printers. Try Ron at Printers Plus in Alex. He is their AW config expert (he is not there at all hours). - Phil

From WAP208 to:WAP977 03/30 Use of ProDOS

ProDOS has several advantages for programmers. For Applesoft programmers PD offers a facility for saving and restoring variables to and from a disk with a couple of commands; PD has true program chaining; PD adds fast garbage collection to AS, automatically splits AS programs above the Hi-Res page; PD allocates file buffers as needed, no more MAXFILES to worry about; PD protects itself, that is, it will not load a machine language file into the area where PD is located; PD speeds up file transactions; the path name feature means you can forget about having the user have his/her data disks & program disks in particular drives. Just as long as the data disks are in a drive, PD will find the path; Path names lets you have different data for the same program on the same disk. For example, you can save a game in progress under a subdirectory and restore it very easily. For assembly language programmers, PD is "open," that is, you can add commands, and the entry points are well documented so you can use PD's features directly from AL. Theron Fuller.

From WP4795 to:WP2446 04/24 Apple //e

Andy--On the DuoDisk, Apple really made it (adjusting disk drive speed Ed.) easy. On the bottom of your drives towards to middle and at the front are two little holes. With a disk speed verify program running (like Backup II) insert a small screwdriver (flat blade NOT Phillips head) about 1 to 2 inches into the drive and you should be able to feel the screwdriver enter a slot. Then merely rotate the screwdriver very slowly watching your disk speed change on the screen. The types of screwdriver which worked best for me are the ones used to tighten the little screws on eyeglasses (about \$5 for a set from some place like Drug Fair). I place my DuoDisk on some books with the front overhanging and a mirror on the desk so that I can find the small holes and the internal adjuster.

From WP4893 to ALL 04/24 Free Disks

Got a failed 3M, Maxell or Dysan disk in 3.5, 5.25 or 8 inch size? Verbatim will replace it for free: Verbatim Offer, P.O. Box 7306, Clinton, IA, 52736. See NEWSWEEK 4/29/85 p. 60 for details.

APPLEWORKS NOTES

by Paul Koskos

Two developments are of interest to Apple][owners. The first is an announcement from Checkmate Technology of a pre-boot software program which will modify AppleWorks to run on the 64K Apple][(using Checkmate's 80/160 column Multiview board. The Multiview board sells for around \$230 discount, and the AppleWorks pre-boot will be supplied free of charge).

A second vendor, Norwich Data Services, has announced a patch for AppleWorks that allows it to run on the Apple][/][+. Its offering price is in the \$20 range, by mail.

Caution - in both cases: The desktop memory for a 64K Apple is only about 10K. Not very much. Checkmate says a memory expansion is being worked on. Norwich has just announced that a patch recognizing a 64K RAM card and providing a 72K desktop will be ready by June 1 (?), for \$29.95.

New Subject: The Apple Interface Configuration program presented by Walt Mossberg in the November 84 WAP Journal has worked twice for me on two different //e's. But it failed to perform on two different AppleWorks programs on the WAP office //e. It "failed to find the AppleWorks disk in Drive 1". One of the "non-working" disks was V 1.2, and it appears that the reconfiguration utility does not recognize the updated AppleWorks, although some owners of the updated AppleWorks report that they still have printing problems with non-Apple interface cards.

Musical Apple contd. from pg 25

sizers currently available for the Apple and Macintosh computers allow us to describe but one envelope for each composite waveform! Therefore, we are unable to define all harmonics of the tone with respect to attack, decay and so forth. We will return to this problem and try to find a suitable solution in later articles, but in the meantime, don't burn these articles if your attempts to create a trombone on your synthesizer fail to produce perfect results... We'll get close enough for jazz if we hang in there!

APPLE /// SIG NEWS

by Charlene Ryan

Much still continues to happen within our Apple /// group. We had our May meeting on Thursday May 9, at the Walter Reed site, and it is probably the last one that will take place there unless circumstances change. The largest single group of /// users there are converting to Macintosh computers. Most often cited was the need for better graphics capabilities.

Col. Miller's office works with 7 Apple ///'s and our first question was, of course, what is going to happen to the equipment? Their office deals with satellites overseas and on the West Coast, and the equipment will be transferred to these sites. The foreign offices love the "work horses" and have no trouble getting support. May I say, Dr. Dick Miller, for each and every one of us, thank you for your interest, support, and contributions to the group over the years. Dick's membership goes back to 1980 and he remembers the problems with the early ///'s well.

Much discussion dwelt on the stability of Apple Corporation due to the recent announcement of more discontinued products. Apple, which started out to be a company for creative innovative users, is turning to marketing techniques that are questionable to the previously faithful Apple owners. The "Computer for the Rest of Us" appears to be turning into the "Computer That's Available With Support." The //c is a great machine for people who do not wish to tinker. You can't easily get inside these new machines as you can on the][, //e, and ///. The /// users are a different lot. We bought the machine with intention to use it in business, or business-like applications. The Macintosh doesn't exactly suit us all. I can't think of one other computer company who discontinued three important product lines within one calendar year and wasn't in financial trouble.

The subject of support was discussed. Where do we take our equipment if it breaks? Several places were mentioned, but we should solicit each member and the area computer stores to find out just who will fix our ///. I talked to Universal Computer on Fern Street, Alexandria. The salesman said they still use 3 ///'s to do all their accounting and inventory management. Because they are still using ///'s themselves, they will be glad to repair them. There is no /// software or hardware in stock in the store, but they will order anything we would like with 50% down.

Clinton Computer in Clinton MD still has an experienced repair person on their staff. The Computer Store, 1990 K Street, NW, has /// software in stock. Service is good but expensive, (phone 466-4629). Computer Age on Georgia Ave got grumpy when one of our members brought his machine in, but they repaired it. We would like to hear from anyone who has had experiences in this area, good and bad.

Next month's meeting will be at the Convention Center Inn, corner of 12th and K. This is a very convenient location, first rate meeting room, with street parking right in front for early birds. The traffic isn't bad at that hour either - so give us a try; it will be the only meeting place until someone has a better idea. We will be carrying our monthly meetings through the summer, but not our tutorials.

Last month's WAP Journal announced the May tutorial for the 6th. My mistake. It took place on May 13 at the Apple Pi Office with Steve Gorman presiding. The

next tutorial will be in September and we already have someone willing to preside. Pascal is the subject for September, and because it can get lengthy, we will try to have Pascal for two or three sessions, depending on how far we would like to go with it.

Be sure to look for other articles in the WAP Journal. The Editor always makes room for this column (thank you, Bernie) but the other articles appear where there is space. One appeared in April regarding putting a clock in your ///, and there are at least 4 more that I know of in the works. Keep them coming, /// SIG members, this is great response.

Al Lambert was appointed Disk /// Librarian for our group. Anyone who has public domain software, original software that is worth sharing, contact Al to see if it would be worth adding to the library. We want to make these disks available at /// meetings, and through the Disketeria.

I will be preparing a survey questionnaire shortly to mail out to each SIG member. Besides the usual stuff about updating our records concerning type of equipment owned, volunteers will also be solicited to be included on our WAP /// HOTLINE. Right now, there are three contacts in the Journal. Jerry Chandler, Bill Rosenmund, and me. We get calls weekly from people looking for information, help, desperation...I don't mind helping people, I love to do it when I know what I'm talking about, but often I refer the caller to someone I THINK can help, or if I don't know who, I tell the caller to call Jerry or Bill....! We need to diversify! When you get this survey in the mail, please take a few moments to fill it out and please don't hesitate to comment on anything I may have forgotten to include.

There will be a Garage Sale on June 22 at the main meeting site in Bethesda. This could be a tremendous opportunity to get rid of those white elephants you bought when you thought you wanted them. That sale is for /// owners too. Till next time... ☺



THE TITAN //PLUS][EMULATION BOARD

by Rudolph H. de Jong, M.D.

One reason I still like my Apple /// is because of its great versatility of operating systems: business software in native SOS-mode, Apple][software in DOS emulator mode, and the rich library of CP/M routines when a SoftCard is added.

However, the 48K][+ emulator software has never been updated to access all the memory of the ///, the 80-column capability, or even the upper/lower case alphabet. Also, differences in ROM paddle sensing routines make the JoyStick /// incompatible with Apple][games. With ProDOS writing and reading SOS files and catalogs, the hope for file interchange between Apple][and /// was raised. However, ProDOS requires a minimum of 64K of memory, unattainable with the 48K][+ emulator.

Hence the advertisement for Titan Technologies 'Three-Plus-Two' Emulation Board looked mighty attractive. Here was a board that could transform your "frontal lobotomy" weakling into a soaring 64K system that would run either DOS or ProDOS, have a fully compatible gameport, plus the option of expanding the emulator mode into a 176K machine and add a 128K RAM-disk to native mode. To be sure, it wasn't cheap: I paid \$503.75 with shipping. But that was a lot better than switching to a PC.

Plugged into an expansion slot, the //][board indeed delivered on many of its promises. The language card loaded either Integer Basic or ProDOS as expected. The gameport played Choplifter or Flight Simulator as it never had. With the driver provided, I installed a 128K RAM-disk on my disk-intensive SOS programs. And the ProDOS configuration showed a 'Profile' in slot 5 that could be formatted to 112K (128K-16K).

That was the good news. Now for the TITANic news about the //][maiden voyage. To start, my serial printer hung any program in][-mode. One TITAN technician told me that the serial cable pinout needed to be changed; he would send a wiring diagram (never received). A followup call provided a simple solution: change from 'Printer' to 'Communication' mode during Emulator set-up. That worked fine when tried.

Although the ProDOS RAM-disk could be formatted and a subdirectory installed, any file written to the pseudo-disk overwrote the catalog. Hence ProDOS couldn't find the RAM-disk back ("Volume not found") and the file was lost. In other words, the feature didn't work. Two calls to TITAN reassured me that they were aware of the problem and working on it - but that didn't help much.

To make matters worse, my accounting program "Time Is Money" worked flawlessly in the plain vanilla 48K emulator mode. But when reconfigured for expansion to 64K mode, curious bugs appeared: sudden hangups, strange patterns on the screen, and odd glitches when printing. Though this might be a software problem, the expanded version worked fine on my neighbor's][+ with RAM-card; in other words, there was a problem with either TITAN's card or the operating software. Two more calls to the factory were no help, other than that they were working on a new version of the card dubbed 'three-plus-two-E' that would solve these problems and provide 80-column and lower-case letter options as well. The hitch, however, was an undetermined additional cost for present owners! Since this

is a machine language package that makes very intensive use of all available memory, I suspect that TITAN's Emulator is overwritten in some obscure nook or cranny.

Since I can neither use machine code nor ProDOS packages such as AppleWorks with any assurance of consistency, I am left with a very expensive native mode RAM-disk for which I have very little use. For the same \$500 I could have picked up a used //c and gotten a lot more performance. Regrettably, TITAN's response to two letters and six long-distance calls was "no refund, mister."

Good as the three-plus-two board sounds to neglected Apple /// owners, and laudable as the effort at expanding emulation mode may be, the existing product is flawed. In essence, the board is being beta tested at customer's risk and expense. If and when it works as advertised, get it. Till then wait.

INFORMAL APPLE USERS' GROUP IN MANASSAS

I would like to start an informal Apple users' group in Manassas, Virginia. If you are interested please give me a call. Tom Kroll (703) 368-1929.



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BUYING // / SOFTWARE THE "DISPOSAL NOTICE" WAY

by David Ottolini

It was, in many ways, just like a candy store. There I was, in a huge room that at one time had held hundreds of screaming youngsters eating their lunch. But this evening it was food for the computer, rather than food for the stomach that I was primarily interested in.

I'd been drawn to this former elementary school thanks to a simple postcard in the mail. "COMPUTER SOFTWARE AND EQUIPMENT DISPOSAL NOTICE" it announced. "Consolidation sale of computer inventories and miscellaneous from over 35 Washington area computer retailers and distributors."

And while the headlines were enticing, it was the announcement a bit further down that was the real clincher: the software and hardware offered for sale would start at 30 percent off the first day...and plunge to 80 percent off the fifth. Now that was a bargain! And being the proud owner of an Apple // (and knowing how difficult software will be to get for Apple's poor little outcast) I knew this was one sale I could not miss. But being one always on the lookout for the best price, I decided to gut it out until the last day of the initial sale's week in Maryland (the sale would move to Virginia after that).

So there I finally was - 8:00 PM the final night of the sale, expecting everything to be gone. I was wrong. In fact, I was pleasantly surprised at the volume of software (primarily) and hardware that was still left. A lot of it was "junk software" but there were still some good things for the taking, including software for all the Apple family members, IBM, etc. There was even an Apple // for sale at (about) \$1200.00 "firm" (and thus no takers).

Since there never was a lot of really commercial // software, my selections were rather limited. And I had to dig through lots of other Apple software to find it. But I did find the 1.1 version of Apple Writer //, which I bought. There was also VisiCalc, Quickfile, the BPI Business series and some training packs. I even found some Quark software for Word Juggler which I bought (and later sold to a fellow //'er).

But while excited about being in this computer candy store, I was sobered by the fact that all of the material offered for sale was marked at list price. The commercial auctioneer who set this up, Ronald Rasmus, explained the dealers were told to mark the software at their discretion, since the sale prices would be based on them. Thus it was in the dealers' own interests not to discount. (Each piece of software or hardware was coded with a dealer identification number so that the dealer could be paid according to what was sold. Everything not sold at the end of the sale was returned to their respective dealers.)

So by taking a percentage off list price rather than the usual store discount price, it took the second and perhaps the third day of the sale (when the discount was 60%) that bargains really began to surface. The Apple Writer // software was a good example. Its price was listed at \$275.00 for the 1.1 version. I had only recently gotten a price of \$149.00 for the 2.0 version from the dealer where I originally purchased my //. I paid 20 cents on the dollar for the 1.1 version. That was a very good deal. On the other hand, Apple wants a cool \$100 to upgrade my 1.1

version to 2.0. For that, I can live with 1.1 right now. And you certainly can't blame the dealers for trying to get as much of a return on their investment as possible.

The moral of the story is this: these sales can be good deals if...and it's a strong if...you are very careful and know exactly what you want ahead of time. I discovered it was a good idea not only to bring a calculator, but also my Apple // and //+/ Resource Guide which lists what's available in software and hardware, and more importantly, what they do.

The other thing one must watch out for here is that not everything is new. One fellow member of the // SIG saw a plastic wrapping machine being used, an indication that one must use care, and not be afraid to ask about something under any circumstances (that is, make sure there are diskettes in the package, etc.). One must also remember that there is no support provided. No refunds. No nothing. It's strictly cash and carry with a strong dose of buyer beware thrown in.

I should mention at this point that Mr. Rasmus and his employees (including some family members) were generally helpful and courteous, especially considering the amount of material they had to deal with and the length of the sale (10 AM to 10 PM daily).

There will be more of these sales (call 703-370-5760 for more information), but are they worth the effort, time and money? Again, if one is careful, and knows what to look for, the answer is a definite yes. Did I go back for a second look at the Virginia sale? Let me tell you about the great deal I got on this Apple Business Graphics program.....

SigMac News contd. from pg 33

we shouldn't become a tool of commercial sales.

• more discussion on communications, especially with other machines.

• more orientation to business use of Mac, rather than demos of geewhiz stuff with limited practical application. Presentations on "vertical" application of software, i.e. the various ways a single business uses Macintosh.

Specific suggestions for June, July, and August meetings:

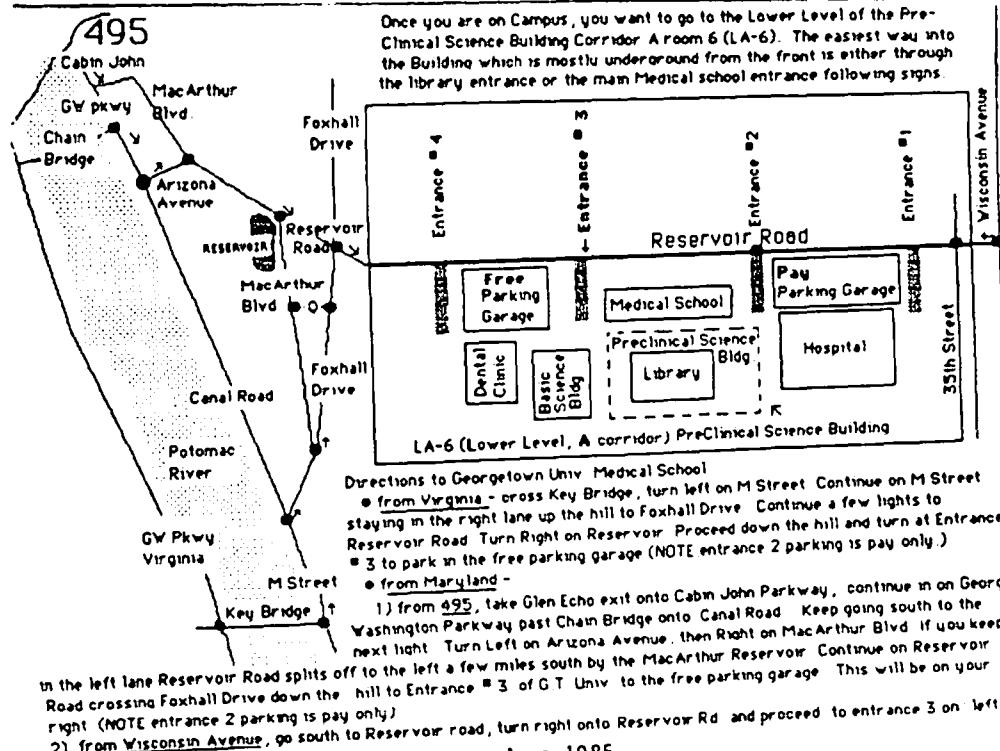
• how to persuade your boss to equip your business with Mac

• Bernie Urban: demos of color Mac, new ROMs, double-sided drives and portable, credit card sized version of same.

Nonbreaking space	⌘-Space	Note: Adding the Shift key to any of these key sequences selects text from the beginning insertion point to the end point
New page	Shift-Enter	
New line	Shift-Return	
Optional hyphen	⌘-Hyphen	
Expand glossary name	⌘-Backspace	
Again key	⌘-A	
Start new division	⌘-Enter	
Leading merge quote	Option-\	
Tailing merge quote	Shift-Option-\	
Plain text	⌘-Shift-Space	
Boldface	⌘-Shift-B	
Italic	⌘-Shift-I	
Underline	⌘-Shift-U	
Shadow	⌘-Shift-S	
Outline	⌘-Shift-D	
Superscript	⌘-Shift-≡	
Subscript	⌘-Shift-Hyphen	
Small Caps	⌘-Shift-K	
Decrease font size	⌘-Shift-<	
Increase font size	⌘-Shift->	
Font change	⌘-Shift-E-≡	
Normal paragraph	⌘-Shift-P	Dialog box control:
Left	⌘-Shift-L	Cancel (also to interrupt time consuming operations): ⌘-
Right	⌘-Shift-R	OK (or other highlighted button): Enter or Return
Centered	⌘-Shift-C	Help : ⌘-?
Justified	⌘-Shift-J	1st, 2nd, ... button from left : ⌘-1, ⌘-2, ...
Open space	⌘-Shift-O	Yes, No : ⌘-Y, ⌘-N, ...
Indent first line 5"	⌘-Shift-F	
Nest paragraph 5"	⌘-Shift-N	Move Opt-Shift-click
Unnest paragraph	⌘-Shift-M	Copy Opt-click
Hanging indent	⌘-Shift-T	Copy format Opt-⌘-click

A COMPILATION OF MICROSOFT WORD COMMANDS

by Bob Puglino



Sigma
MEETING
LOCATION
FOR JULY

SIGMAC NEWS

by Brooks Leffler



Mac Section

For our May 11 meeting, last minute non-availability of projection facilities and some of the scheduled presenters forced a revision to the agenda. The business meeting followed the Q&A, and demos were held in the cafeteria at several "booths", each with its own Mac. Concurrent with the demos, those who wished (some 25 of the the loyal regulars) stayed in the auditorium for a discussion of "Whither SigMac".

Q & A:

Q. Consistent series of bomb messages appears, mostly in MacWrite 2.2 - I've replaced power supply several times. What do codes mean in bomb messages?

A. If there is a continuing power supply problem, you should go to dealer to have diagnostics run. If error message problem is consistently within same application, it's probably a software problem. You can also get bomb message if external drive is placed too close to the left side of the Mac, causing overheating. Bomb can also be caused by exceeding 10-page memory limit on MacWrite 2.2.

Latest error code list is not too recent, published on an early SigMac disk and in an early MacWorld [also in MACazine, Feb 85, p. 48 - bg1].

Q. How do I convert MacWrite documents back to MacWrite 2.2 after disk-based version has converted them to disk-based documents?

A: Save text only, not whole document, and conversion back to 2.2 will be possible.

Q. What causes MS Word to show icon for a file, but no contents?

A. Cause unknown, but another member lost a Word file; desktop showed "MW001", "MW002"; opened them to a blank screen. Fixed with FileEdit; icons and files were recovered. CAUTION: FileEdit is not for the novice. Best to call hotline number for MS Word (in front of Journal).

Q. Several questions re MacWrite, MacPaint, Finder updates; several reports of dealers and Apple reps not agreeing on latest official versions.

A. Latest (5/11/85) versions are MacWrite 4.5, MacPaint 1.5, and Finder 4.2. Should be available from dealers free of charge within next two weeks. Club will try to secure latest copy so members can upgrade their disks at the office. CALL FIRST.

