

\$2

Washington Apple Pi



Volume 5 September 1983 Number 9

Highlights

THE EPS KEYBOARD
 THE OLIVETTI PRAXIS 35
 LHR ACCOUNTS PAYABLE
 THE WORDSTAR/EPSON MARRIAGE
 THE WAP BOOK LIBRARY

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NEXT MEETING :
 3RD SATURDAY,
 SEPTEMBER 17

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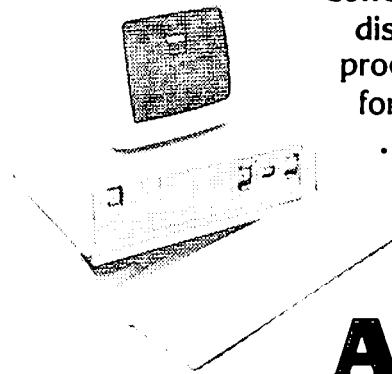
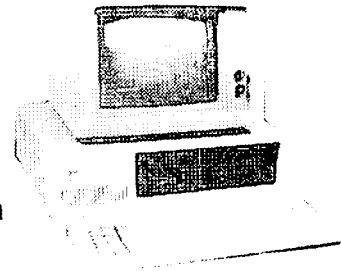
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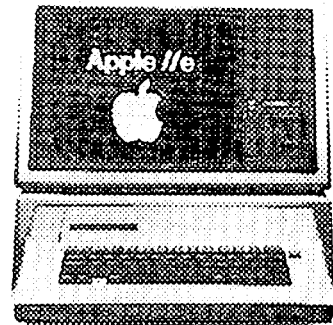


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Because the September meeting will be held on the 3rd Saturday, September 17, all articles must be submitted to the Editors by September 5.

This month the regular editors, Bernie and Gena Urban, are taking a well-deserved vacation from the Journal. After attempting to fill their shoes for a month, are we ever glad to welcome them back! Having attempted to cope with the problems of one issue, we can now appreciate fully the vast amount of work that goes into this Journal each month.

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, newsletter pickup, memberships, etc. are from 8:45 - 10:00 AM. From 9:00 to 10:00 AM there will be 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 is provided for the hearing impaired.

Following are the dates and topics for the next few months:

September 17 - Voice Synthesis
 October 22 - Data Bases
 November 26 - Uses of Personal Computers by Disabled
 December 17 - Garage Sale

MEMBERSHIP IN CALL-A.P.P.L.E.

Membership in Call-A.P.P.L.E., a users group in Kent, Washington, is available at a discount to WAP members. The one-time application fee is \$5 instead of \$25, and the annual dues of \$20 remain the same. Call the WAP office for further details and an application blank.

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:

Mon, Wed, Thu, Fri - 10 AM to 2:30 PM
 Tue - 12:30 to 2:30 PM & 7 to 9:30 PM
 Sat - 12 to 4 PM (meeting Sat only)

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MEETING DATE CHANGE

SEPTEMBER 17

ABBS (301) 657-4507

September 1983

PRESIDENT'S CORNER

by David Morganstein

SEPTEMBER MEETING. Please note that the September meeting will be held on the THIRD Saturday! This is due to a last minute change requested by the USUHS staff.

TUTORIALS. A reminder that our tutorial series will begin in September. We will hold a four evening series on Tuesday evenings from 7:30 to 9:00. An outline of the four topics is found in this issue. The series will be repeated in October and November if the interest warrants it. Please pre-register to insure a seat, although you may attend at the last minute if space permits. Contact the office to determine availability.

Another coordinator to aid Steve Stern is needed. We would like to offer as many programs as the membership wants and this requires time for preparation. If you would like to help plan tutorials, please contact me.

SIG ELECTIONS. All SIGs that have not had elections within the past year should plan for them this fall. Make sure your SIG discusses its structure and elected volunteers at the August meeting with nominations in September and election in October. We need, not only a chairman, but a librarian to work with Bob Platt and a columnist to get articles in the Journal. Try to get someone to attend board meetings on occasion, as well.

AREA SCHOOL COORDINATORS. Last month Conrad Fleck volunteered to represent the P.G. County schools and Barbara Larson, the Northern Va. schools. We still need coordinators for Montgomery County, D.C. and any other areas you want to represent. As a volunteer, you would help find speakers when requested by local schools and PTAs. It is unlikely that this would take more than a few hours in any given month.

HOT LINE VOLUNTEERS. A few words of thanks to the many hot line volunteers who continue to answer questions on a myriad of subjects. Their time is a great service to all members. Many calls come in from WAP members all over the country, not just in the D.C. area. We thank you, all!

COMMERCIAL SOFTWARE LIBRARY. Our commercial software library continues to grow from contributions. John Alden of Columbia Computers recently contributed a large number of programs to help this project become a valuable resource. You can look for a description of the software and the procedures for using it to appear in the Journal. Gordon Stubbs and Bob Hicks are working out the details, which should be ready by the time you read this. They will be actively seeking more recently released programs directly from the authors. The software and documentation will be available for examination and use at the office.

NON-PROFIT STATUS. Our current status is that of a c(7), or social organization. This classification gives us some benefits in the area of tax requirements. The IRS has recently ruled that computer-oriented groups which have a group purchase program for members can not be granted the c(3) status normally associated with an educational non-profit group. The c(3) status has additional benefits associated with mail rates and deductions for contributions from members. The Executive Board expressed the view that the WAP is, indeed, an educational organization and should in principle be a c(3) group.

Our General Counsel indicates that the way to proceed is to set up a second corporation which performs only educational activities and to seek the c(3) status for that organization. Presumably the newsletter would come under those activities, as well as, our tutorial programs, ABBS and local school support. If you wish to share in this discussion, feel free to call or attend future board meetings.

SOFTWARE FOR LOCAL SCHOOLS. We were asked by the Montgomery county school system to help in the development of educational software. We will be sharing relevant volumes from our Public Domain Library with them. Students will have an opportunity to work with and improve these disks. The improvements will become available to the Public through upgrades to our library, as well as, through the school system. This action is being taken at the school board level, not on an individual school basis.

MINUTES

JULY GENERAL MEETING

WAP, Ltd. met at USUHS on July 23, 1983 at 10:00 AM. Reasons for reserving seats down front for volunteers and disabled members were stated. A set of four tutorials is to be offered on Tuesday evenings starting in September for new owners of Apples. A request was made for volunteers to man the hot line for Apple Fortran and for the D.C. Hayes micromodem (Tom Warrick responded) and to help document new library disks. It was announced that the ABBS now has a hard disk and will soon take 2 calls at a time. Cara Cirra solicited panelists for a future meeting on data base management software programs. Group purchase items were described, and Rich Wasserstrom asked for a volunteer to answer the group purchase phone on Friday evenings. Dana Schwartz asked the membership about the usefulness of the new Membership Directory to members. Some advertising was included in the book to allay costs to WAP. Betsy Harriman will prepare the September Journal. Assembly language SIG will resume activities under Ray Hobbs. The budget was presented and accepted. Computerland of Rockville has donated to WAP 75 to 100 software programs which should be available for examination at the office by September. WAP is still looking for suggestions about a new meeting place. The business meeting adjourned to a presentation on LISA.

SUMMARY OF AUGUST BOARD MEETING

The Executive Board of WAP, Ltd. met on August 10, 1983 at 7:30 PM at the WAP office. Items discussed included notification to members of a change in the September meeting date, the requirement that SIGs hold regular, formal elections each year, authorization to expand the ABBS, the adequacy of our office space, the pursuit of group purchase of Macintosh computers, release of WAP copyrighted software to a commercial software company, progress of WAP's commercial software library committee, assistance to new members during the pre-meeting activities, a request from members to hear questions during the Q/A period and general operation of the office.



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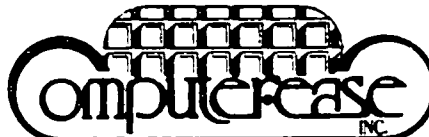
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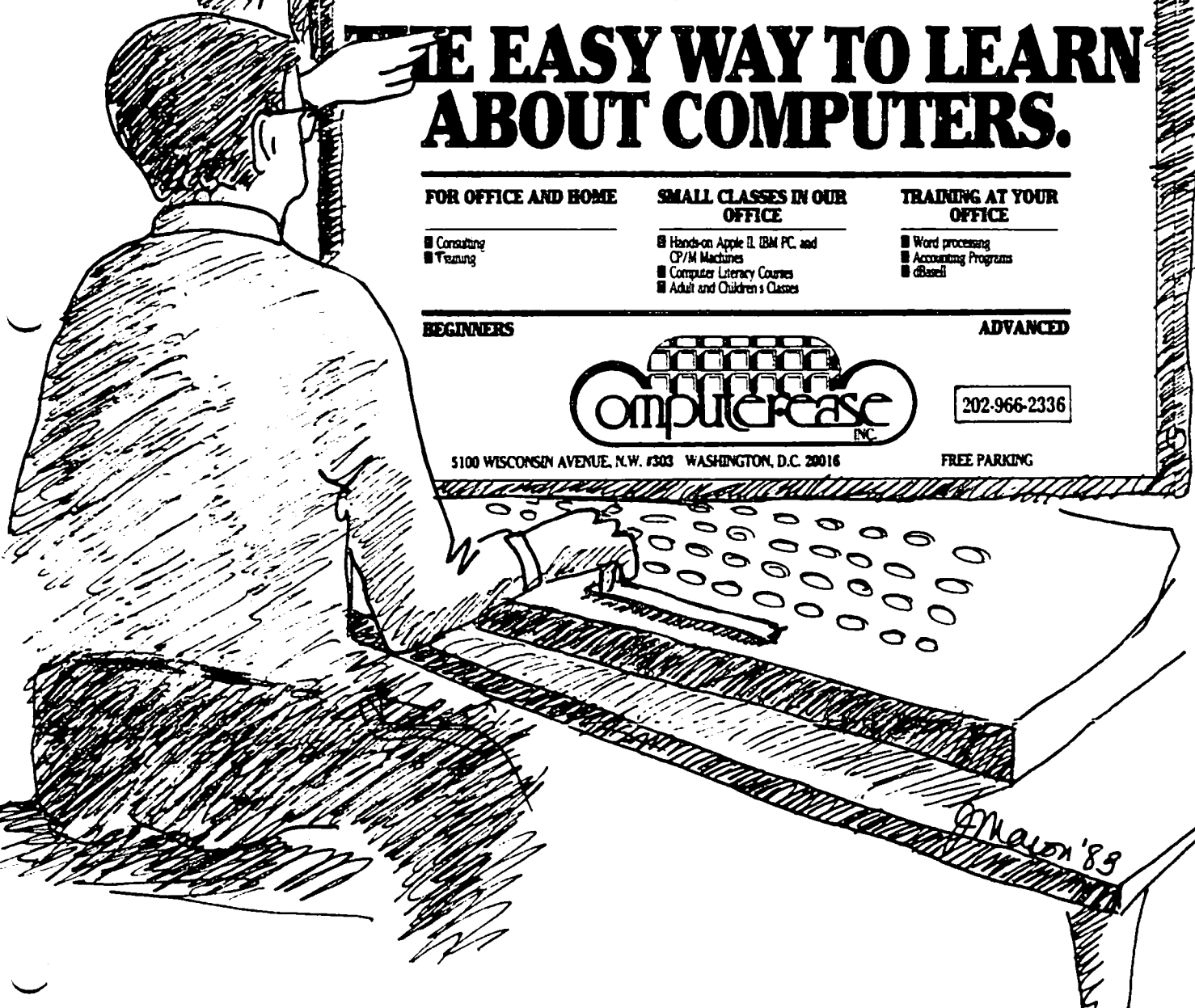
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SIGNEWS

APPLE /// SIG meets on the second Thursday of the month at 7:30 PM. The next meeting will be on September 8 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.

ASMSIG - the Assembly Language special interest group meets in the cafeteria immediately after the regular Washington Apple Pi meeting - see the ASMSIG News elsewhere in this issue.

Business SIG meets just after the regular Washington Apple Pi meeting - (no meeting in July or August).

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

Home Control SIG will meet after the regular WAP meeting each month.

LAWSIG provides attorneys and those not versed in the law an opportunity to discuss various aspects of computer applications to the law. The LAWSIG usually meets in downtown Washington, D.C. at noon once a week. For information call Charles G. Field, Chairman, 265-4040, or Jim Burger, 822-1093.

LOGOSIG meets at 12:30 after the regular WAP meeting. The location for July is the French International School.

NEWSIG will meet just after the regular Washington Apple Pi meeting. We will answer questions and try to help new owners get their systems up and running. We will also explain how our club operates. The following members have agreed to answer questions over the phone when someone gets stuck and needs help between meetings:

Bob Chesley 560-0120
Paul Hoffman 831-7433
Sarah Lavilla 926-6355
Boris Levine 229-5730
Steve Sondag 281-5392

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

SIGAMES is the special interest group of computer hobbyists interested in using their APPLES for entertainment. They meet immediately following the monthly meeting of Washington Apple Pi.

STOCKSIG meetings are on the second Thursday at 8:00 PM and are currently held at the home of the chairman, Robert Wood, (703) 893- 9591.

Telecomm SIG usually meets after the regular WAP meeting.

Ⓞ



Operant Systems

*** HARDWARE ***

DISK DRIVES--

MicroSci A2 drive (100% Apple-compatible 5hugart 390) ..	239
Rana Systems Elite One drive (40 track, 163K)	265
Elite Two (40 track, double side, 326K) ..	425
Elite Three (80 track, double side, 652K) ..	549
TEAC Thinline drive (40 track, 100% Apple compatible) ..	259
Davong 5, 10, and 15-MEG Winchester drives	(call)
Corvus Winchester, Oninet, Mirror, Concept 68000 ..(call)	

CP/M SYSTEMS--

Applicard (6 Mhz Z-80, 64K to 192K RAM, 70-col video) ..	275
(4 Mhz version of the above)	219
ALS CP/M Plus System (6 Mhz Z-80, 64K RAM, CP/M 3.0) ..	275
Microsoft Premium System (Z-80, Videx, 16K, CP/M 2.2) ..	445
Softcard JIc (Z-80, 80 col & 64K on one card) ..	335

MONITORS--

Aadek 300G (12" green anti-glare screen, 18Mhz)	145
300A (12" amber anti-glare screen, 18Mhz)	155
Color I (40-column text/color graphics)	295
NEC JB-1201 (12" green anti-glare screen, 20Mhz)	159
JB-1260 (12" green, 15Mhz, best value for money) ..	110
JB-1212 (12" color, composite video)	279
USI PI-2 (12" green anti-glare screen, 20 Mhz)	145
PI-3 (12" amber anti-glare screen, 20 Mhz)	155

MODEMS--

Hayes Micromodem II (with Hayes terminal program)	279
Smartmodem 300 (300 baud, RS-232, direct-connect) ..	205
Smartmodem 1200 (300/1200 baud, as above)	489
Novation Apple-Cat II (w/ Comware; 1200 baud capable) ..	265
Smart-Cat 300 (RS-232, direct-connect)	189
Smart-Cat 300/1200 (as above)	429
J-Cat 300 (miniature RS-232, direct-connect)	109
SSM ModemCard (300 baud, audio monitor, emulates Hayes) ..	235
US Robotics Password (300/1200 baud, auto-dial/answer) ..	355
Anchor Automation (300 baud, RS-232, direct-connect) ..	85

PRINTERS--

Epson FX-80 (160 cps, tractor/single sheet, graphics)(call)	
MX-100 (100 cps tractor/single sheet, graphics) ..	649
FX-100 (160 cps version of the above)	739
MX-80F/T (100 cps tractor/single sheet, graphics) ..	459
Okidata 92 (160 cps, graphics, BEST print for price) ..	495
93 (132 column version of above)	849
IDS Microprism (110 cps, prop spacing, excellent print) ..	479
Prism-80 (200 cps, buffer, correspondence quality) ..	999
Prism-132 (wide-carriage version of above)	1149
NEC 8023 (120 cps, tractor/sheet, same as Prowriter) ..	385
Gemini 10X (120 cps, tractor/single sheet, graphics) ..	315
15 (wide-carriage, same features as Epson MX) ..	465
Itoh F-10 Starwriter (40 cps daisywheel, Qume-compat) ..	1099
Transtar 140 (40 cps daisywheel, same as Itoh F-10) ..	1149
130 (18 cps daisywheel, BEST low-cost unit)	669
Silver-Reed 500 (14 cps daisywheel--goodbye typewriter) ..	439
NEC 7710 (55 cps daisywheel, built like a tank)	1999
Diablo 620 (25 cps daisywheel)	950
Qume Sprint 11/40 (40 cps daisywheel)	1349

INTERFACES & BUFFERS--

Plaso printer interface (parallel w/ superior graphics) ..	135
Pipeline buffer (8K to 128K w/merge-print & such more) ..	175
Grappler printer interface (parallel w/ graphics)	129
CPS Multifunction (serial, parallel, and clock)	165
Wizard BPO (16K-32K buffered parallel w/ graphics)	135
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Wespercorp Wizard 16K RAM card (2-yr warranty)	63
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Multiplan (state-of-the-art spreadsheet)	169
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INFORMATION MANAGEMENT--

dBASE II (w/ ZIP screen generator)	409
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BPI Accounting (AR/AP/PAYROLL/INVENTORY) ea module ..	289
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Ascii Express Professional (for DOS 3.3)	99
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P-term Professional (for Pascal)	99
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LANGUAGES--

Softech UC50 p-System	425
Digital Research Pascal/MT+	249
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Terrapin Logo	109

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WAP TUTORIALS

THE FOLLOWING OUTLINE WILL BE USED IN OUR FOUR TUTORIAL PROGRAM SCHEDULED TO BEGIN IN SEPTEMBER. IT MAY OF BENEFIT TO OTHERS AS A SELF-STUDY PROGRAM AS IT CONTAINS USEFUL REFERENCES PRESENTED IN A (MORE OR LESS) ORDERLY MANNER.

