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Washington Apple Pi



The Journal of Washington Apple Pi, Ltd.

Volume 6

July 1984

Number 7

Highlights

MAC Q&A

A PAGE FROM THE STACK

A(nother) LOOK AT TURBO PASCAL

WHAT YOU WANT FROM A

DATA BASE PROGRAM

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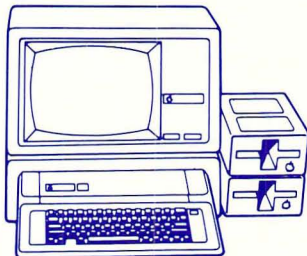
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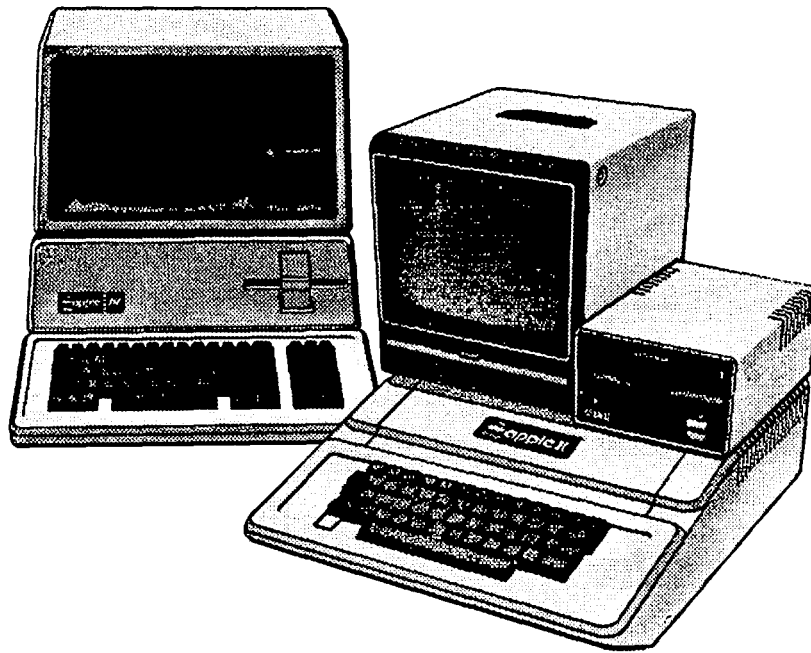


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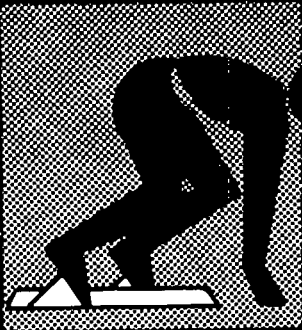


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EDITORIAL

Will the utility of computer newsletters and publications diminish? One prognosticator states that with the advent of computer "appliances" (e.g. Macintosh) there will be just as much need for these publications as there is currently a need for publications covering refrigerators and toasters. I disagree. Yes, there may be diminishing need for describing the intricacies of developing threaded languages, interpreters, operating systems, relational data bases and the like, but there will be an ever increasing need for describing the uses of computers in conjunction with communications, medical and scientific equipment, television, robotics, the arts, etc.

Predicting the uses of computers is somewhat analagous to predicting the uses of telephones when they were first invented. We are entering (have entered, perhaps) a new phase where computers are being thought of as means to an end - rather than as an end unto themselves. In my opinion, this is quite appropriate.

There will always be a need for highly specialized, technical publications dealing with the cutting edge of computer hardware and software development. We must have the experts who will carry development of computers even further, while simultaneously making them easier to use. But we shall need publications which increase the awareness of the rest of us as to what can be done now and what may be possible six months to a few years from now.

Where do we, the Pi, go from here? I think nature will take its course and the submissions of our members will reflect the changing requirements of our readership. Just as the baby boom that has come and gone has now generated a boomlet of its own, so too we may have resurging interest in Pascal, for example, due to the need for a software developing system for the Mac. But perhaps we should start thinking of a series of publications, some more, and some less, technically and subject oriented than the WAP. &

PRESIDENT'S CORNER

by David Morganstein



ELECTIONS. Once a year we hold elections. It is a time when volunteers change hats. Some new faces appear to put on new hats and familiar faces take off well-worn hats. Two people chose not to run again for the positions they previously held. The WAP offers a heart-felt thanks to Sara LaVilla for her excellent and careful record taking as our Secretary. (She had to take a lot of friendly guff from a "picky" Exec Board with very high standards and varying memories!) Thanks, Sara, you held up well under it all! Those with WAP numbers less than 100 know that Dana Schwartz served as our able Treasurer before taking on the responsibility of the Vice-President for two years. He has spent untold hours maintaining our membership files and the software we use to keep it up to date. What can we say to someone who has given so much to our growth? Dana, we deeply appreciate all of the time you have spent on behalf of the WAP, thank you.

MEMBER 5000. Yes, folks the time has come for a small celebration. Mr. Mauritz D. Swanson became a member at the end of May raising above the 5,000 mark the number of people who have joined our volunteer organization. Since the introduction of the Mac and //c, membership has picked up noticeably. It is the goal of your Exec Board to serve the broad spectrum of needs our members have. We can only do that with your help. Let's add to the celebration a commitment to give a little time here and there when the need arises.

FUTURE VIEWS. At our May meeting we had the benefit of using a video projector. This equipment was generously loaned to us free of charge by Mr. Hanrahan of Future Views, the same folks who did the marvelous light and sound show at our January 28th gala introduction to the Mac. We want to express our appreciation for the opportunity of using the equipment to enhance the presentation.

HELP NEEDED. We need one or two additional volunteers to help with distribution of the newsletter to volunteer carriers. The volunteer would work with Ray Hobbs one or two hours per month to arrange for the distribution of the newsletter to local stores. Requires NO technical computer skills!

We are looking for people to help revise the New Member Handbook. These volunteers would update material in the handbook and work with the office staff to assemble a layout for reproduction. We would like to do this during the summer so that a new version will be printed by September. Requires reading and editing skills or word processing skills.

SYSOP FOR GAMES ABBS. Our "For Sale" ABBS has taken off with a start. Lee Raesly tells me that the message queue is filled already and that 25-45 people sign on each day. Tom Warrick is looking for another SYSOP, this one for a Games ABBS. While several people have stepped forward, none had the required hardware and adequate hours available on their computer. If you are interested, work at night, have two disk drives and live in the D.C. area code, please give us a call. We can supply the modem and telephone line.

SUMMER TUTORIALS FOR YOUNGER MEMBERS. Dan Robrish, age 13, has volunteered to do a free short-course on Applesoft for our younger members. Anybody out there want to learn a little during the summer months? His first thinking was a six morning program, two sessions

per week. He felt he could repeat this program twice during the summer, allowing people a better chance to work around vacations. Check the pages of this issue or call the office for specific dates and times for this tutorial.

OTHER TUTORIALS. We have two other tutorials scheduled for this summer. An Introduction to Spreadsheets is scheduled for July 14 and VisiPlot and ApplePlot for August 11. Both are being taught by Lee Raesly. See the form in the back of the Journal for details.

USUHS. At our May meeting we had, for the first and we hope last time, an "incident". The two people involved, both younger WAP members, have written a letter of apology and have expressed a willingness to do work around the USUHS to help compensate for any trouble that was caused. Fortunately, Chet Pletzke, director of media services and our mentor at the University, was able to deal with the problem and prevent any restriction on our using the facility as a result of the incident. We mention this case primarily as a precaution. Some of the USUHS staff are justifiably concerned about the presence of so many strangers and the possible consequences of misbehavior. We have repeatedly requested of our members that respect for the property of others be in the front of everyone's mind when on the USUHS grounds. In addition, people of any age should not be wandering the corridors or walking into rooms where they are not invited. Because of sensitivities about young people (justified or not), we have scheduled the Appleseds meetings for the cafeteria. If you are an Appleseds member or if someone in your family is, tell them to, PLEASE, stay in the auditorium or cafeteria. The WAP would be at a great loss if another similar incident should result in our not being allowed access to the excellent facilities at USUHS.

THE APPLE'S APPRENTICE. We have received a copy of the premiere issue of this new publication aimed at the younger Apple owner. We mention it because we know its Editor, Val Golding. A few months ago in his Editor's column, Bernie Urban expressed the feelings of many of us about the contribution Val has made to educating the Apple owner. I spoke with Val about his new job and heard the typical enthusiasm and dedication he has shown in every Apple-related project he has undertaken. This new publication can be obtained from Emerald City Publishing, INC., Box 582-AA, Santee, CA. 92071 at a cost of \$24.00 for 12 issues (for a limited time an introductory price of \$18.00 is available). Regular columns include: Micro Chips, Ye Olde Game Shoppe, Spells 'n' Potions and Ask the Wizard. Good Luck, Val!

MAC GROUP BUY. At last the supply has reached the point where an attractive WAP group purchase has become possible. The first Macs for WAP members were delivered in May with the remaining orders expected to be filled in subsequent months. The purchasers met the Apple dealer who supplied the equipment and had the opportunity of attending an evening long, hands-on training session given by the Apple dealer. All reports indicate that Mac sales are outstripping any previous product and may find more than 350,000 in users hands by the end of the year. We are very pleased to be able to offer our members a group purchase opportunity and express our appreciation to Rich Wasserstrom, group purchase co-ordinator for his dedicated efforts to make it happen. It has taken a

contd.

lot of his time and energy. Many Thanks, Rich!!!

MACPASCAL. A faculty member at one of the Apple consortium universities allowed me a peak at the upcoming version of Pascal for the Macintosh. What I saw was truly astounding. Any concern expressed by a BASIC programmer about the difficulties of using a compiled version of Pascal should be eliminated. MacPascal is EASIER to use than BASIC. In addition to the advantages of a structured language with long-variable names, user-definable variable types, procedures, CASE statements and other decision structures, MacPascal is interpreted. You can enter a line of code (which will be checked for correct syntax on entry) and run the new version of the program! No need to leave an Editor, go to a Compiler and return to the Editor for corrections. If the syntax is wrong, the incorrect words are displayed in shadow print style until they are corrected. Reserved Pascal words are automatically printed in bold while your variables are printed in regular type. Pretty-printing of the program (auto indent of BEGIN/END sections, loops and so forth) is done automatically after each line is entered. There are many debugging features not found in BASIC interpreters. You have the ability to select a number of variables for display in a separate window which updates as the values change. You can set breakpoints or step and trace through the program (a little hand points to the current line being executed). If the program runs into trouble, a "thumbs-down" hand points to the offending line and a dialog box appears with a description of the problem. It's all too amazing to believe! I believe this new approach will revolutionize the way computer languages are taught. I publicly confess that, in the past, I have chosen to write a program in BASIC when I needed a "quick and dirty" solution to a one-time problem. Those days are over!

SIGNEWS

APPLE /// SIG meets on the second Thursday of the month at 7:30 PM. The next meeting will be on July 12 at Walter Reed Institute of Research. From 16th Street entrance go 3/4 around circle. Go in North entrance of the 4-story brick building on your right and ask the guard for Room 3092.

APPLESEEDS is the special interest group for our younger members. They meet during the regular WAP meeting. There will be no meeting on June 23 because of the garage sale.

CESIG is the special interest group of computer entrepreneurs. They meet after the monthly WAP meeting at the club office.

DISABLEDSIG - meets on the 2nd Thursday of each month. Call Jay Thal for details.

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

FORTHSIG will hold its next meeting on Saturday, July 21 at 1:00 PM in the WAP office.

LAWSIG usually meets in downtown Washington, D.C. at noon once a month. For information call Charles G. Field, Chairman, 265-4040, or Jim Burger, 293-7170.

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

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

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

PI-SIG (formerly ASMSIG) has a new emphasis - program interface. For details of their next meeting, call Ray Hobbs at 490-7484.

SigMac - Meeting times and places may be changed beginning in August. Watch the Journal next month, check the ABBS or phone the office after August 1. See SigMac News elsewhere in this issue.

STOCKSIG meetings are on the second Thursday at 8:00 PM at the WAP office. Call Robert Wood, (703) 893-9591.

Telecomm SIG usually meets after the regular WAP meeting.

EVENT QUEUE

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

Following are dates and topics for upcoming months:

July	28	- Music Systems (Alpha Syntauri & Alf)
August	25	- ScreenWriter - Peter Combes
September	22	- Appleworks - Walt Mossberg

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

GENERAL INFORMATION

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

Membership dues for Washington Apple Pi are \$25.00 for the first year and 18.00 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	- 9:30 AM to 12:30 PM (except meeting Sat)
	- 12:00 to 3:30 PM (meeting Sat only)

WAP HOTLINE

Have a problem? The following club members have agreed to help. 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. If the person called has a telephone answering machine, and your call is not returned, don't assume that he did not try to return your call - perhaps you were not home. Try again.

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A,I	Jeff Dillon (301) 422-6458	PIE Writer/Apple PIE	Jim Graham (703) 643-1848
A	Richard Langston (301) 258-9865	ScreenWriter II	Peter Combes (301) 251-6369
A	Mark Pankin (703) 524-0937	Supertext II	Doug Daje (301) 868-5487 Peter Rosden (301) 229-2288
A	Leon Raesly * (301) 460-0754	Word Handler	Jon Vaupel (301) 977-3054 Christopher Romero (703) 471-1949
A,I,P,M	Bill Schultheis (703) 538-4575	Work Juggler //e	Carl Eisen (703) 354-4837
A,I,M	Richard Untied (703) 241-8678	Word Star	Christopher Romero (703) 471-1949
M	Raymond Hobbs (301) 490-7484		
P	Dottie Acton (301) 428-3605		
P	Donn Hoffman * (202) 966-2616		
Forth	Bruce Field (301) 340-7038		
LOGO	Ron Murray (eve.) (202) 328-3553		
LISP	Fred Naef (703) 471-1479		
Lisa	Don Kornreich (301) 292-9225		

*Calls up until midnight are ok.

MINUTES

SUMMARY OF THE MAY EXECUTIVE BOARD MEETING

The Executive Board of WAP, Ltd. met on May 9, 1984 at the WAP office. Several announcements were made concerning election statements from candidates, blank disk sales at meetings, a budget planning meeting, T-shirt sales, and a MacSig logo contest. Other areas of discussion included problems with garage sales, multiple expansion of the ABBS, affiliation with other users' groups, selection of a committee to determine which computer shows to attend (the Board decided not to attend the Government EXPO on June 26), summaries of the pros and cons of obtaining 501(c)(3) status, ideas for referendum questions, rental of a video projector for the May meeting, and the Mac group purchase.

MAY GENERAL MEETING

WAP, Ltd. met at the USUHS on May 26, 1984 at 10:00 AM. Tom Warrick presided over the business meeting. Candidates for office were introduced, and the election procedure was explained. Group purchase of the Macintosh was discussed. The rules for the garage sale in June were given, and volunteers for setup were obtained. Door prizes will be given, and a distress auction will be held. Club disks 0-40 (DOS 3.2) will be offered at 3 or more for \$4 each. A vote was taken to find interest in proposed meeting topics. The next Board meeting date was announced. Budget discussions will begin in June. Tutorials were announced. Details of the first satellite bulletin board were presented. Others are being considered. Demo interest or ideas should be directed to Signe Larson. Game SIG for adults will restart under Henry Robertson. A second coordinator for distributing newsletters to stores was found. A special offer on Modula 2 was shared with WAP members. Persons having equipment for taping meetings were asked to share in the responsibility of bringing such equipment to meetings. A listing of the latest versions of software products is to be found in the Journal. Two hundred members were added to WAP last month, bringing us to WAP #4965.

SUMMARY OF JUNE BOARD MEETING

The Executive Board of WAP, Ltd. met on June 11, 1984 at 7:30 PM at the Urban residence. A budget meeting date was set for July 9 at 7:00 PM. The procedure for developing the revision of the New Member's Reference Book was discussed. A date was set for counting ballots. The results of a meeting with Apple sales representatives were presented, and a discussion of future group purchases ensued. Outlines of summer tutorials are to be printed in the Journal. It was announced that we need to identify a new general counsel individual, that we will provide speakers at the Government EXPO in June, and that we emphasize to our younger members the need to behave responsibly at USUHS. NewSIG will change its format to reflect the wishes of new members, and Apple Teas will again be encouraged. WAP T-shirts will be sold before and during the garage sale in June. A request for a commercial software library update was made, office facility problems were discussed, and plans for the directory were given. Dana Schwartz was commended for his service to WAP. &

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July 1984

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 New WAP Exec. Board assumes office.	2	3 Applesoft Tutorial-1 10:00 AM Office	4 * HOLIDAY *	5 AS-2 10 AM-Off. SigMac "MacPascal" 7:30PM-Off	6	7 Pascal Tu- torial-last session 9:30AM-Off
8	9	10 Applesoft Tutorial-3 10:00 AM Office	11 Executive Board 7:30 PM Office	12 AS Tu- torial-4 Stock SIG DisabledSIG Apple ///	13	14 Spreadsheet Tutorial 9:30 AM Office
15	16	17 Applesoft Tutorial-5 10:00 AM Office	18	19 AS Tutr.-6 10AM-Office Pascal SIG 7:30PM-Off	20	21
22	23	24 VacationSIG - M.V. AS Tutr.-1 10AM-Off.	25	26 Applesoft Tutorial-2 10:00 AM Office	27	28 WAP Meeting USUHS "Music Systems"
29	30	31 Applesoft Tutorial-3 10:00 AM Office				

August 1984

WAP

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2 Applesoft Tutorial-4 10AM-Office SigMac - ?	3	4
5	6	7 Applesoft Tutorial-5 10:00 AM Office	8 Executive Board 7:30 PM Office	9 AS Tu- torial-6 Stock SIG DisabledSIG Apple ///	10	11 VisiPlot & ApplePlot Tutorial 9:30AM-Off
12	13	14	15	16 Pascal SIG 7:30 PM Office	17	18
19	20	21	22	23 Last Day of Vacation SIG	24	25 WAP Meeting USUHS Screen- Writer
26	27	28	29	30	31	

CLASSIFIEDS

DONATIONS WANTED: Apple][,][+ or //e for non-profit special education school - Christ Church Child Center. Will provide receipt for income tax purposes. Call Judy Rein, (301) 762-4083 evenings and weekends.

FOR SALE: Bufferboard by Orange Micro, print buffer with 32K. Unused in original packing. \$200 or best offer. Day 454-6729, evening 829-8863.

FOR SALE: AJ 830/31, includes tractor feed, two built-in shelves, many black ribbons and colored ribbons, 9 different printwheels (total = \$1077 at current cost). Has been under maintenance contract. Also includes one month FREE service (by AJ) at your home. \$425. Call Lee Raesly, 460-0754.

FOR SALE: Zenith ZVM-121 green screen monitor. Excellent condition, \$50. Call Jim at 533-0601, evenings.

FOR SALE: Corvus 5 MB hard disk. New drive, board. Factory warranty. \$975. 654-5305.

FOR SALE: RS232 cards. 2 serial ports on 1 card for \$110. Works with any RS232 serial device up to 9600 baud and any Apple][+, //e or clone and DOS, CP/M, Pascal. Cables, great manual included. Help, I've got 36 of them! Make offer for quantity. Pat McGee, 3916 Kensington, MD 20895. 933-7097.

FOR SALE: Apple //e, Monitor II, Disk II drive, extended 80-column card for 128K memory, and super serial card. Also included is Appleworks, the new integrated program for word processing, data base and spreadsheet (\$250 retail). This system is in the original cartons with all documentation and manuals. 3 months old and barely used. Best offer. Steve Horn, (202) 828-1000, days. ☼

COMMERCIAL CLASSIFIEDS

WANTED TO RENT: Apple][,][+ or /// by the hour. I am in Washington on Friday through Monday and want to rent a computer for several hours each weekend. I will be using it for word processing and research data analysis. Call Joe at 289-8171 and leave a message. ☼

JOB MART

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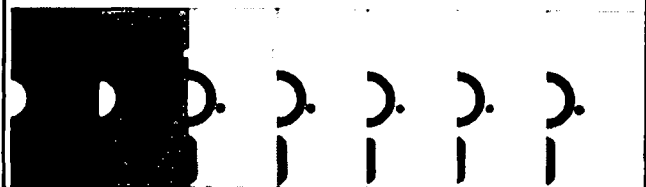
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Q & A

by Bruce F. Field



I have a small correction to last month's column. It is possible to use a Dan Paymar lower case chip with Apple Writer II. No modifications are necessary. When Apple Writer II starts up, it asks if you have a lower case chip, simply answer yes.

John Smyth of Clinton, Maryland sent me a letter on adjusting the speed of Rana Elite I disk drives. No one could answer his question at his User's group meeting so he called Rana and got the following information.

"Take the cover off the disk drive and find the three potentiometers. The potentiometers are the three blue rectangular objects sitting on the circuit board. The one toward the back of the disk drive is the one you want. It will be labelled R7 or R8; you will see a set screw on the end (tipped in red paint or wax). Turning it clockwise will increase the speed." Use this in conjunction with one of the disk speed test disks. There are several public domain versions available from User's groups."

A few months ago I had a request for a serial interface board that could handle 5-bit Baudot code. George Kinal notes that Intra-Computer, 101 W. 31 Street, New York, NY 1001, (212) 947-5533, makes such a board. This board is also supported by ASCII Express-Pro in the telex mode.

Q. I recently wrote a program which writes a whole bunch of two dimensional arrays to a data file with the WRITE command. It writes values to different places where I didn't specify; I tried to use the range and length commands but this didn't work either.

A. There are several ways to save arrays to disk. The simplest is to use a sequential text file with the WRITE command and print the data to the disk. In this case the numbers are written one after another in a single line as it were. It is up to you to remember the order in which they were stored and load them back into your array the same way. The Applesoft program segment below is one way to do this.

```
100 DIM A(20,5)
110 REM FILL ARRAY WITH DATA HERE
115 REM NOW SAVE DATA TO DISK FILE
120 D$=CHR$(4)
130 PRINT D$"OPEN DATA FILE"
140 PRINT D$"WRITE DATA FILE"
150 FOR I=1 TO 20
160 FOR J=1 TO 5
170 PRINT A(I,J)
180 NEXT J : NEXT I
190 PRINT D$"CLOSE DATA FILE"
```

Line 130 creates a disk file called DATA FILE. You can use whatever name you want (consistent with DOS file name requirements). Line 140 tells DOS that any subsequent printed text or numbers are to be written to DATA FILE. Then one at a time the numbers from the array are written to the disk. The order in which they are written is not important as long as you read them back in the same order in which they were written. The Applesoft program segment below will read them back.

```
200 DIM B(20,5)
210 D$=CHR$(4)
220 PRINT D$"OPEN DATA FILE"
230 PRINT D$"READ DATA FILE"
240 FOR I=1 TO 20
250 FOR J=1 TO 5
260 INPUT B(I,J)
270 NEXT J : NEXT I
280 PRINT D$"CLOSE DATA FILE"
```

Notice that we have changed the name of the array. There is no need to keep the same name unless you want to. What is important here is that we are reading the data back using the same FOR-NEXT loops as in the original.