One member reported that 4.1 Finder had been known to destroy disk directories.

Q. MS File has Imagewriter file that is new. Will that be commonly available?

A. There are several bugs in Imagewriter 15 driver now circulating; an update is imminent. Newest one uses 17K and doesn't have 50% reduction feature.

Q. What's with the New Member Disk?

A. It's now available, free to members who have paid new member's fee and haven't exercised their option to trade chit for another disk. Chit may still be

traded for any other disk.

Q. Is there an Imagewriter users manual part 2?

A. The Mac manual contains the equivalent info.

Q. Is there a version of Multiplan which will take advantage of 512k?

A. Version 1.2 will do so to a slight degree; an upgrade has been rumored. A new Multiplan XL has been seen; early reviews are nifty, and rumored cost is very reasonable, but it probably won't be out until fall.

Q. New Finder uses a different system font. Any way to change?

A. There are several versions out, with different system fonts. For decent-looking on-screen lettering, the right font must be in the system file (mine needs New York 9 - bg1). It is possible to use Resource Mover to rename the system font and substitute the font you'd like to use instead.

Q. What's with Switcher?

A. This utility will not be included in new Finder package. It is now available for pre-release testing through CompuServe. Version 2.6 is now out (5/11), 3.0 should be available in a week, with expected release in summer at little or no charge.

Q. How can you turn SET STARTUP off?

A. Select the Finder and then SET STARTUP.

Q. How to get upgrade of Red Ryder?

A. You must be a registered user. Red Ryder, like all shareware, requires that you pay the fee to get followup service.

Q. Is there an update on computer insurance availability?

A. If you don't use your Mac for business, your homeowner's policy may apply. For business users, one supplier is the Chubb Group.

Q. Is there any reason why a normal printer buffer won't work with Mac?

A. There are several: Mac needs serial connection. With hi-res Mac text, files are larger than conventional text, so memory in buffer is not adequate. In draft mode, ok. One user reported surprising time savings using a buffer with MacPaint, but not MacWrite; he promised an article on the subject. Biggest constraint on printing is disk access, and a buffer won't help that.

Q. Is MacDraw being sent to purchasers of 512K upgrade?

A. Shipments have not been fast, but they're coming.

contd.

BUSINESS MEETING:

512K UPGRADE:

SigMac Chairman Steve Hunt announced that negotiations with dealers for low-cost "official" upgrades have fallen through after two hopeful starts, and that members are now on their own. Several local dealers are offering upgrades in the \$550 - \$600 range. According to Apple Cupertino's Patty Folden, who is in charge of the free software offer to purchasers of Mac upgrades, the program is still in effect only for those who have upgraded their pre-September, 1984 Macs by March 31, 1985, and only those who apply by June 1 will be eligible to receive the MacDraw/MacProject software.

Alternative upgrade methods include several nationally-advertised "unofficial" mail-order options, and a couple of local ones. (See last issue of WAP in which Dave Morganstein reports on his local non-Apple upgrade. See also the VOAD and MacCorner ads in the same issue.) In the non-Apple upgrades being done, several methods have been used, including replacing the old chips with socketed ones, and adding a piggy-back board with new circuitry. Replacement with socketed chips is probably ok, with the success of the upgrade dependent on the skill of the solderer. Scuttlebutt from Apple suggests that additional boards not be put inside the Mac due to possible incompatibility with rumored expansion of hardware inside the case.

Among the changes predicted for fall are new ROMs and double-sided disk drives; also rumored is a 20 MB external hard disk from Apple, to sit under the Mac. There is also speculation that Apple may acquire General Computer, maker of internally-mounted Hyper-drive.

Whatever method you use for memory upgrade: be sure that the firm doing the work will guarantee to put your machine back in working condition.

UPCOMING MEETINGS AND EVENTS:

Next regular meeting will be on June 8 at USUHS, but monthly meetings thereafter will be held at Georgetown University Medical School beginning July 13. Meetings will be held in the Pre-Clinical Science Building, Room LA-6. See map published elsewhere this issue. Regular meeting schedule stays the same.

We hope to have a complete MacOffice set up for July feature.

Second MacExpo sponsored by MacWorld will be held in Boston Wed August 21 through Friday August 23. If there is enough interest, we will look into chartering a bus. WAP will have a booth to solicit members and sell disks; contact Bernie Urban if you'd like to help staff the booth.

MAC BULLETIN BOARD: Tom Warrick announced the move of facilities just before Memorial Day weekend. Tom also solicited material for uploading, which must be in BinHex on disk.

GROUP BUYS: Rich Wasserstrom described the current group buy offerings, including software and accessories. A number of items are now in stock at the office; copies of Concertware and ClickArt Effects have been ordered for those who have paid deposits. Rich asked that members not call him at home for group buy info: there are several other volunteers to call, listed on the masthead.

EQUIPMENT:

Video Projector. The search continues. Most conventional devices are not compatible due to the Mac's higher horizontal scan rate. Three projection systems (Barco, Hughes, GE Lightvalve) that should work are also prohibitively expensive, or require a technician, or both. Tom Warrick suggested looking into acquiring a projector cooperatively to share with other computer groups using USUHS. Brooks Leffler volunteered to work with Bernie Urban to find answer.

Digitizer. JoAnn Stewart reported that Magic looks best so far, but no decision has been made as to which one the club should buy.

Laserwriter. Nothing resolved yet.

DEMONSTRATIONS:

Representatives from Creative Solutions (developer of Forth) and Cadmus (makers of high performance Unix-based workstations) showed their wares in small group sessions in the cafeteria; Creative Solutions (301/984-0262) offered a FREE demo disk in exchange for a blank. The Magic digitizer was also on display again.

WHITHER SIGMAC?

With 1,350+ members now in the SIG and more every week, group growth and how to communicate with members led the agenda for this discussion. Several suggestions regarding communication:

- divide group into two (or more) separate but identical meetings
- continued use of demo booths in cafeteria
- more aggressive publication program of specialized info mailings, Q & A compilation, tutorial articles, product reviews, etc
- similar on disk
- with most communities soon to be wired, use cable tv
- with much already in print from a year of SigMac, we should have a computerized bibliographic file, or, lacking funds for same, we might hire indexing of existing material.

Regarding meetings and content thereof, these suggestions came forth:

- users panel on comparative software evaluation, maybe even monthly, an hour per meeting.
- unstructured discussion means jumping from hardware to programming to software, to the detriment of some who are interested primarily in use of software. More predictable structure might help.
- it's inevitable that group of this size will split into smaller interest/experience groups. Maybe run concurrent sessions for new vs advanced.
- meetings must continue to be as general as possible so as to ensure the "buying power" of size in securing good presenters.
- agenda should be published in advance for feedback and member involvement.
- with continuing inflow of new members, we should provide a Welcome desk at each meeting to provide club and new member info, disk, etc.
- we should put restraints on commercial presenters -
contd. on pg 30

MacNovice Column



by Ralph J. Begleiter

"Formats Make It Fast"

Because the Macintosh is so easy to use, many first-time computer users never really take the time to learn how to take advantage of their computer to do the work they want to do. This month, I'd like to emphasize a point touched upon in a previous column on "Writing a Letter" (WAP Journal, April, 1985). It's the concept of using a FORMAT to make your work easier.

What I mean by a FORMAT is the basic layout of your project, whether it be a letter, a memo, a financial worksheet, a graphic design, a data file or almost anything else. With the Mac, the key is remembering that you don't have to set yourself up from scratch every time you turn on the machine. Set yourself up properly once, and you'll never do it again!

Let's say you've begun using your Mac for a lot of word processing. You write letters, interoffice memos, address envelopes and create expense account reports to submit to your company. Not all the letters you write need to be formatted the same way, of course. You don't use the same formal style to write a letter to your friend in California that you use to write to your boss. And you might want envelopes addressed at holiday time to look different from envelopes addressed at other times of the year.

You can set up FORMATS for each of these uses, then use the formats whenever you want to create a new document, never again having to fuss with margins, tabs, spacing, fonts and other appearance elements of your documents.

The key to creating useful FORMATS is to use the "SAVE AS..." command on your Mac.

"Memo"

Memo

TO:
FROM:
DATE:
RE:

MEMO FORMAT: Start with an "untitled" MacWrite document by opening MacWrite. Set your margins on the ruler at the top of your screen. Choose the fonts you want to use at each location by positioning the cursor, choosing font, size and style, and typing a blank space (you have to type something for Mac to set the font choice). Type the words (such as a letterhead) you want to appear on EVERY memo you write. See example.

Next, insert another ruler.

Set the margins and tabs you like for the BODY of your memos. NOW choose "SAVE AS" from the FILE menu. Mac will ask you to name the document. Call it "Memo".

ENVELOPE FORMAT: Again, start with an "untitled" new document from MacWrite. Set the left margin close to the center of the page (because you want the address on an envelope to appear centered on the envelope). Place the paragraph-indent doodad (remember that?) at the same place (because there are no indents in envelope addresses). Set the right margin at the right edge of the page. Now type two or three "RETURNS" so your address won't start at the top of the envelope. NOW choose "SAVE AS" from the File menu. Name this document "Envelope."

"Envelope"

John J. Name
Street Address Here
City, State, Zip Code

LETTER FORMAT: We've already set this one up. (See MacNovice, WAP Journal April 1985.) Call this one "Letter".

"Letter"

My Letterhead
In My Own Style
Always in Place!

Date Here

Dear

Sincerely,
My Signature

Here's the magic! Mac will save your FORMAT just the way you set it up originally, ready to start a new memo; but Mac will also save your "Boss" memo under its new title, complete with format and contents.

To write a letter, OPEN the document titled "Letter" instead of opening MacWrite. Write your letter. Then choose "SAVE AS" and give your letter a new name. Mac will save your letter but will also save the original "blank" format for your next letter.

When you're ready to address an envelope for the letter, COPY the address from the letter itself. (Mac will remember the address in the "Clipboard".) CLOSE the letter document and OPEN the document titled "Envelope."

Now choose PASTE from the EDIT menu. Voila! Your address appears on the screen, all formatted just the way you like your addresses! Choose PRINT and insert an envelope into your printer. (Remove the continuous-feed paper first, of course.) Mac will print the address.

When you're ready to CLOSE the "envelope" document, Mac will ask you if you want to "Save changes before closing?" Answer "NO." Then, when the document closes, it will remain a "blank" envelope address format, ready for you to use another time!

What we've accomplished so far will save you a lot of time, because you won't be setting margins and tabs and creating letterheads every time you go to write a new document. But the process can be carried to an even more useful extreme. You can create formats for distinct types of documents.

For example, suppose you write to your grandparents, who have become a bit vision-impaired. They like to

contd.

get letters from you, but they can't read them because the writing's too small. Solution: create a new FORMAT for letters to them. OPEN the "Letter" format, reset the margins wide and choose a large-size font, such as Toronto 18 or 14, or Geneva 18 or 24. Type in their address, and the greeting. Then choose "SAVE AS" from the FILE menu. Name the new document "Grandparents." Now, whenever you want to write to them, OPEN the "Grandparents" document. Mac will remember your new margins, and the large-size font, as well as the address and greeting! You'll never bother with formatting again.

You can see how this process can be expanded infinitely. You could create a special format for letters to your boss, complete with his address and greeting. Or, a FORMAT for Holiday Envelope addresses, using a fancy font such as London or Venice. Format formal correspondence in a New York font, and informal correspondence in Toronto. You get the idea.

"Poster"



Once you've created FORMATS for your word processing, you can concentrate more on the words and less on the "processing." But remember that using the concept of FORMATS is expandable to almost anything you can do on the Mac. For example, suppose you're creating small posters to advertise a class you're giving at work or school. There are several different dates on which you'll be giving the class. Or there are several different topics you will be teaching on different occasions. You use MacPaint to create the design of the poster.

Create the basic FORMAT by OPENing MacPaint and drawing the graphics. Use large display-style fonts for most of the poster. Create the design for the line showing the date, and also fill in the topic. To create a format, CUT the date or the topic using the EDIT menu.

NOW, choose "SAVE AS" from the FILE menu. Name the document "Poster." You have now created a FORMAT for future posters. Everything will remain as you've created it except the changeable item (date/topic). When you're ready to print out a poster, open the "Poster" document (instead of MacPaint), fill in the correct date and topic (use PASTE from the EDIT menu if you haven't turned off your Mac in between). When the poster is just the way you want it, choose PRINT FINAL from the FILE menu.

Next time you need a new poster, with a different date or topic, the "Poster" FORMAT will still be there, waiting for you to insert the new material.

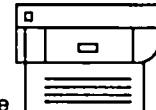
The principle applies to almost everything you do with the Mac. You can make a FORMAT when using a financial spreadsheet, when using a data manager, or even when playing some games! Taking advantages of Mac's memory should free you of the burdensome task of resetting standards in any project, allowing you to accomplish even more quickly the task at hand.

LATEST VERSIONS OF MAC SOFTWARE

PRODUCT	VERSION NUMBER	MANUFACTURER
Binhex	5.0	Mainstay
Chart	1.0	Microsoft
Copy II Mac	3.0	Central Point Software
Ensemble	1.0	Hayden
Fedit	2.1	John Mitchell
File	1.0	Microsoft
Finder *	4.2	Apple
Front Desk	1.0	Layered
Hababex	1.1	Haba Systems
Helix	1.13	Odesta
MS BASIC	2.0	Microsoft
MacAsm	1.2	Mainstay
MacDraw	1.7	Apple
MacForth	1.2, 2.1, 3.0	Creative Solutions Inc
MacLion	3.1	CSD
MacPaint *	1.5	Apple
MacPascal	1.0	Apple
MacProject	1.0	Apple
MacTerminal	1.1	Apple
MacTools	3.0	Central Point Software
MacWrite *	4.5	Apple
MacZap	3.3	Micro Analyst Inc
Multiplan/Mac	1.02	Microsoft
Omnis 2	1.0	Blyth Computers
OverVUE	1.0c	Provue Development
Quartet	1.0	Haba Systems
ReadySetGo	1.01	Manhattan Graphics
Red Ryder	5.0	Freesoft
Switcher	2.6	Apple
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Think Tank 128K,512K	1.010,1.07	Living Videotext Inc
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BUT 1.9997 JUST CAN'T BE THE CURRENT VERSION OF . . .

by Steve Hunt

During the last few months, most of you have seen or heard about new and strange versions for your favorite programs. Your frustration level may have reached new heights as you got a copy of the "latest" version (such as 3.884) only to find a friend got 3.886 the very next day. Did you feel you were always a step or two behind? Welcome to the club - but help REALLY IS on the way.

To help clear up some of this confusion - here is the latest information on new releases of the key Macintosh applications - changes which have been anticipated for months. The most likely approach for you to get a copy of these programs is to take your MacWrite and MacPaint MASTER disks (and two blank disks if you want to save your old versions of Write and Paint) to your dealer and copy the update disks. WAP may also be able to release the update but these arrangements are not firm as this is being written.

Here is what you will get:

MacWrite (4.5) - the 'disk-based' edition. This update will be provided by your dealer by the time you read this.

MacPaint (1.5) - contains no major changes in function but will now support the LaserWriter.

ImageWriter - this program (which tells the printer how to work) is also being updated with the Finder upgrade discussed below. This updated application will permit you to take advantage of the wide carriage ImageWriter, print a file in reduced size (50% reduction), and print over the page breaks on continuous paper. In addition, "high quality" printing is faster (the ImageWriter doesn't stop to think about it every three lines), graphics are also printed in "high resolution" and the quality of printing with Geneva and several other fonts has been improved significantly. As this article was being written, one member was experiencing EXCESSIVE print times for large documents under Microsoft Word - over six hours for a 30-page document. (We hope to have a fix for this problem soon.)

Desk Accessory/Font Mover - this is a new "combined" mover for both desk accessories and fonts. There is an extensive text document on the update disk which describes how this new application works.

Finder (4.1) - The good 'ol 1.1g Finder has been with us for a year. Apple is now releasing the new version which should be available from your dealer (FREE of charge) by the time you read this. The Finder Upgrade will be accomplished with a special application - called 'System Update' (see Figure 1). When you "double click" on this application you are presented with two dialog boxes - the first explaining what is being done during the update and the second allows you to insert a start up disk and click "install". The update routine takes a short time (about 1 min 45 sec) to update the Finder, the Imagewriter, and the System File to be fully compatible with the new version of the Finder.

Before accomplishing the update you should take the following actions:

• Ensure that your Imagewriter file is titled "ImageWriter" - not "Imagewriter 15" or any other variations

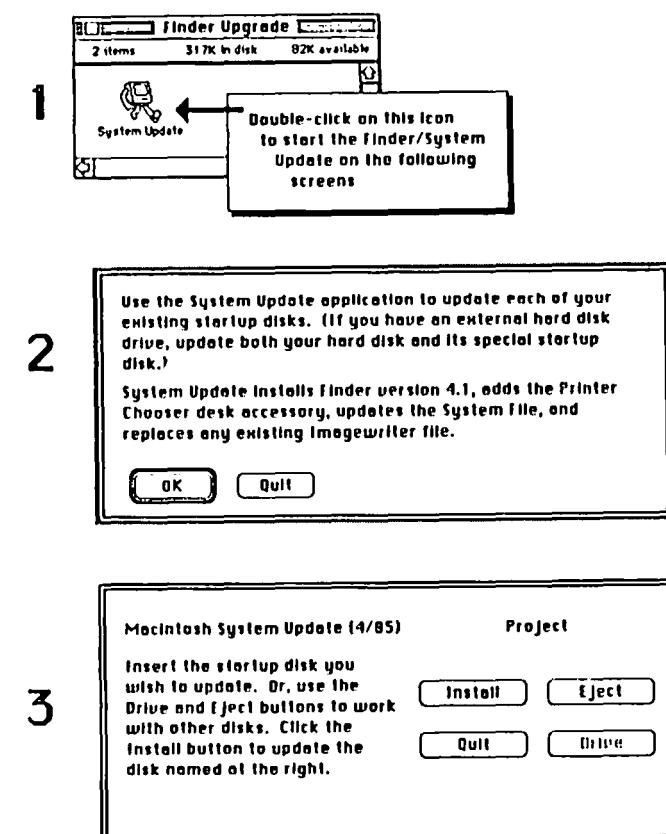


Figure 1 - May 1985 Finder Upgrade

that you may have received.

- Ensure that there is at least 30K of space available on each "start up" disk to allow room for the update.
- Ensure the disk is "unlocked".

This new Finder has been improved in several ways - by increasing the speed of routine operations, including several new features, allowing a larger number of files (for hard disk drive owners), adding a new "mini-Finder" and a few desk accessories, and correcting a few errors identified during the last year. For example:

- Speed Improvements: The Mac is visibly faster when opening windows and performing some "desktop management" actions. When doing a Finder copy, the system does not ask you to re-insert the startup disk just to complete the copy routine.

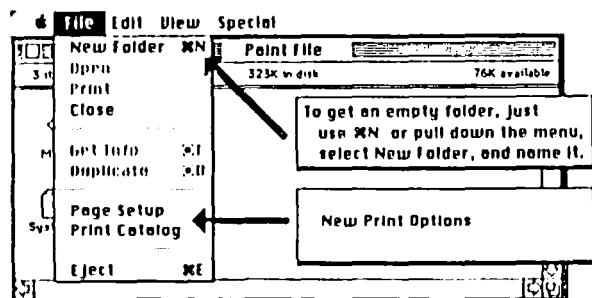


Figure 2 - New Features

contd.

- The 'empty folder' has been eliminated and replaced with a 'New Folder' command under the "File" menu.
- Locked disks, file folders, and files are now indicated by a small padlock.
- There is a new "Shut Down" option on the Special menu which will eject all disks (both internal and external drives), shut the system down and re-boot the system ready for a new startup disk.
- A "MiniFinder" has been added (Figure 3). This feature will be especially valuable for users of hard disk drives. In essence, the MiniFinder provides a new screen (Figure 4) upon start up or when you quit an application. These screens appear more quickly than the normal Desktop and eliminate the need for you to return to the Desktop to start another application.

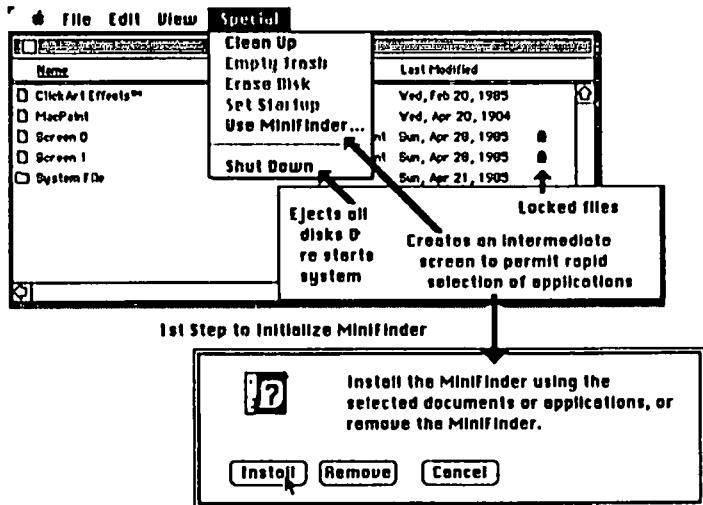


Figure 3

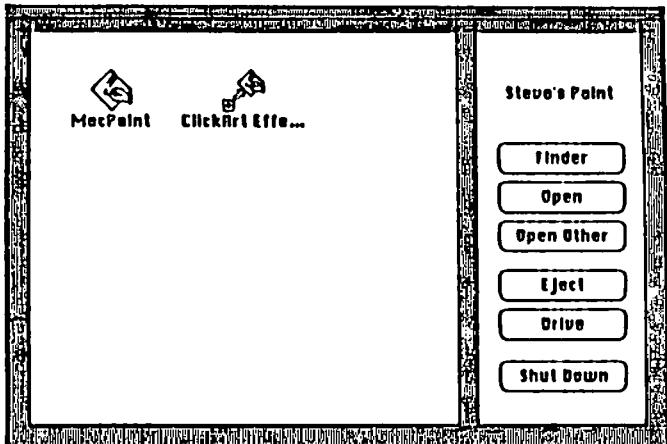


Figure 4

To initialize this capability, select one or more applications on the desk top (by shift-clicking or drawing the selection rectangle over them), pull down the special menu, and select 'Use MiniFinder'. Click "Install", the MiniFinder will be initiated, and the Desktop will appear again. You will see the difference after you start an application from that disk and then quit - returning to the MiniFinder rather than the normal Desktop.