SESSION 1. INTRO. TO APPLE COMPUTER HARDWARE (SEPT. 6 & OCT. 4, LEE RAESLY)

1. WELCOME TO THE WORLD OF APPLE

- HOOKING IT UP: DISK DRIVES, PRINTERS, TVS & RF MODULATORS, GAME PADDLES
- INSERTING & REMOVING CARDS
- THE KEYBOARD

2. HANDLING FLOPPY DISKS

- READING A CATALOG
- RUNNING A PROGRAM
- USING THE BACK OF THE DISK

3. HANDY FEATURES

- ADDED MEMORY BOARDS
- EIGHTY COLUMNS
- LOWER CASE
- FANS

SESSION 2. HOW TO USE YOUR APPLE SOFTWARE (SEPT. 13 & OCT. 11)

1. THE OPERATING SYSTEM & IMPORTANT COMMANDS

- THE MASTER DISK
- CATALOG
- RUN, LOAD & SAVE

2. USEFUL UTILITIES

- FID, COPYA

3. THE FLOPPY DISK, ITS CARE AND FEEDING

- INITIALIZING A DISK
- FORMAT & CAPACITY

3. WHAT'S A "B" OR "T" FILE?

- WHEN TO BRUN AND WHEN TO BLOAD
- EXEC'UTIVE DECISIONS

SESSION 3. BEGINNING BASIC (SEPT. 20 & OCT. 18)

1. BASIC PROGRAMMING

- PRINT, INPUT AS P.154, 157
- VARIABLES: NUMBERS, STRINGS
- ARRAYS
- FORM OF A PROGRAM: LINE NUMBERS, INTERPRETOR
- EDITING A PROGRAM WITH CURSOR CONTROLS
- CONTROL OF PROGRAM FLOW
IF...THEN, FOR...NEXT, GOTO
- SUBROUTINES
GOSUB...RETURN

2. LIMITATIONS AND RESTRICTIONS

- PRECISION: 9 DIGITS AS P.5

- GARBAGE COLLECTION
- PEEK, POKE, CALL, &, USR

3. MEMORY USAGE

- HIMEM, LOMEM AND VARIABLE SPACE AS P.127
- CONFLICTS WITH BINARY DATA, MACHINE CODE, OR HIRES PAGES
- WHERE IS THE DOS IN ALL OF THIS DOS? P.135

SESSION 4. BITS, BYTES & NIBBLES (SEPT. 27, and OCT. 25, BRUCE FIELD)

1. BINARY, HEX AND ASCII SYSTEMS

- ADDING AND SUBTRACTING BINARY & HEX. RM P.60
- ASCII SYSTEM. RM P.7-8

2. BITS, BYTES AND NIBBLES

- THE 6502, AN 8-BIT MICROPROCESSOR WITH 16 BIT ADDRESSES. LL
- MACHINE LANGUAGE: THE ACCUMULATOR, X AND Y REGISTERS. LL, RM P.120
- ASSEMBLY LANGUAGE. LL

3. RAM, ROM AND DEVICES

- RANDOM ACCESSIBLE MEMORY VS. BURNED IN CODE (ROM)
- WHAT TO DO WITH 2^{16} POTENTIAL ADDRESSES
- PAGES ZERO, ONE (THE STACK), TWO (THE KEYBOARD BUFFER) AND THREE. RM PPS.74-75, 132

4. MEMORY MAP. RM P.68

- MEMORY PAGES: HI & LO BYTE OF ADDRESS
- TEXT AND HIRES GRAPHICS PAGES. RM P.69
- STORAGE OF BASIC, RESOLVING CONFLICTS WITH VARIABLES, MACHINE CODE AND BINARY DATA (SHAPES)
- THE BASIC INTERPRETER
WHAT'S AN INTERPRETER?
- THE DISK OPERATING SYSTEM
- DEVICE SPACE (I/O)
SPECIAL TOGGLE ADDRESSES. RM P.13
- THE F8 ROM MONITOR

BIBLIOGRAPHY

AS - APPLESOFT MANUAL
DOS - DOS MANUAL
LL - 6502 ASSEMBLY LANGUAGE PROGRAMMING,
LANCE LEVANTHAL
RM - APPLE REFERENCE MANUAL

MEETING DATE CHANGE
SEPTEMBER 17

VISICORP EXCHANGE SEMINAR

- VISIFILE •
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- EXCHANGE VISI TEMPLATES •

- VISICALC •
- VISIPILOT •
- VISIDEX •
- FORUMS & DEMONSTRATIONS •
- EXCHANGE VISI APPLICATIONS •

WHEN: SEPTEMBER 21st, 10:00 A.M. til 5:00 P.M. WHERE: COMM CENTER

The Comm Center

will hold a free-form seminar for the purpose of exchanging Visicorp templates, applications, and ideas! Visicalc, Visiplot, Visifile, and any Visi-series we can get interest and participation generated around. We are seeking more contributing participants.

WAP members interested in participating leave your name and phone number for Mike Teller at the Comm Center - 953-1110. Mike will return your call later. If you donate a Visi template or application model by September 5th, you will receive a free copy of all contributions. We are presently assembling a list of all participants and their areas of interest - so call now!

- Demonstration & discussion of contributed Visi-applications
- Public domain contributions of templates and applications will be available on disk and/or hard copy (at production cost).
- Volunteers and Visi-reps will be available to answer Visi-questions.
- Store-wide drawing for a free Visicalc

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WASH: 953-9535

APPLE TEAS

WAP is conducting small discussion groups around the D.C. area. Below you will find a list of volunteers who will be holding sessions in the next two weeks. These will be informal and last about 2 hours. If you would like to attend, call the host and register with him/her. Each host will limit the size according to his/her wishes and will let you know if there is room

left in that particular tea. Hopefully, there will be ample numbers of sessions to meet the interest.

Session leaders may be needed if the host does not feel knowledgeable about the Apple. If you would like to volunteer your help or be a session leader, contact Paula Benson.

APPLE TEA SCHEDULE:

Host	Area	Phone	Date/Time	Date/Time	Topic	Leader
Robert Wood	McLean	893-9591	Sep 22/8:00			Host
David Knight	Annapolis	268-9447	Every 1st Thurs/7:00			Host

JOB MART

Redstone Development Corporation needs a programmer, competent in financial accounting, to develop a cash receipts through billing system from their lease abstract and current reporting. Apple II+. Contact Mike Stein at 573-7192.

A typist is needed to enter 300 names with the First Class Mail program. Apple II/e. Call Val Zabijaka (h) 593-5316 (w) 373-4655.

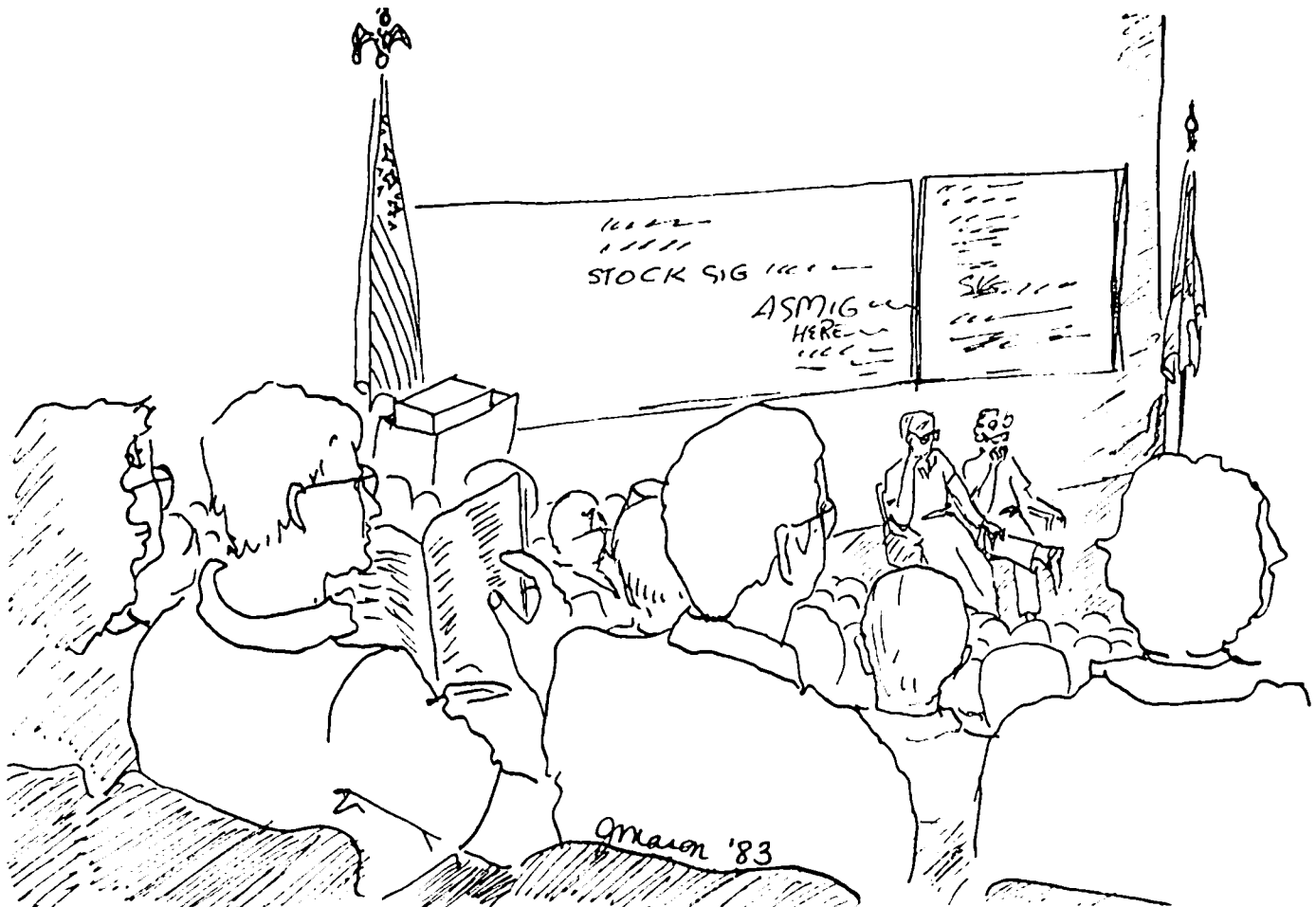
V.I.T.A. needs volunteers to type in text on Apple writer for Voice of America. David Jarmul, 276-1800.

CLASSIFIEDS

FOR SALE:

MicroSoft's CP/M card (56K version), \$150; Tymac's Parallel Interface card for printer - identical to Apple's - \$40. Call John Love, H (703) 569-2294, W (703) 892-0200.

If you anticipate a tax advantage in donating your outgrown Apple equipment to a tax-exempt organization, please call me. I am setting up a laboratory at George Mason University and will be pleased to accept and acknowledge all donations. C. Alan Boneau (WAP256) (h) 320-3695 (o) 323-2203



ABBS USER FILE REDUCTION

by Tom Warrick

Washington Apple Pi members with passwords on the Apple Bulletin Board System (ABBS) who have not called in for more than ten months will have their passwords deleted. Members may, of course, request to keep or change their password at any time by contacting the ABBS System Operator (SYSOP) Tom Warrick through the office at 654-8060 or at home at 656-4389.

"More than 750 members now have passwords on the ABBS," Mr. Warrick said. "The file, which contains users' names, membership numbers, passwords, and other necessary information, is now too large to be edited as a single file by any of my commercially-available text editors."

The members whose membership numbers are listed below have not called into the ABBS since October 1982, when the ABBS first began keeping track of the last time people called. Most of the users who have never called in have low membership numbers. "The principal cause for this lack of use may be that two years ago the previous SYSOP changed all passwords without telling anyone. He then left town for about a month. Many people probably never found out their new passwords and simply stopped calling in," Mr. Warrick said. "We certainly don't want to keep anyone off of the ABBS, but memory space is at a premium on any computer," Mr. Warrick said. Any member on this list who desires to retain his password or change his password should contact Mr. Warrick at the telephone numbers listed above. Membership numbers may be found on the second line of the label attached to the back of the Washington Apple Pi Journal. The membership number follows the "WAP#" and precedes the virgule ("/"). The last four digits are the year and month of expiration of membership.

The passwords of these members will be removed from the ABBS unless the members contact Tom Warrick through the club office at 654-8060 or at home at 656-4389:

19, 26, 44, 47, 51, 59, 65, 69, 79, 84, 86, 88, 90, 98, 103, 123, 125, 130, 132, 133, 142, 155, 161, 163, 166, 167, 169, 171, 178, 181, 190, 193, 201, 202, 232, 236, 239, 272, 276, 280, 300, 310, 314, 338, 339, 344, 367, 368, 371, 376, 384, 393, 395, 408, 421, 437, 439, 443, 445, 448, 449, 460, 463, 465, 466, 477, 500, 504, 511, 513, 518, 521, 551, 554, 557, 558, 565, 567, 570, 585, 591, 594, 598, 605, 612, 614, 621, 637, 660, 668, 669, 688, 712, 724, 728, 738, 740, 742, 745, 746, 760, 771, 773, 777, 783, 792, 808, 817, 826, 848, 858, 861, 869, 873, 879, 889, 900, 902, 905, 909, 920, 924, 933, 936, 938, 957, 963, 1002, 1019, 1038, 1043, 1050, 1082, 1112, 1124, 1139, 1152, 1161, 1165, 1170, 1183, 1221, 1226, 1255, 1260, 1265, 1274, 1352, 1414, 1456, 1479, 1482, 1499, 1517, 1519, 1569, 1596, 1599, 1605, 1608, 1633, 1650, 1668, 1670, 1671, 1689, 1697, 1698, 1729, 1736, 1783, 1791, 1796, 1815, 1834, 1846, 1886, 1888, 1897, 1952, 1957, 2023, 2027, 2039, 2150, 2218, 2221, 2233, 2238, 2319, 2343, 2401, 2427

new meeting date

September 17

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NEC Color (Composite)	\$305	Micro Buffer II (32 K)	\$200 190
FSK Hi Res RGB	\$390	G.I.S. Uninterruptable Power Source	1050
NEC 12" Amber	165		

Modems

D.C. Hayes Micromodem II	\$260	Softcard Prem. Sys. (Z80, 16 K & Videx)	\$450
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D.C. Hayes 300 Baud Smartmodem	\$220	E-Z Ledger (Highlands)	\$45
D.C. Hayes 1200 Baud Smartmodem	\$500	E-Z Invoice (Highlands)	\$45
SSM Modem (300 Baud)	\$239	Stock Option Analysis Program (H & H Scientific)	\$250

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Okidata Micro 83 A	\$635	LJK Letter Perfect	\$105
Okidata Micro 92	\$495	Easy Mailer	\$140
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Epson	Call	Visipak	\$500
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Q & A

by Bruce F. Field

As incredible as it seems, I haven't received any questions this month. Summer seems to have slowed everyone down. I would like to remind you that this column can be most useful to fellow WAP members if you will take a minute to jot down your questions and send them to me via the WAP office or even pick up the phone and give me a call. This column gives us a way to share our solutions with other members. If you have a problem you are probably not alone, let's spread the answer to as many people as possible.

Enough drum beating, in lieu of a column this month I'll take a few lines to try and explain how ASCII codes are used in the Apple.

As many of you know, on the most basic level computers can only handle numbers. Does this mean that word processing and other tasks that require letters to be manipulated are impossible? Of course, you can't do those things on a computer! Absurd isn't it? But how does the computer work with letters, symbols, and punctuation? Well, it converts them to numbers. When a letter is to be printed on the screen or printer, the computer sends the number that corresponds to that letter to the screen or printer and the letter appears. Similarly if you type a letter on the keyboard, it is converted to a number and sent to the computer's central processing unit. Suppose for a minute though that each input or output device converted the numbers to letters in it's own way. You could type an "A" on the keyboard, a "U" would appear on the screen and an "H" would be printed on the printer. Not very useful. To stop such foolishness the American Standard Code for Information Interchange (ASCII) was developed. This code relates 128 codes, symbols, letters, and numerical digits to the values 0 through 127. A table of the first 96 of these codes is on pages 138 and 139 of the Applesoft Reference Manual (pages 141 to 144 in the //e Applesoft Reference Manual).

The first 32 codes are called control codes. These codes are used for computer functions and have standard definitions, 7 is the bell character, 13 is carriage return, 10 is line feed, 8 is backspace, etc. They may be used for other things, and within an application program they are often used for turning special features on or off, or accessing word processing functions.

The next 96 codes are all the printable characters including punctuation, numerals, upper case letters, and lower case letters. (The table on page 139 does not show the lower case letters.)

The Apple handles numbers in groups of eight bits called a byte. A byte can therefore hold a number between 0 and 255. The ASCII codes are only defined for values from 0 to 127, or seven bits. What to do with the eighth bit in the Apple seems to be a bit of a problem. Problems usually crop up when trying to print special characters to the printer or reading the keyboard directly from Applesoft or machine language. There are a couple of simple rules with many exceptions.

1. Inputting and outputting characters usually results in the eighth bit being set (or turned on).
2. In Applesoft, characters within strings do not have the eighth bit set.

The best way to illustrate these concepts is with a couple of examples.

In Applesoft there are two functions related to ASCII codes. The ASC function returns the ASCII value of a character and the CHR\$ function converts a number to it's equivalent character. If we assign a character to a string variable, i.e. A\$="B", then we can determine it's ASCII code with the ASC function. PRINT ASC(A\$) will print 66, (rule 2 above). Conversely we can convert code numbers to characters with the CHR\$ function, A\$=CHR\$(66). PRINT A\$ will print a "B". CHR\$ is useful for accessing codes that cannot be typed from the keyboard, or into a program. Suppose we wanted to print from Applesoft:

```
"THIS IS ENCLOSED IN QUOTES"
```

we could try,

```
PRINT ""THIS IS ENCLOSED IN QUOTES""
```

but this would print a zero. The text between the quotation marks is treated as if it were a variable (with a value = 0). We can't print quotation marks by embedding them within quotation marks. But we can use the CHR\$ function like this,

```
PRINT CHR$(34)"THIS IS ENCLOSED IN QUOTES"CHR$(34)
```

because 34 is the ASCII code for a quotation mark.

Rule 2 also holds if you are reading the keyboard from Applesoft using either GET or INPUT. If you have a GET A\$ statement in your program and respond with a ctrl-l (holding the control key down and pressing l) then executing A=ASC(A\$) will wet A = 9. The eighth bit isn't set.

You can also look at the keyboard directly using PEEK(-16384). In this case the eighth bit is used as a flag to tell if any key has been pressed. You must make a loop to test if the PEEKed value is greater than 127. For example:

```
100 KEY=PEEK(-16384):IF KEY<=127 THEN 100
110 POKE -16368,0:REM REQUIRED TO RESET FLAG
```

The value in KEY is the ASCII value of the key pressed plus 128. Notice also that you must reset the keyboard flag after you have read the keyboard so you don't accidentally re-read the same key.

Now, on to our most perplexing problem, printing characters on a printer and controlling whether the eighth bit is set or not.

From the little discussion above, we know that the ASCII code for "B" is 66, thus if we do a PRINT "B" to the screen or the printer we would expect the Apple to send a 66. WRONG! See rule 1 above; what is actually sent is a 66 with the eighth bit set, or 66+128 = 194. What gets all the way to the printer depends on the printer interface card you have in your Apple.

Let's digress a moment to track a character through the computer to the printer. If we have specific that output is to go to a printer (PR#1 if your printer interface card is in slot 1), the character is taken from Applesoft or your word processor program and turned over to a program that is resident on the in-

contd.

Interface card. This program may modify the character (changing the eighth bit) before sending the character on to the printer.

You can now see that the character code that reaches the printer is controlled by not only your application program and/or Applesoft, but also the program on the interface card, (usually called a "driver program"). The program that has the final say is the driver program. If we have a printer or some device that requires the eighth bit to be off (or on) the place to make sure this happens is in the driver program. The information on how to do this is going to be found in your interface card manual.

Some interface cards, such as the Apple Parallel Card, simply pass the character through to the printer without modifying it. This usually means (except for special programs) that the eighth bit is set (rule 1 above). Other interface cards such as the Epson Parallel Card have the eighth bit wire disconnected to the printer and thus the eighth bit is always turned off. (A modification can be done on the card to correct this, but it creates other problems.) Interface cards like the Grappler have a flag that can be set to indicate whether the eighth bit is to be set or not. One problem is that the eighth bit of the incoming character is ignored and only the flag is used for the eighth bit when the character is sent to the printer.

Most of the time there is no problem just sending text to a printer, but sometimes printers are pretty finicky about characters used for accessing special functions or printing graphics directly (without using a graphics dump program). I have run across the case where an Apple Parallel Interface was used with an Okidata printer and this combination did not work presumably because the interface was sending the characters with the eighth bit set. I hope it's obvious by now that if a printer requires an ASCII code of say 27 for some function, and you print CHR\$(27), the printer may receive either a 27 or 155 (27+128) depending on your interface card. This may or may not work properly with the printer. The solution is to check your printer interface card manual and if possible try setting the eighth bit both ways.

SOFTDISK UPDATE

by Michael Schemer

My review of SoftDisk Magazine appeared in the July issue. After the article was written but before it was printed, SoftDisk increased their single copy price from \$5 to \$7. The first issue remains \$10 and the annual subscription remains at \$55. The stated purpose is to develop a more stable base of subscribers.

My apologies if anyone felt misled but I did not know about the price change until after the article appeared. The change in price doesn't affect my opinion of the product. It's still well worth \$7.

To those of you who decided not only to try SoftDisk but gave them my name, thank you. I am not associated in any way with the company - just a happy customer - I hope you felt the same way after you got your first SoftDisk.

meeting date
September 17

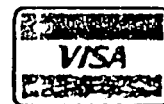
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A QUICK REVIEW OF A FAST CARD

by Bob Hicks

I recently had an opportunity to use the 'ACCELERATOR II' speed-up board from Saturn Systems. This board's advertised purpose is "to make your Apple II run 3.6 times faster" and have it become "one of the most powerful microcomputers available."

Probably everyone's first question is, "Does it work?" The answer is a qualified yes. It definitely speeds up actual processing by a full 3.6 times. For example, a small VisiCalc worksheet took 16 seconds to recalculate with the standard Apple. This same recalculation was completed in about 4 seconds with the ACCELERATOR II. In Apple Pascal 1.1 the same degree of improvement was experienced. A move by the computer in OHELLO (from the PIG: library) took 31 seconds; this decreased to 9 seconds with the ACCELERATOR II. These are two examples of tasks which are almost totally computational. What are the effects of the board when the task includes Input/Output processing?