It is also possible to locate the area of memory containing the array data and save this to disk as a binary file. This has the advantage of taking less disk space and loading and saving much faster. The disadvantage is that you must understand how variables and arrays are stored in Applesoft; this information is in Appendix I of the Applesoft Reference Manual.

Q. Is it possible to write on the reverse side of a diskette without punching a notch on the other side of the diskette cover?

A. Yes, if you are willing to modify your disk drive. There is a small microswitch on the left side of the drive that is open if the disk in the drive does not have a write protect tab. If you wish, you can disconnect one of the wires going to this switch and the write protect feature will be disabled. Note that this also allows you to accidentally write onto a disk that you really want protected, so use this carefully. You could add an extra switch in series with the microswitch to disable the write protect only when you wanted.

Although DOS can be modified to disregard the write protect tab, the write protect switch electrically prevents the read/write head from writing on the diskette.

Q. Instead of a Z80 card for the use of CP/M, can a card with an 8088 chip be used? An IBM buff that I know said that this will also make the Apple //e compatible with IBM software.

A. Using an 8088 card will make the Apple more or less (mostly less) compatible with IBM. Generally the 8088 co-processor cards claim to be MS-DOS compatible. IBM uses PC-DOS which at the moment is very close to MS-DOS but not everything that runs under PC-DOS will run under MS-DOS. If you have one or two selected IBM programs that you want to run on your Apple you could check them out with the co-processor card you are interested in to see if they work. It is too much to expect that most everything will run correctly or that you can get a cheap IBM this way.

MS-DOS works much the same as CP/M but since it was written for a different microprocessor it is not at all compatible. If you want to run CP/M programs you will need a Z80 card.

Q. What are the shortcomings of the BASIS computer? Especially, will it be ProDOS compatible?

contd.

- A. You have a somewhat loaded question there - what about the advantages? Two articles have appeared recently in Call-A.P.P.L.E. that discussed the relative merits of the //e and the BASIS. Rick Sutcliffe's "Genetic Engineering" (Vol VI, Number 12, Dec 1983) and Cornelis Bongers' "ProDOS - Pros and Cons" (Vol VII, Number 5, May 1984). To my way of thinking the biggest disadvantage is that the BASIS is not exactly //e compatible; therefore as new products are introduced (i.e. ProDOS, Apple Mouse) they may or may not work with the BASIS. ProDOS as delivered will not boot on the BASIS, however to make it work requires only a few simple patches (described in Cornelis Bongers' article) with a disk zap program.
- Q. Will the Orange Micro Bufferboard work with other interface cards other than Grappler?
- A. Yes, there are versions for the Epson and Apple parallel interfaces.
- Q. I am using an Apple][+ with an APIC interface card and an Epson MX with Grafrax. Is there anyway to fix the APIC card to transfer graphics without buying an APIC-G card for \$110.
- A. I am not familiar with the APIC card but it is probably difficult or impossible to modify for graphics. At the very least you would have to re-program the memory on the board which would be a job for an expert. A much easier solution is to buy one of the graphics dump programs that uses your existing interface card. There are a number of these around, usually costing about \$50 retail: Printographer, Zoom Graphics, Amperdump, and Graphtrix 1.3 are some of the better known ones.
- Q. I have an Apple][+ and an Epson FX80. I find I cannot correctly print dot commands with the following: CHR\$(7), CHR\$(9) or CHR\$(8) twice in a row. Is there a way to get around these problems.
- A. The problem is with your printer interface card. CHR\$(7) is the ASCII bell character and is apparently trapped by the card and not sent to the printer thereby avoiding the raucous printer beeper. Not knowing what brand of interface card you have I can't recommend an exact fix, but if you look in your interface card manual you want to find a command that disables the "intelligence" on the card. Send this command before you start your graphics (dot) characters.
- CHR\$(9) is used by most cards as the indicator of the start of a command to the card, thus the CHR\$(9) and one or more following characters are interpreted as commands and not sent to the printer. It is also usual that if another control character is sent after the CHR\$(9), that second control character becomes the indicator of the start of a command. Thus if you sent CHR\$(9), CHR\$(8), all succeeding CHR\$(8)'s would be treated as commands. This gives us a clue as to how to send CHR\$(9), use the sequence CHR\$(9), CHR\$(8), CHR\$(9), CHR\$(8), CHR\$(9). The first two characters change the command control character from 9 to 8, then the 9 can be printed, then the last two characters change the command control character back to 9 again. The only thing that gets sent to the printer in this case is the 9, so when you are counting graphics characters for the printer this only counts as one.
- Q. How can you convert Apple][+ software to //e software?
- A. Most software written for the][+ will run on the //e without modification (although the reverse is not true). If something written on the][+ does not run on the //e it is probably because is it calling a machine language routine in the Monitor ROM that was modified for the //e. Most of the documented Monitor ROM entry points were not changed in the //e, but if your program uses a non-standard entry point, problems may occur. This can be difficult to track down but you can start by comparing the assembly language listings for the two ROMs. The listings are published by Apple in the Apple Reference Manual A2L0001A (for the][+) and the Apple //e Reference Manual Addendum: Monitor ROM Listings.
- Q. I believe I have discovered some bugs in the I/O area at \$C000-\$CFFF. I have heard that there are some 6502 bugs (e.g. some problems with crossing page boundaries with indirect indexed addressing). I have also heard of conflicts between accessing different peripheral card ROMs at the same time. How do I change slots cleanly through machine language? Doesn't the \$C800-\$CFFF area serve as a common ROM area for all peripheral cards? How is the shared area switched in and out for each card?
- A. The area \$C100-\$CFFF is reserved for memory on peripheral cards. \$C100-\$C1FF is for slot 1, \$C200-\$C2FF is for slot 2, etc. Unless a peripheral card is plugged into a slot there is no memory at those addresses. Any bugs in this area would be related to the specific peripheral cards in the slots. \$C000-\$C0FF are addresses for the keyboard, game I/O, soft-switches, and peripheral card hardware addresses. How the common area from \$C800-\$CFFF is managed depends on the peripheral cards installed. Sometimes accessing a memory location in the range \$CX00-\$CXFF for a card in slot X will switch memory into the address range \$C800-\$CFFF. Apple specifications require that the \$C800 memory be deselected, thus freeing that area, if the memory address \$CFFF is accessed. The bottom line is that it is up to the manufacturer of the card to ensure that it does not conflict with other cards.
- The 6502 addressing bug you refer to occurs with the indirect jump instruction. The indirect jump operates as follows: if you have the assembly language instruction JMP (ADDR1) the microprocessor fetches the contents of memory address ADDR1 and ADDR1+1 (let the contents of ADDR1 and ADDR1+1 be ADDR2) and jumps to address ADDR2. The problem is that if ADDR1 and ADDR1+1 cross a page boundary, that is, if ADDR1 is an address of the form \$XXFF so that the first byte is in one page and the second byte is in the next page, the instruction fetches the second byte at \$XX00 in the same page as the first byte rather than getting it from the second page. This would be very serious except the indirect jump instruction isn't used very much, especially in light of this bug!
- Q. Using Apple Writer II and an Epson MX printer, what code can I embed in text to create a "required space", i.e., a space between two words to get the computer to consider them only one when cutting text at the margins? Because of the way Apple Writer works, you can never be sure that it's not going to break up text in the wrong place - such as putting "May" on one line and "1, 1984" on the next.
- A. As far as I know there is no way to do this using Apple Writer II. One thing you can do though is to "print" the output to the screen the first time to see how it will look, and if such phrases are broken you can add spaces manually to make them come out right. To print to the screen, from the print values menu, do PDO.

SIGMAC NEWS

by Steve Hunt



The May 26th meeting was a great hit! We had a large crowd (despite the distractions of the Memorial Day weekend) and everyone learned a lot - thanks to the open dialog and the demonstrations of several new products. Over 80 people have "signed up" as SigMac members. These members own more than 50 Macs and that total should climb dramatically as the systems from the group purchase arrive.

Upcoming Meetings:

June By the time you read this, we will have had our June 7 meeting (hopefully a presentation from Creative Solutions on MacForth) and the Garage Sale on June 23. (Because of the garage sale, there is no SigMac meeting on the 23rd.)

July 5 This meeting (at the Apple Pi office) will address new programming language and should include a review of MacPascal (expected to be available by then).

July 28 The regular meeting (at the USUHS facility) will include demonstrations of the latest software and hardware available.

A unanimous vote of those members present confirmed the need to have separate SigMac meetings which did not conflict with the Apple Pi meeting. The consensus of those present was to have SigMac meetings on the 2nd Saturday of every month. Chairman Tom Warrick will begin the necessary discussions with the Apple Pi Board and make arrangements for a meeting place. This new schedule will not begin before August. Advance notice of the new meeting schedule will be distributed.

Information Sources:

The club version of Inside Macintosh and the supplement will be ordered from Apple the last week in May and hopefully will be available for the July meeting. The supplement includes 13 disks (11 for the LISA including the 2.0 upgrades) and 2 for the Mac. Only two Mac programs are in the public domain at this time (HexDump and Life). SigMac is working to get others added to the public domain (the Font Editor and Icon Editor are the most eagerly sought).

A new group - the "Association of Apple 32 Users" - has been formed in Santa Clara, CA. Dues are \$40 for the first year, \$20 thereafter. There is little information about the real benefits available, but they have been asked for more information. Their answer will be provided to all.

Current information about the Mac is available in several magazines - St.Mac (monthly), A+ (monthly), and MacWorld (bi-monthly until Nov.). Most people present preferred St.Mac because of the frequent publication and more candid comments.

Semaphore Corporation offers a free newsletter (Semaphore Signal) to all Mac and Lisa owners. (At this point it is small and doesn't offer much new information but the price is right.) If you want to be added to the mailing list, write them at Signal, 207 Granada, Aptos, CA 95003 and include: your mailing address, whether you have a Mac or Lisa, whether you are a user, dealer, software developer, hardware

developer, or OEM/reseller/representative; your Mac/Lisa serial number; and your signature.

A new book (by a local author) has just been released and is available in some local stores. It is called Using and Programming the Macintosh by Frederick Holz. No one had a chance to really review the book before the meeting so we can't provide any comments at this point. Perhaps someone will want to do a review soon.

SigMac Disk #1:

The first SigMac Disk (a complete sellout at the May meeting) provides a wealth of information and programs which are of value to many members. Special thanks go to Tony Anderson and Ron Grognet for their efforts to build this first SigMac disk - and for the tremendous success of sales. The contents of this disk are summarized in "Mac Q&A" elsewhere in this issue.

Software Information:

New versions of the System Disk and MacPaint/MacWrite are available from your dealer. These upgrades should be free if you bring in your old System Master and both copies of MacPaint/MacWrite. The upgrade includes Finder (1.1g), MacWrite (2.2), MacPaint (1.3) and some new fonts. The details are summarized in another article (MacQ&A).

Bob Pulgino (a new member this month) offered his observations on a new product called Habadex. Bob is writing a separate article to summarize the strengths and weaknesses of this software product.

Sonia Roizen also brought a demonstration of another product (ClickArt) which contains 100 different MacPaint drawings. The range and quality of images were impressive (bringing laughter from many - especially the stern looking gorilla and Boy George). About 10 members present agreed to join in a group purchase. Other "clip art" packages are being advertised. All members are encouraged to submit their own MacPaint contributions to the disk librarians (Tony Anderson and Ron Grognet) so that SigMac can add some "clip art" disks to our library. Demonstrations of MacProject, MacDraw, MacTerminal, Multiplan and Chart were also available. Because of the number of versions of demonstration programs floating around, everyone buying a program is advised to be sure that they really get the full working version of the program - not a pirated copy of a demo.

Hardware Information:

SigMac is working with Apple to acquire a Mac with a Video Output Jack which will support large screen displays. This capability is needed, especially as our meeting attendance grows.

Some members have reported several different types of hardware problems - fortunately all systems were still within warranty. We have two tips for those experiencing problems.

Please report all Mac hardware problems to Tom Warrick (written note would be best) indicating the problem, the corrective actions required, the dealer providing the repair, the cost and your satisfaction with the results. SigMac will consolidate the results, try to identify "good" and "bad" dealers, and share the

contd.

results with members.

Try to build a good relationship with a reliable dealer (buy their products and services - don't just bring them problems). This step might just save you a lot of grief if problems do arise.

The first external disk drives have started to arrive in the area. Kevin Nealon brought his in so everyone could be spoiled and envious. As indicated in the MacQ&A, the external drive does not seem to behave properly with version 1.1 of the Finder - but works great with version 1.1g.

There are four slightly different versions of the Mac (model numbers M10001, M10002, etc). SigMac will try to find out the differences between models and summarize them in a future issue.

Miscellaneous:

Four different Mac carrying cases are available - the regular Apple carrying case (\$100), MacPack advertised in St.Mac (\$79), one sold locally through Tom DeMay (\$55), and another new product advertised in St.Mac (no price available). Each has advantages and disadvantages, but reportedly carrying cases are being ordered by more than 70 percent of Mac owners. Group purchase options are being considered.

A group purchase of MacForth is in process. The price (for five or more) is \$112 each. If you would like to participate, send your check made payable to Washington Apple Pi, Ltd. to the office, attn. MacForth purchase. Include your day and evening phone number. The deadline to order is July 11.

Mac owners expecting to go overseas should be aware that an "export certificate" is required because the Mac contains "high tech" capabilities that must not be diverted to unfriendly countries. There is no fee but there is a 30-45 day wait for the paperwork to clear. Call the "export assistance staff" at the Commerce Department for details.

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MAC Q & A



by Steve Hunt and Don Landing

Q. What is the latest version of the Finder? MacWrite? MacPaint?

A. On May 15, dealers began an update to all Macintosh System disks and MacPaint/MacWrite disks brought in by owners. Apple policy is that this upgrade will be free to Macintosh and MacWorks owners. A detailed description of the changes has been provided to the dealers. The following major changes have been made:

Finder (v 1.1g) - Provides a "startup" option which will automatically initiate a program when the disk is loaded and this version of the finder works well with the external disk drive (version 1.1 did not). The same release also includes a new DiskCopy routine and several new fonts (Cairo, Los Angeles, 10-point sizes for all fonts, and a new 36-point New York). A new Owners' Manual is available for \$9.95, though it is unlikely that you will really need it.

MacPaint (v 1.3) - The most visible improvement is a new Print Draft option which is quite fast and produces good quality output. The MacPaint manual has not changed.

MacWrite (v 2.2) - Adds subscript and superscript options to the style menu and provides options to Display/Remove Headers and Footers. The new MacWrite manual is not sold separately.

Ask for a copy of the software enhancements documentation from your dealer.

There are rumors that a new version of the Finder (2.0) may be coming in August or September. Apparently this version will be needed to handle the large number of files on the Winchester disks and to make better use of the high speed port. Keep watching St.Mac and MacWorld for the latest information.

Q. What can I do if my disk does not load properly?

A. There are a few possible remedies that may help. We suggest trying each of these options in sequence.

1. Turn off the Mac, insert the bad disk in the internal drive, hold down the command and option keys, and turn on the machine. Hold down the command and option keys until the startup procedure is complete. If this doesn't fix the problem, try it one or two more times. When this is done, the Mac will attempt to reconstruct the disk directory from information recorded on alternate disk tracks.

2. Load a good disk with the application (Write, Paint, etc.) which is used by the files on the bad disk. Start the application, pull down the file menu and select the 'open' message. When presented with the dialog box, select eject, insert the bad disk. If the disk read is successful, you will see the names of one or more of the files on the bad disk.

3. If step 2 doesn't work, try repeating the same steps up to selecting eject. DON'T select the eject option but instead insert a paperclip in the small hole to the right bottom side of the internal

disk drive opening. This will eject the good disk. Insert the bad disk (trying to fool the system), select quit on the dialog box, and return to the finder.

4. Contact a SigMac member who has a copy of Inside Macintosh and the supplement. The supplement includes some additional disk recovery utility programs which might work. When the club gets the copy of this information, it will be available in the office for your use.

5. Learn your lesson and try to remember to keep a copy of all disks which are really important to you, so that you won't really lose that much information.

Q. What programming languages are available and which are best?

A. There are no short answers to this question. We will hit a few high points but you should talk to someone about the type of applications you have in mind.

BASIC - One version of BASIC is now available, produced by Microsoft (MS-BASIC). MacBasic should be released by Apple this summer or fall. BASIC is a relatively easy language to learn and there are lots of books on BASIC programming which can get you started. There are several recent reviews of MS-BASIC in St.Mac, MacWorld and A+.

Forth - One version of MacForth is available now. It allows you to develop your own pull down menus and do limited graphics. An advanced version is to be available soon which will permit work with advanced graphics. A developers' version will also be available soon (about \$2500) which would allow you to develop an application which makes Forth transparent to the users. Forth is a very powerful language but it is more difficult to learn than BASIC.

Pascal - MacPascal should be out in June. Pascal is a very powerful, structured language which will permit extensive use of the MacROM routines. A review of MacPascal is included in the current issue of MacWorld.

C - A version of C for the Mac is supposed to be available this fall. C is an extremely powerful language often preferred by professional software developers. No review has been published yet, but we are certain that one will be as soon as the language is released.

Assembler - An assembler is scheduled for release in August. Writing code in assembler is extremely difficult (not for the casual programmer) but provides the maximum amount of flexibility and power.

Q. When Multiplan asks me to insert the "Multiplan Master", can I use the old disk?

A. No. The changes to Multiplan (provided in version 1.02) are actually stored in a special area (like a separate list of changes to the program). When the Multiplan Master is inserted, these "patches" are
contd.

loaded on top of the memory version of Multiplan. If you use the old version of the Master (1.0), you are not really getting all the changes to the program and could experience the same problems you did with the early version.

- Q. What is included on the first? (This disk was first sold at the May 26 meeting.)
- A. The first disk includes items to entertain, amaze, educate and communicate.

In the Communications folder:

MacTEP (by Dennis Brothers) - All the software you need to turn your Mac into a telecommunications terminal. It even includes the pin connections for the cable to attach any modem to the connector on the back of the Mac. This is version 1.81, which includes support for auto-dialing with modems that have that feature. Other features include file uploading and downloading with a special download mode designed just for Basic programs. Don't wait for MacTerminal; telecompute today.

Real Mouse MacTEP (by Dennis Brothers and Loftus Becker) - Loftus Becker took MacTEP version 1.81 with all its great features and made it even better by adding mouse control of all the menus.

Mouse MacTEP Loader - Run this program to load and run Mouse MacTEP. This program clears out more memory so Mouse MacTEP can have enough room to load. This uses the space that the desk accessories normally use, so they become unavailable. Oh well, you can't have everything in only 128K.

In the Demonstrations folder:

Animation (from St. Mac March 1984) - some animation techniques in MS-BASIC.

Clear Screen (by Anthony Anderson) - A little routine to clear the entire screen. If you need the locations of the hi-res screen, here they are.

Eliza - An all-time favorite. You play the patient and your Mac plays the doctor. In this demo your computer takes on the role of a psychoanalyst. Computers do say the darndest things.

flash (by Ron N.) - This little routine is good for a cheap thrill and a short lesson in setting up and calling a machine code routine from MS-BASIC.

MacArt (by Steven Medwin) - Select up to ten windows on your screen and sit back and watch. This routine creates windows of kinetic string art.

MacGlobe (by Karl Koessel, Andrew Tuline, and Christopher Allen) - Learn how to animate with MS-BASIC or just impress your friends with this 3D rotating globe. Plus, it moves under mouse control.

MGLOBE.DAT (by Darl Doessel, Andrew Tuline, and Christopher Allen) - The screen data for MacGlobe. If removed MacGlobe will recreate it, but it takes 20 - 25 min.

Menu Demo (by Loftus Becker) - A good look at how to implement a mouse-based menu system.

Mouse Demo (by George Acton) - Take a look at how MS-BASIC allows you to read the mouse location and the state of the mouse button.

In the Utility folder:

Disk Dump (by R. H. Nicholson) - If you're a programmer, you have probably wondered what secrets are hidden out there on that little 3.5" disk. Well, now you can know what's there in all its gory hexadecimal detail. This program allows you to look at any of the 800 or so blocks on the disk. Share your discoveries with the rest of us in the form of a MacWrite document.

Disk Dump II (by R. H. Nicholson) - Like the Disk Dump above but allows for the output to go to the printer, screen, or a disk file.

LstFix - Sets the font and size for the list window in MS-BASIC.

MacCopy (by Dennis Brothers) - Allows you to append or copy text files. The program can output to any device so it can be used to print files also.

MacWidth (by Dennis Brothers) - Copies a text file making the line length conform to a new value. Also gives a count of the words and lines in the new file.

MakeWrite (by Dennis Brothers) - This program will change a text file to a MacWrite Document file.

SHAPE (by Mike Cohen) - This program allows you to draw with the mouse and save your creation to the disk. The saved file can then be used later by another MS-BASIC program to load an array for screen display.

Text Editor (by Loftus Becker) - A text editor for ASCII documents. If you don't know what an ASCII document is, you are not ready for this program yet. Cannot be used on MacWrite files.

In the MacWrite folder:

1984 script - The full script of the commercial that made millions sit up and take notice of the machine destined to make them sit up and take notice.

Mac Error List - The complete unexpurgated list of all the things that your Mac can do wrong. We hope you never need it.

QDraw Notes I - Those with MS-BASIC most likely have noticed by now Appendix E of the manual. It lists the calls to the Macintosh ROM routines but that is all. No description of their function, no examples - just a reference to an unavailable Apple manual. Well, here are some of the details that Microsoft left out.

QDraw Notes II - More of what Microsoft left out.

RS-232 PINS - Want to make a modem cable or hook up your video digitizer. This document details where to connect the pins. ☺



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APPLE '84

by Peter Trinder

I thought that you might like to hear about the Apple '84 which was held in England on May 24-26. The show, the only one in the year solely devoted to Apple, is put on by Apple User, an independent monthly magazine (formerly called Windfall). Apple (UK) were the major exhibitors, however, showing all the range with special emphasis on the Apple //c and Macintosh. Our own user group, BASUG, had a stand. I spent the three days helping our volunteers, and business was brisk with a steady flow of new and old faces. I met one American member of WAP who is working over here.

Arriving in the Fulcrum Centre in Slough, a few miles west of London Heathrow, delegates were greeted at the registration desk by a bank of //c's running Omnis, a database written in Pascal. The //c's certainly looked neat and bang up to date. The three-day show wasn't packed out, but there seemed to be a respectable turnover.

Apart from various exhibitors stands, presentations were given by Apple and by other speakers on communications, spreadsheeting and databases.

What was new? Well, I saw a lot of 'nearly ready' Mac stuff. Apple showed me MacPascal. Now I will be able, I hope, to get the hang of it. Then there was TK!Solver, up and running on a Mac. A Software Arts' rep came over from the States to show it. He was receiving a steady stream of curious and interested enquiries. He showed me where the Help screens were to go, and then it should be ready, I gather.

Deverall Payroll had a very clear suite running on Mac. I was impressed with the way the user just filled in the forms and away it went churning out the company payslips. I only saw two screens over someone's shoulder! So I hope I am right. I saw Megahaus Megamerge for MacWrite (a mailmerging suite). Rodent Software (I like it) has a desk calendar/diary for the Mac. Rodent is a home-grown program.