One additional change is underway - though a formal announcement has not been made. Apple is also preparing to update the ROM (read only memory) chips inside the Mac. This change (replacing the two 32K

ROM chips with 264K ROM chips) will have to be done by a dealer. The full effect of these changes is not yet public but indications are that some portion of the existing System File will be moved from software into the new ROM chips. This will result in further improvements in processing speed. Stay tuned for additional information about this upgrade.

The details on how you can get your copy of these upgraded products will be announced at SigMac meetings, included in popular magazines (MacWorld, A+, Macazine, etc), and will be detailed in future issues of the WAP Journal just as soon as they are available.

In addition, to help you stay abreast of changes in Mac software, we are preparing a new column to summarize the latest known version number and date for the most commonly used software projects. The first version of this list appears in this issue.

Summary: These new releases (the first official changes in a year) represent normal improvements in computer systems. From all indications, Apple deserves special praise for the simplicity of the Update program which virtually eliminates the hassle of completing all the necessary steps. If you are a "power user" who has been waiting for improvements in the speed and effectiveness of the Mac, I think you will find that these new releases are most welcome and represent a significant step forward toward making the Mac what it can be - a serious machine for a wide range of applications. If you are a new Mac owner who has been frustrated and confused by the pre-releases which have been circulating, we appreciate your patience and understanding. Please set aside some time to get the updated versions of these programs, go through your disks, run the System Update for all your disks, and trash any pre-release versions of these programs. You will avoid many problems later.

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SOFTVIEWS

by David Morganstein

ClickOn Worksheet (T/Maker Graphics). Future historians will write that the VisiCalc spreadsheet program convinced the business community that personal computers like the Apple II were serious computing machines and that the Lotus 123 spreadsheet program was a major contributor to the success of the IBM PC. Will a spreadsheet program Desk Organizer do the same for the Macintosh and, if so, which program? Apple has spent considerable effort promoting Lotus' Jazz which contains spreadsheet capability; however, the program is fairly expensive when compared with the average price of Macintosh software. Other programs which carry a wide range of price tags are being released, with several functions including a spreadsheet. The T/Maker people have a low-cost product with a novel twist, a spreadsheet and graphics desk accessory, always as accessible as the black Apple in the upper left corner of your desktop. After easy installation (using a utility on the disk), select "ClickOn Worksheet" from among your desk accessories and you will see:

Worksheet

Calculate	%
Open...	
Save	
Save As...	
Dollars and Cents	
Dollars	
Percent	
✓Number	
Graph	
Categories	
Legend	
Title	
Close Graph	
✓Bar	
Stacked Bar	
Line	
Pie	

(Note: The items in the bottom two boxes will not yet be highlighted, as shown above. They can only be chosen after data has been entered and selected for graphing.)

The ClickOn Worksheet accessory provides you with a 20 column by 50 row spreadsheet which can form bar, stacked bar, line and pie charts out of selected cells in the table. Labels are displayed left-justified. Values can be shown as dollars, dollars and cents or as percentages. Since it is a desk accessory, ClickOn Worksheet can be called up while in your favorite word processor. You can Desk Organizer your computational magic, create your graphs and then copy and paste directly into your document without leaving your word processing program. You can have all this without the price of more expensive "integrated" spreadsheet/graphics programs or without the need for a fat Mac and Apple's

Switcher to give you access to several different programs at once.

I found the spreadsheet to be fairly complete and easy to use though, as you would expect, it does not have all the features found in a more expensive package. It looks and operates much like VisiCalc, using similar cell identifiers (e.g. A1, T50, etc.), and in its functions (e.g. @SUM(A1...A5)). Unlike Multiplan on the Mac, moving around is not done with scroll bars and elevator boxes. To reach cells not being displayed, you grab the column heading (or row heading) and "fold" the worksheet to the left (or up). This method makes it easy to retain the top several rows (or left-most columns) as titles. Column widths are changed by grabbing the horizontal bar between the column identifiers and simply pulling the column wider or narrower (as in Multiplan). Below, you see column B being narrowed. Note the cursor has changed into a pair of arrows pointing in opposite directions.

ClickOn™ Worksheet				
© 1985 T/Maker Graphics. All rights Reserved.				
A	B	C	D	E
1				
2				

In the example below, I have entered two columns of numbers representing miles driven and gallons of gasoline used (with headings at the top). The third column is obtained as the ratio of the first to the second. After pointing to cell and clicking in cell C2 to select it, I entered an "=" to indicate a formula. Then I pointed and clicked in cell A2, typed an "/" and pointed and clicked at B2. The formula "=A2/B2" in cell C2 indicates that it is to be calculated as the ratio of A2 to B2. I then pulled down the edit menu and selected "Copy" to copy the formula. Then I selected cells C3 to C7 by clicking and dragging. Finally, the "Paste" option replicated the formula, changing all cell references to be relative (that is, C3 contains the formula "=A3/B3" and so forth.).

ClickOn™ Worksheet					
Gasoline Used					
A	B	C	D	E	F
1 Miles Driven	Gasoline Used		MPG		
2 280	.72	=A2/B2			
3 275	.71	=A3/B3			
4 320	.72	=A4/B4			
5 250	.65	=A5/B5			
6 330	.85	=A6/B6			
7 305	.84	=A7/B7			
8					
9					

To perform the division to get the MPG, I selected the option "Calculate" from the Worksheet menu (it never calculates automatically). Below you see the results, after the addition of a "Date" column. To add the column, I had to "Cut" out the entire worksheet and paste it in, one column to the right, there is no Insert row or Column command. The MPG are displayed to the nearest tenth by narrowing the column sufficiently (there is no option to set the number of decimal places for the display).

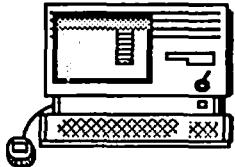
ClickOn™ Worksheet					
Date					
A	B	C	D	E	F
1 Date	Miles Driven	Gasoline Used	MPG		
2 4/12	280	.72	38.9		
3 4/19	275	.71	38.7		
4 4/23	320	.72	39		
5 4/28	250	.65	38.5		
6 5/2	330	.85	38.8		
7 5/5	305	.84	36.3		
8					
9					

ClickOn Worksheet provides you with one of four graph formats in an instant. Click and drag down the MPG column to select the six calculated mileage figures. First, select the graph option and then choose the type of graph as a line graph. Next, select the six dates in column A and select categories in the ClickOn Worksheet menu. The following graph appears:

contd.

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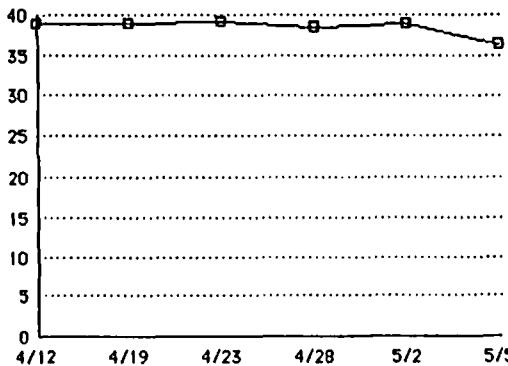
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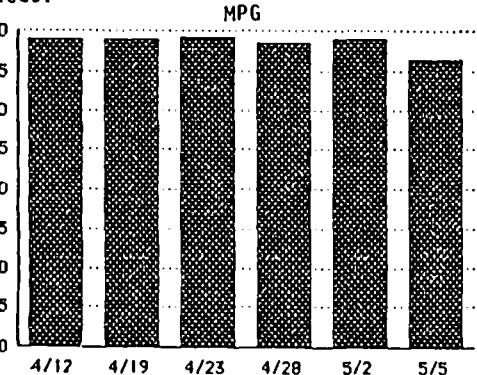
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Just as easily, you can select the heading MPG in that table and choose the title option in the menu. Changing the type of graph to a bar chart with title produces:



When a graph is produced, ClickOn Worksheet selects the scaling automatically. While this simplifies your work a bit, it is too restrictive. The two charts above are not very interesting (although they point out that I am getting great mileage!). Other graphing packages provide the option to set the range of the plot, allowing you to home in on the range of values you want to compare.

ClickOn Worksheet has no printing capability of its own but this presents no real problem. The desk accessory format is meant to work within a word processor which will receive the tables and graphs and merge them with other text for printing. The manual contains 51 pages of instructions and 14 pages of useful examples (already entered on the diskette) to use as a tutorial.

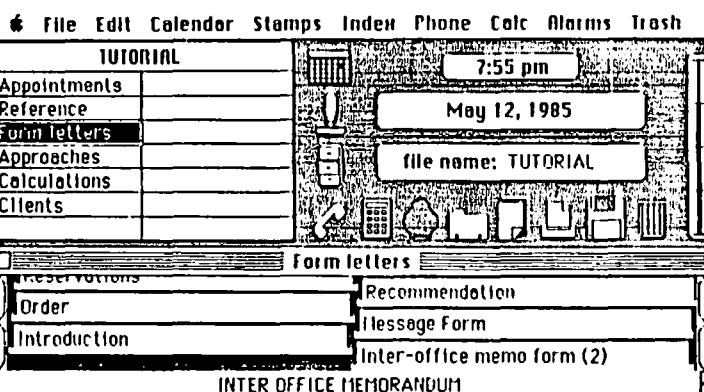
T/Maker Graphics, 2115 Landings Drive, Mountain View, CA. 94043. Price \$79.95.

Desk Organizer (Warner Software). It is easy to get both your office and your Macintosh desk top cluttered. The folks from Warner Software think they have a way to help you to "clean up your act". Their package provides you with several accessories to make management of your time more efficient. Desk Organizer adds the following functions to your use of your Macintosh: note card filing and retrieval, time scheduling and managing, telephone dialing, a paper tape for your calculator accessory and an enhanced notepad with file and merge functions.

The note card filing system is the heart of the system, so let's begin with it. You can create a file of indices (the Desk Organizer manual calls these indexes). Each index in the file may be of any subject. Desk Organizer comes with a tutorial file containing indices about appointment, reference material, form letters, calculations and approaches. An index consists of separate note cards which appear on screen as a rolodex collection with about five tabs visible at any time. You can easily move forward or backward

through the note cards, manually searching for a particular card or you can use a search option to locate a string of characters you supply. Each note card is a free-form collection of information, much like the note pad provided in your system desk accessory; however, the Desk Organizer note cards can be much larger. What is more, a single note card can have several headings under which it can be filed (the manual refers to this as a carbon). This solves the problem of how to file business cards. You can have the name, address and phone number filed under both the person's name and their company name. Note cards can be sent to the printer if a hard copy is needed.

Below you see the Desk Organizer desk top showing the main menu items. These can be selected from the pull-down menus at the top or by clicking on the appropriate icons. At the left, you see the tutorial file with the six indices provided to help you learn the program. At the bottom, you see the note-card system open for the form letter index and you see several cards which can be displayed.



In connection with phone numbers, Desk Organizer will automatically dial phone numbers if you have a modem hooked up to your Mac. By selecting the dial option when a note card containing a phone number (recorded in proper format) is visible, you tell Desk Organizer to dial the number. You can establish various prefix information, such as your local area code, needed to make the call correctly.

The appointments system is very handy. Upon opening up any day, as selected from the calendar, you can enter text describing your appointment and assign it to any half-hour period. To tell Desk Organizer to sound an alarm when the appointment time has arrived (or at a predetermined prior time, say fifteen minutes early), just click on the time shown at the left of the screen.

The Desk Organizer also provides the capability to evaluate permanently stored formulas using up to 26 temporary storage variables. Below, you see the formula for interest payments, given the principle, number of periods to pay and interest rate. To calculate for any new value, you need only substitute a new value for X, Y, or Z.

Present value of perpetuity	Salvage value
Present value of an annuity	Present value of fut. payment
	Monthly payment on a loan

$$10200 = X, 48 = Y, 127 = Z, \\ x/(1-(1/(1+z/12)))y*z/12 = 272.12,$$

contd.

While many of the features mentioned above would be handy in a separate program, having to leave an application to run Desk Organizer would reduce its utility considerably. Mac owners are familiar with desk accessories, but Desk Organizer is a different animal. Put on the market before Apple's Switcher program, the Desk Organizer developers must have had the idea very early that co-residing programs can make better use of your time. Desk Organizer provides a "Meta" option which causes the program to share memory with your application. By selecting a Desk Accessory option, you bring Desk Organizer back to the foreground. I have not tried it with Switcher, but I would guess DO's "Meta" takes a bit longer to move back and forth.

The 60 page manual is readable and explains DO's many features. It is accompanied by a rather lengthy errata sheet which should be used to make corrections in the manual since the original has a fair number of inaccurate statements and diagrams. Desk Organizer is copy-protected. Unfortunately, there is no information describing how to put Desk Organizer on a hard disk. I had some trouble making it work correctly on the Macintosh XL.

Warner Software, Inc., Dept. Z, 666 Fifth Ave., N.Y., N.Y. 10103. (212) 484-3070. Price \$99.00.

Sargon III. (Hayden) One of the first chess programs written for microcomputers was in assembly language, prepared for the KIM 6502-based single board microcomputer. (You had to provide your own power supply to run it!) I purchased the package, called Microchess, with the aim of making it work on an OSI computer. The package came with a source code listing and with object code on a punched paper tape!! While I did get it to work, I am thankful that things have gotten easier since then.

Many Apple // owners are familiar with a program called Sargon III written by Dan and Kathe Spracklen, the same husband and wife team who wrote the predecessor programs, Sargon and Sargon II. Their first program, Sargon, was prepared for the Z-80 microprocessor. The program established itself in organized competition as a competent player. Their second package, Sargon II, was written for the 6502 and was interfaced with the Apple, using high-resolution graphics to display the board and pieces.

This latest version written for the Mac is the most sophisticated of their efforts. Let me describe some of Sargon III's special features. It can suggest moves, if you need help getting out of a tight situation. It allows you to adjourn a game at any point and save it to disk for later completion. The package comes with 107 classic games and many instructive positions, any of which can be stepped through for study using a handy replay feature. You can even watch Sargon III think; however, the display is changing so rapidly that only the first couple of moves it is considering can be seen.

The screen features several windows. One is of the board, while a second keeps a running list of the moves shown in traditional algebraic notation. A third screen shows you a Window on the Search which reveals what Sargon III is thinking about.

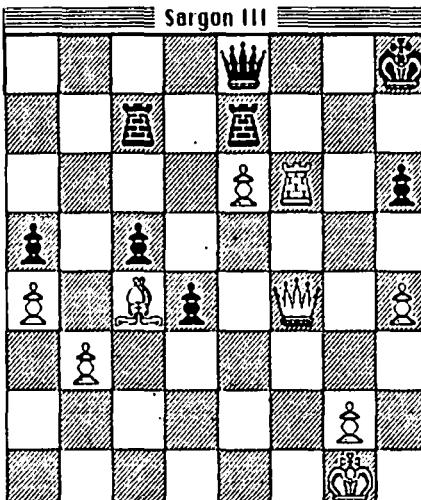
Other handy options are the ability to replay games and to set up the board to study a position. Unlike earlier versions which required text entry in algebraic form, you make your moves by selecting a piece with the mouse. You click on a piece to select it and drag it to the square where you want it. Sargon III is smart enough to realize if it will lose to a forced mate and will announce such a situation (it is willing to admit more quickly than I, when the situation is hopeless!)

DAVID SARGON	
35. f2-f3	e8-d8
36. c4-d3	d8-e8
37. e5-e4	h7-f6
38. f5-f6	g7-f6
39. f3-f6	h8-g8
40. d3-c4	g8-h8
41. e4-f4	I GIVE UP

WISHFUL THINKING

How well does it play? Better than I, which is not saying a great deal. You can select any of nine levels of play. These are time limited from five seconds per move (level 1) to ten minutes per move (level 8). There is an infinite time limit (level 9) if you want Sargon III to keep looking for the best move until you say halt. This would be useful for those who play chess by mail. The newest chess programs, like Chess 7.0, as well as Sargon III, think while you think. This dramatically improves its playing skill. Whenever you select a move the evaluation algorithm had previously expected, Sargon III replies immediately since it "knew" how it would respond when it chose the previous move.

In so far as computers have good memories, some of which might be stored on a diskette, you might imagine that a chess-playing program could "remember" a few good opening sequences. Sargon has an extraordinary "opening book" of 68,000 positions (quite a coincidence for a Mac program). If you remain "in the book", Sargon III will move automatically without having to evaluate the board.



DO YOU RECOGNIZE THIS CLASSIC ENDING?

I have very few criticisms of the package or the extensive 79 page manual. The manual begins with a review of Chess rules and describes the way you enter moves. It then summarizes the special features of Sargon III. The last sections contain short descriptions of the Great Games and Chess problems included on the disk. If there is one area where additional features might be nice, it is in teaching chess. At least one competing package allows the novice learner to see all the possible moves a piece might make. It also displays all pieces attacking or defending a square. These options would facilitate learning the game, but their lack in no way impairs the power or ease of use of Sargon III. Hayden Software, 600 Suffolk St., Lowell, MA., 01853. Phone (800) 343-1218. Price: \$39.95.

MACPROJECT: A Review

by Bonnie Walker

MacProject is a program for project managers and people who would like to be. High school and college teachers might well consider using MacProject as curriculum material. It's fun and easy to use. It helps a project planner to understand the project better, as well as to make decisions about timelines and resource allocation. The list price is \$125. Mac owners who upgraded to 512K as I did received their copy free. The package includes two copies of MacProject, a Guided Tour, a cassette tape, and the manual. Like other Apple products the disk is not copy protected. (Thanks, Apple!)

MacProject is the first Macintosh program I've seen that can be used by one drive systems without disk swapping. There is plenty of space on the disk to store the program (106K) and project documents. One fairly complex project that I scheduled was only 7K. You'll find that most of the commands are familiar as MacProject combines many features of MacWrite and MacPaint.

File Edit View Special

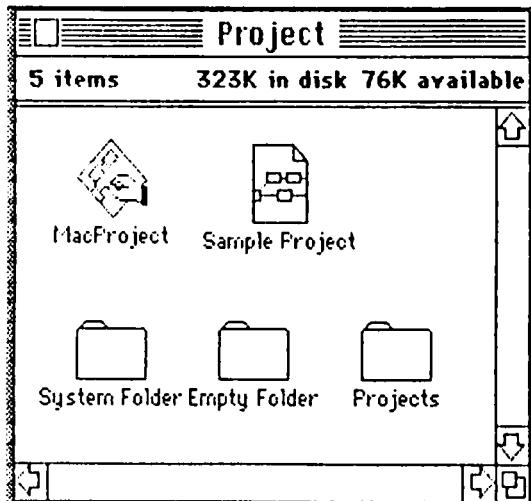


Figure 1

"About MacProject" contains a summary of the main functions which are quite easy to learn. The well-organized manual contains enough detail to get you started quickly and painlessly. The first chapter called "Learning MacProject" is based on the Sample Project on the disk. I have used that "document" for illustrations in this review. Another chapter explains each feature in more detail and provides step-by-step instructions for creating the project chart. A third chapter provides a little more help on using your results to manage a project and the final chapter is a reference. Third-party books exploring the applications of MacProject will probably soon appear on bookshelves to provide more in-depth tutorials. See Figures 2 and 3.

To begin the program you create the Project Chart by drawing boxes and typing in the name of the task inside each box. You can move the box to a new location by dragging, and you can change the box size. You then select the Task Menu (or press the Tab key) to add information about the task duration (in hours, days, months, etc.) and up to six resources. Figure 4 below shows tasks labeled with the resource and the duration. You can also display tasks with start and end dates.

