

Washington Apple Pi



The Journal of Washington Apple Pi, Ltd.

Volume 6

January 1984

Number 1

Highlights

REVIEW OF THE WAP LOGO DISKS
 COMM-TERM - A COMMUNICATIONS
 PROGRAM

INTRODUCTION TO MODULA 2
 PEACHTEXT WORD PROCESSOR

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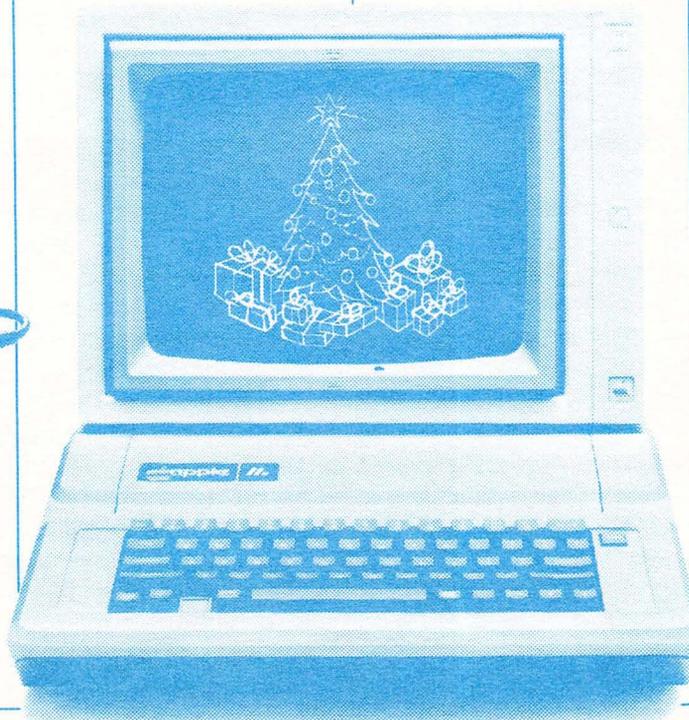
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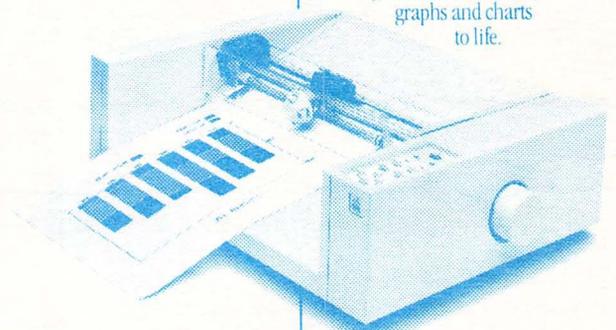
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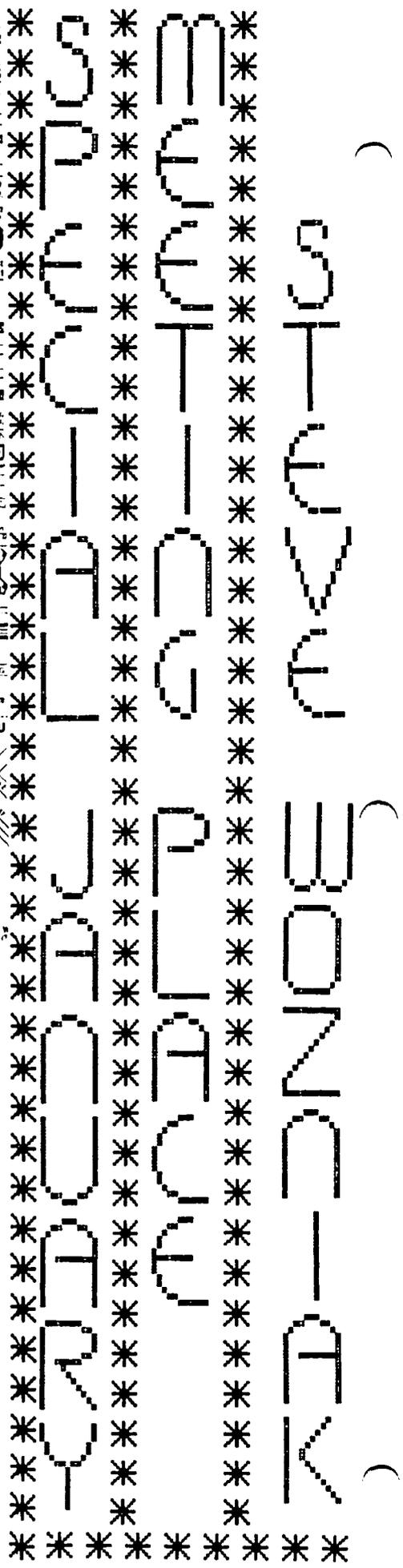
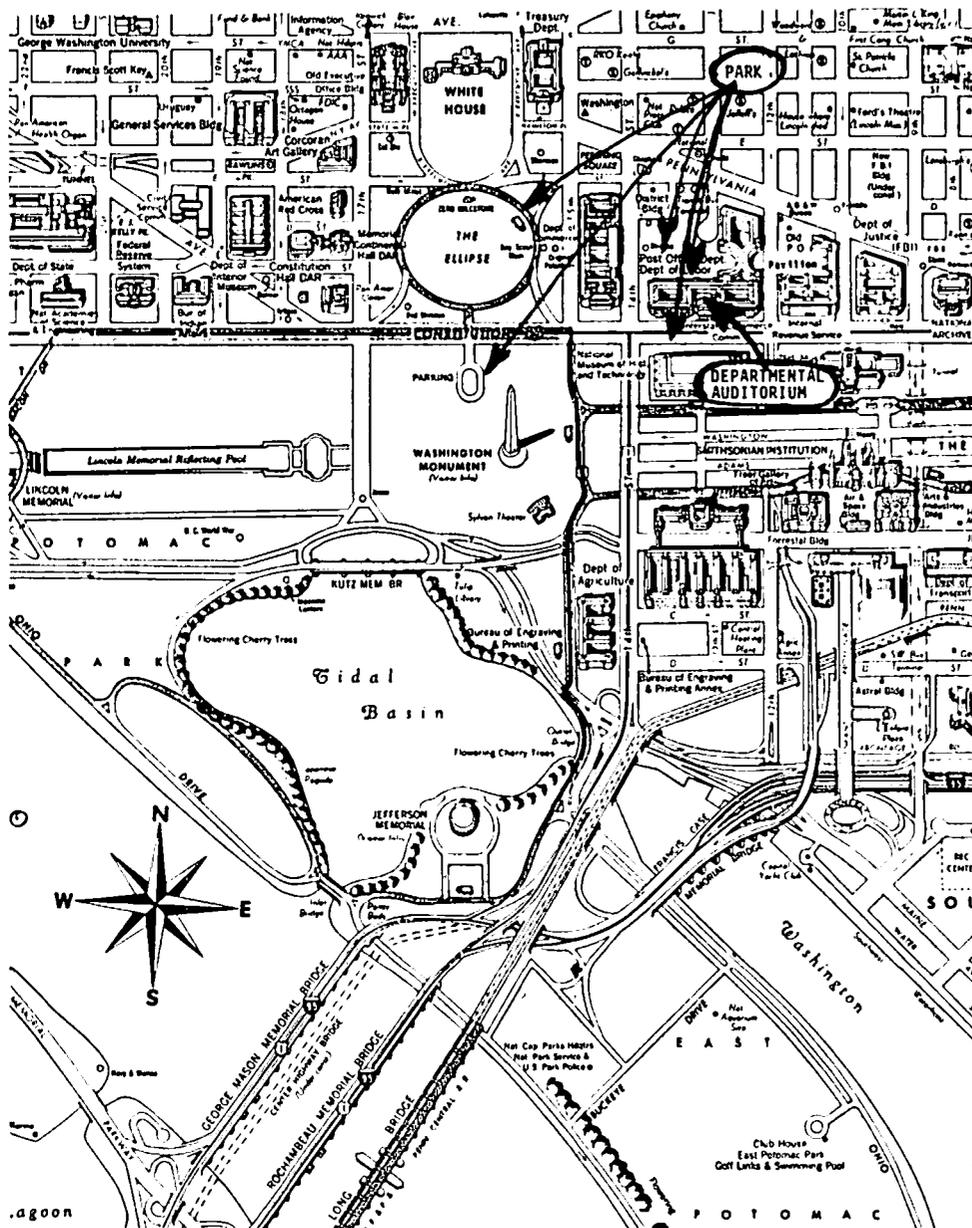
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Washington Apple Pi

8227 Woodmont Avenue, Suite 201
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We need an indication of the attendance at our special meeting at the Departmental Auditorium (between 12th and 14th on Constitution Avenue, Washington DC) on January 28. Many non-WAP members will want to attend this meeting. Our members will be given first priority in the event of a full capacity attendance. Please help us by mailing in this card (or phoning the office) with an indication of your intentions.

() Yes, I will be attending the special meeting to hear Steve Wozniak and see the McIntosh. There will be ___ persons in my group.

Wap Member No. _____

Name _____

OFFICERS & STAFF

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	- Bruce Redding, Gordon Stubbs		Home Control SIG	- Russ Eberhart	(301) 596-4995
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			Telecomm. SIG	- George Kinal	(202) 863-6489

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Bethesda, MD 20814
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EVENT QUEUE

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

Following are dates and topics for upcoming months:

January 28 - WOZ and the Mc
February 25 - Personal Instrumentation - Tom Riley

The January meeting will be held at the Departmental Auditorium, which is in DC, between 12th and 14th Streets on Constitution Avenue, NW.

The Executive Board of Washington Apple PI meets on the second Wednesday of each month at 7:30 PM at the office. All members are welcome to attend. Call the office for any changes.

EDITORIAL

Happy holidays and best wishes for the new year! ☺

GENERAL INFORMATION

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

Membership dues for Washington Apple PI are \$25.00 for the first year and 18.00 per year thereafter, beginning in the month joined. If you would like to join, please call the club office or write to the office address. A membership application will be mailed to you. Subscriptions to the Washington Apple PI Journal are not available. The Journal is distributed as a benefit of membership.

Current Office hours are:

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

PRESIDENT'S CORNER

by David Morganstein

HERE COMES THE WOZ. Plans for Steve Wozniak's visit to our January 28th meeting are getting settled. For this special occasion we will hold our January meeting at the Departmental Auditorium between 12th and 14th on Constitution Ave. The auditorium, which seats almost 1500, is close to a lot of parking. The Board has suggested that we not advertise Steve's appearance too widely beyond other local clubs, fearing that if too many non-members attend there will be little room for WAP members. We have asked Novapple and other clubs in the area to join with us in co-hosting Steve's visit and attending the meeting.