Blyth Computers had Omnis in Pascal on the Mac and showed Omnis 1, 2 & 3 for the Apple][. They are separate but similar suites. Omnis 2 equates to the previous Omnis. The 1 is a budget version and the 3 is the top of the range. They are all upwards compatible.

There were lots of stands with Macs running MacPaint, and people tentatively picking up the mouse, somewhat gingerly at first. I found that they didn't at first understand the desktop, but once shown were happy mousing about. Time to show them was not more than one minute.

The //c took as much interest, mainly because of the large established base of Apple][users and because of price. The //c is £925 plus 15 percent value added tax here. A Mac is £1795 + vat. So for the 'home user' the Mac is mouthwatering but a bit out of reach. Bear in mind that a lot of UK home users consider the top machine in their price range is the BBC at £499, but that is without disk drives or other add-ons. I haven't worked it out, but to configure a BBC to equate with a //c brings the price roundabout equal. The //c here has the Euro keyboard and the keyboard switch changes the # to £. The French and other Euro //c's are customised to their countries. The Appleworks seems a super piece of integrated software. How I wish it had been around when I first

had my][+ in 81. It would have saved me pounds!

One interesting thing on the Macs was to see how many versions of the Finder there were. Version 1.0 on most, but I saw .78 and 1.4. Also, I saw MacWrite Version 1.92. This defaults to Geneva 12. It has sub and superscripts, and alterations to the way the headers and footers are shown in the menus. Did you know about the secret characters in Mac fonts? ASCII 217 (shift + option + tilde [upper left key]) gives a number of useful graphic symbols, so the Mac can be illustrated in text by ☐ (see Geneva 10 point).

The Microsoft Multiplan was available in Version 1.01 with the bugs removed, or so it's said. I don't doubt them, but you never know. I never could get to grips with Multiplan on the //e, but this is wonderful on the Mac.

Darkstar had the Snapshot// with their new Shuttle software. This allows you to have several programs up to your RAM limit loaded and you can switch from one to the other at the push of a button. I haven't tried it, but it looks good. Maybe it will save my waiting with ASCII Pro up waiting to log on and allow me to get on with my WP.

Well, I hope these few random notes are of interest to members, and if they are in the UK next year at the end of May, come to Apple '85 (assuming there is one).

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APPLE MAINTENANCE

by Peter E. Rosden

Recently, I spent an inordinate amount of time trying to understand why a Hayes Smartmodem used with an Apple Serial Card caused my monitor screen to go haywire whenever the modem was turned on. However, the same modem and card worked perfectly in a neighbor's Apple][! Just before I gave up and was going to request Hayes to send me a new modem thinking the problem had to do with voltage variations, I decided to thoroughly clean my Apple][+. I had had this computer for almost 3 1/2 years and had never really cleaned it, a situation which I think is more widespread than most of us care to admit. In a nutshell, after cleaning, the modem worked perfectly.

What this quicky article is meant to do is tell you how to give your computer a cursory cleaning. The "tools" you need are:


1. your thumb.
2. thin cardboard (slightly thicker than the width of a slot.
3. a bottle of grain alcohol purchased from your local liquor store.
4. cotton swabs.
5. a vacuum cleaner, hopefully with a brush attachment.

The steps to take (after unplugging your Apple) are:

1. Remove the top of your Apple][+. The cover snaps off, so don't be afraid to pull.
2. Remove all cards from all slots and place them sequentially on a piece of clean printer paper so you don't forget which one goes in which slot.
3. Set your vacuum cleaner to dust and using a brush attachment vacuum the inside of the Apple running the brush over all reachable areas. Then vacuum each card separately.
4. Using your thumb, press down firmly (until the motherboard bows downward, don't break it though) on every chip you can see and reach both in the Apple and on each card. In a number of cases, you will feel the chip move downward, perhaps as much as 1/8 of an inch, and snap. Over time, heat and use can cause the chips to work their way up this much. In theory, you should really remove the motherboard from inside the Apple to do this properly since you just can't vacuum everywhere or press every chip otherwise, but this may create other problems. So, unless you are mechanically inclined, don't bother.
5. If your Apple has a "System saver" or other fan, remove the fan and clean off the gunk and dust from the fan blades and any filter. You'll be surprised how dirty the fan has gotten.
6. Take a piece of thin cardboard and cut it rectangularly with the short side very slightly less than one Apple slot. Make the long side about eight inches so you can hold it comfortably.
7. Take a piece of thin printer paper and cut it so that it is the same width but about an inch less than twice the length of the cardboard piece. Fold the paper around the cardboard so that it approximately covers all of the cardboard, leaving a half inch of bare space on opposing sides of the

cardboard at one end. Tape the paper in place and put the "instrument" on a clean surface.

8. Dip a cotton swab into some grain alcohol, pick up the "instrument" by the bare end, then rub the swab over the completely covered end of the cardboard so as to transfer the alcohol to the paper.
9. Holding the "instrument" by the bare end, force the grain alcohol impregnated end into each slot of your Apple and move it up and down several times. You may wish to change papers or clean the paper with more alcohol if your slots are inordinately dirty.
10. Dip a new cotton swab into the grain alcohol and, being careful not to touch the gold contacts with your fingers (you could transfer oil or dirt onto them), rub each contact area on each card with the cotton swab to clean the contacts.
11. After waiting a while to allow the alcohol to evaporate (a few minutes at most), reassemble your Apple and see if the minor problems you have been experiencing haven't disappeared. Save the cardboard piece to use next time and hide the grain alcohol from any imbibers in the family.

This same procedure can be applied to your disk drives which disassemble with a screwdriver, but some care must be exercised here not to disturb the alignment of critical parts. Cleaning should be done every month, depending on the dust and dirt status of the environment where you keep your computer. 



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A PAGE FROM THE STACK

by Robert C. Platt

The WAP library continues to grow at an astounding rate. This month brings us up to 157 different disks. (100 varieties more than Heinz ketchup - see the order form list in the back of this Journal.) But what I like most about this accomplishment is that WAP continues to serve Apple owners of all kinds: novices and experts, Apple]['s or Macs. Please help us continue to grow by donating your latest creations. As always, for each 5 1/4" disk of software that you donate, you get a free Apple][or /// library disk. Similarly, you can get a free MacLibrary disk for each 3 1/2" disk donated. I will be at the "Disketeria", our sales table, from 9-10 before the monthly meetings to discuss possible contributions. I look forward to meeting with you.

MAC SELL OUT

The demand for our new Mac disk was so large that we sold out our 20 copy inventory within a half-hour of its May 26 debut. However, WAP has now lined up a commercial copying service, and plenty of copies are now available at the Office. As with all of our disks, you may purchase them before the meeting, during office hours, or by using the mail order form in the back of the Journal.

FILE CABINET FAN MAIL

The mailman delivered two disk packages to the library stacks in response to Disk 44. The first came from Ed Aymond in Dallas, TX. Ed confesses to being the author of the version of the "file cabinet" data base utility that appears on that disk. (He notes that I incorrectly shared credit for the disk with the Fort Worth users group - a claim that loyal Dallas Corpsmen deny.) His disk features an improved version of the Disk 44 program, which I will add to the library. The second disk came from Richard Untied, of WAP Hot Line fame. He has also revised and improved File Cabinet. If anyone else has been beefing up this Applesoft workhorse, please call me so that I can coordinate a new File Cabinet disk.

DISKS 70-73: BEST OF FIRST 40

As I reported last fall, Fred Edwards has been leading a project to convert WAP Disks 1-40 into DOS 3.3 format. Although DOS 3.2 disks can run on all Apple][family models (see instructions on page 7 of the New Member Reference Book), Fred has been collecting the "best of the DOS 3.2 programs" for republication on DOS 3.3 formatted disks.

This month we begin the reissue of 'new' disks based on a major rework of the forty disks in the original DOS 3.2 series.

These reissued disks are in DOS 3.3 format, and include a new WAP Hello program (written by Dave Weikert and Tom Warrick) and a new WAP Menu program (written by Tom Warrick). These two programs should make the disks much easier to run and will be used on the rest of the reissues coming out over the next few months.

The Disks 70-73 are assembled by screening the over 1200 programs in the old 1-40 series, evaluating them for usefulness or appeal, repairing any program errors we can find and grouping them so that the 'new' disks fall into a specific category. So even loyal collectors holding 1-40 may want to acquire this new

series.

DISK 70: BUSINESS/MATH/STATISTICS

The 71 APPLESOFT programs on this disk provide a wide variety of calculations in the fields of business, mathematics and statistics. The program titles are generally self-explanatory.

Program titles beginning with '"" are sub-menus which permit you to select a particular program for the category.

{70.1} ""BUSINESS""

{70.2} FUTURE VALUE OF AN INVESTMENT

{70.3} ANNUITY

{70.4} REGULAR DEPOSITS

{70.5} REGULAR WITHDRAWALS

{70.6} INITIAL INVESTMENT

{70.7} MIN INVEST FOR WITHDRAWALS

{70.8} NOMINAL INTEREST RATE

{70.9} EFFECTIVE INTEREST RATE

{70.10} EARNED INTEREST TABLE

{70.11} DEPRECIATION RATE

{70.12} DEPRECIATION AMOUNT

{70.13} SALVAGE VALUE

{70.14} DISCOUNT COMMERCIAL PAPER

{70.15} PRINCIPAL ON A LOAN

{70.16} REGULAR PAYMENT ON A LOAN

{70.17} LAST PAYMENT ON A LOAN

{70.18} REMAINING BALANCE ON LOAN

{70.19} TERM OF A LOAN

{70.20} ANNUAL INTEREST RATE ON LOAN

{70.21} MORT AMORT TABLE

{70.22} ""MATH""

Some of these programs require the user to add an equation to the Applesoft program before it is run. The notes below give the line numbers where the user's equation must be added. For example, if the sample problem is $y = 2x + 4$, you would add an Applesoft statement: $Y(1)=2*X+4$.

{70.23} GREATEST COMMON DENOMINATOR

{70.24} PRIME FACTORS - enter a number and the program will print its prime factors. The program uses a very slow algorithm which will test all possible divisors up to the number itself, even when all of the factors have been located.

{70.25} AREA OF POLYGON

{70.26} VECTOR ANALYSIS

{70.27} PARTS OF TRIANGLE

{70.28} SIMULTANEOUS EQUATIONS - uses Gauss-Jordan method. The program dynamically allocates a matrix to hold any number of equations that you specify.

{70.29} VECTOR OPERATIONS - Input two 3-dimensional vectors and get their sum, difference, dot product and cross product.

{70.30} COORDINATE CONVERSION

{70.31} COORDINATE PLOT

{70.32} ANGLE CONVERSION

{70.33} POLAR EQUATION PLOT - change lines 150 and 160 to your function, written in terms of an angle variable D for X and Y.

{70.34} FUNCTION PLOT - user must specify the high and
contd.

low values of x and y and the increments to be plotted. Insert up to nine functions, Y(1) through Y(9) to be plotted in lines 221 to 229.

{70.35} LINEAR INTERPOLATION
{70.36} CURVILINEAR INTERPOLATION
{70.37} SIMPSON'S RULE
{70.38} GAUSSIAN QUADRATURE
{70.39} TRAPEZOIDAL RULE
{70.40} DERIVATIVE - Change line 30 to define a function named FN C(X).

{70.41} QUADRATIC FORMULA
{70.42} REAL ROOTS:NEWTON
{70.43} REAL ROOTS:HALF-INTERVAL SEARCH
{70.44} LINEAR PROGRAMMING - can handle a problem with up to 10 inequalities as boundary conditions.

{70.45} SIMPLE MATRIX OPERATIONS
{70.46} MATRIX MULTIPLICATION
{70.47} MATRIX INVERSION - Can invert up to a 10 by 10 matrix. There were two typos in an early version of this program. Make sure these two lines read:
135 B(J,I)=0
380 T=-A(L,J)

{70.48} **STAT**

{70.49} PERMUTATIONS AND COMBINATIONS
{70.50} MANN-WHITNEY U TEST
{70.51} GEOMETRIC MEAN
{70.52} BINOMIAL DISTRIBUTION - input number of trials, number of successes and expected probability of success and get likelihood that your result was due to chance.

{70.53} POISSON DISTRIBUTION
{70.54} NORMAL DISTRIBUTION
{70.55} CHI-SQUARE DISTRIBUTION
{70.56} CHI-SQUARE TEST
{70.57} STUDENT'S T-DISTRIBUTION
{70.58} STUDENT'S T-DISTRIBUTION TEST
{70.59} F-DISTRIBUTION
{70.60} LINEAR CORRELATION COEFFICIENT
{70.61} MULTIPLE LINEAR REGRESSION
{70.62} LINEAR REGRESSION
{70.63} NTH ORDER REGRESSION
{70.64} GEOMETRIC REGRESSION
{70.65} EXPONENTIAL REGRESSION
{70.66} MEAN-VAR-ST DEVIATION

{70.67} **MISC**

{70.68} SYSTEM RELIABILITY
{70.69} AVERAGE GROWTH RATE
{70.70} TAX DEPRECIATION SCHEDULE
{70.71} RECIPE COST - input the bulk cost of each ingredient and the units required; get the cost per serving.

{70.72} MAP CHECK - input the bearings and distance of a series of navigational course headings and the program will list the latitude and longitude of each point on the course.

{70.73} DAY OF THE WEEK
{70.74} DAYS BETWEEN TWO DATES
{70.75} ANGLO TO METRIC - given any one of 12 different English measurements, program will compute the metric equivalent.

DISK 71: MUSIC

A nine page document describing this disk in more detail is available for copying at the WAP Office.

{71.1} JOHANN,SEBASTIAN.APPLE - Johann Sebastian Apple (Version 4) written by F. Paul Wyman (copyright 1978),

converts the Apple][keyboard into a piano keyboard. The top row (numerals) and the home row keys become the black keys, and the remaining two rows the white keys of a piano. Pressing any of the assigned keys will keep the Apple speaker. The other keys are mute. All the "printing" keys (including the mute ones) will place a lo-res color rectangle somewhere on the screen. The sound cannot be directed to the cassette port. The two-and-a-half-octave range of the program produces notes from G to E''. There is no duration control and no means of saving the "melody" to a disk. Pressing the space bar will produce a prompt asking if the operator wishes to continue or to exit the program.

{71.2} ANDY'S SYNTHESIZER - (Andy Hertzfeld) uses the Apple keyboard to output a number of different chords (arpeggios) and single notes. Number keys determine the figure; letters determine the pitch. Although all the numeral keys are live, numbers 6 through 0 produce the same effect as number 5. Only some of the letter keys are allowed; others produce a break in the program and an error message. Hitting the space bar stops the sound output. "Q", "R", "I", "O", "P", "K" and "L" are the "faulty" letters; symbol keys are not allowed. The duration of each note is set by pressing one of the bottom row keys from "Z" (the shortest) to "M"(the longest).

{71.3} SMALL.SMALL.WORLD - BRUNning the program will result in (sort of) variations on the William Tell Overture and on It's A Small World being played through the Apple speaker.

{71.4} MUSIC.FOR.A.CLOSE.ENCOUNTER - The "signature tune" of Close Encounters of the Third Kind rendered in various pitches, tempi, and articulations through the medium of the Apple built-in speaker. Color rectangles of a variety of sizes displayed in time with the sound.

{71.5} LUDWIG'S.FANTASY - More accurately described as Ludwig's Delirium Tremens, the program (ab)uses the Motif from the 5th Symphony in the manner used in the MUSIC.FOR.A.CLOSE.ENCOUNTER above.

{71.6} FOUR VOICES - The program plays 5 different melodies in multi-voice harmony (up to four). The user has a choice of either the Apple speaker or the cassette port output. Literature references for this program are given at the end of the program listing. The self prompting program provides a choice of: The Star Spangled Banner, Theme from the Exodus, Deck the Halls, Dance of the Reed Flutes, and Blues on the Down Beat.

{71.7} BACH 2 - A very rough approximation of a Bach Prelude (built-in speaker) accompanied by visual display of lo-res outline rectangles.

{71.8} MUSICPAK 1 - An A.P.P.L.E. program in three parts: (1) Two Voice Music - a selection of 5 melodies: Jesu, Joy of Man's Desiring; Bach (a two part invention methinks); Yankee Doodle; and Daisy, Daisy (2) Synthesizer - almost identical with Andy's Synthesizer. Differences: (a) all "mute" keys in AS = "A" key in this program and (b) 5W = c'''' (3) Keyboard Music: pressing a key produces a tone of preset duration. Tone duration is selected by keying-in a number (0 to 250). The name of the note is heightened on the monitor screen in the manner of staveless neums of yore.

{71.9} THE HART PIANO - All the "printing" keys with the exception of "-" (the dash) toggle the Apple on-board speaker. The tonal range is from g# (";") to a#'''' ("Q"). (Not included in the range is a very high, very noisy and very weak note sounded by pressing "1"). Most of the notes are fairly accurate,
contd.

but g' ("y"), e' ("u"), f# ("h"), and d# ("j") are slightly flat, while a ("p"), f# ("d") and b ("z") are slightly sharp. The tone produced by pressing "k" lies between c' and c#. Left and right arrow keys shorten and lengthen the duration of the notes. A number, approximating an inverse function of the frequency of the sounded note is displayed on the monitor screen.

{71.10} ODE TO JOY - Steve Schonberger has transcribed the Ode to Joy into pomaceous notation. The results can be heard by RUNning this program.

{71.11} APPLE PIANO DOC - No, this is not a program to heal the frailties of the Apple sound system. It is a documentation for the Binary file APPLE PIANO that follows it on the disk.

{71.12} APPLE PIANO - This program, accessed either by BLOADing it or from within the APPLE PIANO DOC, adds sound to the keypress without interfering with the normal functioning of the system (some Ctrl characters are changed - see APPLE PIANO DOC for the list). The sound is toggled on and off by pressing <CTRL-N>. Try listing a program while the APPLE PIANO is operative. Asterisks and spaces are especially charming. Do not throw things at the computer; remember a simple <Ctrl-N> will bring on instant silence.

{71.13} PHILA ORGAN - Identical with option #3 of the MUSICPAK 1 program above.

{71.14} BACH 1 - More 'Bach' with lo-res effects to accompany the music.

{71.15} TOGNAZZINI TUTORIAL - An introduction to mini-assembler. The user has three choices: (1) To watch the program enter the monitor, call up the mini-assembler and type a short routine for input to the mini-assembler. The result is a program that uses the twiddling of the paddle knobs to change the pitch produced by the Apple speaker. Mercifully a reset will stop the sound continuum and leave the experimenter in the monitor. (2) To let the program prompt the user him/herself in using the mini-assembler to enter a sound routine. A brief explanation of each mnemonic is provided. If you are not too hot on number systems and have forgotten about place values, the explanation of how 3072 decimal became C00 hexadecimal, will leave you a little dizzy. Seriously, while the program is not going to teach anyone assembly language programming, it will go a long way to help "conquer the fear of monitors," and may even whet an appetite or two for learning more. (3) Quits the program.

DISK 72: KEYBOARD GAMES

The games on this disk are 'screen' games, not 'text'. All of them can be played on a regular monitor using the keyboard for input. The word 'color' is included in the descriptions below in cases where the game is more fun that way. Instructions for play are in the games themselves except for GIN RUMMY, where brief instructions are included in the description.

{72.1} APPLE-STAR BOWLING - (1 or 2 players - color) The graphics are impressive and the score keeping is outstanding. Gives a real feeling of being at an alley. Pin action is good but don't expect too much on sliding a pin to make a 7-10 split.

{72.2} AT THE TRACK - (1 to 6 players - color) Pick your favorite from a field of six horses and bet as much as you think you can afford. Gives the same feeling as being at the track when your horse falters in the stretch or surges ahead to win.

{72.3} BATTLESHIP 2 - (1 player) It's your Navy (1 battleship, 1 cruiser and 2 destroyers) against

Admiral Apple in this recreation of the classic pencil and paper game. Since Admiral Apple doesn't always follow up on a 'hit' you have a slight advantage but don't be careless or he'll sink you.

{72.4} BLACKJACK - (1 player) Good 'card' graphics and all of the casino options such as down-for-doubles, insurance bet, etc. The dealer does not stand on 17 so you may be able to use this to beat him.

{72.5} COLOR STARTREK - (1 player - color) It's you against the deadly Klingons in this surprisingly good lo-res game. Set your firing angle and blast away (the bounce effect your shots sometimes take when they hit the screen edge can be agonizing). Move to Starbase for more energy and move from quadrant to quadrant in your effort to save the galaxy.

{72.6} CONNECTION - (2 players - color) The classic four blocks in a row game.

{72.7} GIN RUMMY - (1 player) This program is an absolute classic. The graphics are very good and the options available to the player are 'commercial' in quality. You can rearrange your hand for ease of play and the program automatically writes a two sector text file when you finish a hand so that you can come back later and start where you left off. The only thing missing is a verification routine to check your count of deadwood when you knock. You're on your honor to tell the truth. INSTRUCTIONS FOR PLAY: The object of the game is to get as many '3 or 4 of a kind (8-8-8, 3-3-3-3)' or '3 or 4 card runs (6-7-8 of spades, 10-J-Q-K of hearts)' as you can and then "knock" with as low a deadwood (unplayable) count as you can. Face cards count 10, other cards count face value. A 'gin' is a hand where all cards play down. Your deadwood count is compared to the computer's deadwood count and you win or lose the difference. Consult Hoyle's Book of Games at your local library for the full rules of play.

{72.8} HANGMAN - (1 player - color) A nice lo-res version of the standard word-guessing game with a fifty word vocabulary. It's a good idea to keep a list of the letters guessed on a scrap of paper since it's discouraging to get hung for repeating.

{72.9} JIG-SAW PUZZLE - (1 player - color) You get nine pieces, randomly generated, to rearrange. Not as easy as you'd think it would be. The program gives you a running count of the number of pieces you have in the right places.

{72.10} LOW SCORE II - (1 or 2 players) Play against the computer or a friend. Roll the dice and decide what numbers to remove. The game offers a choice of the number of rounds you play and keeps a cumulative score. One thing the program doesn't tell you is that you need to input a 0 when you select the total of the dice as the removed number.

{72.11} SLOT MACHINE #2 - (1 player - color) Just like the real thing. No strategy here. Just pull the handle and hope. Keeps track of your winnings or losses. Now we know where the term 'one armed bandit' came from.

{72.12} TOWERS OF HANOI - (1 player - color) Move eight disks between three posts to get them all re-stacked in the same order on a new post. After you have failed a few hundred times get WAP Volume 143, which has a program showing how you should have done it.

DISK 73: TEXT ADVENTURE GAMES

Detailed instructions for play are in the games themselves or included as a separate file on this

disk.

[73.1] ADVENTURE - (1 player) An introductory version of one of the most famous text adventure games ever written. While it has a limited number of treasures and hazards it serves as a good introduction. If it catches your fancy consider WAP volumes 148 and 149 which contain the advanced version.

[73.2] CIVIL WAR - (1 or 2 players) Select from 14 Civil War battles and 5 offensive or defensive strategies. After the battle is fought the outcome is compared with the actual historical outcome of that battle. Typing 0 during the game gets a list of options.

[73.3] COLOR WUMPUS - (1 player) Explore a 20 room cave infested with super bats, bottomless pits and the Wumpus itself. This is a text game but includes several nice graphic screens at key points.