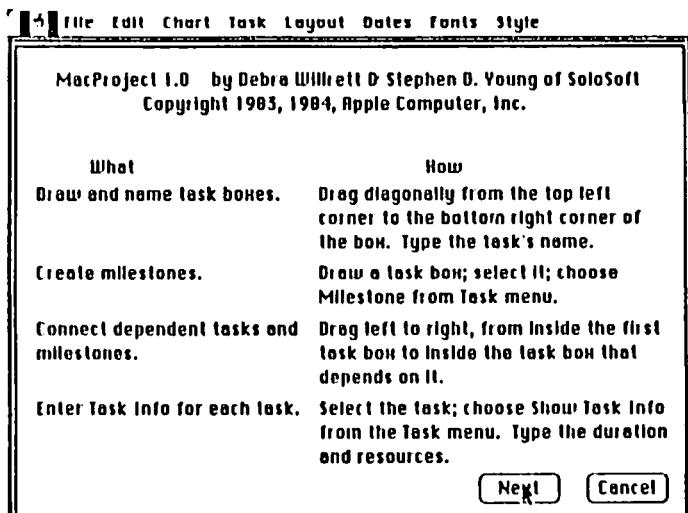


Figure 2

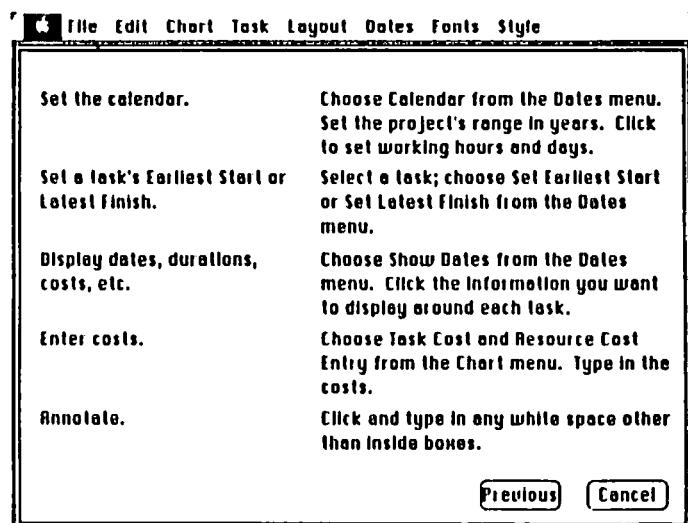


Figure 3

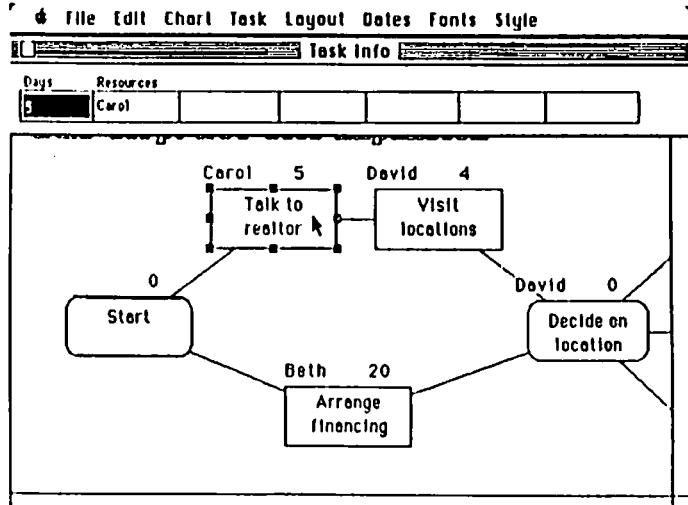


Figure 4

contd.

MacProject calculates dates from left to right so you place the first box at the far left of the screen and work across adding tasks which are dependent on the previous tasks. Ordinarily you would call the first box "START" and declare it to be a Milestone. Milestones have round corners and display the month, day and year.

When you create the first box, the default date will be displayed so the next thing you will want to do is set the project calendar. You tell MacProject your earliest start date and it calculates all the other dates from that point using information you give about each task's duration. You can then see the date your project will be completed, assuming all tasks are completed within the predicted timeframes. You can also create an END box at the right of the screen and enter a Latest Finish Date and let MacProject tell you when the project must start in order to be completed on time.

MacProject assumes a normal calendar including normal holidays. You can change either the calendar or the clock to fit your schedule. One enhancement that I would like to see is the ability to set different working hours for different days (one might work a half a day on Saturdays for example); as it stands the parameters that you establish are true for all working days.

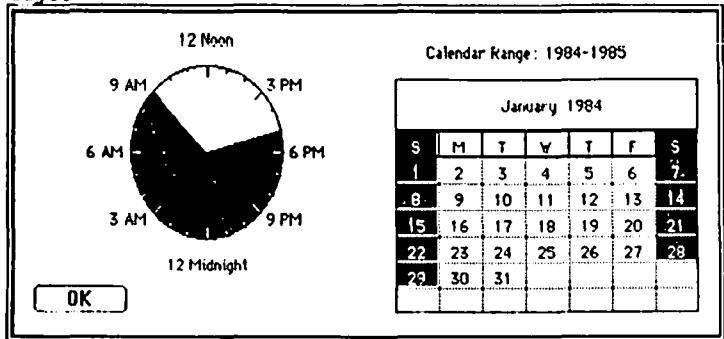


Figure 5

As you add task boxes, you draw "dependency lines" from task to task, placing the cursor in the center of the box on the left, dragging to the center of the box or boxes on the right which cannot begin until that task has been completed. To erase a line, you select it by clicking and then pressing the backspace. Task boxes can be removed in the same manner. You will find editing the Project Chart extremely easy.

MacProject displays the "Critical Path" (those tasks which must be completed on time in order for the entire project to be done on schedule) in bold. It also indicates "impossible timelines" so that you can make adjustments in the duration or the start or finish dates. MacProject's screen scrolls horizontally and vertically. You can display the entire screen (like MacPaint's show page). The preset chart size is 10" wide and 8" high. It will automatically print "Wide" unless you change it. The largest chart possible is 94" wide by 48" high. When you show the entire chart, MacProject shows you where the page breaks will be. You can also drag around parts of the chart and the screen display window as you would with MacPaint. See Figure 6.

MacProject includes six tables in addition to the project chart. The Resource Timeline shows what each resource is doing at any time showing slack time (shaded areas), critical tasks (bold), and milestones (dark triangles.) The Task Timeline shows each project task over the duration of the project showing slack time, critical tasks, and milestones. The Project Table lists information about the entire project including associated costs which are entered

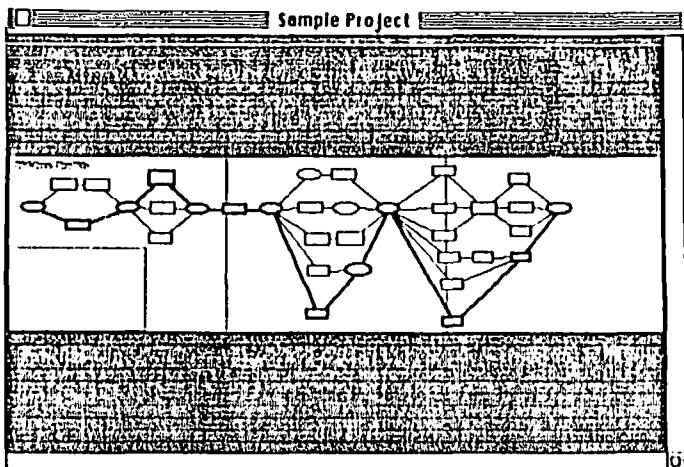


Figure 6

in three other tables: The Task Cost Entry (enter fixed costs and income), Resource Cost Entry (on-going unit cost for resources such as salaries or equipment rentals), and the Cash Flow Table.

You can print each of the six tables and the project chart. I suggest changing the setting to Cut Sheet and the printer to Individual Feed to avoid MacProject's rather annoying need to perform a form feed every time it begins to print. You will have to do some experimenting to make MacProject print out the smallest chart (10" by 8") on one sheet of paper. It should fit but it doesn't. The maximum chart requires 54 pages to display. For a 128K Mac you can list 200 tasks; for 512K you can list 2,000 tasks. You can have up to 50 different resources per project and 6 resources per task. Probably it will be more useful with complex projects if you create a chart showing major tasks and then individual charts breaking down each major task into its sub-tasks.

If you have a Mac and you do project planning, you'll like this program. You will find this program has many applications including planning trips, parties, a term paper, a garden, and other such activities.

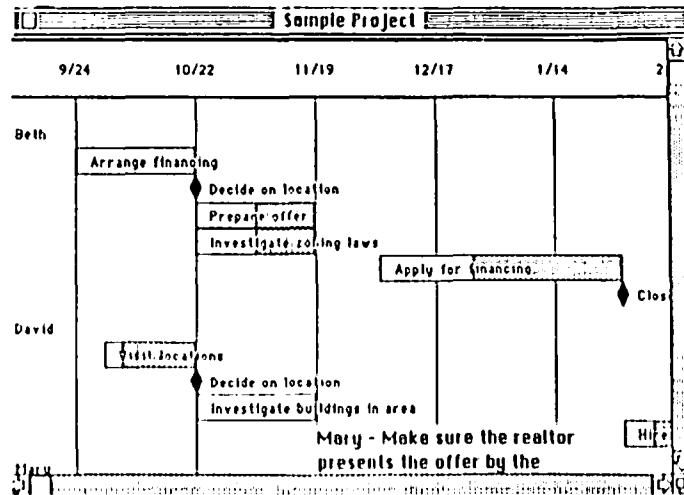


Figure 7

THE RADIO SHACK MODEL 100/200 - MAC CONNECTION

by Steve Hunt

To many travelers, a truly portable computer is a necessity. If you own a Radio Shack Model 100 or 200 "lap top" computer, you can have the best of both possible worlds - work with the lap top on the road and then transfer files to your Macintosh for work at home or in the office.

The Connection: It is really quite simple to connect the Mac to a 100 or 200.

(1) Cable - The Imagewriter cable works fine or you can make an additional cable using the pin connection specifications for the Imagewriter printer.

(2) Hook-up - Disconnect the ImageWriter printer cable at the PRINTER end and plug it into the Model 100 or 200. (With Mac Terminal and some other communications programs, you can select an option to route communications through the Printer port. If your communications program does NOT have this feature, you must also disconnect the cable from the Mac Printer port and reconnect it to the Mac Modem port)

Communications Set-Up: To get the computers ready for the transfer, you must set up the telecommunications dialog as follows.

On the Macintosh -

(1) You will need a communications program. Several different software packages will work. MacTerminal and MacTep (a MS-Basic public domain program) work properly and I believe most other communications programs (Red Ryder, etc) will work as well.

(2) Define the communications settings., start the telecommunications program and ensure that the communications program has the following settings.

Baud Rate (speed)	1200
Number of Data Bits	7
Parity	None
XON/XOFF	On

On the Model 100 or 200 -

(1) Start TELECOM from the main menu and use STAT (F3) from the function key menu to change the communications parameters to the same settings outlined above AND 1 stop bit (Status parameters 5711E) and set the 100 in "terminal mode".

(2) At this point you should be able to type characters on either the Mac or the 100/200 and see the same character on the opposite screen. If you cannot, recheck the settings now.

Transferring a file to the Mac:

(1) Develop the document on the Model 100 or 200 using standard procedures.

(2) Select the "Receive File" function on the Mac telecommunications program and assign the name.

(3) At the 100/200, start uploading the document by pressing F3 (up). A prompt appears on the screen for the name of the file to be transferred.

(4) The 100/200 will then ask for the width of the file. PRESS RETURN (do NOT provide a line width -

which indicates that you do not want any additional carriage returns inserted into the document by the 100/200).

(5) Convert the file from ASCII format into MacWrite format.

(a) The easiest way is to move the file to your MacWrite disk, select BOTH MacWrite and the file you have just transferred (click once and hold down the SHIFT key while clicking on the other icon), and then select OPEN on the FILE menu. This will automatically open MacWrite AND your new file.

(b) You can also run a MS-BASIC program called 'MacWrite' against the new file - which makes it a MacWrite file.

(c) Once you have the new file on your Macintosh and in MacWrite format, you can use the standard text editing commands and procedures.

Transferring a file to the 100/200: Essentially, the same procedure works in reverse - transferring files from MacWrite to the Model 100/200 requires the following steps.

(1) Save the MacWrite document using "Save As ..." option on the File menu and click the "Text Only" button on the dialog box. It is a good idea to save the file using a unique name so that you can still work with the MacWrite version of the file.

(2) Send the file to the Model 100/200 (using MacTerminal you would use the 'Send File' command) and "Down (F2)" in the Model 100/200 TELECOM package.

Enjoy!

FREE MACINTOSH PUBLICATIONS by William E. Jones

Semaphore Signal is a monthly free publication for Macintosh users and developers which I have found useful. A typical 16-page issue includes one or two software reviews (Microsoft Word was reviewed in the March issue), editorial comments and hints, and an extensive "Letters" column. To subscribe, write to Signal, 207 Granada Drive, Aptos, CA 95003. You must identify the type of Mac equipment you have (128, 512, Lisa, AppleTalk, Laserwriter, etc.) and your Mac serial number, and state whether you are an end-user, developer, dealer, etc. Non-Mac users and Mac users outside the U.S. may subscribe for \$10 (North America) or \$20 (outside of North America). Back issues are available for \$1 each.

Another free Mac publication, but one which I have not seen, is Icon Review, which was recently mentioned in InfoWorld. The subscription address is P.O. Box 2566, Monterey, CA 93942. They will add you to their mailing list if you identify yourself as a Mac user.

512k

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Also now available, the new Dragonfly Fan. Unlike conventional muffin fans, the Dragonfly Fan uses piezo-electric technology to drive twin Mylar blades. This design draws less power than many IC chips. Mounted inside a Macintosh, it runs quieter than the background noise in a typical room, operates continuously, and doesn't require a thermostat. These units are durable; test samples have not failed in over 30 thousand hours of testing. These fans are available for \$35, installed.

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Price valid through July 1, 1985 FOR WASHINGTON APPLE PI MEMBERS ONLY. ADD \$25 if not WAP MEMBER. State and local tax not included.

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A REVIEW OF OMNIS 2

by John F. Day

Another Omnis 2 article? Yes, another Omnis 2 article. Why? Simply because I consider Omnis 2 to be the most important file management program available in the Macintosh environment to this date. You will notice that I didn't call it a database. This is because Omnis 2 isn't a relational database, but rather a very powerful and sophisticated information handling program. Read on and this will become much more clear as we go.

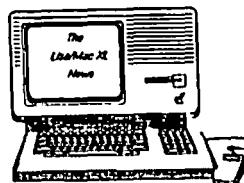
Omnis 2 is the second in a series of three programs for data management from Organizational Software Corporation (OSC). The current edition of Omnis 2 bears little resemblance to the earlier prehistoric version that received so much criticism in such magazines as ConfuserWorld, ...er, excuse me, InfoWorld. The redesigned package corrects all the previous deficiencies and deserves to be looked at again.

OSC is the U.S. marketing branch of Blyth Computers, Limited of England. Having recently returned from Europe, I can vouch for the popularity of the Omnis series on the continent. Omnis is consistently among the top five selling product in England and France and is made in versions for the Apple //e, Apple //I, Mac, Lisa, IBM PC (yech!).

Omnis is actually a family of three database software programs, Omnis 1, Omnis 2, and Omnis 3. The idea is to give the user several levels of sophistication to choose from. This allows you to start inexpensively with a more simple program and add features and power as your needs become more demanding. Omnis 1 is an electronic filing cabinet type program in the \$100 price range. It contains built-in help screens, and can produce mailing labels, form letters, and information lists. Billed as an "Information Manager", Omnis 2 is a more powerful version of Omnis 1, adding error checking of data entry and a wide range of logical functions and operators to the electronic filing cabinet capacity of Omnis 1. Omnis 3, the third program in the OSC series, is a complete relational database. It is different from, but in many ways reminiscent of other programs such as dBASE II or Condor 3, and is in the same price and power class. Omnis 3 will be available for the Mac in April of this year.

Omnis 2 comes in an attractive library case containing a 5 by 9 inch ring binder (a rarity in these days of spiral bound documentation) that houses the 193 page manual, and one program disk. The documentation is well organized, with a chapter devoted to each of the major functions of the program, a thorough table of contents, and a copious index. The writing style is highly readable, easy to follow, and the chapters are punctuated with many definitions and examples. Understanding it should present no major problem to even a novice Mac user.

The program disk contains the Omnis 2 program, a sample data file called MacDemo 1, and a rather naked system folder. The normal desk accessories have been cut to just three, (the scrapbook, notepad, and calculator), to make room for the main program's 240 kilobytes. The remaining 160 kbytes on the disk are taken up by the 120 kbyte system folder and the 25 kbytes of demo files, leaving only 10 kbytes for storage. Don't plan on saving much data on the program disk. The program disk has to be inserted at all times. Its lack of space makes an external disk drive



The
Lisa/Mac XL
Section

(or hard disk) a necessity for data storage. When Omnis 2 is used on a 128K Mac, a second disk drive is a must. 512K Mac users should have a second disk drive as well, although one way they can work without a second disk drive is mentioned later in the article.

The technical summary of Omnis 2 indicated that each record has up to 120 fields, with as many as 10 fields per record being indexed. Each field can have 60 characters, with a maximum of 7200 total characters per record. The number of records per file is limited only by your available disk space. The statistics for reports are equally impressive, with a maximum of 240 columns, 240 rows, 60 totalled or calculated fields, and 9600 fields per report possible. Numeric fields can have 11 significant digits, and arithmetic, logical and boolean operators and functions.

The beginning of the manual contains a good explanation of the features of Omnis 2, as well as suggestions for applications. Chapter Two is a tutorial, and works in conjunction with the MacDemo 1 file contained on the program disk. The tutorial is very well done. It is complete enough to show the new user the basic features of the program, without dragging on too long. When the user completes the tutorial, he should be ready to actively begin to creating a file. The remainder of the manual is devoted to covering all of the program's many features. The chapters are laid out in a logical order that allows the user to complete the tutorial, build his first file, and proceed with each intervening step until he finishes by printing a report.

Omnis 2 has great flexibility. Data entry screens are developed in a free form manner. The user is given a blank screen upon which he/she can enter data fields in any pattern. Free form screen design allows the user to make a data entry screen that is logical to the user for the precise application that is intended. A wide range of data field types are allowed. Options such as character, numeric, date, boolean or sequence are available for each field of the data entry screen. Field attributes like indexing, calculated fields and delete protection can be used to further qualify the data fields being entered. The calculated fields attribute is especially powerful. Calculated fields allow the entry of formulas to determine the value of a field. An example of such a formula is PROFIT/COST*100, where PROFIT and COST are two other fields on the same data entry screen and the result of the formula is a new calculated field titled PERCENT representing the profit as a percentage of cost.

Retrieving and searching for data is a pleasure. The "Enter and retrieve data" screen contains a dialog box that uses command buttons to facilitate the location of data. A search screen is provided for quick location of a particular record or field. Global update and delete, and multiple retrieval criteria round out this arsenal of features, making Omnis 2 one of the most powerful programs in its class.

Generating reports is equally easy. The range of column, header and detail header options, and ability to do multiple subtotals set Omnis 2 apart from many other programs of this type. The report generator allows you to "print" to the printer, a file, or to the screen.

I had no problems performing the tutorial, nor in
contd.

creating my first data file. By following the manual, I was able to create an address file, enter 20 records and print a report that listed the addresses indexed by name, state, ZIP code or telephone number area code in about two hours, most of which was spent reading the manual. Omnis 2 does a good job of supporting the Mac's mouse and user interface, and users of other Mac software will find no unpleasant surprises.

The speed of data search and retrieval is excellent, when compared to many other Mac programs. This speed can be enhanced by selecting a fast sort option when formatting for a report.

I set up my 1 megabyte Macintosh XL (alias Lisa 2/5) with a 512 kbyte ramdisk, using the Mac Memory Disk ramdisk program by Assimilation Process. When I loaded my data file to the ramdisk and ran the program, I was blown away by how fast this program can really be. 512K Mac owners could find this an inexpensive, temporary way to use Omnis 2, even if they don't have an external disk drive. The user merely creates the pseudo-ramdisk upon startup, and then uses the ramdisk as if it were an external disk drive. When all work with Omnis 2 has been completed, quit the program normally, eject the Omnis 2 program disk, replace it with an initialized disk, and save the Omnis 2 files created on the ramdisk by copying them to the initialized disk in the internal drive.

Omnis 2 is a sophisticated file and information managing tool. I rate it clearly superior to PFS:file/PFS:report which aren't as powerful for filing or reporting, and don't support the Mac user interface for editing in the same way most other Mac applications do. Omnis 2 is also superior to Main Street Filer which just generally lacks the sophistication level of Omnis 2 and is perhaps more fairly compared with Omnis 1. Omnis 2 is in the same class with DB Master. My experiences lead me to prefer Omnis 2 over DB Master because of superior ease of use.

If your requirements change and a more powerful fully relational database is needed, a user of DB Master is out of luck. DB Master doesn't support relational databasing. To be fair, neither does Omnis 2, but since all Omnis 2 files are upwardly compatible with the even more powerful Omnis 3, a full blown relational database, the Omnis 2 user has a court of Apples (or was that appeals? - Sorry I couldn't resist). This one feature alone makes Omnis 2 the most flexible database in the medium price/power class. I'm sure in the weeks to come I will find even more reasons to like Omnis 2, but suffice it to say for now I've found a highly satisfactory product.

The initial reports of Omnis 3 indicate that it will be at least as powerful as MacLion, but without the associated problems that MacLion has in terms of bugs and programming difficulty. Look for Omnis 3 to become the leader in the full-up database category.

Now for my explanation of information management versus relational database design. A relational database permits two separate files containing at least one field that is the same, to be merged into a new file containing all or part of the data of the original two files. This ability gives the user the power to manipulate data in many new and creative ways. The existing programs that can do this well and easily are few and far between. Even more to the point is the fact that very few users need to be able to merge data files. Instead a powerful information management program with flexible report formatting will support the needs of probably 85% of the using public without the added cost of a relational database. (Yes, Virginia, you do pay for the added features.) Omnis 2 has the power and features to support most every need

for far less money, and if you ever need more power, upgrade to Omnis 3.