SIG ELECTIONS. A special vote of thanks to all of our SIG chairmen (chairpeople?) for the many hours they have given to make the SIGs a valuable source of information for us all. Most of the chairmen were willing to continue and received the support of their SIG. To you we send congratulations and we invite you or your representatives to attend the Board Meetings whenever your time permits. To Dave Neumann, retiring chairman and founder of the CP/M SIG, we send an expression of appreciation. Thanks, Dave, for your help and contributed software which have helped so many members get more use from their Apple.

KEEPS ON GROWIN. I would like to introduce all of our members to Mr. Sanford Shapiro. Mr. Shapiro is best known to us for his WAP number, 4000. In August of 1982 we gave out member number 2000. In May of this year, number 3000. So far, we have been able to expand our resources to deal with the continued growth. We have done this because of the continual stream of willing volunteers who step forward when help is needed.

SOFTWARE FOR SCHOOLS. Last month we discussed, and both the Board and membership approved, a plan to make our Public Domain software library available to public schools. If your school wishes to obtain some of our library disks, have the principal contact our office. The school need only send us a box of ten diskettes and the list of ten library disks they want. We ask only that the school recognize the work we have done in assembling the disks and use them on school premises for school projects.

WRITE A GOOD PROGRAM LATELY? Both the Board and members have approved a plan which we think will benefit both authors of programs and the membership. If you have written a useful program and are not willing to donate to our library because you would like to obtain some compensation for your work, read on. If you will write an article about the program and include the source code (BASIC or hex dump) with it, you may include a notice to readers that they can obtain a machine readable copy by sending you a self-addressed stamped envelope with blank diskette and \$3.00 copying fee.

TUTORIALS. I would like to begin with a thanks to Steve Stern for his continual service to the club in setting up many special tutorials. Steve has arranged the following tutorials:

- o Soldering & Electronic Repair
Wed., Jan. 11 & 18 - (Instructor: Tom Riley)
- o VisiCalc
Sat., Feb. 11 - (Instructor: Lee Raesly)

- o VisiPlot
Sat., Feb. 18 - (Instructor: Lee Raesly)
- o CP/M
Sat., April 14 - (Instructor: Bob Fretwell)

Other tutorials currently planned include:

- o Advanced Applesoft - March (Richard Untied)
- o dBase II - May (Lee Raesly)
- o Pascal - June (Pascal SIG)

DIAGNOSTIC CLINIC. At our November meeting, three members (Tom DeMay, Bruce Field and Dave Weikert) expressed a willingness to participate in a Diagnostic Clinic held at our office. Their expertise would only go as far as running diagnostic programs and giving advice (which may or may not solve your problem). We can not take responsibility for going into your machine, unscrewing things and changing chips. That would be up to you to do based on their advice. Keep your eyes on the Journal or call the office for dates of the clinic. It will probably be held once a month, starting in January.

CALL A.P.P.L.E. SOFTWARE. They tell us that the long awaited for order is "in the mail". By now, it should have arrived. If you are a CALL-A.P.P.L.E. member, you can buy some of their software at our office. The first order included Spreadsheet II and Big Mac, their macro assembler.

SEASON'S GREETINGS. Has it really been a year? Yes, I guess so. My daughter Emily will be two next month. Where does the time go? It has been a big year for the WAP. We have successfully put an office together, thanks primarily to the efforts of Bernie & Gena Urban. With the coming of the Mac, a whole new challenge will be upon us, to serve those now unknown owners of a now unknown machine. I know we will meet that challenge with all the enthusiasm that has carried us this far.

From your Board of Directors to each and every member, a most deeply felt wish for a meaningful and healthy New Year.

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PROGRAM PREVIEW SIGNEWS

by Cara Ciria

January 28, 1983 - He's coming, he's coming. Hold on to your hats, the W0Z will be with us soon!! The program should be exciting, informative, and just plain Applehappening.

Time: 9:00 a.m., as usual

Place: Departmental Auditorium, Constitution Avenue, between 12th & 14th, DC.

See you there.

February 25, 1983 - Personal Instrumentation and the Apple

Would you like to get some insights into using your Apple for a science fair project? Curious about scientific research applications or industrial research and development with your Apple? Tom Riley will be taking us through the different levels in using personal instrumentation and how it applies to the scientific method in today's changing technology as well as future trends. The Quad Thermometer will be discussed in relation to experimental design, instrument calibration, data logging, data reduction, report generation and graphics generation.

Tom Riley received his Bachelor's degree from the University of Houston in 1969 in Electrical Engineering. He is currently designing computer controlled testing equipment for a leading solar energy firm. ☞

CLASSIFIEDS

DONATIONS WANTED: Apple II OR II+ for Our Lady of Perpetual School. Call Father Nelson at (301) 747-4334. Will receipt acknowledgement for income tax purposes.

FOR SALE: Silentype printer with interface card for Apple II, good condition, \$200. Call Daniel Blum at 871-4886 (day) and 270-6405 (eve.).

FOR SALE: Apple II+ with 64K RAM, 2 Apple disk drives, Apple Integer Basic language card, RF-33 connector, joysticks, diskette file box, 20 elephant diskettes, manuals. Used very little. Will sell all for \$1850 or best offer. Will sell items individually. Call Paul at (301) 761-8817.

FOR SALE: Used Apple II, disk drive, Monitor II, Micromodem II, and some software. If you are interested, call 779-5714 and ask for Scott.

FOR SALE: Brother HR-1 Printer, like new, works great. \$600 or best offer. Call Michael at (301) 422-4727.

FOR SALE: Integer Card, \$35; Parallel Interface Card, \$40. Call Arnie Rosenberg at 649-6400.

FOR SALE: Software for Apple II+ or //e. HSD STATS and HSD ANOVA II; Apple Interactive Data Analysis (AIDA); Volition Systems Modula 2 Programming Language; Hayden Basic Compiler +; The DOS Enhancer (DOS accelerator by S & H software); Ampersort/Merge by S & H Software; The Sensible Speller; The List Handler by Silicon Valley Systems; Image Printer by Sensible Software; and Build Using by Sensible Software. Call Barry Gordon at (301) 955-6431, day; or (301) 235-3125, eve.. ☞

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

APPLESEEDS is the special interest group for our younger members. They meet during the regular WAP meeting. Featured are presentations of topics of interest in graphics, programming techniques, etc., as well as question and answer sessions. In January there will be a game contest.

ASMSIG meets immediately after the regular Washington Apple P1 meeting.

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

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

FORTHSIG is in the process of reorganizing. If you are interested in using Forth (either the WAP library version or commercial versions), please call Kevin Nealon at the WAP office.

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

LAWSIG usually meets in downtown Washington, D.C. at noon once a month. For information call Charles G. Field, Chairman, 265-4040, or Jim Burger, 822-1093.

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

NEWSIG will meet just after the regular Washington Apple P1 meeting and on Thursday evenings from 7:30-9:00 PM in the office. We will answer questions and try to help new owners get their systems up and running. We will also explain how our club operates. The following members have agreed to answer questions over the phone when someone gets stuck and needs help between meetings:

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

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

SIGAMES is the special interest group of computer hobbyists interested in using their APPLES for entertainment. They meet immediately following the monthly meeting of Washington Apple P1.

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

Telecomm SIG usually meets after the regular WAP meeting.

*** OMSIG: Other Machine SIG *** - Franklin Ace, Romar II, owners or Apple clones or other computers. Let's get OMSIG organized to share problems and solutions. Call Bill Scott (301) 997-0523, Columbia; or Ernie Lane (703) 978-9607, Annandale. ☞

MINUTES

SUMMARY OF THE NOVEMBER BOARD MEETING

The Executive Board of Washington Apple Pi, Ltd. met on November 16, 1983 at the WAP office. The agenda included the copier machine for the office, office rental for next year, distribution of library disks to schools, helping Montgomery County libraries, an idea to increase contributions of programs to the WAP Journal and to allow authors to earn some money, group purchase advantage for active volunteers, Steve Wozniak's visit in January, the meeting place for January, a request from ABBS (the Board voted to expend \$130 for a second phone), the imprest fund (the Bylaws were amended to allow up to \$4000 for this fund), and paid holiday hours and worker's compensation for office employees.

NOVEMBER GENERAL MEETING

Washington Apple Pi, Ltd. met at USUHS on November 26, 1983 at 10:00 AM. President David Morganstein presided. The January meeting which will feature Steve Wozniak and the McIntosh computer will be held at the Departmental Auditorium. The December garage sale will occur on the third Saturday in December. Volunteers were sought to coordinate the garage sale. The holiday library disk sale was announced. Doug Schneider volunteered to work on a subject index of the abstracts of the programs on our library disks. To encourage contribution of programs to the WAP Journal, authors will be permitted to offer a disk copy of the source code for a small fee. Tutorials for soldering and electronic repair, VisiCalc and VisiPlot, and CP/M were announced. Principals of area schools may request a form from WAP to enable them to exchange up to ten blank disks for an equivalent number of library disks of their choice. Error reports on library disks should be reported to the office. Some interest in an Adult Games SIG was expressed. Call-A.P.P.L.E. software should be in soon. Feedback on ideas for direction or improvement of WAP included purchase of monitors for tutorials, availability of diagnostics for loan to members, group purchase of modems, need to repeat questions and comments from the audience at the meetings, and a repair service at the office. &

BYLAWS AMENDMENT

by
Robert C. Platt

The WAP Bylaws provide for a fund which our Office staff uses to write checks for certain items such as postage, supplies and COD deliveries. (June 1983 WAP Journal p. 45) With the transfer of group purchase activities to the Office, the Board voted on November 16 to raise the limit of this Account to \$4,000.

AMENDMENT TO ARTICLE XII, SECTION 1: DISBURSEMENTS

Designated staff shall have the authority to sign checks in an amount not to exceed \$4,000.00, from an imprest fund established by the Treasurer. &

JOB MART

HELP WANTED

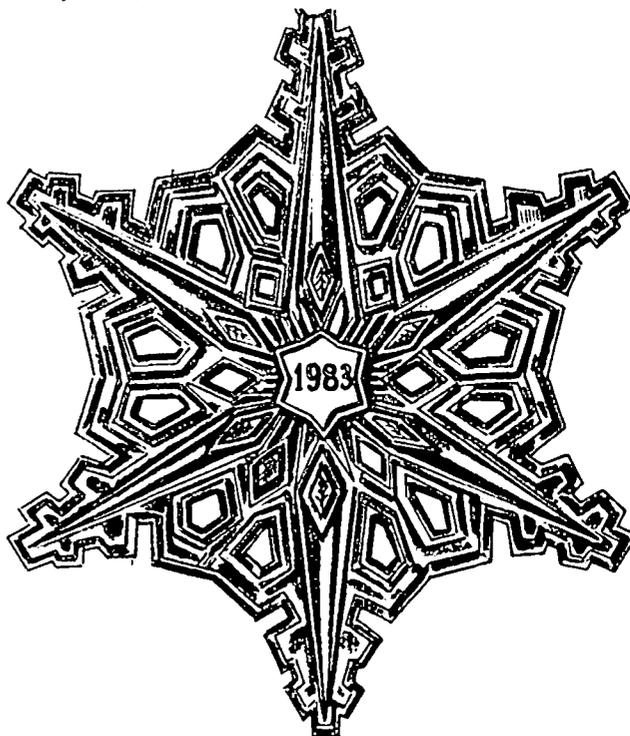
PROGRAMMER/ANALYST - PERSONAL COMPUTERS. New personal computer software development company has immediate openings for programmers to work with creative professionals. Knowledge of Pascal and experience with personal computers strongly preferred. Products under development include office and professional applications, educational programs, and games. Creative, exciting, casual environment. Send resume to Information Systems Inc., 1901 N. Fort Myer Drive, Suite 200, Arlington, VA 22209.