[73.4] DOG STAR - (1 player) Explore a very detailed enemy battle cruiser, meeting a wide variety of challenges along the way, as you try to rescue the Princess Leya, her magic necklace and the Empire treasury. The game uses one and two word commands and your faithful companion Apple sometimes offers a clue or a sarcastic remark. There is a SAVE/RESTORE GAME feature which is very nice since it takes quite a while to play a full game.

[73.5] DOG STAR INSTRUCTIONS - Better run this before you play DOG STAR unless you like being captured or killed rather quickly.

[73.6] INSPECTOR CLEW-SO - (1 player) One of the five house guests has murdered the host. As Inspector Clew-So, your job is to identify the guilty person, the time and the room. You are given a house plan and a set of questions for the suspects but sometimes they lie to mislead you. This is much like the popular board game called CLUE.

[73.7] STARWARS - (1 player) Playing the role of a JEDI hopeful you must invade the infamous DEATH STAR, rescue the Princess Leia, and destroy Darth Vader and his Imperial soldiers. You have a light sword, a shield, a blaster and a Wookiee to help you in this recreation of the movie. Typing 'return' during the game gets a command list.

[73.8] SUPER STAR TREK - (1 player) As the commander of the USS ENTERPRISE you must range the galaxy destroying the deadly KLINGONS. You have a large number of weapons, shields, battle computers, sensors and other aids to assist you in your mission. Typing 'return' during the game gets a command list.

SigMac Disk 2

Welcome to Washington Apple Pi's SigMac Disk 2. This disk, like the first, is the result of the work of many people willing to share their time and talent with all of us. Special thanks must go to one of our friends at Apple Computer, Bill Atkinson. If you own a Macintosh you have Bill to thank for the incredible graphics routines in its ROM and the MacPaint program that allows you to use them. Needless to say, Bill knows how to use the Mac to its fullest, and on this disk are several programs that Bill has sent us for free distribution. Thanks, Bill.

As always, we are on the lookout for material for the next disk. Don't be bashful; submit your programs, your artwork, your form letters, your doodles - in short, anything you feel is of general interest to fellow Mac users, for inclusion in the next SigMac Disk.

The following folders are available on SigMac Disk 2:

In Atkinson's Goodies folder:

Life (by Bill Atkinson) - This is John Conway's Game of Life made interactive and lightning fast. This simulation is based upon simple rules that mimic the way natural processes occur in real life. For more details refer to Byte magazine, December 1978 or Scientific American, October 1970. But don't wait to find the references - run Life now and watch the birth and death of a cell on your very own screen.

Screen Maker (by Bill Atkinson) - With this utility you can create your own custom start-up screen. The start-up screen is the screen displayed when you power up with a disk in the drive. It normally shows a box in the middle of the screen with the message "Welcome to Macintosh". Well, maybe you've grown tired of the same old message. Now you can spice up your life with a new screen of your own creation. By using MacPaint and Screen Maker you can place anything your mind can imagine and your mouse can create on the start-up screen.

HexDump (by Bill Atkinson) - This routine will dump the contents of any file to the screen or to the communications port in hexadecimal format.

Rolodex (by Bill Atkinson) - The electronic version of a card file. Allows editing, printing, deletion and addition of index cards. Also, a find function will search each card for a match on your chosen word.

Rolodex file (by Bill Atkinson) - Bill's sample rolodex cards.

In the MacPaint folder:

Release Note (by Bill Atkinson) - When Bill sent us the programs in the goodies folder, he also sent us a note on disk as a MacPaint document. Release Note is Bill's note to us. Take a look at it. Memos will never be the same.

Hello - This is the MacPaint document used to create the start-up screen on this disk. For more information look at the Screen Maker description in the Atkinson's Goodies section.

Borders (by Anthony Anderson) - A small collection of borders that you might find useful for enlivening your next memo, report, or chart.

In the MS-BASIC folder:

MacColor (by Wayne R. Loofbourrow) - Who says the Macintosh can't display color? Using a fluke in the human perception of color this program creates the illusion of color with only black and white.

trim (by Dan Smith) - If you've every used MacTEP to download a file only to discover that the file picked up a few extra lines, then this program is for you. It allows you to remove up to nine lines from the beginning or the end of an ASCII file.

crude.v1 (by George Acton) - Yet another ASCII file editor.

split (by John W. Baxter and Dennis Brothers) - Have you ever downloaded an ASCII file only to find that it is too large for MacWrite? Split it into smaller segments with this program.

SNDF.F.BAS (by Dennis Brothers) - Once again Dennis Brothers shows us how to do things we didn't know we could do. This is, as far as I know, the first MS-BASIC program to create sound on the Macintosh. This

contd. on pg 23

SOFTVIEWS

by David Morganstein

The Writer (Hayden). The Writer is a new release based upon the successful Pie Writer, a more complete and more expensive word processor. The Writer contains most of the important stronger points found in its predecessor, features such as an eighty column display if an eighty column board is present. It permits up to 127-character lines when used with an eighty column board. An on-screen Help menu is available which can be removed to allow increased text display when you no longer need the help. The Writer will use a lower case chip with forty column displays if you have one and it has a Mail Merge capability for preparing form letters.

In the area of text entry and editing, the Writer has most of the standard features you would expect. Text can be entered so that it overwrites previous material or can be inserted into existing text. Text can be "wrapped" around from one line to the next as it is entered. In this mode, a word begun on one line is automatically moved to the next line (ala Screenwriter II or the Pascal Editor) if it will not fit. There are very handy control keys for jumping to and moving between the upper left or lower left corners or from the left to the right side of a line. You can move down or up one screen full of text or shift the material up or down a line while keeping the cursor at its current position.

It took me a while to figure out one aspect of text entry. When you want to embed new text within existing material, you enter the "insert mode" by typing Control-P. As you type, the old text is pushed to the right, off-screen, beyond the established right margin creating a "long line" which can only hold another 40 characters (The Writer will not "wrap" beyond the 128 character limit). To embed more than 40 characters, you can issue an ESCAPE Control-I which cuts the line placing the old text, previously to the right of the cursor, on the next line. When you do this "cutting" you must be careful not to have your cursor on a blank space (it should be on the first non-blank character to be shifted to the right). The Writer interprets lines that start with a blank as requests for a line break. This results in incorrect formatting at print time. The manual discusses the leading blank as a carriage control indicator in the section on formatting but makes no mention of the implication in the section on "inserting text" within existing text. I would encourage a clarification in future revisions of the manual.

Print options are entered as two letter commands preceded by a period and occasionally followed by a numeric argument. These commands allow for setting up paragraph indentation, filling or justifying, layouts in the vertical or horizontal directions, headers or footers, form letter operation and various miscellaneous features such as centering, underlining or bold-facing text.

The documentation consists of a 127 page manual, a reference cards and several useful introductory files which provide a degree of tutoring in using The Writer. The manual is well-written and contains both a table of contents and an index. A useful reference section makes for easy location of specific subjects.

I found The Writer to be a complete and useful word processor. However, you should be aware of some of the features not present which may be found on more

expensive programs. The Writer does not allow for subscripts or superscripts. It does not have the ability to define macros, multi-key stroke sequences triggered by one or two strokes. Each document is limited to the size of available memory, which on a][+ is about 5 1/2 pages. You can, however, chain documents together at print time, thus allowing for much longer material.

Many word processing packages allow you to read or write both text and binary files. Such an option allows you to access files created by other programs. You might convert an Applesoft program to a text file in order to edit it with your word processor. While The Writer allows you to do this, there is one caveat. The Writer has an input buffer of 128 characters (the maximum line length.) When you try to read files with longer lines (more than 128 characters between carriage returns) it hangs. I tried reading both ScreenWriter II (text) and Apple Writer II (binary) files. This "problem" can be circumvented by outputting formatted material from either of these programs to a text file. The formatting process will enter carriage returns at the end of every line making the text readable by The Writer.

Overall, I felt that the Writer has most of the features needed for everyday work. This, new low-cost word processing package may be the one you need for general text entry and edit or mail list operation. Hayden Software, 600 Suffolk St., Lowell, MA. 01853. (800) 343-1218. Price \$49.95

Homeword (Sierra On-Line). This is the first word processor for the Apple][which uses icons. No, it does not turn your Apple into a Macintosh! It carries a low price tag and offers many valuable features. The program is easy to learn and to use. It comes with a cassette and tutorial which will help you get started. Unfortunately, the diskette is copy-protected. The manual is brief, 33-pages, but adequate. Most of what you need to know you can figure out from the screens, aided by the manual. It uses standard DOS 3.3 text files so you can use spelling checker programs.

The program presents two screens to the user. One contains a number of icons along the bottom displayed as a graphical menu. You choose an option by hitting the left or right arrow key which moves a box surrounding an icon. The return key tells Homeword to act on your selection. The second screen is for editing text and has a format similar to ScreenWriter II. Text appears at the top and useful command information at the bottom. The text area allows 15 lines of 40 characters. The bottom left indicates the physical page, the amount of computer memory space remaining (Homeword only allows for documents which are small enough to fit in memory) and the amount of space remaining on the disk. The program appears to handle a four to five page document (about 16 to 20 thousand words.) although larger documents can be printed by chaining them together at print time. At the bottom right of this screen is a novel and useful display: a small hi-res image of an entire physical page on which the text shown above will be printed. It is the closest thing I have seen to a full sixty line display on a microcomputer. The image, being only 1 by 1 1/2 inches contains only dots, not letters, but gives you a good idea of the final appearance.

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EDSIG NEWS

by Peter Combes

EDSIG Calendar

THERE WILL BE NO EDSIG MEETING IN JULY.

Tuesday, August 7, at 7.30 p.m.

"Human Factors in Educational Programming" - Dr. Morariu of the University of Maryland.

Tuesday, September 4, at 7.30 p.m.

"Videodiscs and Micros", Dr. Paul Riorden, USUHS.

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

Meeting Report

"Are there computers after feminism?"

Mary Brown led an animated discussion, with teachers, software developers, and consultants all taking part.

Education is becoming more sexually egalitarian - Mary quoted statistics that showed that whereas in 1972 16% of all graduating Ph.D.'s were women, in 1982 the proportion had risen to 32%. However the proportion remains low for Computer Sciences, only 9% of the graduates being women. Indeed, only Physics and Engineering currently have a lower proportion, at 8% and 5% respectively. Incidentally, the subject nearest to parity is Education, with 49% of the graduates women, as against 23% in 1972.

Mary explained that she had initially been surprised by reports that boys were much more interested in computers than were girls; in the nursery class that she was introducing to computers she had observed no such thing. Equal numbers had signed up and the enthusiasm was equal. The girls stuck with it longer, but they went about their tasks differently, and different aspects of the area appealed in different ways. The presentation was all-important. In a school setting, boys are more physically aggressive in getting to the machines. This problem can be solved by structuring the situation appropriately.

The long term effects of girls being "pushed off the machines" were discussed, and some other interesting theories were also aired by those present.

"Software is developed by men, and that is why the manuals are so bad."

"Once men have the program going they are not interested in the hard work of making it easy to use - look at the Apple Logo editor!"

"Men are interested in how it works; women want to know 'What will it do for me?'"

"Women are used to thinking of several things at once; men, like computers, can think of only one thing at a time. When true multi-tasking is available on computers it will be the men who will be left behind."

Mary suggested that two questions were outstanding:

"How can we take the programs that exist and were

designed by men and modify the programs so that they appeal to women?"

"How do we design new programs to appeal to women?"

There was considerable discussion of the inadequacy of manuals and the difficulty of using complicated programs. At first sight, this would appear to be unrelated to the gender issue, but the fact that women have in the past been shut out from high technology fields means that they are at a particular disadvantage when faced with manuals written by technicians who have not specialized in making manuals easy to use. As education becomes more egalitarian, this situation may improve. ☺

Softviews contd. from pg 22
ance of that page.

The main menu selections are icons indicating functions like text printing, storage and retrieval of a document, entry to the edit mode or the layout menu for changing the text format. The format options include setting margins and line spacing, forcing page breaks and setting text justification.

Limitations. A few features which it does not provide: form letters, 80-column display (it does allow for a 70 column hi-res display prior to printing but this is not available for edit operations), macros for ease of multi-keystroke entries, footnotes or index construction.

Homeword's greatest virtues are that it is easy to learn and use. The small hi-res display of the entire page is novel and very useful. It provides most of what you would expect in a low-cost word processor. Sierra On-Line, Coursegold, CA. 93614. Price \$49.95. ☺

Page From the Stack contd. from pg 21

first program creates so-called white noise.
SND5W.BAS (by Dennis Brothers) - This program creates a single voice using a square wave. Much more useful than white noise.

SND4T.BAS (by Dennis Brothers) - This program turns your computer into a complete four-voiced instrument. It is arranged so that you may, by adding your own data statements, program your own music.

PictureMusic (by Rick Connolly and Dennis Brothers) - Rick took Dennis' program SND4T and added the data statements necessary to play the Promenade from Pictures at an Exhibition by Moussorgsky.

NOTE: There is only room on this disk for one application program. That is, MacWrite, MacPaint, or MS-BASIC may fit on the disk, but only one of them at a time. It might be best if you copy the appropriate folder to another disk with only the needed application on it. For example, create a disk with only system files and MacPaint on it. Then copy the MacPaint folder from this disk to it. Your newly created disk should now have sufficient working space, and this disk can be kept as a backup. ☺


```

22 VTAB 6 : INVERSE : PRINT " PRIME GENERATOR " :
    NORMAL
23 VTAB 12 : PRINT "USE CTRL-S TO PAUSE"
    : PRINT SPC (4) "====="
24 VTAB 18 : PRINT "USE CTRL-C TO END"
    : PRINT SPC (4) "====="
25 POKE 32,0 : POKE 33,19 : GOTO 7

```

Of interest only to esoteric mathematicians, this program displays nicely the strange phenomenon of "twinning". (Oh, go look it up!)

NOTE: Running this program to completion will take seven weeks. To make it more reasonable, change Line 9 to read

```
9 FOR A = 1 TO 999
```

NOTE: Line 12 includes a counter (Z = Z + 1). How would adding a conditional " : IF Z > 1 THEN NEXT A " to the end of Line 12 help to shorten the running time of the program? (And how does this affect the appearance of the screen display?)

NOTE: Line 15 uses a semicolon between A and TAB. If you don't know why, try it without the semicolon. (Or look it up!)

ASSIGNMENT: Write a prime generator program in only three lines. (It doesn't have to be pretty, but it does have to work.)

THOUGHT QUESTION: Why would anyone want to generate prime numbers anyway?

There will be a quiz on Tuesday.

⊗

PRINTER SPECIALS

DM = dot matrix, LQ = letter quality
10/15" = carriage, parallel type

Best DM print quality: Oki-Data 92A, 160 cps,
DM10 \$429, DM15 \$765

Best repair record: Prowriter 8510, 120 cps,
DM10 \$349

Best Epson-compatible: Gemini-10X, 120
cps, DM10 \$289, DM15 \$429

Most features: Delta-10, 160 cps, DM10 \$479,
DM15 \$599

7-color model: Transtar 315, 50 cps, DM10
\$462

Fast Letter Quality: Printmaster F-10, 55 cps,
LQ15 \$1395

With keyboard & keypad: AJ831, 30 cps,
LQ15 \$749

Portable Letter Quality: Transtar 120, 14 cps,
LQ13 \$449

INTERFACE CARDS for Apples: standard
\$49, graphics \$75

VF ASSOCIATES

6327 Western Ave, NW, Wash, DC 20015
(202) 363-1313

JCM MAIL ORDER PRICES MACINTOSH - APPLE IIc - APPLE II

SOFTWARE	MONITORS	DISK DRIVES
Home Accountant.....\$ 49	Amdesk	Amdesk, Amdisk I 3".286K.\$241
Multiplan.....\$169	Green 12".....\$129	Micro-Sci A2 w/c.....\$289
pfs:File,Graph.....\$ 89	Amber 12".....\$144	Tandon 40tk..... \$199
VisiCalc "E".....\$179	Color I 13".....\$279	PRINTERS
Bank Street Writer.. \$ 46	Nec	Transtar 120 LQ.....\$435
Dollars & Sense.....\$ 68	Green 12".....\$119	Dynax DX15 LQ.....\$459
Sensible Speller.....\$ 83	Amber 12".....\$149	Smith Cor TF-II+ LQ....\$479
Pie Writer.....\$ 99	Color RGB.....\$395	Abati 20P LQ.....\$389
Handler Pack,W/L/S...\$ 89	Sakata Color.....\$239	Okidata 92 Near LQ....\$429
Incredible Jack.....\$119	BMC	Panasonic P1090.....\$289
Miner 2049er.....\$ 29	Color 13".....\$229	Gemini 10X.....\$269
Chess/Chkr/Odin.....\$ 99	Green 12".....\$ 69	DISPLAY/INTERFACE CARDS
Flight Simulator II..\$ 38	Zenith	Orange Interface.....\$ 62
ACCESSORIES	Green 12".....\$ 89	Grappler +.....\$115
Dana Fan/surge pro...\$ 43	Amber 12".....\$ 99	Grafstar.....\$ 65
Surge Pro & outlets..\$ 27	MODEMS	Tackler Par/Gr.....\$ 99
Wabash, Disk SSDD....\$ 19	Hayes Micromodem IIe.\$239	Videterm 80 col.....\$197
Verbatim, Disk SSDD...\$ 24	Novation Cat I.....\$539	Ultraterm.....\$259
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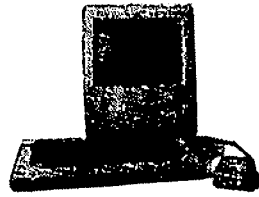
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WHAT DO YOU WANT FROM A DATA BASE PROGRAM ?

by Harold Balaban

Typical data base operations are search, sort, view, and print. All data base programs perform them, but the capabilities vary greatly. Take the search function. A good program should be able to search on any field or combination of fields using multiple criteria - including And, Or, <, =, >, not=. Wildcard and substring searches should be possible. If you are using the data base for your camera collection, you should be able to find with one search

all 35mm cameras made before 1950 excluding those made by Kodak OR all twin lens reflex cameras which you bought for less than \$50 OR all German cameras, OR etc.

Sorting is another standard function. Some programs cannot sort on all of the fields in a file. Others can't handle dates entered in a normal manner (MO-DA-YR). Many can't do multi-level sorts or sort either ascending or descending, or handle negative numbers. Sort speed is important. Forget about programs that use a bubble sort. But if I had to choose between a program that sorts 100 records in 10 seconds but doesn't have the flexibility mentioned above, and a program with complete sort flexibility that takes half-a-minute to sort 100 records, I'll opt for the latter.

To distinguish a data base program from a file handler, arithmetic capability is a frequently used criterion. Does the program you're considering have computed fields? Can you add, subtract, multiply, or divide two fields and then add or multiply the result by a constant? If one field is quantity and another is price, a good program should allow you to define a computed field which is price times quantity (total cost) which would be automatically computed and stored. Suppose the data file contains the golf scores of players in a tournament. Can you automatically obtain a player's average score, the number of games he played and his handicap, and can you then store the data in the file? Can you get the league average by computing across records? If not, the program is not providing basic functions that some day you wish you had.

One function many people don't consider when evaluating a data base program is file restructure. Say you have a file of 300 records, with 15 fields in each record. Perhaps 15000 characters are involved. You then decide that you would like to add a field or perhaps change the parameters of a field (e.g., field type or field size). Will the program you're considering allow this or will you have to start over, entering all the data again. Some programs require you to buy a utility costing \$50 to \$100 to have file restructure.

Even if a data base can do all of the above, its usefulness is limited if you can't put the information on paper in the form you want. Most programs will print the data in some default format or allow you to select the fields to be printed but in a standard format. However, a good report generator will allow you to print lists, or tables of your own design, or mailing labels with mixed 3- and 4-line addresses. Can the program print forms you design such as invoices or even form letters in which data from the file is inserted as appropriate? Your printing requirements are much more important than fancy screen displays in color which serve no useful purpose and take up valu-

able memory.

Speaking of memory, some data base programs advertise 1000's of records, with 100's of fields per record, and 100's of characters per field. They allow you to access a file so big it has to be written on more than one disk. Let's be realistic. Consider a file with a 1500 records. Let's say one field has 25 characters in it. If that field is to be stored in memory, then it will use at least 37,500 bytes. But other data also has to be stored. Even with DOS up on a language card, there is very little room for the program. So, if processing can take place at all, either the program or the data has to be segmented, with continual disk reads and possibly disk writes to temporarily hold data. You may even need to constantly swap disks. It can be done but only if you are willing to have dinner and maybe take a nap while the processing takes place. The point is that the 64K Apple is a great little machine but don't expect miracles. If you have need to process 1000's of records, you better consider a hard disk as a minimum; better yet start looking at 16 or even 32-bit'ers, not at advertising hype.

We finally come to ease of learning and ease of use. No one can adequately define 'user-friendly' for you. I have a suggestion that might help. Design a very simple file, let's say checks you paid, which includes check number, date, payee, amount, category and comment. Go to your software retailer and ask to try a data base program you are considering. With minimal help from the salesman or with occasional reference to the manual, you should be able to set up the file and do some basic operations. If after 30 minutes, you're still puzzled on how to get started, then you ought to reconsider. On the other hand if the file is in memory and you have already entered data and are doing some simple operations, you may have a winner in the user-friendly category.

I haven't covered many secondary features such as global insert, repeat entry, disk space information, standard text versus unique file structure, multiple files on a disk and other 'nice to have' features. At the risk of over-generalization, if a data base program has extensive search, sort, arithmetic, and report capability, that is pretty good evidence that care went into the design, and other useful features are likely to be present.

The final point is price. You can buy data base programs for \$50 or you can spend \$500. Based on some survey work I have done, the correlation between quality and price is not as high as one would think. The \$500 program will have fancy packaging and slick manuals. I'd rather have fancy searches and slick reports. Surprisingly, there are programs in the lower price range that will give you that. Before you spend \$50 or \$500, write out a list describing what you want a data base to do. In the D.C. area there is ample opportunity to have candidate programs demonstrated at retail stores. Take advantage of that and you'll increase your chances of spending wisely. ☼

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ADVENTURES WITH "THE HOME ACCOUNTANT"

by Solomon Schneyer

On March 30 of this year I wrote the following letter to the Continental Software Company, publishers of "The Home Accountant".

"I have a problem. Somewhat belatedly, I finally finished entering 1983 data into my Home Accountant file. By the end of November the disk was full. I went through the drill for "Extending a Data Disk" and entered the December information on a new disk.

"After using the Activity Reports module to print a number of tax related items from the January to November disk and repeating the procedure for December, I went on to attempt some summary reports, using the second disk. The results looked a little bit off. A unique income item which I had entered in December did not show up in the summary and this cued me to a problem. I finally determined that most of the December data was not getting into the summary at all.

"What to do? Hypothesis: Perhaps the month has to be closed in order for the data to become available for a summary report. So I tried to start a new month. As you know, the program wouldn't let me do that, insisting that I start a new year. You know the result. I started a new year, then I had to start a new month and then, of course, I was in 1984 and could no longer retrieve 1983 data.