My thanks to Michael Kenney of OSC for supplying the evaluation copy of Omnis 2. The folks at OSC were most friendly and helpful, and were quick to answer my questions. It is refreshing to know that there are still a few companies out there that provide real customer help, a part of the software that can be more important than any single feature of the program. I am looking forward to seeing Omnis 3 in the near future, and will report on it in the months ahead. ☺

SIR-TECH APPEALS FOR VISION FUND by Ronald Wartow

Sir-Tech Software, a firm that has supported WAP by supplying review copies of its software, has appealed for our help in a charitable endeavor. The firm is principally known for the Wizardry series which Apple owners have enjoyed for years. Macintosh owners will soon be able to enjoy those programs. The endeavor involves a young, disabled man who is in need of a \$2-4000 vision machine so he can continue to work with his Apple computer.

Macintosh owners may not realize this but the game of Reversi on SigMac Disk #5 was written to benefit this endeavor by one of Wizardry's co-authors. What follows is an updated display of the documentation for the game which will explain the situation.

NOTE WELL: Sir-Tech advises that the contribution would NOT be tax-deductible because the endeavor is not tied to any charitable foundation.

"The Donald Beaulieu Vision Fund - Donald Beaulieu is a visually impaired Apple user who lives in Boston. There are 2 things Donald can use to really improve his life. One is an Apple computer, which he already has. The other is a special reading machine that can scan books and read them to him. If you like this program, I would appreciate it if you would send a small donation (\$5 to \$10 would be appropriate) to:

The Donald Beaulieu Vision Fund
c/o Sir-Tech Software
6 Main Street
Ogdensburg, New York 13669

All donations will be used to buy the machine, and any extra funds received will be donated to the American Society for the Blind, for use in computer education of the visually handicapped.

Please feel free to make copies of Mac Reversi and distribute them to all your fellow Mac users. To paraphrase Abbie Hoffman, 'Steal this disk!'

Thanking you in advance, Robert J. Woodhead, Sir-Tech Software, Inc." ☺

FONTING WITH MULTIPLAN

by A. G. Carter

Users of Multiplan on the Macintosh are familiar with the frustration of not being able to control the print size on the Imagewriter and thus not being able (as is possible on rival machines and even on the Apple II) to make printouts of spreadsheets in compressed print. With Multiplan on the Mac you get 40 rows and 67 character columns (using the Multiplan definition of cell column widths), without row and column numbers, meaning you can only get 6 or 7 cell columns on a page. Thus your spreadsheet, although it looks very fancy, usually has to be pasted together to hold anything useful. Moreover, the relatively narrow screen of the Mac makes it desirable to have a reasonable amount of horizontal compression on the spreadsheet display.

Thus the search has been for a way around this dilemma (a few of the faithful still hope that Microsoft will issue a new version of Multiplan with a fix). Question periods at SigMac meetings have been full of ideas, as have the pages of MacWorld. The standard "fix" at present is to use the Fontmover to remove Seattle-10 and 20 from Multiplan. If your Multiplan has the 1.1g Finder then the spreadsheet defaults to Geneva-9 (with the 1.0 Finder it defaults to an unreadable version of New York 9) and gives a printed page of 79 character columns and 54 rows, an improvement, but not enough to solve the problem. The appearance of the Imagewriter-15 system file opened up another set of possibilities. Using either Seattle-10 or Geneva-9 and using the Imagewriter-15 with 50% reduction produces spreadsheets with lots of rows and columns, but unfortunately the numbers and letters in the cells come out so small that they are not reliably readable; 4.5 and 5 size MacFonts are just too small. What is needed is something about size 7 and a way of persuading Multiplan to accept it as the spreadsheet font.

With the general availability of the Resource Mover and the Font Editor (SigMac Disk 11) a solution is now possible. Use the Font Editor to make a font of size 7 (characters will generally be five pixels high and three wide); use the Resource Mover to give your font all the coding of Seattle-10 and use the Font Mover to put it into Multiplan. The result is a readable spreadsheet with 81 rows and 115 columns, which is probably close to the optimum tradeoff between compression and readability.

While the Multiplan spreadsheet readily adjusts to the actual width of characters in a font, the adjustment to height is more difficult. If you look closely at a Multiplan spreadsheet you will notice that the cells are delineated by rows and columns of dots, each dot having three blank pixels between it and its nearest neighbor. On the standard (Seattle-10) spreadsheet there are three vertical dots with a total vertical spacing of 15 pixels between the horizontal rows of dots. The next smallest (Geneva-9) leaves only two dots with a total vertical spacing of 11 pixels. Compressing to one dot will give a vertical spacing of 7 pixels. Thus the fonts suitable for these sizes have to have character heights (capital plus diacritical plus descent - see SigMac Disk 3 for an explanation of these concepts) that are less than or equal to 7, 11 and 15 pixels. Multiplan will adjust the cell height to accomodate the actual height of any installed font it thinks is Seattle-10. If such a font is not present it accomodates to the actual height of the system font scaled to font size 9. Note that it is the actual height of the font, not the listed size which matters. Seattle-10 has a height of 13 and thus needs the 15 pixel spacing. Geneva-9 has

a height of 11 and thus can fit into the 11 pixel space. Thus, in order to have the 7 pixel spacing you need a font with a capital of five and a diacritical and descent of one each.

The only "sub-9" font in the SigMac library is Tiny 5 (Disk 12). This is a Toronto-12 font which has been cut down to have a capital size of 5; however the author has not cut the ascent and descent so as to keep the font within 7 pixels. Thus Multiplan reads it as if it were the same size as Toronto-12 (15 pixels high) and produces a spreadsheet with the 15 Multiplan screen rows together with the tiny print. If you want to install this font in Multiplan, cut both the ascent and descent (using the Font Editor) and at the same time you will probably want to make the font more rectangular to enhance its readability.

I have successfully installed another more readable size 7 font, Micro, which was made privately by a fellow WAP member. In addition, I have modified the Geneva font to give a size 8 which I call "Spreadsheet-8". This has a capital of 6 and a height of 8. Thus it has the same vertical spacing in Multiplan as Geneva-9, but a tighter horizontal compression. It is also much more readable than either of the size 7 fonts. I will try to get both fonts on a future library disk. If you make your own font you will find that you cannot get Font Maker to accept any font "size" less than 9, but it doesn't bother to check the actual size of what you have made.

Once you have the font, you need to bring it to your Multiplan disk and open up Resource Mover. Once in, open up the font file and you will see several lines (one more than the number of different sizes you have made). One will have the name of the font and a number which is 128 times the basic font number. The actual font will have a number which is equal to the number next to the name plus the "size" of the font, but no name. You need to use the SET ID selection in the edit menu and change the number next to the name to 1280 (this is 128 times the Seattle font basic font number of 10). You then need to change the ID of the font itself to 1290, which is what Multiplan is looking for. You can use SET NAME to change the name to Seattle if you like, but this is not necessary. If you have made a double sized font you need to change its ID to 1300. Close this file and close Resource Mover and then open up the Font file itself (you need to have Font Mover available). Then remove the Seattle fonts from the System and copy your new font(s) to the System.

Before doing all this, please read all the fonting literature on SigMac Disk 11 and please do your updating on a copy of your Multiplan disk. Apple has released the Resource Mover and Font editor to user groups, but there are still bugs, so follow instructions carefully. In particular be careful to use the Return or Enter keys rather than clicking OK on a dialog box. Following are the dimensions of spreadsheets (without row and column numbers) with the four fonts:

	Screen		Printed Page	
	rows	columns	(Tall)	(Wide)
Seattle-10	15	40	67	29
Geneva-9	20	54	79	38
Spreadsheet-8	20	54	90	38
Micro-7	30	81	115	58
				155 ☺

PROCMD (THE COMMANDER): A Review

by Bob Velke

Anyone who has programmed in BASIC knows the limitations of writing, editing, and debugging programs. In order to do these tasks many people write their BASIC programs to a TEXT file, edit them in a word processor, resave them as a text file, and then EXEC them. That works...but what a pain! Apple's APA and Beagle Bros GPLE (among others) are designed to help with editing in Applesoft but each has its problems and limitations, not the least of which is the cost. PROCMD (The Commander) combines the functions of these programs, adds about a dozen more, and makes double hi-res graphics come alive in your programs. And the whole package is offered at a price that will knock your socks off. For \$20.00 (yes, twenty dollars!) you get a double-sided disk filled to the brim with extremely useful utilities.

PROCMD is specifically designed for use under the ProDOS operating system. PROCMD produces additional ProDOS commands through the use of command files, each of which occupies less than 1.5K of memory. Some or all of these command files (or "modules") can be loaded at one time to fit your particular needs, thereby preserving precious memory for your program. Once loaded, the new commands act just like ProDOS commands and can be used from the keyboard or from within your program.

Automatic line numbering, renumbering, and a full-featured program editor (including insert, delete, and global variable search/replace) are just the beginning. New commands let you trace the value of a particular variable (or expression) through your program or list the values of all active variables at any particular time. Now you can display a variable cross reference or line number cross reference of your program. And you can "LYST" your program in a formatted style to make it easier to read. Once you have used these editing and debugging tools, life seems primitive without them. You'll wonder how you got along without PROCMD all this time!

With PROCMD you can put a program on HOLD and then MERGE it with another program. You can format printed output (i.e. PRINT USING) and sort strings, multi-dimensional arrays or multiple arrays. As with all PROCMD utilities, these functions are available through logical one-word commands.

PROCMD also has a set of macros (or function keys) which can perform more complex commands and can be edited or defined by the user. The macros are invoked with the Open-Apple/Closed-Apple key and one other key. For example: "OA-2" will perform a "CATALOG,D2". Define your own macros to type frequently used commands. (Another module will perform the same functions with older models which don't have "Apple" keys).

A literal COPY command facilitates transfer of files between volumes, including /RAM. Another command permits the search of any type of file for a particular character string or hex string. You can print out a text file with parameters to control pagination, line spacing, and page headers. There is also a memory/file dump utility and an option to print out important Applesoft pointers.

Another new command, DATE, will print the date and time to any position on the screen. For //c users, a interrupt-driven continuous display clock is a welcome

option for keeping track of time and stamping ProDOS files.

Another significant addition is the set of double hi-res graphics commands which can be used from within your own program (assuming a //c or //e with "revision B" and a jumper on the 80 column card). These new commands parallel those of hi-res graphics ("&HCOLOR=15") with the addition of a few commands like FILL, HLOAD, and HSAVE. A double hi-res character generator and font editor allow you to create, edit, and print your own fonts to the screen. Several interesting fonts are already defined and ready to use. A short program is also provided that will convert hi-res pictures to double hi-res.

The PROCMD package itself fills one side of a disk. Menu-driven programs pace the new user through all the available features complete with demos and help files. The other side of the disk contains about 40 pages of single-spaced documentation with instructions for using the modules on your own disks. The advanced programmer will find directions for using the commands from machine language and for creating new modules.

This is a professional package with a lot to offer for any price. The author, Glen Bredon (of Merlin-pro fame), has developed a reputation of expertise in the field (see also: "Using Auxiliary Memory in the Apple //e and //c", Nibble, May 1985, p 76) and has shown a commitment to customer service. PROCMD (The Commander) is available with a money back guarantee for \$20.00 from: Glen E. Bredon, 521 State Road, Princeton, N.J. 08540.

Publishing arrangements are said to be in the works. Take advantage of this extraordinary value while it's still available. You'll be glad you did.

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DIGGING INTO LOGO - Part 2

by Cyril Fefer

Part One of this article appeared in the May 1985 WAP Journal. Near the end of Part one we gave two figures depicting node trees, but neglected to put in arrows and connection lines. We are therefore reprinting them here in their corrected format.

.....

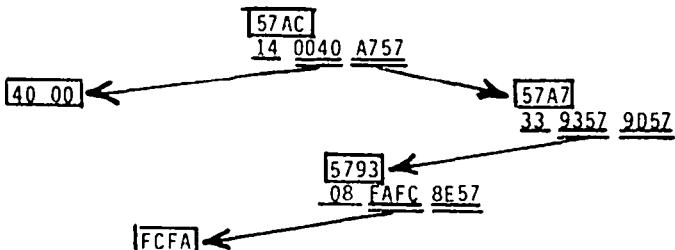


FIGURE 1

.....

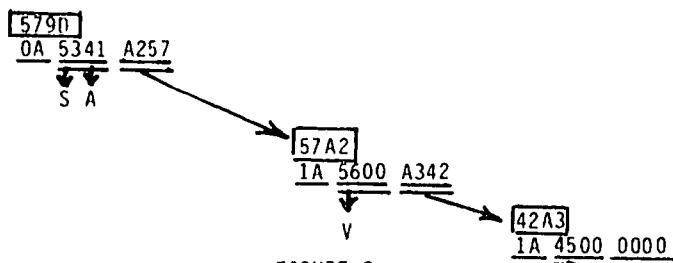


FIGURE 2

A more complete node tree for procedure SAVE

HOUSEKEEPING BYTES AND THEIR "MEANINGS"

Here is a summary of some of the housekeeping byte's characteristics:

- 14 the first byte of the first node of a Logo "word"
- 04 the same as 14 above but the "word" has not yet been used in a procedure
- 33 this node's two branches each point to a node
- 08 this node's left branch is a jump to a Logo subroutine - the other a conventional right branch, points to another node
- 30 an input signal - the input word's address is in the 2nd and 4th byte of the node (page zero addresses)
- 0A in this node the next two bytes are ASCII code, and the last two represent a right branch
- 1A in this node the second and third bytes are ASCII code and the last two a right branch

MORE TAMPERING - FIRST TRIVIAL THEN USEFUL: PROVIDING A CALL PROCEDURE

The node tree of the primitive CATALOG has one branch with the housekeeping byte 08. That node's left branch points to the Logo routine that "catalogs". We already know that WRAP's node with housekeeping byte 08 points to a sub-routine located at \$4230.

CATALOG has node with housekeeping 08 .. At \$5815, and the left branch of that node is \$FDDE
WRAP has node with housekeeping 08 .. At \$4230, and the left branch of that node is \$9BBE

If we switch \$FDDE and \$9BBE by placing \$9BBE at \$5816

and \$5817, and placing \$FDDE at \$4231 and \$4232 (skipping over the housekeeping byte in each case), WRAP and CATALOG change identities. Try it by following these steps:

Use the .BPT primitive to get into the monitor.
Type in these lines (including spaces):

```
5816:BE 9B <return>
4231:DE FD <return>
803G <return>
```

Ok, WRAP is now CATALOG and CATALOG is now WRAP, but this is trivial mischief, meant only to instruct and entertain. What can be done in a somewhat more serious vein?

Logo does not have a primitive that allows the user to call machine language programs. There are several good reasons for this omission but the challenge remains. The primitive WRAP is used to return the wraparound provision to the graphics screen after the use of the primitive WINDOW. Since the procedure WRAP is not used frequently I am willing to sacrifice its original purpose so that WRAP, with new characteristics, can be included in a user defined procedure.

In order to use WRAP in a user defined procedure that will call a machine language program, first undo the CATALOG/WRAP switch if you made the \$FDDE-\$9BBE changes suggested above. Then type in the following:

```

TO CALL :N
.DEPPOSIT DECIMAL 4231 DEC2 BF BF :N
.DEPPOSIT DECIMAL 4232 DEC2 BL BL :N
WRAP
END

TO DECIMAL :HEX
OP (4096 * DEC1 FIRST :HEX) + (256 * DEC1 FIRST
BF :HEX) + (16 * DEC1 FIRST BF BF :HEX) +
DEC1 LAST :HEX
END

TO DEC1 :HEX
IF :HEX = "A [OP 10]
IF :HEX = "B [OP 11]
IF :HEX = "C [OP 12]
IF :HEX = "D [OP 13]
IF :HEX = "E [OP 14]
IF :HEX = "F [OP 15]
IF :HEX < 10 [OP :HEX]
END

TO DEC2 :HEX
OP (16 * DEC1 FIRST :HEX) + DEC1 LAST :HEX
END
  
```

Procedure CALL is used by inputting a quoted 4 digit hexadecimal number. For example :

CALL "2E00

will "run" a (machine language) program located at \$2E00.

Without getting into slightly more complex provisions that allow for inputting a smaller than 4 byte address, we see that WRAP has been used to "CALL" the address input to call. WRAP in effect "points to" the input hex number instead of its original intended routine at \$9BBE.

contd.

WHERE TO CALL?

Where can user machine language routines be placed in the already crowded Logo memory? There is a very small (64 byte) spot at \$300, provided the type ahead buffer is deactivated. See January 1984 Washington Apple Pi, pp. 32-33 for the procedure KILLBUFF and another method for calling machine language programs. In addition to \$300 there is a nice place somewhere in the range \$2000 to 3000. The graphics screen should not be activated since the high resolution screen also occupies this space.

We will now place a machine language routine at \$2E00. It contains 129 bytes, more than twice as many as is available in the page 3 spot mentioned. The following assembly language listing provides a machine language program that will output the number of "free" sectors available on a disk (in hexadecimal notation):

```

2 *          DISK SPACE IN LOGO
3 *  LET'S SHARE A PART OF $2A00 TO $2FFF (THE GRAPHICS SCREEN)
*****  

5      ORG $2E00    A GOOD "SAFE" SPOT FOR THE PROGRAM  

6      CAT      EQU $219A  LOGO VOLUME TABLE OF CONTENTS (VTOC)  

                STARTS AT $219A  

2E00:A9 00    LDA #80  

2E02:A8      TAY  

2E03:80 00 2F 9 STA $2F00  TEMPORARY STORAGE OF DISK SPACE, LOW BYTE  

                ($2F00 IS ANOTHER SAFE AREA)  

2E05:80 01 2F 10 STA $2F01 ....., NOW FOR THE HIGH BYTE  

2E07:80 00 11  START LDY #80  

2E08:89 9A 21 12 STA CAT,Y  

2E0E:48 13      PHA  

2E0F:20 3D 2E 14 JSR COUNT  

                LOOK AT A BYTE OF VTOC  

                WE'RE GOING TO USE IT AGAIN, TUCK IT AWAY  

                ROUTINE TO SEE IF THERE IS A 1 IN THE  

                LEFTMOST BIT (IS IT SET?)  

2E12:E8 15  EACHBIT INX  

2E13:66 16      PLA  

                NOW UNTUCK THE BYTE AND  

2E14:2A 17      ROL  

                LOP OFF THE LEFTMOST BIT  

2E15:48 18      PHA  

2E16:20 3D 2E 19 JSR COUNT  

2E19:E0 07 20    CPX #87  

                DO IT FOR ALL 8 BITS  

2E1B:00 05 21    ONE EACHBIT  

2E1D:08 22      LDY  

                NEXT BYTE  

2E1E:C0 00 23    CPY #80  

                ARE WE DONE WITH VTOC? THERE WERE 128  

                (180) BYTES TO CHECK  

2E20:D0 00 24    BNE START  

2E22:68 25      PLA  

                REMOVE THE PHA THAT WASN'T USED (FROM LINE 18)  

                *****  

27 *  HOW TO SHOW THE RESULTS  

*****  

2E23:AD 01 2F 29 LDA $2F01  

2E26:20 53 2E 30 JSR DIGITS  CONVERT TO LEFT AND RIGHT NIBBLES  

2E29:20 79 2E 31 JSR PRINTHI  

2E2C:AD 00 2F 32 LDA $2F00  

2E2F:20 53 2E 33 JSR DIGITS  

2E32:20 71 2E 34 JSR PRINTLO  

2E35:AD 00 CD 35 PAUSE    LDA $2000  

                WAIT FOR KEYSTROKE - WE CAN'T USE THE  

                ROM'S SUBROUTINE  

2E38:10 FB 36      BPL PAUSE  

                WHEN IN LOGO. (WELL, NOT YET ANYWAY)  

2E3A:20 CF BF 37 JSR $BF0F  

                LOGO'S CLEARTEXT SUB-ROUTINE, ALL DONE.  

                *****  

39 *  COUNTING UP THE FREE SECTORS - THOSE WITH 1'S  

*****  

2E3D:10 13 41 COUNT    RPL BACK  

2E3F:49 01 42 LDA #$81  

                BIT 7 NOT SET, CONTINUE THE LOPPING OFF  

2E41:18 43      CLC  

2E42:60 00 2F 44 ADC $2F00  

                NOW TALLY UP  

2E45:80 00 2F 45 STA $2F00  

2E48:C9 00 46    CMP #$80  

                ARE THERE MORE THAN 256?  

2E4A:FO 01 47    BEQ OVER256  

2E4C:60 48      RTS  

2E4D:49 01 49    OVER256 LDA #$11  

2E4F:80 01 2F 50 STA $2F01  

2E52:60 51      BACK  

                RTS  

                *****  

53 *  ROUTINE TO CONVERT TO HEXADECIMAL DIGITS  

*****  

2E53:AA 55 DIGITS TAX  

2E54:29 F6      AND #$FO  

                THE HIGH NIDDLE WILL BE  

2E56:4A 57      LSR  

                STOPED IN THE ACCUMULATOR  

2E57:4A 58      LSR  

                AND THE LOW IN THE Y REGISTER  

2E58:4A 59      LSR  

2E59:4A 60      LSR  

2E5A:20 67 2E 61 JSR ASCII  

2E5D:4B 62      PHA  

2E5E:6A 63      TXA  

2E5F:29 0F 64    AND #$F  

2E61:20 67 2E 65 JSR ASCII  

2E64:4B 66      TAY  

2E65:6B 67      PLA  

2E66:60 68      PTS  

2E67:C9 04 69 ASCII    CMP #$A  

2E69:20 03 70    RLC AS  

2E6B:1B 71      CLC  

2E6C:69 07 72    ADC #$7  

2E6E:69 00 73    AS    ADC #$80  

2E70:60 74      PTS  

                *****  

76 *  ROUTINE - PRINT TO SCREEEN  

*****  

2E71:80 E2 07 78 PRINTLO STA $2E2  

                STORE VALUES IN TEXTSCREEN MEMORY  

2E74:98 79      TYA  

2E75:80 E3 07 80 STA $2E3  

                SINCE WE CAN'T USE THE ROM PRINT ROUTINES  

2E78:60 F1      PTS  

2E79:80 E0 07 82 PRINTHI STA $2E0  

2E7C:98 83      TYA  

2E7D:80 E1 07 84 STA $2E1  

2E80:60 85      RTS

```

From this assembly of 129 bytes we can now construct a Logo list that contains the machine language code. This constructed list is the hexadecimal (translated to decimal) code in columns 2, 3 and 4 in the assembly listing above. Obviously we ought to let Logo do that job for us. The method: have that code in memory and boot Logo "over it". When not in Logo, either use an assembler or type in the code directly from columns 2,3 and 4.