INSTRUCTORS WANTED. The Comm Center is looking for instructors to teach "hands on" spreadsheet, data base management, word processing and programming courses to industrial clients. Heavy experience using an Apple II+ or //e in real business situations with a particular emphasis on dBase II, WordStar, Pascal and VisiCalc is definitely required. Teachers are also being sought for the evening classes we offer to the general public in both our Laurel and Severna Park locations. If you are interested in being interviewed for these positions, please forward a resume to The Comm Center, 9426 Fort Meade Road, Laurel, MD 20707.

CAREER OPPORTUNITY. We seek a cordial person for a secretarial position in a small business located in the Colesville, MD area. Pleasant working atmosphere, excellent growth opportunity for person familiar with the Apple II+. We currently use WordStar, Spell Star, Mail Merge and VisiCalc. We are looking for someone who is interested in applying the computer to more applications in our business. Additional responsibilities include typing, filing, answering phone, and misc. duties. If you are dedicated, hardworking and like working for a small business, contact Barry Wood, Botanical Decorators, 384-8877.

PART-TIME INSTRUCTORS wanted to teach Introduction to Microcomputers, dBase II, Basic, VisiCalc, etc. Please call KRACO Systems at 762-3333.

PERMANENT PART-TIME, 10-15 hours per week, bookkeeping/billing on Apple II. Will train. Helpful if you know word processing, data bases and VisiCalc. Flexible hours, congenial staff, near Univ. of MD. Ideal for students. MHA, Inc., a community mental health center, (301) 439-4743. &



Q & A by Bruce F. Field



Wilton Helm from Thousand Oaks, CA has raised a point about using a firmware card in slot 4. Some programs (in his case Lisa 2.3) look for a clock card in slot 4 by reading the signature bytes at \$C4XX. In Wilton's Apple this turned on a Mountain Hardware EPROM burner which then conflicted with other peripheral cards. However Wilton suggests that a similar situation could occur with a firmware card if a program assumed some other card was in that slot and accessed its Device Select addresses. This would probably cause the program to do unpredictable things. Actually I think this is not a likely occurrence as it is dangerous to access Device Select addresses of unknown cards and I don't know of any programs that do this. Firmware cards ignore Device I/O addresses (such as \$C4XX for slot 4). However, you might want to remove your firmware card if it is in any slot other than 0 if you are having problems with a program.

I have also received a couple of comments on using interrupts with DOS, a question that was answered in a previous column. The problem is that both DOS and the Monitor use location \$45. Wilton Helm writes that rather than change the Monitor program (which must first be copied from ROM to a language card), it is better to change DOS.

"Location \$45 is used at the following places in DOS 3.3:

\$A133 \$A13E \$A158 \$A18E \$A1D3 \$A1E8 \$A1F7 \$A1F9 \$A201
\$A2CC \$A767 \$A77F \$ADB8 \$AEOA \$AE54 \$AE58 \$BED3 \$BF16
\$BF39 \$BF55 \$BF57 \$BF5B \$BF9D \$BFA3 \$BFAS.

These locations should be changed to \$46. Location \$46 is used for only one purpose, at \$BA06 and at \$BDA4. These two locations should be changed to \$2C. Location \$2C is used only by RWTS subroutines and does not conflict with this additional use. The end result is that DOS no longer uses \$45 and does not use any new locations."

These modifications have been made in Universal DOS (a fast DOS) and similar patches have been made in Diversi-DOS (another fast DOS). Stephen Silverman from So. Burlington, VT also points out that Southwestern Data Systems markets a package called Double-time Printer that contains a modified F8 Monitor ROM. However at \$120 (money, I presume - Ed.) this is a rather expensive solution if all you want is interrupt capability.

ProDOS the new DOS from Apple (supposedly available in early 1984) will also work properly with interrupts. In case you missed it, Gary Charpentier and David Sparks had an article describing ProDOS in the November 1983 issue of Call A.P.P.L.E.

Q. I have been trying to read the volume number from D1 and D2 in S6 from within a program. The best I have been able to come up with is the volume number of the booted disk. Your assistance would be greatly appreciated.

A. The volume number of the disk last accessed can be found by a PEEK(47094) for a 48K Apple with DOS 3.3. For example suppose you have just booted up on drive 1; PRINT PEEK(47094) will print the volume number of the disk in drive 1. To find the volume number of drive 2, execute a DOS command to access

drive 2 such as PRINT CHR\$(4)"CATALOG,D2". Then PRINT PEEK(47094) will print the volume number of the disk in drive 2.

This method returns the volume number that is encoded in the address fields of the diskette not the volume number in the Volume Table Of Contents.

Q. I need your help. I have an Okidata Microline 80 Printer and I also have the Dow Jones Market Analyzer. A user jump routine is needed in order to print out the graphs. The only help given in the manual is for the Silentye, Trendcom, and a printer using the Grappler interface card. I do not have a card but the first two routines do not work.

A. I have received several questions similar to this one. I will try and discuss generally how to print the hi-res screen on a printer.

The first requirement for printing the hi-res screen is to have a printer with graphics capability. This means that the printer must be controllable by some means to allow printing of individual dots in any desired pattern. The most common type of printer used for this is a dot matrix printer. But, a daisy wheel printer can be used if the carriage can be moved in small increments so that periods can be printed next to each other with little or no space in between them. Printing a hi-res screen one dot at a time with a daisy wheel printer is very time consuming and I don't recommend it; however it is possible to do so with some daisy wheel printers.

Secondly you need a program to "read" the dots from the hi-res screen and send them to the printer in the proper format. Each printer requires the data to be formatted in a different way so that it is not always possible to use just any printer with any program. These programs are commonly called "screen dump" or "hi-res dump" programs because they take information from the screen and dump it to the printer.

Also you should know what type of printer interface card you have in your Apple. This is very important as many of the cards already contain a screen dump program on the card. The Grappler, Pkaso, and Silentye cards all contain dump programs to allow you to print the hi-res screens using a simple command. (The Silentye card is a special interface card and will only work with the Silentye printer.) Check your printer interface card manual to see if your card does have this feature and how to use it. To use the Grappler card for example, you must first turn it on (activate the printer) and then send the command "Ctrl-IG". You can do this from Applesoft with the following commands.

```
100 PRINT CHR$(4)"PR#1": REM TURN ON PRINTER  
    IN SLOT 1  
110 PRINT CHR$(9)"G": REM SEND CTRL-I G
```

The 9 in CHR\$(9) is the decimal equivalent of the Ctrl-I character. If your graphics generating program is written in Applesoft and can be modified, all you need to do is insert the above commands in the program where it asks you if you want to print the graphics.

contd.

If you don't have a card with such a program, all is not lost. There are programs available (Printographer and Zoom Grafix are two among many) that you can load into your Apple to dump the hi-res screen to the printer. These programs usually have more capability in scaling and cropping the picture than the programs built into the interface cards. In this case you will probably have to stop the graphics generating program to load and run the screen dump program. It is perfectly acceptable to stop the graphics generating program using Ctrl-C or RESET; the graphics picture on the screen is not modified in either case. Once you stop the program and get the Applesoft prompt you can load and run the screen dump program. If necessary you can boot up on a "slave" diskette and the graphics picture will not be disturbed. How do you know if you have a "slave" diskette or not? Any diskette that you have initialized using the DOS INIT command is a slave diskette. To make it a master diskette you must run the program MASTER CREATE on the System Master Diskette. Now that everybody has at least 48K or memory there is no advantage to converting slave diskettes to masters.

Remember, the printer interface card is an important part of the printing process. When you are looking for a program that prints to a printer, especially hi-res screen printing programs, make sure the program is compatible with your printer and interface card.

Q. I recently acquired Call A.P.P.L.E. in Depth number 3, All About DOS, and am attempting to use a Microsoft 16K RAM card in slot 0 and an Applesoft firmware card in slot 4 with my Integer Apple II. I have several questions.

Somehow the machine recognizes the firmware card in slot 4 on power up. With the firmware card's switch up, Ctrl-B yields Applesoft; with the card's switch down, Ctrl-B yields Integer. Why and how is slot 4 "looked at" without even booting a disk?

A. The switch on the firmware card only controls what happens when the Apple is RESET or turned on. With the switch up and RESET is pressed, the language on the firmware card (Applesoft in this case) is activated. With the switch down and RESET is pressed, the motherboard language is activated. Ctrl-B just starts the activated language. In addition to the switch, the card can be turned on or off by accessing some soft switches. If the card is in slot 0, \$C080 turns the card on while \$C081 turns the card off. For slot 4 the addresses are \$C0C0 and \$C0C1 respectively.

Q. I also have GPLE and the documentation refers to DOS MOVER and says to BRUN DOS MOVER and then BRUN PLE.DM. There is no DOS MOVER program on my GPLE disk. Is this reference intended to be to PLE DOS MOVER? What does PLE.DM do and why is it necessary?

A. Yes, as you surmised the Dos mover program to be used is PLE DOS MOVER. When you BRUN this program it will move DOS and then re-run the Hello program. The Hello program on the version of GPLE I have seen automatically BRUNS PLE.DM after DOS is moved, so it is not necessary to BRUN it again. If you don't get the GPLE title line and copyright notice printed on the screen after moving DOS you will need to BRUN PLE.DM. The PLE DOS MOVER program is similar, but not identical to the DOS MOVER program described in All About DOS.

Q. I am also attempting to implement "The Firmware DOS Switch and its related programs in All About DOS. When I run HELLO and choose a normal boot, while the message "Enabling The Firmware Card in Slot 4" is displayed the program stops, displaying "000C-A=00 X=00 ..." Is this the way the Firmware Switch is supposed to end?

A. This problem is most likely that you have saved the HELLO program as an Applesoft program while you have Integer Basic on your motherboard. The article explains that if you have Integer Basic on your motherboard the HELLO program must be saved as an Integer program.

The "000C-" etc. displayed on your screen simply tells you that you have executed a special machine language instruction called BRK or break. In this case it means that somewhere a machine language program went haywire and got into an area of memory that was not part of the program. The numbers displayed are usually not helpful in determining what went wrong; they are the address of the break instruction plus 2 and the values of the 6502 registers. You are now in the Monitor program in your Apple; to get back to Basic type Ctrl-B.