"As you may imagine, my frustration level at that point was out of bounds. AND, AS FAR AS I CAN DISCOVER, THERE IS NO REFERENCE TO THIS PROBLEM IN THE MANUAL. What is done is done. I will work my way around this unpleasantness for now, but I would rather not repeat this experience next year. What, if anything, did I do wrong, and how do I not do it again?"

"One other question. I find that after a month is closed, the Search and Edit module will not retrieve a transaction in a previous month by date, although it will do so by Transaction Number. Is this correct? Again, no mention of this in the manual.

"I would appreciate your advice on both of these issues."

On April 25, almost four weeks later, the phone rang while the family was having dinner. To my surprise the call was from Continental Software and what was my problem? I reviewed the situation as best I could from memory, when the caller asked me to recreate the steps which I had taken. He finally concluded that I should have printed the summary report before starting a new year. After a little more chit chat in which the caller commented that I couldn't expect them to put "every detail" into the manual and I responded that in this type of program printing a summary report was hardly a "detail", we said pleasant goodbyes. I returned to dinner, warmed by the feeling that although Continental might have done a better job on their manual, they cared enough to call me, all the way from Los Angeles, just to be helpful.

During the telephone conversation my copy of my letter was resting safely on a disk. I assumed that the caller had it before him and that the questions he was asking were merely to clarify issues. The next day I pulled up the letter since I had some thoughts about writing a note for the WAP Journal about how helpful Continental had been. Imagine my dismay on rereading it. My weeks-old memory had failed me on details and

the caller had obviously not taken the trouble to read the letter carefully and to formulate a response before calling. If he had the letter before him when he called, it was certainly not apparent from the conversation. The questions which he asked were all covered in the letter and his suggested solution was one of the things which I had tried and found wanting. Also, he had not even addressed the other question in the last paragraph of the letter.

So, on April 26, I wrote again. Not quite so politely this time, wondering what was the point to such phone calls and suggesting that I would like an answer to my questions. This time I made hard copies of both letters, anticipating another call.

On May 3, only a week this time, the call came. Same fellow - I had had the wit to ask his name and my letter was directed to him. The upshot seems to be that if you want a single summary report from The Home Accountant, and you have more transactions than can be handled on one disk (my recollection is about 1000), forget it! If you expect to go over the 1 disk limit you should deliberately split your material into 2 disks - my Continental Op suggested 6-month periods - and then, for the annual summary, combine them manually. How about that! Maybe some of you have a better idea; I'd love to hear it. One alternative is to combine entries within a month to reduce the number of transactions. For example, multiple entries for the same category of items within one charge account can be combined. You lose the value of the individual entries this way, but it may be worth it.

In answer to my second question, my Continental informant says that to retrieve an entry from a closed month by date you must enter the proper start and end months first (Line "1" on screen 20, the Search/Edit screen). I will add something which he did not, namely that in order to get into the Search/Edit mode within the Transactions module, you must have an open month on the data disk. If you do not, the program will not call up the Transaction module; at least on my machine it won't. This means that when you reach the point when you want to start another disk, before closing the last month on the disk, make a copy and set it aside. Similarly, make a copy before closing a year. Thus, if you ever need to check something in an earlier month, you will have an open file available for that purpose. If you have closed the last file on the disk and you want to recheck something you can still do it by printing out a list of transactions, but that is a bit much. &

NOTES ON NEW COMMANDS

by C. Swift, Prop.

The familiar BASIC commands, such as PRINT, IF...THEN, END, etc. have served us long and well, and are certainly fundamental to any well designed symbolic instruction code. Their importance in the history of computer language cannot be denied and it is not the purpose of this article to do so. Rather it is our function here to build on these basics, so to speak, and thus further advance the cause of life-form electron-flow interfacing.

Let us take as a starting point the very valuable functions LEFT\$, MID\$, and RIGHT\$. These are what we shall term "one dimensional" ("1-D") functions ... meaning they function either left or right in one dimension. How much more powerful we can make our programs when we operate in two dimensional space (hereinafter referred to as "2-D"). Proposed labels for such functions are UP\$ and DOWN\$. The advantages are obvious. (Forefront thinkers are already into "3-D" visualizations with FORE\$ and REAR\$, but such advances are currently beyond the state of the art and will not be considered in this article.)

Drawing from other sciences allows us to increase our programming capabilities. Consider the poker players who indulge in a game called "high-low", in which the highest hand and the lowest hand split the "pot" (chips or other tokens, contributed by the participants). How often such players, at the end of a hand, have desired a "middles" reward. (The author has in his files many affidavits confirming this.) This concept can be transferred to our computer language in the form HIMEM:, LOMEM:, and - what else? - MIDMEM:! How such a function might be used is again obvious to the advanced programmer, and would doubtless be of immense assistance to the beginner who first encounters "overwriting". (In this connection one might also consider the very useful command DLIN, which is a logical extension of HLIN and VLIN, and the highly desirable DTAB, combining the capabilities of HTAB with those of VTAB).

ONERR GOTO belongs in a special category. It assumes the programmer (or user of the program) is capable of error, a totally fallacious position, as we all know. Fortunately recent developments have reformulated this command. As of this writing, the ONERR GOTO command elicits an abject apology from the hardware system, together with complete erasure of all associated software. After all, we are no longer on the frontier.

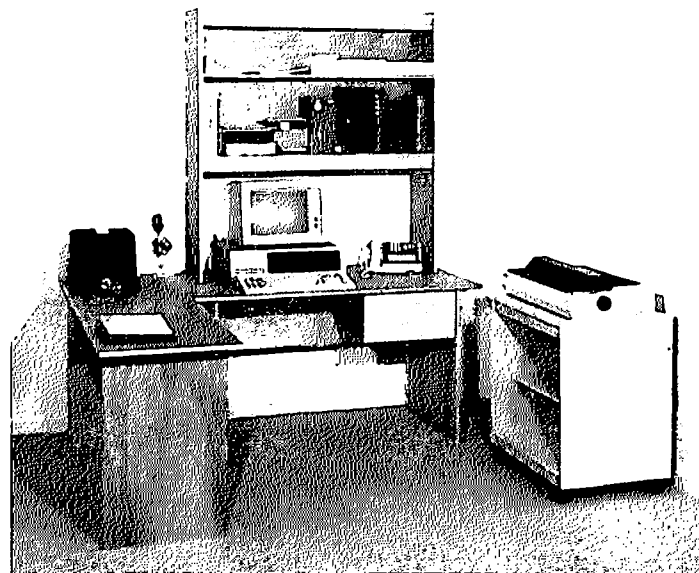
Certain commands have come under careful scrutiny by conservative members of the community and found to be objectionable on various counts. Included in this group are the sexist POP, the racist COLOR, the socially unacceptable FLASH, the creeping ROT, and, of course, the unpardonable SIN. Objections have

also been expressed concerning the communist PLOT and the drug STORE. The command GOTO certainly has an impolite ring to it, and, although it is better not to be too specific, there are those who are uncomfortable with the double entendres PEEK and POKE.

One suggested solution to the presence of such undesirable commands is to replace all of them with a re-defined ABS: in this proposition ABS would absolve all programmers and programs of responsibility for any discomfort felt by users. Research in this area is still inconclusive.

On a personal note, the author would like to suggest that the use of NORMAL be discontinued. It clearly has no relationship to any program or programmer he has ever met. ☼

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RECOVERING CRASHED WORDSTAR FILES

by Peter Jones

For all its popularity, WordStar has a few problems. Some of these are not truly attributable to WordStar, but instead to its interface with the CP/M operating system. I learned about one of those problems the other day. I'd like to share the way out of the problem.

I should state, right up front, that what I'm about to say is not any great revelation, especially to those who may have been working in CP/M for a few years. Instead, these notes are aimed at the newer CP/M user - the one for whom phrases like "DDT" and "ASM" are unfamiliar. Also, the technique noted here has only been validated with one version of WordStar (3.01) and CP/M-80 (Apple version 2.23). I haven't tried it with WRITE, SuperText, or any other word processor. Nor have I tried it with CP/M 3.0, CP/M-86 or MS-DOS, although it should work similarly in those environments.

The problem which we have to solve is this: WordStar saves a file, as it should, by calling the appropriate CP/M BDOS routines. In other words, WordStar uses CP/M's own "built-in" DOS routines for manipulating files. You could imagine that, while WordStar is saving the file, we actually exit WordStar and return to CP/M, let CP/M save the file, and then restart WordStar. So if something bad happens while WordStar is "gone" and we are saving the file, we don't go back to WordStar; instead, the built-in routine aborts, returns to the operating system, as it is designed to do, and we are stuck with the CP/M error message "BDOS Error on B: ", the ubiquitous CP/M "A>" prompt, and no way of restarting WordStar which will get our document back.

This is just what happened to me the other day. While saving a document which was about two pages long, the dreaded message "BDOS ERROR ON B: BAD SECTOR" appeared. Goodbye, WordStar, hello CP/M. A quick catalog showed the saved file had a length of OK bytes... in other words, nothing had been saved. And the document was gone forever. Or was it?

Normally, I would have yelled, hit the monitor, and sworn never again to trust offbrand diskettes. (The last idea is probably a good one.) But even if the document hadn't been saved, perhaps it was still in memory. I hadn't reset the Apple, hadn't turned it off ... could it still be there? Time for an investigation. How to view memory? I could write a BASIC program to do that, but writing it in Microsoft BASIC would mean overwriting most of memory with MBASIC, which might obliterate my document (if it were still there). Similarly, rebooting to Applesoft and DOS 3.3 would certainly mean loss of the document, except under highly unusual circumstances. Then the answer came: DDT. DDT (Dynamic Debugging Tool) is the program provided by Digital Research to allow us to peer into memory, both in hex and ASCII equivalent, and modify it, move it, even save it. A little research, a little luck, and I'd have my document back. DDT is small, fast, and not too difficult to learn. Just the ticket.

DDT is loaded by inserting the CP/M Master diskette, performing a warm boot (type Ctrl-C; this is important, otherwise you may get a "R/O" - read only - error when you are trying to save your file), and typing "DDT" (without the quotes) from the CP/M command line. Make sure that either the diskette on which DDT re-

sides, or another diskette which is handy, has some spare space on it. DDT loads itself. If you do not have a disk file which you tell it to examine, it simply comes back with the DDT prompt, a hyphen (-). You can then examine any part of the current memory (including DDT itself) by giving the command

```
-DXXXX,YYYY
```

where XXXX is the starting hex address and YYYY is the ending hex address. In this case, I didn't know where my document was in memory (if at all), so I started out with

```
-D0100,FFFF
```

which displays all of the memory from 0100 hex (the start of the area which is not reserved for CP/M itself) up to FFFF hex (the highest address in the Apple). Sure enough, memory started scrolling by. I could "see" the memory contents because DDT gives both a hexadecimal and ASCII interpretation of each byte of memory. The address (in hex) is on the far left of the screen, the hex memory content occupies the center, and the ASCII equivalent of each address lies to the right side of the screen. For a while, nothing important. Then, I started recognizing bits and snatches of WordStar prompts, error messages, etc., which showed that memory was intact. Then - hallelujah! - my document started going by. It started at 0784A hex. I could start and stop the scrolling by pressing Ctrl-S, as with most CP/M programs. Slowly I scrolled, step ... by ... step ... until I found the end of the document. Intact. Ended at 0880E hex.

Now I had the document. It was, admittedly, still in the computer, but it was intact. Now, how to get it out onto disk? A bit of research showed that there is a CP/M built-in command called SAVE. According to the Osborne CP/M manual, the format for SAVE is

```
A>SAVE ## d:filename.typ<cr>
```

"d:filename.typ" is pretty straightforward, but what is this "##"? The answer: the number of 256-character blocks of memory you want saved, starting at address 0100 hex.

Hoo boy. More problems. First off, how many blocks lie between 784A (the start of my document) and 880E (end)? Even more importantly, how do I get the document down to 0100 hex, where the SAVE command works? Looked like hitting the monitor could be a reality. Well, I've gone this far, might as well research a little farther. And I'm glad I did. For this proves to be almost trivial to solve. Let's attack the second problem first. DDT has, significantly enough, a command to move around blocks of memory. Remember the " - " prompt before? We typed "D" there to display memory. This time, we type "M" for "Move," plus the addresses of interest, and DDT will move them for us. The command is

```
-MXXXX,YYYY,DDDD <cr>
```

where XXXX is the starting address of the block you want to move, YYYY is the ending address of the block you want to move, and DDDD is the destination address of the beginning of the block. In this case, we simply typed

contd.

-M784A,880E,0100 <cr>

(Remember, 784A is the beginning of the document, 880E is the end, and I want it relocated to the area starting at 0100.) In less than a second, DDT had put the entire document in the bottom of memory, starting at 0100 hex. I typed

-D0100,2000<cr>

and I saw my document scroll by, again. Still intact. I picked 2000 as the upper limit of the display just at random. I could have said "-D0100,0200", but I knew the document was longer than 256 bytes, so I picked a far-away target.

Now I'm in position to save the file. I scrolled through the document, stopping every +100 hex (0100, 0200, 0300, ...) until I had passed the end of the document. Why address increments of 100 hex? Because 100 hex is 256 bytes, and we need to know how many blocks of 256 bytes to save!!! (Remember the description of the save command above? "SAVE ## D:FILENAME. EXT" where "##" is the number of 256-byte blocks, starting at address 0100!) The unglamorous, but effective, technique is just to count "1 ... 2 ... 3 ... as we're going through the document. When we pass the end of the document, we know how many 256 byte blocks have gone by. I found that my document ended at 10C4 hex, and was 16 blocks long.

Now, before we go too much further, an aside. (You may come back to this, later, if you want.) We really didn't have to count the 256-byte blocks, laboriously, as we just did. DDT also provides a facility for simple hexadecimal math. Again, it is described in the Osborne CP/M manual, but is documented other places. The syntax is

-HXXXX,YYYY<cr>

where XXXX and YYYY are any two hexadecimal numbers; for example, (just coincidentally) 880E and 784A. When you type in (from the hyphen prompt)

-H880E,784A<cr>

you get

0058 0FC4

The first number represents the sum of the two hex numbers; the second, the difference. In other words, this tells us that the sum of the two numbers is 10058 hex (which we don't care about), and that the difference is 0FC4 (which we do care about).

Now how to interpret this? The number of bytes between 880E and 784A hex is 0FC4, also expressed in hex. OK. But, if we then enter

-H0FC4,0100<cr>

we get

10C4 0EC4

which is significant. Basically, it tells us that if we take 0FC4 number of bytes (our document, for example) and move them to an area starting at 0100 hex, the last byte will be at address 10C4 hex - which we saw before. (0FC4+0100 = 10C4.) A good double-check. We're getting close now. Remember that we're in hex arithmetic, and that we're dealing with 256-byte blocks. We want to round up to the next larger 256-byte block, so we round up 0FC4 to 1000 hex. (Remember that FF hex is 255 decimal. Therefore, a 256-byte block is written 100 hex. We aren't concerned with partial blocks - we can only take full

blocks - so we round upwards to make sure we have all the bytes we want.) Drop the two zeros, and we need 10 (hex!) blocks. Refer to your handy-dandy hexadecimal table (there's one in the "Applesoft Basic Programming Reference Manual" which is intended to cover the ASCII codes, but which works just fine for our purposes), and we find that 10 (hex) is 16 (decimal). This corresponds to our earlier finding of 16 blocks.

We exit DDT by a simple Ctrl-C. (This is, fortunately, non-destructive. The information is still there at 0100-10C4 hex, even though we've left DDT.) Now we are ready for the SAVE command. I'm the cautious type, so even though I figured 16 blocks was the length of my document, I decided to save an extra block, just in case I miscounted. The command, from the CP/M prompt, was

A>SAVE 17 B:CRASHFIL.TXT <cr>

Sure enough, the "B:" drive went to work, buzzed for a minute, and settled down. (If I'd gotten another "Bad Sector" error, it would be hit-the-monitor time for sure!) Now: the moment of truth. Gingerly, I typed

A>TYPE B:CRASHFIL.TXT <cr>

and ... it appeared! My document! There was some garbage at the end (remember the extra block I saved? Seventeen instead of sixteen blocks? I'd saved 256 bytes of whatever-was-in-memory at the moment), but I was confident that I could edit that out with WordStar. And I was right. A block delete (Ctrl-K Y) took care of that with no sweat.

The moral: disk crashes can be recovered, if you don't panic, you know (or are willing to research) the answer, and you proceed methodically. Don't hit RESET, don't do a cold boot, don't give up. Face it, you've got nothing to lose but a few hours work; and you could learn something.

P.S.: This technique works well for crashes on short documents (4 or 5 pages, depending on your system's memory), but not for documents which are much larger than that. The reason is that WordStar starts writing bits and pieces of your document to disk once the file gets too big, so that it only maintains, in memory, the segment of concern at that moment. A disk crash at this time would mean that a portion of your document is still in memory, but that some of it is out on disk. I don't know how to recover from that (other than how to save the portion which is in memory, using the technique above), since it's never happened to me. When it does, I'll let you know. Or maybe I'll just hit the monitor. ☺

AGE-OLD PIE

by Gary Mugford

Hobby computing is still young enough that there is little market in used software. Software is different from other hobbies since the object of collecting is completely interactive. Most software is functional rather than ornamental, something you could hardly say for comic books or stamps. And before you comic collectors rise up in anger, I have a collection valued somewhere in excess of \$10,000. So, I do appreciate the beauty of that hobby, too.

A lot of software is superseded eventually by something twice as pretty (Beneath Apple Manor - the Special Edition) or twice as handy (PIE Writer). This makes the older versions relatively obsolete and eventually, a market will grow for the used software.

This long preamble is to set the stage for you, should you ever come across the progenitor of PIE Writer, Apple PIE. Apple PIE was put out by the late, lamented Programma International. Hayden now handles PIE Writer. For my money, there has never been a better word processing buy for the buck than Apple PIE. I picked it up brand new, just as Programma was going under, for \$90. On the used market, I expect PIE will go for around \$50. The reason I suspect PIE will be among the first programs to surface in the "Swap Market" is the fact that it is not copy-protected. That's right. The best word processor around isn't copy-protected.

Straight copies of Apple PIE should be viewed with a little suspicion. To protect the rights of the original programmers, make sure you get the original operating manual with the program. Having to give up the leatherette binder - full of information - might stall somebody from just selling you a copy at a huge profit while he keeps everything that counts. The reason the manual is so important is the complexity of the program. While it is possible to get by after a little while with a basic set of commands, the need to use one of PIE's special commands crops up occasionally. Then the manual is mandatory.

PIE is an active editor. What you type will be entered at the point you are at. At the same time, it is possible to zip the cursor around the screen anytime you want. If you want to insert or delete text, the ability to do so is only two key presses away. That function is a godsend for those of us who type quickly, but inaccurately, since we have our noses buried in the notes off to the side. By the time we look up, the mistake might be two lines up in the text. With PIE, it is just as easy to zip up there and correct the typo as to wait until the end of the article and try to get all the mistakes in an editing phase.

A listing of all the PIE commands would take up much of this issue but the important ones - global replace, selective replace, string search, pagination, split line, join line, copy blocks, delete blocks - are all there. And the fact that it is copyable is just too important not to stress. I have separate disks for my computer writing, for my Bridge articles, for sports articles and for letters. Using PIE's deleting functions, I have created shell forms for my letters, each of which includes my distinctive letterhead. It was also easy to put together a shell for my hand diagrams for my Bridge articles.

PIE uses a separate formatting program for sending the

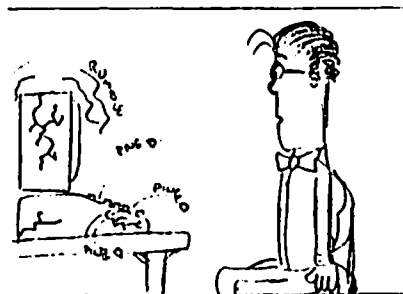
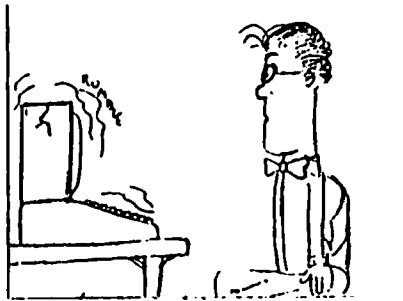
output to a printer. This formatter is capable of being modified for whatever printer/card combinations you have. Word of warning: the original Format expects the card to be in slot #2. Modifying format is not easy (to prevent people like me from doing irreparable damage) and does require some digging to accomplish. It's there in the manual, trust me. Format gives you the option on the number of copies printed and you can specify specific pages.

All in all, there has rarely been a program to make better use of the unmodified Apple][with disk drive and printer. And lest I paint too rosy a picture and lose believability, there are a few faults.

1. The shift key toggle is the right arrow. It's a pain to get used to, especially if you have to go back and forth between using it and working on a regular typewriter as I do.
2. The manual, since rewritten for PIE Writer, is as clear and organized as mud. And forget using the index.
3. I've been totally unable to get all my Epson MX-80 print features in use.
4. This might seem like a minor quibble, but little is written about PIE. Unlike Apple Writer, utilities are NOT being written for PIE. There is one exception to that. Charles Rusch wrote an article in the January 1982 issue of Call-A.P.P.L.E. on how to change the key commands around. It is worthwhile ordering a back issue of this magazine to obtain the article. It allowed me to change the cursor movement keys from the original E,F,C,S to the more familiar I,K,M,J, for example.

The preceding quibbles are personal in nature. I don't find lack of hyphenation a problem. I don't even find 40-column screens a problem (with wordwrap), which John Martellaro did find problematical in his review of the 40/80 column PIE in the July-August/82 PEELINGS II. He listed many of my complaints and still gave PIE an AA rating. The original PIE had also been given an AA rating.

If you have bought your Apple for any other reason than word processing, and are only now looking to possibly add word processing to your arsenal, look around for Apple PIE. Besides, what better program for a member of Washington Apple Pi. &



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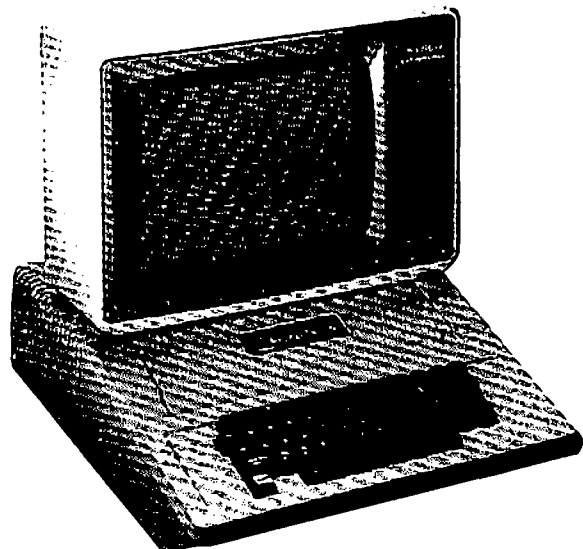
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OH . . . BY THE WAY

by John A. Love III

I mentioned last month that I was improving Dr. Charlie Brown's utility, "User-Defined Programmable Function Keys". Well, I am!!! However, I seem to have gotten carried away by virtue of the fact that I am still thinking of and implementing improvements; for example, moving his utility and your Macros to your 16K Language Card in Slot 0. So, please be patient with me a little longer.

