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Washington Apple Pi



Volume 4

February 1982

Number 2

Highlights

UPDATE ON THE 'BIG APPLE' ///
 PROBLEMS & REMEDIES WITH A LOWER
 CASE CHARACTER GENERATOR
 EPSON DRIVER
 HINTS FOR THE NEWCOMER

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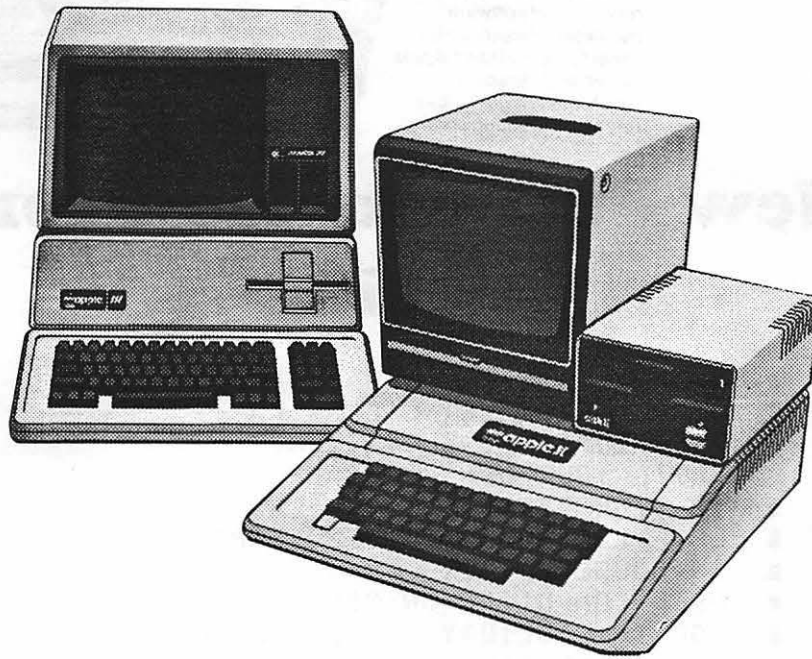
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Membership dues for Washington Apple Pi are \$18.00 per year, beginning in the month joined. If you would like to join, please call the club phone and leave your name and address, or write to the PO Box above. A membership application will be mailed to you.

Subscriptions to the Washington Apple Pi Newsletter are not available. The newsletter is distributed as a benefit of membership.

Members who would like to sign onto the Washington Apple Pi ABBS system should call the club phone and leave your name (first and last), WAP number and phone number. You will be assigned a password and John Moon will take care of signing you on.

CLASSIFIEDS

WANTED: Tutor to come to our home in upper NW D.C. to teach us 1) how best to use our APPLE; 2) our Epson MX-80 printer and; 3) to program in Basic. Should have some teaching experience. \$20/hour. Peter and Annette Lancy. Day, 424-2470; Eve., 966-5175.

contd. on page 4

Washington has long been favored with a reputation of being recession-proof. Employment figures could rise and fall in the rest of the country, but the greater Washington area would go about its business of governing the nation and would prosper. Not this time! It is no secret that many Federal employees are being layed off (RIFed). Those that stay on are becoming more cautious with their purchases. This combination of layoffs and fiscal caution has affected adversely many of the service industries in the area.

What has this got to do with the WAP, you may ask? You are probably well aware that one of the few active, thriving and growing areas which provide opportunities for employment is microcomputing. What better service can Washington Apple Pi provide its members than to act as matchmaker - to provide the means for those who need full-time or part-time employees with skills and knowledge pertaining to micro-processing to find qualified individuals who are in need of employment.

We hereby initiate this new service to our membership. See the letter to the editor and the classifieds elsewhere in this issue. Employers are invited to make use of our classifieds section to alert our members to employment opportunities. Likewise, members are invited to advertise their availability. However, we will provide this information merely as a job clearinghouse service and will not accept responsibility for its improper use. At a time when job opportunities are scarce and paradoxically when qualified micro-computerists are in short supply, we feel that this will be a very useful new appropriate service for WAP to provide to its membership.

EVENT QUEUE

Washington Apple Pi meets on the 4th Saturday of each month at 9:30 AM (sales are from 8:30 - 9:30), at the Uniformed Services University of the Health Sciences (USUHS), Building A, 4301 Jones Bridge Road, Bethesda, MD, on the campus of the National Naval Medical Center. This is a new meeting site.

Following are the meeting dates for the next three months, with their topics and speakers.

- February 27 - Assembly Language Prog.
Bill Schultheis
- March 27 - Assembly Language contd.
Bill Schultheis
- April 24 -

The Executive Board meets on the 2nd Wednesday evening of each month. All members are welcome to attend. Details will be on the club phone and ABBS.

PRESIDENT'S CORNER

by David Morganstein

Our first meeting at USUHS was attended by almost 300 members. The spacious meeting room was practically overflowing. WAP expresses its thanks again to Col. Hodder and the other USUHS staff who are making it possible to use their facility. (The available parking alone is worth the relocation!!) I hope that all members who wish to attend will be able to find transportation. Perhaps a car pool arrangement can be established for those having to travel the farthest, and for those who depend on public transportation. Thanks also to Walt Francis for an informative talk on VisiCalc, given under adverse conditions.

•••••

It is clear that the pre-meeting arrangements must be improved. In future months we will move most every activity into the large entrance-way. Perhaps large signs indicating the function of each table and an information desk can help alleviate some of the congestion and confusion. In addition, we must agree on a meeting starting time which will allow people to pick up their materials in time, yet get us going promptly. The SIGs want to get their groups started promptly, and I want the volunteer staff to be able to join the entire meeting. Perhaps we should begin our meeting at 10:00 instead. (But promptly...)

Regarding the pre-meeting activities, there is a strong feeling that the idea of a store takes more time and energy than it is worth. I am proposing to limit such sales to blank diskettes alone. People who have made a pre-ordered group purchase can pick up their material. However, I would like to discontinue the display of a large amount of merchandise which must be maintained in an inventory. It takes a lot of people-time to move this stuff back and forth and to man the table and answer questions. The members save very little and WAP makes virtually nothing in this activity. What is your view?

•••••

I would like to announce that Eli Argon has volunteered to take on the responsibility of Advertising Chairman. I look forward to his help. Nancy Philipp has agreed to coordinate new member applications. Nancy and Gena and Bernie Urban did a beautiful job in designing and assembling the second membership directory. They were even able to obtain several ads to help pay for the production costs. Many thanks to you.

Due to a job relocation and other responsibilities, Bill Bowie has expressed a need to cut back some of the time he can spend in library activities. He will continue to assist in the general production of disks. Many thanks to you,

Bill, for the long hours you have spent in coordinating reproduction and sales. Without your efforts the library could not have grown to its present volume. Gordon Stubbs, who has been an active library staffer, will be taking charge of coordinating the overall library activities. WAP thanks you, Gordon, for your willingness to take on this load. Gordon will continue to be assisted by Jerry Waller and Van Kozak on sales at the meeting. Other library staff who continue to perform an outstanding job are: the Lavilla family who do our mail-out orders; the Giboneys who create new DOS disks; Howard Lefkowitz, the PIG librarian; the Actons and Andy Baum who make the numerous copies needed to satisfy the group's voracious appetite for library disks.

Best of luck to the volunteers that Boris Levine has assembled to improve the documentation of existing disks. It is a formidable task.

•••••

I am pleased to announce that Tom Woteki has offered to teach a Pascal seminar in the Spring. Dr. Wo is currently teaching an evening course. The WAP session will follow a similar outline. The exact format will be announced in later issues.

•••••

WAP was recently contacted by Val Golding of A.P.P.L.E. He asked to obtain 500 copies of our Inside Washington Apple Pi for sale to their members. This offer gave us a very good feeling about our compendium. If you don't have one, they can be purchased before the meeting or by mail.

CLASSIFIEDS contd.

FOR SALE: Complete WP package for APPLE: Centronics 737, Interface card and cable, Dan Paymar lower case adaptor, Apple Writer (adapted for lower case on screen), Apple Writer Extended (for 737 enhanced printing, underline, etc.), one box of paper. All less than 6 mos old. \$999. Call Dr. Harold Packman, (301) 262-2800, 9-5.

FOR SALE: Microsoft Z80 softcard, \$200. Bill Davis, 434-1322, evenings.

FOR SALE: Silentype printer, \$300. Works fine - just needed more columns for my VisiCalc. Bob Schmidt, (301) 736-4698.

FOR SALE: APPLE Communications Card with documentation, \$150. Chris Bednarek, (301) 948-7151.

FOR SALE: VisiPlot/Trend, \$180; Stepwise Multi Regression by Special Delivery Software (Belanger and Boyle), \$135; APM by Construction Programming Services, \$200; VisiDex, \$140. Tom Walker, (703) 548-4553.

LETTERS TO THE EDITOR

I read your editorial in the January Apple Pi (Volume 4, No. 1) and, yes, at least I'm out here and will respond to your plea for feedback.

I guess I'm a relatively new member of Apple Pi (#652), but I have tried to get involved. Barring poor health or a schedule conflict I have been able to make every meeting since I've become a member except the Flea Market (I wanted to come but unfortunately had to go out of town that weekend). I was also able to help you at the DC Computer Show, manning the booth with you for a few hours. I enjoyed myself very much and I'm looking forward to being able to help that way again.

First, I'm not a "professional" computer person. I have no skills or particular knowledge in this area. I am, however, learning and frankly enjoying myself tremendously. Every task (like this letter) that I accomplish on this machine is a great source of satisfaction. The information and contacts made through WAP have been very helpful.

So far the good news; here comes the bad. I'm sure that I'm not unique nor the only WAP member who works for the Federal Government. I am, however, one of those government workers who has received a general RIF notice. It appears that on or before March 30, 1982, I shall no longer have a job. I suppose my preoccupation and concern with finding a job has clouded my ability to make any further contribution to the good and welfare of WAP.

Your editorial has prompted the question in my mind of how many other WAP members are also caught in this predicament, and is there anything WAP can do in the way of providing any services to such members?

It occurs to me that if there are any members caught in this box, perhaps (if it is not presumptuous) a page in the Washington Apple Pi devoted to or serving as a clearinghouse for potential announcements or other pertinent data that might be helpful to all.

Perhaps you may have some other helpful ideas, and I would be pleased to hear from you with anything you might have to contribute.

Let me say once again thanks to all the officers and founders of WAP. It has already given me more technical assistance and support than any other source. While WAP may not be in any position to help me with my individual crisis, WAP may be in a position to help others faced with imminent job loss. Thanks again.

Sincerely,
Ron Brenner

(Ed. Note: As a part of its dedication to service to its members, WAP can devote newsletter space to a clearinghouse of information for members. See the Editorial column elsewhere in this issue.)

NOTICES

NEW ABBS PASSWORDS BEING ASSIGNED *****

New passwords for access to the club's ABBS are being assigned. If you have not received yours, drop a note to our P.O. Box and we will get your new password to you. Due to some recent unpleasant events, we are being forced to secure the system access.

VOLUNTEERS NEEDED FOR WAP HOTLINE *****

WAP's Hotline has proven to be a valuable service, or so it would seem from the volume of calls being received by the members listed there. We need to spread the load over more members. We need more names in all areas, but particularly where only one name is currently listed, e.g. Printers. If you feel you can help by listing your name in the Hotline, please call or write the Editor.

HAVE YOUR FORGOTTEN TO RENEW? *****

Many of the approximately 475 WAP members due for renewal as of December 31, 1981 have not yet renewed. Notices were sent out in November. If you have not renewed by February 15, this is the last newsletter you will receive. Expiration date is given on your mailing label after your WAP No. If it still says 8112, we have not received your renewal (unless it crosses this notice in the mail).

SUBSCRIPTIONS TO SOFTALK

by Bernie Urban

January's issue of SOFTALK had some bad news for its readership and many fans (including me). In it they state, "Effectively immediately SOFTALK will no longer be provided free to all owners of APPLE computers. Instead, all APPLE owners will be given a one-year complimentary subscription, after which they will be given the option of dropping the magazine or converting their complimentary subscription to a paid one..."

In my case, my year has come and long gone, and I suspect that this is true for many of you. They plan to charge individuals \$24 for a one year subscription.

I called SOFTALK and talked to Margot Tommervik, Editor for clarification. The policy granted to local retail stores and software publishers was extended by her to members of Washington Apple Pi, who can get a one-year subscription for \$18. All subscriptions under this plan must be sent through WAP.

I will talk further with SOFTALK and determine how best to handle this. In the meantime, if you receive a notice from them and you want to convert to a paid subscription, send the form to us instead of directly to SOFTALK. Make your check out to "SOFTALK" and mail to WAP at the P.O. Box, Attn. SOFTALK Subscriptions.

SIG-NEWS

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.

This month's newsletter features the regular SIGAMES NEWS column by John Alden. This column presents the agenda for the current month's SIGAMES meeting, the next month's agenda, a synopsis of the prior month's meeting and a review of one or two new games.

PIG, the Pascal Interest Group, meets on the third Thursday of each month at 7:30PM at the Uniformed Services University of the Health Sciences, Bldg. A, Room A2054 (2nd floor), on the campus of the National Naval Medical Center at 4301 Jones Bridge Road, Bethesda, MD.

EDSIG will meet immediately after the regular meeting of Washington Apple Pi.

NEWSIG will meet just after the regular Washington Apple Pi meeting. The meeting seems to best help the new members by answering their questions, and telling them what to do to get their system up and running. We also tell them something about WAP, how to order the disks, what's on the disks, etc.

The following members have agreed to answer questions over the phone when someone gets stuck and needs help between meetings:

Bob Chesley	560-0121
Paul Hoffman	831-7433
Sara Lavilla	926-6355
Boris Levine	229-5730
John H. Smith	439-4388
Steve Sondag	281-5392

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.

General

Ben Acton	972-1533
Robert Fretwell	971-2621
Dave Harvey	527-2704
Tom Jones	460-8773
Robert Martin	498-6074

Operating Systems

APPLE DOS	Richard Untied	241-8678
	(weekends only)	
CP/M	Robert Fretwell	971-2621

Languages (A=Applesoft, I=Integer, P=Pascal, M=Machine)

A, I	Jeff Dillon	422-6458
A, I	Tom Jones	460-8773
A	Mark Pankin	370-9219
A, I, P, M	Bill Schultheis	538-4575
	(except Tue., Thurs.)	
A, I, M	Richard Untied	241-8678
P	Robert Fretwell	971-2621

DB Master

Dave Einhorn 593-8420

Printers

Walt Francis 966-5742

Word Processors

Walt Francis	966-5742
Ben Acton	972-1533

VisiCalc

Ben Acton	972-1533
Walt Francis	966-5742

Time-Sharing

Chuck Reinbrecht	299-6810
Dave Harvey	527-2704

Graphics

Bill Schultheis	538-4575
(except Tue., Thurs.)	

Games

Jim Eatherly 232-6046

Mem. Expansion

Fred Schulz 223-1397

Other Disk Drives

Fred Schulz 223-1397

NEWS FROM APPLE CLUBS IN FARAWAY LANDS

by Genevie Urban

The following information about other APPLE Users Groups has been submitted by two clubs in Australia. Our thanks and good wishes to them. Any other users groups out there (in the U.S. or anywhere in the world) who would like to share their news with us are invited to do so.

The APPLE USERS GROUP (SYDNEY) has recently formalized its objectives in a constitution and has elected an executive committee to direct the activities of a large group of APPLE computer users, who have been meeting since 1978 at various venues, sometimes under the name of NSW Apple Users Group.

The A.U.G. now meets at the Sydney Grammar School, Science Auditorium, on the second Monday of every month at 6:30 PM. The group maintains an expanding software library on disks and publishes a monthly newsletter called 'APPLECATIONS'. For further information contact A.U.G. (Sydney), P.O. Box 505, Bankstown, N.S.W., 2200 Australia, or telephone the Secretary, Colin Rutherford, on (02)520 0926.

Another Apple Users Group in Australia is the WONDAL APPLE USERS GROUP (W.A.U.G.), located in Wondai, Queensland. They are also a member of the International Apple Core. Their address is: W.A.U.G., P.O. Box 19, Wondai, Queensland, Australia 4606. Their telephone number is 071-685 606; their International telephone number is 81-71-685 606.

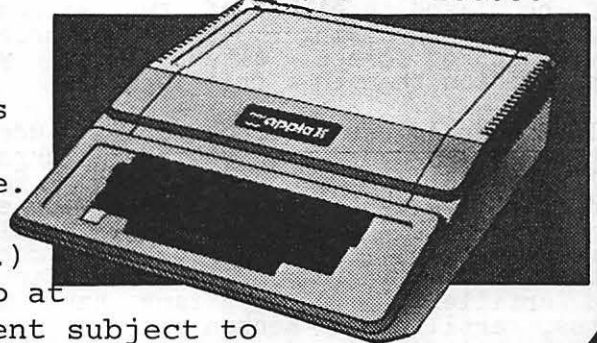
Happy Valentine's Day!