Not to confuse you, but if you want to become compatible with 99% of the Apple world, you can exchange the Applesoft ROM chips on your firmware card with the Integer chips on your motherboard and you will have an Apple II+.

Q. This is a question about preventive medicine rather than a problem. I'm planning to use my Apple in outlying areas with undependable electrical service, and occasionally on a generator in a motor home. Any precautions I should take to prevent damage to my equipment?

A. With regard to electrical damage to the Apple, the Apple is rather robust. Other than running it at too high or low a voltage, greater than 132 or less than 107 VAC, or having voltage spikes on the line, there should be no problem. At the very least you should consider some kind of a spike suppressor as this is a good idea no matter what powers your Apple. Unfortunately this is not the whole story. If power were to fail while you were writing to a diskette, even for less than a second, information on the diskette would be destroyed. A spike suppressor will not help with power failures; for this you will need an Uninterruptable Power Supply (UPS). A UPS consists of a power supply that converts 110 VAC to DC to charge a battery and run an inverter that converts the DC back to 110 VAC. If the power fails the battery automatically supplies power with no detectable change in the output. The bigger the battery the more running time you will have, but usually all you need is enough time to finish what you are doing and save your work to disk. The bad news is that UPSs are somewhat expensive starting at about \$300.

Q. The Apple II has a mini-assembler in Integer Basic in ROM. I am told that there is a mini-assembler in software for the //e. True?

A. Yes, in fact the mini-assembler can be used with a //e or a II+ if it has a language (RAM) card in slot 0. To use the mini-assembler, boot up on your System Master diskette (DOS 3.3) and it will load Integer Basic and the mini-assembler into the RAM card. To activate the mini-assembler type INT to turn on the RAM card and get into Integer Basic, then type CALL -2458 (\$F66G) to run the mini-assembler.

contd.

The mini-assembler is an elementary assembler that takes assembly language instructions as they are typed into the Apple and converts them into machine code. The mini-assembler is good for beginners who don't want to invest in a more expensive assembler (anything is more expensive than free) or for making quick changes to existing code. Other than EXECing in a text file there is no convenient way to save the assembly language source on disk, nor are any labels allowed. The mini-assembler is described starting on page 49 of the Apple II Reference Manual and page 110 of the Apple //e Reference Manual.

Q. While writing a machine code routine, I came across the need to know exactly where the last character was placed in the keyboard buffer (\$200 - 2FF). This is one of the more mysterious aspects of the Apple which has not been frequently documented - how does the Apple put a character typed from the keyboard into the keyboard buffer?

A. Most keyboard input to the Apple is handled by a machine language routine at \$FD6A in the F8 Monitor ROM. The Applesoft command INPUT calls this routine or you may call it directly from machine language. This routine prints a prompt character on the screen (the character value stored in location \$33), then waits for a key to be pressed, prints it to the screen, and also stores it in the keyboard buffer \$200 to 2FF. The routine loops around for more key presses and returns to Applesoft or your machine language program when you press the RETURN key. The ASCII values of the keys pressed are stored in the order in which you pressed them starting at \$200 for the first key. The eighth bit is set, therefore the value stored for "A" for example is not \$41 but \$C1. The X register of the 6502 microprocessor contains the position in the buffer of the value of the last key pressed (which must be a carriage return, \$8D) or equivalently the X register contains the number of characters typed, not counting the return character. Unfortunately the X register is not accessible from Applesoft, but can be used in your machine language routine. This routine also provides all the standard Apple editing features, ESC I,J,K,M.

Q. How do you get audio from an Apple II+ to an Amdek monitor?

A. Very carefully. Seriously, you CANNOT take the two wires that go to the speaker and connect them to the audio input of the monitor. At best this would short out the Apple power supply; at worst it would destroy it. You need a small circuit that couples the speaker signal to the monitor using capacitors or a transformer. A small transformer from Radio Shack (#273-1380) can be used with a potentiometer on the output (primary) side to reduce the signal so as not to overload the monitor input. Happ Electronics Inc., 4640 Island View, Oshkosh, WI 54901, (414) 231-5128 makes a Hi-Fi Adaptor (\$25) to allow you to connect the Apple speaker output to a stereo or hi-fi. This would also work with your monitor. Such an adaptor is also needed for a //e.

NEW MASTERS PROGRAM AT TRINITY COLLEGE

Trinity College, Washington DC has just begun a new Master's program entitled: Computers in Education and Training. The 33 credit program has three areas of emphasis: technical competency, planning for computer use in learning environments, and designing computer-based curricula and learning materials. For information contact Deborah Blank, Education Dept., Trinity College, Michigan & Franklin Ave. N.E., Washington, DC 20017 or call (202) 269-2374.

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WAP HOTLINE

Have a problem? The following club members have agreed to help. PLEASE, keep in mind that the people listed are VOLUNTEERS. Respect all telephone restrictions, where listed, and no calls after 10:00 PM except where indicated. Users of the Hotline are reminded that calls regarding commercial software packages should be limited to those you have purchased. Please do not call about copied software for which you have no documentation. If the person called has a telephone answering machine, and your call is not returned, don't assume that he did not try to return your call - perhaps you were not home. Try again.

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*Calls up until midnight are ok.

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

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

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EDSIG NEWS

by Peter Combes

EDSIG Calendar

Tuesday, January 2nd at 7.30 p.m.

"Computers in Montgomery County - Past, Present, and Future". Chuck Philipp, founder chairman of EDSIG, will bring us up to date with the continuing story of one of the most pioneering counties in the country.

All EDSIG meetings are now held in the Auditorium, Building 8, of the Uniformed Services University of the Health Sciences, on the campus of the National Naval Medical Center, 4301 Jones Bridge Road, Bethesda, MD.

Meeting Reports

Tuesday, December 6th at 7.30 p.m.

"Touch Monitors and the Apple" - Dr. George Berke.

Dr. George Berke classified touch monitors into three groups.

Group One use LED emitters along two edges of the screen, observed by sensors along the opposite edge. Anything that breaks the light beam will generate position signals that depend on which beams are broken.

Group Two use a Mylar coating in which are embedded fine wires. Pressing the screen causes electrical contact, providing the required signals.

Group Three, demonstrated by George, used a plate glass cover and reacted to the capacitance effect of the user's finger.

The demonstration unit had 32 defined areas on the screen, and these areas were normally invisible unless the screen was brightly lit. The unit is used in convention centers, hotels, shopping malls, and so on, mainly as a publicity guide. Dr. Berke was developing its educational uses. "With videodisk production being quoted at half a million dollars a side, this is a much cheaper way of doing interactive video."

Dr. Berke showed a "Part Trainer" for teaching aircraft cockpit procedures. Warning lights indicate such emergencies as "FIRE" or "STALL", and the user has to select controls like extinguisher and fuel transfer, at the right time in the right order. The demonstration showed the advantage of being able to touch the screen directly, and not having to look away from the "warning lights" to look at a keyboard or other input device.

A "Bank Information" package provided a useful point of sale information device - the touch monitor making a keyboard actually unnecessary.

The touch monitor comes with its own authoring system - PWP - which makes keeping track of the branching options very straightforward.

At a price of some \$1400 for the monitor and interface card, the monitor is an attractive package with a range of possible uses. A version to interface with the IBM PC is also available.

The Koala Pad.

A return visit of Koala Ware's Koala Pad showed the high resolution that is available with this unit, and the very useful set of utilities - "Micro Illustrator" that comes with it.

Apple Clubs

The company that is supporting school computer clubs on behalf of Apple is sending us a sample "starter kit" for our review. The company claims that a large number of such clubs have started already; giving figures of 16 clubs in DC, 84 in Virginia, and 97 in Maryland.

Program Reviews

We continue to receive programs for review. Two AGILE graphics utilities are reviewed elsewhere in this issue. The Learning Well program, "That's My Story", is being tested, and will be reviewed in the next issue. ☞

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**THE FAMILY
COMPUTER STORE**

THE AGIL PAINT PROGRAM AND SLIDE SHOW: A Review

by Roland Combes

The Agil Paint Program

The Agil Paint Program is a very versatile and easy-to-handle package that employs various options found in many other graphic programs now on the market. The package contains two disks, a demo disk and a disk for the main program, an instruction manual, and a reference sheet for easy and fast use of the program.

The instruction manual included is complete, yet rather small. Each command is discussed in detail, but there are very few examples provided. The first thing you expect to learn is how to draw simple lines and points. However, this is not the case. It begins by showing you how to create a picture with a shape table consisting of a man, a dog, a cow, trees, and various types of lines and curves. At the back of the manual, a graphic illustration of all shape tables and fonts available is displayed along with a brief summary of various commands available.

The actual program is very easy to handle, and incorporates a menu selection based somewhat on the one found in Koala's Micro Illustrator; however, this menu selector is textbased. The artist does not need to use the keyboard very often; he simply uses the joystick to select and paint. When you select a color, you type "C" and use the joystick to point to the color of your choice. Your color choice is not fantastic, such as the choices found in Penguin Software's products, but it is ample. There is a keyboard mode available for micro-painting (detailed drawing). The Paint Program uses the same "rubber-band" technique that Koala Micro Illustrator uses. That is, when somebody wishes to draw a line from one point to another, he sets the cursor at the first point and then stretches a "rubber-band" line to the desired position and presses the button when finished. This technique is also used when drawing boxes and doing other graphic commands. The advantage of this is that you can see what the line or box will look like before it is drawn.

The Paint Program offers a variety of "paintbrushes", "pens", and cursors. These pens, brushes, and cursors are really shape tables converted into drawing cursors that can be used to create interesting effects.

The program also offers a nice text displayer that writes in lower/upper case, that types vertically, rotates the text, types diagonally, and sets left and right margins. Even though it offers four very nice fonts, it has no font maker and is incompatible with the latest font makers, such as Synergistic Software's Higher Text and Penguin's Complete Graphic System. If AGIL comes out with a font maker it would be a very powerful and useful option. However, it stands relatively unused at the moment.

Unlike many graphic programs, the Paint Program will draw on either hi-res page and can scroll the screen in any of four directions. It can backup the first hi-res screen on the second and vice-versa. It also has a variety of commands for screen manipulation. One of its best features is the "cut-and-paste" command. What this does is take or "cut" pieces of a hi-res picture and store it in memory as a shape. This can then be move all over the screen, enlarged, rotated, and manipulated in various way. It can also be stored to disk for later use. It can draw and "paste" this shape wherever the user desires.

The Paint Program has a friendly but tiring disk menu that seems to constantly ask for disk drive numbers. It is easy to use and offers many options for disk storage. One of the many advantages of the Paint Program is that it is unprotected and can be modified. However, one needs to be a fairly good machine language programmer to change anything since most of the program is in machine language.

One small irritation is that this program is unpromising to the joystick. It must be rather steady and precise to draw well.