Here is a step by step description of the process:

- (1) Boot a non logo disk
- (2) If an assembler is available enter, the assembly code. BLOAD the resulting object program at \$2E00. Skip steps 3 to 5.
- (3) If an assembler is not used, get into the monitor with a CALL -151.
- (4) Type the following including the spaces:

2E00:A9 00 A8 80 00 2F <return>

Note that you are entering the hex numbers line by line from columns 2,3 and 4 of the assembly listing above.

- (5) Type 2E06:8D 01 2F and so on until all the code is entered. If you press a <return> at any point you must prefix the next entry with the appropriate four hex digits and a colon. Example: 2E3A.
- (6) After the entire code is entered, press <return> and boot the Logo disk using a 6 Ctrl-P if still in the monitor or a PR#6 if not.

Logo will be booted from drive 1 and the code at \$2E00 will remain intact. Do not use turtle commands such as home, pendown, clean, wrap, right, etc.; the addresses from \$2000 to \$3FFF will be over-written in that event, clobbering the user code at \$2E00.

NOW TO CONVERT THE CODE AT \$2E00 TO A LOGO LIST.

The procedure MAKE.PROGRAM.LIST will transform the hex code at a given input address into a list of decimal numbers corresponding to the hex numbers. We would type in

MAKE.PROGRAM.LIST 11776 129
 (11776 is \$2E00, the length is 129 bytes)

and after a few moments a decimal list will appear as confirmation that the procedure has worked. A name chosen by the user has been assigned to that list.

```

TO MAKE,PROGRAM,LIST :ADDRESS :LENGTH
PRINT [TYPE NAME FOR PROGRAM & THEN <return>]
MAKE "CHOICE FIRST READLIST
MAKE "PROGRAM []
(PRINT [THE LIST] WORD ":" :CHOICE "IS)
MPL :ADDRESS :LENGTH
END

TO MPL :ADDRESS :LENGTH
IF :LENGTH = 0 [MAKE :CHOICE :PROGRAM SHOW
:PROGRAM STOP]
MAKE "PROGRAM INPUT .EXAMINE :ADDRESS :PROGRAM
MPL :ADDRESS + 1 :LENGTH - 1
END

```

Let us say that our choice for the above machine language listing was SPACE. Here is :space -

```

[169 0 168 141 0 47 141 1 47 162 0 185 154 33 72 32 61
 46 232 104 42 72 32 61 46 224 7 208 245 200 192 128
 208 231 104 173 1 47 32 83 46 32 121 46 173 0 47 32
 83 46 32 113 46 173 0 192 16 251 32 207 191 16 19 169
 1 24 109 0 47 141 0 47 201 0 240 1 96 169 1 141 1 47
 96 170 41 240 74 74 74 32 103 46 72 138 41 15 32
 103 46 168 104 96 201 10 144 3 24 105 7 105 176 96
 141 226 7 152 141 227 7 96 141 224 7 152 141 225 7
 96]

```

The machine language program has been transformed into the list :SPACE and is now transportable and can be brought up at any time by using procedure BLOAD.

```
TO BLOAD :ADDRESS :LIST
IF EMPTYP :LIST [STOP]
.DEPPOSIT :ADDRESS FIRST :LIST
BLOAD :ADDRESS + 1 BUTFIRST :LIST
END
```

In order to load that machine language program for Logo's use we would type in

```
BLOAD 11776 :SPACE (the decimal 11776
is $2E00.)
```

With :SPACE installed we can use procedure CALL with input \$2E00. The result of this call is the available disk space of the last "accessed" (meaning catalogued, or saved to, or loaded from) disk printed at the bottom of the screen. Any keystroke will bring us back to Logo with a cleared screen.

Once procedure CALL has been used, WRAP becomes "fixed" with the input and WRAP by itself will "do the same CALL". Since I imagine that "CALLing" machine language programs will be rather infrequent in Logo, we could use procedure WRAP to do a direct CALL by first invoking procedure SETUP (without using procedure CALL):

```
TO SETUP
.DEPPOSIT 16944 8 .DEPPOSIT 16945 0 .DEPPOSIT 16946
46 .DEPPOSIT 16947 0 .DEPPOSIT 16948 0
END
```

The addresses 16944 to 16948 are the decimal addresses of the node that in hex goes from \$4230 to \$4234. The first byte must be an 8 for the next two bytes to be a Logo "CALL" and the last two bytes (of the node) to be ignored. The left branch is to be \$2E00 and this breaks down into decimal 0 and 46, the bytes reversed. The procedure SETUP causes the procedure WRAP to function as a CALL to \$2E00; WRAP of course loses its former graphics function.

USING ROM SUBROUTINES WITHIN LOGO AND AT THE SAME TIME PROTECTING THE INTEGRITY OF LOGO

The machine language program that determines and prints the disk space while in Logo does not use ROM subroutines, those located from \$F800 to \$FFFF on the ROM motherboard. In order to print to the screen, our program that prints out disk space uses the method of placing values directly in screen memory, somewhere in the \$400 to \$7FF range. (To place an "A" in the upper left corner of the screen you load C1 in the accumulator and store the accumulator in \$400.) Ordinarily we can use ROM subroutines if and when we "turn on" the motherboard with softswitches \$2088 or \$2089. When in Logo, this is not successful because the zero page for Logo is different from the ROM's zero page. If we tried to use one zero page for the other there would be much suffering. One solution is to alter part of the zero page so that it works for the ROM subroutine. This requires research into what-does-what in dozens of subroutines. Instead, I have chosen to keep a copy of the motherboard's zero page and substitute it for Logo's as the occasion demands. It is essential as well that Logo's zero page be tucked away for later use just before it gets overwritten and that it be brought back just before returning to Logo. In the following assembly listing these zero page transfers are accomplished. This listing does a tuck and untuck and uses a few ROM routines in between. The results are trivial; we can type to the screen, until a Ctrl-A is entered, and all the while Logo is suspended. We are using ROM, not Logo, during this activity.

```
1 ****
2 * ZERO PAGE TUCK-AND-UNTUCK TECHNIQUES
3 * TO BE USED BEFORE AND AFTER ACCESSING
4 * ROM ROUTINES WHILE IN LOGO
*****
6
7 ORG $2E00 ONE SEMI-SAFE PLACE IN LOGO
8 LDX #10 INITIALIZE COUNTER
9 TUCK LDA $00,X MOVE LOGO'S ZERO PAGE TO PAGE $20
10 STA $2000,X ANOTHER SEMI-SAFE AREA
11 INX
12 BNE TUCK
13 ROMZERO LDA $2F00,X WE ASSUME THAT A COPY OF ROM'S ZERO
14 STA $00,X PAGE HAD BEEN INSTALLED ON PAGE $2F
15 INX MOVE IT TO PAGE ZERO
16 BNE ROMZERO X IS 0 ON REACHING LINE 13 FOR THE FIRST TIME
17 JSR $2E25 NOW FOR THE USER'S ROM ROUTINE
*****
19 * BRINGING BACK LOGO'S ZERO PAGE (AND BACK TO LOGO)
*****
21 LDX #100 DONE WITH ROM ROUTINES, SET COUNTER TO ZERO
22 UNTUCK LDA $2000,X BRING LOGO'S ZERO PAGE
23 STA $00,X BACK FROM VACATION
24 INX
25 BNE UNTUCK
26 STA $C088 TURN ON 16K CARD AND WITH IT LOGO'S CODE
27 JSR $D359 LOGO'S RECYCLE SUB-ROUTINE, GETTING
BACK IN WITHOUT MUCH SCREEN ACTIVITY
*****
29 * HERE IS THE USER'S ROM ROUTINE
*****
30 STA $C089 TURN ON THE ROM MOTHERBOARD
31 JSR $FD06 (ROM) KEYBOARD INPUT ROUTINE
32 ROM CMP #$81 CHECK FOR CONTROL-A
33 D0 F0 06 BEQ FINISHED LEAVE THE ROM INTERLUDE
34 JSR $FD05 (ROM) PRINT TO SCREEN SUB-ROUTINE
35 D0 FD 36 JMP ROM
36 FINISH RTS
37
```

After completing the above tuck-untuck assembly we can do what was done after the disk space machine language program was assembled. After using MAKE.PROGRAM.LIST with address 11776 and length 54 the list :DEMO (if we so named it when using MAKE.PROGRAM.LIST) will be

```
[162 0 181 0 157 0 45 232 208 240 189 0 47 149 0 232
208 240 32 37 46 160 0 189 0 45 149 0 232 208 240 141
136 192 32 89 211 141 137 192 32 6 253 201 129 246 6
32 237 253 76 21 46 96].
```

PUTTING A COPY OF ROM ZERO PAGE AT \$2FOO.

The process is similar to that of converting a machine language program to a Logo list:

- (1) When not in Logo for example, boot the master disk) enter the monitor with CALL -151.
- (2) Enter this code at \$300.

```
A2 00 LDX #$00 INITIALIZE THE COUNTER
B5 00 TUCK LDA $00,X PICK UP ON ITEM OF THE
90 00 2F STA $2F00,X ZERO PAGE
E8 INX SET IT DOWN ON PAGE 2F
D0 F8 BNE TUCK GO TO THE NEXT ONE
60 RTS CONTINUE FOR 256 TIMES
```

This is accomplished by typing

```
300:A2 00 B5 00 90 00 2F E8 D0 F8 60 <return>
```

Again, mind the spaces indicated between the numbers!

- (3) While still in the monitor type 300G. The program at \$300 will be executed and the zero page will be copied to page \$2F.
- (4) Place Logo disk in drive 1 and boot.
- (5) Load the procedures MAKE.PROGRAM.LIST and MPL from your disk (taken from this article; see the section on disk space).
- (6) Run MAKE.PROGRAM.LIST. The inputs for MAKE.PROGRAM.LIST are address: 12032 (\$2F00), and length 256 (\$100).
- (7) Choose the name MON>ZERO for the list.
- (8) Keep a copy of :MON>ZERO in your library so that it can be used by the procedure BLOAD if needed.
- (9) Make sure that the monitor zero page has been set up on page \$2F (by BLOAD :MON.ZERO) before using a CALL that uses the tuck-untuck method.

contd. on pg 62

FAST FLOATING POINT FORTH

by Chester H. Page

(This paper started as a modification to Charlie Brown's paper in Washington Apple Pi, Vol. 7, No. 3, to allow input in scientific notation as well as decimal point notation. I found several areas in which I thought I could simplify the program and use a more elegant approach, so I made some fundamental changes.)

While writing this paper, I realized how difficult it is to find an explanation of the floating-point number format in the APPLE, so I decided to start with a simple description of the FAC format. This is the format used in the Floating-point ACCumulator. It uses 6 bytes; there is also a "packed" format of 5 bytes for space saving in storage, but this is not of interest in FORTH because the FORTH parameter stack holds data in words of 2 bytes each, so 6 bytes would be used on the stack for either format.

Consider the (decimal) number 89, hex 59:

$$\begin{aligned} 89 &= 64 + 16 + 8 + 1 \\ &= 2^6 + 2^4 + 2^3 + 2^0 \\ &= \text{binary } 0101\ 1001 \text{ (space added for clarity)} \end{aligned}$$

This can also be expressed as

$$\begin{aligned} 2^7 * (1/2 + 1/8 + 1/16 + 1/128) \\ = 2^7 * .1011\ 0010\ 0000\ 0000 \dots \end{aligned}$$

which is written in FAC format as

87 B2 00 00 00 00

where the first byte is the exponent, 7, plus \$80, and the last byte is the + sign. Changing the last byte to FF would give a representation of -89. Changing the first byte to 86 would halve the number and give the representation of 44.5; a first byte of 85 would yield 22.25, etc. A first byte of 80 would imply

$$2^0 * (1/2 + 1/8 + 1/16 + 1/128)$$

and 7F would yield

$$2^{-1} * (1/2 + 1/8 + 1/16 + 1/128), \text{ etc.}$$

Thus exponents from -127 to +127 are represented by leading bytes from 1 to FF. The leading byte 00 is used as a special identification that the number is zero.

The six FAC bytes are conventionally called EXP HO MOH MO LO SGN (MO for middle-order) and appear in this order in memory, with EXP at the lowest address, SGN at the highest. (The FAC memory is 9D-A2.) The four bytes following EXP are collectively called the mantissa. Note the "natural" order of the bytes, contrasted to the usual APPLE low-high order for a two-byte number. Since the FORTH stack builds downward, the lowest address is the top of the stack, i.e., on the stack

SGN LO MO MOH HO EXP
--> top of stack

In FORTH, input numbers containing a decimal point are stored as double-precision numbers. In this floating point application, input numbers containing a decimal point, or an E, or both, are converted to floating point. If neither a point nor an E is present, the

input is stored as the usual single-precision number. Thus the following inputs are equivalent:

1.23
123E-2
12.3E-1
1.23E0
.123E1

The dual search for "point" and "E" is managed by modifying INTERPRET and substituting the CFA of the new word for the old call to INTERPRET in QUIT.

The conversion of a double-precision number is carried out by successive 1-bit left shifts until the first bit is a 1. (This is done by shifting until there is a carry, then shifting back to the right, restoring the first bit.) The binary number is then in standard mantissa form; a preceding point makes its value lie between 1/2 and 1. If the original unsigned double word number starts with a 1, e.g., 2³¹ is a 1 followed by 31 zeros, then the fractional mantissa must be multiplied by 2³² to give the number. Hence we start with an exponent of 32 and reduce it by 1 for every left shift that leaves a leading 0. At the end, 128 (\$80) would be added to the exponent for Applesoft FAC excess-80 convention, so we actually start with an EXP of \$A0.

In FORTH, a single-precision word is stored as

low byte/high byte (--> increasing address)
high byte/low byte (--> TOS)

and a double word as

high word/low word (memory)
low word/ high word (--> TOS).

Hence the original double word is

MOH HO / LO MO (memory)
MO LO / HO MOH (--> TOS)

Convert this to FAC format directly in the FAC register by the following sequence of operations:

SWAP	(HO MOH MO LO)
memory	9D 9E 9F A0 A1
DUP 9F !	-- -- LO MO --
A1 C!	-- -- LO MO LO
DUP 9D !	MOH HO LO MO LO
9F C!	MOH HO MOH MO LO

leaving the 4 mantissa bytes in correct position and an irrelevant MOH in EXP.

The conversion is now made by a left shift routine, <-S, whose source code is:

LDA #\$A0	A9 A0	store \$A0 in EXP
STA \$9D	85 9D	
CLC	18	
A ROL \$A1	26 A1	rotate left
ROL \$A0	26 A0	
ROL \$9F	26 9F	
ROL \$9E	26 9E	
BCS B	B0 04	
DEC \$9D	C6 9D	decrement EXP
BCC A	90 F2	repeat
B ROR \$9E	66 9E	restore overflow bit contd.

```

ROR $9F      66 9F
ROR $AO      66 A0
ROR A1      66 A1
JMP NEXT    4C 48 08

```

The position of the decimal point (if any) and the specified power of 10 following the E (if any) are combined to control the number of times the shift-converted number is divided or multiplied by 10 for its final FP representation, and the contents of FAC moved to the top of the stack.

SCREEN COMMENTS

Screen 1 uses high-level FORTH data moves; substituting the machine code of screen 10 gives a speed-up (About 30% in a multiplication cycle, described later.)

Screen 2 - Since FAC is in the normal parameter stack area, a stack that is too full could destroy itself during TOS->FAC or FAC->TOS. This situation is avoided by changing the bottom-of-stack limit from \$60 to \$A3. The terminal input buffer covers an area used by Apple's PRNTFAC routine, so the data in this buffer must be saved and restored. The data are saved by copying them 80 bytes further up, using CMOVE.

Screen 3 - After the absolute value of the number has been fully converted to FP format, the SGN is attached (line 12).

Screens 4 & 5 - In FNUMBER, if an E is encountered, there will be a call for a new NUMBER interpretation of what follows. This (single-precision) number makes an immediate adjustment to the EXP variable. Other than that, FNUMBER, FLITERAL, and FININTERPRET are rather obvious modifications of NUMBER, DLITERAL, and INTERPRET.

Screen 7 - The Applesoft 2-argument function calls require information on the relative signs of the inputs. If the input signs are different, \$FF is stored in \$AB (else 00 in AB) before the operation is called.

COMPARATIVE RESULTS

Multiplication cycle time including loading two floating-point numbers onto the stack, transferring them from the stack to FAC and ARG, multiplying them, returning the product to the stack and then dropping it to make room for a repeat of the cycle, was checked with

```
: TIME 5000 0 DO 1.23456 6.54321 F* FDROP LOOP ;
```

The high-level moves of screen 1 required 36 seconds, i.e., 7.2 ms per cycle, and the fast moves of screen 10 dropped this to 5.2 ms. The Applesoft program

```

10 X=1.23456 : Y=6.54321
20 FOR I = 1 TO 5000
30 Z=X*Y
40 NEXT

```

took 5 ms per cycle.

Applesoft output is limited to 8 or 9 significant digits, and numbers must be in the range 10^{-38} to 10^{38} . When additional precision (10 digits) is needed, or magnitudes in the range 10^{-99} to 10^{99} , a binary-coded-decimal (BCD) floating point program can be used, at the expense of much less speed. The BCD multiplication cycle took 37 ms.

For various typical operations, the present program and the BCD compared as follows:

Operation	Present FP	BCD
+	5.2 ms	29 ms
-	5.2	33
*	7.4	37
/	7.4	38
SINE	27	750
COSINE	27	850
SQRT	50	650
EXP	27	750
LOG	24	650

ELEGANCE vs. SPEED

Screens 1, 9, 10, 11, and 12 are alternative formulations of TOS->FAC etc. Screen 9 is an obvious FORTH approach and is the slowest. Screen 10 introduces CMOVE for more speed in F! and F0; screen 1 cuts corners for TOS->FAC by avoiding F!. Screen 11 is a check on using more sophisticated stack pointer changers. Finally, screen 12 goes all the way to machine code data moving. The cycle implicit in

```
: CYCLE 1000 0 DO TOS->FAC FAC->TOS LOOP ;
```

requires the following times:

Screen	Cycle time (ms)
9	4
10	3
1	2
11	1.7
12	0.3

The introduction of primitive moves in screen 12 practically eliminates transfer delay, but screen 12 is nowhere near as readable as the others. In the limit, all the colon definitions of this program could be replaced with primitives for even more speed, but would the program then be FORTH or assembly? Where is the appropriate balance between speed and the appearance of simplicity? My own taste says that screen 1 is the most elegant of these five choices.

```

SCR # 1
0 ( Data movers
1 HEX
2 : F! ( FP# A ---) SP@ 2 + SWAP 6 CMOVE DROP DROP DROP ;
3 : F@ ( A---FP#) DUP DUP DUP SP@ 2 + 6 CMOVE ;
4
5
6 : TOS->FAC ( FP#---) SP@ 9D 6 CMOVE DROP DROP DROP ;
7 : FAC->TOS ( ---FP#) 0 0 0 9D SP@ 2 + 6 CMOVE ;
8 : TOS->ARG ( FP#---) SP@ A5 6 CMOVE DROP DROP DROP ;
9
10 -->

```

```

SCR # 2
0 ( Moves, continued
1 A3 ' ?STACK OF + C!
2
3 : TIB> 100 150 50 CMOVE ;
4 : >TIB 150 100 50 CMOVE ;
5
6 : FAC. ED2E CALL ;
7 : F. TIB> TOS->FAC FAC. SPACE >TIB ;
8
9 ( Move constants to TOS)
10 : PI/2 F0 YREG C! 66 AREG C! EAF9 CALL FAC->TOS ;
11 : 2*PI F0 YREG C! 6B AREG C! EAF9 CALL FAC->TOS ;
12 : LN(2) E9 YREG C! 3C AREG C! EAF9 CALL FAC->TOS ;
13 : SQRT(2) E9 YREG C! 32 AREG C! EAF9 CALL FAC->TOS ;
14 ( For base e to TOS, use 1. FEXP )
15 -->

```

```

SCR # 3
0 ( Conversion
1 O VARIABLE EXP

```

23APR85CHP)

contd.

```

2 0 VARIABLE SGN
3
4 CREATE <-S A0A9 , 9D85 , 2618 , 26A1 , 26A0 , 269F , 809E ,
5   C604 , 909D , 66F2 , 669E , 669F , 66A0 , 4CA1 , 0848 ;
6   SMUDGE
7 : PREPARE SWAP DUP 9F ! A1 C! DUP 9D ! 9F C! ;
8 : POINTFIX EXP @ DUP 0< IF MINUS 0 DO EA55 CALL LOOP
9   ELSE DUP 0> IF 0 DO EA39 CALL LOOP
10  ELSE DROP ENDIF ENDIF ;
11 : CONVERT OVER OVER OR 0= IF 0 9D ! DROP DROP ELSE
12   PREPARE <-S POINTFIX ENDIF SGN @ A2 C! FAC->TOS ;
13
14 -->