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Apple Disk II, Controller & DOS 3.3	645.00	529.00
Apple Disk II without controller	525.00	449.00
Apple Graphics Tablet	795.00	659.00
Zenith 12" B/Green Monitor	179.00	145.00
Amdek 13" Color Monitor	449.00	399.00
Joystick II	49.95	45.00
D.C. Hayes Micro Modem II	379.00	299.00
Apple Silentype Printer/Cable/Board	395.00	345.00
Centronics 739 Printer/Graphics	995.00	699.00
Epson MX-80 (Tractor only)	645.00	499.00
Epson MX-80 F/T	745.00	599.00
Epson Graphtrax PROM Set	95.00	85.00
Parallel Board/Cable (Graphics)	169.00	149.00
Parallel Board/Cable (Non-graphics)	110.00	100.00

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SOUTHERN COMMAND (SSI):

a review by David Morganstein

Who is Roger Keating and why does he continue to write such ever more exciting, quick paced, Hi-res color war game simulations? Probably because Strategic Simulations Inc. recognizes his talents and provides the marketing appropriate to Roger's excellent programs. Those familiar with Rebel Force and Operation Apocalypse have seen Roger's handiwork before. To you I say, "He keeps getting better!" Others who have purchased one of our recent IAC disks may recognize his name as a contributor from the Australian Apple Core. In any event, he is a wizard with an APPLE.

Southern Command is a re-enactment of the October War of 1973 involving the crossing of the Suez Canal. The battlefield is displayed in two modes: one, a strategic view of the entire area in multi-colored Hi-res; and the second, the usual hexagonal patchwork showing closeups of the individual combat units. The overall dimension of the battlefielid is a 28 by 39 hex grid, which can be viewed in several pieces.

For those who have played SSI's The Shattered Alliance, the strategic and tactical maps will seem somewhat familiar. But I can assure you, Southern Command is a) more detailed and b) faster. With a single keystroke you can switch between strategic and tactical displays and scroll, virtually instantaneously, around the tactical maps. The battlefield is divided into 12 such 8 by 10 hex maps, any one of which can be selected or scrolled to for display.

The basic objective is for the Israeli forces to cross the canal and maintain troops there for several turns. The game may be played in either of two standard scenarios involving the historical placement of forces. Alternatively, you may position them in a free form.

All of Roger's usual effects are included: artillery fire, air strikes, terrain effects on movement and combat. Each side has five types of units which appear in different Hi-res shapes. The Israelis have tanks, recon units, armored battalions, bridging engineers, infantry and artillery. The Egyptians have SAM sites, artillery, mechanized infantry, katusha, infantry and tanks. In SC you may now stack units (have more than one occupy the same hex) and obtain improved defensive power. Units are in one of several modes (transport, normal, fire, attack, defense, river, etc.) as in previous games; however, you can now change mode in mid-move. That is, each unit has a movement allowance. A unit can move in transport greater distances, then stop and change to fire mode (if it has artillery) and fire on enemy units.

As before, you can play against the

computer or with a second player. The selection of units to move can be done automatically, as before, or manually. Another new feature is a delayed movement order. A unit can be given orders to wait until an enemy enters a certain hex at which time the unit will become active, performing a movement and action of your choice.

What impresses me most about the game is the speed of movement and graphic scrolling. You effectively view a multi-screen Hi-res display which can be rapidly maneuvered to allow you to examine the battlefield at any time. When playing against the computer, you wait only a minute or so for it to move (although you may agonize for much longer over your own decisions...). The speed of the computer's turn makes the game far more interesting to the solitaire player.

I still have some problems with some aspects of the game. Usually, the answer is found in the detailed manual provided. The SC manual is 8 pages long and describes many factors which you will need to know. I usually begin playing and refer to the manual as needed. If you are new to Roger Keating's work, you may need a little more study. The game also comes with two heavy stock cards, one containing a full color map as seen in the strategic view and the other summarizing the entire command option sequences (I keep the latter near at hand).

If you enjoy war gaming, you are bound to find Southern Command an excellent piece of software. Playing time is several hours. You will no doubt need to save the game in mid-play, another SSI handy feature.

(Ed. Note: Roger is a Regional Director (Australia) of the International Apple Core, whom I have had the pleasure to meet and work with on several occasions. Besides games, he does very serious work in education.)

A PAGE FROM THE STACK by Jill & Vance Giboney

Just a short page this month to announce WAP Library Disk 109 - IAC 11 (APPLESOFT TUTOR). This is a tutorial on Applesoft by Diarmuid McCarty, and has been mentioned in SOFTALK (December 81/January 82). Although it deals specifically with Applesoft and the APPLE, it can serve as a general introduction to Integer Basic as well.

More next month.

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Cavalier Computer	Bug Attack	29.95	22.95	Muse Software	Castle Wolfenstein	29.95	23.95
CE Software	Sword Thrust #1	29.95	22.95		Robot Wars	39.95	33.95
	Sword Thrust #'s 2-6 (each)	24.95	19.95	On-Line Systems	Hi-Res Adventure:		
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	Shattered Alliance	59.95	49.95		Time Zone	99.95	79.95
Synergistic Software	Adventure to Atlantis	40.00	31.95	Personal Software	Zork	39.95	32.95
				Rainbow Computing	Devil's Dungeon	15.95	12.95
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Adventure International	Scott Adams:				Super Stellar Trek	39.95	32.95
	Adventure 1, 2, & 3	39.95	31.95	Riverbank Software	Gran Prix	30.00	23.95
	Adventure 4, 5 & 6	39.95	31.95	Sirius Software	Autobahn	29.95	22.95
	Adventure 7, 8 & 9	39.95	31.95		Beer Run	29.95	22.95
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Automated Simulations	Datestones of Ryn	19.95	15.95		Cyber Strike	24.95	18.95
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	Alien Typhoon	24.95	20.95		Orbitron	29.95	22.95
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	I Galactic Empire	24.95	20.95		Pulsar	29.95	22.95
	II Galactic Trader	24.95	20.95		Space Eggs	29.95	22.95
	III Galactic Revolution	24.95	20.95		Sneakers	29.95	22.95
	IV Tawala's Last Redoubt	29.95	22.95		Star Cruiser	24.95	18.95
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	Galactic I, II, III & IV	104.80	80.95	Strategic Simulations	Wizardry II		Coming Soon
	Galaxy Wars	24.95	20.95		Battle of the Bulge	39.95	33.95
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	3-D Graphics System	39.95	33.95		Computer Quarterback	39.95	33.95
	Trilogy of Games	29.95	22.95		Napoleon's Campaigns 1813, 15	59.95	49.95
	Ultima	39.95	32.95		Operation Apocalypse	59.95	49.95
	Ultima II		Coming Soon		Southern Command	39.95	33.95
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	The Prisoner	29.95	24.95		Warp Factor	39.95	33.95
Gebell	Firebird	29.95	22.95				
Highlands Computer	Goblins	27.50	21.95		HARDWARE		
Infocom	Zork II	39.95	32.95	ALF Music Cards	MC1 (9 voice) - hobby	195.80	169.95
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We deliver to the Washington Apple Pi meetings; call for details.

SIGAMES NEWS

by John Alden (Associated with Columbia Computer Systems)

Here we go again!

The next few months will be outstanding.
(I told you I would change the opening line.)

On to the good stuff.

The December meeting featured Richard Urban of Riverbank Software (Three Mile Island and International Gran Prix. Richard gave an outstanding presentation. He demonstrated both of his games and answered numerous questions about good game design. The usual half-hour meeting lasted well over an hour and a half. Our sincere thanks to Richard for an outstanding presentation as well as for two superb games. Also, thanks to Jim Eatherly for arranging the program.

Theron Fuller will present the January program.

Do you have a game you would like demonstrated or explained? Let's hear from you. This is your meeting and we want to help people make educated decisions when purchasing games software.

Recently Sir-Tech Software announced Version 2 of their game, Wizardry. The second version corrects several minor flaws in the first version. Your old version can be updated by a utility option on the new version. There is a risk, however. You may lose one or more characters. There is a safeguard. Copy your old characters onto a backup disk before you update. If you lose any characters Sir-Tech will recreate them for you.

If you wish to update your version to the new one, I will be happy to do it for you at the January 23rd meeting. I will be available with my computer from 10:00 AM to 11:30 AM in the small cafeteria room where the SIGAMES will meet. You must make a backup copy of your characters before I will update your version. If you do not know how to backup your characters, bring a blank DOS 3.3 initialized disk. (Due to an expected large volume, I may not have time to initialize your disk). Also, bring a second DOS 3.3 initialized disk and I will make a copy of your scenario (this is now possible with the new version). The copy of the scenario is used to store extra characters. It requires two drives to update old versions or to create extra scenarios.

Please note that I cannot be responsible for any lost characters, so make sure that you have a current backup copy of your characters.

The new utility functions are: recover lost characters without any aging penalty; upgrade previous versions to the current version; and make additional scenario disks.

The errors eliminated are: the fourth level room where you are teleported now has a door so you can leave; the same error on the eighth level has been eliminated; the latumofis potions will now work only once; and the low level of encounters on the seventh, eighth and ninth levels has been changed. The layouts of each floor are the same.

Robert Woodhead told me last week that the new scenario for Wizardry ("Knight of the Lost Diamond") tentatively will be released during the first week of March. It will be twice the size of the first scenario with many more puzzles to solve.

RECENTLY RELEASED SOFTWARE

From The Logical Choice: Castles of Darkness.

From Broderbund: Red Alert, The Arcade Machine, Space Quarks, and Genetic Drift.

From IDSI: Trick Shot.

From Datamost: Snack Attack and County Fair.

From Horizon Simulations: Shadowhawk 1.

From On-Line Systems: Mouskattack.

From Synergistic Software: Aventure to Atlantis.

From RockRoy: Conglomerates Collide.

From SSI: Southern Command and Napoleon's Campaigns: 1813 & 1815.

RECENTLY REVISED SOFTWARE

From SSI: Computer Quarterback, Computer Ambush, Computer Air Combat, Operation Apocalypse, and Cartels and Cutthroats. Also available are data disks for Computer Quarterback, Computer Apocalypse, and Cartels and Cutthroats.

From Sir-Tech: Wizardry and Galactic Attack.

contd.

THE REVIEWS

The categories are:

A highly recommended purchase. This software is outstanding. You play it many times and it still is interesting and fun.

A recommended purchase. An outstanding program but has a few flaws. A very fine line exists between this and "a highly recommended purchase".

A suggested purchase. Better than average but I wouldn't go out of my way to buy it.

Average. Speaks for itself (the first person who says that I also do will be subjected to 10 minutes of outrageous puns from me - sort of for whom the bull toils).

Poor. Avoid any programs which received this category.

'Castles of Darkness' is a fun adventure. The evil wizard Grimmacht has cast a spell of darkness on the land. You must defeat him to release the spell. There are two castles. You must find out which to enter first. Grimmacht is in the other. In the first castle I found a Troll, a Wraith, and an Orc. The display is similar to On-Line's 'Cranston Manor'. However, there is an animated character in the center of the screen. (That's you!) The top of the screen is always North and the right of the screen is always East. Your character will move in the direction you

command. Commands are one or two words only. Like On-Line adventures, you can see text or graphics. (Use the ESC key rather than the RETURN.) I have only seen one severe flaw: The text can sometimes scroll beyond the text window. You must then use the ESC key to see what was said. This can be annoying but the game is so well done otherwise that I quickly became accustomed to this flaw. A recommended purchase. From The Logical Choice for \$34.95.

'Napoleon's Campaigns: 1813 & 1815' is a spectacular wargame. This game was done by Paul Murrar (who designed the Warp Factor). It is probably his best work to date. It combines elements of many different games and game systems. It combines some elements of Tanktics, Warp Factor, Southern Command, and many other games. It is extremely complex. It has a board with movable pieces and a Hires map display on the screen. The units on the screen only have E or F (enemy or friendly) displayed. Your commander must be within 6 hexes of a corps (all units are corps level) to control it. Otherwise, the unit may or may not obey your orders. And, you must dispatch your orders by messenger. Each group of six hexes requires one turn for a messenger to cover. Your messengers can become lost, they can be captured, and your corps receiving the message could have already moved elsewhere! This game gives the most realistic touches to the Napoleonic battlefield that I have yet seen. For the die-hard gamers: A highly recommended purchase. From SSI FOR \$59.95. ☼

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Was financial management one of your justifications for purchasing an APPLE™ computer?

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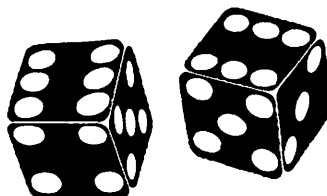
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Our users tell the story:

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The ACCOUNTANT includes these user oriented features:

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The ACCOUNTANT requires an APPLE II with 48K, APPLESOFT on ROM, single or dual drives, and uses normal DOS 3.3 formatted disks. . . . \$99.95

DBCALC (with 1040 model included) requires VisiCalc™ \$20.00

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A comprehensive model that includes instructions for calculating income taxes: information is tabulated for IRS forms 1040, schedules A, B, C, D, E, F, G, R & RP, SE, and UC. Incorporates 1981 tax changes and includes instructions for modifications to reflect 1982 tax changes. Requires VisiCalc™ and can be used with or without The ACCOUNTANT. \$49.95

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Use your Visa or Mastercard. Include \$3.00 shipping and handling. VA residents add 4%

APPLESEEDS CORNER

"Page 1"

Appleseeds is a kids group that meets during the main WAP meeting. The meetings will consist of discussions, game reviews, demonstrations and any other topics of interest. To join the Appleseeds, come to any of the meetings.

Any Appleseed is welcome to publish an article in the newsletter. (Just call any of the Appleseed editors. If a modem is available, the article can be sent to 881-2543. Please call first and ask for David.)

The Appleseeds will start a library disk to contribute to the WAP library. Any ideas and hints for future meetings are welcome. Just bring it up at the meeting or call any Appleseed organizer.

The organizers of Appleseeds are:

President	- David Stern	881-2543
Vice President	- Steve Green	460-8647
Newsletter	- David Stern	881-2543
	- Steve Green	460-8647
Library	- Mike Forman	241-1216

APPLESEEDS MEETINGS

Appleseeds would like kids or adults with advanced knowledge to give a presentation to the Appleseeds group during one of our monthly meetings. Since our members range from beginners to advanced machine language programmers (ages 10-17), the topic should start at an elementary level and move to an advanced level. Presentations should last 30-45 minutes and will be held during the business portion of the WAP meeting.

Some topics that we would like to have discussed are: Graphics, Music Synthesizers, Animation, and PEEKs and POKEs. If you can make a presentation or have suggestions, please call either David Stern or Steve Green (phone numbers listed above).

"Page 2"

BACKSPACING ON THE EPSON by Steve Green

For those of us who own Epson MX-80s, we find that in writing programs that support the printer, there is no convenient way to backspace and underline. Well, now there is such a program. Listing A contains a subroutine that will backspace 1-9 spaces. A simple '&', then a number, will do the trick. If more than 9 spaces are desired, you could use Program A twice, as in Example 1. This will backspace 13 characters. If you want to backspace 40 or 50 spaces, this method would be a pain in the neck to do, so Listing B might be the better choice. Listing B uses memory location 771 for the number of backspaces to perform. A plain '&' with no number

will perform the backspacing. To use any of the subroutines, all you have to do is place 3 POKEs at the beginning of your program. The POKEs are:

```
POKE 1013,76
POKE 1014,0
POKE 1015,3
```

and that's it. Examples 2 and 3 show the correct use of the subroutines. In the first subroutine, only the first digit of the number is used. In the second subroutine, don't POKE numbers greater than 80, or strange things will happen. NOTE: SWITCH 3 ON THE EPSON CONTROL CIRCUIT BOARD MUST BE ON (FACTORY-SET CONDITION)!

```
Listing A
0300:A5 B8 8D 0D 03 A5 B9 8D
0308:0E 03 E6 B8 AD 2F 08 E9
0310:2F 8D 17 03 A9 50 E9 09
0318:AA 20 4A F9 60
```

```
Listing B
0300:A9 50 E9 FF AA 20 4A F9
0308:60
```

```
Example 1
10 REM FOR BACKSPACING 13 SPACES
20 &9: &4
```

```
Example 2
10 REM EXAMPLE W/UNDERLINING
20 POKE 1013,76: POKE 1014,0: POKE 1015,3
30 PR#1
40 PRINT "HELLO";
50 &5
60 PRINT "_____"
70 PR#0
```

```
RUN
HELLO
```

```
Example 3
10 REM EXAMPLE W/MULTIPLE BACKSPACING
20 POKE 1013,76: POKE 1014,0: POKE 1015,3
30 PR#1
40 PRINT "THAT IS A LOT OF BACKSPACING";
50 POKE 771,28
60 &
70 PRINT "_____"
80 PR#0
```

```
RUN
THAT IS A LOT OF BACKSPACING
```

"Page 3"

LIBRARY by Mike Forman

As you know, Appleseeds is starting a library disk to contribute to the WAP library. At this point, the disk contains only three programs. If you have written an original program you would like to contribute, please contact me at 241-1216 and ask for Mike.