Also, I've recently developed an intense interest in the relatively new (to me, at least) Apple language, Forth. As I learn, I intend to pass on the new-found knowledge to you kind readers - perhaps on a monthly basis, along with my sojourns into the "sounds-Greek-to-me" world of Assembly language.

In the meantime, this month I wish to present my expansion of the utility, "Pager", present on my "BIG MAC" Assembler disk from Call A.P.P.L.E. As currently written, "Pager" provides the capability to automatically paginate after 60 lines of printed assembled code - without your having to judiciously insert the Pseudo Op Code, "PAG", selectively throughout your Source listing. Of course, you can change the number, 60, to any other number you wish by simply accessing the Source Code of "Pager". Clearly, however, this is not the expansion I am about to address. Said expansion does address the printing of a Header on each printed page of Code. The Header I have chosen is:

<Name of your Program> Page #xxx

It will rapidly become obvious that the requisite changes to the existing "Pager" Source Code are not substantial at all. So, you're lucky this month - this article is relatively short. This article is short for still another reason. The Assembly Code to be presented is prolifically laden with instructions for use as well as wordy explanations for the functions of each Code-segment.

Just one more "tid-bit" before I present this Assembly listing. I have been informed that current owners of "BIG MAC" may purchase directly from Roger Wagner Publishing (formerly, Southwestern Data Systems) the current update of "MERLIN" (regular version, not the PRO version). All you must send are:

- 1) \$23.00, which includes Postage & Handling.
- 2) The cover/title sheet of your "BIG MAC" Manual.

There are several encouraging forces at work here, despite the fact that "MERLIN" and "BIG MAC" are almost identical now:

- 1) If you only have the 48K version of "BIG MAC", the "MERLIN" Update will also be compatible with a 64K Apple][+ or //e.
- 2) If you have an Apple //e with the newly-offered 65C02 CPU, the "MERLIN" Update will also execute the new Opcodes inherent to the 65C02 CPU (Rockwell version).
- 3) "MERLIN's" Disk Utilities are more extensive than "BIG MAC's".
- 4) Last, and certainly not least, "MERLIN's" documentation is truly considerable - and you can "bank on that".

Oh by the way. If you have an Apple][+, immediately dispel any thoughts of purchasing the 65C02 CPU. I'm told that the same probably holds true even for the //e IF your printer interface card has graphics capability, e.g., the Grappler+. These statements are reportedly true because the 65C02 CPU alters selected portions of Page Zero. Look out Graphics and forget the][+!!! I encourage anyone to prove me dead wrong because I would dearly love the 65C02 CPU inside my][+ along with my Grappler+. Apparently there are a few "sightings" that some][+'s work with the 65C02 - "Caveat Emptor". (I have ordered and will install in my Apple][+ the GTE version of this chip. I will eagerly report the results, hopefully next month.)

Oh by . . . by the way. Only the new MERLIN PRO will access the soon-to-be 65802 CPU, and then only on the //e with the 80-column / 64K Card. The technical reason surrounds the expanded 128K total RAM. Please don't ask why!!! What about the][+ with an auxiliary 64K or higher Card in Slot 0? Same answer, folks, "No, and please don't ask why!!!"

Finally, onto the main event. Thanks again for your patience.

ASSEMBLY CODE

```
:ASM
1 APPLE = 1 ;Put = 0 for Epson or
2 * ; IOS Printer Card.
3 *****
4 *
5 * Pager *
6 *
7 * "BIG MAC" *
8 *
9 *****
10
11 * A BIG MAC Utility to do page skips
12 * and Headings for printers.
13
14 * Assumes use of a Printer Card in Slot 1.
15
16 * To use: CATALOG your Disk.
17 * : BRUN PAGER to set up & Vector.
18 * : LOAD your Program File.
19 * : Enter Editor and type USER.
20 *
21 * (This simulates a "PR#1" &
22 * initializes the printer --
23 * Headings begin on Page #2.)
24 *
25 * : then, ASM.
26
27 * A CTRL--S (from keyboard or in Source)
28 * disconnects this routine in case
29 * it is used for LIST or OUTPUT.
30 * (Completion of Assembly also disconnects it.)
31
32 * It is also disconnected by any PR# command.
33 * Reconnect by typing "USER".
34
35 * CAUTION: This does not count chrs/line
36 * and so the line count will become incorrect
37 * if any line exceeds printer width (e.g., 80).
38
39 * NOTE: This routine will work only for
40 * printers which recognize formfeeds (CTRL--L).
41
42 CSWL = $36 ;Char. output Switch.
43 AMPER = $3F5 ;Ampersand Vector.
44 OOSHK = $3EA ;Re-connects DOS.
45 COUT = $FDE0 ;Altered by "PAGER".
46 OUTPORT = $FE95 ;Simulates a "PR#1".
47 FWBUF = $AA75 ;Program File Name.
48 PRBLK = $F94A ;Successive blanks.
49
50 ORG $2F0
51
52 LDA #34C ;Ampersand Vector
53 STA AMPER ; is set up via
54 LDA #START ; "BRUN PAGER".
55 STA AMPER+1
56 LDA #>START
57 STA AMPER+2
58 RTS
```

```

59
60 * START must org $300 at least:
61
0300: A9 01 62 START LDA #1 ;Printer Card in Slot 1.
0302: 20 95 FE 63 JSR OUTPUT ;Simulates "PR#1"
64 * (places a "$C102" in
65 * $0036.37).
66 -----
67
0305: A0 00 68 INIT LDY #0 ;Initializes printer;
0307: B9 B6 03 69 LOOP1 LDA INITSTR,Y ; e.g., CHR$(9) "80N".
030A: F0 06 70 BEQ GETVEC
030C: 20 B2 03 71 JSR OUTPUT
030F: C8 72 INY
0310: D0 F5 73 BNE LOOP1 ;Always!!
74
75 -----
76
0312: A5 36 77 GETVEC LDA CSWL ;Get COUT Vector,
0314: A4 37 78 LDY CSWL+1 ; e.g., $C10N.
0316: 8D B3 03 79 STA OUTPUT+1 ;Store it.
0319: 8C B4 03 80 STY OUTPUT+2
81
82 -----
83
031C: A9 25 84 HOOKUP LDA #<FILTER ;HOOKUP our address
031E: 85 36 85 STA CSWL ; to CSM Vector.
0320: A9 03 86 LDA #>FILTER
0322: 85 37 87 STA CSWL+1
0324: 60 88 RTS
89
90 -----
91
0325: C9 93 92 FILTER CMP #93 ;CTRL--S received??
0327: D0 0F 93 BNE CR7
94
95 *
0329: AD B3 03 95 LDA OUTPUT+1 ;Disconnect "FILTER" on
032C: 85 36 96 STA CSWL ; getting a CTRL--S.
032E: AD B4 03 97 LDA OUTPUT+2
0331: 85 37 98 STA CSWL+1
0333: 20 EA 03 99 JSR DOSHK
0336: A9 93 100 LDA #93 ;Exit => send a CTRL--S.
101
102 *
0338: C9 8D 102 CR7 CMP #8D ;<CR>??
033A: D0 0A 103 BNE FF7
033C: CE 85 03 104 DEC LINCNT ;If so, decrease
033F: D0 71 105 BNE OUTPUT ; line count.
0341: 20 B2 03 106 JSR OUTPUT ;If at end of page, send
0344: A9 8C 107 LDA #8C ; <CR> and a Formfeed.
108
109 *
0346: C9 8C 109 FF7 CMP #8C ;Formfeed received??
0348: D0 68 110 BNE OUTPUT
034A: 20 B2 03 111 JSR OUTPUT ;Send it & Heading.
112
113 -----
114
034D: A9 37 115 HEADING LDA #55 ;Reset Lines per page;
034F: 8D 85 03 116 STA LINCNT ; adjusted for printer.
117
118 *
0352: A9 8C 118 NAME LDA #<"* ;*"Program Name"*.
0354: 20 B2 03 119 JSR OUTPUT
0357: A2 00 120 LDX #0
0359: BD 75 AA 121 LOOP2 LDA FNBUF,X ;Program Name
035C: C9 AE 122 CMP #AE ; ends with a ".S".
035E: F0 06 123 BEQ LONG
0360: 20 B2 03 124 JSR OUTPUT
0363: E8 125 INX
0364: D0 F3 126 BNE LOOP2 ;Always!!
0366: 8E C2 03 127 LONG STX SAVE ;Saves length of Name.
0369: A9 BE 128 LDA #*"
036B: 20 B2 03 129 JSR OUTPUT
130
131 *
036E: A9 40 131 BLANKS LDA #64 ;First, print
0370: 38 132 SEC ; (64 - Name length)
0371: ED C2 03 133 SBC SAVE ; blanks.
0374: AA 134 TAX
0375: 20 4A F9 135 JSR PRBLK
136
137 *
0378: A2 00 137 LDX #0
037A: BD BB 03 138 PAGENR LDA PAGE,X ;Then, "Page #".
037D: F0 06 139 BEQ NUMBER
037F: 20 B2 03 140 JSR OUTPUT
0382: E8 141 INX
0383: D0 F5 142 BNE PAGENR ;Always!!
143
144 *
0385: AD C3 03 144 NUMBER LDA NR ;No more than 99 pages!
0388: C9 0A 145 SUB CMP #10
038A: 90 07 146 BCC OUTNUM ;< 10.
038C: E9 0A 147 SBC #10 ;> = 10; so keep on
038E: EE C4 03 148 INC NUM1 ; subtracting 10
0391: D0 F5 149 BNE SUB ; until 9 or less.
0393: 48 150 OUTNUM PHA ;Here we convert to
0394: AD C4 03 151 LDA NUM1 ; 2-digit decimal #.
0397: F0 05 152 BEQ SEC
0399: 69 80 153 ADC #80 ;ASCII for "0".
039B: 20 B2 03 154 JSR OUTPUT
039E: 68 155 SEC
039F: 69 80 156 ADC #80
03A1: 20 B2 03 157 JSR OUTPUT
03A4: EE C3 03 158 INC NR
159
160 *
03A7: A9 8D 160 SKIP LDA #8D ;3 blank lines
03A9: 20 B2 03 161 JSR OUTPUT ; after Header.
03AC: 20 B2 03 162 JSR OUTPUT
03AF: 20 B2 03 163 JSR OUTPUT

```

```

164
165 -----
166
03B2: 4C ED FD 167 OUTPUT JMP COUT ;Changed via "GETVEC".
168
169 -----
170
03B5: 38 171 LINCNT DFB 56 ;Lines on first Page.
172
173 INITSTR DO APPLE ;If Apple Card,
174
03B6: 89 175 HEX 89 ; CTRL--I ; "80N".
03B7: B8 B0 CE 176 ASC "80N"
177
178 ELSE ;If IDS or EPSON Card,
179
180 HEX 91 ; CTRL--Q.
181
182 FIN
183
03BA: 00 184 HEX 00 ;"0" = End of string.
185
03BB: D0 E1 E7 186 PAGE ASC "Page #"
03BE: E5 A0 A3 187
03C1: 00 187 HEX 00 ;"0" = End of string.
188
03C2: 00 189 SAVE DFB 00 ;File Name Length.
190
03C3: 02 191 NR HEX 02 ;Page # (start w/#2).
192
03C4: 00 193 NUM1 HEX 00 ;1st digit of Page #.
194
195 * Must end before $3D0 Whew! Barely, huh???.
196

```

--End Assembly, 213 bytes, Errors: 0

APPLESOFT TUTORIAL by Dan Robrish

This tutorial is aimed primarily at our younger members who would like to learn to program in Applesoft BASIC. It assumes no prior programming knowledge. The class will meet twice a week (Tuesdays and Thursdays) for three weeks from 10:00 to 11:00 AM at the WAP office. Session I is July 3 through July 19, and Session II is July 24 through August 9.

Lesson Plan (in brief):

- Class 1 - PRINT statement with numbers, PRINT with string constants, assignment (LET) statements.
- Class 2 - Writing a program, PRINTing with frills (HTAB, VTAB, TAB, SPC), adding REMarks.
- Class 3 - GOTO statement, INPUT from the liveware, GETting a character at a time.
- Class 4 - IF-THEN statement.
- Class 5 - GOSUB and RETURN, ON-GOTO and ON-GOSUB.
- Class 6 - Graphics (lo-res, and if time, hi-res).

In order to have the benefit of a hands-on experience it is recommended that you bring your Apple, disk drive and monitor (WAP will furnish a monitor for the first five registrants - call the office). If you do not bring your Apple, there won't be one for you to use and you will have to look over someone's shoulder.

The tutorial is free, but we would like you to pre-register. You may do this by using the form in the back of the Journal or by calling the office. ☺

PIXIT GRAPHICS PROCESSOR:

A Review

by Harry Brindley

KEY BOX

PIXIT creates pictures and shapes for any 48K Apple II, II+ or IIe with Applesoft in ROM and DOS 3.3.

THE NEED

Computer graphics and the writing of games are part-time hobbies of mine. Most of the work lies in creating good graphics. I use three basic types of graphics: plot statements, pictures and shapes. Plot statements are good for straight lines from point A to point B. If the shape is uncomplicated (and certainly not in three dimensions), the plot statements provided in BASIC are good enough to achieve a rather slow animation, and easy enough to use. Creating good background pictures, in fine detail and with different fonts of text (and perhaps also some shapes), makes the task a little less easy. Shapes, particularly good for animation, are the most difficult ... yet the most rewarding type of graphic. So whilst plotting is easy enough to do unaided, I have always sought the help of utilities to create pictures and shapes. Good drawing packages have been around for some time, excellent shape table editors have not.

I read in a recent Apple Orchard about a new package called PIXIT which would create pictures and shapes, and then also allow you to edit shapes from several different tables. It seemed to be what I needed. Now that I have it, I wholeheartedly agree! In just one night (the very same day I got it), I created an animated company logo and a whole new game based on an old TV programme.

THE PACKAGE

Just to demonstrate how useful Baudville thinks their package is, they included a Christmas card and a slide, both created from graphics generated with PIXIT.

The documentation is 38 pages long, well written (even with a short primer on Apple graphics), and whilst it could have been longer, it certainly is enough to enable you to use all parts of PIXIT. What is lacking is a better tutorial on how to use the graphics created by the package. Many people would probably be using pictures and shapes if only they knew how. PIXIT offers a couple of very short listings that are too simple for experienced programmers and too short for the beginner. But, I guess they didn't see the need to create a market which would buy their product.

The PIXIT package contains one disk. Whilst not directly copyable with COPYA because of non-standard fast DOS, the manual does describe how to make working copies for yourself. I'd like to reassure you now that the pictures and shapes you create are used under normal DOS 3.3 and not the modified DOS of PIXIT. Their faster DOS merely makes the package work quicker.

The basic parts of the software are:

1. PICTURE EDITOR

PIXIT lacks some of the things other drawing packages have. It appears unable to draw arcs or boxes automatically, but does handle lines, circles and a fast area fill. This editor also allows you to load one

character set and one shape table at a time for text and planting shapes into the picture. Having used either, you can then load up another to continue creating the picture. Once planted, or drawn, it's not too easy to rub out. The ability to include shapes into a picture is good and enables one to add very fine detail to the picture. Circuit diagrams or furniture layouts would benefit from this inclusion. Shapes can be turned only at 90 degree angles (otherwise they distort) and can be set to any scale and colour normally allowed by the Apple. Some character sets and useful shape tables are provided for you to play with.

2. CREATE-A-SHAPE

Some of the most appealing things I like about PIXIT are contained in this utility. This utility creates only one shape at a time, meaning that you will later have to use the editor to assemble all the shapes into one long table. The advantage you get from this is that you are not asked how many shapes you want to create and neither are you asked to specify the maximum height and width of all of the shapes. In the past, with other utilities, this causes problems with asking for too little or too much space which couldn't be corrected later. It also means that shapes may differ drastically in size. You can also create several similar shapes, and only once you've decided the best amongst them, choose one for the whole table.

You are able to use scales from 1 through to 7 in creating the shape, and may change at any time during the creation of it! This means you can work at some larger scale for ease, and then even before the shape is completed take a look at its natural size. At first I thought that a good utility would provide for the shape to be displayed in both sizes at the same time. But PIXIT obviously had in mind that you could conceivably want to create a shape which in its natural size is as large as the whole screen ... meaning that at the time you create the shape you can't have any parts of the screen occupied with different types of displays. The spin-off of this is perhaps its single most attractive advantage for me. I can create shapes of unlimited size (well, that is to say at least as large as the Apple's screen). Previously I was limited to shapes that hardly occupied three centimeters square. The limitation in PIXIT is that any one table can only have 8000 pixels. That means up to 128 different shapes of mixed sizes may in total not exceed 8000 dots. It also means that one shape can be all of 8000 pixels in length. Whilst 8000 pixels sounds incredibly long, let me remind you that every dot you move to, whether it is plotted or not, is counted.

Most other shape table generators that I've tried have a problem with realistically representing the X and Y scales whilst creating shapes. If in the enlarged mode you were to create a perfect square, you would find a squat rectangle compiled afterwards. I don't have that problem with PIXIT.

3. SHAPE TABLE EDITOR

This utility makes you a cut and splice editor. You can review umpteen different tables, extracting only those shapes you want into a new table. Whilst the

contd. on pg 39

RELOCATABLE FIND COMMAND

by Paul Taney

If you haven't yet made the JMP into assembly language - or don't know why you'd want to - this routine is for you. This little guy will search your entire memory (except the \$C000 page where he dare not tread) for any string of bytes. Just put the length of the string in location \$0000 and the string itself starting at \$0001. If it's longer than 15 bytes it will be truncated. Then CALL the starting address and within 3 seconds it will have searched 60K!!! If your 'key' is found, its addresses are printed on the screen. At the very least, it will be found at location \$0001, so that address is always printed.

This is an elegant little routine, and the code is profusely commented with the BASIC programmer in mind. By the way, BASIC takes 75 seconds just to count to 60K.

```
JSR PRNTYX ; and use the monitor to print
LDX #001 ; the location and a blank.
JSR PRBLNK

CLC ; Unconditional branch to
BCC BGLLOOP ; the top of the BIGLOOP.

EXIT JSR RDKEY ; Wait for user to note the results,
JMP MON ; and we're done.
; You may want a return from subrtn
; (RTS) here instead of ending up
; unceremoniously in the MONitor.

CASE DS 1 ; Store a non-zero here if you're
; searching for letters
; and don't care about case.

; This program searches the entire 63 Kilobytes
; and prints out all the addresses where your
; key is found --- within four seconds!!!!
```

RELOCATABLE FIND COMMAND

```
*****
KEY EQU $0000 ; Setup requires the user to store
; the LENGTH of the search key
; followed by the key itself at
; location $0000 before execution.

PNTR EQU $009D ; Points at addr being searched
HOME EQU $FC58 ; Clear screen
PRNTYX EQU $F940 ; Monitor will print the addr
; where your key has been found
; and then print a blank.
PRBLNK EQU $F94A ; Leave via monitor, or
MON EQU $FF69 ; put your own vector here.

ORG $300 ; Originate anywhere. It's relocatable
; code!

ENTRY JSR HOME ; Clear screen.
LDA #FF ; Set up pointer for search
STA PNTR ; to begin at $D000 to avoid
LDA #C0 ; activating soft switches.
STA PNTR+1

BGLLOOP INC PNTR ; Top of the search loop.
BNE SKIP1 ; INCREMENT the pointer and
INC PNTR+1 ; IF a page has been searched
; THEN INC the pointer's MSB.
SKIP1 LDA PNTR+1

CMP #C0 ; IF the MSB is #C0 THEN quit.
BNE SKIP2 ; before hitting any soft switches.

SKIP2 BEQ EXIT
LDA #0 ; Get LENGTH of search key.
AND #0F ; Reduce it to a MAX of 15

SMLOOP TAY ; Use the superfast
LDA (PNTR),Y ; "Indirect-postindexed addressing"!
; to get the next byte.

LDX CASE ; IF databyte is non-zero THEN
BEQ SKIP3 ; strip the highbit for an ASCII search
ORA #80 ; that disregards upper/lower case.

SKIP3 CMP KEY,Y ; CMPare byte to key at $0001 + YREG
; *****

BNE BGLLOOP ; IF it doesn't match the search key
; THEN take the BIGLOOP
DEY ; ELSE DECREMENT the index and
BNE SMLOOP ; go around the SMALL LOOP to
; CMPare the next byte of the key.

INC PNTR
LDX PNTR ; The entire key has been found,
BNE SKIP4 ; so bump the pointer
INC PNTR+1
SKIP4 LDY PNTR+1
```

PIXIT Graphics contd. from pg 38

description of this utility is very short, it's the only program I have ever found that works as well. Once you've accumulated a lot of shapes, you could conceivably write a new game just by collecting a new sequence of shapes from old works.

MENUS

Each module has very helpful menus. Each menu also follows a logical sequence and still more than that, the default option that is highlighted at each step is usually your next choice anyhow. It's like eating a nine course meal at a Chinese restaurant: whilst you can see the menu card in front of you, a simple wave of the hand brings on the next course. Similarly, unless you want to do something unusual, hitting <return> after each step in PIXIT brings up the next logical thing you should do. The utilities to create pictures and shapes both have useful help screens and so, once read, the documentation can be stored away. The package offers a self-running demonstration and a "getting started" tutorial.

CONCLUSION

PIXIT is a very useful companion to creating and managing shape tables. It is the best I've seen. The picture editor is okay, not the best, but different enough to be useful. PIXIT is available from Baudville, 1001 Medical Park Drive S.E., Grand Rapids, MI 49506 in the United States for US \$49.95.

(Ed. Note: Welcome to our contributing author and WAP member from South Africa.)

A LOOK AT TURBO PASCAL

by Peter Jones

For those of you who may have been living on a desert island for the past three or four months, here is the story: Borlund International, a small firm out of Scotts Valley, California, has come up with a combined Pascal compiler and editor for CP/M. For reasons which are somewhat obscure, they called it "Turbo Pascal." The Turbo portion evidently refers to its speed of execution and compilation; at least, this is what Borlund wants us to think. The ads which they are running feature a garish, full-color drawing of a psychedelic spaceship. Don't be put off by the ads; they are the tackiest part of the whole package. Turbo Pascal, itself, is a far better product than its ads would have you believe. At least, that's my conclusion after a few week's worth of work with it.

The ads for Borlund, however, do make two important points. First, Turbo Pascal has to be one of the software buys of the year (excluding WAP library disks). For \$49.95 plus \$5 shipping (UPS, natch), you get the compiler, an editor which is integrated in with the compiler (more on that in a minute), and a mini-spreadsheet. Of the three, the compiler is the best. The mini-spreadsheet is a conversation piece, but of limited value. Still, the \$55 is the complete price; it gives you the editor, compiler, et al, and a reasonably good instruction manual. While I am not Pascal Ace, I was able to follow the instruction manual with a minimum of fuss. Plus, the package comes with a small Xeroxed note which allows you to "... market programs utilizing object code generated with Turbo Pascal. There is no longer a license charge, provided you return your signed license agreement." A few months ago, Jerry Pournelle was telling BYTE readers that Borlund was charging \$100 license fee for selling or giving away your compiled programs. That seems to have gone by the boards.