Before I could play OHELLO with my Apple, I had to compile the program. Compilation with Pascal 1.1 involves a lot of disk access; the red LED is continuously blinking. Using the 'plain vanilla' Apple this took 2 minutes 47 seconds. With the ACCELERATOR card the time was 2 minutes 12 seconds. As another test of processing which included I/O, I assembled a fairly large (75 sector) source file with the S-C Macro Assembler. This assembler offers an option to suppress the listing of the assembly to the screen. With the listing on, the times were 28 seconds and 18 seconds; with listings off, these were reduced to 6 seconds and less than 2 seconds respectively.

Where did all the speed go? The ACCELERATOR II, like most other add-on processors, depends on the Apple's 6502 for I/O processing. As seen above this includes updating the screen as well as reading and writing to disk. While I can't provide a proper technical explanation, these functions (at least for the disk) must operate within time limits that are part of the Apple design; they are not easily modified. Hard disks and RAM based disk emulators are examples of fast I/O. Perhaps a combination of these devices with the ACCELERATOR would result in really quick processing regardless of the task.

If your application includes a lot of computational processing, this accessory is quite useful. At a retail price of \$599, or even at discount (I have seen \$449 mail order), it may take some time to pay for itself. Once the decision to get one is made, here is what you get:

o A densely packed board with 42 IC's including 64K of dynamic RAM plus a high speed 6502 complete with heat sink. The board has been 'copy protected' by removing the markings on all the chips except the RAM.

o Documentation in the form of a well prepared booklet. The booklet includes listings of many commercial software packages, including protected software which will run in the various modes provided.

o A master diskette with the various preboot programs. These include 'HELLO' type programs for DOS, Pascal, and CP/M. For DOS and Pascal, the programs copy the appropriate information from Apple RAM to ACCELERATOR RAM. Under DOS this includes either Integer or Apple-soft Basic and the Monitor firmware. For CP/M, the program disables the card.

I used the board for about three days. As stated above, its usefulness can only be gauged in terms of specific applications. I did not have any occasion to contact Saturn Systems; there were no problems in using the board. Personally, I do not like the unmarked chips. I have often been able to fix things by simply replacing chips; without knowing what chips are used, this shotgun approach becomes impossible.

DEALER'S CORNER

An exciting product is now on the market but has received little attention from home computer users. This product is the ASP HALON fire extinguisher. This fire extinguisher works so fast you'll hardly believe your eyes! Two HALON gas compounds act together inside the unit, one acting as the propellant and the other acting as the extinguisher. There is no harmful effect to electronic parts and no residue to clean up after use. Since the HALON compound acts so fast, much less agent is required to put out a fire. The Model 2000 (\$17.00) has 15 seconds discharge capacity, but most fires are extinguished in a fraction of a second.

Examples of the use of HALON are: 1) aboard the NASA's Space Shuttle, 2) every engine in every commercial airliner built in the USA, 3) many electronic firms to protect their valuable computer installations.

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- Longer, more concentrated throw than conventional models.
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- Simple and fast, with no complicated gauges or instructions to read or follow.

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- Will not deteriorate.
- No need for recharging.
- Formulated by one of the world's leading chemical firms and manufactured exclusively by American Safety Products, Inc.
- Various models are available for different size needs.

If you have any questions concerning this product, please contact Brad Davis, (703) 361-4672.

GAME VIEWS

by Jeff Brunner

This column will present reviews and tips on games. If you have any tips on the games below, please give me a call at 977-0835 so I can pass them on to the readers.

Game: Canyon Climber
Price: \$29.95
Maker: Datasoft
Summary: More of
Donkey Kong

When everyone thought the Donkey Kong craze was over, out came Canyon Climber. This game features three screens of action and is considerably harder than Cannonball Blitz, probably the best version of Donkey Kong around. The first screen is much like the second in Cannonball Blitz, except the player must jump mountain goats instead of cannonballs. The next two screens consist of having to avoid indian archers who shoot arrows and birds who drop bricks. This is a good game with average graphics and should satisfy anyone who has played Cannonball Blitz.

Game: Aztec
Price: \$39.95
Maker: Datasoft
Summary: One of the
best--a must.

Aztec is a game loosely based on the movie "Raiders of the Lost Ark". You must fight your way several floors down to retrieve the lost idol which has been captured by the Aztec Indians. There are a few obstacles in this game such as the Aztecs, dinosaurs and black-widowed spiders. There are also king cobras, other snakes, lions, alligators, and tarantulas. All of these are deadly and will make your games very short. There is hope though: each animal can be killed with a weapon (pistols, dynamite, machetes, and bullets can be found in baskets). It is very easy to be killed in this game until you gain enough experience at playing it. The graphics are some of the best in any game and are extraordinary when you play this game in color. If you like fast-paced adventure games, you'll love Aztec.

TIPS

How to kill:
King Cobras: shoot (or use the machete)
Dinosaurs and Aztecs: shoot (several times)
Snakes and spiders: strike down with the machete

Also, climbing chests and trash piles at the top of the screen will move you up to the next level (if there is anything to climb onto).

ATTENTION ALF OWNERS: Is there anyone interested in forming a disk of ALF songs (nine-voice version)?

NEXT TIME: More reviews and methods (cheats) to beat Cannonball Blitz. &

BACK TO SCHOOL SPECIALS

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A PAGE FROM THE STACK

by Robert C. Platt

If the August heat is keeping you indoors on the weekend, why not use the time to pull together a disk of contributions to the library. Remember, you get a free library disk for every disk which you donate.

Special thanks to William Herrick, Ron Bernstein, Tom Riley and Doug Waters for their help in documenting our older disks. We have 25 disks left to go and need more volunteers. Please call me at 223-1588 if you can help.

Two disks premiered at the August meeting: Disk 41 Machine Language and Disk 141 Special Data Bases.

DISK 141: SPECIAL DATA BASES

What can you call a disk filled with handy Applesoft programs that crunch through text files? Since none of the library staff could think of a better name, we've christened this disk "special data bases."

EXCIT by Silas S. Warner is a valuable tool for computer assisted instruction and software documentation. EXCIT allows you to prepare text for presentation on the Apple screen complete with branching between frames of text and the ability to execute DOS commands from your lesson. BRUNNING @EXCIT will patch DOS and install Warner's system in your memory. Once installed, READ <filename> will read a text file into memory and display up to 20 lines at a time on the screen. Pressing the return key will advance the user to the next frame of 20 lines, but other keys can be activated to branch the user to any designated line in the text file. The documentation for the disk (file DISK 141 DOC) and for the program (files INSTRUCTIONS and WRITING) are good examples of how to setup a tutorial which uses branching logic. File CHOICES can be used at the start of a lesson to check to see if the user can read lower case characters on his Apple.

TEXTV is a utility program which can be used to prepare EXCIT lessons. It will read a text file, convert all letters to upper case, substitute line numbers for symbolic labels, convert the file to double spaced format and/or replace occurrences of the string "@DOS@" with a <ctrl-D>. The output file created by TEXTV is automatically given the name of the input file with a "2" added to the end of the name.

MY MAILING LIST by Mark Crosby is an excellent example of using "random access text files." For each entry, a name, title, address, city, state, zip code, phone number, comments and birthdate are stored. This data is stored in a file named ADDRESS with an index file named INDEX. You can search through the file based on selected criteria such as state or name. As you browse through the file, you can select entries for printing. A list of the selected entries with be stored in HIT FILE.

The program allows you to sort the file, and the file can be printed in several formats. Audit format lists all the fields separated by slash marks with one entry per line. Mailing labels can be printed with either one or three labels across. A telephone list showing names and corresponding phone numbers can be printed, or the complete contents of each entry can be printed. This program is much easier to use for mailing lists than SUPER FILE CABINET. Unlike FILE CABINET, the file is updated automatically whenever a record is changed, so there is no danger of loosing your file by forgetting to save it.

TIP(.) by Tom DeMay will track customer order information from placement to final collection. It is thoroughly documented in the July 1983 WAP Journal. Files TIP(.) DOCUMENTATION and TIP(.) VARIABLES are the text files containing that article. COPY TIP(.) to another disk with plenty of free space before using the program.

GRADE MAINTENANCE by Jim Hunter originally appeared in the September 1979 Creative Computing. This Applesoft program stores the grades for all assignments and tests for a class during a semester. Sample data for a Drafting class is included (files CLASSPOOP\$ through G%2). To try the program with sample data, RUN GRADE MAINTENANCE. To reset the data file, RUN GRADES STARTER. Modify lines 33010 to 33030 if your printer is not in slot 1 or does not use Epson control characters.

DISK 41 - IAC 25 MACHINE LANGUAGE UTILITIES

Machine language is the series of simple instructions which the Apple's microprocessor understands. These instructions can be expressed as numbers ("machine language") or as a series of symbols which translate one for one with numerical instructions ("assembly language.") This disk will introduce you to both approaches.

Most of the programs on this disk come from the Loyal Ontario Group Interested in Computers (L.O.G.I.C.). For further information contact Dr. Charles R. Smith, L.O.G.I.C., Box 696, Station B, Willowdale, Ontario, Canada, M2K 2P9.

The Binary Entry Utility (BEU) by Kenneth S. Lind, is an editor for the entry and debugging of machine--language programs. Two versions are supplied on the disk, for either 48K or 64K Apples. The 48K version is ready to use, but the 64K version must be installed by RUNNING BEU.64K SETUP. RUN BEU.INSTRUCTIONS for complete documentation of all of its commands.

Most people find it easier to use an Assembler program which allow you to write machine language programs symbolically, rather than in the hexadecimal numbers which the microprocessor understands. This disk contains two assemblers. The first, MASM allows you to save your assembly language source programs as 1 files on the disk. However, you must adhere to a rigid format when typing in your programs. (For example, the op code must be typed in columns 12-14.) RUN MASM INSTRUCTIONS for details, or EXEC MASM to use the assembler. File MASM SAMPLE is a sample source program.

A second assembler is MINI-ASSEMBLER, written by Steve Wozniak. The MINI-ASSEMBLER was included in the ROM of every Apple II, but was left out to make room for Applesoft in the Apple II+ and IIe. This assembler requires you to specify all addresses. You may not use symbol labels to refer to memory locations. RUN MINI-ASSEMBLER TUTORIAL, an Integer Basic program, for instructions on its use. Two copies of MINI-ASSEMBLER are provided which reside in different memory locations. Select the version which will not interfere with the range of addresses which you plan to use for storing your program. Use the BSAVE command to save your machine language program after entering it with the MINI-ASSEMBLER.

contd.

M/L TUTORIAL by Tom O'Brien provides a general introduction to machine language programming. RUN M/L TUTORIAL to read this text.

HCL MAKER by Tom DeMay helps you make a hard copy listing of any Applesoft program. To use, load your Applesoft program, type EXEC HCL, turn on your printer, and type RUN 63000. See WAP Journal p. 47 (Nov. 1982) for further details.

CPU 6502 is an incomplete Integer Basic simulator of the operation of the Apple's microprocessor. I've included it on this disk because it provides a handy reference to addressing modes and op codes.

WAP CHUCKER by Bruce Field, is an Applesoft program to computer the hash sum of a disk. A "hash sum" is a code number derived from adding up the value of all information stored on the disk. If you run two copies of the same disk through this program and they produce the same hash sum, it is very likely that the copies are identical. This program permits you to maintain a data base for all of the disks in your library and to print out the hash sums of specific disks. As a result, you can check the integrity of your disk library over time. If you include a hash sum printout when you mail a disk, WAP CHUCKER allows the person who receives it to test for damage in transit. We will be using WAP CHUCKER to protect the WAP library during the copying process.

SOLUTION TO SPEAKER NOISE

by Harmon O. Pritchard Jr.

I have owned my Apple II+ for a little over two years now, and have been annoyed by the vibration and distortion of my Apple speaker which shows up during games and other programs which use sound effects.

I thought perhaps replacing the speaker would be the solution to this problem, so I went to Radio Shack and purchased a 3 inch, 8 ohm speaker (\$2.99) as a replacement. Since the Apple Speaker is glued to the bottom board of the computer, I gently rocked it back and forth until it came loose. Then I carefully pulled the foam rubber circle loose from the board and speaker. It was a simple matter to unsolder the speaker leads and resolder them to the new speaker. I then reglued the new speaker and the foam rubber ring back on the board using clear silicone sealer.

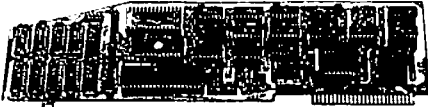
Unfortunately, the new speaker was still distorted on the same frequencies. A little investigation showed that the problem was that the speaker vibrated the board since it was mounted in direct contact with it. I found a scrap of foam rubber which was about twice as thick as the original ring and used scissors to cut it in the same size circle and to cut the hole out of the middle to fit the back of the speaker. By using the silicone sealer to attach the foam ring to the speaker and then the ring to the board, I was able to reinstall the speaker without any part of it physically touching the board.

Problem solved! Now there is no distortion, and the 3 inch speaker sounds better than the smaller original.

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VISI COLUMN: Using Multiplan as a Data Base System by Walton Francis

I well recall my early admiration for VisiCalc, as well as my frustrations (see "Comments on VisiCalc" in Washington Apple PI of December, 1980). One of my five major criticisms of VisiCalc (three of which are now solved by VisiCalc on an Apple //e and all of which are solved by Multiplan) was the inability of VisiCalc to sort. I was then and still am faced annually with the problem of sorting (ranking) some 25 rows of entries on each of 10 tables listing health insurance plans for Federal employees. This problem can be handled manually by use of the Move function, line by line, but is tedious. "What if" a spreadsheet had such a capability?, I asked. VisiCorp's answer has been a thundering silence.

Multiplan and a few other spreadsheets, including Lotus, have included sort routines. And one can do sorting on VisiCalc, though in a tedious way involving use of a DIF file, with utilities such as VIS/Bridge from Solutions, Inc.

Elsewhere in this issue I present a list of the books in the club library. This list is sorted alphabetically by subject and within subject alphabetically by title. Also elsewhere in this issue I present a list of dominant computer operating systems ranked by percentage of software which runs on each, a numeric sort. Neither list was created in the order presented. Instead, I simply typed in the raw data and, when finished, took about 10 seconds to instruct the computer and wait for it to rank the list as instructed.

The same task using VisiCalc's Move function would have taken close to an hour for the library list and several minutes for the software list. To be sure, I could have used my favorite DBMS system, PFS, together with its companion program PFS Report, for either task. But PFS is not nearly so convenient for editing as Multiplan, requires a number of disk swaps, is harder to format for printed output, doesn't handle arithmetic beyond the trivial (e.g., wouldn't calculate the percentages at all), and doesn't let you see what you are getting on the screen before printing. In short, Multiplan is an incredibly convenient, though primitive, DBMS.

There are three main constraints in the use of Multiplan for such purposes. First, it will only handle 255 records in one file. Of course, in some applications one could live easily with several separate files, and Multiplan allows one to merge portions of files quite easily. Second, because sorting is only by row, and moves all items in every row, each record must be limited to one row of data. This can be a long row, with up to 64 separate pieces of information and about 2000 characters on each record, but is inconvenient or unworkable when one wants two dimensional records. For example, using PFS for a library data base would enable one to print out separate 3X5 inch cards on each book, but the Multiplan equivalent would be sized one line of characters deep by a foot or more wide for each book. Third, Multiplan does not include any search algorithms.

Notwithstanding these limitations, there is a lot one can do with Multiplan. For example, by moving the author column to the left and sorting by author and publication date I could have created a quite different library listing in a few seconds (faster, by far, than any specialized DBMS program). Or I could have created a listing including recent books on program-

ming as follows: sort by year, delete all entries for years prior to 1981, sort by subject, and then delete all entries for subjects which are not languages. In effect, complex Boolean searches can be created. And if one wanted to include calculated data in each record, as in the software listing, few DBMS systems (and certainly not a simple file management system such as PFS) could match the power and none the ease of a spreadsheet.

DISABLEDSIG NEWS by Jay Thal

DISABLEDSIG SEPTEMBER MEETING
THURSDAY, SEPT. 8, 1983, 7:00 P.M.
Chevy Chase Community Center
Connecticut Ave. & McKinley St., NW, D.C.

A REMINDER!! The Main meetings of Washington Apple Pi are now enhanced for the hearing impaired by a signer. Front row seats are also reserved so that there will be a clear view of the signer.

The forthcoming September 24 meeting of the Pi will focus in on speech synthesis, a technology of some significance to the vision impaired. The hardware is improving and the quality of the sound along with it. To support the hardware developments we have come across several new software products:

DOCUMENTS (\$125) A talking word processor;
DIRECTORIES (\$75) A talking filing system; and
AGENDA (\$75) A talking date book and 4 year calendar.

For more information contact: Computer Aids, Technology for the Print Handicapped, PO Box 5502, Fort Wayne, Indiana 46895. (213) 456-1856.

Speaking of speech synthesis, we have recently seen advertisements for a new speech board -- Adam's Apple by Multitech Electronics. We have not heard it, and while the literature we were sent doesn't suggest any technological breakthrough, it does seem to be a price break for digitized speech -- but at a price.

Digitized speech is memory demanding and very good. Earlier units such as the Supertalker allowed you to input words orally, and the output would reproduce the personal quality of your voice. Adam's Apple doesn't allow for voice input but provides you with an extensive canned 1200 word vocabulary on three disks (that should tell you how memory demanding digitization is!). The voice may be charming, but it won't be yours. But if price is a concern, then limited digitized speech is yours for \$195.

We would also like to remind those interested in developing software programs for both handicapped and gifted children that the Council for Exceptional Children is sponsoring a software contest. The project is supported by Johns Hopkins University and the John F. Kennedy Institute. The contest is an outgrowth of the 1981 Johns Hopkins National Search for Personal Computing to Aid the Handicapped. Entries must be received by November 15, 1983. For further information contact: CEC Software Search, Dept. of Field Services, The Council for Exceptional Children, 1920 Association Drive, Reston, VA 22091.

WAP HOTLINE

Have a problem? The following club members have agreed to help. PLEASE, 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.

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*Calls up until midnight are ok.

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WAS SEPTEMBER 17

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THE WASHINGTON APPLE PI BOOK LIBRARY

by Walton Francis

One of the many benefits of having a club office is that it allows each member located in the D.C. area access to a microcomputer library of great scope and depth. We have, at present, dozens of magazine titles and thousands of magazine copies. Our book titles are far more limited but growing rapidly--at present about 90 titles.

The table which accompanies this article displays each book title by "subject", according to a totally ad hoc scheme I have created for our temporary convenience.

If you have always wondered what Pascal was about, or how to wire your home for energy control, or just how much Apple software there is in the world, or whatever, we probably have a book or two for you to browse through at the club office. Sorry, however, no lending yet.

Books are expensive (our collection would cost over \$1,000 to duplicate) and we would love to have more donations - hopefully, tax deductible to you in the near future. We don't limit our books to the Apple, or even to microcomputers, though we will keep that focus. Duplicates are welcome, as well, since that will help us to start lending. The only books I want to discourage are the ones with titles like "How to Understand Personal Computers Including a 1980 Vendor List and 100 Pages of Drivel About Basic."

The book listing is temporarily on a Multiplan spreadsheet file (see my Visicolumn article in this issue) as a matter of simple convenience. If anyone has a good DBMS system to recommend (it should be one which uses standard DOS text files) for the time when we get professional about cataloging, please get in touch.

For now, donate or read, as you choose.