The kinds of things we are looking for are games, utilities and demos. Please make the programs easy to use or add instructions.

contd. on page 13

UPDATE ON THE 'BIG APPLE' ///

by Charles N. Dow

For those of you who live in the Washington, D.C. Metropolitan Area, I am sure you will recognize the group hospitalization insurance company that has run advertisements on radio and television about Joe and Sam who suddenly have discovered that "two is a GROUP Sam" and therefore are eligible to be covered under the companies' GROUP HEALTH PLAN.

Well folks, guess what. We now have enough APPLE /// owners in Washington Apple Pi to declare ourselves A USERS GROUP!!!

So herewith we unilaterally establish a group and invite all of the members who are interested in learning more about the newest APPLE and the smallest Users Group (there are six members that I have been in touch with personally). We hope that there are more members who have had the urge to pioneer, and that you will contact us through the Club or directly at my home phone (301) 460-3911.

Fear not!! Apple Computer, Inc. has been hard at work during 1981 to overcome some bad starts early in the year, and has come on strong during December 1981 with substantially improved hardware and many of the software packages that have been promised!

For most of the year since the /// has been available, it seemed to me that I was in the desert wandering alone without any software to help me utilize the /// to its full capacity. Now suddenly, I have more programs than can be learned in a year! Of course, to start off with is the NEW AND IMPROVED VisiCalc ///, then came the Pascal Language package. Now in rapid fire, the following programs have become available:

- Apple Writer ///, written by Lutus, the author of Apple Writer II.
- Mail List Manager, to keep the VIPs in alpha order (or any other).
- Apple Access ///, for use with the Smartmodem for data transfer.
- PFS for APPLE ///, a data base management program of excellent quality and very easy to use.
- PFS Report for ///.

I have also heard of two other text editor/word processor programs that have been released for use on the ///.

Also now available is the ProFile, hard disk Winchester drive with over 5 megabytes of storage, for those who need large storage on-line. At the rate that Washington Apple Pi is growing, we will need one of these pretty soon just to keep up with the names, addresses and membership information. DO YOU KNOW THAT SINCE DECEMBER 1980, the membership in WAP has increased almost 400%!!!!!!

The reliability problems on the /// have been solved, and yesterday I received a package from Apple which contained a disk called "CONFIDENCE PROGRAM", which contains five test programs and an explanatory pamphlet. This gives the /// a complete system check to "give you confidence that your APPLE /// is working as it should". It even has a "cute" voice announcement when all systems are OK.

For any owners of the APPLE /// who did NOT purchase their system from a local dealer, or have not sent in your original warranty card, be aware that you had best contact a good local dealer on whom you can depend, because I'm sure that the mail order houses will not contact you.

Now let me tell you, I am a pure computer novice but with the help of my local dealer, Computer Crafters in Wheaton, and Gary and Ken Pike, I am fast learning how to use all of this equipment in my business. And as a NEW YEAR'S RESOLUTION FOR 1982 I hope to double my business because I can give better service, faster and more complete than I could with hand-kept records and scraps of paper containing important notes, etc.

The "regular members" of Apple Pi know how enthusiastic I have been about the /// because I have "pushed the product" every chance I have had at the meetings. Now come on, it's time to really see the state-of-the-art computer, and I will be available to help with whatever the Officers and Directors of WAP wish - demonstrations, users group, limited help in programming (Business Basic only), etc.

APPLESEEDS contd.

REVIEW

It is my job, as librarian, to review one of the programs each month. This month I will review the program 'JUGGLER'. In this review and in the upcoming months, I will use the rating scale as follows:

- A--Great
- B--Good
- C--Average
- D--Forget it

'JUGGLER' is a game very similar to the hand-held game 'TOSS UP'. The game is in text and uses the two arrow keys for the movement of the players arms. The object is to catch the balls and throw them back up. When you hear a click, that means you have caught a ball. You can only miss one ball before the game is over, so be alert!! I rate this game as a "B".

REVIEWING WAP LIBRARY DISKS

The Appleseeds have volunteered to review some of the WAP library disks. Each month, one disk should be reviewed by one of the Appleseeds, If you are interested in reviewing one of the disks, call Mike Forman.

AN OPEN LETTER TO VisiCalc

by Bob Johnson

Personal Software, Inc.
Attn. Gordon Hummel
1330 Bordeaux Drive
Sunnyvale, CA 94086

Dear Sirs:

When I purchased my APPLE in April of 1980, I purchased VisiCalc on the same day. I was convinced then and remain convinced that VisiCalc is the best software that I have purchased for my APPLE.

VisiCalc was at version 1.37 at that time. In April and May of 1981 I received a notification that I could purchase an upgrade of VisiCalc for \$65.00. On June 25, 1981 I sent my check for the upgrade.

Someone once described VisiCalc as a Love-Hate relationship. On the one hand you love it and on the other you hate it. I mostly love VisiCalc but the upgrade has strained our relationship.

Several weeks later I received my upgraded version of VisiCalc labeled "16 SECTOR". I determined that this version was not a 16 sector version but the new VisiCalc with DOS 3.2 on a 13 sector disk. The logo displayed upon booting shows "VC-19380-AP2 ssssssss" where VC-193 is version 193 and ssssssss is my serial number.

It was my understanding that I was going to get additional disk capacity with the 16 sector version. I was also hoping that with my Pascal system, I could boot VisiCalc up directly without going thru a double boot to get into VisiCalc. With this version, I got neither benefit. I have found at least one other VisiCalc 193 user that DOES have 16 sector DOS???

The last week of October, I received another diskette and update to the manual. This version was neither announced nor paid for. I have discovered this version is 3.3 DOS with the SAVE/DIF bug fixed. This version shows "VC-20280-AP2-sssssssss" where VC-202 is version 202. It boots up directly and seems to have additional disk storage available.

On the one hand I wish to thank you for sending me the updated version. This shows me that Personal Software Inc. is headed in the correct direction - maintenance of the software it sells (even though not all version 193 users have received their "Free" update).

On the other hand, I wish to criticize you for putting "16 SECTOR" on diskettes that indeed are not 16 sector versions of DOS. I did not get my version 193 to fail with SAVE/DIF files, but I did not stress the system very much. You will find that most purchasers of software are willing to be patient while you debug software, but we

insist on your being truthful with us. If I had depended on the extra VisiCalc space or if I were trying to use VisiCalc with non-technical personnel, version 193 would have been a hindrance to me.

Your company had the time and money to send me two offers to upgrade VisiCalc. The last was even labeled "SECOND NOTIFICATION" as if I had failed to pay a bill! You certainly should have taken the time to tell me of bugs and things withheld.

The following are a list of things that I like very much about the new version of VisiCalc:

1. You have added editing of VisiCalc cells which can have a very long formula. The "/E" command works on one cell and the cursor positioning (left and right arrows) are very logical. The delete (ESCAPE) and insertion (any character) take some getting used to as they work to the left. One must position one character past the character to be deleted and then hit ESCAPE.
2. You have (in version 202) added 16 sector disk support. This is very important as even my personal VisiCalc disks fill up too fast. The fact that your initialization of a diskette (/SI) does not save room for DOS and gives me two additional tracks is a welcome benefit. New users should let VisiCalc initialize diskettes, not initialize with DOS. It would be nice to be able to specify volume serial numbers for master catalog programs.
3. Your updated documentation is a step in the right direction. The old style tutorial is expanded and helpful. The Command Reference is well written and complete. The tutorial alone was not sufficient for version 1.37 but it should not be overlooked by even an experienced VisiCalc user. The Command Structure chart (a foldout in the middle of the Command Reference) is bound to be the most copied page in history. On that one sheet is enough to teach VisiCalc.

These three features are worth the upgrade price.

4. You have added the ability to stop a printer (Cntl-C) but I have discovered that a Cntl-C stops VisiCalc and the printer. Then the next time something is printed one or more lines from the truncated print command get printed. I feel that this is a program bug in that you must not be clearing a buffer. My circumvention is to print any group of cells and all buffers are emptied, then space my printer to a clean page to print - what I wanted in the first place.

contd.

5. You have added the ability to use disk drives on other slots by the use of suffixes. At storage save (/SS) and storage load (/SL) the file name can contain a suffix such as ",D2" for drive 2 in slot 6 or ",S5,D2" for slot 5 drive 2. But to do this each file access is inconvenient. A "prefix" to specify the drive for all accesses would make our sessions easier.

The following are a list of things that I would like very much to see changed or supported:

1. You must add a global to keep dollars and cents in 2 decimal precision. I am using my APPLE for tax preparation work and last year VisiCalc rounded cents to one additional cent on multiplication and it caused me to retype a 13 page tax return. This is just not acceptable. I have seen your reference manual page 3-81. On that page you use a rounding formula:
$$(@INT((C3)*100+.5))/100.$$
It is not acceptable to force a user to use a complicated formula to make VisiCalc less precise. That should be the function of global commands. You state: "This difference can cause problems when attempting to balance books and during audits." You have just wiped out a whole profession of potential VisiCalc users.
2. Ability to use ADM-3 and other 80 column terminals, not the TV port, must be added. Anyone who purchases VisiCalc probably has an 80 column board or an ADM-3. Do you really insist that I have a black and white TV so I can do VisiCalc?
3. Colors would also be nice (red would be a nice negative color). Blue is a much better default color than white.
4. Multiple column replicates and moves are necessary to any serious VisiCalc spread sheet programmer. I was hoping that DIF would allow me to build a library of VisiCalc tools. The fact that DIF files only contain the calculated answers is just not enough.
5. Publication of VisiCalc disk data set formats similar to DIF is necessary. DIF is not complete enough for many applications. We can read your files with Pascal and it would be nice to do some real number crunching with the VisiCalc raw data.
6. You should allow creation of a file to contain the printer commands that VisiCalc could use (similar to a "PROFILE"). VisiCalc is too good to make me "write down the printer commands and keep them in your VisiCalc binder for future reference".
7. Copies should be cheaper than \$30.00. I think you are trying to say that we will not be likely to give away our backup copies or sell them if they are substantially more expensive than the \$4-\$5 disk. But they are only worth \$4-\$5. In fact, I have three copies

and with the ability to go from 3.2 to 3.3 and back with MUFFIN and Washington Apple Pi's NIFFUM program, I do not need your \$30.00 disk. I can afford to wait the 4-6 weeks for you to replace the diskette. I also can afford to purchase one of the bit copy programs that will copy VisiCalc. There will always be thieves and there will always be professional programmers or just good people. You will never overcome the thieves by a \$30.00 price. You will defeat them with your practice of prompt professional notification of program bugs and reasonably priced programming updates.

Sincerely,
Bob Johnson

Public Technologies Division
of
National Public Law Training Center
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PROBLEMS & REMEDIES WITH A LOWER CASE CHARACTER GENERATOR

by C.K. Mesztenyi

INTRODUCTION.

One of the major shortcomings of the APPLE II Plus is that it has been designed for upper-case letters only. My guess is that most owners discover the need for the full ASCII character set; otherwise the market would not be so full of items (software and hardware) to overcome this problem. Having ready access to main frame computers, my problem came up when I wanted to use the APPLE as a terminal equipped with the full ASCII character set. I did not want to spend a lot of money, so I started to look for the least expensive solution, and ended up by buying the Lower Case Character Generator by LJK Enterprises with a list price of \$35.

The product required installation involving replacement of a chip and wiring the shift key to gameport 3 pushbutton input. This can cost more if done by the dealer (\$25 or so). As with most products, the documentation was packaged and sealed with the chip. Thus I had not read it before buying it. Whether I would have realized the further problems I would face, I do not know, but in any case I spent about 40 hours to understand the problems and to write the three programs presented here. The hours do not include time spent writing this article, nor placing appropriate comments in the programs for easier understanding. Converting time to dollars, the price I paid is not so small any more. To be fair to LJK, these problems are not caused by their product but are rooted in the APPLE II itself, specifically in the keyboard, the Monitor in ROM, the Parallel Interface Card, etc. I hope this article helps other APPLE II owners to decide whether to buy a lower case character generator or not. Also, I am not promoting the LJK product over other similar ones (e.g. Paymar). As I see it, their problems are similar.

THE PROBLEM.

The problem with the Lower Case Character Generator on the APPLE II can be divided into two parts:

1. Byte representation of the ASCII set and its display on the screen.
2. Input of the ASCII set from keyboard.

Byte Representation and Display.

This is the least problematic area, and the available chips (e.g. LJK, Paymar) solve it very reasonably. Table 7 on page 15 of the APPLE Reference Manual shows the relation between the byte and screen representation of the unmodified APPLE. The modified Table 7 at the end of this article shows that only the last two columns are changed to accommodate the lower case group. Table 3 in the Reference Manual showing the ASCII set should be corrected by filling the blank

spaces: for \$E0, start of the next to last column, an accent grave; and for \$A0, start of the third column, write 'space'. Although the 'space' character does not print, in inverse mode it appears as a white square on the screen. The Reference Manual states that the last ASCII character \$FF (rub) is not intended to be a printable character. However, the LJK chip displays it as a white square. Some devices use this as a synchronization character; others may react to it differently, so use it only for strictly local purposes.

Problems with this solution can arise only with old programs which use the fact that the bytes \$E0-\$FF are equivalent to \$A0-\$BF, respectively. The chances of your running into this are very, very small.

More serious problems arise with existing programs already using some kind of upper/lower case features in some coded form. An example of this is Apple Writer, where capital letters appear in inverted form while lower case letters appear as normal capitals. In these cases, one has two choices: 1. A patch-up job which involves the detection of the screen output instructions in the program, their replacement with subroutine jumps and writing the appropriate subroutine which handles the upper/lower case screen output. I have implemented this method for Apple Writer (see the third presented program). 2. Rewrite the program by removing the superfluous codes which handle the artificial coding for upper/lower case. This can be quite a big job. Neither choice works if the program is in such a form that one cannot get access to it for the necessary modifications. Personally, I avoid buying any software program which does not come with a listing to allow me to change it to suit my need.

Keyboard Input of ASCII Characters.

Keyboard input causes the major problem since there are not enough keys on the APPLE keyboard. The only hardware solution would be to replace the keyboard, which can be quite expensive. Thus one has to resort to software "keyboard interpreter programs". Many existing programs have built-in keyboard interpreters which use ASCII control characters available from the keyboard. Probably the most abused character is ESC, since it has a separate key. The list of programs using ESC for this starts with the Monitor, and is probably endless.

The LJK product assumes that the SHIFT key is wired to the gameport 3 pushbutton input, and gives detailed instructions to accomplish this. I like this approach for the following reasons:

- (a) The SHIFT key is more natural for

contd.

upper/lower case generation than any other control key (e.g. ESC).

- (b) The inputs (SHIFT and alpha-key) are parallel, while Ctrl-character followed by alpha-key is sequential.
- (c) Ease of test from assembly language:
BIT \$C063 or BIT \$C063
BPL SHON BMI SHOFF
which also leave the registers intact.
- (d) Not having anything connected to gameport 3, I gained a flag input possibility from the keyboard.

Obviously, there are some disadvantages also, namely the SHIFT M, N and P are used by the keyboard as special characters

] , ^ and @ which must be accommodated by the keyboard interpreter, since the SHIFT key now produces capital letters. Also, the markings ^ and @ on the keys N and P (why is it missing on M?) may be confusing. Another very unlikely disadvantage is if the gameport 3 is used in such a way that input may come from there and from the keyboard at the same time.

Using the SHIFT key for upper/lower case still does not solve the problem of not having enough keys for the full ASCII printable set. In fact, we lost the characters] , ^ and @. The other characters which are not available are the left bracket, the backslash, the underscore, the accent grave, the left and right braces, the vertical bar and the tilde. For these, one has to revert to the use of a control character followed by a code-character key. The programs presented here use Control-Z for the control character and the keys in the top row, with the exception of the RESET key, as code keys. If anyone does not like Control-Z (\$9A), it is very easy to change in the programs. I have chosen Control-Z since I have not seen it used by other programs such as the Monitor, modems, etc. Also, the same control character is used by the program supplied by LJK. The choice of the top row for code keys allows one to scotch tape a strip of paper above it with the appropriate symbols drawn on the paper.

The SHIFT-0 (zero) on the APPLE keyboard produces the same input as the zero key without shift. Recognizing the SHIFT key separately allows one to choose one of the otherwise coded symbols to be associated with SHIFT-0. The obvious choice is the one which is used most frequently. The programs below use SHIFT-0, or Control-Z followed by 0 for @. This was a personal choice. Since I have worked mainly with Univac computers, I have found it necessary to use @ very frequently.

Finally, the LOCK (or SHIFT-LOCK) feature common on typewriters or terminals should also be implemented. The LOCK is a two position switch (ON/OFF) such that all letter key inputs are considered to be in upper case when the LOCK is in the ON position. When it is in the OFF position, it does not have any effect. I had to

revert to a control character to implement this feature. The programs use Control-L to change the position of this "soft" switch. Again, it can be changed easily, although it seems to be the most natural choice and does not interfere with other control characters used by the programs. The initial position of the LOCK key depends on the program.

Summary.

A - Z (letter) keys --> lower case letters if LOCK is OFF
--> upper case letters if LOCK is ON
SHIFT A - Z --> upper case letters
SHIFT-0 --> @
Control-L --> LOCK position change

Control-Z followed by key

1 --> [	7 --> {
2 --> \	8 --> }
3 -->]	9 --> }
4 --> ^	0 --> @
5 --> _	: --> ~
6 --> `	- --> -

All others unchanged.