Secondly, Borlund's ads also mention how fast Turbo Pascal is. The reviews on the speed of the object code (compiler output) are still coming in, but the compilation itself is very fast. The compiler and editor are resident in memory while you're working; when you compile the program, the output is right there. The compilation proceeds at a rate of about 35-45 lines per second, depending, of course, on what your line of code said (remarks go by very fast).

Finally, Turbo Pascal generates .COM files, not intermediate code, so the compiled programs are easier to work with and don't require a runtime library. (An aside for users not familiar with CP/M or .COM files: The stock Apple has Applesoft, a language interpreter, running in it at all times. Virtually all the operations that the Apple performs, be it editing programs, running them, saving files, etc., go through this interpreter. CP/M, on the other hand, does not have a "language" resident in the computer when it is running; Applesoft is "turned off" and CP/M replaces DOS 3.3 as the way in which the computer talks to the disk drives, etc. CP/M can only recognize a few commands (DIR, for example, which is analogous to DOS 3.3's CATALOG; TYPE, which prints out the contents of a text file; ERA, which erases a file; and so forth). CP/M has one last trick up its sleeve, however; if we have a disk file which is in machine language (equivalent to an Applesoft BINARY file), and we make its name end with ".COM" (for "COMPILED"), all we have to do is type in that name and the CP/M operating system will load it and run it. It's as if we could BRUN an Apple binary file just by typing its name. Advan-

tages: fast, efficient, and no special language is required for its use. Uses less memory. Minimizes disk access. Lotsa stuff. Many Pascals on the market now don't generate .COM files; instead they generate ".INT", or intermediate, files. The .INT file has to be translated while the program is running, much as the Applesoft interpreter does. Therefore Turbo Pascal's .COM files are normally faster than the code generated by Apple Pascal, JRT Pascal, and a few others.

Borlund took one idea from the UCSD P-system, however, which is to integrate the editor and the compiler. The operation is very familiar to those who may have worked with Apple Pascal. Three keystrokes are all that are required to exit the editor, compile, and run your program, including identifying locations of source code errors. For example, if you are compiling a program, the compiler doesn't print out a listing of the line it's working on at that moment, as do others; instead, it just flashes a constantly-changing number on your screen, showing you the line number it's working on at the moment. When it detects an error, the compiler tells you the error number, line number, text description of the error, and the instructions to "press <ESC>." You press escape, and the editor comes on, with the cursor under the offending character. (Note that you have to press escape; any other character is ignored. You asked it to compile, and, by gum, it's gonna give you its output. Such devotion is memorable.) However, the annoying 'tree' structure of the UCSD system and its progeny, such as Apple Pascal, isn't evident. Other than one sub-menu for compiler options, all the activities of the program are available from the main menu.

Even after going through the garish ads, all of this seemed too good to be true. After all, I was a survivor of the "JRT Pascal Wars," and it only took me seven months to get my copy of JRT Pascal, and only a few weeks to get so frustrated with it that I put it on the top shelf of my closet - for good. I was prepared, mentally, for the same experience.

Let me tell you straight out: Turbo Pascal is most everything that its creators claim it is. The compiler is fast, accurate, and friendly. It has to be one of the best program-development environments that I have ever seen; the full-screen editor makes editing a breeze. (Need I say that it knocks the Apple ESCAPE-sequence editor right out of the ball park?) That of itself is not news; program development on WordStar (the editor after which the Turbo Pascal editor is fashioned) has always been possible, but limited because of the tedium of loading WordStar, making changes, exiting WordStar, loading the compiler, etc. In this system, the editor and the compiler are co-resident, and it is a real bonanza.

A couple of notes from the notebook:

INSTALLATION - Rated a "C". You must have a 64K Apple with a CP/M card. I've been running it under the Rana enhanced CP/M with no incompatibility problems. You can install the compiler (mainly telling it what type of terminal you have, what the code for clear screen is, etc.) in about 15 minutes. There is a menu of selections which you can use, but unfortunately Apple is not one of them. ("Apple with Videx card, shift-key mod" would seem to be pretty common; even if it's not exactly what you had, for example a Vista card or

contd.

an Ultraterm, you could still tweak it from there.) Soroc IQ-120 is there, and that seems to work well enough. After about 15 seconds with the inverse video option on, I disabled it; it was too 'gimmicky' and actually cut down on readability. (I later turned it back on; I found that it displayed blocks of text in reverse video which you had selected with the <Ctrl-K> B <Ctrl-K> K clone. A very nice feature.) Still, even modifying the inverse video wasn't too hard. Unfortunately, the installation of the WordStar-like editor leaves more to be desired. The manual says that their editor uses Ctrl-K for block functions (save, mark a block for move/copy/delete, etc), but the installation menu will not let you use it and wants Ctrl-O. Also, if you make an error during the editor installation, it doesn't tell you until you get to the end (thirty-eight entries, tiger!); doesn't identify the exact error; and will not let you exit the configuration process. You start over, like it or not. The only way out is the ol' power switch. I was afraid I'd scramble the directory by doing that, but, fortunately, the installation program took it well and ran right up the next time I loaded it. (I needed to run CONFIGIO to redefine some keys.) Overall: a process that should have taken fifteen minutes took an hour.

EDITOR: Once in and running, good. A "B" to "B+" for this. Close approximation to WordStar (except for the Ctrl-O, mentioned before), and seems to run cleanly. When you exit the editor (with Cntl-O Cntl-D; no "save and resume" or other options) it does not save your file to disk; instead, your file is resident in memory with the compiler and the editor (gets crowded, eh?). You specifically save the data from the main menu. This was the cause of some cursing the first few days that Turbo Pascal was around. Like many other things in life, however, once you're used to it, little problem.

COMPILER: Excellent. "A" work. Very close to standard (Wirth) Pascal, with a few extensions to make the thing really useable. I haven't found any significant standard Pascal routines which are not supported by Turbo Pascal, but I've only spent a few weeks with it. In all fairness, the "significant" comment might be misleading. Of the routines a programmer might be tempted to use, one important pair is missing: GET and PUT. Instead, the READ and WRITE routines have been extended to accommodate the GET and PUT capabilities. (Borlund claims it's faster this way.) So one minor complication has been introduced. One thing which it does have: the compiler has predefined the Booleans TRUE and FALSE. You don't have to separately identify them, so development goes a wee bit faster. A few of the extensions which are available: ABSOLUTE (call to absolute addresses, allows you to construct a PEEK or POKE clone); INLINE (allows you to insert your own machine code into the Pascal program, for the machine-language heavy breathers); EXTERNAL calls to machine-language routines (equivalent to a CALL); XOR Boolean manipulation; and an ELSE "catchall" for the CASE statement (although I wish it had been called OTHERWISE).

DOCUMENTATION: Good. A "B" here. Only one printed document (other than the ubiquitous licensing agreement), the Reference Manual; 254 pages, good index, table of contents, and a logical layout. Page size 5" x 9". A reasonable number of examples, although some things which could benefit from having examples, don't. The reference is not spiral bound, but is glued like a standard paperback book. As a result, the spine is constantly flexing. I imagine that the pages will start coming loose after a few week's leafing through the book. I'll probably wind up taking all the pages out when the spine of the book goes, and three-hole punching it for a binder. Why couldn't they do that?

CUSTOMER SUPPORT: I don't know. No phone number is given in the Reference Manual, though they do give one in the ads. I haven't had reason to call Borlund; I've not found any problems in the compiler yet worth a long-distance call, although "MicroCalc" came close (see below). No licensing fee for distributing compiled programs seems to show that they have their heads on straight. Delivery of the product was reasonably prompt; I wrote my check on 21 February and got the product on 14 March. (The date UPS got the package for shipping was 2 March.)

FREEBIES: "C plus." The "MicroCalc" spreadsheet is nice to look at, but will never replace VisiCalc. It is an 8x21 spreadsheet, using the WordStar control codes to move your cursor around. It has some nice features, but is really only a demo (and Borlund admits that). The source code is provided, so it might be possible for the real masochist to go in and dress it up a little bit. I'll go to the dentist, thanks. It is important to note, however, that MicroCalc has more than its share of bugs. For example, I have never been able to complete a spreadsheet using it; it always crashes for one reason or another, and returns me to CP/M. Specific example is that the "/s" command, which should force a save of the template, only does it about half the time. The other half of the time it dumps you, unceremoniously, at the "A>" prompt. No "BDOS Error" message, or anything; just Aloha. What I don't know is whether it is crashing because of bugs in the spreadsheet applications program, or, more seriously, bugs in the compiled program (and, by extension, the compiler). What I do know is this: MicroCalc is a small demonstration of the power - and possibly the failings - of Turbo Pascal. Don't buy TP in the hopes of getting a cheap VisiCalc. You won't.

The other freebie is a program lister, which allows you to list your program to any printer using the CP/M LST: device driver. This works very well, and has several nice features. First, it will append (or not append, depending on your desire) line numbers to each line, so that you may correspond line numbers with error statements, etc. Secondly, it will (again, if you request) underline Pascal reserved words for you. This helps in seeing the flow of a program when you have it printed out. Minor annoyance: the underlining is performed by ending a line with a carriage return (CR) WITHOUT a line feed. No problem. However, in appending a line number, the lister makes the line slightly longer - about six characters' worth. If your line was longer than 75 characters originally (a comment, for example - and we ALL comment extensively, don't we, class?), the printer will automatically force a line feed/carriage return pair. Your lister doesn't know about it, and winds up with underlines flying about in stray locations. Not fatal, but annoying.

OVERALL: "A minus." Integration of the compiler and editor, without the tedious tree structure of UCSD Pascal, is worth \$54.95 - and a lot more. The compiler is fast and accurate, as is the resulting object code. (See the accompanying benchmarks.) The Reference Manual is good, though it lacks sufficient examples and a decent binding. Installation shouldn't be more than a one-time headache, and you can defer that by selecting one of the preset installations (I recommend the Soroc IQ-120). Speedy delivery, too.

For \$54.95, including shipping, you could do a lot worse. I recommend Turbo Pascal for those going into Pascal via CP/M, or even already in it.

Sidebar: Some Benchmarks for Turbo Pascal

In an attempt to find out how fast Turbo Pascal really was, I put together some runs of a few benchmark pro-

contd.

grams. These are not subjective, but should be taken with a grain - or more - of salt. I should point out that the figures I give here for run times and accuracies are my own observations. The references to specific magazine articles only are to reference the algorithm behind the benchmark, and to show that I don't spend all my time reading Hustler. All the CP/M times here were observed on a 64K Apple][+, 2 MHz clock, Microsoft CP/M card, 80 column card, and 56K CP/M. Times for programs run in Applesoft, Integer BASIC, or TASC are under DOS 3.3. I would be glad to provide listings to anyone who would like to further this experiment. Contact me at the meetings or WAP BBS (WP3835).

 Floating-Point Benchmark, "Dr. Dobb's Journal",
 March 1984, p 92

	Time	Accuracy
Applesoft	474 secs	1E-03 (smaller)
Microsoft BASIC	521 secs	2E+02 is
Turbo Pascal	664 secs	1E-03 better)

Sieve of Erastosthenes, "Byte", Sept 81, p 180

	Time	Obj Code (KBytes)	Runtime Lib
Applesoft	3020 secs	1	16
IntBasic	2650 secs	1	16
Microsoft BASIC	3290 secs	1	24
Compiled Applesoft	580 secs	0.5	4
Compiled IntBasic	190 secs	0.5	4
JRT Pascal	756 secs	1	24
Turbo Pascal	43 secs	8 (7K runtime lib in obj code)	

Notes for the nitpickers:

1. No, I didn't do the floating-point test in JRT Pascal 'cause I didn't have the time. The second benchmark implies (although it could be debated) that JRT Pascal runs about 17.5 times slower than Turbo. This would equate to a Benchmark #1 run time of about 3 hours 14 minutes. To support this hypothesis, the article in Dr Dobb's indicates that another observer saw JRT Pascal run the floating-point test on a 4-MHz Z-80 in 5760 seconds (1 hour 36 minutes). Running on a 2 MHz Apple, this equates to a runtime of about 3 hours. Even by optimization (which many feel destroys the validity of a benchmark), 2 hours wouldn't be doing badly. I'll pass, thanks. Some other brave soul (with a clock card?) can do that one.

2. Trying to do a floating point evaluation in Integer BASIC is silly. I didn't try that either. Go to the back of the class!

3. The "compiled" figures for the "Sieve" benchmark were done using the same Applesoft program, run through the Microsoft TASC compiler. TASC does not compile a true IntBasic program, but you can set a default where all variables are considered integers. This reduces memory requirements and improves program speed - as the test results show.

4. So, given all of that, why does Applesoft do so well in benchmark 1 (floating-point test), and so poorly in benchmark 2 (Sieve), while the results of Turbo Pascal are even more dramatically reversed? Several reasons come to mind, and I could probably rationalize even more. First, the types of functions performed by the two programs are different. "Floating-point" is a nested set of transcendental

functions, relying heavily on looping and little on memory management; "Sieve" is memory intensive (uses a 8100-element array), and uses no transcendental functions. BASIC is simply better at math calculations than Pascal; this reflects its FORTRAN heritage. Second, Turbo Pascal has no TAN() function, required by "Floating-point"; it had to be simulated with the procedure TAN() = SIN()/COS(). This slowed the program. Third, the precision of Turbo Pascal is eleven significant digits; of Applesoft, eight. The extra calculations required slow Turbo Pascal. Fourth, and last (aren't you glad?), Applesoft is a zippy little language. Despite its limitations, it is still a good interpreted language and reasonably fast. &

GO FORTH, BUT
 WHERE?
 by Kevin Nealon

This column concerns itself with the last SigMac meeting for programmers and its possible impact on the Forth SIG. The main topic of the SigMac meeting was the demonstration of MacForth from Creative Solutions. (Bruce Field documented the speed of MacForth in the "Forth Column" in the June issue of the WAP Journal.) Dave Colburn of Creative Solutions Inc., one of MacForth's creators, demonstrated the ease with which windows and menu bars can be set up. You might be surprised to see just how few lines of code it takes to create a window and give it attributes. Christine Colburn (sister-in-law), President of Creative Solutions, was also present, and demonstrated how much like MacWrite the editor is. She also talked about future releases of MacForth that would give the programmer even more powerful tools. It seems that the demonstrations were so successful that ten people have already signed up to buy MacForth through the WAP's group purchase, and many others have already bought it at stores. To the best of my knowledge, most of the people who are getting MacForth have had little experience with the language, but recognize that it is possibly the only language on the Mac at this time that allows the programmer to utilize the full potential of the Mac.

As Forth SIG Chairman, it is my primary goal that the Forth SIG will help neophytes (like myself) to learn the language and provide experienced Forth programmers a forum to share advanced ideas. The basis of these classes and discussions was to be the club's own Fig-Forth78. At the time the Forth SIG was "revived", about half the SIG used Fig-Forth while the other half used various commercial dialects. With the expected flood of people wishing to learn the new MacForth, the SIG's methods will have to change to accommodate the new membership. To this end, I wish to propose to all interested parties that the Forth SIG obtain someone to teach classes on MacForth (separate from the regular SIG meetings) who would be compensated by those attending these classes. It may also be possible to let people with other versions of Forth attend the first few classes at a reduced rate, since the basics of all versions of Forth are very similar. The regular SIG meetings would then continue to teach Fig-Forth and discuss all dialects.

To help me gauge the acceptance of this proposal or to suggest other alternatives, please feel free to write to me c/o Washington Apple Pi, or leave a note for me on the ABBS (#2440). &

WAP POLL RESULTS

by

Robert C. Platt

WAP distributed a questionnaire at our January MacFest meeting and in the March issue of the Journal. Our survey sought your guidance on what services the members need from WAP.

The following tables show the results of the survey. A majority felt that the Journal had the right amount of material, while less than a third wanted more. One member responded, "Make it as thick as Byte." Most members want product reviews in the Journal.

Bruce Field took top honors as our most popular columnist, with David Morganstein's Softviews finishing a strong second place.

Your responses regarding tutorial topics have been used to plan our summer and fall tutorials, with Pascal and Machine Language tutorials underway in June.

Finally, your responses on products for our commercial software library will be used to acquire additional software.

Many thanks for responding to the survey.

I. WAP Journal

Article Topics	First	2nd	3rd	4th	Less
Prod. Review-Hardware	73	109	42	19	20
Prod. Review-Software	138	68	29	20	24
Applesoft	45	46	52	34	33
CP/M	19	34	22	12	44
Machine Language	19	30	33	19	45
Fiddling with Hardware	27	37	32	35	44
Pascal	22	17	16	14	52
Disk Operating System	23	33	36	30	55
Logo	7	19	11	7	50

Favorite columns # of time named

Q & A	237
Softviews	111
Page from the Stack	86
SigNews	52
Bottom Line	34
Visicolumn	42
Hardviews	7
President's Corner	7
LOGSIG	6
Screenwriter Warmline	6

Amount of Material in Newsletter

Too Much: 2, Just Right: 221, Too little: 84

II. Tutorial Topics	First	2nd	3rd	4th	5th	Less
Machine Language Intro	60	30	11	4	1	9
Machine Language Advan.	19	20	8	4	1	3
Pascal - Introduction	15	20	9	8	2	7
Pascal - Advanced	12	11	8	3	0	4
Applesoft - Introduction	35	21	10	6	0	7
Applesoft - Advanced	10	26	8	8	5	6
Apple II Graphics	44	38	30	8	4	9
Visicalc - Introduction	14	21	9	5	6	7

contd. on pg 45

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AUTO DIAL, REDIAL AND LOG-ON

by Dan Rubera

(For the Hayes Smartmodem 300 and ASCII Express)

After spending several frustrating hours reading through the ASCII EXPRESS reference manual and experimenting with the AE Pro macros, I finally developed the following example macro table that will: (1) auto dial a phone number until a connect carrier tone is detected; (2) then subsequently auto log-on the Washington Apple Pi Bulletin Board; or (3) redial the ABBS phone number if the connection is not made within a reasonable time period.

To reproduce this macro table, boot AE Pro, invoke install, and change the appropriate default parameters to PERMANENT CARRIER and USE SMARTMODEM. Return to menu 1 and load the sample Smartmodem macro by typing MJ (assuming you have not changed the original macro library that came with AE Pro). From the system prompt ">", press Ctrl-Q to enter the command mode; press 2 to display menu 2; press U to update/display macros; press D to display/edit macro; and type 0 thru 9, : or ; to edit the appropriate macro.

Edit the appropriate macros as follows:

```
#0 G*****%K**AT H'%K**Modem Disconnected<Ctrl-J>
#1 \u9 986-8085<Ctrl-J>'Washington Apple Pi
  ABBS<Ctrl-J> ~TR8 \u7
#3
#4
#5
#6
#7 *****%;':WPNNNN.PSWD<Ctrl-J>
#8 \C'LINE BUSY<Ctrl-J>'Redialing WAP ABBS<Ctrl-J>AT
  MO D T 986-8085<Ctrl-J>' ~TR8 \u7
#9 AT Z S11=60 S7=25'%KAT D T
#:
#;
```

Each macro explanation follows:

MACRO #0:

This is basically the same macro provided by AE Pro and can be used to disconnect from the WAP ABBS.

MACRO #1:

\u9 Subroutine that directs control to macro #9 and after completing #9, returns control to macro #1.

986-8085<Ctrl-J> The WAP ABBS phone number (should be changed for different ABBS). The "<Ctrl-J>" provides a line feed, and the "' " provides a carriage return for the next text line.

WASHINGTON APPLE PI ABBS<Ctrl-J>' This line will display " WASHINGTON APPLE PI ABBS " on your monitor. This is provided as a matter of convenience and can be changed to suit your particular desires. The <Ctrl-J> and "' " characters provide a line feed and carriage return for the next text line.

~TR8 This is a conditional subroutine (note the leading space before the character). If a carrier tone is detected signalling a connect to the answering computer, this macro will queue on the "T" in CONNECT and transfer control to \u7. If a NO CARRIER is detected, the macro will queue on the "R" in NO CARRIER and transfer control to macro #8.

\u7 Directs unconditional control to macro #7 which is the auto log-on procedure (note the leading space).

MACRO #7:

*** Provides 1.5 seconds delay to permit the sending computer time to transmit its connect sequence (note the leading space).

+++ This is the Smartmodem escape code operation that forces the modem back to the local command state from the on-line state.

%:' The "% " character directs Smartmodem to look for a ":", which is the last character in the WAP ABBS initial connect sequence (CONNECT:), and upon detection sends a carriage return "' ". To adapt this macro to another bulletin board, the ":" character will probably need to be changed to match the specific ABBS requirements.

%: This sequence directs AE Pro to look for the next ":" which is the last character in the WAP ABBS request for a password (Enter WAPNNN.PSWD or WPNNNN.PSWD:).

WPNNNN.PSWD<Ctrl-J> Transmits your specific password.

MACRO #8:

\C' The "\C" characters clear the AE Pro copy buffer (note the leading space). This command is a matter of convenience since, by default, I keep the AE Pro copy buffer turned on. The "' " character provides a carriage return only so the next text line will copy over the "C" which is displayed on the monitor.

LINE BUSY<Ctrl-J> This is included to provide a visual status that the calling phone number has not been reached. Actually Smartmodem cannot detect a busy signal. Depending upon the parameters set by macro #9, Smartmodem will wait for a period of time, and if a connect is not established within that period, the modem will disconnect. This disconnect could be caused by either a busy signal or a no answer. I assume a busy signal, hence the text "line busy". The <Ctrl-J> and the "' " characters provide a line feed and carriage return for the next text line.

Redialing WAP ABBS<Ctrl-J> Indicates that the ABBS is being redialed.

AT Transfers control to Smartmodem.

MO Turns off the Smartmodem speaker. Depending upon your preference, this could be deleted.

D T 986-8085<Ctrl-J> Directs Smartmodem to dial 986-8085 using touch-tone (T) dialing.

~TR8 \u7 As described in macro #1, redials the phone number if a NO CARRIER is detected, or sends the log-on sequence if a CONNECT is established.

MACRO #9:

AT Z Resets Smartmodem to default parameters.

S11=60 Sets touch-tone duration and spacing to 60 milliseconds.

S7=25' Directs Smartmodem to wait 25 seconds for a carrier after dialing followed by a carriage return.

%KAT D T Directs Smartmodem to invoke touch-tone dialing.

RAMDRIVE //e: Low-Cost Storage by David Gribble

If you're like me, you don't have a lot of money to spend on the latest fancy gizmo to soup up the old //e. When I was learning to program in Pascal, I was continually frustrated by the seemingly endless time it took to save, compile, re-edit, and re-compile a program. What I have discovered is not, unfortunately, a 350 percent speed-up in Pascal, but a speed-up in disk access time.

That last statement is deceptive; what I have discovered is an alternative to disk storage for Applesoft and Apple Pascal programmers. This alternative is called RAMDRIVE //e and is available from Precision Software. As its name implies, this product works only on an Apple //e with at least 64K of additional memory in the Expansion slot. Both 64K and 128K cards are supported.

When the software first arrived I became slightly apprehensive as there was NO documentation. I received a pleasant surprise as I booted the disk and saw a nice hi-res picture of the product's logo (pictures on a utility??). This lasted through what seemed an eternity of disk spinning until the hi-res page began to fill with garbage (some call it data). Shortly thereafter I was relieved to discover a nice menu in eighty columns under the title Ramdrive //e.