Washington Apple Pi Library Book Listing 7/10/83

Subject	Title	Author	Year
Applications	A Collection of Programming...Techniques	Maurer	1972
Applications	Home Energy Applications	Pitts	1983
Applications	Inside Washington Apple Pi	WAP	1981
Applications	Science and Engineering Programs	Heilborn	1981
Applications	The Investor's Computer Handbook	Packer	1982
Assembly	370/360 Assembly Language Programming	Stern	1979
Assembly	6502 Application Book	Zaks	1979
Assembly	6502 Assembly Language Routines	Leventhal	1982
Assembly	8080A/8085 Assembly Language Programming	Leventhal	1978
Assembly	Apple II Assembly Language	De Jong	1982
Assembly	Apple Machine Language	Inman	1981
Assembly	Assembly Lines: The Book	Wagner	1982
Assembly	Beyond Games: System Software for...6502	Skier	1981
Assembly	MDS 6500 Microcomputer...Programming	MOS	1976
Assembly	Microprocessor...Handbook	Ward	1975

Assembly	Programming a Microcomputer: 6502	Foster	1978
Assembly	THE GUIDE to What's Whore in the Apple	Lueblert	1981
Assembly	The 8080/8085 Microprocessor Book	Intel	1980
Assembly	Using the 6800 Microprocessor	Poe	1978
BASIC	Advanced BASIC	Coan	1977
BASIC	Apple BASIC for Business	Parker	1981
BASIC	Apple BASIC: Data File Programming	Finkel	1982
BASIC	Apple II BASIC Programming Manual	Apple	1981
BASIC	Apple II User's Guide	Pooler	1982
BASIC	Applesoft II Reference Manual	Apple	1981
BASIC	Applesoft Language	Blackwood	1981
BASIC	BASIC Programming Reference Manual	Apple	1978
BASIC	BASIC and the Personal Computer	Dwyer	1978
BASIC	Computers for Kids	Larsen	1981
BASIC	Golden Delicious Games for the Apple	Franklin	1982
BASIC	Introduction to BASIC	Morton	1977
BASIC	Kids and the Apple	Trap	1982
BASIC	The BASIC Handbook	Lien	1981
BASIC	The Little Book of BASIC Style	Nevison	1978
COBOL	A Simplified Guide to Structured COBOL	McCracken	1976
COBOL	Structured Programming for...COBOL...	Noll	1977
CP/M	CP/M Revealed	Donnon	1982
DOS	Beneath Apple DOS	Worth	1981
DOS	The DOS Manual	Apple	1981
DOS	The Do's and Don'ts of DOS (Vers. 3.2)	Apple	1979
Data Base	Data Base Management Systems	Kruglinski	1983
Data Base	Data Management Techniques		
Data Base	Everyman's Data Base Primer	Byers	1982
Directory	Apple II Software Directory Vol. I Business	WIDL	1979
Directory	Creative Computing Software Buyer's Guide	Cr. Comp.	1983
Directory	InfoWorld's...Guide to Micro...Software	InfoWorld	1982
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Directory	PC Clearinghouse Software Directory (1983)	Wright	1983
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Technical	Apple //E Owner's Manual	Apple	1983
Technical	Apple II Reference Manual (II)	Apple	1979
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Technical	Apple Tech Notes	Apple	1982
Technical	Computer Typesetting Experiments & Projects	Barnett	1965
Technical	Don't (Or How to Care for Your Computer)	Zaks	1981
Technical	The Apple Connection	Coffron	1982
Technical	The Cheap Video Cookbook	Lancaster	1978
Technical	The Custom Apple & Other Mysteries	Hofacker	1982
Word Proc.	Apple II Word Processing	Poling	1982
Word Proc.	Introduction to Word Processing	Glatzer	1981
Word Proc.	WordStar Made Easy	Ettlin	1972

APPLE II BUSINESS GRAPHICS WORKS WITH GRAPPLER+

by Harmon O. Pritchard Jr.


In the Q & A column in the May 1983 issue of Washington Apple PI, a member asked how to print out the graphics he/she had created with the Apple II Business Graphics program using a printer with a Grappler+ Interface card. The answer provided was to exit the program leaving the graphics in memory, and then utilize the dumping capacity of the Grappler+. This is certainly one way to print the graphics, and it allows use of either the Grappler+ modes or some of the graphics dump software such as Zoon Graphix.

I just discovered a way to use the Grappler+ modes without leaving the ABG program. This allows you to print one graph and then go on to create another without rebooting the ABG disk. The following procedure was provided by Business & Professional Software, Inc., the creators of the Apple II Business Graphics software. They say they have tested this procedure with the Grappler and Grappler+ Interface on the Apple II and //e with Epson, Okidata, AppleDMP and C.1toh Prowriter printers. The NEC 8023A dot matrix printer has not been tested at BPS, but has been confirmed as working in the field.

There is no need to use the PIK software provided by BPS to interface various printers to the ABG program (through dealers) in order to use the Grappler card.

1. Boot the ABG disk with the data file disk you are using in drive 2.
2. Create your graph or load one you have already saved in a Screen file.

3. After you have the graph on the screen, type "CLEAR". (Be sure you have saved your data or your graphics on disk before you clear the file.)
4. If you are asked to clear current data, type "Y".
5. Type "EDIT LABELS". In the EDIT LABELS mode, you will see a blank line and the cursor.
6. From the keyboard, type a "Ctrl-Y" to initiate the Grappler card, then without any spaces or quotes, type an appropriate Grappler graphics command such as "GDR" (prints Hi-res graphics page 1 double size and rotated).
7. Press "RETURN" and type "END". The program will tell you that "one label is loaded".
8. Now type the command "LIST LABELS PRINTER:" and press "RETURN". (Earlier in the session you should have typed the command, "SET SLOT 1" if your Grappler card is in that slot.)
9. At this point, the graph should print out according to the instructions you passed to the Grappler card.

If you have any questions about the above procedure, you can contact the Customer Service Department at Business and Professional Software, 1-800-342-5277 (Cambridge, MA). 



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THE EPS KEYBOARD

by Jay Thal

Well I'm not sure how to tell you this but while this is being typed my Apple is nowhere in sight. Now we've all seen some out-of-sight Apples, filled with some of the most interesting devices and doing some of the darndest things, but this is different. "Chip", as my son refers to it, is out there in front of my knees hanging vertically and counting bits while I lean back watching these letters appear on the screen. Well -- that isn't exactly accurate, my fingers are moving across a keyboard causing things to happen.

Yes, the secret is a separate keyboard connected to Chip by a long umbilical cord. The Apple's keyboard has always been one of its weak points. There had been hope that with the //e we'd see substantial improvement -- but that was not to be. True, the //e's keyboard is more like a typewriter's than a teletype's but that would merely eliminated the confusion my fingers would experience between the office and home. Where were the numerical keypad or function keys I've always desired? Nowhere, that's where.

But the peripheral manufacturers have heard my lament. There are now detachable cases in which you can house your Apple's keyboard (\$80); a keyboard which has a numerical pad and dedicated Visicalc function keys (Amkey, Pro 100, \$265); one that looks like an IBM-PC clone (Keytronic, KB 200, \$298); and Executive Peripheral Systems', EPS, KB-3, \$349).

Was there a choice? Not for me. I got the EPS. Eat your heart out PC and DEC! (DEC doesn't tell you up front that all of their Rainbow's lovely keys don't work.)

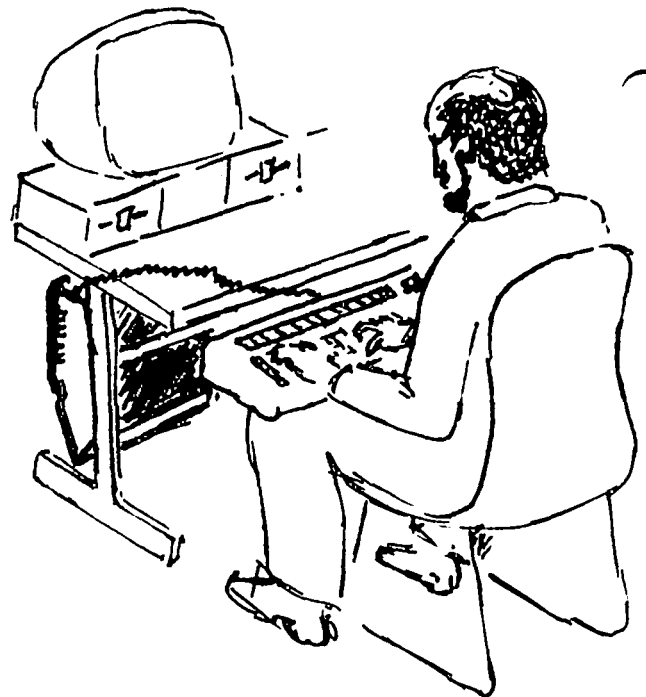
So why did I get the EPS? Because it is an intelligent keyboard fully programmable by inserting promware modules. Presently there are over 15 modules available: seven different wordprocessor proms; three spreadsheet proms; four database proms; and Pascal.

The proms configure the keyboard and the function keys for a specific program, BASIC/DOS, or one of your own. Each of the 12 function keys can have as many as four functions. Included with each prom is its own instruction manual and an overlay listing the functions. Presently I am using the Screenwriter II prom which allows me to get my buffer, or insert one of eight macros, enter a footnote, etc. -- all with a single keystroke.

It went without saying that the keyboard is a conventional typewriter layout, with shift lock, but the special characters must be shifted to even when locked into upper case -- great for klutzes like me. In addition, there are six keys to provide full cursor control, and six more editing keys. Off to the far right there is a 21 key numeric keypad and a program selection key.

Above the row of function keys is a storage compartment for more proms than I can think of needing (nine), a socket for the prom currently in use, and a compartment to place the overlays.

Little mechanical aptitude is needed to get the EPS keyboard up and running. Simply unscrew the base of the Apple from the case and disconnect the keyboard plug. Here's where you have to make a choice (actually earlier when you're buying the device) to plug in the EPS piggyback board or the EPS Softswitch board.

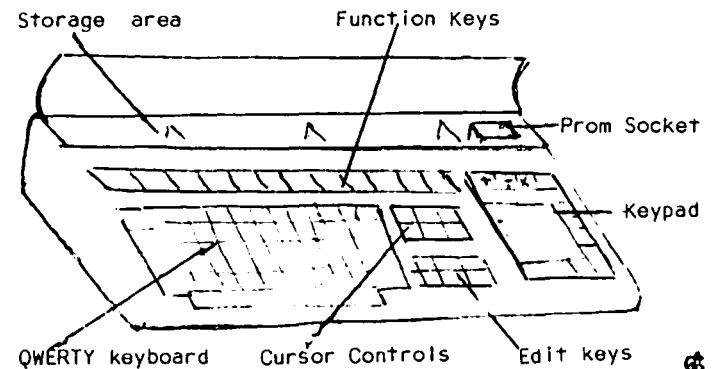


(The Softswitch (\$40) is the natural choice if you want your Apple portable without the extra keyboard -- it wasn't my choice) From the EPS piggyback board a wire runs to the back of the Apple ending in a modular socket. The keyboard's six foot umbilical cord plugs into the socket.

The extra proms cost \$32.95 each, there's a burn-your-own prom kit, and for you IIE owners - an interface.

Any complaints? Yup! For that kind of money EPS could have thrown in a looseleaf binder for the documentation. But that's all I can think of.

So, since I don't own a Z-car like the Woz I'll have to settle on thinking that 104 keys are awesome.



DON'T FORGET
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REAL PROGRAMMERS DON'T USE USER FRIENDLY COMPUTERS

by Joan Bixby Dunham

Real programmers program in machine code. The super-heros program in binary and enter their programs with front panel switches one word at a time.

A real programmer's operating system doesn't support error messages. It only returns one of three messages: Level 1 "WRONG!", Level 2 "WRONG!!", and Level 3 "WRONG!!!" The Level 4 message is to "HANG AND CATCH FIRE", which it does quite well. For that reason, beginning real programmers buy fire extinguishers instead of operating system manuals.

Real programmers don't do software documentation. They reason that if you can't figure out their code, you have no business using their programs. They sell their programs in sealed packages and they don't take checks or give refunds.

A real programmer's computer is hostile. It generates heat, is noisy, and has the RETURN and SHIFT keys in hard-to-reach places. The keyboards are either so small a finger will hit two keys at once, or are enormous, requiring a 10-inch handspan to operate.

Real programmers like to have their programs do the unexpected. They provide hidden little surprises, like undocumented commands from inside a text editor that re-initialize the program disk. These commands are often there to "punish" any user who tries to

"experiment", and will frequently involve the use of a key they don't expect to have much use in the normal operation of their programs, such as any of the letters of the alphabet, or the numbers.

Real programmers who sell computers are uncomfortable when customers ask them for information about what they are trying to sell. They will try to befuddle you with jargon or suddenly discover that they are really too busy to spend time talking with you.

Real programmers like computer games that shoot back. Real bullets.

Real programmers don't accept failure, especially someone else's. When they are showing you a new game, the first time you make a mistake, they grab the joystick away and say "Not that way! This way!" and proceed with 2 hours of game playing, leaving you bored silly.

Real programmers don't put user options in their software. When you tell them you want the modem in slot 1 and the printer in slot 3, and besides, your printer is the ZX 950, not the WYNOT 892, they say "So why don't you buy standard equipment?"

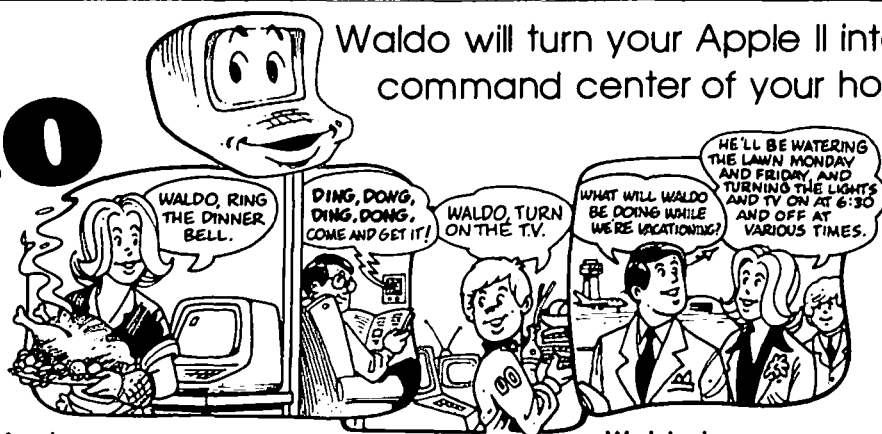
Real programmers don't put indices in their books. Their Tables of Contents are very descriptive, such as "Chapter 1", and "Chapter 2".

6

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CONVERTING FID TO LOWER CASE DISPLAY

by Duncan Langford

I'm sure that I'm probably the last PI member with an Apple to get around to buying a lower case chip, but now that I've got one I'm filled with enthusiasm - doesn't it make a difference!

As a beginner's exercise, I have written a simple program to convert my old favorite FID to lower case display. The original program is very effective, but the screen display is rather obtrusive. Adding lower case transforms things!

My program is very straightforward. Lower case display has a value of 32 more than the upper case value; a POKE 1024,193 puts a capital 'A' in the top left corner of the text screen; a POKE 1024,225 (193+32) will put a small 'a'. To convert all the upper case to lower, therefore, we need to add 32 to all the upper case values. FID loads from location 2051 to 6737, so if we BLOAD it first, we could use PEEK and POKE to work the conversion. We only want to convert letters, so we will select only values between 193 (A) and 218 (Z).

First, it is important to set LOMEM - the lowest memory location available to Basic - to a value above the top of FID; otherwise, our conversion routine may trample all over FID instead of converting it. A LOMEM: 10000 will be fine. PEEKing the original FID on a FOR/NEXT loop will show where the text sections are located; they lie between 4903 and 6390. Theoretically, therefore, a

```
FOR I = 4903 TO 6390: POKE I, PEEK(I) + 32 * (PEEK(I)
>192 AND PEEK(I)<219): NEXT
```

should convert all the upper case to lower. In fact, it also converts a vital chunk of FID's workings! My final routine is in two parts, to bridge the affected locations between 5000 and 5190.

The other main part of the program is the result of much PEEKing; it changes 39 locations BACK to upper case. This really improves the appearance of the display, by capitalizing important words.

Finally, the last part changes the position of the working 'FID Version..' and makes the version type LC. To simplify matters, the whole program is written to create a text file, which will itself load FID and convert it, before saving it back to disk as FIDLC.

To use, simply type in the listing, taking great care to avoid leaving out quotation marks, always worth an extra check when writing a program which generates a text file. When RUN, the program will create an EXEC file called 'FIDFILE'. Make sure FID is on your disk, and that there's space for a 20 sector program to be added; then just EXEC FIDFILE.

Listing

```
100 REM FID LOWERCASE CONVERTER
110 REM (C) DUNCAN LANGFORD
120 REM 11, HILLVIEW RD
130 REM CANTERBURY, KENT, UK
140 D$ = CHR$(4): F$ = "FIDFILE"
150 TEXT: HOME: PRINT "WORKING..."
160 PRINT D$"OPEN" F$
170 PRINT D$"WRITE" F$
180 PRINT "LOMEM: 10000"
190 PRINT "TEXT: HOME: VTAB14: FLASH: ?"; CHR$(34);
```

```
"WORKING"; CHR$(34); "NORMAL: POKE 34, 23
210 VTAB 23: HTAB 1: PRINT "BLOAD FID
220 REM CONVERT TO L/C: #1
230 PRINT "FOR I=4903 TO 6390: POKE I, CHR$(4); "PEEK (I)
+32*(PEEK(I)>192 AND PEEK(I)<219): NEXT
240 REM CONVERT TO L/C: #2
250 PRINT "FOR I=5195 TO 6390: POKE I, CHR$(4); "PEEK (I)
+32*(PEEK(I)>192 AND PEEK(I)<219): NEXT
260 REM SET CAPITALS
270 FOR I = 1 TO 39
280 READ J
290 PRINT "POKE"; J; CHR$(4); "PEEK("; J; ") - 32
300 NEXT
310 FOR I = 5902 TO 5915: READ J
320 PRINT "POKE"; I; CHR$(4); J
330 NEXT
340 PRINT "BSAVE FIDLC"; CHR$(4); "A2051"; CHR$(4);
"L4686
350 PRINT "TEXT: HOME
360 PRINT "?"; CHR$(34); "DONE.
370 PRINT D$"CLOSE
380 PRINT "NOW TYPE 'EXEC FIDFILE', FIRST MAKING SURE
THAT THERE'S A COPY OF FID ON THE DRIVE LAST
ACCESSED!
390 DATA 5220, 5256, 5266, 5281, 5363, 5491, 5530, 5566, 5607,
5637, 5657, 5668, 5690, 5703, 5705, 5714, 5733, 5818,
5827, 5832
400 DATA 6051, 6089, 6116, 6128, 6143, 6158, 6195, 6250, 6263,
6277, 6289, 6303, 6312, 6324, 6344, 6359, 6373, 6387,
6227
410 DATA 198, 201, 196, 160, 214, 229, 242, 243, 233, 239, 238,
160, 204, 195
```

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DOUBLE-TAKE: A Review

by Bob Anderson

I finally found a commercial utility disk that has a number of interesting and useful functions all on one disk. This remarkable package is called DOUBLE-TAKE, published by Beagle Bros. It crams 23 utilities into one functional package. The entire package takes up 8K of memory if every function is loaded. If you do not want to give up that much memory, they have divided the functions into 5 modules, 4 of which can be selectively added or deleted. A configuration program is provided for this purpose.

Four versions of the program are provided. This allows it to work with the basic Apple, ProntoDOS, GPLE, and the Language (16K RAM) card in all their possible combinations. I also went to a friend and tried it with his Diversi-DOS. It would not work directly with Diversi-DOS; however, it will work with the combination of Diversi-DOS and GPLE. Double-Take considers Diversi-DOS, by itself, as a non-standard setup. Apparently, adding GPLE sets everything right.

When the program is installed, it waits for Ctrl-F to activate it. At that time it responds with "function?" The top row of keyboard keys now perform as function keys. A single keystroke selects the function you wish. A heavy, color coded card is supplied which fits above your keyboard so you do not have to memorize all the functions. I tried all the functions and they work very well.

The functional module, memory requirements, and the functions performed will now be described. The red module takes up 2.25K and contains a standard Apple list, a new list which puts each Basic statement on a separate line, and catalog D1(D2). The nice thing about these listings and catalogs is that you can scroll them BACKWARDS as well as forwards. The ESC key halts the listing and during a catalog the number of free sectors is shown. A Ctrl-C will exit any of these functions cleanly.

The orange module takes up 1K and contains a monitor disassembler, a HEX/ASCII memory dump, a HEX/DECIMAL number converter, and a monitor insertion capability. The disassembler only needs a starting address to do a continuous disassembly as opposed to Apple's 22 lines at a time. The memory dump includes the ASCII equivalents of the displayed memory locations on the right side of the screen. Both of these functions have the same forward/backward scrollable characteristics as mentioned before. The HEX/DECIMAL number converter is self explanatory. The insertion capability allows you to enter up to one line of monitor instructions from Basic and be automatically returned to Basic.