Overall, this program offers many attractive features with only a couple of minor irritations and is one of the best graphic programs on the market today.

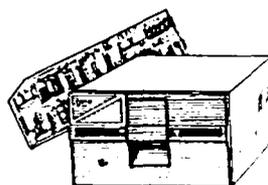
The Agil Slide Show

The Slide Show comes as a supplement to Agil's Paint Program. It has a very short demo which is quite pretty to watch. However, you get a bit angry and upset as the program ends when you select from the introductory menu the choice to build a slide show. Apparently, you must change a program on the disk to create a slide show. This is very neanderthal. Nowadays, you should not have to type in line numbers and commands to satisfy a pre-programmed package. It should do the programming for you.

It does, however, contain many routines that expert programmers will find extremely useful. It can flip pages of the hi-res screen, scroll any part of the screen - up, down, left, and right - and scroll sections of each of the two hi-res pages. It can even color shift hi-res pictures.

Altogether, it is a very useful program, but it lacks quick and simple menus with which to control these utilities. It is well worth looking at. ☺

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A Revolutionary Operating System
 with Overlay Capability
 For Experienced Applesoft Users

From the wizards of MicroPower comes an enhanced Applesoft with all the convenience and capability of the "big" BASICs; and an easy, natural way of adding the speed and power of machine language to the Applesoft programs you write -- without having to know machine language. The MicroMaster library contains over 50 commands -- more than twice the number offered with any other package! Applesoft enhancements include a PRINT USING that is fully integrated with all Applesoft PRINT features, and actually remembers your formats; INPUT command accepts any string (including commas), and evaluates numeric formulas, as well as accepting numeric data. Other features include fast STORE and RECALL of full arrays, SUBSTRING searches and more!

MicroMaster does it all for you! Simply choose the commands you want and let MicroMaster make them available to your program. You call them by name, and can even rename them to whatever you want. And by the way, MicroMaster also eliminates the need for different RUN, BRUN, and EXEC commands simply mention the name and MicroMaster is smart enough to figure out what you want.

Commands include:

ADD	APEEK	APOKE	BEEP	BLEN
BOOT	CAT	CEOL	CEOP	CLEAR
CRAE	DEL	DL	DLIST	ERRMS
FIND	FIXS	FIX	FLEN	FP
FRE	GOSUB	GOTO	GPLE	HELP
HOLD	INPUT	LOAD	MAP	MEM
MENU	MERGE	MON	MPOKE	NEW
OFF	P	PRINT	RECALL	REN
RESET	RESTORE	RETURN	RUN	SAVE
SECTORS	SSQR	STOP	STORE	SUBSTR
SWITCH	TAB	TONE	TRUN	UNDIM
W	WAIT	"	hex/decimal	

Do NOT confuse MicroMaster with programs that simply play with the '&' vector. MicroMaster is a totally unique concept -- a co-resident operating system and dynamic subroutine library. MicroMaster allows you to create custom systems...easily. With MicroMaster, jobs that would be a real challenge to experienced machine language programmers can be easily done by a few simple commands, without machine language!

No more CHAINing for large programs. Only MicroMaster has full overlay capability -- just like large main-frame computers! Swap subroutines in and out and modify your operating system while your program is executing! Swap entire operating systems in and out while your program is executing -- just try that one, BIG BLUE! And the overlaying is done with simple LOAD and DELETE commands ... actually much EASIER than CHAINing.

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LOGOSIG NEWS

by Nancy C. Strange



TURTLE TRACKS

DECEMBER 17th LOGOSIG MEETING

Topic: SPRITE BOARD DEMO

There will be a demonstration of the Logo Computer System, Inc.'s soon to be released Sprite Board and Super Logo at the December LOGOSIG meeting. (In addition the Sprite LOGO will regularly be available at future LOGOSIG meetings.)

Because the Apple Computer graphics processor cannot handle sprites, it is necessary to use a new graphics processor -- in the form of an interface card that inserts in Slot #2 of the Apple. This graphics processor will also be addressable by other programming languages, but my interest is in its use with LOGO. Sprite Logo is not just an add-on to the existing Apple Logo currently available, but is almost completely upwards compatible, i.e. most Apple Logo procedures work in Sprite Logo. The software that comes with the Sprite Logo & Board contains a super Logo that has many capabilities not previously possible on the Apple., i.e. ANIMATION. It has sprites!!!! What are sprites??? I describe sprites as entities. The reason is that they are addressable objects that have no characteristics -- that is until you assign attributes. There are 30 sprites which can be active; individually, in groups, or all at one time. Each can carry a shape. The user can select from the 32 built-in shapes or create ones own with an excellent shape-editor.

Each sprite has a pen which allows it to draw when its pen is down -- therefore there can be multi-turtles drawing simultaneously. The sprites can be assigned one of sixteen colors (as well as the background and pencolor); and a heading and speed for motion. It can leave its shape on the screen, fill the screen with its shape, fill and shade shapes and drawings, detect the presence of other sprites, and many other things. For more details come to the December meeting, watch for future articles, or contact me at 691-1619.

UPCOMING LOGOSIG MEETING TOPICS:

- *** Jan 84 -- No LOGOSIG Meeting due to special WAP Meeting with WOZ at another location.
- Feb 84 -- TASMAN ROBOT
- Mar 84 -- ATARI LOGO

 * NOTE: LOGOSIG SNOW POLICY -- If there is ANY *
 * accumulation of snow, the LOGOSIG meeting *
 * will be postponed to the following Satur- *
 * at 12:45 (Barrie schedule permitting). *
 * *****

OCTOBER MEETING REPORT -- by NCS & Barbara Beam

Election of Officers and New LOGOSIG Leaders:

The following officers were elected to serve LOGOSIG through October 84:

- CHAIRMAN: Nancy C. Strange (691-1619)
(also newsletter coordinator)
- VICE-CHAIRMAN: Dave Weaver (871-6200)
(also program coordinator)
- SECRETARY: Barbara Beam (820-4029)
Ida Kosciesza (back-up Sec)
- PROC.XCGN LIB: Ron Murray (328-3553)(for 6 months)
- HARDCOPY LIB: (open)

Volunteer Positions filled for the next year include:

- LOGOSIG MEMBERSHIP DATABASE MANAGER:
George Hewins (301-475-9563)
- HOTLINE EXPERT LOGOS: Ron Murray(328-3553)
(in general) Nancy C. Strange (691-1619)
- TEAM LEADERS are:
NEW USERS: Ron Green (301-531-3981)
- LOGOKIDS: Kathy Boyle (717-245-0030)
& Becky Hedin (622-3985)
- BEGINNERS: Dave Weaver (871-6200)
- ADVANCED: Ron Murray (328-3553)

Volunteer Positions open for the next year:

PROCEDURE EXCHANGE LIBRARY STAFF (Assist PROC XCGN LIBRARIAN gather procedures; prepare procs for WAP disk library; & service the DUP & PRINT station at LOGOSIG meetings).

HARDCOPY LIBRARY STAFF (Assist HARDCOPY LIBRARIAN - when elected - gather books, memos, articles, newsletter & items; organize & maintain LOGOSIG hardcopy library at WAP office; create & maintain catalog for hardcopy library; and create & publish Logo Bibliography and Monthly Updates).

LOGO TRAINING & TUTORIAL COORDINATOR (Monitoring all upcoming Logo training).

LOGONET COORDINATOR (for a LOGO BULLETIN BOARD and INTER-GROUP INTERFACE):

All Logos Welcome !!!!!!!

With the October Meeting, LOGOSIG became a machine independent LOGO group. In addition to the Apple-clone micros at the new LOGOSIG location, there are ATARIs and the school has just gotten the newly released LCSI ATARI LOGO.

George and Lyman Hewins brought their Commodore 64 with Terrapin Logo to the October meeting and demonstrated its capabilities, and promise to continue to bring their Commodore regularly to our meetings. They showed programs done by students in their Summer Camp. Nice features include: function keys for switching between text, full, and split-screen modes; utility disk with demonstrations of sprites and how to do an adventure game; a primitive 'stampcharacter' which allows any keyboard character to be placed on the graphic screen. Documentation: Almost identical to Terrapin's Logo manual for the Apple Computer, with additional sections for new capabilities of Commodore, i.e. Sprites. It is basically good until reaching words and lists. It then moves too rapidly into difficult material. One nice feature of the Commodore is that the DOS is in the disk drive. The Logo loads slowly, but has more memory for workspace than on the Apple computer.

As Logo is becoming available on more and more contd.

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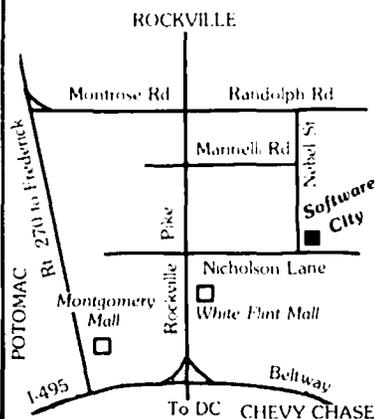
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machines and in more versions, WE WELCOME ALL LOGO USERS AND THEIR MACHINES to our meetings (with the only prerequisite being that they be WAP members -- since LOGOSIG participation is a benefit of WAP membership), so that we can come together and share.

At each meeting we exchange Logo news, share our experiences and activities, have a presentation of general interest, and then break into teams (by experience levels or by areas of interest) to pursue projects. Since there are four large rooms in the Barrie School, these diverse activities can easily be done simultaneously.

The NEW USERS Team gave new members a basic introduction to Logo. Since there are always new Logo users at our meetings, we will funnel people through this team to the BEGINNERS team when they have completed the equivalent of the Intro to Programming through Turtle Graphics Book of Apple Logo. The responsibility for team leader will rotate more frequently, about every three months.

The BEGINNERS Team instructs the Logo user starting with creation of procedures through list processing. In October this group spent most of their team time discussing teaching techniques and tips.

The ADVANCED Team starts at the level of list processing and pursues the study of advanced Logo features. Ron reports that they plan to uncouple Logo's recursion, procedure definition, and list processing features from their deceptively familiar uses in turtle graphics and apply them to mathematics and language arts. The majority of books available on Logo emphasize turtle graphics, leaving the hapless learner to run, unprepared, into a WALL when Logo features appear in a different form. Everyone who has "gone through" turtle graphics and is standing, dazed, at the recursion/list processing wall is invited to bring their questions, ideas and projects to the advanced group meetings. (For further reading on the subject of recursion, see: Hofstadter, D., GODEL, ESCHER, BACH: An Eternal Golden Braid. Vintage Books, 1980. p. 127-129.) (See Ron's article at the end of this column discussing ITERATION vs RECURSION.)

A team of Commodore Explorers pursued the creation of Music and Sprites and their uses.