I quickly discovered why the disk spun for so long and why there was no written documentation; it was all on the disk! The menu has seven options, of which three were concerned with documentation. The first printed all DOS 3.3 documentation to the screen (about thirteen screenfulls), another did the same for Pascal. The other option dumped all of the documentation to the printer (a very good idea, about 9 printed pages). A condensed version of the documentation follows.

Under DOS 3.3 the pseudo-disk is activated by BRUNning a file called RAMDRIVE found on the front side of the disk. This creates a "disk drive" in slot 3 capable of storing 280 sectors (560 for 128K cards). Whenever the RAMdisk is used, an inverse "R" or "W" appears in the lower righthand corner of the screen indicating a read or a write of one sector. The speed is so incredible you hardly notice the flashing character, and the screen is restored. If the open-apple key is held down while RAMDRIVE is BRUN, this character will be accompanied by a clicking sound. At high speed this becomes a quiet buzz, sort of like the disk drive motor. If the closed-apple is held down during initialization the RAM will be wiped clean of any data it may have held. All DOS commands work as normal on the RAMDRIVE, except INIT, which only disables the RAM. I tend to use the RAM to hold several versions of whatever program I'm working on. This leaves more room for experimentation, as I don't have to save to disk all the time. The documentation gives the location and values of parameters for the strong-hearted to play with. Double high-resolution graphics present no problem.

The RAMDRIVE setup under Apple Pascal is quite different. It is on the flip side of the disk. It requires four files, the most notable of which is called SYSTEM.STARTUP which is executed upon bootup. If you use the p-system as it was meant to be used (with APPLE1;) there will be no problem; the startup files will work just fine. If you are like me and have a customized system, you will need to modify the SYSTEM.STARTUP program to suit your particular needs.

For this purpose the source file was included, as well as instructions on how to compile and link it. While the program is not complex, it is not over-commented. Once you get RAM: installed, then the fun begins. If the files you want in RAM are not already there (SYSTEM.STARTUP again) you can use the Filer to transfer them there. The volume RAM: is #9 and works just like any other disk drive except that it holds only 130 blocks. You can even check for bad blocks (I have yet to find any). The audio/visual access indicators work the same as with Applesoft, and double high-resolution graphics are allowed if a simple change is made to the bootup program.

I prefer to work with the Filer and the Compiler initially in RAM:. This leaves 21 free blocks to use for programming. If this isn't enough I erase the Filer or I just store the source code in RAM:, the object code on disk. A 128K card would help ease the clutter a bit.

As if two incredible utilities weren't enough, they went and threw in two more. The first is called RAMCOPY and is a disk copy program making use of the extra memory. It must be BRUN and is operated just like good old COPYA. Although two-disk copy time is only reduced fifteen seconds down to one minute and fifteen seconds, one disk copy time is greatly improved. The number of times the disk door must be opened and closed is reduced from ten down to four. This is worth the price of the package to a one-drive user.

The other utility is called SPEEDOS and is (obviously!) a DOS speed-up utility. It is in the public domain and was published in Call-A.P.P.L.E. Although I have not used it, the claims of up to a 40 times speed-up do not seem unreasonable. A high-resolution picture is supposed to be able to load in less than 1/3 of a second.

All in all, the RAMDRIVE //e package is an extremely excellent buy at \$29.95. The on-disk documentation is well-written and complete, including technical notes and notes to 128K card users. The support software is good, with only a little work required on the Pascal code to make it perform. If there was more software like RAMDRIVE //e, the whole industry would benefit. It is available from Precision Software, 6514 North Fresno Street, Milwaukee, WI 53224. ☼

WAP Poll Results contd from pg 43

<u>II. Tutorial Topics</u>	<u>First</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>5th</u>	<u>Less</u>
Visicalc - Advanced	12	7	6	4	3	4
Screenwriter - Intro.	3	13	9	6	1	5
Screenwriter - Advanced	5	6	4	3	3	4
dBase II - Introduction	25	21	11	10	4	8
dBase II - Advanced	8	18	7	2	0	5
Word Star - Introduction	6	11	10	2	2	4
Word Star - Advanced	7	8	6	2	1	7 ☼

CRYPTOGRAM WORD LIST GENERATOR

by Paul A. Ternlund

It's a very simple contribution, really - my cryptogram generator program, written in Applesoft BASIC. But why not? With a membership as large as the Pi, there are bound to be other Scouters with Apples who may find it useful. I used it for the Pack Night that had the theme "Life on Other Planets". However, this program that scrambles word strings for a puzzle is not theme-limited.

As Cubmaster of Pack 152 in Berlin, Germany, I could have manually scrambled the words - but that's no fun! After the program was written and Pack Night arrived, I provided each Den with an identical copy of the righthand column of Figure 1. The Dens were given about ten minutes to unscramble the word strings. Each Den then had a volunteer parent to compare Den results with the actual input (lefthand column of Figure 1). We had a winning Den with a difference of one correct word. I mentioned to the Cub Scouts that I had a few copies of the program, if anyone wanted one. They went like hot cakes! The program listing is shown in Figure 2.

To use the program, simply enter the number of word strings you would like to encrypt in statement 1, and make sure the array dimensions in statement 10 equal or exceed this value. All that is left is to supply the word strings for the program beginning at statement 20 and RUN. Individual word strings should be limited to about 20 characters to provide a neat columnar listing. The original word strings and the encrypted results are printed in columns 1 and 2, respectively. See my example in Figure 1.

Another example follows with one word string to scramble, "THE FORCE BE WITH YOU":

```
]LOAD SCRAMBLE
]1 Z = 1
]20 A$(1) = "THE FORCE BE WITH YOU"

]RUN
]PACK 152 CRYPTOGRAM - 19 APR 1984
```

```
1 THE FORCE BE WITH YOU O HCIRYEFTT E OBEHWU
```

And that looks like a decent ending... O HCIRYEFTT E OBEHWU.

```
]PACK 152 CRYPTOGRAM - 19 APR 1984
```

1 PRINCESS LEIA ORGANA	SROAGI LNCSREPANIE A
2 CHEWBACCA	BCACHWCEA
3 LUKE SKYWALKER	KEKALY UKESWLR
4 SEE-THREEPIO	IPERTEESE-HO
5 ARTOO-DETOO	-OEDAOTRTOO
6 DARTH VADER	HTRDAAEDV R
7 BOBA FETT	TBEAOF BT
8 YODA	DYOA
9 HAN SOLO	AHSNO LO
10 PLANETARIUM	PEUIARTNLAM
11 MERCURY	RMCEURY
12 VENUS	ENUVS
13 MARS	ARMS
14 JUPITER	TUEJIPR
15 SATURN	ARSUTN
16 EARTH	ARTEH
17 LANDO CALRISSIAN	INLSSRAOIL CADAN

Figure 1

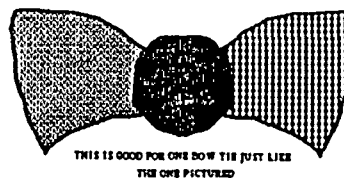
]LIST

```
1 Z = 17
2 PRINT CHR$(4);"PR#1"
3 PRINT "PACK 152 CRYPTOGRAM - 19 APR 1984"
4 PRINT : PRINT : PRINT
10 DIM A$(17),B$(17),H$(17)
20 A$(1) = "PRINCESS LEIA ORGANA"
21 A$(2) = "CHEWBACCA"
22 A$(3) = "LUKE SKYWALKER"
23 A$(4) = "SEE THREEPIO"
24 A$(5) = "ARTOO-DETOO"
25 A$(6) = "DARTH VADER"
26 A$(7) = "BOBA FETT"
27 A$(8) = "YODA"
28 A$(9) = "HAN SOLO"
29 A$(10) = "PLANETARIUM"
30 A$(11) = "MERCURY"
31 A$(12) = "VENUS"
32 A$(13) = "MARS"
33 A$(14) = "JUPITER"
34 A$(15) = "SATURN"
35 A$(16) = "EARTH"
36 A$(17) = "LANDO CALRISSIAN"
100 FOR I = 1 TO Z
102 H$(I) = A$(I)
105 NEXT I
195 FOR I = 1 TO Z
200 L = LEN (A$(I))
201 LX = L
210 FOR J = 1 TO LX - 1
220 R% = (RND (1) * (L-1)) + 1
240 E$ = MID$( A$(I),R%,1)
260 B$(I) = B$(I) + E$
270 IF R% = 1 THEN A$(I) = RIGHT$( A$(I),L-1):
GOTO 300
280 IF R% = L THEN A$(I) = LEFT$(A$(I),L-1): GOTO 300
290 A$(I) = LEFT$( A$(I),R%-1) + RIGHT$( A$(I),L-R%)
300 L = L - 1
310 NEXT J
390 B$(I) = B$(I) + A$(I)
500 PRINT " ";I;TAB(8);H$(I);TAB(35);B$(I)
600 NEXT I
```

Figure 2

Happy Daddy's

DAY !



From MacUs and
MacTilda

Eric, Greg

DISABLEDSIG NEWS

by Jay M. Thal



DISABLEDSIG JULY MEETING
THURSDAY, JULY 12, 1984, 7:00 P.M.
SUBJECT: Assessment and Prescription of
Augmentive Devices -- a "hands-on" and
videotaped demonstration.
Chevy Chase Community Center
Connecticut Ave. & McKinley St., N.W., D.C.

The well attended June meeting demonstrated the underlying need for information on alternative interfacing devices. Many of the attendees brought a variety of specialty switches, and controls which they had developed themselves, or needed further assistance in completing.

An important outcome of the meeting was the establishment of linkages between several of the members with development skills and several teachers and therapists with defined needs. Needs-definition is an important first step. And, the group made initial efforts to develop a systematic assessment procedure. The SIG hopes to build upon the techniques recommended by Dr. Sally Blackstone, of the Kennedy Institute, at our April meeting.

Breaking up into several smaller, and very animated, groups the attendees set about several tasks - including the on-the-spot repair of a head switch for the wheelchair of one of the regular meeting goers.

The activities were intense, and it took the actual closing down of the Community Center to break up the meeting.

AN ADDITION TO OUR LIBRARY

Jon Agre, of S-A Softwares, presented us with a copy of his "Color Learning" software. Developed in conjunction with The CHILD Center (Centers for the Handicapped Individualized Learning and Development), the commercially available diskette offers four programs to assist children in the learning of colors.

The programs are: Housebuilder, Starmaker, Toybox, and Color Match. Each of the programs will utilize optional voice synthesis equipment - either the Echo II by Street Electronics, or the VOICEBOX by the Alien Group.

The program may be test run at the WAP office, and ordered from The CHILD Center, 10611 Tenbrook Drive, Silver Spring, MD 20901. Cost: \$29.95. System requirements: 48K Apple][+ or //e, one drive, and color monitor/TV. Ⓢ

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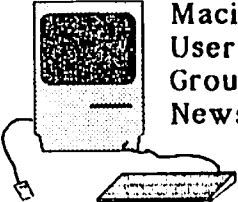
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Macintosh
Users
Group
Newsletter

#1 May '84

Next meeting: Wednesday, May 9, 1984, 7:50 PM
Mass. College of Art
821 Huntington Ave., Boston
Arborway Trolley Line to Longwood Stop

MacPaint Typographic "Dingbats"

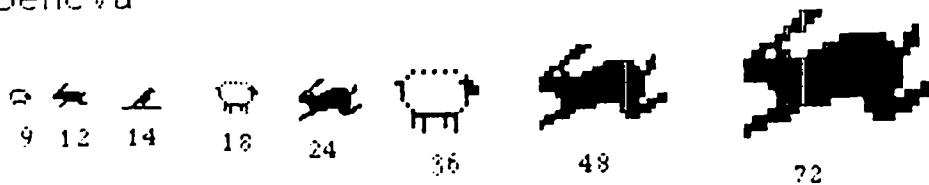
Using MacPaint's lettering tool, it is possible to generate a variety of special graphic characters. Choose the lettering tool (the boxed A in the tools menu), click an insertion point, and hold down Shift, Option, and the Tilde (~). The graphics characters will change as you vary the Font and FontSize settings.

(Documented by Steve Garfield • 1984)

New York



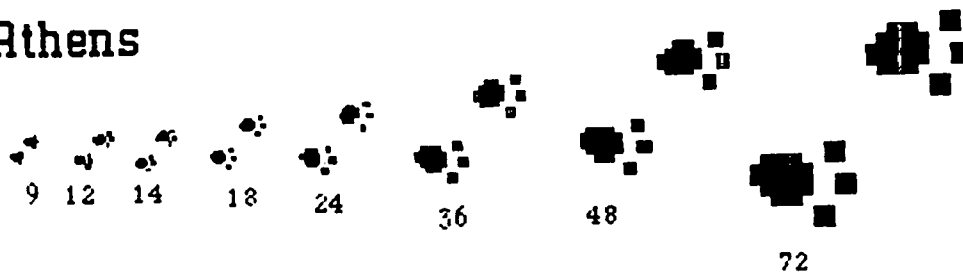
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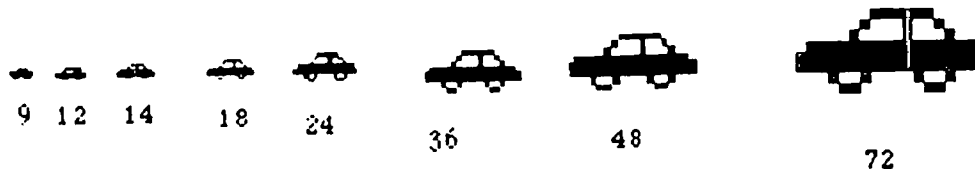
Toronto



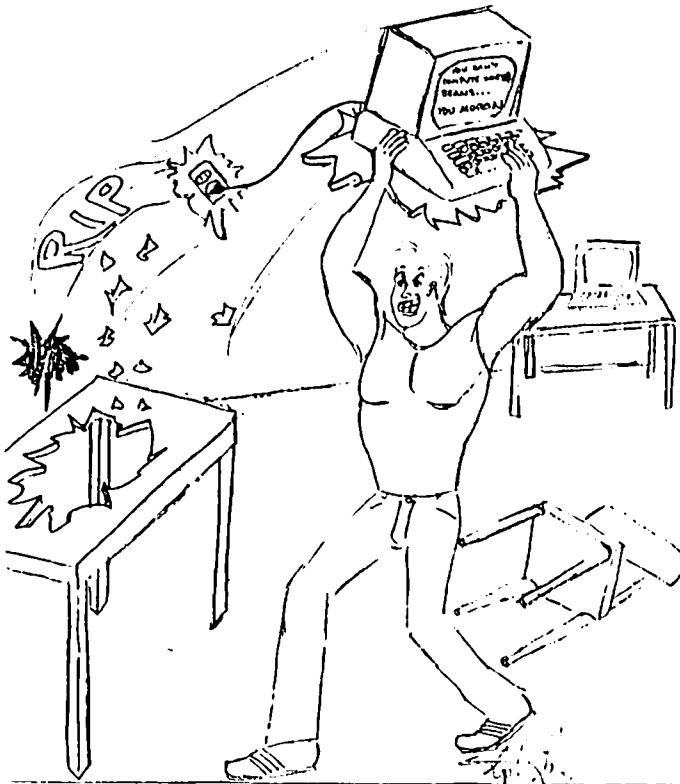
Athens



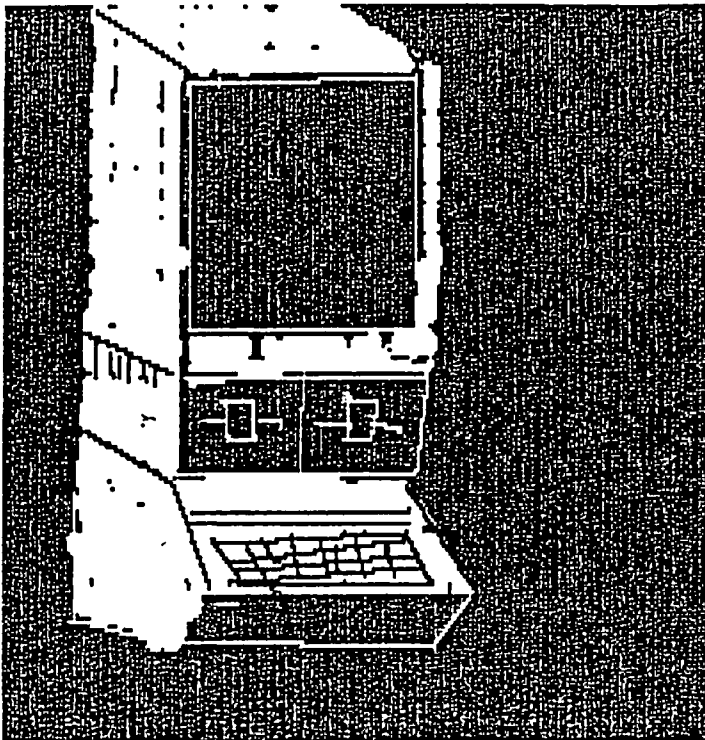
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*Floor sample. Price slashed

I COULDN'T AFFORD AN ELECTRIC TYPEWRITER SO I PROGRAMMED ONE

by C. Swift, Prop.

In the March issue of the WAP Journal, Bruce Field answered a question on the problem of using the computer to type directly to the printer, in this case the NEC 8023. His solution involved putting the printer into the incremental print mode, thus bypassing the buffer. A good solution, but it lacks one small detail. I am acutely aware of this lack, because I make a lot of mistakes; and any mistakes are printed IMMEDIATELY, without any care or concern for my screaming "WAIT!!!"

Line 240 just tacks another character (B\$) onto A\$, while Line 250 sends us back for another character.

Lines 300 - 320 are accessed from Line 210. All that happens is that the paper feeds to the TOF (that's a high-tech term for "end of page!"), the printer goes off, and the screen is reset to the top.

End of program. Have a nice day!

⌘

In all humbleness (I have a trifle left over from a past life as a Tibetan monk), I wish to offer a modification which, although a bit longer than his solution, allows me the security of knowing that I can make typos left and right, correct them, and then, and only then, let the printer do its thing.

```

10 REM DIRECT TYPING FROM KEYBOARD
20 REM BY C. SWIFT, PROP.
30 REM (IF ANY OF THIS PROGRAM LOOKS FAMILIAR,
  IT'S BECAUSE YOU ALREADY KNOW ABOUT "JUST
  STRINGING ALONG")
100 HOME : PRINT "]]==> TURN PRINTER ";: INVERSE :
  PRINT " ON ";: NORMAL : PRINT
110 PRINT "]]==> USE <ESC> TO END PRINTING" : PRINT
120 PRINT CHR$(27) CHR$(91) : PRINT
130 BELL$ = CHR$(7)
140 POKE 34,4 : HOME
150 REM *** THIS IS THE NEAT PART!
160 A$ = " ": CHARACTER = 0
170 GET B$
180 IF A$ = "" AND B$ = CHR$(8) THEN 170
190 PRINT B$;
200 IF B$ = CHR$(13) THEN PR#1 : PRINT A$ :
  PR#0 : GOTO 160
210 IF B$ = CHR$(27) THEN 300
220 IF B$ = CHR$(8) THEN A$ = MID$(A$,1,LEN(A$)
  - 1) : CALL -868 : GOTO 170
230 CHARACTER = CHARACTER + 1 : IF CHARACTER > 70
  THEN PRINT BELL$
240 A$ = A$ + B$
250 GOTO 170
300 REM *** EXIT PROGRAM HERE
310 PR#1 : PRINT CHR$(12) : PR#0
320 POKE 34,0 : END
  
```

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The general approach is to print one string at a time (A\$), but to make sure it is correct before printing it. Hence Line 160 sets A\$ as a blank. (It also counts zero CHARACTERS in A\$.)

Line 170 GETs a single character. If that character is a backspace then Line 180 sends us back to get another character.

Lines 190 - 210 decide what do do with the character. If it is a RETURN then on goes the printer, A\$ is printed, and off goes the printer. If the character is ESC then we end the program by going to Line 300.

Line 220 is the "typo-watcher". If you hit the wrong key, just backspace over it. The boo-boo blanks out and A\$ shortens. Back to Line 170 for the proper character...

Line 230 is my "bell", warning me that I'm getting close to the end of a line. (All of this is predicated upon a 80 character line - you can change that if you want to - and the "bell" is set to allow me enough room to finish a word.)

WAP TUTORIAL REGISTRATION

There will be no Tuesday evening beginning tutorials during the months of July and August. If there is sufficient interest, they will be offered in September.

The following "non-regular" tutorials are being offered. They will be at the WAP office on Saturday mornings from 9:30 AM - 12:00 Noon. Please register in advance.

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- () Session I - July 3, 5, 10, 12, 17, 19
 () Session II - July 24, 26, 31, August 2, 7, 9

Planned tutorials include: Word Star - Bernie Benson, Sept.; VisiCalc - Roy Rosfeld, Nov.

Note that WAP does not have equipment for you to use; if you do not bring your own, you will have to look over someone's shoulder. There are five monitors available for use by the first five registrants (call the office for availability).

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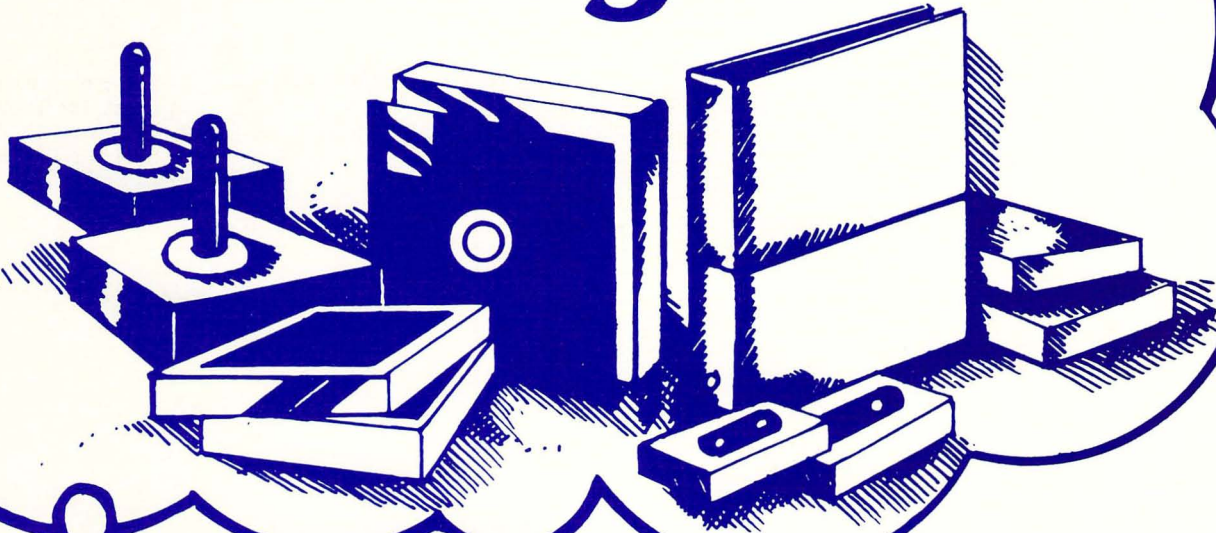
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