The blue module takes up 2.25K and includes append, renumber and auto-number. The append includes the standard hide and merge functions. The renumber function is of the standard type. The auto-number function is first set up and then it is activated when the space bar is pressed as the first character after a return. Thus you can enter direct Basic and DOS commands whenever you need them.

The yellow module takes up 1.75K and includes vital-stats, 2-byte PEEK, variable cross-reference, variable display, replace cursor, and control character display. The vital-stats displays decimal and hex program pointers for the Applesoft program in memory. The 2-byte PEEK displays the contents of the 2 bytes (as a decimal address) starting at the decimal or hex

address given. The variable cross-reference displays all variables, strings, and arrays in the current Applesoft program, sorted alphabetically and followed by the line numbers in which they appear. The variable display will display all variables and strings in memory and their current values, in the order in which they were allocated. The replace cursor function allows you to activate a different cursor (flashing underscore, fixed solid block, etc.). The control characters function, when turned on, displays control characters in listings, catalog, etc. as inverse characters.

The screen switches module takes 0.5K and is the only mandatory module, as it contains the command handler. It allows you to clear the screen or display the various HI-res screens without clearing them.

Beagle Bros. also provide the capability to reconfigure the program so it will be activated as an ampersand CALL. Instead of pressing Ctrl-F 10,100 <return> for the new listing of lines 10 to 100, you would press &N 10,100 <return>. I tried to use this in a list capture program. I knew it would default to the keyboard at the end of the listing, requiring me to close the file from the keyboard. However, what surprised me was the fact that the resulting text file started off in the new list format, but reverted to the normal listing about a third of the way through. A letter to the chief Beagle should clear up the mystery.

As with all Beagle Bros. software it comes with a PEEK, POKE and useful CALLS chart. The list price is \$34.95, but is available for less at most dealers. I highly recommend this disk.

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WHO'S NO. 1 IN SOFTWARE?

by Walton Francis

We Apple owners have always felt a bit defensive about the ubiquitous CP/M operating system, to say nothing of those "trash-80's" and the upstart IBM. We know, of course, that we have the best software, but never dared claim that we had the most software.

With a little help from the broadest and most comprehensive software guide published, I have some good news and some bad news.

First, a digression on the PC Clearinghouse PC Software Directory. This book, a copy of which is in the club library, claims to list over 20,000 software applications for over 200 microcomputers. Well, perhaps. But a bit of editorial license is involved since the product index lists fewer than 4,000 programs, and the summary of programs by operating systems totals perhaps 12,000. In fact, the typical program runs on many computers, and the duplication involved is near impossible to sort out. Furthermore, the editors of PC Clearinghouse Directory have relied on the advertised compatibility of each program and wound up listing, for example, some CP/M programs as Apple specific and others only as CP/M specific, depending on the manufacturers claims. As a result, it is impossible to get an accurate count of the number of different programs which run on each computer--the only thing we know for certain is that there is a lot of duplication. Nonetheless, I've given it a whirl by making a few simple (and arbitrary) assumptions about cross-operating system compatibilities and duplication.

As shown in the accompanying table, the single largest category of programs listed in the Directory is CP/M 80: 2,266 programs versus 2,044 for the second place

Apple. Assuming that the average program is implemented in two operating systems (e.g., averaging over the computer specific programs and the footloose ones such as VisiCalc), there are perhaps 5,690 genuinely different programs listed in the Directory. Of these, 36% run on Apple DOS and 40% on CP/M. But we know that all (?) CP/M programs run on the Apple with an add-on board, as do Pascal programs. Similarly, virtually all other computers run CP/M and Pascal programs. As a consequence, some very large fraction of commercial software runs on the Apple--79% estimated in the table--and scarcely lesser fractions on several other computers including Radio Shack and IBM.

The Directory understates the dominance of the Apple because it doesn't include games, though I could hardly blame the editors for not doing so. With games included, of course, the Apple would probably be in the high ninety's, and none of the others much over 50%.

On the other hand, if one included the \$500 Apple/IBM Connection board which allows the IBM to run all (?) Apple software, then the IBM would necessarily be in the number one spot.

Regardless of how one sorts it out--and numerology is necessary to do so--it is clear that four operating systems dominate the scene, each with somewhere around one-third of all the non-game software sold: Apple, Radio Shack, IBM, and CP/M. Not surprisingly, these "big four" operating systems account for all but a tiny fraction of the hardware sold. Arguing as to which is number one is not a serious exercise, though lots of fun when sympathizing with friends who didn't buy Apples.

Microcomputer Software by Operating System
(from PC Clearinghouse Software Directory, 1983)

Top 15 Operating Systems	Type of Software					Gross Total for OS	Percent of	
	General Business	Specialized Business	Programming Tools	Education	Home and Personal		Undup. Total	plus CP/M & Pascal
Apple	785	259	510	377	113	2044	36	79
TRS-80	792	280	527	249	93	1941	34	77
IBM	681	161	410	60	41	1353	24	67
Oasis	451	200	59	2	2	714	13	56
MP/M	201	103	137	5	0	446	8	51
Comm. Pet	135	45	92	132	26	430	8	51
Heath	130	26	75	117	11	359	6	49
DEC	147	28	157	10	7	349	6	49
Atari	121	26	95	76	21	339	6	49
TI	124	17	63	68	0	272	5	48
Unix	104	17	128	0	2	251	4	47
CP/M 86	113	13	117	2	1	246	4	47
Hewl. Pack.	98	31	51	2	4	186	3	46
CP/M 80	1067	413	701	85	0	2266	40	40
UCSD Pascal	77	20	73	5	9	184	3	3
Unduplicated Total*	2513	820	1598	595	165	5690	100	100

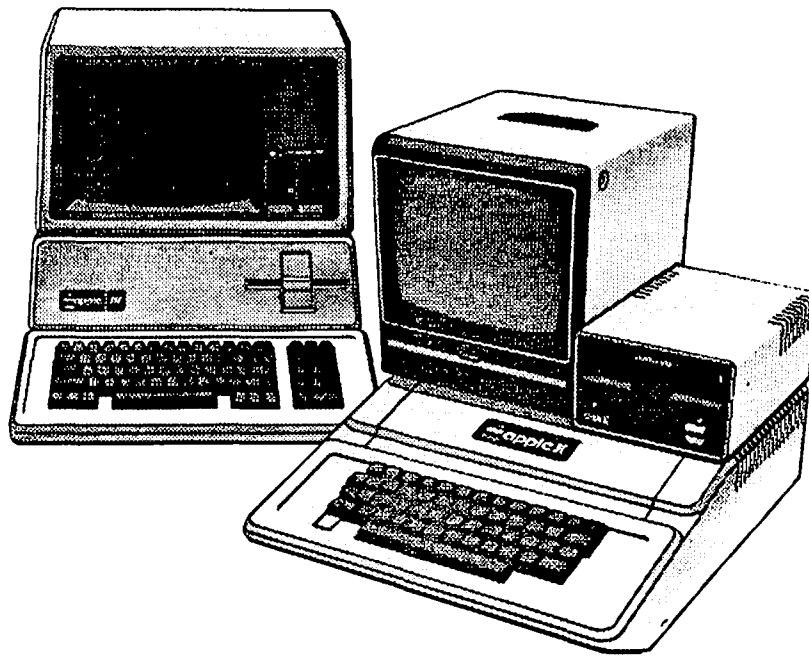
* Assumes that average program is implemented in two systems.

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EDSIG NEWS

by Peter Combes

EDSIG Calendar

Tuesday, September 6th at 7.30 p.m.

"Computers in Education - the Ideal Versus the Reality" - a Round Table chaired by Mary Brown.

All EDSIG meetings are held in Lecture Room A, Building A, 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 Reports

Tuesday, August 2nd at 7.30 p.m.

"Reading Skills and the Apple" - Judy Priven.

Judy is both an educational designer and consultant and the director of an institute for children that need to have certain skills developed. Her students range from first grade to adults, and they all feel that they have some need that is not met in the classroom. This applies equally to the .700 kid who wants to go to Yale as to the problems and inarticulate anxieties that stem from another pupil's inability to read or write. As the pupils did not come in order to learn Computer Literacy, the computer must be used in an effective way towards the basic language arts goal. The computers must justify themselves in cost - effective terms.

Judy generally has two pupils at a time, one working with the computer and the other face-to-face with her. Just as Judy monitors her own pace of instruction according to what the pupil needs, so she requires that the computer should react in the same way. "A good program adapts its level and pace and content of instruction to what the pupil's needs." Judy believes that there should also be room for the pupil to "insert his own special data".

Few educational programs, it must be said, meet these criteria. Judy demonstrated some of her own material, and discussed it in terms of these requirements. Although originally she did some SAT material for EduWare on her own, she describes her current work as very much a team effort, and she now believes that it is impossible for either the educator or the programmer to produce effective material alone. She demonstrated "SAT Word Attack Skills", which is intended to develop vocabulary for college bound students, dealing with the word segments of SAT.

Alan Tottle described some of the problems faced by the professional programmer, meeting educational requirements for the first time. He had been struck by the flexibility of the educators, and their willingness to make major structural changes in response to the results of testing with students. "In the business field you get the specifications, turn them into code, and that's it." A great deal of attention had been paid to formatting. A graphics package had been used to replace the standard Apple text with high resolution text, both in normal and inverse modes. "Clarity" in formatting was much sought after, and various operational modes were available to the student. "Help" screens had been introduced quite late in the process, but had proved extremely popular with students. Keeping the operation of the program reasonably fast had been difficult, and problems in this area had led to the abandonment of Pilot.

Plans were in hand to extend the programming to a "suite of programs" and to make code for Atari 800, Commodore 64 and IBM PC, though the lower end machines were still considered too limited for educational use.

Correspondence

Dear Mr. Combes,

Thank you for writing to Rachel Miller and enclosing a copy of the evaluation of Context Clues. I was pleased to learn that your members have made approving comments on the imaginative use of graphics and the high standard. As the copy you have seems to have a small bug in it, I would appreciate your returning it to me so that I can provide you with one that is bug free. I should note that this is not a problem in the program but must be specific to the copy you have.

I would like to respond to the comment with regard to the Context Clues skill. The words used for the context questions were chosen for being more difficult than the surrounding reading material. Nevertheless, fourth and fifth graders of average and above average reading ability might very well know these words. In such instances, the students would not need the surrounding context to choose the correct definition. The board game that the computer version is based on has been used in schools for four years. Many educators have found it to be an excellent tool in providing reinforcement of context skills. With the appropriate student this program can be very effective. Ultimately, however the decision of who should be using a particular material rests with the teacher. I do not disagree with Betty Hansen's evaluation. It was valid in her case. I would like to point out, however, that other educators have found the skill to be appropriately called Context Clues.

I am enclosing a copy of the evaluation of this game by Courseware Report Card. I thought it might be interesting to you. We do have many new materials coming out in September and I have asked Rachel Miller to keep you informed about them and to submit some of these products to you for review.

Sincerely,

David Savitsky,
President,
Learning Well,
Roslyn Heights, N.Y.

(The Courseware Report Card describes Context Clues as "fast paced, highly personalized, and provides data relative to performance. The game makes makes no logical connection between its format and the skill being practiced: there is no relationship between the 'pirate' theme and the fact that context items are being provided. Nevertheless the game is enjoyable and provides the students with an opportunity to practice this essential reading skill in a manner far more stimulating than could be accomplished with text or pencil/paper activities." - PJC)

new meeting date
September 17

ASMSIG NEWS

The Assembly Language SIG, after a winter of hibernation, has been resurrected and is now alive and doing well. We have a broad range of planned topics to be covered in upcoming meetings, including word processing design, database management design, machine language graphics, copy protection schemes, compilers and operating systems design. We have also begun tutorial classes in 6502 Assembly Language Programming (it's not too late to sign up!) and we will also be looking at 8080 and Z80 programming in the future. Group programming projects will be undertaken according to the interests of the SIG members. Meeting times and locations are listed at the conclusion of this article.

We will also be submitting an assembly language programming column to the Journal, and we will welcome problems to solve or topics to cover. Space permitting, we will include listings in our articles, whenever occasioned by the topic. To get your suggested topics to us, send a card to:

ASMSIG
8405 Snowdon Loop
Laurel, Maryland 20708

or call Ray Hobbs at (301) 490-7484 weekday evenings, between 6 and 9 P.M.

For the present, our column this month will start at the beginning questions for most programmers: "Why bother with assembly language programming?", and "Is it as tough to learn as they say it is?"

First, assembly language programming does not offer any added power to the programmer's arsenal that he could not get from BASIC (except perhaps, for some types of bit manipulation.) What it does offer is speed, and lots of it. Many of you have seen assembly language programs generated by one of the APPLESOFT compilers on the market, and these programs run about 15 times faster than APPLESOFT. True assembly language programming, however, is significantly faster than that, because the code is usually application-specific, whereas the code generated by a compiler is the result of generalized routines being associated with APPLESOFT keywords. Moreover, the compilers usually generate a large amount of overhead instructions which would be unnecessary if the code were to have been originally written in assembly language (the benefit of specialized routines, of course, is in ease of usage, while the cost is in decreased speed and increased memory consumption).

Since speed is the primary benefit of using assembly language, several applications come to mind as being prime candidates for assembly language programs:

- Word Processors (if written in BASIC, you can type faster than the program can assimilate the data)
- Database Managers (sorts in BASIC are too time consuming)
- Arcade Graphics (in BASIC, Donkey Kong could be collecting Social Security before Mario climbed up the tower)
- Operating Systems (combines features of all of the above program types)

If your program calls for a lot of user/computer interface, where the user makes decisions and the com-

puter calculates formulas based on those decisions, you can get by very nicely in a high level language. However, if the computer is acting as a receiver of rapid-fire input and generating rapid-fire output, assembly language is the fastest way to go.

As to the second question, there is nothing inherently difficult about assembly language. If you learned BASIC or any other high level language, you can learn assembly language. The mnemonic (symbolic) code is just a shorthand form of English, and the operations performed are simpler than those performed by BASIC. There are, however, two caveats - first, that assembly language is not as tolerant of sloppy programming practices as are higher level languages, and second, that you will have to learn something about where in your APPLE certain operations take place.

Many of you will now be saying, "Aha! Hex! He forgot about having to learn to count in hexadecimal!" Well, I really did not forget about it. The truth is, I have been programming on the APPLE in assembly language for two years, and I still have not learned to count in hexadecimal. If I could only grow another 6 fingers....

MEETINGS - Following Main Meeting, in cafeteria.

TUTORIAL - 1st and 3rd Tuesday of each month (may be changed to Wednesdays - check first).

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THE BOTTOM LINE

by Leon H. Raesly



ETHICS IN (testing) BUSINESS?

Psychological instruments (tests) on a Micro-processor? Why Not! Look at some of the many advantages:

Tests could be given in quiet surroundings, with each question individually presented on the screen, thus avoiding the testing result of often feeling overwhelmed by seeing all the questions at once. In addition, the fatigue factor would be lessened, with for untimed tests the possibility of stopping, taking a break, and coming back refreshed.

Scoring would be fast, and immediate scores and representative profiles (graphs) can be both presented on the screen, and also printed immediately.

In addition, for many instruments, representative verbal interpretations can be printed, so the interpreter (Psychologist, School Counselor, Clinical Social Worker, etc.) would have most of the basic interpreting done, and could use their professional skills (Art?) to provide the extra view that can make these instruments worthwhile.

And the most impactful benefit would be that the results would be available immediately! This would greatly lessen the anxiety of the testee (Client, Patient or whatever the "professional" calls us normal people who use their services!) while waiting for results to come back. Yes, come back! Most psychological instruments are not scored by the professional, but rather sent back to the testing company to be scored on a machine (computer!). This takes time.

But these psychological instruments are not available for the Apple, and other micro-processors. Oh, the Firo-B (an excellent short, quick measure (test) useful for group, marital and other inter-personal dynamics) was available for a short while about two years ago, but it was pulled off the market quickly. Why are these not available, and what alternatives do we as professionals have? Thereby lies the story of this article. And perhaps something for all of us, professional and non-professional alike to consider.

I have done some contacting of several Testing Companies, and always receive the same answer. It is not Ethical (always with a capital E). And if I agreed to make the source confidential, they would usually speak further. I will start with what they call the Ethical argument.

And before I start, I would like to make clear that the view of this author and article is as a Philosophical (I too can speak in capitals!) piece, and is not intended in any way to present any legal opinions. Consult your attorney to get his view of the legality on any of these issues.

The Ethical argument goes something like this: Psychological instruments are dangerous in the hands of the untrained non-professional, and if they were available for the Apple, soon anyone could have them, and great harm could result if used unresponsibly.

Now it is true that all "reputable" testing companies make some effort to control who can buy their instruments, but this is not really tightly controlled. Anyone can usually present a sufficiently convincing

story, no matter how much is fabricated, to purchase the instruments. You need only know the type of information that they wish, and tell them that.

Besides the fabrication of answers, there is another aspect that is not controlled at all. Each company has some method of computer (they call it machine) scoring, and most often you purchase some type of stamp, or sticker, which you affix to the answer sheet. I know of no testing company that makes any attempt to ascertain whether this answer sheet (containing the sticker) is in fact from the person they sold it to. And while the schools, business, etc. do control them somewhat (after all, they cost money!), any industrious individual can usually locate a copy somewhere.

In addition, all instruments (tests) can be hand scored (That is the way everyone used to do it a few years back), and most persons that use them usually have these hand-scoring guides and manuals on hand for the rare "emergency" when they can't wait for the computer scored results.

So to me the so-called Ethical argument doesn't wash. Just as much control can be exercised by the testing company with the instruments on disks for the micro-processors as they exercise now. In fact, it would make them even less liable to Ethical charges, for with all scoring done by the using Professional, there is no opportunity for the testing company to score results for a "borrowed" (read that as lifted, or stolen) answer sheet and sticker.

And thereby lies the real answer in that phrase. No testing company could score results... stop, that's the real key! It is Economic.

Let's take a moment and look and what a user usually buys from the testing company. The standard package will hold true for over 90% of the instruments available today. First, you get a manual. This is usually of the same understandability and clarity level of most micro-processor manuals (rating from poor to awful!), but it is provided - for a fee. Then you get a question book, which provides the questions to be answered by the "testee". Both of these are usually purchased in single units, or perhaps several for the question booklet, so that several people can take the test at the same time.

Next, are answer sheets. Usually machine scoring types, the usual "dark pencil marks in the square". Often the user will also purchase one set of hand-scoring guides for the "emergency" situation mentioned above. Then the user must purchase the stickers for machine scoring. These usually cost about \$2. to \$2.50 for scores only, and from \$4. to \$6. for machine interpretations (depending on quantity purchased). And this has developed in the last 10 years to be the real money and profit for the testing companies. For many companies this accounts for 40% to 50% of their income and profits.

And there you have it. The "real" big E. Economics (NOT Ethical!). If the instruments were available on the micro-processors, no answers sheets would be purchased (typically 10% to 15% of any company's volume) and clearly no computer scoring stickers would be purchased, for you can do your own computer scoring. And even interpreting! Thus, the testing companies would quickly lose 40% to 60% of their business (and profits).

contd.

So currently none of the major testing companies sell micro-processor versions of their tests, and I don't think they ever will. They lose control not of the Ethics, but of the Economics (their huge profits).

But I started (or at least muddled) by saying that this was a philosophical article (or maybe diatribe!). So let's get on with that. What other alternatives do professionals have. I will start from what I perceive to be the least objectionable to the testing companies, to the most. And from a Philosophical view, NOT a legal one.

Sometimes it is useful to get quick "direction" of an evaluation. For instance, I might be testing a group, and would want to get an indication of where to look within the instrument. SO I have, for several instruments, both "normal" and "disturbed" profiles on Visicalc. And these are set-up for various populations (groups of people with similar backgrounds). I can then just enter the raw (or adjusted) scores of the instrument for one person, and get a correlation either of the entire profile, or of particular variables (yes, they call them variables in that profession too!). In addition, I get a quick indicator of whether the answers are most likely fudged (telling me what I want to know, rather than trying to answer where the person really is), as well as consistency (do the answers in one section make sense in terms of the answers in another section).

All of the information of how to do this is in most manuals, and it only requires limited knowledge of Visicalc to format Visicalc for this. And this can be very useful information. And, of course, it is also possible to write a "quick and dirty" Applesoft program to do this. More work, but it will look more polished, especially in its printed output.