```

SCR # 4 0 (New INTERPRET 23APR85CHP)

```

1 0 VARIABLE EFLAG
2 : CFLAG? DPL @ 1+ EFLAG @ OR ;
3 : FNUMBER 0 0 ROT DUP 1+ C@ 2D = DUP >R + 0 EFLAG ! 0 EXP !
4   0 SGN ! BEGIN (NUMBER) DUP C@ DUP BL - SWAP 45 - *
5   WHILE DUP C@ 2E - 0 ?ERROR 0 DPL ! REPEAT DPL @ DUP 0>
6   IF MINUS EXP +! ELSE DROP ENDIF DUP C@ 45 = IF 1 EFLAG !
7   NUMBER DROP EXP +! ELSE DROP ENDIF R> IF FF SGN ! CFLAG?
8   0= IF DMINUS ENDIF ENDIF ;
9 0 VARIABLE TEMP1 0 VARIABLE TEMP2 0 VARIABLE TEMP3
10
11 : 3REVERSE TEMP1 ! TEMP2 ! TEMP3 ! TEMP1 @ TEMP2 @ TEMP3 @ ;
12
13 : FLITERAL STATE @ IF 3REVERSE COMPILE LIT ,
14   COMPILE LIT , COMPILE LIT , ENDIF ; IMMEDIATE
15 -->

```

SCR # 5 0 (New INTERPRET, continued 23APR85CHP)

```

1 : FINTERPRET BEGIN -FIND IF STATE @ <
2   IF CFA , ELSE CFA EXECUTE ENDIF ?STACK
3   ELSE -1 DPL ! HERE FNNUMBER CFLAG?
4   IF CONVERT [COMPILE] FLITERAL
5   ELSE DROP [COMPILE] LITERAL
6   ENDIF ?STACK ENDIF AGAIN ;
7
8 ' FINTERPRET CFA ' QUIT OE + !
9
10 -->

```

SCR # 6 0 (FVARIABLES & FCONSTANTS, stack operations 23APR85CHP)

```

1 : FVARIABLE <BUILDS HERE 6 ALLOT F! DOES> ;
2 : FCONSTANT <BUILDS HERE 6 ALLOT F! DOES> F@ ;
3
4 0. FCONSTANT F0
5 F0 FVARIABLE TEMPF1 F0 FVARIABLE TEMPF2 F0 FVARIABLE TEMPF3
6
7 : FDROP DROP DROP DROP ;
8 : FDUP TEMPF1 F! TEMPF1 F@ TEMPF1 F@ ;
9 : F2DUP TEMPF1 F! TEMPF2 F! TEMPF2 F@ TEMPF1 F@ ;
10  TEMPF2 F@ TEMPF1 F@ ;
11 : FSWAP TEMPF1 F! TEMPF2 F! TEMPF1 F@ TEMPF2 F@ ;
12 : FROT TEMPF1 F! TEMPF2 F! TEMPF3 F!
13   TEMPF2 F@ TEMPF1 F@ TEMPF3 F@ ;
14
15 -->

```

SCR # 7 0 (2-argument functions 23APR85CHP)

```

1 CREATE EOR.SGN A2A5 , AA45 , AB85 , 484C , 08 C, SMUDGE
2 : 2ARG TOS->FAC TOS->ARG 9D AREG C! EOR.SGN ;
3 : F/ ( FP2 FP1---FP2/FP1) 2ARG EA69 CALL FAC->TOS ;
4 : F* ( FP2 FP1---FP2*FP1) 2ARG E982 CALL FAC->TOS ;
5 : F- ( FP2 FP1---FP2-FP1) 2ARG E7AA CALL FAC->TOS ;
6 : F+ ( FP2 FP1---FP2+FP1) 2ARG E7C1 CALL FAC->TOS ;
7 : FPWR ( FP2 FP1---FP2^FP1) 2ARG EE97 CALL FAC->TOS ;
8 ( Comparisons )
9 : F<0 DROP DROP 0< ;
10 : F>0 DROP DROP 0> ;
11 : F=0 SWAP DROP SWAP DROP FF AND 0= ;
12 : F< F- F<0 ;
13 : F> F- F>0 ;
14 : F= F- F=0 ;
15 -->

```

SCR # 8

```

0 ( Single-argument functions 24APR85CHP)
1 : FSQRT TOS->FAC EE80 CALL FAC->TOS ;
2 : FLN TOS->FAC E941 CALL FAC->TOS ;
3 : FEXP TOS->FAC EF09 CALL FAC->TOS ;
4 : FCOS TOS->FAC EFEA CALL FAC->TOS ;
5 : FSIN TOS->FAC EFF1 CALL FAC->TOS ;
6 : FTAN TOS->FAC F03A CALL FAC->TOS ;
7 : FATN TOS->FAC F09E CALL FAC->TOS ;
8 : FINT TOS->FAC EC23 CALL FAC->TOS ;
9 : FMOD F2DUP F/ FINT F* F- ;
10 : FNNEG SP@ 5 + DUP C@ 0= ;
11   IF FF ELSE 00 ENDIF SWAP C! ;
12 : FABS 0 SP@ 7 + C! ;
13 DECIMAL
14 ;S

```

SCR # 9

```

0 ( Data movers 3MAY85CHP)
1 HEX
2 : F! ( FP# A ---) DUP 5 + SWAP DO I ! 2 +LOOP ;
3 : F@ ( A---FP#) 1 - DUP 5 + DO I @ -2 +LOOP ;
4
5
6 : TOS->FAC ( FP#---) 9D F! ;
7 : FAC->TOS ( ---FP#) 9D F@ ;
8 : TOS->ARG ( FP#---) A5 F! ;
9
10 2 LOAD

```

SCR # 10

```

0 ( Data movers 3MAY85CHP)
1 HEX
2 : F! ( FP# A ---) SP@ 2 + SWAP 6 CMOVE DROP DROP DROP ;
3 : F@ ( A---FP#) DUP DUP DUP SP@ 2 + 6 CMOVE ;
4
5
6 : TOS->FAC ( FP#---) 9D F! ;
7 : FAC->TOS ( ---FP#) 9D F@ ;
8 : TOS->ARG ( FP#---) A5 F! ;
9
10 2 LOAD

```

SCR # 11

```

0 ( Data movers 3MAY85CHP)
1 HEX
2 : F! ( FP# A ---) DUP 5 + SWAP DO I ! 2 +LOOP ;
3 : F@ ( A---FP#) 1 - DUP 5 + DO I @ -2 +LOOP ;
4
5 CREATE SP+6 E8E8 , E8E8 , E8E8 , 484C , 08 C, SMUDGE
6 CREATE SP-6 CACA , CACA , CACA , 484C , 08 C, SMUDGE
7
8 : TOS->FAC ( FP#---) SP@ 9D 6 CMOVE SP+6 ;
9 : FAC->TOS ( ---FP#) SP-6 9D SP@ 2 + 6 CMOVE ;
10 : TOS->ARG ( FP#---) SP@ A5 6 CMOVE SP+6 ;
11
12 2 LOAD

```

SCR # 12

```

0 ( Data movers 3MAY85CHP)
1 HEX
2 : F! ( FP# A---) DUP 5 + SWAP DO I ! 2 +LOOP ;
3 : F@ ( A---FP#) 1 - DUP 5 + DO I @ -2 +LOOP ;
4 CREATE TOS->FAC 00B5 , 9D85 , 01B5 , 9E85 , 02B5 , 9F85 ,
5   03B5 , A085 , 04B5 , A185 , 05B5 , A285 ,
6   E8E8 , E8E8 , E8E8 , 484C , 08 C, SMUDGE
7 CREATE TOS->ARG 00B5 , A5B5 , 01B5 , A685 , 02B5 , A785 ,
8   03B5 , A885 , 04B5 , A985 , 05B5 , AA85 ,
9   E8E8 , E8E8 , E8E8 , 484C , 08 C, SMUDGE
10 CREATE FAC->TOS CACA , CACA , CACA , 9DA5 , 0095 , 9EA5 ,
11   0195 , 9FA5 , 0295 , A0A5 , 0395 , A1A5 , 0495 ,
12   A2A5 , 0595 , 484C , 08 C, SMUDGE
13
14 2 LOAD

```

I AM WHAT I AM . . . AND WHAT I AM,

I AM A Discourse on the Bootstrap

Actions of DOS

The Assembled Code to follow is somewhat long. However, it is fundamental to understanding what DOS 3.3 does upon initialization, for example, turning your Apple II on or typing "PR#6" or entering the Monitor and typing "C600G".

I really don't wish to take too much credit - my real heroes who deserve the clear majority of the credit are (in alphabetical order):

Sandy Mossberg (of Nibble fame)

Bob Sander-Cederlof (Apple Assembly Line)

Roger Wagner (Assembly Lines -- The Book)

As always, only the errors belong totally to me.

Folks, there are a lot of goodies hidden in the code to follow; for example, how to disconnect DOS and how you hide your very special utility between the DOS File Buffers and DOS proper @ \$9000. See if you can find them and enjoy the journey!!

```

1 * Ignite your engines!!
2 *
3 * The PSA ROM on your APPLE Disk Controller Card has a
4 * 256-Byte program on it ($C600 --> $C6FF) that reads
5 * Track 0, Sector 0 on your diskette into RAM starting
6 * @ $0800. The program's final instruction @ $C6F8 is
7 * a JuMP to $0801 to execute this RAM code.
8 *
9 * This RAM code, known as Boot Stage # 1, reads in
10 * RWTS ($B600 --> $BFFF) and then JuMPs to the Boot
11 * Stage # 2 code @ $0F00 that has also been loaded.
12 * This code reads in the remaining portion of DOS and
13 * then JuMPs to $9D84.
14
15 ****
16 ****
17 * Dis-assembly of some routines that initialize DOS *
18 ****
19 * General EQUATES.
20 ****
21
22
23
24 ****
25
26 ****
27
28
29 HORpos = $24 ; Cursor distance from left mar.
30 LEFTmar = $28 ; LEFT margin of monitor.
31 A3L = $40 ; General Pointer.
32 HIEM = $4C ; HIEM for INTEGER BASIC.
33 TXTTAB = $67 ; Start of Applesoft program.
34 VARTAB = $69 ; Start of Simple Variable
35 * ; Space in Applesoft.
36 FRETOP = $6F ; Top of Free Space (Applesoft).
37 HEMSIZ = $73 ; HIEM (Applesoft).
38 PRGEND = $AF ; End of Applesoft program.
39 INTTAB = $CA ; Beginning of INTEGER BASIC pgm.
40 LOCK = $D6 ; When negative, prevents access.
41 cmdDO = $A180 ; Executes DOS Command via
42 * ; DOS Command Handler table.
43 setROM = $A5B2 ; Sets ROM to desired BASIC:
44 * ; (A) = $4C for Applesoft
45 * ; (A) = $20 for INTEGER BASIC
46 * ; (A) from $E000.
47 FILEread = $A626 ; Read Data Byte from File. Set
48 * ; CSW Intercept STATE = 6.
49 EXECread = $A682 ; Read Byte from EXEC File. Set
50 * ; CSW Intercept STATE = 3 and
51 * ; access "FILEread".
52 EXECptr = $A690 ; Points (A3L) to EXEC File buff.
53 WMcsW0 = $A75B ; Sets STATus Flag & CSW STATE.
54
55 ****
56 * End of EQUates.
57 *
58 ****
59
60
61 ORG $0036
62 ****
63
64
65 * The original DOS I/O hooks.
66
67 ****

```

```

69 I:OhooksDOS
70
71 CSW DA OUTroutine
72 KSW DA INroutine
73
74
75 ORG $0300
76
77
78 -----
79 PB3vectorTBL
80 *
81
82 DOSwarmY JMP WARM ; Warm & Cold Start DOS
83 DOScoldY JMP COLD ; Vectors in Page 3 RAM.
84 DS 20
85 DOShk JMP IOINIT ; Re-connect DOS.
86 DS 5
87 RESET DA WARM ; Warm Start soft entry Vector.
88 PRWEDUP HEX 38 ; Routine @ $FB6F takes complement of Byte @ $03F3
89 *
90 *
91 *
92 IRQLOC DS 9 ; JuMPing to your routine.
93 $FF65 ; "CALL -151" and more.
94
95
96 ORG $9000
97
98
99 *
100 STARTofDOS
101 *
102
103 DOSbuf DA $9CD3 ; Address of File Name field
104 * ; in highest DOS Buffer.
105 KBDincpt DA INroutine ; Other re-locatable DOS
106 YIDincpt DA OUTroutine ; address constants.
107 PRMfnADR DA PRMfnBUF ; Holds addresses of
108 SECfnADR DA SECfnBUF ; File Name buffers.
109 DS 6
110
111 *
112 * Video Intercept STATE Handler table.
113 *
114
115 CSWstateLOC
116
117 DA CSWst0-1 ; Evaluate Start of Line.
118 DA CSWst1-1 ; Collect DOS Command.
119 DA CSWst2-1 ; Ignore non-DOS Command.
120 DA CSWst3-1 ; Process INPUT Statement.
121 DA CSWst4-1 ; Write Data to File.
122 DA CSWst5-1 ; Eval Start of Write Data Line.
123 DA CSWst6-1 ; Skip "?" PROMPT character.
124
125 *
126 * Entry Points for DOS Commands.
127
128
129 DOScmdHANDLER
130
131 DA $A54F-1 ; "INIT" Command Entry Point.
132 DS 54 ; 27 more DOS Commands.
133
134 *
135 BASICentryPTS
136 *
137
138 CHAIN DA $A4FC ; Both Applesoft & INTEGER.
139 RUM DA $A4FC ; Both.
140 ERRhdlr DA $D865 ; Both.
141 ColDstrt DA COLDvec ; JuMPs to $F128 for both.
142 CNHLP DA RESTART ; Warm Start for both.
143 LINKset DA $D4F2 ; Only Applesoft.
144
145 *
146 INTimage ; Image for INTEGER BASIC.
147 *
148
149 DA $E836
150 DA $A4E5
151 DA $E3E3
152 DA COLDvec
153 DA WARMvec ; Holds Warm Start addr = $D43C.
154
155 *
156 APPLErom ; Image for ROM Applesoft.
157 *
158
159 DA $A4FC
160 DA $A4FC
161 DA $D865
162 DA COLDvec
163 DA RESTART
164 DA $D4F2
165