NOVEMBER MEETING REPORT -- by NCS & Barbara Beam

Talking Turtle:



The primary event of the November LOGOSIG meeting was the showing of the video tape of NOVA's Talking Turtle which aired recently on PBS. It presented Logo (and its founder Seymour Papert) by visiting many Logo applications around the world. (This film provides a good basis for understanding Logo teaching philosophies.) Afterwards there was a lively discussion centering on the questions -- How can Logo be given a

more adult quality, so that it is seen as useful to older children and adults? How do you teach Logo to adults? To Teachers? What are the practical applications of Logo? Why are turtle graphics and list processing so separate?

 + THE APPLE LOGO TOOL KIT & SAMPLE DISKS ARE +
 + NOW WAP DISK LIBRARY DISKS -- SEE PAGE FROM +
 + THE STACK AND REVIEW ARTICLE IN THIS ISSUE +
 + FOR NUMBERS AND DETAILS ON DISK PROCEDURES. +

ACTIVITY REPORTS

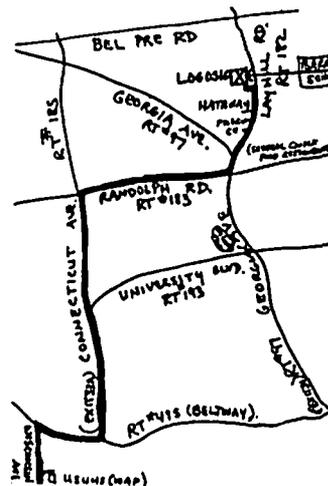
(If you have Logo activities you would like to report, write them up and send to me in hardcopy and on disk using Apple Writer or ScreenWriter. If the article is not too lengthy typewritten copy will also be accepted. All contributions should be received by me by the first of the month. Mail them to 3152 Bayswater Ct., Fairfax, VA 22031.)

Barbara Beam Reports:

During the summer, I conducted two week "Taste of Logo" classes for Falls Church Office of Community Education. The children were divided by age--groups of 6-8 year olds and 9-12 year olds. The response by student and parent alike was that they wished it had been a longer class. Children's comments included: "I like the pretty colors; I can make circles inside circles inside circles; I like teaching the turtle to make my initials; I like making the turtle go real fast and fill up the screen."

Currently, I have just begun teaching a combined group of 2nd, 3rd, and 4th graders at Immanuel Christian School in Annandale. We are using twelve Commodore 64's networked to two disk drives with VIC switches. For the first two weeks we could not use the computers because equipment had not arrived. We did lots of pre-turtle games using puppets and pretending to be robots. I think this helped the students immensely when they sat down to give commands to the screen turtle.

Take Left at "Y" staying on Connecticut
 (University Blvd goes off to right)
 Take Right onto Randolph Rd.
 Take Left onto Georgia Ave.
 Take Right onto Layhill Rd.
 LOGOSIG is at Barrie School on left at:
 13500 Layhill Rd, Silver Spring, MD
 Follow the drive back all buildings.
 LOGOSIG is in the building on the right
 and will start at 12:45p.m.



contd.

RECURSIVE DEFINITIONS OF LOGO PROCEDURES
by Ron Murray

Logo users wanting to define procedures to perform mathematical operations on numbers and lists in Logo can do so in two fundamentally different ways. The first involves the traditional technique of using a number of instructions to alter the value of some variable. Basic programmers will recognize this as a use of LET, i.e.:

```
LET A= 333/3455
```

Consider the following Logo procedure:(*)

```
TO SUM.LIST :LIST
MAKE "L :LIST
MAKE "SUM 0
REPEAT COUNT :LIST
  [MAKE "SUM :SUM + (FIRST :L)
  MAKE "L BF :L]
OUTPUT :SUM
END
```

This is the classical iterative approach to summing a set of numbers. What we have done here is to create one variable to hold the eventual sum of the input list, and another to hold the diminishing list as elements of the original list are systematically removed and added to the variable named "SUM".

In Basic, an equivalent procedure would be to dimension an array to a predetermined size, load in the elements with a FOR/NEXT loop, and sum those elements with another FOR/NEXT loop. At some point, the program would refer to that variable for the answer.

The Logo version above at least automatically counts the number of elements to be summed (via the count operation), and chips off the values to be summed by the FIRST and BUTFIRST operations. This style of procedure writing, though popular (or unavoidable) in other computer languages, is considered bad Logo style.

Since Logo procedures permit the return of numerical values without intermediate storage in some variable, that feature, in conjunction with a recursive, i.e. defined in terms of itself, approach can yield a simpler, more "elegant" result.

Examine this version, using a recursive formulation:

```
TO SUM.LIST :LIST
IF EMPTY? :LIST [OP 0]
OP (FIRST :LIST)+(SUM.LIST BF :LIST)
END
```

That's it (?!). This procedure will sum a list of numbers of "any" size, without using intermediate variables or loops. There is a visible economy of expression. Explaining what happens, however, will take somewhat longer...

Recursive procedures are those which are defined in terms of simpler versions of themselves and their input. The procedure of summing all of the elements in a list can therefore be seen as the addition of the first element in the list TO THE SUM OF THE REST OF THE ELEMENTS IN THE LIST. The final sum will not be output until all of the operations inside the parentheses are completed. In this case, we see that we now need to find the sum of a list ONE ELEMENT SHORTER than the one we started with. Everything is put on hold while we go find that value. This process of finding the sum goes on until we run out of numbers in the list. Think of the procedures as running down a set of stairs, i.e. reducing the input until there

are no more numbers in the list.

Notice the line which says:

```
IF EMPTY? :LIST [OP 0]
```

What happens here is that when the list is empty, a zero is output, and the procedure stops. The previous procedure now has a complete pair of numbers to add, and will now add that zero to what was the last number in the list. That sum is then returned to the procedure before it, and so on uphill until the first number in the list is added to the number being added up from the cellar. The result is then discreetly output to the calling procedure.

Recursive definitions of procedures definitely require a different way of looking at the problem. One way of describing what happens is to say "What is the next simplest version of this problem?" In this case it would be to find the sum of a list of numbers one shorter than the one we have. We can then add the extra number to that sum. We are eventually obliged to think about what happens when we don't have any more numbers to add. We can call this our STOP RULE. Since we don't have any more numbers to add, we output a zero, and stop. (Whenever a number, word or list is output (OP), procedure execution ceases. To reiterate, think of the next simplest version of the problem and think about how to make it stop.

It only seems difficult to think about writing a procedure and not visualizing every intermediate step. A little reflection will reveal that in cases where a simple operation is being done to a set of similar items, you only need to know what that simple operation is and what to do when you run out of things to operate on. The computer will do the bookkeeping, which is what it's best at, and you will come up with more ideas, which is what you're best at.

(*) The indented instructions are to be typed on the same line as the repeat instruction - they are indented here only to indicate the logic of the procedure. ☞

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A REVIEW OF THE WAP LOGO DISKS

by Nancy C. Strange

Following is a review of WAP library disks 145, 146, and 147, designed for use with Apple Logo. These disks are published with the permission of Logo Computer Systems, Inc. Since the Logo user's workspace is so limited on the Apple Computer (approximately 2500 nodes), the user only loads into Apple memory the Logo language and procedures necessary at the time. As a result, many utilities - tools in Logo - found on these disks which enhance the capabilities of the Logo language for the Apple were not put on the Language disk. It is suggested that the user CREATE a separate WORKDISK for writing to and saving to, when using these programs (insert workdisk in drive after loading the files desired), since these disks are just about completely full. Some programs should be copied to another disk before executing - I will try to indicate which. The disks contain public domain procedures and may be freely copied (by FID or COPYA), but not sold for profit. (It should be noted that these procedures are in text files and will only work with Apple Logo and Sprite Logo, not with Terrapin or Krell Logo; however, many could be listed out as text files or by a word processor and converted to MIT syntax where comparable abilities in the the language exist. They include:

The Apple Logo Tool Kit which contains utility procedures that allow the user to extend Logo's usefulness;

The Apple Logo Sample Programs Disk with procedures written by children and adults, which can be used, examined and modified to do just what you want; and

Full documentation for these two disks. The documentation is in Apple Writer II, //e compatible files. An Apple Writer WPL Program, also found on the documentation disk, will allow printing of different chapters automatically. In Apple Writer, after doing Ctrl-P to get into print mode, type DO DOC. You can copy these files to another disk, where you can edit, format, and print them. (I will provide brief excerpts from the documentation and comments on the individual files below.)

To use the Logo procedures on these disks it is necessary to first boot the Apple Logo Language Disk. Once the WELCOME message has appeared, the user can then insert the Tool Kit or Sample Disk and press the return key and the STARTUP file will automatically load.

When the startup file is loaded, it adds .SYSTEM command to Logo, and many sample or tool kit procedures use it. The .SYSTEM command is a very powerful utility whose main use is to reclaim lost Logo memory space, thereby avoiding constantly having to reboot Logo. Typical times to use would be when you want to change users or projects. To use:

```
.SYSTEM
RECYCLE PR Nodes (to see amount of nodes left)
ERALL (if additional Logo objects needed removal)
```

For full instructions on how to use .SYSTEM, how to add it to your startup file, and cautions for use, see the documentation.

To load a tool (utility) file:

```
LOAD "filename.of.tool (without .LOGO)
```

To see all procedures now loaded in workspace:

```
POTS (Print out Titles of Procedures)
```

APPLE LOGO TOOL KIT:

Handy Little Tools include:

SORT - which sorts numbers in a list.

REMARK - which permits you to write comments in your procedures. (However I would caution the user to make a separate copy of the procedures to document from the execution copy due to limited user space.)

SET.TOOLS - set operations, i.e. UNION and INTERSECTION.

ERPROPS or **ERPROPS1** - (ERasePROPERTIES) erases user properties. (ERPROPS1 is less drastic) **PLOTTING**. **TOOL & PLOTTING.TOOLS.CODE** -- for graphing equations. **INFO** proc contains instructions.

LOOPS - FOR, WHILE, UNTIL & FOREVER Loops for those more familiar with these structures.

NUMBER.TOOLS - LOGO primitive numerical operations are modified or enhanced by **MULT**, **LINEMULT**, **PRDCT**, **PRDCT2**, **BALRAN**, **ABS**, **MAX**, **MIN**, **TAN**, **XOR**, **FACTORIAL**, **EXPONENT**.

GRAPHICS.TOOLS - for drawing lines and moving the turtle.

MAP.TOOLS - allows a function to work on a list of inputs.

Printing and Saving Picture Tools:

PICTURES - Used to save Logo pictures to a disk. Requires special preparation of a pictures disk. This method makes saving pictures easier, but still ends the Logo session to run the picture program. The user must be careful to save procedures before saving the picture and will have to reboot the Logo Language Disk to start a new Logo session.

LOGOGRAF - Print Utility for dumping Logo pictures to a variety of printers using many of the popular interface cards.

GRAPPLER, **SILENTYPE** and **PKASO** - are print utilities which allow the user to dump the Logo picture to the printer directly from Logo without exiting if they have one of these printer interface cards.