Now to the next level. Remember the hand-scoring guides that I mentioned that most professionals purchase? Well, these could be used to establish a scoring model on Visicalc (or in Applesoft, or even Pascal!) so that when the individual completed the hand-scoring answer sheet, the "Professional" simply entered the answers into his or her own computer, and the score results would be printed immediately. Further, with Visicalc, it is possible to get an immediate profile (graph) with the / * command. Thus the results would be visually apparent NOW!

Philosophically, this would seem to me to be Ethical. I am using the purchased (I won't get into making Xerox copies of hand-scoring answer sheets!) answer sheets, and the purchased guide. I am simply doing the "hand-scoring" with a different pair of hands - my Apple! For the legal question, see your attorney!

O.K., if Philosophically I am consuming just as much from the testing company as if I used the original method of "hand-scoring", how about interpretations? Well, it isn't possible to get a copy of the testing companies computer program, so I would need to write my own. And for this I would need to use some computer language (perhaps Basic or Pascal). All of the information is BOTH in the manual, and in my own training and skill as an interpreter for that instrument. And since I am creating in fact something from my own knowledge, and which is not available (except as a service, and that doesn't count in terms of this article), Philosophically that also presents no problem.

new meeting date

September 17

While this is fairly clear from a Philosophical view, and even to then sell the program to outsiders, with the addition of the "sell" it apparently becomes another no-no legally (but if you decide to do it, consult your attorney!) So I don't expect to see even this type of limited program on the market.

The ultimate level, of course, is to write a program that not only does the above, but also presents the questions one at a time (with graphics?) on the screen, and stores the answers in an array. And even to disk. Now here the Philosophical questions still stay fairly clear for me, I have purchased the question book, which is used over and over again, so that if I just purchased hand-scoring answer sheets, used the computer to do all of the above, plus print the raw answers on the purchased answer sheet, I have economically used just as much supplies as I would if I had literally done it all by the original issue hands I came with which I came equipped. However, with the addition of the concept "sell", the legal question becomes clearer. Even to me as a legal layman, that is the biggest NO-NO. Again, not legal advice, simply my personal opinion.

However, the advantages of such an approach are so great, that I believe that it is being done (done, not sold) over and over again by many professionals. And that is the big fear of the testing companies. They will slowly lose Economic (not Ethical) control if the trend continues.

There is a slowly growing "underground" of mental health professionals who write these programs, on Visicalc, or in Basic, and then trade with other mental health professionals. And so in even another field, mental health, the micro-processor is having an impact, and over time I believe will have a large impact. Not because the testing companies are doing something about it, but because it is another idea whose time has come, and it will "out" no matter what anyone does to stop it!

WAP BUSINESS SIG

The WAP Business SIG will meet in September after the main meeting in the cafeteria. Primarily on the agenda will be the election of a new SIG Chairperson. Following will be an open discussion on what people wish to do with the SIG for the coming year.

So that's all for now. Thanks for listening.

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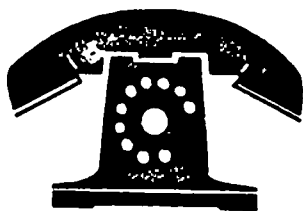
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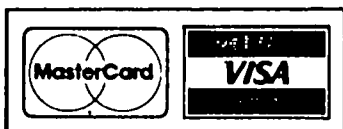
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THE SCREENWRITER HOTLINE

by Peter Combes

I obviously have a lot of tactful friends, keeping a diplomatic silence. Let it be said in one quick rush of embarrassed breath - the program I gave last month for making text files of catalogs does not work. The DOS command CATALOG remorselessly prints to screen and not to the disk.....

Here is a quick simple minded program that does produce catalog text files - you may recognise bits of it from George Kinal's program last month:

```
100 REM CATALOGFILE MAKER
110 REM BY GEORGE KINAL & PETER COMBES
120 HI = 38400
130 HIMEM: (HI - 256)
140 HOME
150 PRINT : PRINT
160 DIM FM$(500): DIM FK$(500)
170 DIM FQ(500): DIM TK(500)
180 DIM FO(500)
190 T$(0) = "T"
200 T$(1) = "I"
210 T$(2) = "A"
220 T$(4) = "B"
230 T$(8) = "S"
240 PRINT "INSERT DISK TO BE CATALOGED"
250 PRINT "AND PRESS <RETURN>"
260 INPUT Q$
270 GOSUB 470
280 PRINT "INSERT DISK FOR RECORDING FILE"
290 PRINT "AND PRESS <RETURN>"
300 INPUT Q$
310 PRINT "GIVE IDENT FOR DISK"
320 INPUT Z$
330 PRINT CHR$(4)"MONC,1,0"
340 PRINT CHR$(4)"OPEN CATALOGFILE.":Z$
350 PRINT CHR$(4)"WRITE CATALOGFILE.":Z$
360 PRINT "DISK NAME: ";Z$
370 FOR J = 1 TO 500
380 PP = TK(J): IF PP > 10 THEN PP = PP - 128
390 IF FK$(J) = "END" THEN J = 500: GOTO 410
400 PRINT T$(PP);" ";FK$(J)
410 NEXT J
420 PRINT CHR$(4)"CLOSE"
430 PRINT "WANT TO CATALOG ANOTHER?"
440 INPUT Q$
450 IF LEFT$(Q$,1) = "Y" THEN CLEAR : GOTO 100
460 END
470 REM CATALOG READER
480 POKE 47084,17
490 POKE 47085,15
500 POKE 47092,1
510 POKE 47083,0
520 POKE 47091,0
530 LOC = HI - 255
540 POKE 47088,LOC - INT (LOC / 256) * 256
550 POKE 47089, INT (LOC / 256)
560 POKE 768,32: POKE 769,227
570 POKE 770,3: POKE 771,76
580 POKE 772,217: POKE 773,3
590 XE = 1
600 CALL 768
610 FOR X = (LOC + 14) TO (LOC + 224) STEP 35
620 JJ = INT ((X - LOC) / 35 + 1)
630 FM$(JJ) = ""
640 FOR Y = 0 TO 29
650 FM$(JJ) = FM$(JJ) + CHR$( PEEK (X + Y))
660 NEXT Y
670 FO(JJ) = PEEK (X - 3)
```

```
680 FQ(JJ) = PEEK (X - 1)
690 NEXT X
700 FOR X = 1 TO 7
710 IF FO(X) = 255 THEN 760
720 IF NOT FO(X) THEN X = 7: NS = - 1: FK$(Z + 1) =
"END": GOTO 780
730 Z = Z + 1: FK$(Z) = FM$(X): TK(Z) = FQ(JJ)
740 REM
750 REM
760 NEXT X
770 NS = PEEK (LOC + 2)
780 IF NS > - 1 THEN POKE 47085,NS: GOTO 600
790 RETURN
800 END
```

If you really want to make text files from disk catalogs, try the MASTER CATALOG program on the Apple Pi disk WAP 101 (available at the office or at main meetings). This will do all sorts of exciting things like collecting catalogs from lots of different disks, sorting them, doing searches, and so on. Our spies tell us that Tom Warrick is bringing out an even more splendid version shortly, but in the interim MASTER CATALOG does work. ☺

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ME AND MY PC

by C. Swift, Prop.

Today is just a little bit special for me, since this marks one year since I first touched a computer. The experience was delightful: I attended a group session, two each to a keyboard, with an instructor who busied around trying to run a cassette tape into a little box next to each of the stations. When our turn came, my partner and I had already pushed every key on the keyboard, and this of course caused her some additional despair. Nevertheless, she got us "programmed" (whatever that was - I thought at the time it was something like Big Brother watching), and away we went, happily typing in our names and little answers to simple questions and jumping a little each time the screen asked us questions by name! (Today, naturally, I would describe that experience as my first software/lifeware interface.)

The bug is catching. In less than ten minutes I was hooked. (Know the feeling?) This I must have for my very own. Methodically I harrassed every salesman within fifty miles. I asked questions for which there were no answers. "Why do I need RAM when it already has ROM?" "But 48K is way too much - didn't you say it costs less than a thousand?" "If I buy the computer, why do I need software?" "Can't I just use my record player instead of a disk drive?" Well, the questions might really have answers, but at the time they made no sense to me at all. I left with pamphlets and price lists and technical descriptions which didn't help a bit on re-reading.

Finally I decided on the Apple. Today I could give good reasons for the selection, but at the time it was just dumb luck - my wife liked the name! Next - a monitor. ("Monitor? Who'll be monitoring me? What's wrong with my TV?") O.K., green phosphor with non-glare - after the disk drive, what's money.

Now for the printer. Surely this is no big deal. ("Dot matrix? Daisywheel? Serial? Parallel? Interface card? Dear Lord, what am I doing?") C.ltoh Pro-writer - why not? (Another lucky shot in the dark - a really great printer.)

"No thanks, I think I'll pass on the modems today." (What in the world am I doing? I'm already in way over my head...)

Home to read the directions ("CAUTION: THE POWER SWITCH MUST BE OFF BEFORE...") and connect the parts. (This wasn't too hard; I am an old hand at assembling tricycles on Christmas Eve!) Aha! The infamous "Applesoft Tutorial" (no big problems - once the errata have been entered), "Applesoft II Basic Programming Reference Manual" (hmm - a little perplexing), "Apple II Reference Manual" (I'm in trouble), "The DOS Manual" (there's more to this business than that salesman every hinted), and "Apple Writer II" (this one will have to wait!).

On to immediate mode and deferred mode. SAVE, CATALOG, LIST, RUN...and on into the night. YIKES! It just beeped at me! What have I done? Is it ruined forever? Uh-oh...it's OUT OF MEMORY...and only six hours old. Nightmares that night of I/O ERROR and roaming cursors - comforted by an angel chorus softly singing "Going HOME, Going HOME..." (Of course, a year later I would be able to laugh at the bumper sticker that proclaims "E.T., PHONE CALL -936".)

Time to start up the printer - this should be fun.

Hey, this paper has holes along the edges! What's a default? (Default is with my ignorance...sorry about that.) Do I want Incremental mode or logic seek mode? I don't even know what they are. (Or how to change them around, so what difference does it make?)

And hour after hour of practice, which doesn't make perfect overnight. Oh, the joy that day when I finally figured out what MID\$(A\$,X+1,1) does!

And here I am a year later, bopping along with my Apple II+, Monitor ///, disk drive and printer, merrily confident of such esoterics as ASCII, HIMEM, ONERR GOTO, and even PEEKS and POKES. HGR2 is a snap. Why, I'm not even nervous about CALLING -151 and playing around in the monitor. I am living proof that with perseverance and sweat even a dullard can use a computer.

But what I really want to know is this: when will I have the nerve to start playing with Pascal or Fortran or Forth or Logo? And what my wife wants to know is this: "Aren't you ever coming to bed?"

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USING AN OLIVETTI PRAXIS 35 TYPEWRITER AS A PRINTER

by Joan Bixby Dunham

Shortly after bringing home our shiny new Apple II+ in February of last year, sometime within the first half hour of proud ownership, my husband and I realized that we absolutely, positively had to have a printer. When we discussed it, we decided that we wanted one which would produce letter quality print, with interchangeable fonts. We are from the Selectric generation, and we wanted the same quality from our computer that we expected on the job. But we didn't want to mortgage the house to buy a printer (after having spent the savings labeled "car" on the computer).

Our decision to buy the Olivetti Praxis 35 typewriter and modify it to use as a printer was based on several factors. One was the fact that I liked the Praxis. Another was that interfaces between the Apple and the Praxis were available, or at least rumored to be available. A third factor was the cost. While not exactly free, the typewriter plus interface was less than \$800, which looked like a bargain compared to the cost of a daisywheel printer.

I bought the typewriter locally, and ordered the interface from the west coast. The typewriter dealer who sold it to me did not recommend using the Praxis as a printer. He described the Praxis as a portable designed for light use, not a heavy duty office machine, and tried to convince me that it would fall apart under the use I proposed. He suggested several alternative typewriters with interfaces which he would install instead. He also expressed concern when I explained that I planned to install the interface myself, and told me that he would not honor the warranty if I poked around inside the typewriter with a soldering iron. I bought it anyway. He might be right about the sturdiness (or fragility) of the Praxis, but what he wanted me to buy was twice as expensive.

We didn't have any worries about invalidating the warranty by opening up the Praxis. The warranty expired before the interface arrived. We found that the Praxis worked fine as a typewriter while we sat around waiting for the interface. We also became even more convinced that we needed a printer, and when we got really desperate, we printed files with a friend's system. We installed a Vldex keyboard enhancer and an 80-column card. We began to collect a reasonably large library of programs. We joined WAP. We called the interface manufacturer so many times his office staff could recognize my voice. (To be fair, they offered us our money back, twice. And sometimes they called me.)

Installing such an interface is not for the faint of heart. The instructions were clear in the package we got, but it did require disassembling a \$500 (at the time; now it's less) piece of equipment and waving a hot iron around the logic board. Sometime later, I was discussing interface installation with a typewriter repairman. He told me that one slip, and he would charge me \$300 for a new logic board. He thought that was funny. The only problem I had was not with the typewriter or the interface, but with the new soldering iron I bought from that outfit that makes some of those Other Computers. I thought that the occasion called for something better than my old \$5 iron with the bent tip, so I bought a nice expensive one that got so hot it blistered my fingers. I guess I can use it the next time I want to weld stovepipe, or do bodywork on my car. I don't find it

very useful for electronics work, since it is hard to aim while wearing asbestos gloves.

The Praxis has a lid, which Olivetti calls a machine cover, which is lifted to change ribbons or daisywheels, and which must be removed to install an interface. That part of the installation instructions which describes the removal says, "The Olivetti folks have seemingly gone to a lot of trouble to insure that this part will not break..." Well, it didn't get broken while installing the interface. We waited until later to do that. For all who own, or contemplate owning, a Praxis: If you lift the lid with too much force, it will keep on going over the back of the typewriter. Replacements are available, however.


Installing the interface made the printer keyboard a little thicker. It bulges slightly, but I am probably the only one who notices. Our interface is attached to the bottom, so bigger feet are needed to make room for the interface. The typewriter will not fit into its case with the feet on or the interface attached. That doesn't bother us much, since we rarely move it from its little table next to the computer desk. The printer is not lightweight. It is transportable, which means that it can be carried in its case by one person, but that person will notice that something is being carried. The weight is an advantage, though, since the printer doesn't move or bounce when in use.

The interface supports all the features of the Praxis keyboard. This includes such things as setting tabs, setting margins, using the correction key, upper case lock, half spacing. It cannot change the pitch, the keyboard (The Praxis has two, American and European), or the line spacing. Those must be done manually. The difference is that the unsupported features are set by switches, and not through the keyboard. The keyboard has characters that are not in the ASCII set, such as accents, 1/2, 1/4. It lacks the < and the >. The interface manufacturer suggests using open and close parentheses, or blanks and writing them in by hand. These, and any other character transformations, are done by changes to the driver program. We haven't had much of a problem in using listings with parentheses in the place of greater than or less than symbols, but maybe somebody will make a daisywheel with those symbols. (They do, but for the Praxis? - Ed.)

The interface manufacturer supplied a card with a reprogrammable ROM and a driver which allows the printer to work through the game I/O if the card is not wanted. He also provided a diskette of utility programs and modifications, as well as instructions on customizing the printer driver or card. This turned out to be one of the more important parts of the interface supplied, as we found some conflicts between the interface and certain programs. For example, it took a while to realize that the peculiar behavior we experienced while trying to print with PIE Writer was due to memory conflicts between the two. The manufacturer suggested some possibilities, and the PIE Writer manual gave "safe" locations that we used to resolve the problems. Both Hayden and the manufacturer were very helpful, but it took several months to determine how to use the printer well with PIE Writer. The utilities disk included a BASIC program to print TEXT files for those cases where programs absolutely refused to work with the Praxis, and the assembler source code for the driver, as well as source for a

contd.

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Z80 program so the typewriter can be used with a Z80 card.

Using the printer with BASIC programs is very easy. All that is required is a "PR#n", and the printer is in business. I find that when using other people's printing programs the major modification needed is to remove their printer control statements. I modified MASTER CATALOG (from WAP disk 100), for example, to give me three columns using the 15 pitch font. I found with that program that I also had to add some statements to trap and remove control characters that appear in some disk file names, or the printer would respond in unexpected ways.

Using the printer with assembler is no more difficult than anything else in assembler. I made a half-hearted attempt to get the Pascal operating system to recognize the printer. It didn't. Someday, I'll try to solve that problem.

The printer can still be used as a typewriter with the interface installed, although we find we usually use it with the computer and a word processor. The typewriter has features designed to make the typist's job easier, such as a correction key and a relocate key. These features are not that useful when the typewriter is used as a printer. It seemed to me that a part of the difference in cost between this model and the larger "office" electronic typewriters was that the office models had more of these sorts of typing aids. The jobs these aids do are almost always easier to do with a good word processor.

The print quality is very good, as we expected. However, we discovered the fonts are not exactly the same size as the Selectric fonts. My husband had hoped to produce input for a newsletter which could be pasted up directly with the rest of the typed copy, which the editor does on his IBM Selectric. But they find that the Olivetti fonts are slightly smaller than the IBM fonts, enough so that, in the 52 character column width they chose for their newsletter, the Olivetti type is a character-width narrower than the IBM. The editor is not too impressed with the appearance when Olivetti and IBM typed columns are interspersed, and often just retypes everything.

Printing, at 12 cps, is slow. And daisywheel typewriters are no quieter than any other typewriter. I find I usually have to leave the room. The typewriter prints in bursts, as the interface loads the print 12 characters at a time into the Praxis buffer and pauses, while the typewriter prints. This has an awesome effect from the room underneath. I would urge anybody using a setup like this in an apartment building to live in the basement, or invest in foam padding to put underneath the typewriter.

It is possible to use fanfold paper, but there is no tractor feed, so that a very small misalignment on the first page grows to total disaster by the fifth or sixth page. We generally use the typewriter in a single-page mode. The word processors we use (mostly PIE Writer and Applewriter I) insist on ejecting the pages, which often means that the page lands on the floor.

We have found that the typewriter has worked well as a printer, and we have been satisfied with its performance. Like all things with moving parts, the parts that move will fail. The problems we have had with the typewriter have apparently been caused by dirt, mostly dirty contacts. Service is available for typewriters used as printers from some typewriter repair shops. The shop which fixes ours tells us that they don't mind working on typewriters with interfaces installed. The problems these typewriters have are usually associated with the mechanisms that move their

daisywheels, which can be worked on without disturbing their interfaces.

When we first got the typewriter, we used carbon ribbons. They produce gorgeous print, but they are expensive. We found we got about 10 pages of text per ribbon. Olivetti makes two types of carbon ribbons, "correctable", which can be corrected with lift-off tape, and "non-correctable", which cannot. We found that the non-correctable ribbons were harder to get, so we used the correctable ones. These ribbons produce a lot of fine black dust, which coated the inside of the typewriter, worked its way onto the roller, and started to cover anything within a radius of six feet. Worse, we started to have trouble with the typewriter. The printwheel would sometimes print the wrong character. The interface manufacturer blamed the ribbons and said that dirt might accentuate any problems caused by misadjustment of the daisywheel contacts. The problems always seemed to show up at 2 AM when we absolutely had to have something printed by 10 AM, so I tried to clean it myself. The first few times, that worked, but then I got too enthused, and jammed the daisywheel mechanism. It took two trips to the repair shop to get that fixed. We now use new cloth ribbons if we want dark impressive type, and I am much less inclined to poke around the daisywheel contacts. By cleaning the typewriter we seem to have solved the problem of the wrong characters being typed. The interface manufacturer remarked that the problems might not be noticed as much when using the typewriter as a typewriter. The typist would just assume that an error or two on a page was a typo, and not caused by the typewriter.

The third trip to the typewriter shop came more recently, when the typewriter stopped printing, but the daisywheel seemed to be turning properly. This time, it was the contacts that control the striker that were not working. Looking around inside, we found a piece of paper stuck inside the daisywheel mechanism, and noticed that the correction ribbon seemed to be generating a lot of chalky white dust. After this trip to the repair shop, we removed the correction ribbon. We were not using it; in a year we had not used more than a quarter of the first correction ribbon we had bought. The motion of the daisywheel was shaking enough chalk dust loose to cause our trouble. It's a pity the contacts are not better shielded from dirt and dust.