THE REMEDIES.

The following three programs provide solutions for some applications. Although they are very different in nature, all three provide their keyboard reading and interpretation as defined in the previous paragraph. The first one is a more or less general subroutine usable with many other programs. The second program completely replaces the one which resides in ROM, where software changes could not be made to it. The third program addresses the problem where not only the keyboard input part had to be changed but also the screen output. This is because Apple Writer handles lower case characters in a coded form. The modifications were made in a patch-up mode. Rewriting it would have been a major job even with adequate documentation, which I do not have.

Program 1: KEYBOARD.

Binary program: KEYBOARD.OBJO,A\$300,L\$AF.
Relocatability: Must be reassembled with changed ORG.

Applicability:

Basic programs under DOS can use it to allow the full printable ASCII set for values of strings; also machine language programs under DOS may use it to enable the Monitor's RDKEY and/or GETLN entries for keyboard input.

Use:

Before the lower case feature is used, the binary program must be executed, i.e.

BRUN KEYBOARD.OBJO

or equivalently with a subroutine call. This run establishes the necessary linkage with DOS.

LOCK: Initial position is ON.

Remarks:

The program has been assembled into the normally free memory on page 3 to hide it from Basic programs. It must be reassembled into some other appropriate location if this memory is used by another routine.

contd.

The screen cursor normally shows the screen character in flashing mode. Since the new lower case letters do not have a flashing mode, they appear as capital letters in inverse mode at the cursor position.

Program 2a: TERMINAL

Binary program: TERMINAL.OBJO,A\$6000,L\$F0
Relocatability: Yes, without reassembly.

Applicability:

The program allows the use of the APPLE II as a full ASCII terminal connected to a host computer through the APPLE Communication Interface Card.

Restriction:

The binary program assumes the following configuration:

slot = 2 baud rate = 300
transmission: 7 bit ASCII, even parity,
1 stop bit

For other configurations, the appropriate data must be changed and the program reassembled.

Use:

Although the program has been written as a subroutine, its normal use consists simply of running it as follows:

1. Establish contact with the host computer according to the interface card procedure.
2. Type: Control-A, Control-X to exit from the interface card program without disconnecting the host.
3. Type: BRUN TERMINAL.OBJO and proceed with the terminal session in upper/lower case.
4. Once the terminal session is over, you may disconnect the host at this point, or exit from the program without disconnecting the host by typing Control-A, Control-X. The routine returns the control to wherever it was called from (Monitor, Basic or user's program).

LOCK: Initial position is OFF.

Remarks:

1. Both the APPLE Communication Card and Hayes Micromodem use the keyboard input directly in the ROM program, which makes it impossible to insert any correction. Both cards use the M6850 Asynchronous Communication Adaptor (ACIA) but the registers of the ACIA are connected to different memory locations. More information about ACIA can be found in [7].

2. This program uses only the DATA and STATUS registers of the ACIA. The program also uses two slot-dependent memory locations, STAT and LOCK, where STAT contains the data necessary for STATUS, and LOCK is the shift lock switch. The above memory locations are as follows:

	APPLE Comm.C.	Hayes Microm.
STATUS	\$C08E+\$n0	\$C086+\$n0
DATA	\$C08F+\$n0	\$C087+\$n0
STAT	\$7F8+n	\$7F8+n
LOCK	\$6F8+n	\$6F8+n

If the slot is different from 2 (APPLE Comm.C.) or 3 (Hayes Microm.) then the appropriate EQU statements in the program must be changed, and the program reassembled.

3. If the communication is done with 8-bit data and 2 stop bits (which is the default case on the APPLE Comm. Card) then the byte \$13 at the address \$600B

should be changed to \$23. This change can be done by the Monitor on the binary program.

Program 2b: HAYES

Binary program: HAYES.OBJO,A\$6000,L\$F0
(see information for Program 2a above)

Remark:

This program was not tested due to the unavailability of the hardware combination. Information was taken from a borrowed manual for the Hayes Micromodem.

Program 3: TEDITOR-INP AND TEDITOR-MOD

Binary programs:

TEDITOR-INP.OBJO,A\$806,L\$10
TEDITOR-MOD.OBJO,A\$1848,L\$86

Applicability:

The programs are modifications to the TEDITOR part of Apple Writer to accommodate the upper/lower case features.

Updating procedure:

The modifications can be made by having the binary programs on a diskette and making a working copy of the Modified Apple Writer following the instructions in the Apple Writer Manual (Appendix G) with steps 10, 11 and 12 replaced as follows:

- 10 type . . .
BLOAD TEDITOR
- a. type
CALL -151
to get into the Monitor
- b. type
AE6: 20 B1 18
1548: 20 B8 18
- c. replace the original Apple Writer diskette with the one containing the binary programs
- d. type
BLOAD TEDITOR-INP.OBJO
BLOAD TEDITOR-MOD.OBJO
- e. place the modified working copy diskette in and type
BSAVE TEDITOR,A\$803,L\$10DB
- 13 type
LOCK TEDITOR

Once the modified copy is finished, one can make further copies from it by following the manual's instructions except for step 12, where the length of the TEDITOR must be changed, i.e. the typed line should be as in step e. above.

Use:

The use of the modified Apple Writer is as given in its manual. The changes provide true screen upper/lower characters and the use of the shift key as described in the first part of this article. The ESC key, as a shift key in the unmodified version, is left the same as before.

LOCK: Initial position is OFF.

Remarks:

The screen output modification was copied from [5] where it is given only in binary form for addresses \$1864 to \$1890. This program segment was incorporated into TEDITOR-MOD without accompanying comments.

Internally, the TEDITOR program expects
contd.

all keyboard inputs in upper case mode and uses location \$0B to determine for each input whether to interpret it as lower case mode (\$0B is not zero). The setting of \$0B is done before the input is called for. The ESC input, as a shift key, sets \$0B to zero. To accommodate this interpretation, the keyboard interpreter routine converts all characters to upper case mode and if a character is to remain as upper case it also clears \$0B. The "rub" character (white square) with key input Control-Z followed by -, can be used as a marker in Apple Writer. As a white square, it sticks out on the screen which makes its detection and removal easy before the file is printed.

CONCLUSION.

I have found that my investment of \$35 was well spent with the use of the above programs. Meanwhile, I came across [6] which describes a similar conversion for a do-it-yourself person, for under \$10. I also expect there will be more articles appearing with modifications to existing programs to incorporate the described lower case character generator. Unfortunately, many authors of programs protect their copyright by making their products not only inaccessible for change, but also by giving little or no information about their internals. Thus, they punish an honest buyer. This attitude (a notable exception to which is Apple Computer, Inc.) may cause difficulty in using the lower case conversion in otherwise good

programs.

An interesting project would be to change Applesoft so that it could allow lower case letters for the names of variables. This use would avoid the conflict when naming variables and keywords. Also, the listing of a program would be nicer with upper case keywords and lower case variable names. Reversing the upper/lower case (keywords in lower case, variables in upper case) would probably be easier to implement by changing the keyword table to lower case letters, and letting the tokenizer routine do the job.

WARNING: The appropriate type of lower case character generator chip depends on the revision number of the APPLE motherboard, e.g. the LJK product is good for Rev. 7 (or higher).

REFERENCES.

- [1] APPLE II Reference Manual, 1979
- [2] Communications Interface Card. Apple Computer, Inc.
- [3] Micromodem II Owner's Manual. D.C. Hayes Microcomputer Products, Inc.
- [4] Apple Writer Manual.
- [5] Lou Rivas: Apple Writer Modification for Lower Case Display. Apple Orchard, Fall 1980, p.43.
- [6] Don Lancaster: Son of Cheap Video. Howard W. Sams and Co., Inc. 1980.
- [7] Adam Osborne: An Introduction to Microcomputers. Vol. II, Some Real Products. 1977. (Chapter 8)

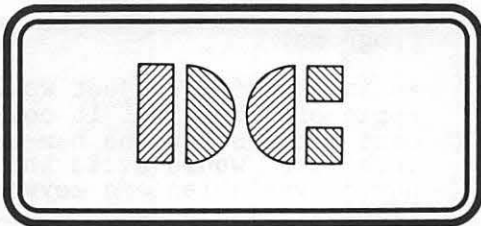
SOURCE FILE: KEYBOARD

```

0000:          1 *****
0000:          2 * MODIFIED LOWER CASE SOFTWARE *
0000:          3 * FOR LJK ENTERPRISES, INC. ADAPTER*
0000:          4 * BY CHARLES K. MESZTENYI, 1981 *
0000:          5 *****
0000:          6 *
0038:          7 KSW      EQU    $38      ;MONITOR KEY SWITCH
03EA:          8 DHOOK   EQU    $3EA     ;DOS ENTRY
0028:          9 BASE    EQU    $28      ;SCREEN ADDRESS
FD1B:         10 KEYIN   EQU    $FD1B    ;KEYBOARD ENTRY IN MONITOR
0100:         11 STACK   EQU    $100     ;STACK ADDRESS
FDOC:         12 RDKEY   EQU    $FDOC    ;MONITOR INDIRECT KEY
C063:         13 SHIFT   EQU    $C063    ;GAME-3 SHIFT KEY
0000:         14 *
----- NEXT OBJECT FILE NAME IS KEYBOARD.OBJO
0300:         15          ORG    $300
0300:         16 *
0300:A9 0B    17 SETHOOK LDA    #KY      ;LINK IN
0302:85 38    18          STA    KSW    ; KEYBOARD
0304:A9 03    19          LDA    #<KY   ; ROUTINE
0306:85 39    20          STA    KSW+1  ; THROUGH
0308:4C EA 03 21          JMP    DHOOK   ; DOS
030B:         22 *
030B:48      23 KY      PHA          ;SAVE CHARACTER
030C:C9 E0    24          CMP    #$E0    ;MODIFY SCREEN
030E:90 02    25          BCC    LC1     ; CURSOR TO INVERSE
0310:49 20    26          EOR    #$20    ; IF IT IS A
0312:29 3F    27 LC1    AND    #$3F    ; LOWER CASE
0314:0D AB 03 28          ORA    LOCK    ; CHARACTER
0317:91 28    29          STA    (BASE),Y ;
0319:68      30          PLA          ;PUT SCREEN BACK

```

contd.



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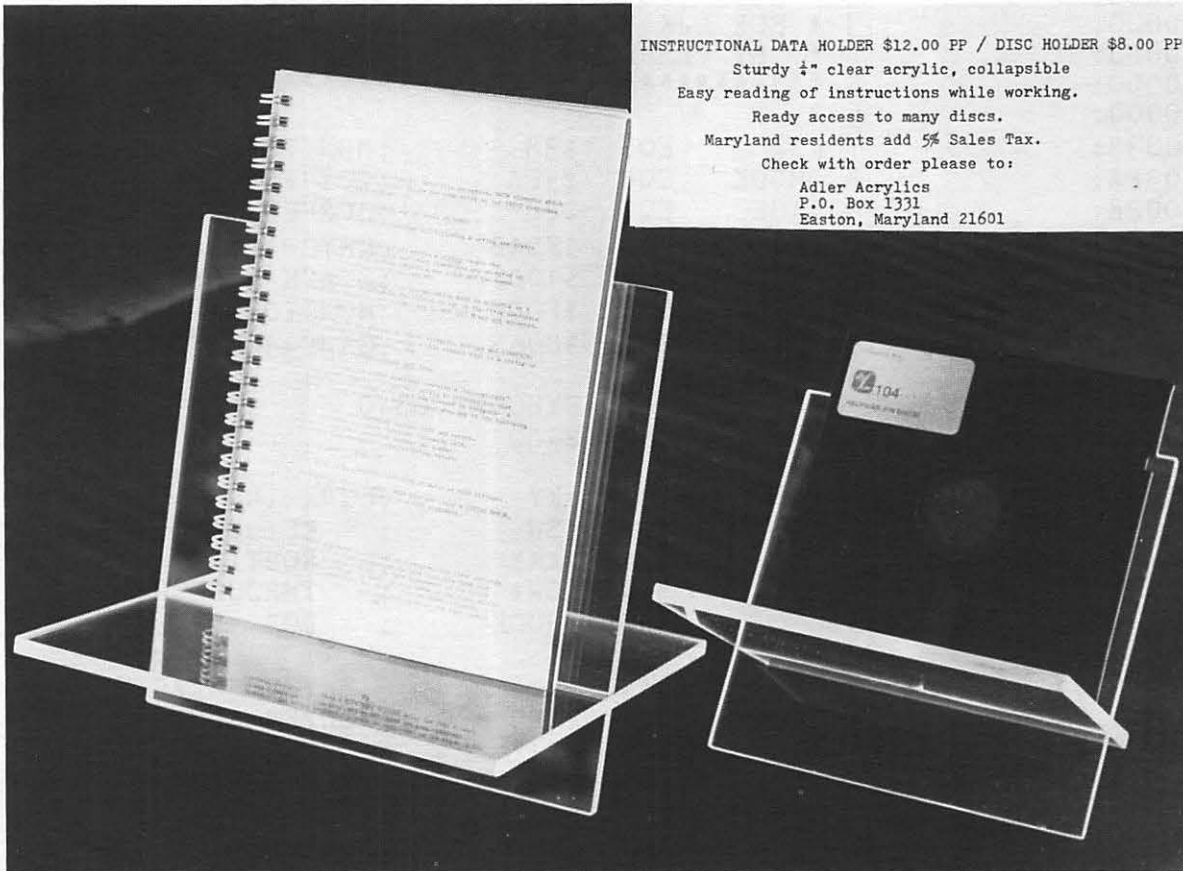
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```

031A:20 1B FD 31 JSR KEYIN ; AND GET KEY INPUT
031D:8D AD 03 32 STA CHAR ;SAVE CHAR
0320:8E AC 03 33 STX XSAVE ; X-REG
0323:BA 34 TSX ;GETLN CHECK
0324:BD 06 01 35 LDA STACK+6,X ; MUST MODIFY
0327:C9 FD 36 CMP #$FD ; RETURN ADDRESS
0329:D0 0C 37 BNE TSTKEY ; TO AVOID CAPITAL
032B:BD 05 01 38 LDA STACK+5,X ; CONVERSION IF
032E:C9 77 39 CMP #$77 ; ROUTINE WAS
0330:D0 05 40 BNE TSTKEY ; CALLED FROM
0332:A9 83 41 LDA #$83 ; THERE
0334:9D 05 01 42 STA STACK+5,X ;
0337:AE AC 03 43 TSTKEY LDX XSAVE ;RESTORE X
033A:AD AD 03 44 LDA CHAR ; AND A
033D: 45 * KEY-INPUT CONVERSION PART
033D:C9 8C 46 CMP #$8C ;CONTROL-L?
033F:D0 0B 47 BNE CTRZ ; NO
0341:AD AB 03 48 LDA LOCK ; YES, INVERT
0344:49 40 49 EOR #$40 ; LOCK
0346:8D AB 03 50 STA LOCK ;
0349:4C 0C FD 51 NEWKEY JMP RDKEY ;GET NEW KEY INPUT
034C:C9 9A 52 CTRZ CMP #$9A ;CONTROL-Z?
034E:D0 1B 53 BNE CTRU ; NO
0350:20 0C FD 54 JSR RDKEY ; YES, GET KEY INPUT
0353:29 0F 55 AND #$0F ; MASK OUT NIBBLE
0355:F0 3B 56 BEQ AT ; @ FOR ZERO
0357:C9 0D 57 CMP #$0D ; RUB SQUARE
0359:D0 04 58 BNE NODS ;
035B:A9 FF 59 LDA #$FF ; FOR MINUS
035D:D0 0B 60 BNE RTS1 ;
035F:18 61 NODS CLC ; CAN CALCULATE OTHERS
0360:69 DA 62 ADC #$DA ; FOR END OF
0362:C9 E1 63 CMP #$E1 ; CAP-PART
0364:90 04 64 BCC RTS1 ;
0366:69 19 65 ADC #$19 ; LOW-PART
0368:B0 DF 66 BCS NEWKEY ; NEGLECT IF NOT IN RANGE
036A:60 67 RTS1 RTS ;
036B:C9 95 68 CTRU CMP #$95 ;CONTROL-U?
036D:D0 06 69 BNE CR ; NO
036F:B1 28 70 LDA (BASE),Y ; YES, MUST READ
0371:09 80 71 ORA #$80 ; FROM SCREEN
0373:30 04 72 BMI PMN ; IN UPPER MODE
0375:C9 8D 73 CR CMP #$8D ;CARRIAGE RETURN?
0377:F0 F1 74 BEQ RTS1 ; LEAVE IT ALONE
0379:C9 C0 75 PMN CMP #$C0 ;SHIFT-P
037B:D0 04 76 BNE MN ; NO
037D:49 10 77 ADJST EOR #$10 ;ADJUST FOR
037F:D0 13 78 BNE LETTER ; SHIFT-P,M,N
0381:C9 DD 79 MN CMP #$DD ;SHIFT-M?
0383:90 04 80 BCC ZERO ; OR
0385:C9 DF 81 CMP #$DF ;SHIFT-N?
0387:90 F4 82 BCC ADJST ;YES
0389:C9 B0 83 ZERO CMP #$B0 ;SHIFT-ZERO?
038B:D0 07 84 BNE LETTER ; NO
038D:2C 63 CO 85 BIT SHIFT ;HANDLE SHIFT-0 AS @
0390:30 D8 86 BMI RTS1 ;
0392:A9 C0 87 AT LDA #$C0 ;
0394:C9 C1 88 LETTER CMP #$C1 ;CHECK FOR LETTER
0396:90 D2 89 BCC RTS1 ; NO, THEN OK
0398:C9 DB 90 CMP #$DB ;
039A:B0 CE 91 BCS RTS1 ;

```