Logo for the Youngest Child:

ZOOM - single-key input system that makes it easy for young or inexperienced users to draw turtle graphics and create procedures. Similar to the classic **INSTANT** program. (To get an enhanced version of this program contact LOGOSIG). (? displays instructions)

TEACH - takes normal logo commands and allows the user to create regular Logo procedures, which are useable outside the teach program. Since it

contd.

allows the user to see the drawing as the command procedure is created, I think this program is the BEST ONE TO USE WHEN STARTING TO LEARN LOGO. (T or TEACH starts the program.)

Text Processing for Kids:

TEXTPRO - copy to separate disk the files: TEXTPRO.LOGO, TP.INFO.LOGO, LETTER.LOGO, & LETTER2.LOGO.

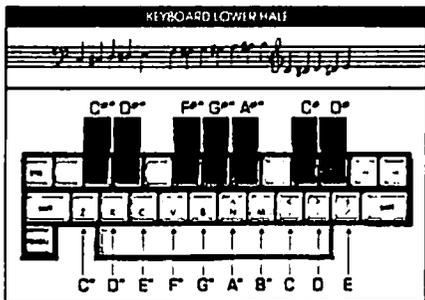
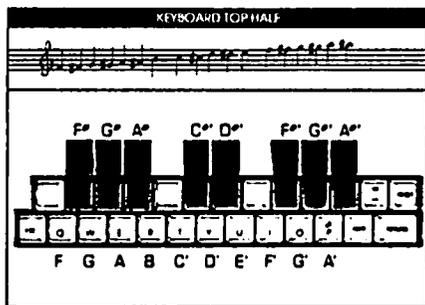
TEXTPRO - A simple word processor using the Apple Logo Editor. When loaded it will display a menu of seven items and a prompt line. (Use the CTRL-W & space bar to stop and start display if desired.) This is not BANK STREET WRITER, but it does do an adequate job. Documentation has full details.

LETTER & LETTER2 - are sample letters used to teach the user the features of textpro.

Making MUSIC in Logo:

One-voice music is available for the Apple using its built-in speaker. There are three methods of input available: notes can be played on a keyboard (the Apple - see diagram) using the COMPOSE program; they can be specified in more or less standard music notation, such as D, F#, A, D', using the PLAY program; or they can be given as integers, using the NOTE program. I would suggest you work on a workdisk for this one. Copy the following procedures: MUSIC.LOGO, MUSIC.PROC.LOGO, MUSIC.OBJ.LOGO, MUSIC.OBJ.HEX.LOGO, MUSIC.IIE.LOGO, EFFECTS.LOGO, EFFECTS.PROCS.LOGO, EFFECTS.OBJ.LOGO. Full details in Documentation. Here is Apple II Keyboard for the COMPOSE Program.

Apple II Keyboard Layout for the 'COMPOSE' procedure.



Input & Output Tools:

.SYSTEM - Clears Logo of unneeded words, so you do not need to reboot. (See above note and documentation for many more details) -- Very USEFUL.

PRETTYPRINT - Allows you to print procedures and lists that have lines longer than the width of your printer.

FANCY.CHARS - Sets Logo to print INVERSE, FLASHING,

or NORMAL characters. CLEARTEXT inverts whole screen in INVERSE.

TEXTLOAD - Sets Logo so the text in procedures used for saving text is not saved by Logo (this concept is used in TEXTPRO).

PROCLOAD - Used to fully restore normal procedure loading once the user is done with TEXT procedures by loading the file PROCLOAD. See documentation on TEXTLOAD.

GR.SWITCH - Allows things to be drawn without being seen, so they can be displayed all at once.

IBM.8th.BIT - Disables the eighth bit, which causes some printers to print graphics. Useful for some IBM printers.

Debugging Tools:

STEP - allows user to execute a Logo procedure one line at a time and to see the values of each procedure's arguments as it is entered. After each line, the prompt '?' will appear, waiting for the user to press return to continue. The SPI proc is provided to see how step executes.

To turn on: STEP "procname
To turn off: UNSTEP "procname

TRACE - allows user to see all the values of each procedure's arguments as it executes. SPI is also available for example.

To turn on: TRACE "procname
To turn off: UNTRACE "procname

Graphic Aids:

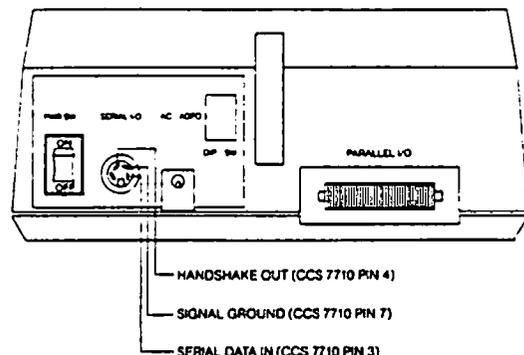
LOWRES -- allow users to access the Apple's LOWRES graphics from Apple Logo.

HIRES.TEXT -- allows user to print on the graphics screen, allowing the mixing of the two.

Plotter Tools:

Apple Logo can be easily interfaced to various plotters in a way transparent to normal Logo procedures. There are procedures to use the Houston Instrument HILOT (DMP-7y) and the Radio Shack 4-color Graphic Printer (CGP-115). The plotter packages can be adapted for other plotters as well. Be sure you know how to use your plotters, the documentation proclaims. The plotter is assumed to be connected to slot 1, but can be changed. Use HILOT.LOGO and HILOT.REDEFS.LOGO for the Houston Instrument and RS4PLOT.LOGO and RS4PLOT.REDEFS.LOGO for the Radio Shack. Documentation has full details. Here is a picture of Radio Shack Color Printer to help:

RADIO SHACK COLOR GRAPHIC PRINTER (CGP-115) (BACK VIEW)



contd.

Making Your Own Logo Primitives:

These tools are for advanced Logo and computer user's only. Before using copy the INSTALL.LOGO, AUTO-INSTALL.LOGO, AUTOINSTALL.UTILITIES.LOGO, ASM.HELP.LOGO., ASM.LOGO, ASM.PASS2.LOGO, ASM.SYMBOLS.LOGO, INSIDE.LOGO, SWEEPS.LOGO, SWEEPS.ASM.LOGO, SWEEPS.ASM.OBJ procedures to a separate disk.

ASM - a Logo 6502 Assembler. This program will allow the user to create and install new Logo primitives from 6502 Assembly Language source code. These primitives can be called just like any other Logo primitive. And since the assembler is written in Logo, it provides a way for the curious to begin to understand how a simple assembler works. The system consists of the above procedures (excluding the SWEEPS procs which is a demo) and are automatically linked. See documentation for full details.

INSTALL - performs all the steps required to install assembled 6502 code into Apple Logo. It does this by creating a load file that cuts a hole out of Logo nodespace and inserts the assembled code there. Documentation includes details sufficient for writing and installing 6502 code, if the user is familiar with 6502 assembler.

Floor Turtle (Robot):

Floor Turtles are small robots driven by electric motors. They can draw complex pictures using a pen that may be raised or lowered. They have two-toned horns that can toot, bright eyes that can flash, and touch sensors that can detect. The Robots are interfaced with the Apple through a board in Slot #7 (which can be redefined at program load). The Robot is tethered to the Apple by a long ribbon cable. The TASMAN floor turtles are available from TASMAN TURTLE, 260 Beacon Street, Somerville, MA 02143, (617) 492-0660. There are three available models: The TASMAN for \$999.95, the TASMAN with compass and limited voice synthesizer for \$1,249.95, and Turtle Tot which is a scaled down version with smaller vocabulary for \$299.95.

TASMAN.LOGO & TASMAN.REDEFS.LOGO
TERRAPIN.LOGO & TERRAPIN.REDEFS.LOGO

These systems allow the floor turtles to be controlled by Apple Logo programs in a transparent manner. Documentation and procedures give full details.

APPLE LOGO SAMPLE DISK:

Turtle Graphics Programs:

FIRST.DEMO - Typical beginning Logo projects, TRIANGLE, SQUARE, HOUSE, HOUSE2, SPINHOUSE, & SPINHOUSE2.

POLYS - procedures which create various polygons and spiral polygons. SPI & INSPI.

DAVID - Exploration of variables written by David Minkoff.

NEETO - Two variations of a rather simple program which produces intricate patterns. NEETO & NEETO.

ASA and ASA2 - Two versions of a project done by three fourth grade girls. To execute type PIC. ASA contains the bug -- hanging window. ASA2 is corrected version.

CITY - draws an urban scene. Use of subprocedures

and different input values. To execute type START.

MARIA.BRIDGE - example of bottom-up generated Logo procedure (first all subprocs were defined and then a top-level driver procedure BRIDGE was created).

MICE - draws mouse faces using circles & arcs. It is a good example of use of subprocedures. To execute type MICE.

MARI.PROJECTS - The projects of an eight year old that were done in 16 hours.

BUG - This is the famous bug of the Apple Logo Documentation BUG BOXES.

GONGRAMS - Procedures with eight input variables to create complex and attractive designs. The program is a good example of the use of input variables in the top-level procedure to pass values to subprocedures. To execute type GONGRAMS.

CLOCK - A Nondigital clock face is drawn and the hands move. To start type CLOCK.

ROADRUNNER - In this perspective country scene, the Turtle runs along a road lined with houses and recursive trees. To begin type ROADRUNNER.

MONDRIAN - Creates paintings that are randomly generated and partly controlled by a variable. Type MONDRIAN followed by a number, like 80 or 12.

ANIMATE - An eleven year old's fantasy voyage through space. Instructions automatically display when you load "ANIMATE. Type MOVE if you want to see again.

RECURSIVE.GRAPHICS - Classic examples of recursive designs: TREE, NESTED.TRIANGLE, and CORNER.TRI. Each needs to have size variable passed at execution, i.e. TREE 60. PAIR makes a symmetrical pattern out of two trees.

FLOWSNAKE - FLOW draws a space filling curve.

SPIRO - imitates the popular graphics toy. Various patterns are created by changing the sizes of the ring and wheel and the distance of the pen to the wheel's center. Be patient SPIRO runs slowly. It needs six parameters; see documentation for full details.

Language Programs:

SILLY - generates random sentences from lists of words. Type PRINT SILLY to see a sentence. Type PONS (Print Out Names) to see the lists of words and EDNS (EDit Names) to go to Logo editor to change lists.

WORDS - similar to SILLY - intended for use with the Education Volume of the Apple Demo Library.

WORDGAME - NOUN & VERB procedures allow you to make new lists of words. PO "procname to see the procedures. SENTENCES is the key procedure which actually prints the two word sentences. See documentation for details.

LANGUAGE.PLAY - Randomly selected nouns, verbs, adjectives, adverbs, and articles are put together into phrases so that children can explore the sounds and meanings of words and the structure of language. New words can be added to

contd.

lists, see documentation.