The cost of supplies for the Praxis is higher than we had expected. We had hoped that we would be able to find discounts on ribbons or daisywheels, but so far there don't seem to be any. The cloth ribbons are continuous loop (I took one apart; very interesting) and don't seem like they would be sturdy enough to take re-inking very often. We have not tried re-inking yet, but we have kept our used ribbons and intend to do it someday. Some of the ribbons are so frayed even before they run out of their "original" ink, that I don't think they should be re-inked. We've had enough trouble with dirt falling into the daisywheel mechanism. Just imagine what a piece of string from a ribbon could do!

The typewriter has more features than our word processors support. It has, for example, a half-space capability which could be used for a sort of proportional print which I doubt that any word processor currently supports. We have found a problem when using the boldface capability in PIE Writer. PIE Writer does this by triple striking the character which, in this case, means a print backspace print backspace print sequence is performed on each character. After about six or seven such characters, the typewriter starts tabbing forwards instead of backspacing, or dropping characters. I suspect that this is happening when the backspace is either the first or

contd.

the last character in the Praxis buffer. The problem might be cured by increasing the waits between buffer loads. That, however, would slow the printing even more. We chose the alternate solution: We don't use that feature of PIE Writer. Instead, we underline, or we get boldface by reprinting the entire line or phrase.

Changing the daisywheel requires moving the print mechanism all the way to the left, taking off the ribbon, tilting up the print mechanism, and a firm tug on the daisywheel. In a year, we have not broken any wheels while changing them. Once the Praxis did snap off a minus sign sometime during the four hours I used it to list a disassembled program I wanted to patch.

We are satisfied with our typewriter-printer and use it often. However, we bought a dot matrix printer last December when we realized that we were spending too much time printing. We use the dot matrix printer for drafts and program listings, and the Praxis when we want good print quality. The cost of our two printers was less than the cost of a good daisywheel printer, and when one needs repair, the other is still available. Would we do it again? Perhaps. I think the optimum is to have two printers, an inexpensive dot matrix for drafts and program listings, and an inexpensive daisywheel for the times when letter quality print is needed. But the printer and typewriter market is changing as fast as is the personal computer market, and what was the best purchase a year or more ago may not be the best today. See, for example, the July 11 issue of Infoworld for an article on typewriters which can be used as printers. Many of these were not on the market in March of last year.

The May, 1983 issue of Byte contained an article by Stuart Brown on how to modify an Olivetti Praxis 30 to be a printer. Almost the only difference between the 30 and the 35 is that the 35 has multiple pitch. This article is a good reference on how the Praxis works, even for those who do not intend to modify their Praxis. The Consumer's Reports of November 1982 rated portable electric typewriters, including four electronic ones. They rated the other three above the Praxis 30, and did not rate the Praxis 35 other than a mention of its capabilities. Olivetti now makes another model, the 40, which falls somewhere between the 35 and their office daisywheel typewriters. With an interface installed, this is called the 41.

In my search for information among local merchants last year, I turned up one typewriter shop that offered to sell us a Praxis 35 with an interface for an Apple installed, three others that would be delighted to do the same with more expensive typewriters, and not one computer store that would or could even discuss it. I did not find any local source for an interface that we could install ourselves.

The astute reader will have noticed by now that nowhere do I mention the name of the interface or its manufacturer. His office called me six months ago to tell me that he was trying to sell the business. I do not know under what name this interface is now available, if at all. I doubt that very many were sold. I assume that other interfaces I see advertised in various computer publications are similar, so that our experience with this one might be useful to someone else contemplating a similar purchase.

```

ABCDEFGHIJKLMNPOQRSTUVWXYZ
abcdefghijklmnopqrstuvwxy
1234567890:-,.;+!'"#$%&'()@
*/?_½¼£[]^`~|;
     estime pica (10 pitch)

```

```

ABCDEFGHIJKLMNPOQRSTUVWXYZ
abcdefghijklmnopqrstuvwxy
1234567890:-,.;+!'"#$%&'()@
*/?_½¼£[]^`~|;
     mikron (15 pitch)

```

```

∇ΨΦ+<ΛΓ, >±Ωθ~ι&ΓΘΣΤΞ∆≡+=
αβψφελιληι,κωμνοργθστυξζδχυζ
1234567890∞††+''/•{}§'÷'x~|
('°∫_ππ[])^∨^π]π`
     symbols (10-12 pitch)

```

```

ABCDEFGHIJGKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890:-,.;+!'"#$%&'()@
*/?_½¼£[]^`~|;
     Roma

```

```

ABCDEFGHIJKLMNPOQRSTUVWXYZ
abcdefghijklmnopqrstuvwxy
1234567890:-,.;+!'"#$%&'()π
*/?_½¼£[]^`çé'ñÑ|`?|;
     Tiber legal (10 pitch)

```

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LHR ACCOUNTS PAYABLE - THE Spreadsheet 2.0 or VisiCalc by Leon H. Raesly

My purpose in writing this article was to write a template using THE Spreadsheet 2.0, with some of its advanced features, that could also be entered into Visicalc. I will also share some special design features demonstrating some of the ways that spreadsheets can be used.

This spreadsheet is for Accounts Payable, and is suitable for personal, professional or a small business use. It is set for 25 accounts, but can easily be expanded to any number you wish.

Some of its features are:

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7. It will roll the names and balances forward to next month, using the DIF feature.

USING THE MODEL

After you have entered the template, save it to disk, of course. Then to use it each month, set up your month template in the following manner: First goto cell C7, and enter the month number (i.e. July would be month 7). Next go to cell B9 and fill in the names of your accounts in the ACCOUNT NAME column (starting at B9), and enter all your names. Then replicate this column to column X9, using the REPRODUCE (REPLICATE in Visicalc). Now you need to save this column to disk using the DIF function. Place your cursor at cell B9, and DIF this column to disk. I call the saved model of the template ACCOUNTS PAYABLE-MODEL, and the DIFed names ACCOUNTS PAYABLE-MODEL.NAMES.

Now enter your beginning balances in Column C9. If there is no balance, enter a zero. Now go to the variable CWA (Current Week Active) for the week you are in (i.e. if this was the second week, goto cell I8) and enter a one. Each week you would first "turn off" the variable CWA by changing last week from a 1 to a zero, then go to the current week and change the zero to a one.

Now enter you payments for the current week in the column headed PAID. Since RECALCULATION is set for manual, after you enter all your data, tell the Spreadsheet to recalculate by typing !. Save your new template to disk. I use the name ACCOUNTS PAYABLE-MONTH (where month is the name of the month).

If this is the last week in a month, you will also want to DIF the final balance to disk, so that you can "roll-over" these balances to next month. To do this, go to the week (either 4 or 5) that is you final week. Go to the first entry of the column headed BLNCE (stands for BALANCE). Now DIF this column to disk in the usual manner. If you use a similar naming convention as I do, you might wish to call the file ACCOUNTS

PAYABLE-MONTH.BALANCES (where MONTH is the month name).

Now let us assume that it is the first of next month. All you need to do is boot the spreadsheet, load the template ACCOUNTS PAYABLE-MODEL from you disk. When it is fully loaded, goto cell B9 and DIF your file ACCOUNTS PAYABLE-MODEL.NAMES into this column. Then move to cell C9, and DIF your file ACCOUNTS PAYABLE-MONTH.BALANCES (where month is the name of the month) into this column. Goto cell C7, enter the month number, tell the spreadsheet to RECALCULATE (!), and watch the model come to life! Of course, after you enter your payment data, save this to disk as the new month (i.e. ACCOUNTS PAYABLE-NEW MONTH (where NEW MONTH is the name of this new (or next) month).

To use the model for 1984 (or any year but 1983, goto cell D45 and answer the question "IS THIS A LEAP YEAR" by placing a 1 in the appropriate cell if it is not, and a 2 in the cell if it is. Then go just above in row 43 and enter the date of the first Friday of each month, starting with January. The numbers in the row above are the numbers of each month (i.e. January is 1, February is 2, etc.) Now your model is ready to use for next year (and the year after, and after, and after ... but you get the idea!)

To add additional rows for more ACCOUNT NAMES, goto cell A35 (where the dotted line is). Add as many rows as you wish by using the INSERT command (/ I R) for rows. Then replicate row A34 to Y34 using the REPRODUCE (REPLICATE for Visicalc). The model has been constructed such that you will automatically change all @SUM and other related commands. Do NOT DELETE the row of dotted lines, as this is more than cosmetic, and is an actual planned (and used) part of the design.

ABBREVIATIONS USED IN MODEL

CWA = Current Week Active
APAMT = OPening AMOUNT (Opening Balance)
WK# = Week Number (and date of last Friday - i.e. 2.08 in July would be week #2, and the date of the last Friday would be the eighth)
NA = an automatically return signal that it is Not Applicable
PAID = amount PAID that week to that account
BLNCE = BaLaNCE due on account after that week's payment
RCDS = ReCoRds of payment for that week

Typing the model in THE Spreadsheet 2.0

When you type the entry into THE Spreadsheet 2.0, some of the column titles may seem broken, or spaced out. Don't let this concern you. When you get to the appropriate section of the listing, you will change the width of certain columns, and all will come back in shape, and be legible.

Typing the model in Visicalc

When you have finished entering it in Visicalc, you will have to do some cosmetic work. The titles and other label data are planned for variable width columns. So you will have to retype some of the titles to fit the column width for Visicalc.

Well, that's all there is to it. Below is the listing for the model. May all your ACCOUNTS PAYABLE be ZERO!! Thanks for listening. contd.

LHR ACCOUNTS PAYABLE LISTING

```

>L48:31
>K48:30
>J48:31
>I48:30
>H48:30
>G48:31
>F48:30
>E48:31
>D48:30
>C48:31
>B48:@1F(C45=1,28,29)
>A48:31
>L47:12
>K47:11
>J47:10
>I47:9
>H47:8
>G47:7
>F47:6
>E47:5
>D47:4
>C47:3
>B47:2
>A47:1
>G46:"H
>F46:" MONT
>E46:" EACH
>D46:"YS IN
>C46:"OF DA
>B46:"W IS NUMBER
>A46:"BELOW
>C45:/FL1
>B45:" ----->
>F44:"NO
>E44:/FL"ES 1=
>D44:" 2=Y
>C44:"EAR? 1=NO
>B44:"HIS A LEAP Y
>A44:"IS T

>K43:4
>J43:7
>I43:2
>H43:5
>G43:1
>F43:3
>E43:6
>D43:1
>C43:4
>B43:4
>A43:7
>L42:12
>K42:11
>J42:10
>I42:9
>H42:8
>G42:7
>F42:6
>E42:5
>D42:4
>C42:3
>B42:2
>A42:1
>I41:"AREA
>H41:"WORK AREA
>E41:"ONTH
>D41:"ACH MONTH:
>C41:"RIDAY OF E
>B41:"W IS FIRST F
>A41:"BELOW
>W40:/-*
>V40:/-*
>U40:/-*
>T40:/-*
>S40:/-*
>R40:/-*
>Q40:/-*
>P40:/-*
>O40:/-*
>N40:/-*
>M40:/-*
>L40:/-*

>K40:/-*
>J40:/-*
>I40:/-*
>H40:/-*
>G40:/-*
>F40:/-*
>E40:/-*
>D40:/-*
>C40:/-*
>B40:/-*
>A40:/-*
>P39:/F1@SUM(C9...C34)-P38
>O39:">
>N39:/FL"TE---
>M39:"TO DA
>L39:"OWED
>J39:"TOTAL
>F39:/FL"
>C39:@SUM(C9...C34)
>B39:"ING BALANCE:
>A39:"OPEN
>P38:/F1@SUM(E9...E34)+@SUM(I9...I34)
+@SUM(M9...M34)+@SUM(Q9...Q34)+@SUM
(U9...U34)
>O38:">
>N38:"TE---
>M38:"TO DA
>L38:"PAID
>J38:"TOTAL
>F38:/F1@IF(E7=1,@SUM(E9...E34),@IF(
I7=1,@SUM(I9...I34),@IF(M7=1,@SUM(M9
...M34),@IF(Q7=1,@SUM(Q9...Q34),@IF(
U7=1,@SUM(U9...U34),0))))
>E38:"EK-->
>D38:"IS WE
>C38:"ID TH
>B38:" TOTAL PA
>O37:">
>N37:"MMARY
>M37:"TE SU
>L37:"TO DA
>J37:"MONTH

```

Below is a sample of how the spreadsheet appears when booted.

LHR ACCOUNTS PAYABLE

NAME	1ST WEEK RCDS	2ND WEEK RCDS	3RD WEEK RCDS	4TH WEEK RCDS	5TH WEEK RCDS												
MONTH #	----> 0	CWA= 0	CWA= 0	CWA= 0	CWA= 0	CWA= 1											
I#	OPAMT	WK# PAID	BLNCE*	WK# PAID	BLNCE*	WK# PAID											
1	ACCOUNT NAME	0	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA	<<ACCOUNT NAME
2	ACCOUNT NAME	0	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA	<<ACCOUNT NAME
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
25	ACCOUNT NAME	0	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA*	NA-----	NA	<<ACCOUNT NAME

AMOUNT PAID EACH WEEK																	
0																	
CURRENT WEEK INFORMATION:																	
TOTAL PAID THIS WEEK--> 0																	
MONTH TO DATE SUMMARY:																	
TOTAL PAID TO DATE--> 0																	
OPENING BALANCE: 0																	
TOTAL OWED TO DATE--> 0																	

EACH ASTERICK IS \$25.

```

ACCOUNT NAME
ACCOUNT NAME
:
:
ACCOUNT NAME
-----

```

contd.

```

>E37:"ON:
>D37:"RMATIO
>C37:" INFO
>B37:"CURRENT WEEK
>U35:/F1@SUM(U9...U34)
>Q35:/F1@SUM(Q9...Q34)
>M35:/F1@SUM(M9...M34)
>I35:/F1@SUM(I9...I34)
>E35:/F1@SUM(E9...E34)
>C35:" WEEK
>B35:"NT PAID EACH
>A35:"AMOU
>Y34:/--
>X34:/--
>W34:/--
>V34:/--
>U34:/--
>T34:/--
>S34:/--
>R34:/--
>Q34:/--
>P34:/--
>O34:/--
>N34:/--
>M34:/--
>L34:/--
>K34:/--
>J34:/--
>I34:/--
>H34:/--
>G34:/--
>F34:/--
>E34:/--
>D34:/--

```

```

>C34:/--
>B34:/--
>A34:/--

```

Now go to cell A10, then type the following section. When you have completed entering it, additional instructions will await you.

```

>Y10:/F*@IF(V10>0,V10/25,@IF(R10>0,R
10/25,@IF(N10>0,N10/25,@IF(J10>0,J10
/25,@IF(F10>0,F10/25,0))))))
>X10:"ACCOUNT NAME
>W10:12345.45
>V10:/F1@IF(T10>20,@NA,@IF(U7=1,C10-
(E10+I10+M10+Q10+U10),@NA))
>U10:/F1/--
>T10:/F$@IF(((P10-4)*100)+7>@LOOKUP(C
7,A47...L47),@NA,P10+.07+1)
>S10:"*
>R10:/F1@IF(Q7=1,C10-(E10+I10+M10+Q1
0),@NA)
>Q10:/F1/--
>P10:/F$+P9
>O10:"*
>N10:/F1@IF(M7=1,C10-(E10+I10+M10),@
NA)
>M10:/F1/--
>L10:/F$+L9
>K10:"*
>J10:/F1@IF(I7=1,C10-(E10+I10),@NA)

```

```

>I10:/F1/--
>H10:/F$+H9
>G10:"*
>F10:/F1@IF(E7=1,C10-E10,@NA)
>E10:/F1/--
>D10:/F$+D9
>C10:/F10
>B10:"ACCOUNT NAME
>A10:/FL+A9+1
>Y9:/F*@IF(V9>0,V9/25,@IF(R9>0,R9/25
,@IF(N9>0,N9/25,@IF(J9>0,J9/25,@IF(F
9>0,F9/25,0))))))
>X9:"ACCOUNT NAME
>W9:12345.45
>V9:/F1@IF(T9>20,@NA,@IF(U7=1,C9-(E9
+I9+M9+Q9+U9),@NA))
>U9:/F1/--
>T9:/F$@IF(((P9-4)*100)+7>@LOOKUP(C7
,A47...L47),@NA,P9+.07+1)
>S9:"*
>R9:/F1@IF(Q7=1,C9-(E9+I9+M9+Q9),@NA
)
>Q9:/F1/--
>P9:/F$+L9+.07+1
>O9:"*
>N9:/F1@IF(M7=1,C9-(E9+I9+M9),@NA)
>M9:/F1/--
>L9:/F$+H9+.07+1
>K9:"*
>J9:/F1@IF(I7=1,C9-(E9+I9),@NA)
>I9:/F1/--
>H9:/F$+D9+.07+1
>G9:"*
>F9:/F1@IF(E7=1,C9-E9,@NA)

```

Below is a sample print-out using some data. The sample shows month 7 (July), and payments in the first and second week, and that the variable CWA is set to 0 for the 1st, 3rd, 4th and 5th week, and is set to 1 for the second week, thus showing balances in the second (active) week only.

LHR ACCOUNTS PAYABLE

NAME MONTH #	1ST WEEK RCDS			2ND WEEK RCDS			3RD WEEK RCDS			4TH WEEK RCDS			5TH WEEK RCDS			
	---	7		CWA= 0	CWA= 1		CWA= 0	CWA= 0		CWA= 0	CWA= 1		CWA= 1			
1#	OPAMT	WK#	PAID	BLNCE*	WK#	PAID	BLNCE*	WK#	PAID	BLNCE*	WK#	PAID	BLNCE*	WK#	PAID	BALA <<
1	ACCOUNT NAME	100	1.01	10	NA*	2.08	0	90*	3.15-----	NA*	4.22-----	NA*	5.29-----	90	<<	
2	ACCOUNT NAME	1000	1.01	100	NA*	2.08	0	900*	3.15-----	NA*	4.22-----	NA*	5.29-----	900	<<	
3	ACCOUNT NAME	200	1.01	0	NA*	2.08	25	175*	3.15-----	NA*	4.22-----	NA*	5.29-----	175	<<	
4	ACCOUNT NAME	0	1.01-----		NA*	2.08-----		0*	3.15-----	NA*	4.22-----	NA*	5.29-----	0	<<	
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
25	ACCOUNT NAME	0	1.01-----		NA*	2.08-----		0*	3.15-----	NA*	4.22-----	NA*	5.29-----	0	<<	
AMOUNT PAID EACH WEEK			110		25		0		0		0		0			

CURRENT WEEK INFORMATION:
TOTAL PAID THIS WEEK--> 25
OPENING BALANCE: 1300

MONTH TO DATE SUMMARY:
TOTAL PAID TO DATE--> 135
TOTAL OWED TO DATE--> 1165

EACH ASTERISK IS \$25.

```

ACCOUNT NAME ***
ACCOUNT NAME *****
ACCOUNT NAME *****
ACCOUNT NAME *****
:
:
ACCOUNT NAME *****

```

N.B. Please note that when THE Spreadsheet 2.0 is FORMATED to 110 columns for printing, the Account Name appears again below the main portion, and the Bar Graph for each account is beside it, and all automatically!