```

039C:2C AB 03 92 BIT LOCK ; YES, CHECK LOCK
039F:70 C9 93 BVS RTS1 ; ON, RETURN
03A1:09 20 94 ORA #$20 ; OFF, MAKE LOWER CASE
03A3:2C 63 CO 95 BIT SHIFT ; CHECK SHIFT
03A6:30 C2 96 BMI RTS1 ; NO
03A8:49 20 97 EOR #$20 ; YES, MAKE UPPER
03AA:60 98 RTS
03AB: 99 *
03AB:40 100 LOCK DFB $40
03AC:00 101 XSAVE BRK
03AD:00 102 CHAR BRK
03AE: 103 *

```

*** SUCCESSFUL ASSEMBLY: NO ERRORS

SOURCE FILE: TERMINAL

```

0000: 1 *****
0000: 2 * TERMINAL PROGRAM *
0000: 3 * THE PROGRAM USES THE M6850 *
0000: 4 * ACIA ON THE APPLE COMMUNICA- *
0000: 5 * TION CARD IN SLOT 2 -AND- *
0000: 6 * THE LOWER CASE ADAPTOR BY *
0000: 7 * LJK ENTERPRISES INC. *
0000: 8 * THE PROGRAM IS RELOCATABLE. *
0000: 9 * IF SLOT IS DIFFERENT FROM 2 *
0000: 10 * THEN THE EQU LINES FOR STAT, *
0000: 11 * LOCK, DATA AND STATUS SHOULD *
0000: 12 * BE CHANGED. ALSO ASSUMED 300 *
0000: 13 * BAUD RATE, 7 DATA BITS, EVEN *
0000: 14 * PARITY AND 1 STOP BIT. IF *
0000: 15 * DIFFERENT THEN THE INITIALI- *
0000: 16 * ZATION PART MUST BE CHANGED. *
0000: 17 * CHARLES K. MESZTENYI, 1981 *
0000: 18 * UNIVERSITY OF MARYLAND *
0000: 19 * COMPUTER SCIENCE CENTER *
0000: 20 *****
0024: 21 CH EQU $24 ;SCREEN CURSOR
004E: 22 RNDL EQU $4E ;RANDOM
004F: 23 RNDH EQU $4F ; NUMBER
0028: 24 BASL EQU $28 ;SCREEN COORD
007A: 25 STAT EQU $7FA ;$7F8+SLOT=RAM STATUS
06FA: 26 LOCK EQU $6FA ;6F8+SLOT =LOWER CASE MASK
C000: 27 KBD EQU $C000 ;KEYBOARD DATA
COAF: 28 DATA EQU $COAF ;$C08F+SLOT&0=ACIA DATA
FDFO: 29 COUT1 EQU $FDFO ;MONITOR VIDEO OUTPUT
FDED: 30 COUT EQU $FDED ;MONITOR OUTPUT CHARACTER
FD1B: 31 KEYIN EQU $FD1B ;MONITOR KEY INPUT
FD26: 32 KEYIN3 EQU $FD26 ;MONITOR INPUT RETRIEVE
COAE: 33 STATUS EQU $COAE ;$C08E+SLOT&0=ACIA STATUS
C063: 34 SHIFT EQU $C063 ;GAMEPORT-3 SHIFT KEY
0000: 35 *
----- NEXT OBJECT FILE NAME IS TERMINAL.OBJO
6000: 36 ORG $6000 ;THIS CAN BE CHANGED
6000: 37 *
6000:48 38 START PHA
6001:8A 39 TXA
6002:48 40 PHA
6003:98 41 TYA
6004:48 42 PHA
6005:A9 00 43 LDA #$00 ;INIT TO LOWER CASE
6007:8D FA 06 44 STA LOCK

```

contd.

```

600A:A9 13 45 LDA # $13 ; MASTER RESET
600C:8D AE CO 46 STA STATUS ; FOR ACIA
600F:4A 47 LSR A ; 7 BITS, EVEN PARITY, 1 STOP
6010:8D FA 07 48 STA STAT ; 300 BAUD TRANSMISSION
6013: 49 *
6013:AD FA 07 50 CLRBK LDA STAT ; RESET ACIA
6016:8D AE CO 51 STA STATUS ; STATUS
6019: 52 *
6019:A4 24 53 TERM1 LDY CH ; FLASH
601B:B1 28 54 LDA (BASL),Y ; CURSOR
601D:48 55 PHA ; AND SAVE
601E:29 3F 56 AND # $3F ; IN STACK
6020:09 40 57 ORA # $40
6022:91 28 58 STA (BASL),Y
6024: 59 *
6024:E6 4E 60 TLOOP INC RNDL ; INCREMENT RANDOM
6026:DO 02 61 BNE SERIN ; NUMBER WHILE
6028:E6 4F 62 INC RNDH ; WAITING FOR INPUT
602A: 63 *
602A:AD AE CO 64 SERIN LDA STATUS ; ACIA INPUT?
602D:4A 65 LSR A
602E:90 26 66 BCC NOAC ; NO, CHECK KEYBOARD
6030:68 67 PLA ; YES, GET CURSOR
6031:91 28 68 STA (BASL),Y ; AND ERASE IT
6033:AD AF CO 69 LDA DATA ; GET ACIA DATA
6036:FO E1 70 BEQ TERM1 ; IGNORE NULL CHAR
6038:09 80 71 ORA # $80 ; SET HIGH BIT
603A:C9 FF 72 CMP # $FF ; IGNORE
603C:FO DB 73 BEQ TERM1 ; RUBOUT
603E:C9 8A 74 CMP # $8A ; IGNORE
6040:FO D7 75 BEQ TERM1 ; LINEFEED
6042:4D FA 06 76 EOR LOCK ; MASK WITH LOWER CASE
6045:20 ED FD 77 JSR COUT ; PUT IT OUT
6048:DO CF 78 BNE TERM1 ; AND ALWAYS BRANCH
604A: 79 * INTERPRET KEYBOARD CHARACTER
604A:C9 8C 80 NOESC CMP # $8C ; CONTROL-L?
604C:DO 33 81 BNE CTRX ; NO
604E:AD FA 06 82 LDA LOCK ; YES, INVERT
6051:49 20 83 EOR # $20 ; LOWER CASE
6053:8D FA 06 84 STA LOCK ; MASK
6056: 85 * NO ACTION, WAIT FOR INPUT
6056:A4 24 86 NOAC LDY CH ; CHECK FOR KEY-
6058:AD 00 CO 87 LDA KBD ; BOARD INPUT
605B:10 C7 88 BPL TLOOP ; NO, CHECK ACIA
605D:68 89 PLA ; YES, GET CURSOR
605E:20 26 FD 90 JSR KEYIN3 ; AND RETRIEVE INPUT
6061:C9 81 91 CMP # $81 ; CONTROL-A?
6063:DO E5 92 BNE NOESC ; NO
6065:20 1B FD 93 JSR KEYIN ; YES, GET NEXT KEY-INPUT
6068:C9 98 94 CMP # $98 ; CONTROL-X?
606A:FO 7E 95 BEQ EXIT ; YES, EXIT FROM PROGRAM
606C:DO A5 96 BNE CLRBK ; NO, IGNORE ALL
606E: 97 * SERIAL OUTPUT
606E:48 98 SEROUT PHA ; SAVE CHAR
606F:AD AE CO 99 SER1 LDA STATUS ; IS ACIA READY
6072:29 02 100 AND # $02 ; FOR OUTPUT
6074:FO F9 101 BEQ SER1 ; NO, WAIT FOR IT
6076:68 102 PLA ; YES, GET CHAR
6077:8D AF CO 103 STA DATA ; PUT IT OUT
607A:20 FO FD 104 JSR COUT1 ; ALSO TO THE SCREEN
607D:FO 94 105 BEQ CLRBK ; JUMP BACK

```

```

607F:DO 92 106 BNE CLRBK ; TO RESET ACIA
6081: 107 * FURTHER EDITING OF KEYBOARD CHAR
6081:C9 98 108 CTRX CMP # $98 ; CONTROL-X?
6083:DO OE 109 BNE CTRU
6085:A9 DC 110 LDA # $DC ; PUT REVERSE
6087:20 FO FD 111 JSR COUT1 ; SLASH ON SCREEN
608A:A9 8D 112 LDA # $8D ; ALSO A 'CR'
608C:20 FO FD 113 JSR COUT1
608F:A9 98 114 LDA # $98 ; AND OUTPUT
6091:DO DB 115 BNE SEROUT ; CONTROL-X
6093:C9 95 116 CTRU CMP # $95 ; CONTROL-U?
6095:DO 08 117 BNE CTRZ ; NO
6097:A4 24 118 LDY CH ; YES, WE READ FROM SCREEN
6099:B1 28 119 LDA (BASL),Y
609B:09 80 120 ORA # $80 ; AND TRANSMIT IT
609D:DO CF 121 BNE SEROUT
609F:C9 9A 122 CTRZ CMP # $9A ; CONTROL-Z?
60A1:DO 14 123 BNE PMN
60A3:20 1B FD 124 JSR KEYIN ; YES, GET NEXT CHAR
60A6:29 OF 125 AND # $OF ; MASK OUT DIGIT
60A8:FO 28 126 BEQ AT ; 0 AS @
60AA:18 127 CLC ; ELSE MAKE
60AB:69 DA 128 ADC # $DA ; APPROPRIATE MASK
60AD:C9 E1 129 CMP # $E1 ; AND CHECK FOR
60AF:90 BD 130 BCC SEROUT ; TAIL END OF CAP.
60B1:69 19 131 ADC # $19 ; OF LOWER CASE
60B3:90 B9 132 BCC SEROUT ; ASCII GROUP
60B5:BO 9F 133 BCS NOAC ; NEGLECT IF OUT OF RANGE
60B7: 134 * WE MUST TAKE CARE OF SHIFT
60B7: 135 * WITH CHARACTERS P, N AND M
60B7:09 80 136 PMN ORA # $80 ; SET HIGH BIT
60B9:C9 CO 137 CMP # $C0 ; SHIFT-P?
60BB:DO 04 138 BNE MN ; NO
60BD:49 10 139 ADJST EOR # $10 ; ADJUST WITH $10
60BF:DO 08 140 BNE ZERO ; AND JUMP
60C1:C9 DD 141 MN CMP # $DD ; SHIFT-M?
60C3:90 04 142 BCC ZERO ; NO
60C5:C9 DF 143 CMP # $DF ; OR SHIFT-N?
60C7:90 F4 144 BCC ADJST ; YES, ADJUST
60C9:C9 BO 145 ZERO CMP # $B0 ; IS IT ZERO
60CB:DO 07 146 BNE LETTER ; NO
60CD:2C 63 CO 147 BIT SHIFT ; CHECK SHIFT KEY
60DD:30 9C 148 BMI SEROUT ; NONE, TAKE AS ZERO
60DE:A9 CO 149 AT LDA # $C0 ; YES, TAKE IT AS @
60D4:C9 C1 150 LETTER CMP # $C1 ; CHECK FOR ALPHA
60D6:90 96 151 BCC SEROUT ; NO
60D8:C9 DB 152 CMP # $DB
60DA:BO 92 153 BCS SEROUT ; NO
60DC:09 20 154 ORA # $20 ; YES, MAKE LOWER CASE
60DE:4D FA 06 155 EOR LOCK ; MASK IT
60E1:2C 63 CO 156 BIT SHIFT ; CHECK SHIFT KEY
60E4:30 88 157 BMI SEROUT ; NO, THEN O.K.
60E6:29 DF 158 AND # $DF ; YES, MAKE IT UPPER
60E8:DO 84 159 BNE SEROUT ; AND JUMP
60EA: 160 * CONTROL-A, CONTROL-X EXITS FROM PROGRAM
60EA:68 161 EXIT PLA
60EB:A8 162 TAY
60EC:68 163 PLA
60ED:AA 164 TAX
60EE:68 165 PLA
60EF:60 166 RTS

```

contd.

60F0: 167 * END *

*** SUCCESSFUL ASSEMBLY: NO ERRORS

SOURCE FILE: TEDITOR-INP

```

0000: 1 *****
0000: 2 * CORRECTION FOR APPLE WRITER, PART 1. *
0000: 3 * USES LJK LOWER CASE CHARACTER GENERATOR *
0000: 4 * CHARLES K. MESZTENYI, 1981 *
0000: 5 * COMPUTER SCIENCE CENTER *
0000: 6 * UNIVERSITY OF MARYLAND *
0000: 7 *
1848: 8 PAGE EQU $1848 ;CORRECIION, PART 2
----- NEXT OBJECT FILE NAME IS TEDITOR-INP.OBJO
0806: 9 ORG $0806
0806:20 0C 08 10 ENTRY JSR KEY ;GET KEY INPUT
0809:4C 48 18 11 JMP PAGE ; AND GO TO PART 2
080C:2C 10 C0 12 KEY BIT $C010 ;SUBROUTINE TO
080F:AD 00 C0 13 KEY1 LDA $C000 ; GET KEY INPUT
0812:10 FB 14 BPL KEY1
0814:60 15 RTS
0815:01 16 LOCK DFB $01 ;UPPER-CASE LOCK
0816: 17 *****

```

*** SUCCESSFUL ASSEMBLY: NO ERRORS

SOURCE FILE: TEDITOR-MOD

```

0000: 1 *****
0000: 2 * CORRECTIONS FOR APPLE WRITER, PART 2. *
0000: 3 * USING LJK LOWER CASE CHARACTER GENERATOR*
0000: 4 * PAGE IS ENTERED BY JUMP FROM $809 *
0000: 5 * KEY IS A SUBROUTINE TO GET INPUT FROM *
0000: 6 * KEYBOARD, ALL IN PART 1 *
0000: 7 * LOCK IS FOR UPPER CASE LOCK *
080C: 8 KEY EQU $080C
0815: 9 LOCK EQU $0815
----- NEXT OBJECT FILE NAME IS TEDITOR-MOD.OBJO
1848: 10 ORG $1848
1848: 11 *
1848:C9 8C 12 PAGE CMP #$8C ;CONTROL-L?
184A:DO 0B 13 BNE CTRZ ;NO
184C:4D 15 08 14 EOR LOCK ;YES, SWITCH
184F:8D 15 08 15 STA LOCK ; LOCK POSITION
1852:20 0C 08 16 JSR KEY ;GET NEXT INPUT
1855:DO F1 17 BNE PAGE ;SHOULD BE NON-ZERO
1857: 18 *
1857:C9 9A 19 CTRZ CMP #$9A ;CONTROL-Z?
1859:DO 20 20 BNE PMN
185B:20 0C 08 21 JSR KEY ;GET NEXT KEY
185E:29 0F 22 AND #$0F ; MASK IT
1860:F0 32 23 BEQ AT ;ZERO AS @
1862:C9 0D 24 CMP #$0D ;WAS IT DASH
1864:DO 04 25 BNE NODS ; NO
1866:A9 DF 26 LDA #$DF ;YES, USE 'RUB'
1868:DO 42 27 BNE LOWER
186A:18 28 NODS CLC ;OTHERWISE
186B:69 DA 29 ADC #$DA ; CONVERT IT
186D:C9 E0 30 CMP #$E0 ; TO SPECIAL
186F:F0 06 31 BEQ NODS1 ; CHARACTER
1871:90 33 32 BCC UPPER ; BUT CHECK IF
1873:E9 06 33 SBC #$06 ; IS IN THE LOWER

```