```

166 *-----
 167 APPLEram ; Image for RAM Applesoft.
 168 *-----
 9D78: 06 A5 170 DA \$A506
 9D7A: 06 A5 171 DA \$A506
 9D7C: 67 10 172 DA \$1067
 9D7E: 84 9D 173 DA COLD
 9D80: 3C 0C 174 DA SOC3C
 9D82: F2 0C 175 DA \$0CF2
 176 *-----
 177 *-----
 178 COLD
 179 *-----
 180
 9D84: AD E9 B7 181 LDA IOBsSlot
 9D87: 4A 182 LSR ; Divide by 16.
 9D88: 4A 183 LSR
 9D89: 4A 184 LSR
 9D8A: 4A 185 LSR
 9D8B: 8D 6A AA 186 STA FMslot
 9D8E: AD EA B7 187 LDA IOBdrv
 9D91: 8D 68 AA 188 STA FMDrv
 9D94: AD 00 E0 189 LDA COLDvec
 9D97: 49 20 190 EOR #\$20
 9D99: 00 11 191 BHE apple1
 192 *-----
 9D9B: 8D B6 AA 193 integer1 STA LANGflg ; = 0.
 9D9E: A2 0A 194 LDX #\$0A ; "LINKset" pertains only
 9D9O: BD 61 9D 195 :1 LDA INTimage-1,X ; to Applesoft.
 9D93: BD 55 9D 196 STA BASICentryPTS-1,X
 9D96: CA 197 DEX
 9D97: DD F7 198 BHE :1
 9D99: 4C BC 9D 199 JMP cont1
 200 *-----
 9D9C: A9 40 201 apple1 LDA #\$40 ; Set for ROM Applesoft.
 9D9E: 8D B6 AA 202 STA LANGflg
 9D9I: A2 0C 203 LDX #\$0C
 9D93: BD 68 9D 204 :2 LDA APPLEram-1,X
 9D96: 9D 55 9D 205 STA BASICentryPTS-1,X
 9D99: CA 206 DEX
 9D9A: 00 F7 207 BHE :2
 208 *-----
 9D9C: 38 209 cont1 SEC
 9D9D: B0 12 210 BCS cont2 ; Always!!
 211 *-----
 212 *-----
 213 WARM
 214 *-----
 215
 9D9F: AD 86 AA 216 LDA LANGflg
 9DC2: DD 04 217 BNE apple2 ; ROM or RAM Applesoft.
 218 *-----
 9DC4: A9 20 219 integer2 LDA #\$20
 9DC6: DD 05 220 BHE set ; Always!!
 221 *-----
 9DC8: 0A 222 apple2 ASL
 9DC9: 10 05 223 BPL carry ; RAM Applesoft.
 9DCB: A9 4C 224 rom LDA #\$4C
 9DCC: 20 B2 A5 225 set JSR setROM
 226 *-----
 9DD0: 18 227 carry CLC
 228 *-----
 9DD1: 08 229 cont2 PHP ; Save Zero & Carry Flags.
 9DD2: 20 51 A8 230 JSR IOINIT
 9DD5: A9 00 231 LDA #\$00
 9DD7: 8D 5E AA 232 STA MONflag ; Set for "MONON C,I,O".
 9DD8: BD 52 AA 233 STA CSWstate ; STATE # 0.
 9DD0: 28 234 PLP ; Retrieve Zero & Carry Flags.
 9DDE: 6A 235 ROR ; Carry SET for COLD &
 9DDF: 8D 51 AA 236 STA STATflg ; CLEAR for WARM Start.
 9DE2: 30 03 237 BMI cold
 238 *-----
 9DE4: 6C 5E 9D 239 warm JMP (CMDLP) ; A JuMP to \$D43C.
 240 *-----
 9DE7: 6C 5C 9D 241 cold JMP (COLDstrt) ; Eventually JuMPs to \$F128.
 242 *-----
 243 *-----
 244 INITdosENTRY
 245 *-----
 246
 9DEA: 0A 247 ASL ; On entry, (A) = DOS STATUS
 248 * ; Flag # \$AA51 :
 249 * ; \$00 = Warm Start
 250 * ; \$01 = READ
 251 * ; \$40 = RAM Applesoft
 252 * ; \$80 = Cold Start.
 253 BPL notRAM
 254 *-----
 255 *-----
 9DEF: 8D B6 AA 257 ram STA LANGflg ; = \$80.
 9DFO: A2 0C 258 LDX #\$0C ; Load RAM Applesoft
 9DF2: BD 77 9D 259 :3 LDA APPLEram-1,X ; Image of BASIC
 9DF5: 9D 55 9D 260 STA BASICentryPTS-1,X ; Entry Point table.
 9DF8: CA 261 DEX
 9DF9: DD F7 262 BNE :3
 263 *-----
 264 *-----
 265 FILEnam LDX #\$10 ; Transfer Secondary
 9DFD: BD 93 AA 267 :4 LDA SECfnBUF,X ; ("RENAME") File Name
 9E00: 9D 75 AA 268 STA PRMfnBUF,X ; to Primary File Name.
 9E03: CA 269 DEX
 9E04: 10 F7 270 BPL :4
 271 *-----
 272 *-----
 273 *-----
 9E06: AD B1 AA 274 notRAM LDA MAX:3 ; Assign DEFAULT value.
 9E09: 8D 57 AA 275 STA MAXFILES
 9E0C: 20 D4 A7 276 JSR BUILDDosBUFF ; Re-build DOS File Buffers.
 9E0F: AD B3 AA 277 LDA EXECfing
 9E12: F0 09 278 BEQ noEXEC ; EXEC File NOT active.
 9E14: 48 280 active PHA
 9E15: 20 9D A6 281 JSR EXECptr ; Point (A3L) to EXEC
 9E18: 68 282 PLA ; File buffer.
 9E19: A0 00 283 LDY #\$00
 9E1B: 91 40 284 STA (A3L),Y
 9E1D: 20 5B A7 285 noEXEC JSR MHcsw0 ; Reset to CSW STATE # 0.
 9E20: AD 5F AA 286 LDA cmdINDEX ; Index to DOS Command
 287 * ; Text table.
 9E23: DD 20 288 BNE notINIT ; Not the Command = "INIT".
 289 *-----
 290 *-----
 9E25: A2 2F 291 LOADpg3 LDX #\$03FF-\$0300 ; Only for "INIT".
 9E27: BD 51 9E 292 :5 LDA DOSvectorTBL,X ; \$9E51 --> \$9E80.
 9E2A: 9D D0 03 294 STA PG3vectorTBL,X
 9E2B: CA 295 DEX
 9E2E: 10 F7 296 BPL :5
 297 *-----
 298 *-----
 299 *-----
 300 reset LDA DOSvectorTBL+2 ; Enable RESET Vector
 301 STA RESET+1 ; for "INIT" Command.
 302 EOR #\$A5
 303 STA PRMEDUP
 304 LDA DOSvectorTBL+1
 305 STA RESET
 306 LDA #\$06 ; Set for "RUN" Command.
 307 BHE setINDEX ; Always!!
 308 *-----
 309 *-----
 310 *-----
 311 notINIT LDA cmdPEND
 312 BEQ return ; Always!!
 313 *-----
 314 *-----
 315 *-----
 316 setINDEX STA cmdINDEX
 317 JMP cmdDO ; Execute DOS Command
 318 return RTS ; via "funny" JuMP.
 319 *-----
 320 *-----
 321 * Source of Page 3 image.
 322 *-----
 323 *-----
 324 DOSvectorTBL
 325 *-----
 326 DS 48
 327 *-----
 328 *-----
 329 * Keyboard Intercept routine.
 330 *-----
 331 *-----
 332 INroutine
 333 *-----
 334 * The first time that Applesoft @ \$D43C accesses (KSW).
 335 * we JuMP to \$9E81. As you can see, this code accesses
 336 * \$9DEA which, among other things, re-builds the DOS
 337 * File Buffers via \$A7D4.
 338 *-----
 339 JSR SETUP ; Substitute my hooks for DOS'.
 340 LDA STATflg ; Test for DOS STATUS.
 341 BEQ Warm
 342 *-----
 343 DS 12 ; Selects READING File or
 344 *-----
 345 Cold JSR INITdosENTRY
 346 LDY HORpos
 347 LDA #\$60 ; Flashing blank = Cursor.
 348 STA (LEFTmar),Y ; Put Cursor on monitor.
 349 *-----
 350 Warm LDA EXECflg
 351 BEQ notEXEC
 352 JSR EXECread
 353 notEXEC LDA #\$03 ; STATE # 3.
 354 STA CSWstate
 355 JSR RESTORE ; Restore registers.
 356 JSR KSWgo ; Go to my Input hook.
 357 STA ASA9 ; Save again.
 358 STX XSAV
 359 JMP DOSexit ; Bye-bye!
 360 *-----
 361 KSWgo JMP (KSW) ; My Input handler.
 362 *-----
 363 *-----
 364 * Video Intercept routine.
 365 *-----
 366 OUTroutine
 367 *-----
 368 *-----
 369 JSR SETUP ; Substitute my hooks for DOS'.
 370 LDA CSWstate ; Go to address of Video
 371 ASL ; Intercept STATE Handler
 372 TAX ; via a "funny" JuMP.
 373 LDA CSWstateLOC+1,X
 374 PHA
 375 LDA CSWstateLOC,X
 376 PHA
 377 LDA ASA9
 378 RTS
 379 *-----

```

9E01: 80 5C AA 380 SETUP STA ASAV ; Save registers. 488
9E04: 8F 5A AA 381 STX XSAV 489
9E07: 8C 5B AA 382 STY YSAV 490
9EDA: BA 383 TXS ; POP RETURN address to return 491
9E0B: E8 384 INX ; to DOS' CALLing routine 492
9EDC: E8 385 INX ; when leaving via "DOSexit". 493
9EDD: BE 59 AA 386 STX SSAVE 494
9E00: A2 03 387 * 495
9EE2: BD 53 AA 388 DISCONN LDX #03 ; Dis-connect DOS by placing 496
myHOOKS LDA CSWtrue,X ; my hooks in place of DOS. 497
9EE5: 95 36 390 STA CSW,X 498
9EE7: CA 391 DEX 499
9EE8: 10 F8 392 BPL myHOOKS 500
9EEA: 60 393 RTS 501
394 502
395 *----- 503
9EEB: AE B7 AA 396 CSWst0 LDX RUMflag ; Evaluate Start of Line. 504
397 DS 36 505 FH LDY #$1E ; Address of F/M
398 *----- 506 SEC ; Work Area buffer.
507 A7ED: A5 40 507 LDA A3L ; F/M Work Area buffer
508 A7EF: E9 20 508 #$20 ; is 45 Bytes long.
509 A7F1: 91 40 509 STA (A3L),Y ; Lo Byte.
510 A7F3: 48 510 PHA
511 A7F4: A5 41 511 LDA A3L+1 ; 2-Byte subtraction.
512 A7F6: E9 00 512 SBC #$00
513 A7FB: C8 513 INY
514 A7F9: 91 40 514 STA (A3L),Y ; Hi Byte.
515 516 *----- 517
517 A7FB: AA 518 TSL TAX ; Address of T/S List sector
518 A7FC: CA 519 DEX ; is 256 Bytes below.
520 A7FD: 68 520 PLA ; Lo Byte = the same.
521 A7FE: 48 521 PHA
522 A7FF: C8 522 INY
523 A800: 91 40 523 STA (A3L),Y
524 A802: 8A 524 TXA ; Hi Byte (down 256 Bytes).
525 A803: C8 525 INY
526 A804: 91 40 526 STA (A3L),Y
527 528 *----- 529
529 A806: AA 530 DATA TAX ; Address of Data sector
530 A807: CA 531 DEX ; also 256 Bytes below.
532 A808: 68 532 PLA ; Lo Byte = the same.
533 A809: 48 533 PHA
534 A80A: C8 534 INY
535 A80B: 8A 535 STA (A3L),Y
536 A80D: C8 536 INY
537 A80E: 8A 537 TXA ; Hi Byte (down 256 Bytes).
538 A80F: 91 40 538 STA (A3L),Y
539 540 *----- 541
541 A811: CE 63 AA 542 COUNT DEC SCRATCH ; = 0 when down to HIMEM.
542 A814: F0 17 543 BEQ DONEwithBUFF
543 *----- 544
544 A815: 40 545 *----- 546
546 A816: AA 547 LINK TAX ; Link Byte to next Buffer.
547 A817: 68 548 PLA ; Next Name buffer
548 A818: 38 549 SEC ; down by 38 Bytes.
549 A819: E9 26 550 SBC #$26
550 A81B: C8 551 INY
551 A81C: 91 40 552 STA (A3L),Y
552 A81E: 48 553 PHA ; Link Byte (lo).
553 A81F: 8A 554 TXA ; 2-Byte subtraction.
554 A820: E9 00 555 SBC #$00
555 A822: C8 556 INY
556 A823: 91 40 557 STA (A3L),Y ; Link Byte (hi).
557 558 *----- 559
559 A825: 85 41 560 BUFFptr STA A3L+1 ; Reset Buffer Pointer.
560 A827: 68 561 PLA
561 A828: 85 40 562 STA A3L
562 A82A: 4C E5 A7 563 JMP NEXTbuf ; Go again!!
563 564 *----- 565
565 A82D: 48 566 *----- 567
567 A82E: 49 00 568 DONEwithBUFF
568 A82F: C8 569 *----- 570
570 A830: 8B 570 PHA ; Hi Byte of HIMEM.
571 A831: 91 40 571 LDA #$00 ; Last Link Byte = $00
572 A832: C8 572 INY ; depicts END of Buffers.
573 A833: C8 573 STA (A3L),Y
574 A834: 91 40 574 INY
575 A835: 40 576 STA (A3L),Y
576 A836: AD 86 AA 577 *----- 577
577 A837: F0 08 578 PGMptrs LDA LANGflg ; Which BASIC active??
578 A838: 68 579 PLA BEQ integer
579 A83C: 85 74 580 STA MEMSIZ+1
580 A83E: 85 70 581 STA FRETOP+1 ; HIMEM (hi Byte).
581 A840: 68 582 PLA ; HIMEM (lo Byte).
582 A841: 85 73 583 STA MENSIZ
583 A843: 85 6F 584 STA FRETOP ; HIMEM (lo Byte).
584 A845: 60 585 RTS ; Finished!!
585 A846: 68 586 *----- 587
586 A847: 85 4D 587 PLA ; HIMEM (hi Byte).
587 A848: 85 CB 588 STA MIMEM+1
588 A849: 68 589 STA INTTAB+1 ; HIMEM (lo Byte).
589 A84C: 85 4C 590 PLA ; HIMEM
590 A84E: 85 CA 591 STA MINTAB ; HIMEM (lo Byte).
591 A850: 60 592 RTS ; Finished!!
592 A851: 85 4C 593 PLA ; HIMEM (hi Byte).
593 A852: 85 CA 594 STA MINTAB ; HIMEM (lo Byte).
594 A853: 85 40 595 STA MINTAB ; HIMEM (lo Byte).
595 A854: 85 40 596 RTS ; Finished!!

```

597 *-----
 598 IOINIT ; Make my I/O hooks permanent.
 599 *-----
 600 *-----
 601
 A851: A5 39 602 LDA KSW+1 ; DOS' Keyboard Vector
 A853: C0 03 90 603 CMP KBDIncpt+1 ; still installed??
 A856: F0 12 604 BEQ OUThook
 605 *-----
 A858: 80 56 AA 606 INhook STA KSWtrue+1 ; Put my Keyboard hook into B7E8: 01
 A85B: A5 38 607 LDA KSW ; "KSWtrue" & then place B7E9: 60
 A85D: 80 55 AA 608 STA KSWtrue ; DOS' back into "KSW". B7EA: 01
 A860: AD 02 90 609 LDA KBDIncpt
 A863: 85 38 610 STA CSW
 A865: AD 03 90 611 LDA KBDIncpt+1
 A868: 85 39 612 STA KSW+1
 613 *-----
 A86A: A5 37 614 OUThook LDA CSW+1 ; DOS' Video Vector
 A86C: C0 05 9D 615 CMP VIDIncpt+1 ; still installed??
 A86F: F0 12 616 BEQ done
 617 *-----
 A871: 80 54 AA 618 STA CSWtrue+1 ; Put my Video hook into B7E8: 01
 A874: A5 36 619 LDA CSW ; "CSWtrue" & then place B7E9: 60
 A876: 80 53 AA 620 STA CSWtrue ; DOS' back into "CSW". B7EA: 01
 A879: AD 04 90 621 LDA VIDIncpt
 A87C: 85 36 622 STA CSW
 A87E: AD 05 90 623 LDA VIDIncpt+1
 A881: 85 37 624 STA CSW+1
 A883: 60 625 done RTS ; Finis!!
 626 *-----
 627 *-----
 628 * Names of DOS Commands in 'DCI' format.
 629 *-----
 630
 631 DOScmdTEXT
 632
 A884: 49 4E 49 633 DCI 'INIT' ; INIT Command.
 A887: 04 634 DS 122
 A902: 56 45 52 635 DCI 'VERIFY' ; VERIFY Command.
 A905: 49 46 09 636 HEX 00 ; Flags end of table.
 A908: 00 637
 638
 639 ORG \$AA4F
 640
 641
 642 *-----
 643 * Routine var & constants.
 644 *-----
 645
 646 VARIABLEconst
 647
 AA4F: D3 9C 648 DOSbuff DA \$9CD3 ; Address of File Name Field
 649 *-----
 AA51: 80 650 STATflg HEX 80 ; DOS STATUS Flag:
 651 *-----
 652 *-----
 653 *-----
 654 *-----
 AA52: 00 655 CSWstate HEX 00 ; DOS CSW STATE #:
 656 *-----
 657 *-----
 658 *-----
 659 *-----
 660 *-----
 661 *-----
 662 *-----
 663 *-----
 AA53: F0 FD 664 CSWtrue DA \$FDFO
 AA55: 18 FD 665 KSWtrue DA \$FD1B
 AA57: 03 03 666 MAXFILES HEX 03,03
 667 SSAY DS 1 ; Temporary storage locations.
 668 XSAV DS 1
 669 YSAV DS 1
 670 ASAY DS 1
 AA5D: 00 671 LINIndex HEX 00 ; Position in Input Buffer.
 AA5E: 00 672 MONflag HEX 00 ; DOS MON Flag:
 673 *-----
 674 *-----
 675 *-----
 676 *-----
 AA62: 00 677 cmdINDEX DS 1 ; Index of last DOS Cmd (X 2).
 678 DS 2
 679 cmdPEND HEX 00 ; Index of pending DOS Command.
 680 SCRATCH DS 1 ; Temporary storage in DOS.
 681 DS 4
 AA68: 01 01 682 FMdrv HEX 01,01 ; Drive # in FM Keywd Values tb1
 AA6A: 06 06 683 FMslot HEX 06,06 ; Slot # in FM Keywd Values tb1
 684 DS 9
 AA75: CE C1 CD 685 PRMfnBUF ASC "NAME.1"
 AA78: C5 AE B1
 686 DS 24
 AA93: CE C1 CD 687 SECfnBUF ASC "NAME.2"
 AA96: C5 AE B2
 688 DS 24
 AAB1: 03 689 MAX:3 HEX 03 ; Default value of MAXFILES = 3.
 AAB2: 84 690 DOSctrID HEX 84 ; DOS Cmd char ("CTRL-D").
 AAB3: 00 691 EXECflg HEX 00 ; EXEC File active (?) Flag.
 692 DS 2
 AAB6: 40 693 LANGflg HEX 40 ; Active BASIC Flag:
 694 *-----
 695 *-----
 696 *-----
 AAB7: 00 697 RUNflg HEX 00 ; RUN Interrupt Flag.
 AA88: C1 D0 D0 698 basic ASC "APPL.ESOFT"
 AABB: CC C5 D3 CF C6 D4

699 *-----
 700
 701 ORG \$B7E8
 702
 703
 704 *-----
 705 RWTSparmLIST
 706 *-----
 707
 708 TBLtype HEX 01 ; Mandatory!!
 709 IOslot HEX 60 ; Slot number X 16.
 710 IOdrv HEX 01 ; Drive number.
 711 DS 14 ; Et Cetera.
 712
 713
 714 ORG \$D43C
 715
 716
 717 RESTART
 718
 719 *-----
 720 * Main Applesoft Command Loop that handles all input.
 721 * If in the immediate mode, the Command is executed.
 722 * If in the deferred mode, the program line is stored
 723 * in RAM starting @ \$0801, with all program Zero
 724 * Page pointers adjusted accordingly. In either case,
 725 * input is retrieved via access to (KSW).
 726 *-----
 727
 728
 729 ORG \$D64B
 730
 731
 732 SCRATCH LDA #100 ; Enable user access.
 733 STA LOCK
 734 TAY
 735 STA (TXTTAB),Y ; (TXTTAB) = \$0801.
 736INY
 737 STA (TXTTAB),Y ; @ \$0802.
 738 LDA TXTTAB ; = \$01.
 739 ADC #\$02
 740 STA VARTAB ; = \$03.
 741 STA PRGEND
 742 LDA TXTTAB+1 ; = \$08.
 743 ADC #\$00
 744 STA VARTAB+1 ; Both now point to \$0803.
 745 STA PRGEND+1
 746 *-----
 747 DS 49 ; Et Cetera.
 748 *-----
 749 D696: 60 RTS
 750
 751
 752 ORG \$E000
 753
 754
 755 COLDvec JHP COLDEST ; Entry Points for
 756 WARMvec JHP RESTART ; DOS Starts.
 757 BRK
 758
 759
 760 ORG \$F128
 761
 762
 763
 764
 765
 766 *-----
 767 * Initiates NORMAL text, sets up several JUMP locations
 768 * such as USer, locates bottom of ROM and sets HIMEM
 769 * accordingly. Sets the Program Pointer, "TXTTAB".
 770 * "RESTART" on exit, "COLDEST" detours through "SCRATCH".
 771
 -End assembly, 1225 bytes, Errors: 0
 (Ed. Note: For those of you eager to learn more about this and sundry assembly language matters, call John at (703) 569-2294. He is scheduling an extensive course on the subject to be held soon - probably in the Pi office.)
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SAY IT AIN'T SO, BIG BLUE

by Robert C. Platt

A friend of mine left me the following note by way of a confession:

I may be a computer nerd, but ever since I was big enough to warm up the vacuum tubes on an IBM 1620, I've been head over heels in love with Big Blue. Even when, as a patent attorney, I had other competing companies as clients, even when I was needling IBM for its Control-Alternate-Delete mentality, I still managed to finagle an IBM XT computer for my desk and an Office System 6 for our division.

I justified it with "Just checking out the enemy," but I had deeper motives. I drooled over IBM. After all, it dominates any market it wishes to enter. It wins virtually every battle, it chooses to fight - even against the U.S. Justice Dept! Clearly, IBM is the ultimate expression of that most basic corporate imperative - the urge to go forth, monopolize, and reap the profits.

In my desire to rub shoulders with this unique kind of marketing success, I not only used an IBM computer, I also bought IBM software. I even bought genuine IBM brand floppy disks (how could I resist those little grey envelopes with the big white IBM on the side?) Above all, I showed my loyalty by buying at the downtown IBM Product Center. Not for me the plain manila envelopes of gadfly mail-order houses. Never would I even consider the 20 to 30% discounts offered through universities, or even through the neighborhood IBM typewriter sales reps. No need to send me catalogs for non-IBM expansion boards!

If full list price was the price of being an IBM customer, I paid it gladly. After all, how should I know that a large portion of IBM's direct sales were below list? Just let me fly the IBM flag with pride!

As our firm's in-house "techie," I preached the Big Blue gospel to anyone who would listen, and to the many who would not. Clearly, I was hooked. Half-evangelist, half-groupie, I didn't just like IBM, I believed in IBM and was willing to stake my professional reputation on it.

As you might expect, one does not check a commitment like this at the office doorstep. Last August, when the local stores sold the new and improved PCjr for under \$1,000, I rushed to buy one. And when December came and the PCjr's price dove to \$895 (including monitor and software), I literally took friends and co-workers by the lapels and dragged them to the local computer boutique.

I was a hero. My friends loved their PCjrs. I loved mine. I even got elected as an officer in the local PC user group. Then in March came the day that shall live in infamy: the day that IBM announced a halt in PCjr production. What a blow for the home computer market, I thought. The home market died before it even started! How can any consumer trust any computer company if even IBM pulls out?

These initial pangs of remorse quickly turned to anger. It wasn't the industry that was hurting, it was I. "Boy will the prices drop now," one friend crowed. "Pretty soon you'll be seeing the PCjr in the end-aisle dump bins at K-Mart." "Better stock up on ROM cartridges now," advised another. "I hear you can get 'em for \$1.95 at Clinton Computer."

But of all the serpents, my wife proved to have the sharpest teeth. She didn't say a word. She simply draped my PCjr in a wreath of black crepe paper.

But the worst was still to come - I had to face all of the people I had sold on the PCjr. One by one, in funereal procession, they paraded by my office door - computer orphans, lost and alone. And who had led these poor devils on? Yours truly, the pied piper of Big Bluedom. IBM claims continued support for the PCjr. Well and good. My real concern is - who will support my sagging ego; not to mention my sagging reputation with the office and friends?

About all I can salvage from this disaster is a valuable lesson: the next time that I fall for a computer company, I'll make sure that it's the real thing. One that's the ultimate in user-friendly. One that will promise to stay with me "forever." I know that IBM's decision wasn't personal, but I can't help but feel rejected. I'm like the high school freshman who was turned down for a date - "Sorry, but Big Blue has to wash its hair tonight." I wonder if Apple is doing anything Saturday night? ☺

Digging Into Logo contd. from pg 54

ANOTHER VARIATION IN THE USE OF ROM SUBROUTINES

The ability to move about the screen in Logo is limited to the editor and graphics screen. There is a ROM routine that allows the use of the keys I, J, K, and M to move up, left, right and down respectively. It is located at \$FD2F. Instead of the third section of the tuck-untuck assembly listing (user's ROM routine) we can substitute this :

```
*****  
2 * USER'S ROM ROUTINE - CURSOR MOVEMENT  
*****  
2E25:00 89 C0 4 STA $C089 TURN ON THE ROM MOTHERBOARD  
2E28:AD 41 03 5 LDA $341 PICK UP VERTICAL CURSOR POSITION IN LOGO  
2E29:85 25 6 STA $25 PUT IT IN THE MONITOR'S LOCATION FOR  
VERTICAL POSITION  
2E2D:20 06 FD 7 JSR $FD2F (ROM) ROUTINE TO MOVE CURSOR  
2E2F:AD 41 24 8 LDA $24 PICK UP MONITOR'S LOCATION FOR HORIZONTAL  
POSITION  
2E31:8D 40 03 9 STA $340 PLACE AT LOGO'S LOCATION FOR HORIZONTAL  
POSITION  
2E34:45 25 10 LDA $25 PICK UP MONITOR'S LOCATION FOR VERTICAL  
POSITION  
2E36:80 41 03 11 STA $341 PLACE AT LOGO'S LOCATION FOR VERTICAL  
POSITION  
2E39:60 12 RTS
```

Following the methods outlined earlier the above 22 byte listing results in a decimal list

[141 137 192 173 65 3 133 37 32 6 253 165 36 141 64 3
165 37 141 65 3 96]

and using the BLOAD procedure we can BLOAD that list at 11813 (\$2E25).

If a procedure is created that CALLS \$2E00, then the four keys (I-J-K-M) will allow cursor movement. Any other key struck will bring back Logo.

Obviously the two last demonstrations of ROM usage within Logo do not accomplish very much. These were kept simple so that they can be grasped with a little effort. However the techniques described here can be used for more useful and elaborate purposes. ☺

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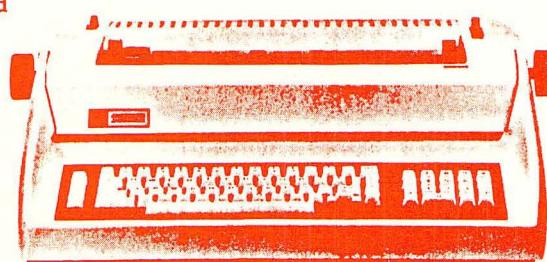
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