When using Visicalc, you will have to print twice, the first time from A4 to W50, and the second time from X4 to Y50.

contd.

```
>E9:/F1/--
>D9:/F5(@LOOKUP(C7,A42...L42)/100)+1
>C9:/F10
>B9:"ACCOUNT NAME
>A9:/FL1
```

Now you can either type row A10 to Y10 over 23 more times, or you can use the REPRODUCE feature of THE Spreadsheet 2.0 (REPLICATE IN Visicalc) to replicate it 23 more times. Do not REPRODUCE it more than 23 times, as this will overwrite part that you have already entered. If you wish more than 25 accounts, complete the Template model, and then enter the additional rows as specified in the main body of the article. When you have completed your REPLICATION, continue typing the rest of the template which follows.

```
>Y8:" EACH ASTERISK IS $25.
>W8:" <<
>V8:" BALANCE
>U8:" PAID/E
>T8:" WK#
>S8:"*
>R8:"BLNCE
>Q8:"PAID
>P8:"WK#
>O8:"*
>N8:"BLNCE
>M8:"PAID
>L8:" WK#
>K8:"*
>J8:"BLNCE
>I8:"PAID
>H8:" WK#
>G8:"*
>F8:"BLNCE
>E8:"PAID
>D8:" WK#
>C8:"OPAMT
>A8:"I#
>U7:/FL1
>T7:"CWA=
>Q7:/FLO
>P7:"CWA=
>M7:/FLO
>L7:"CWA=
>I7:/FLO
>H7:"CWA=
>E7:/FLO
>D7:"CWA=
>C7:/FLO
>B7:"MONTH # --->
>V6:"RCDS
>U6:"WEEK
>T6:" 5TH
>R6:"RCDS
>Q6:"WEEK
>P6:" 4TH
>N6:"RCDS
>M6:"WEEK
>L6:" 3RD
>J6:"RCDS
>I6:"WEEK RECOR
>H6:" 2ND
>F6:"RCDS
>E6:"WEEK RECORD
>D6:" 1ST
>B6:"NAME
>N4:"LE
>M4:"EIVAB
>L4:"S REC
>K4:"TS
```

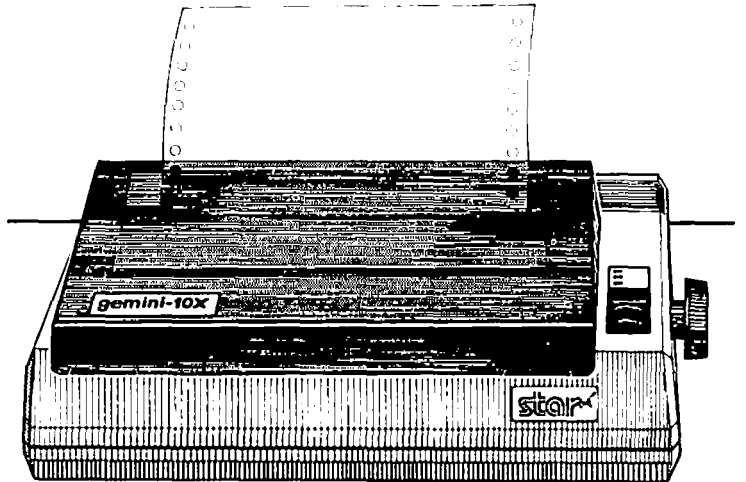
Washington Apple PI

```
>J4:"CCOUN
>I4:"LHR A
>D3:"*****
>C3:/--^
>B3:/--^
>A3:/--^
>Q2:"W.
>P2:"L.C.S
>N2:"ESLY,
>M2:"H. RA
>L2:"LEON
>J2:"110
>I2:"T TO 13
>H2:"FORMA
>F2:"RESET
>D2:" ^
>B2:"YES 0=NO
>A2:" I=
>Y1:36
>X1:12
>W1:3
>V1:7
```

```
>S1:1
>O1:1
>M1:"N BY:
>L1:"RITTE
>K1:"W
>I1:" Y40
>H1:"A4 TO
>G1:1
>F1:"PRINT
>D1:"VE ^
>C1:" ACTI
>B1:"CURRENT WEEK
>A1:"CWA= CURRENT
/W1
/GOC
/GRM
/GC12
>A1:/L4
>B1:/L12
>C1:/L5
>D1:/L5
>E1:/L5
```

```
>F1:/L5
>G1:/L1
>H1:/L5
>I1:/L5
>J1:/L5
>K1:/L1
>L1:/L5
>M1:/L5
>N1:/L5
>O1:/L1
>P1:/L5
>Q1:/L5
>R1:/L5
>S1:/L1
>T1:/L5
>U1:/L5
>V1:/L5
>W1:/L3
>X1:/L12
>Y1:/L36
/X-/X>A1:>A1:
```

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MAKING THE WORDSTAR/EPSON

MARRIAGE WORK

but That's for a while

Wordstar is a very flexible program, but as normally installed, it won't call out many of the features of the Epson and other dot-matrix printers. Even some of the features it has, such as boldface and underscore, are done better by using the Epson commands, as discussed below. The manuals don't make it easy to accomplish this (ever heard that before?), but hot-liner Jeff Dillon and Osborne-owner John Furber led me by the hand (via Ma Bell).

If you follow the directions I am about to give and don't make any mistakes, you can do all this in less than half an hour and you won't have to know anything about CP/M, PIP, Hex, or anything else. But if you're human, you will get off the path once or twice into the swamp, and you'll have to learn all sorts of useful things to save yourself. This is one of the compensating benefits of not being perfect, which I learned the hard way.

So, let's begin. Boot your Wordstar disk, (you'll only use one drive for this), and instead of typing "WS", the normal start-up command, type "INSTALL". This gives you the program for customizing Wordstar to your own particular terminal, printer, driver, etc. If you haven't done that yet (i.e. if you have a brand-new, never-used Wordstar disk) just follow the screen prompts and the installation section of your Wordstar Manual, and call the hot-line if you need help. (It isn't too bad, but we can't go into it here.)

The screen will ask if you want a normal, first-time INSTALLation and you will answer "no" (i.e. type "N"). You will then be given four options; choose D "Modify Another File". You'll get "What File?", to which you reply "WS.COM", which is the central Wordstar program itself.

For some obscure reason, you will still be asked to identify in turn your terminal, printer, etc. In each case, answer "U", meaning "Unchanged", and hit the space bar when you are asked if you really mean it. This is important, since Wordstar will often wipe out all your previous special inputs if you choose the letter which identifies your equipment, rather than choosing "U".

Next, you will be asked "Are the modifications now complete?" This is what you've been waiting for! Type "N" (for "no"), and you'll see "Location to be changed". Now you're ready to go to work. You are being asked to pick the particular byte, deep in the Wordstar program, that you wish to modify. What you need to know is what locations are addressed by specific Wordstar commands, and what to put at that location to make the printer do your bidding.

Appendix F of the Wordstar Manual answers the first question. It lists a number of locations, giving their functions, their code-name, and their location in Hex. If you call them up by name, you needn't worry about Hex. For example, look at the last location on page F-5 (not counting the reserved space). It's called DBLSTR and we are told it determines the number of strikes given when we call for doublestrike by hitting ^PD in typing a Wordstar text.

By typing in "DBLSTR:" (don't forget the colon!) in answer to the question of location, we will be shown what is now in that location and asked what we would like to make it. (Using the word instead of the location number is not only simpler, but it also handles the possibility that a modification may have changed the location and no one updated the Manual.)

You now enter the number you want. The usual choice for DBLSTR is 02 or 03. If you like what is already there, just type it in for the new value.

Now let's get on to more serious business. What locations can you use? The most obvious ones are USR1 through USR4, put there for just that purpose. The Manual even tells you about them (page 7-4 in mine). Page F-8 tells you where they are, but how do you know what to put in them? Well, somewhere I learned that the first space is to designate how many characters of command are about to follow. And then the next spaces contain the command itself.

Now it's time to turn to your Epson Manual, Appendix B, which lists "Control Codes". These are discussed in the body of the Manual, but the table is a nice summary. Keep it handy, now and forevermore. You will note that many of the commands start with an <ESC> or "escape" command. This does not mean just hit the escape key, so the name is unfortunate. It is instead a command character which tells the printer that the next character or two (or sometimes three) is not to be printed as such but is to be taken as an instruction (like the Control key). In Hex it is spelled 1B, which is 27 in decimals. (That is why you found yourself typing CHR\$(27) so many times in basic when you wanted the printer to do something fancy.)

Another character we don't have on our keyboard is "NUL" which is simply 00 in Hex. Certain commands require a 0 for one condition, 1 or more for the other. This calls for a 00 or 01 in Hex. Underscore and expanded type are turned on and off this way; sub- and superscript and are distinguished by adding a 1 for sub, 0 for super. All this information is given in Appendix B. So we want to be able to send <ESC> or <NUL> to the printer, and we can do this by inserting them at two of the USR positions.

The Wordstar Manual tells us that these four locations are reached out of Wordstar by typing ^D, followed by Q, W, E, and R, respectively (the first four letters of the top row of letters on your keyboard, notice?) We can probably remember where we put <ESC> if we put it at E, right? That's USR3. And let's put the <NUL> at USR1.

So, with the cursor asking us to name a location, we type "USR1:", and we will be shown what is now at that location. If nothing has ever been put there, the "Old Value" will read "00H", meaning 0 in hex. (All the values are given as two-digit numbers followed by H, which merely means "hex". The H is not part of the number. Hex is a system of counting based on sixteen, rather than 10. The first Seventeen numbers are: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, and 10. In Hex, 10 means 1 in the 16s column + 0, just as in decimal, 10 means 1 in the 10s column + 0.)

Back to USR1. We want a NUL there, which is a single character: 00. So we put 01 first (remember?) to signify that our command is only one character long. We hit RETURN, and are asked to name another location. Here we can use a little time-saver. Just hit RETURN again, and the location will be USR1+1, just what we want. Ain't Wordstar grand? Now for "New Value" we type "00". And we've done the first one!

What have we done so far? We have made it possible to send a NUL to the printer from the middle of a Wordstar text by typing ^PQ. By following a sim-

contd.



ilar procedure at USR3, we will be able to send an <ESC> to the printer by typing ^PE. Why would we want to do that? Appendix B at the back of your Epson Manual tells you all the good things you can get your Epson to do by sending an <ESC> followed by a single code letter.

For example, Appendix B tells us that an <ESC> followed by a 4 turns on italics, and another one followed by a 5 turns it off. <ESC> followed by a hyphen(-) sets underline mode. [And now, time out for an explanation. There are three kinds of commands: 1) turn on or turn off; 2) toggle: the same command turns on the first time, off the next time; 3) one requiring a second symbol after the <ESC>. Italics uses the first kind: one command to turn it on, another to turn it off. Each command is an <ESC> plus a single character. Wordstar's underline acts like a toggle (#2). That is, we hit ^PS to turn it on, and the same command to turn it off. (This is shown dramatically when we hit the shift key by mistake instead of the control key: we find an unwanted P in the text, and from then on everything we wanted underlined is not, and everything else is. That's a toggle!)

When we look at Appendix B, we don't see any real toggles; there is always a different command needed to turn on vs. turn off. If we look at "underline", for example, we find that <ESC> - doesn't tell the whole story. We need another character. It says we must send <ESC> - plus 0 or a number greater than 0 (we usually use 1). And just like the zeros in the national debt, 0 does not mean "nothing". In fact, we must send a <NUL> to be understood as 0. Ah ha! Now we have a use for <NUL>. End of explanation.]

Let's get back to USR2 and USR4. I've chosen to use them to turn compressed type on and off, respectively. So, with the monitor still asking us to choose another location, we type in USR2, and when it asks us to place a New Value at that location, we type "01", meaning we have a single-character command to issue. We then move to location USR2+1 by hitting RETURN twice, and insert the new value "0F", which Appendix B tells us is the hex command to turn on compressed mode. We then ask for USR4, type in 01, and put "12" at USR4+1. Remembering that USR2 is reached during Wordstar writing by typing ^PW, we have now made this command give us compressed type, for footnotes, excerpted passages or what-not. It is turned off by typing ^PR.

^PY is used in Wordstar to toggle the red printer ribbon on and off. But we can't do that with the Epson, so the command lies unused. We can go to location RIBBON (page F-9) and put in the command for expanded type, which Epson's Appendix B tells us is <ESC> 57 01 for on, <ESC> 57 00 for off. (Actually, my manual says 61 rather than 57, but that is a typo. The commands whose hex symbols are given in Epson's Appendix B as 5B, 5D, 5E, 5F, and 61 should be respectively 51, 53, 54, 55, and 57. Sorry. The decimals listings are correct: $5 \times 16 = 80$, $+1 = 81$, whereas $80 + 11$ does not = 81).

So, we can put 03 at location RIBBON, and 1B, 57 and 01 at the next three locations ("1B" is hex for <ESC>). Then, when we type ^PY in a text, the words which follow will be expanded. We next go to location RIBOFF and put in 03, 1B, 57, 00, and the next time we type ^PY we will revert to normal type.

Another pair of unused commands are ^PA and ^PN, which are used to change pitch on a daisy-wheel printer. These commands access locations PALT and PSTD (page F-8). I decided to use these to turn italics on and off. This is accomplished by putting 02, 1B, 34 and 02, 1B, 35 at PALT and PSTD.

Finally, I decided to get the use of Wordstar's sub- and superscript. Epson's is nice for single-spaced text, but Wordstar's is better for formulas and for double-spaced (see the summary table). My Wordstar installation printed them all on the same line, so I went to location PSHALF and inserted the values 03, 1B, 4A, 12. This tells the printer to roll up or down a half line when ^PT or ^PV are hit.

It's time to summarize. First, I'll name all the locations I used and what I put there. Then I'll finish by listing some Wordstar commands and what they do to the printer. Then you're on your own. Have fun!

BLDSTR	03	Boldface: 3 strikes
DBLSTR	02	Doublestrike: 2 strikes
PSHALF	03,1B,4A,12	Wordstar's sub/superscript
PALT	02,1B,34	Italics on
PSTD	02,1B,35	Italics off
USR1	01,00	NUL (00)
USR2	01,0F	Compressed on
USR3	01,1B	ESC
USR4	01,12	Compressed off
RIBBON	03,1B,57,01	Expanded on
RIBOFF	03,1B,57,00	Expanded off

NOTE: The Epson Manual says that if you have trouble with some of the low-number commands (those without <ESC>), try adding 80 hex. That is, if 12 doesn't work right on USR4, try 92. I found I didn't need to do this.

All of these commands are preceded with a ^P:
 W turns compressed type on.
 R " " " off.
 Y turns expanded on/and off (toggle) or make CAPS & Or you can use both, SMALL CAPS (sorta)
 T turns superscript^{on} and off (")
 V " subscript^{on} and off (")
 (The Graftrax sub/super, all within the line, is covered below.)
 A turns on italics.
 N " off "
 E sends an "escape" signal to printer
 Q " " "nul" " " "
 ES^Q turns on Graftrax ~~sub/super~~
 ES1 turns on Graftrax ~~sub/super~~
 ET turns either one off.
 EG(not g) turns on doublestrike.
 EH(not h) " off " (Emphasized)
 EE turns on emphasized mode. cannot be
 EF " off " "
 used with compressed or sub/super
 (Both EG & EE may be used.)
 EE moves it horizontally.
 EG moves the restrike vertically.
 E-1 turns on Graftrax underscore.
 E-^Q turns it off.

192K PSEUDODISK HEAVEN ON THE //e

by Leon H. Raesly

That's a lot to say, but the TITAN Extended 80 Column board gives a lot. Titan Industries (formerly Saturn Systems, Inc. of Corvallis, Oregon) offers a new Extended 80 column board for the //e. Packaged well, its list price of \$249 is as attractive as its features.

The board is designed to be used in the 60 pin auxiliary slot on the //e. It comes from Titan in a foam cushioned box, with 64K resident on the board. It uses the new 16 bit chips, and takes 8 chips for 64K. The user can purchase additional chips in units of eight (for another 64K of RAM memory on the board for each set of eight chips) from the dealer. You can get up to 192K of RAM memory on the board.

In operation, the 80 column display is clear and sharp. It is somewhat faster to display on the screen than the Apple //e board, but not as fast as either the standard Videx board, or the new Videx 80/160 column board. The letters are well formed, and sharp.

But the display is only the start of what the board offers. Its real power comes with its full 192K of RAM memory. To use, you simply insert the board in the auxiliary slot of the //e, and away you go! While the initial price of the board is for the 64K of RAM, the additional chips (currently chip # 4564) can be purchased from the dealer. The price seems to vary a lot from one dealer to another. I have received quotations from as low as \$7.50 per chip, to \$18.50 per chip. The difference seems to be the dealers source for the chips. So you might wish to shop around for the additional chips.

The board offers the flexibility of just using the original 64K of RAM as you receive the board, or you can add another 64K and use it as an 128K board, or go "whole hog" for the 192K of RAM. You can spread your cost of the larger memory over time when it is financially more comfortable for you.

The original package comes complete with three pre-boot pseudo disks, and a fourth is available without charge from Titan Industries. These pre-boots are used with Visicalc, Pascal, Applesoft Basic, and CP/M. Let's talk about each of these uses.

VISICALC

When you receive the board, it does not include the pre-boot for Visicalc. To secure it, you send the registration card to Titan, and they send you a copy of V-C Expand -- without charge! This program costs \$65 when purchased for the //e. It takes about 10 days to receive your copy of the Visicalc pre-boot, but when you get it, it is worth waiting for! Look at what you get.

First, you get the use of 192K with Visicalc! That will make some very powerful, and large, models. I have been using their 128K RAM board, and was bumping up against that dreaded "ERROR #8 - OUT OF MEMORY" that happens for most of us, especially without any RAM board. When the TITAN card is combined with another RAM card (such as their 128K card for either the //e or II+) it is possible to have a maximum of 218K of Visicalc data memory! WOW and double WOW!

Loading the previously written Visicalc model is also a breeze. V-C Expand has a binary fast Save/Load com-

mand, that Saves or Loads a file about 10 times as fast (or in 1/10 the time) as the standard Visicalc DOS text files.

And how's this for a feature? The new V-C expand that comes with the board also gives you variable column width in Visicalc! This extremely useful feature really expands the power of the models you write. By varying the width of the columns, and limiting them to just the size you need, many more columns can be displayed on the screen, or printed on your printer.

If you have never used an expanded Visicalc, this feature alone will probably be worth the price of the board. But there is more, much more!

PASCAL

A recent article in the PI by Ed Knepley spoke of "p-system heaven" using the Synetix Solid State Disk. Well, here is an alternate route to "p-system heaven", which also throws in CP/M heaven, Visicalc but you get the idea!

The board comes with the pre-boot, and all necessary files to move everything to the disk emulator, including all Attach programs, quickly.

The procedure is simple. Essentially, you transfer to one blank diskette all the necessary files with a program called "Fastcopy". It is. Then you load this into the Titan Pseudo Disk. You are then ready to Upload Programs or Data, or Download Data, very quickly. That's all there is to it!

In addition, you can use an additional 128K board from Titan to get a total of 320K of extra memory for data or program storage. This gives you over 600 blocks of storage space.

If you have a commercial program running under Pascal, which is protected, you will not be able to use the Pseudo Disk for it. But it works beautifully for your own programs!

CP/M

Although I have not used it for CP/M, the procedure looks simple and straight forward. Everything necessary to use it as a 192 Disk drive is included. Further, you can again combine an additional 128K Titan card to get an total of 256K of Pseudo Disk space.

APPLESOFT and DOS

Using the card as a Pseudo Disk is just as simple for your own applications. Again, you can combine several cards to get fantastically high storage capabilities.

Also on the utility are two additional programs, one to move DOS (called MOVEDOS), thus giving potentially more memory available for your program, and the other to directly expand the RAM (called RAMEXPAND). I have not yet tried these programs, but it is fairly clear that all three will only work with your own written programs, and that at this time none will work with any protected program. Even the Pseudo Disk will not operate with any protected program.

meat September 17

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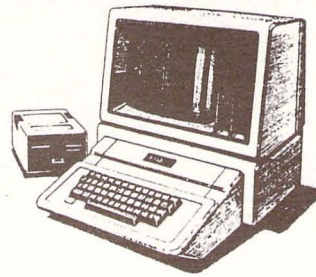
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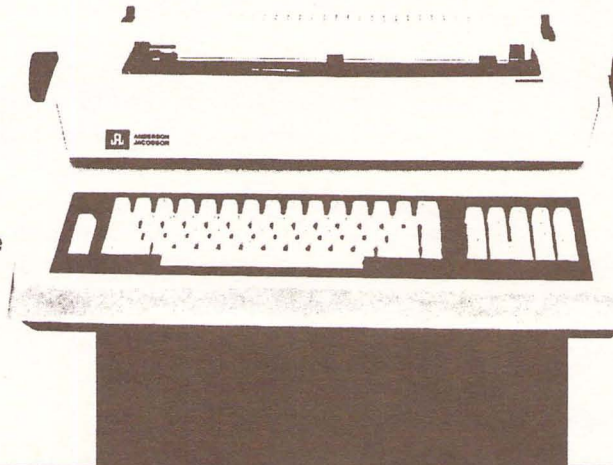
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