```

1875:DO 35 34 BNE LOWER ; OR UPPER CASE
1877:A9 C0 35 NODS1 LDA #$C0 ; CATHEGORY
1879:DO 31 36 BNE LOWER
187B: 37 *
187B:C9 C0 38 PMN CMP #$C0 ;SHIFT-P?
187D:DO 04 39 BNE MN
187F:49 10 40 ADJST EOR #$10 ;MODIFY AND
1881:DO 23 41 BNE UPPER ;JUMP ALWAYS
1883:C9 DD 42 MN CMP #$DD ;SHIFT-M?
1885:90 04 43 BCC ZERO ; OR
1887:C9 DF 44 CMP #$DF ;SHIFT-N?
1889:90 F4 45 BCC ADJST ;YES,MODIFY
188B: 46 *
188B:C9 B0 47 ZERO CMP #$B0 ;SHIFT-ZERO?
188D:DO 09 48 BNE LETTER
188F:2C 63 C0 49 BIT $C063
1892:30 18 50 BMI LOWER
1894:A9 C0 51 AT LDA #$C0 ;YES USE @
1896:DO 0E 52 BNE UPPER
1898: 53 *
1898:C9 C0 54 LETTER CMP #$C0 ;CHECK ALPHA
189A:90 10 55 BCC LOWER ;OK, IF NOT
189C:2C 15 08 56 BIT LOCK ;CHECK SHIFT LOCK
189F:30 05 57 BMI UPPER ;YES
18A1:2C 63 C0 58 BIT $C063 ;CHECK SHIFT KEY
18A4:30 06 59 BMI LOWER
18A6: 60 *
18A6:48 61 UPPER PHA
18A7:A9 00 62 LDA #$00
18A9:85 0B 63 STA $0B
18AB:68 64 PLA
18AC:8D 10 C0 65 LOWER STA $C010
18AF:60 66 RTS
18B0: 67 * NEXT PART IS PREVIOUS CORRECTION
18B0: 68 * DONE BY LOU RIVAS FOR SCREEN OUTPUT
18B0:00 69 DFB $00
18B1:20 C5 18 70 SCR JSR MOD
18B4:91 28 71 STA ($28),Y
18B6:C8 72 INY
18B7:60 73 RTS
18B8: 74 *
18B8:C9 A0 75 SCR1 CMP #$A0
18BA:90 06 76 BCC OUTZ
18BC:20 01 15 77 JSR $1501
18BF:20 C5 18 78 JSR MOD
18C2:4C F6 FD 79 OUTZ JMP $FDF6
18C5: 80 *
18C5:C9 E0 81 MOD CMP #$E0
18C7:90 02 82 BCC MOD1
18C9:49 40 83 EOR #$40
18CB:C9 C0 84 MOD1 CMP #$C0
18CD:90 02 85 BCC MOD2
18CF:09 20 86 ORA #$20
18D1:C9 40 87 MOD2 CMP #$40
18D3:B0 08 88 BCS MODRT
18D5:C9 20 89 CMP #$20
18D7:B0 02 90 BCS MOD3
18D9:09 40 91 ORA #$40
18DB:09 80 92 MOD3 ORA #$80 *** SUCCESSFUL ASSEMBLY: NO ERRORS
18DD:60 93 MODRT RTS
18DE: 94 *****

```

FEBRUARY 1982

WASHINGTON APPLE PI

cont'd.

APPENDIX

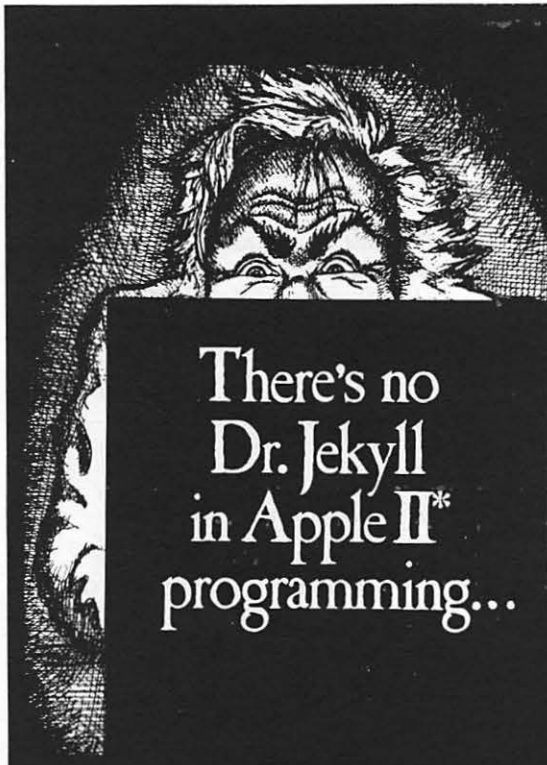
Table 7: ASCII Screen Characters with LJK

Decimal	Inverse				Flashing				Normal							
	0	16	32	48	64	80	96	112	(Control)					(Lowercase)		
Hex	100	110	120	130	140	150	160	170	178	188	198	208	218	228	238	248
0 50	@	P	Space	0	@	P	Space	0	@	P	Space	0	@	P	\	p
1 51	A	Q	!	1	A	Q	!	1	A	Q	!	1	A	Q	a	q
2 52	B	R	"	2	B	R	"	2	B	R	"	2	B	R	b	r
3 53	C	S	#	3	C	S	#	3	C	S	#	3	C	S	c	s
4 54	D	T	\$	4	D	T	\$	4	D	T	\$	4	D	T	d	t
5 55	E	U	%	5	E	U	%	5	E	U	%	5	E	U	e	u
6 56	F	V	&	6	F	V	&	6	F	V	&	6	F	V	f	v
7 57	G	W	'	7	G	W	'	7	G	W	'	7	G	W	g	w
8 58	H	X	(	8	H	X	(	8	H	X	(	8	H	X	h	x
9 59	I	Y	)	9	I	Y	)	9	I	Y	)	9	I	Y	i	y
10 5A	J	Z	.	:	J	Z	.	:	J	Z	.	:	J	Z	j	z
11 5B	K	|	+	:	K	|	+	:	K	|	+	:	K	|	k	|
12 5C	L	\	.	<	L	\	.	<	L	\	.	<	L	\	l	|
13 5D	M	|	-	-	M	|	-	-	M	|	-	-	M	|	m	|
14 5E	N	.	.	>	N	.	.	>	N	.	.	>	N	.	n	~
15 5F	O	-	/	?	O	-	/	?	O	-	/	?	O	-	o	■

KEYBOARD LABEL

Control-L = Lock

Control-Z and digit 1-9									SHIFT-	CONTROL-Z	
[\]	^	_	'	{		}	@	~	■



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A SORTED CATALOG

by Andy O'Brien

Well, the last time out we were so bold as to actually alter the directory of our disks. This time we will produce almost the same effect, but we will leave the disk untouched. In fact, if you don't trust me, you can write protect your disk (cover the notch on the side of the diskette) before running 'CAT'.

Before you start entering this program into your computer, I would like to make a few points. I make use of the decimal print routine in Integer Basic, so this program will not run properly on your APPLE II if it is in Applesoft mode. It will run properly if you have an APPLE II or an APPLE II+ with Integer Basic either in ROM or in a language card (16K board). For those wishing to make this a truly portable program (APPLE II/APPLE II+ independent), if you load memory location \$44 (hex) with a hex number there is a subroutine in DOS that will print that number out in decimal form. The DOS routine to do this is at \$AE42 (hex). The reason that I used the Integer Basic routine is that it allows me to display numbers greater than 255; the DOS routine does not.

And now it is time for a few apologies. I have the bad habit of forsaking those of us who still have DOS 3.2 and who therefore do not have the 16 sector disks. I'll try to be a bit more careful in the future and make the appropriate comments in the code to allow people with 13 sector disks to easily modify my program. Actually, the changes to the programs are very simple. Wherever I load the SECTOR

memory location with a 15 (\$F) just prior to a read or write to disk, those of you with DOS 3.2 must use a 12 (\$C).

My final apology concerns the appearance of this program. I wrote it quite some time ago and have not used it for about six months, since I now use my sorted directory program (see WAP November 1981 newsletter). When I looked back at the code, I was shocked to see that I had not used any comments at all. Of course, at the time I knew exactly what the code was doing and hence comments were not necessary (famous last words). If I were to go back and comment the code now, I would probably miss another newsletter deadline.

I am not totally disowning this program. I guess it is just a case of a programmer looking back at some of his old stuff and marvelling at his sins against maintenance programmers. The program itself works fine and runs quite fast. As with all programs, there are ways of making things more efficient. I decided to write this program up and submit it to the newsletter because I promised it to you in my last article.

This routine was written using APPLE's DOS Toolkit Assembler. After the program has been BLOADED, just enter 'CALL 7*4096' and right before your eyes will be a catalog sorted alphabetically by name. Let me stress again that this program will only read your disk and will in no way change anything on it.

:ASM CAT.ASM

SOURCE FILE: CAT.ASM

```
0000:      1 *
0000:      2 * CAT.ASM *
0000:      3 * This program produces a sorted catalog *
0000:      4 *
0000:      5 *
0000:      6 DATRWL EQU $00
0096:      7 DATRWH EQU $96
0000:      8 DATTOL EQU $00
0074:      9 DATTOH EQU $74
0010:     10 TOL EQU $10
0011:     11 TOH EQU TOL+$1
0012:     12 FROML EQU TOL+$2
0013:     13 FROMH EQU TOL+$3
0014:     14 NUMNAM EQU TOL+$4
0015:     15 TEMP EQU TOL+$5
0016:     16 TSECTL EQU TOL+$6
0017:     17 TSECTH EQU TOL+$7
0018:     18 ILOOP EQU TOL+$8
0019:     19 TMNAML EQU TOL+$9
001A:     20 TMNAMH EQU TOL+$A
001B:     21 FINL EQU TOL+$B
001C:     22 FINH EQU TOL+$C
001D:     23 TESTL EQU TOL+$D
001E:     24 TESTH EQU TOL+$E
03D9:     25 RWTS EQU $3D9
9600:     26 TBUF EQU $9600
B7E8:     27 IOB EQU $B7E8
```

```
B7E8:      28 EXPVOL EQU IOB+$3
B7EC:      29 TRACK EQU IOB+$4
B7ED:      30 SECTOR EQU IOB+$5
B7F0:      31 RWBUFL EQU IOB+$8
B7F1:      32 RWBUFH EQU IOB+$9
B7F4:      33 COMM EQU IOB+$C
```

```
B7F6:      34 ACTVOL EQU IOB+$E
ES1B:      35 PRDEC EQU $ES1B
FD0C:      36 RDKEY EQU $FD0C
FD8E:      37 CROUT EQU $FD8E
FDDA:      38 HEXPRT EQU $FDDA
FDED:      39 COUT EQU $FDED
0000:      40 *
```

```
----- NEXT OBJECT FILE NAME IS CAT.ASM.OBJ0
7000:      41 ORG $7000
0000:      42 OBJ $7000
```

```
7000:      44 *
7000:      45 * Main program
7000:      46 *
7000:      47 *
7000:DB     48 CLD
7001:20 0E 70 49 JSR INIT
7004:20 2E 70 50 JSR GETDIR
7007:20 A1 70 51 JSR SORT
700A:20 2F 71 52 JSR DISPLAY
700D:60     53 RTS
```

contd.

700E:	55 *		7095:69 21	134	ADC	#\$21
700E:	56 *	Initialize variables	7097:85 12	135	STA	FROML
700E:	57 *		7099:90 B1	136	BCC	CHKEND
700E:	58 *		709B:	137 *		
700E:A9 00	59	INIT LDA #0	709B:CE ED B7	138	NEWSCT	DEC SECTOR
7010:85 14	60	STA NUMNAM	709E:4C 2E 70	139	JMP	GETDIR
7012:85 16	61	STA TSECTL	70A1:	141 *		
7014:85 17	62	STA TSECTH	70A1:	142 *	Sort the directory	
7016:A9 00	63	LDA #DATTOL	70A1:	143 *		
7018:85 10	64	STA TOL	70A1:	144 *		
701A:A9 74	65	LDA #DATTOH	70A1:E6 14	145	SORT	INC NUMNAM
701C:85 11	66	STA TOH	70A3:A9 00	146	LDA	#0
701E:A9 0F	67	LDA #15	70A5:85 18	147	STA	ILOOP
7020:8D ED B7	68	STA SECTOR	70A7:A9 E0	148	LDA	#DATTOL-\$20
7023:A9 11	69	LDA #17	70A9:85 10	149	STA	TOL
7025:8D EC B7	70	STA TRACK	70AB:A9 73	150	LDA	#DATTOH-\$1
7028:A9 01	71	LDA #1	70AD:85 11	151	STA	TOH
702A:8D F4 B7	72	STA COMM	70AF:A5 14	152	LDA	NUMNAM
702D:60	73	RTS	70B1:85 15	153	STA	TEMP
			70B3:E6 18	154	JLOOP	INC ILOOP
702E:	75 *		70B5:A5 10	155	LDA	TOL
702E:	76 *	Get the directory	70B7:85 1D	156	STA	TESTL
702E:	77 *		70B9:A5 11	157	LDA	TOH
702E:	78 *		70BB:85 1E	158	STA	TESTH
702E:A9 96	79	GETDIR LDA #DATRWH	70BD:A6 18	159	LDX	ILOOP
7030:8D F1 B7	80	STA RWBUFH	70BF:18	160	TOP	CLC
7033:A9 00	81	LDA #DATRWL	70C0:A5 1D	161	LDA	TESTL
7035:8D F0 B7	82	STA RWBUFL	70C2:69 20	162	ADC	#\$20
7038:A9 00	83	LDA #0	70C4:85 1D	163	STA	TESTL
703A:8D EB B7	84	STA EXPVOL	70C6:90 02	164	BCC	HERE1
703D:A9 B7	85	LDA #B7	70C8:E6 1E	165	INC	TESTH
703F:A0 E8	86	LDY #EB	70CA:CA	166	HERE1	DEX
7041:20 D9 03	87	JSR RWTS	70CB:D0 F2	167	BNE	TOP
7044:A9 0B	88	LDA #B	70CD:A5 1D	168	LDA	TESTL
7046:85 12	89	STA FROML	70CF:85 1B	169	STA	FINL
7048:A9 96	90	LDA #DATRWH	70D1:85 19	170	STA	TMNAML
704A:85 13	91	STA FROMH	70D3:A5 1E	171	LDA	TESTH
704C:	92 *		70D5:85 1C	172	STA	FINH
704C:A0 03	93	CHKEND LDY #3	70D7:85 1A	173	STA	TMNAMH
704E:B1 12	94	LDA (FROML),Y	70D9:A6 18	174	LDX	ILOOP
7050:C9 00	95	CMP #0	70DB:A0 03	175	COMPAR	LDY #3
7052:D0 01	96	BNE CHKDEL	70DD:B1 19	176	COMP1	LDA (TMNAML),Y
7054:60	97	RTS	70DF:D1 1D	177	CMP	(TESTL),Y
7055:	98 *		70E1:F0 05	178	BEQ	CONT
7055:A0 00	99	CHKDEL LDY #0	70E3:90 10	179	BCC	INCI
7057:B1 12	100	LDA (FROML),Y	70E5:4C ED 70	180	JMP	REPLACE
7059:AA	101	TAX	70E8:C8	181	CONT	INY
705A:E6 12	102	INC FROML	70E9:C0 20	182	CPY	#32
705C:E6 12	103	INC FROML	70EB:D0 F0	183	BNE	COMP1
705E:E0 FF	104	CFX #FF	70ED:A5 1D	184	REPLACE	LDA TESTL
7060:F0 30	105	BEQ NEXT	70EF:85 19	185	STA	TMNAML
7062:E6 14	106	INC NUMNAM	70F1:A5 1E	186	LDA	TESTH
7064:A0 00	107	LDY #0	70F3:85 1A	187	STA	TMNAMH
7066:AD F6 B7	108	LDA ACTVOL	70F5:18	188	INCI	CLC
7069:91 10	109	STA (TOL),Y	70F6:A5 1D	189	LDX	TESTL
706B:B1 12	110	LDA (FROML),Y	70F8:69 20	190	ADC	#\$20
706D:CB	111	INY	70FA:85 1D	191	STA	TESTL
706E:91 10	112	STA (TOL),Y	70FC:90 02	192	BCC	HERE2
7070:A0 1F	113	LDY #1F	70FE:E6 1E	193	INC	TESTH
7072:B1 12	114	LDA (FROML),Y	7100:EB	194	HERE2	INX
7074:A0 02	115	LDY #2	7101:E4 14	195	CPX	NUMNAM
7076:91 10	116	STA (TOL),Y	7103:D0 D6	196	BNE	COMPAR
7078:E6 10	117	INC TOL	7105:A0 00	197	LDY	#0
707A:E6 10	118	INC TOL	7107:B1 1B	198	SRT2	LDA (FINL),Y
707C:A0 01	119	LDY #1	7109:99 00 96	199	STA	TBUF,Y
707E:B1 12	120	MOVE LDA (FROML),Y	710C:C8	200	INY	
7080:91 10	121	STA (TOL),Y	710D:C0 20	201	CPY	#\$20
7082:CB	122	INY	710F:D0 F6	202	BNE	SRT2
7083:C0 1F	123	CPY #1F	7111:A0 00	203	LDY	#0
7085:D0 F7	124	BNE MOVE	7113:B1 19	204	SRT3	LDA (TMNAML),Y
7087:18	125	CLC	7115:91 1B	205	STA	(FINL),Y
7088:A5 10	126	LDA TOL	7117:C8	206	INY	
708A:69 1E	127	ADC #1E	7118:C0 20	207	CPY	#\$20
708C:85 10	128	STA TOL	711A:D0 F7	208	BNE	SRT3
708E:90 02	129	BCC NEXT	711C:A0 00	209	LDY	#0
7090:E6 11	130	INC TOH	711E:B9 00 96	210	SRT4	LDA TBUF,Y
7092:	131 *		7121:91 19	211	STA	(TMNAML),Y
7092:18	132	NEXT CLC	7123:C8	212	INY	
7093:A5 12	133	LDA FROML	7124:C0 20	213	CPY	#\$20

contd.

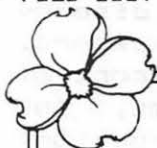
7126:D0 F6	214	BNE	SRT4	71C0:E8	292	INCR	INX	
7128:	215 *			71C1:E4 14	293		CPX	NUMNAM
712B:C6 15	216	DEC	TEMP	71C3:F0 0E	294		BEQ	END
712A:D0 87	217	BNE	JLOOP	71C5:18	295		CLC	
712C:C6 14	218	DEC	NUMNAM	71C6:A5 10	296		LDA	TOL
712E:60	219	RTS		71C8:69 20	297		ADC	##20
				71CA:85 10	298		STA	TOL
712F:	221 *			71CC:90 89	299		BCC	DIS1
712F:	222 * Display the directory			71CE:E6 11	300		INC	TOH
712F:	223 *			71D0:4C 57 71	301		JMP	DIS1
712F:	224 *			71D3:20 8E FD	302	END	JSR	CROUT
712F:20 8E FD	225 DISPLAY JSR CROUT			71D6:A0 00	303		LDY	##0
7132:A0 00	226			71D8:B9 35 72	304	PR2	LDA	FILMSG,Y
7134:B9 2D 72	227 PR1 LDA VOLMSG,Y			71DB:20 ED FD	305		JSR	COUT
7137:20 ED FD	228 JSR COUT			71DE:C8	306		INY	
713A:CB	229			71DF:C0 11	307		CPY	##11
713B:C0 08	230			71E1:D0 F5	308		BNE	PR2
713D:D0 F5	231			71E3:A9 00	309		LDA	##0
713F:A9 00	232			71E5:A6 14	310		LDX	NUMNAM
7141:AE F6 B7	233			71E7:20 1B E5	311		JSR	PRDEC
7144:20 1B E5	234			71EA:20 8E FD	312		JSR	CROUT
7147:20 8E FD	235			71ED:A0 00	313		LDY	##0
714A:20 8E FD	236			71EF:B9 46 72	314	PR3	LDA	TOTMSG,Y
714D:A9 00	237			71F2:20 ED FD	315		JSR	COUT
714F:85 10	238			71F5:C8	316		INY	
7151:A9 74	239			71F6:C0 0E	317		CPY	##E
7153:85 11	240			71F8:D0 F5	318		BNE	PR3
7155:A2 00	241			71FA:A5 17	319		LDA	TSECTH
7157:A0 01	242 DIS1 LDY ##1			71FC:A6 16	320		LDX	TSECTL
7159:B1 10	243			71FE:20 1B E5	321		JSR	PRDEC
715B:2A	244			7201:20 8E FD	322		JSR	CROUT
715C:85 15	245			7204:A0 00	323		LDY	##0
715E:90 08	246			7206:B9 54 72	324	PR4	LDA	FREMSG,Y
7160:A9 AA	247			7209:20 ED FD	325		JSR	COUT
7162:20 ED FD	248			720C:C8	326		INY	
7165:4C 6B 71	249			720D:C0 0E	327		CPY	##E
7168:20 22 72	250 NOTLCK JSR PRTBLK			720F:D0 F5	328		BNE	PR4
716B:A5 15	251 TYPE LDA TEMP			7211:38	329		SEC	
716D:18	252			7212:A9 F0	330		LDA	##F0
716E:6A	253			7214:E5 16	331		SBC	TSECTL
716F:AB	254			7216:AA	332		TAX	
7170:B9 28 72	255			7217:A9 01	333		LDA	##1
7173:20 ED FD	256			7219:E5 17	334		SBC	TSECTH
7176:20 22 72	257			721B:20 1B E5	335		JSR	PRDEC
7179:A0 02	258			721E:20 8E FD	336		JSR	CROUT
717B:18	259			7221:60	337		RTS	
717C:B1 10	260			7222:	338	*		
717E:65 16	261			7222:A9 A0	339	PRTBLK	LDA	##A0
7180:85 16	262			7224:20 ED FD	340		JSR	COUT
7182:90 02	263			7227:60	341		RTS	
7184:E6 17	264							
7186:B1 10	265 PRTSCT LDA (TOL),Y			7228:	343	*		
7188:C9 64	266			7228:	344	* Messages		
718A:B0 0C	267			7228:	345	*		
718C:20 22 72	268			7228:	346	*		
718F:B1 10	269			7228:D4 C9 C1	347	TYPLET	ASC	'TIA?B'
7191:C9 0A	270			722B:BF C2				
7193:B0 03	271			722D:D6 CF CC	348	VOLMSG	ASC	'VOLUME: '
7195:20 22 72	272			7230:D5 CD C5				
7198:B1 10	273 DOIT LDA (TOL),Y			7233:BA A0				
719A:86 15	274			7235:CE D5 CD	349	FILMSG	ASC	'NUMBER OF FILES: '
719C:AA	275			7238:C2 C5 D2				
719D:A9 00	276			723B:A0 CF C6				
719F:20 1B E5	277			723E:A0 C6 C9				
71A2:A6 15	278			7241:CC C5 D3				
71A4:20 22 72	279			7244:BA A0				
71A7:A0 03	280			7246:D3 C5 C3	350	TOTMSG	ASC	'SECTORS USED: '
71A9:B1 10	281 DIS2 LDA (TOL),Y			7249:D4 CF D2				
71AB:20 ED FD	282			724C:D3 A0 D5				
71AE:CB	283			724F:D3 C5 C4				
71AF:C0 1F	284			7252:BA A0				
71B1:D0 F6	285			7254:D3 C5 C3	351	FREMSG	ASC	'SECTORS FREE: '
71B3:20 8E FD	286			7257:D4 CF D2				
71B6:8A	287			725A:D3 A0 C6				
71B7:29 0F	288			725D:D2 C5 C5				
71B9:C9 0F	289			7260:BA A0				
71BB:D0 03	290							
71BD:20 0C FD	291							

*** SUCCESSFUL ASSEMBLY: NO ERRORS

contd.

B7F6 ACTVOL	7055 CHKDEL	704C CHKEND	B7F4 COMM
70DD COMP1	70DB COMPAR	70E8 CONT	FDED COUT
FD8E CROUT	96 DATRWH	00 DATRWL	74 DATTOH
00 DATTOL	7157 DIS1	71A9 DIS2	712F DISPLAY
7198 DOIT	71D3 END	B7E8 EXPVOL	7235 FILMSG
1C FINH	1B FINL	7254 FREMSG	13 FROMH
12 FROML	702E GETDIR	70CA HERE1	7100 HERE2
?FDDA HEXPRT	18 ILOOP	70F5 INCI	71C0 INCRE
700E INIT	B7E8 IOB	70B3 JLOOP	707E MOVE
?709B NEWSCT	7092 NEXT	7168 NOTLCK	14 NUMNAM
7134 PR1	71D8 PR2	71EF PR3	7206 PR4
E51B PRDEC	7222 PRTBLK	7186 PRTSCT	FD0C RDKEY
70ED REPLACE	B7F1 RWBUFL	B7F0 RWBUFL	03D9 RWTS
B7ED SECTOR	70A1 SORT	7107 SRT2	7113 SRT3
711E SRT4	9600 TBUF	15 TEMP	1E TESTH
1D TESTL	1A TMNAMH	19 TMNAML	11 TOH
10 TOL	70BF TOP	7246 TOTMSG	B7EC TRACK
17 TSECTH	16 TSECTL	716B TYPE	722B TYPLET
722D VOLMSG			

00 DATRWL	00 DATTOL	10 TOL	11 TOH
12 FROML	13 FROMH	14 NUMNAM	15 TEMP
16 TSECTL	17 TSECTH	18 ILOOP	19 TMNAML
1A TMNAMH	1B FINL	1C FINH	1D TESTL
1E TESTH	74 DATTOH	96 DATRWH	03D9 RWTS
700E INIT	702E GETDIR	704C CHKEND	7055 CHKDEL
707E MOVE	7092 NEXT	?709B NEWSCT	70A1 SORT
70B3 JLOOP	70BF TOP	70CA HERE1	70DB COMPAR
70DD COMP1	70E8 CONT	70ED REPLACE	70F5 INCI
7100 HERE2	7107 SRT2	7113 SRT3	711E SRT4
712F DISPLAY	7134 PR1	7157 DIS1	7168 NOTLCK
716B TYPE	7186 PRTSCT	7198 DOIT	71A9 DIS2
71C0 INCRE	71D3 END	71D8 PR2	71EF PR3
7206 PR4	7222 PRTBLK	7228 TYPLET	722D VOLMSG
7235 FILMSG	7246 TOTMSG	7254 FREMSG	9600 TBUF
B7E8 IOB	B7E8 EXPVOL	B7EC TRACK	B7ED SECTOR
B7F0 RWBUFL	B7F1 RWBUFL	B7F4 COMM	B7F6 ACTVOL
E51B PRDEC	FD0C RDKEY	B7F4 COMM	?FDDA HEXPRT
FDED COUT		FD8E CROUT	



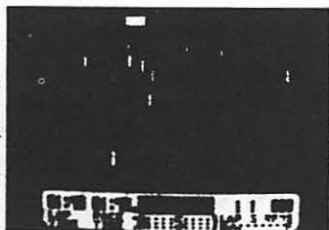
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EPSON DRIVER

by Walton Francis

Based on the number of desperate inquiries I have received in recent weeks, there are a lot of new APPLE and Epson printer owners out there who are having great difficulty in understanding how to use all the exotic features of their Epson printers. As one who spent several frustrating hours trying to figure out how to enter printer driver commands a year ago, I not only sympathize with but understand exactly why this is so difficult--your manuals hinder as much as they help. Actually, believe it or not, the current User's Manual for MX-80 Printer, by David Lien, is a fairly good manual and far superior to the one which preceded it. Nonetheless, a manual written for the Radio Shack computer, and presuming some knowledge of both BASIC programming and ASCII codes, is a formidable dose for computer novices.

The key to running the Epson through its tricks is to understand how to use the command CHR\$. CHR\$ is a BASIC (both Applesoft and other dialects) command which is used to send something called an ASCII character to your terminal (printer or TV or both). This character, in turn, tells your printer what print mode to use. Unfortunately, none of the APPLE manuals (in the versions I have, at least) explain either CHR\$ or ASCII. These arcane terms are, however, explained in an indispensable book called the APPLE II USER'S GUIDE, by Lon Poole, available at most computer stores for \$15. This book includes much material either not explained or not explored thoroughly in the APPLE manuals, and is almost as well written.

MORE ON MANUALS

Another manual which comes with the Epson is called the User Manual

APPLE II INTERFACE KIT. This manual, in the version I have, contains some bizarre and misleading information, indecipherable to the novice, in two tables which refer to nonexistent 6K and 10K APPLES. Do not rely on these tables, though you may later, if you wish, return to them with some understanding. The Poole book contains a useful ASCII reference table in Appendix I, and the Lien book an almost indecipherable ASCII table in Appendix A. Either of these tables, if used in conjunction with 10 page section on control codes in yet another manual, the MX-80 Operation Manual (does this still come with the printer?) will enable you to drive the Epson.

Probably the simplest way to learn, however, is to use chapter 2 of the Lien manual. The tricks to using this chapter are first, to disobey its instruction to look elsewhere, second to ignore the L in front of PRINT in the sample programs, and third to ignore all instructions related to graphics. In other words, pretend that this chapter is written for the APPLE and you will find that about 90% of it works just fine and, more importantly, that it will teach you how to drive your Epson.

One last tip--Appendix B in the Lien manual is a very handy summary of the control codes. But do not use it until you have figured out how to use the codes.

THE COOKBOOK

Ignore everything above, throw away your manuals, and try what follows. Let's suppose that you want the Epson to print something in those fancy double width letters that you were promised when you bought the machine. First, turn on both your APPLE and your Epson. Second, type PR#1. Third, type PRINT CHR\$(14);

contd.

"HELLO THERE" (all on the same line) and hit the RETURN key. Now hit RETURN a few more times to bring the paper up where you can see what it typed. Lo and behold, your Epson did its thing.

You now know how to use your printer. You can repeat the same magic by using different numbers within the parentheses following CHR\$ commands, each of which sends a different ASCII code to the printer. The Epson only uses a few dozen commands, which you can look up in Appendix B of the Lien manual, depending on what you want to do. Only when using the double width command does the text need to stay on the same line, so that all subsequent text will be in whatever mode you selected. There are a number of nuances, footnotes, complexities, and tricks which you have yet to learn. But you have mastered the key step.

THE LAZY WAY

Once I had the basic idea sorted out, I started to play with my printer and discovered that it can be a real nuisance to look up and enter a half dozen codes each time I want the printer to do something complex. So I finally developed a little program to do the whole thing automatically, giving me a choice of various print modes. This program nowhere nearly exhausts the capabilities of the Epson, but it does make it painless to do the most commonly used functions. In fact, in an excess of sloth, I even set it up to type PR#1 and turn on the parallel card for me--just RUN it and follow its instructions for an automatic sleigh ride.

So, if you're willing to type for half an hour, you can solve your Epson problems once and for all by saving this little program to disk. You can even use it as a way to learn a few little programming tricks, sending printer commands from BASIC programs, and the like.

And if you happen to own another

dot matrix printer, and have only been reading this article out of curiosity, you can probably make this program drive your printer with minor changes to the control commands.

WORD PROCESSING

All of the above is based on using the Epson from BASIC. But you probably bought your printer for word processing too. And it is unlikely that your word processor uses BASIC commands. Nonetheless, the process is still pretty simple.

First, no matter what word processor you use, you can still do many Epson functions from BASIC. The trick to this is knowing that once set up in a particular mode, the Epson will stay that way until told to change to other modes. So you can simply set up your Epson from BASIC, perhaps at 7 lines per inch (or 8 if you are writing for Washington Apple Pi) and double strike mode, and then boot your word processor. When it comes time to type out your text, you will not need any more special Epson instructions (though you will probably have to follow some special instructions in the word processing program to tell it that you have an Epson rather than a daisy wheel printer such as Qume or Diablo).

Alternatively, and essential if you want to do things like mix type styles within an article (notice my double width subheadings and occasional underlinings), you will have to learn a whole new bag of tricks--the commands used by your word processor to drive the Epson. These vary considerably from program to program, and all programs will not support all functions such as underlining (this article is typed from SuperScribe II, which does). However, a common approach is to use a special code ("embedded command") followed by the keystroke equivalent of ASCII codes. The word processor then does the final translation into ASCII. Thus, instead of typing CHR\$(14) to print a line double width, one types a

contd.

special code followed by CTRL-N to start the same process (shift out and SO and CTRL-N and CHR\$(14) all mean the same thing in this context, but cannot all be used as direct printer commands from the same program).

This is leading into another realm of confusion but luckily one with a simple moral: from BASIC it is the CHR\$ commands which drive the Epson most simply. All the other codes used in the various manuals have a CHR\$ equivalent, but are not meant to be used from BASIC. On the other hand, most word processing programs avoid the use of CHR\$ commands but use keystroke equivalents. The trouble with the various manuals is that they assume you know about these equivalencies in meaning and differences in use, and forget to tell you. Now you know.

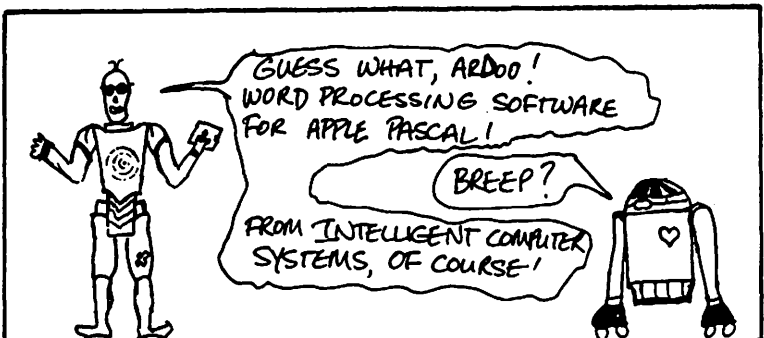
COMPLEX COMMANDS


If you have been reading Washington Apple Pi for a few months, you may have noticed an article called "Apple to Epson MX-80 Graphics Dump" by Andrew Scheck and Terry Phillips in the October, 1981 issue. You may even have tried to read it, and despaired at the thought that you would have to master it to use your Epson. Luckily, you don't--your Epson will do all sorts of nice things (but not draw pictures) without ever entering the exotic realms of hexadecimal arithmetic and assembly language. On the other hand, don't forget that my little program is merely an introduction for the novice, intended to get you printing with the minimum of deciphering. By all means, spend the time I hope you save to push your Epson education further.

```
JPR #0
JLIST

10 REM WALT'S EPSON DRIVER
15 REM JANUARY 9, 1982 VERSION
20 PRINT "THIS PROGRAM WILL CONF
   IGURE YOUR EPSON PRINTER TO
   THE MODES THAT YOU WANT."
30 PRINT "BEFORE YOU START, BE S
   URE THAT YOU HAVE TURNED ON
   YOUR EPSON PRINTER."
35 INPUT "TYPE 1 TO CONFIRM: ";
   S
40 IF S < > 1 THEN GOTO 35
45 D$ = CHR$ (4): REM CHR$(4) I
   S CTRL-D
50 PRINT D$;"PR#1"
60 PRINT "FIRST, DECIDE HOW MANY
   LINES PER INCH."
70 INPUT "TYPE 6 OR 7 OR 8 OR 10
   : ";L
80 IF L = 6 THEN PRINT CHR$ (2
   7) + CHR$ (50)
85 IF L = 7 THEN PRINT CHR$ (2
   7)"A" + CHR$ (138) + CHR$
   (27)"2"
90 IF L = 8 THEN PRINT CHR$ (2
   7) + CHR$ (48)
95 IF L = 10 THEN PRINT CHR$ (
   27) + CHR$ (49)
100 IF L < > 6 AND L < > 7 AND
   L < > 8 AND L < > 10 THEN
   GOTO 70
110 PRINT
150 PRINT "SECOND, DECIDE HOW MA
   NY COLUMNS."
170 INPUT "TYPE 40 OR 80 OR 132:
   ";C
180 IF C = 40 THEN PRINT CHR$
   (14);"ENLARGED CHARACTERS LA
   ST JUST ONE LINE"
190 IF C = 132 THEN PRINT CHR$
   (15)
195 IF C = 80 THEN PRINT CHR$
   (18)
200 IF C < > 40 AND C < > 80 AND
   C < > 132 THEN GOTO 170
250 PRINT "THIRD, DECIDE WHETHER
   TYPE FACE SHOULD BE REGULAR
   (1), OR EMPHASIZED (2), OR"
260 PRINT "DOUBLE-STRIKE (3), OR
   BOTH EMPHASIZED AND DOUBLE-
   STRIKE (4)."
```

```
270 INPUT "TYPE 1 OR 2 OR 3 OR 4
   : ";T
275 IF T = 1 THEN PRINT CHR$ (
   27) + CHR$ (70): PRINT CHR$
   (27) + CHR$ (72)
280 IF T = 2 THEN PRINT CHR$ (
   27) + CHR$ (69)
290 IF T = 3 THEN PRINT CHR$ (
   27) + CHR$ (71)
295 IF T = 4 THEN PRINT CHR$ (
   27) + CHR$ (69): IF T = 4 THEN
   PRINT CHR$ (27) + CHR$ (7
   1)
300 PRINT "THE EPSON IS NOW SET
   UP IN THE MODES THAT YOU WAN
   T."
320 END
```



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HINTS FOR THE NEWCOMER

Ed. Note: Following is a 'Welcome' letter written for new members to introduce them to Washington Apple Pi. We are publishing it here for those who joined recently but have not received a copy. It may also be of interest to "old-timers".

1. MEETING TIME AND PLACE.

WAP meets monthly at the Uniformed Services University of the Health Sciences, Building A, on the fourth Saturday morning. The USUHS is located on Jones Bridge Road, just off Wisconsin Avenue, about 2 miles inside the Beltway. Occasionally, due to Holidays, the meeting may be moved to the third Saturday. The magazine, described below, and the telephone answering system, also described below, will carry the most current information on all club functions, including time and date of meeting.

The monthly meetings have several purposes: to conduct club business; to provide an educational presentation; to allow for an open exchange of comments, questions, pleas for help, etc. Just before the meeting which begins at 9:30, it is possible to pick up library disks purchased by mail, get your latest copy of the magazine or make a purchase through the group purchase program (see below). NOTE: If you plan to make a purchase at the meeting, please bring your checkbook!!! We prefer not to receive cash...it makes the Treasurer nervous.

Usually WAP volunteers are available from 8:30 to 9:30 for the above purposes. The business meeting lasts no later than 10:30, at which time a presentation is given. After this, Special Interest Groups (SIGs) meet for their own purposes.

One of the SIGs, Appleseeds, is for younger APPLE enthusiasts and gathers during the regular meeting time. So, if your household contains such WAP members, bring them along to the meeting. They may find the Appleseeds group of interest.

2. SIGS.

WAP has many Special Interest Groups. Currently active are groups interested in: Pascal, Education, Business, CP/M, Games, Assembly Language, NEWSIG for new members, APPLE ///, and Computer Uses for the Handicapped. These groups meet at various times throughout the month. Most meet after the general WAP meeting on the fourth Saturday. The chairmen of these groups are listed under Officers and Staff in the monthly magazine. If you are interested in any other special topic, feel free to write a note about it for inclusion in the magazine and/or come to a meeting and announce your interests. These SIGs provide a valuable service in educating members.

3. TELEPHONE ANSWERING MACHINE.

WAP maintains a telephone answering machine which can be called at (301) 621-2719. This service allows members to obtain information on meeting times and places; request assistance with problems; and obtain entry to the club Computer Bulletin Board (ABBS), described below. Note, the 301 prefix may be required since the exchange is Laurel, MD.

4. ABBS

For those people with telecommunications equipment, like the D.C. Hayes modem, WAP has an on-line bulletin board. The service can be used to obtain meeting information, download programs, leave (and retrieve) notes to other members and make general announcements about bugs, fixes and items for sale. To obtain access to the ABBS, leave your name and WAP number on the telephone answering system, or contact the SYSOP, John Moon, who maintains the ABBS.

5. LIBRARY

WAP maintains an ever-growing library of inexpensive, public domain software. The software is obtained from you and other members who contribute programs they have written or typed in from magazines. The library currently contains over seventy disks with 15 or more programs per disk. The cost is nominal: \$5.00 if ordered for pickup at a meeting or \$7.00 if mailed directly to you. The disks are arranged by subject, e.g. Games, Utilities, Business, Graphics, Education, etc. The magazine contains an order blank indicating the subject of each disk. A complete catalog listing of each disk is available at most meetings. Subject to availability, the catalog is sent to new members.

To encourage contributions to the library we have the following policy. Send in a disk with programs you wish to contribute and, if we use the programs, we return to you a library disk of your choice. Please make sure the program is as well documented as possible and that it works!! No copywritten software should be offered.

We want to emphasize several things about the library. First, since the disks are extremely inexpensive, please do not expect the kind of documentation of use and level of sophistication found in \$35.00 games and \$150.00 business packages. (Although this may seem obvious, you'd be surprised at the number of comments received about a program that costs \$.10!!) These programs are meant to have an educational benefit to the user. They do many valuable and delightful things. By listing and studying them, you can learn a great deal about the APPLE and how to use it.

Second, the effort required to maintain the library is enormous. We continue to

contd.

provide the service because it is popular and does produce some revenue. We request that you either order disks for mailing directly to you or that you send in your order for disks which you will pick up between 8:30 and 9:30 just prior to the business meeting. If you have the disks mailed to your home, please allow 6-8 weeks for turn around. There is a long string of volunteers involved in this process and it takes that long. If you simply appear at a meeting and want to purchase a disk, we may not have it available. In such cases, it will be waiting for you prior to the next regular meeting.

Please do not ask the library staff if you can pick up orders at their home! They just do not have the time to extend themselves beyond the many hours they now spend on the library. The library closes down at the beginning of the regular meeting and generally is not open afterwards. The library staff want to attend the SIGs just like you and I. With your contributions and understanding, the library will continue to grow and be of service to us all.

6. MAGAZINE

The magazine is published monthly. It is available for pickup at the monthly meeting and is mailed out to the many members who cannot attend. The magazine is only as good as the articles submitted. It will serve us only if we serve it by taking the time to write up the many interesting things the members are doing. We need articles of all kinds: problems solved and those needing solutions; reviews of hardware and software you have purchased and think others should obtain or avoid; humorous articles and interesting applications you have discovered. If every member submitted one article a year, we could double the size of the magazine and save our Editor enormous worry.

To submit an article convey it to the Editor, preferably in final copy form but with a machine readable copy when possible. The Editor can handle Easy-Writer, Apple Writer and several other word processor formats.

The magazine is also a place for short free advertisements. If you have something to sell, just mail in a brief description. We have also been encouraging local dealers to include brief announcements of special sales, discounts or other items of interest.

Back issues are often available for recent months. If so, they can be purchased at the regular meeting or by contacting the Editor. However, they usually are sold out within a few months. A preferable solution for 1979-1980 back issues is the Inside Washington Apple Pi (see below).

7. INSIDE WASHINGTON APPLE PI.

WAP has a compendium of some of the best articles from our first two years. There are articles on Applesoft, Machine Language, Pascal, Hardware and a variety

of other subjects. The collection can be purchased at the monthly meeting for \$6.00 (cheap) or mailed directly to you for \$7.50.

8. GROUP PURCHASE.

WAP regularly surveys the membership for group purchase opportunities. When sufficient numbers want to purchase an item, especially something not found locally, a group purchase can be arranged. This usually means paying all or part of the cost in advance and often waiting some period for delivery. The purpose of this service is solely to cut costs and obtain items not readily available locally.

A reminder, when planning to buy something at the monthly meeting, please pay by check. We do not want to be responsible for handling cash!!!

9. HOT LINE.

If you need help more quickly than leaving your name and number on the answering machine will allow, we have a list of folks who have volunteered to take telephone questions on a host of subjects. This list is found in the magazine and includes the phone numbers of the volunteers. Please respect any time constraints indicated by the list. If you believe you can help others, please notify us so that we can add your name as a resource.

10. TUTORIALS.

From time to time WAP holds tutorial programs. These are short courses providing specific instruction in subjects of interest. The format includes a lot of hands-on time with the APPLE. So far a tutorial has been held on an Introduction to the APPLE. This course consisted of two 3-hour sessions. It is scheduled to be repeated. A course on Pascal is currently planned. Normally, a minimal fee of \$25 to \$40 is charged to insure that those expressing interest will attend, thereby guaranteeing a certain class size. Those bringing their own APPLES are charged less than those not able to do so. Ideally, there will be no more than two students per APPLE.

11. VOLUNTEERING.

As we have said repeatedly above, this is an all volunteer outfit. It only works because members come forward to stuff envelopes, write articles, copy disks, mail out whatever and generally give what they can. You don't have to be an old hand at the keyboard to contribute. To offer your services, just call any Board Member listed in the magazine. We even have a "Volunteer Coordinator" to keep track of people who want to help but don't know how. What you will get out of contributing your time may be no more than a warm feeling and some new friendships. We, the volunteers, think that's plenty!!

Welcome...

David Morganstein, President

☞

WAP TUTORIAL

The following outline will be used in our tutorial scheduled for February, at USHUHS, Building A, Rooms 2017 and 2021. (Those bringing their own equipment should bring an APPLE, 1 disk drive and a monitor.) This outline may be of benefit to others as a self-study program, since it contains useful references presented in a (more or less) orderly manner.

Session 1 (February 13)

9:00-9:15 Set-up and Introduction

9:15-11:15

1. Binary, Hex and ASCII Systems

- adding and subtracting binary and hex. RM p.60
- ASCII system. RM pp.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 pp.74-75, 132

11:15-11:30 Non-maskable Interrupt

11:30-1:00

4. Memory Map. RM p.68

- memory pages: hi and 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

5. What is the ROM monitor?

- examining and changing memory. RM pp.41-44
- comparing memory blocks
- the mini-assembler and the disassembler. RM pp.49-51, 59
- single step and trace (use of the supplement). RM pp.51-53

Session 2 (February 20)

9:00-9:15 Set-up and Introduction

9:15-11:15 Applesoft

1. Basic Programming

- print, input. AS p.154,157
- variables: numbers, strings
- arrays
- form of a program: line numbers, interpreter
- editing a program with cursor controls
- control of program flow
IF...THEN, FOR...NEXT, GOTO
- subroutines
GOSUB...RETURN

contd.

2. Limitations and Restrictions

- precision: 9 digits. AS p.5
- garbage collection
- PEEK, POKE, CALL and USR

3. Memory Usage

- the tokenized program, line numbering, line linking. AS p.121
- page zero pointers. AS p.140
- HIMEM, LOMEM and variable space. AS p.127
- how variables are stored. AS p.137
- conflicts with binary data, machine code, or hires page
- where is the DOS in all of this? DOS p.135

11:15-11:30 Non-maskable Interrupt

11:30-1:00 DOS

4. The Catalog and VTOC

- the disk format, tracks and sectors. DOS p.135
- track 17: sectors 01-0F. DOS p.129
- track 17: sector 00. DOS p.132
- track sector lists and the files they describe. DOS p.128
- format of files. DOS p.127

5.-Reading and Writing Files

- OPEN, WRITE, READ, CLOSE
- Ctrl-D
- MON C,I,O. DOS p.42
- file buffers MAXFILES. DOS p.43
- data file types
 1. sequential. DOS p.47
 2. random access. DOS p.81
- writing over old data vs. APPENDING. DOS p.66

6. EXEC'ing

- controlling your APPLE from a file. DOS p.73

Bibliography

AS - Applesoft Manual
DOS - DOS Manual
LL - 6502 Assembly Language Programming, Lance Levanthal
RM - Apple Reference Manual

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ECHO II SPEECH SYNTHESIZER:

a review by David Morganstein

"si-lon uh-lert...si-lon uh-lert...uh-tak ships from thuh bat-tel-star guh-lak-ti-kuh..." squawks the speaker. The sounds of a new TV show for the '82 season? No, my son Joshua playing with the Echo II speech synthesizer! When I found that I could actually generate speech with my APPLE, I quickly purchased this unusual peripheral.

What is speech synthesis? Let's start with what it is not. It is possible for your APPLE to produce sounds in several ways. First, its internal speaker can be used to make noises. Second, you can digitize speech and store sounds as data tables in memory or call them in off the disk. Digitized speech is not much different from using a tape recorder to store specific words or phrases. The Mountain Hardware Spechtalker does this, as does the Muse program "The Voice". The Spechtalker requires an electronic card and external speaker; the Muse program requires neither. Both require a microphone for you to input the phrases of your choice.

By digitized speech I mean the following: Imagine that your spoken work was picked up by a microphone. As many people are aware, a microphone simply converts the vibrations of sound into electrical impulses. Now imagine a continuous graph of the voltage coming out of the microphone. A single word would only last a few seconds and would appear as a wiggly line of varying voltage. Let's assume that the voltage was between zero and one volt. To digitize that signal I need to take a sample of the voltage "every so often" and convert the voltage into a number, perhaps between 0 and 255, which can be stored in the computer. To "hear" the speech, the numbers would have to be passed into a device which produced a voltage proportional to the number and was connected by an amplifier to a speaker.

The drawback of digitized speech is that a lot of memory is required to store the digitized data. This is because the "every so often" mentioned above has to be at least 500 and preferably 5000 samples per second if intelligible sounds are to be reconstructed. That is to say that our speech is a collection of vibrations in the 500 to 5000 cycles per second range and taking fewer samples will miss all the useful variations. Another obvious drawback is that an enormous library of digitized sound would have to be created and called up to repeat any desired sentence.

Along comes a device like the Echo II. It uses a much preferred method which is not limited to repeating words spoken by someone. Rather, it uses an electronic chip designed to produce a series of sounds, called phonemes, which are similar

to those found in spoken languages. This chip is similar to that found in the Speak & Spell toy.

By simply sending one or two bytes to the chip, sounds can be created. The chip can also produce emphasis so that more than just monotone sounds can be produced. All that's left is for you to convert the desired word or sentence into the available set of phonemes and out comes the voice of the Cylon warrior!!! This last task, while not that difficult, is tedious. The first version of the Echo II came with a speech editor. You typed in the phonemes of your choice and the editor could convert them to the appropriate data byte and then send them to the chip. This editor took a lot of the drudgery out of the job but still was somewhat slow. With a fair amount of trial and error you could determine the appropriate phonemes and could easily cause a simple Applesoft program to trigger the Synthesizer.

A recent software release has just about totally eliminated the edit step (although it is included in the package). Now you need only type or PRINT the sentence of your choice and the Textalker program will do all the rest. Thus, it is easy to add the spoken word to your programs.

The Echo II comes with the electronic card, a speaker, a disk with the software needed and a 14 page manual which includes the schematic of the card. While the manual is brief, it is adequate. You should have no problem adding voice to your APPLE. The software includes a version of Textalker that will load into the language card, making the machine code totally transparent to your Basic program.

One last anecdote. Another program on the disk is a Spelling Bee program. It pronounces words and the student attempts to spell them. The program is straightforward and includes a running summary of right and wrong answers. After testing my son Joshua, we hit reset to exit the program. I typed something which did not appear on the screen! Instead, the speaker said "sin-tax err-or". I tried listing the program. You guessed it, the listing did not appear on the screen. Instead the speaker proceeded to speak or spell out the Basic program in memory. While the Street Electronic Corporation, maker of Echo II, did not mention this little feature, people with limited vision may find another valuable use for such a device, a talking program listing. &

 WASHINGTON APPLE PI
 MAIL ORDER FORM

Washington Apple Pi has a program library, and disks are available for purchase by anyone. The price to members is \$5.00 per disk and \$8.00 to non-members. These disks are full of exceptional programs - the utilities are especially useful. The games are some of the best - not just simple and uninteresting ones. You may pick them up at any meeting or have them mailed for \$2.00 per disk additional. (If you order five or more the additional charge will be \$10.00 total.)

PROGRAM DISKETTES

Members: \$5.00 picked up at meeting
 \$7.00 mailed to you (for the first five, remainder at \$5.00)

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- | | | | |
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| Volume 26 | Stocks/Investments () | *Vol. 181 | required with these disks. |
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