POSTCARDS - produces "postcards" by randomly selecting the various pieces from lists of phrases and names. Type **POSTCARD** to run. New phrases and names can be added, see doc.

RANDOM.POETRY - puts together lists of nouns and rhyming words into verses of a "poem". Type **POEM** to start. See documentation for details on adding to lists.

PIGLATIN - turns a word into Pig-Latin. **MANYPIG** turns a whole phrase into Piglatin.

Games and Simulations:

ANIMAL.GAME - The classic animal game. An example of a program that learns. It tries to guess the animal the user is thinking of. To start type **ANIMAL.GAME**.

ARGUE - a negative response game. To run type **ARGUE**. Examine the workspace to see how it works, make sure to **PONS** (Print Out Names).

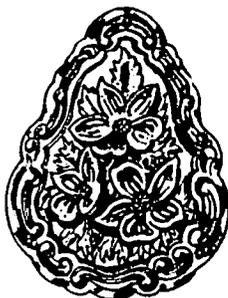
SPELLING.QUIZ - Words are briefly flashed on screen. Try to remember the word and type it back correctly. To start type **SPELL**. To change list of words use **MAKE.LIST** procedure.

HANOI (and **HANOI.GAMEFILE**) - **TOWER** of **HANOI** GAME with three towers and 14 disks. The program starts automatically. Do not remove disk; the second file will load while you read directions. **AUTOLOOP** is the solved puzzle by recursion.

NAVIGATE - Turtle driving game.

DYNATURTLE - a simulation of a "Newtonian Object". Type **START-UP** then **DT**. **R** & **L** keys change heading and **K** provides a "kick" or impulse acceleration.

LUNAR.LANDER - programs the turtle to behave like a spaceship. To start type **SPACESHIP**. **R** & **L** keys aim the ship and **T** provides thrust. Object is to bring it down on the little vertical line. The **X** and **Y** coordinates and horizontal and vertical speeds are displayed at bottom for reference.

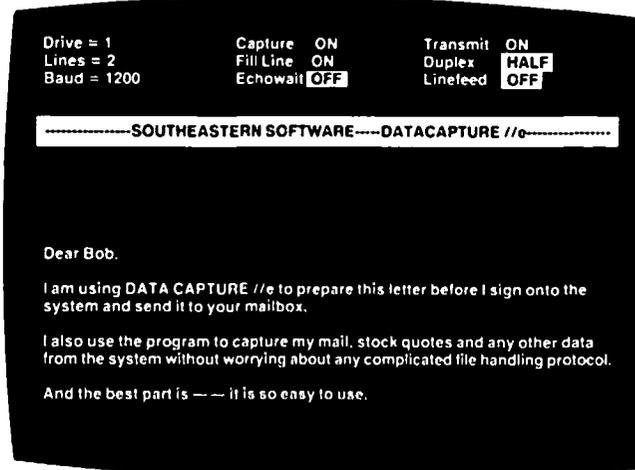


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HIGHLIGHTS OF THE DISABLED SIG PRESENTATION by Peter Combes

The main meeting of the club on Saturday, November 26, included a remarkable series of demonstrations by the DISABLEDSIG.

Jay Thal reported that DISABLEDSIG had been very successful in the past year. A "signer" for deaf members had been installed at each main meeting, and the club newsletter was now available on diskette. This was accessed by the disabled in a variety of ways, including the use of voice synthesizers.

DISABLEDSIG had asked Apple Pi for aid in participating in SPECIALNET, a bulletin board run by the State directors of Special Education. Information gathered from the board was available to all interested members of the club. More participation by club members was invited for communicating with the network, writing, and taking notes.

Jay pointed out that most of us are "handicapped" -- how many of the audience were wearing glasses? That was an example of an old technology, one that had become transparent to the user. A great breadth of technology was being developed for the handicapped, and the hardware is being adapted to individual needs.

The first speaker was Roger Petersen, a consultant in communications. Roger ~~IS BLIND, and finds his Apple a~~ major tool in his work. How does a blind person use a computer? Roger pointed out that a computer is not inherently biased towards sighted people -- the keyboard and the monitor are just particular examples taken from a wide range of input and output devices with which the computer can communicate. "The keyboard and monitor are just I/O devices that happen to be convenient for sighted people."

There are two classes of use of the computer for the disabled.

The first is to help the disabled person do what a non-disabled person routinely does for himself. As was discussed at a previous WAP meeting, the computer can turn lights on and off, and do a variety of household tasks.

The second is that the disabled person wants to use the computer for the same purposes as does the non-disabled, such as word processing. For this, special software has to be developed. Word processors that "talk" are already available, as are some that output in Braille. One word processor uses the switches on the game paddle.

Unfortunately, there is as yet no truly user-transparent keyboard emulator or screen emulator. Roger himself uses his Apple in two ways. Since he is a touch typist, he has no difficulty with the keyboard, and he remarked that many blind people have learned touch typing. For output he uses the Echo II speech synthesizer and also an ingenious, and expensive, unit called Versa Braille. This is a portable Braille terminal with a serial card. It provides a 20 character line Braille display, using mechanical pins that are pushed through a base plate by piezo electric relays. The unit interacts with a 1K character buffer, and also has a cassette drive, which can store 100 pages of 1000 characters on each side of a C60 cassette. It connects to the Apple through an RS 232 interface, and can work, at up to 9600 baud, with any program that is willing to communicate with an RS232

interface.

The Echo II fits inside the Apple, but it does take up memory space and has to be "booted". It is thus difficult to use it with any program that itself has to be booted.

Wolfger Schneider from the Applied Physics Lab at Johns Hopkins University, explained his development of a serial board to enable the severely physically handicapped to communicate with a computer via switch signals. Morse code turns out to be the key. Two switches enable those with very little muscle control to send "dots" and "dashes" to the computer. The computer can decipher the letters very rapidly, of course, and from then on can handle the input just as if it came from a keyboard. The firmware fits between the keyboard and the keyboard socket, and is transparent to keyboard input. The Morse code has been extended for the full ASCII character set. The first user was a stroke victim who was unable to speak, and could indeed only move one finger. Using this one finger he was able to write letters on a standard word processing program. The card is thus a total hardware solution, and costs only \$200.

Richard Thayer showed the Adaptive Firmware Card from ~~THE TRACE~~ center at the University of Wisconsin, made by Paul Scheer, and described in the September issue of Byte. It copes with the problem of having to design a different interface for each student who has a different handicap. The card will cope with single switch Morse, double switch Morse, and with various scanning devices. It will run any program, including VisiCalc and games. It has been used successfully with a patient who can only move one eyelid. NASA supplied a switch that reacted to the eyelid movements, and it was simple to connect this to the Adaptive Firmware Card. The first thing that patient typed was, "HIP HIP HOORAY!".

For those with mental as well as physical handicaps, Motor Training Games have been developed, and some were demonstrated.

Liz Lahm, a graduate student at George Mason University, specializes in working with severely handicapped infants. In cooperation with the Fairfax County Education Department, she has been looking at the theories of early learning -- for example, those that state that certain things can only be learned at certain ages, and that one can only learn "by doing" -- in terms of the handicapped. Is it possible to learn by "doing" things remotely? Can the computer provide adequate simulation of common tasks to allow such learning? Liz has worked with children with an average developmental age of 13-14 months. About 75% could activate the computer. For the severely physically handicapped, special switches, such as "tip head" and "eyebrow" switches had been used.

As a second phase of the research, Liz was working on the question "Can we teach them to make decisions with computers?" Both environmental control -- such as WALDO, and robots such as the Heathkit unit had been used successfully.

As a third phase, the lessons that were learned would be applied to adults who had "lost learning time" because of their disabilities.

contd. on pg 25

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DISABLEDSIG NEWS

by Jay Thal



DISABLEDSIG JANUARY MEETING
THURSDAY, JANUARY 12, 1984, 7:00 P.M.
Chevy Chase Community Center
Connecticut Ave. & McKinley St., NW, D.C.

After three years of attack on the Education of All Handicapped Children Act, P.L. 94-142, the attackers have retreated. It has now been proclaimed that the years 1983 through 1992 are the "National Decade of Disabled Persons." Proclaiming doesn't make it so.

Elsewhere in this issue Peter Combes reports on Washington Apple Pi's November meeting where six applications for the handicapped were demonstrated. And, the December newsletter contained nine articles on the uses of microcomputers by the disabled. But those are just beginnings in this "Decade". We have to make it so.

The thrust of the November meeting (and of each of my regular articles) was to enlist those of you with hardware and software development capabilities to assist us in aiding the handicapped. The CPU is an extremely versatile creation which can, through input and output devices, be made to compensate for an individual's handicapping condition. The seeds we sow now will be there to reap when one of your loved ones or friends has a future need.

The DISABLEDSIG has successfully arranged for signers, at each of our meetings, and for the WAP Journal to be available on diskette for the vision impaired -- but there is more to do!

We have not been as successful in organizing a team of individuals to access SPECIALNET, a bulletin board system run by the State Directors of Special Education. We need help kicking that project off -- persons who will not only access the system, but write up the information gleaned from SPECIALNET that will be of interest to the membership. The Pi Executive Board has pledged its support - now we need you.

Communications is the name of the game. It ends isolation. Yet, as much information as we try to pass on in these articles, information gleaned from elsewhere, isolation remains. I'm sure that the information I see represents just the tip of the iceberg regarding microcomputer applications for the handicapped. So if you come upon such information in journals or other publications pass it on. The DISABLEDSIG has a niche in the club library for that data. Or, if you know of work being done in the field, especially internationally -- England, France, Israel, Sweden, etc., let us know.

UPCOMING EVENTS

January 25-28, 1984 - National Conference and Training Workshops on Technology in Special Education, MGM Grand Hotel, Reno, Nevada. Contact: Elsa Glassman, The Council for Exceptional Children, Department of Field Services, 1920 Association Dr., Reston, VA 22091-1589, (703) 620-3660.

February 11-12, 1984 - Matching Assistive Devices to Skills and Needs of Individuals with Disabilities,

Sacramento, CA. Workshops, lectures and demonstrations, focusing on available interfaces, augmentive communication systems and computer systems. Contact: Helen Woodall, California State University, 6000 J Street, Sacramento, CA 95819, (916) 454-6422.

February 28 - March 4, 1984 - 21st Annual International Conference, Association for Children and Adults with Learning Disabilities, Hilton, New Orleans, LA. Programs will include numerous workshops on computer applications. Contact: ACLD, 4156 Library Road, Pittsburgh, PA 15234

March 30-31, 1984 - Third Annual Conference on Communication Technology, Children's Hospital of Philadelphia, Philadelphia, PA. Entitled "Communication Aids and Computers: Beyond the Basics", it will address advances in technology and alternatives for non-verbal individuals with physical handicaps. Contact: Joan Bruno, Children's Seashore House, 4100 Atlantic Ave., P.O. Box 4111, Atlantic City, NJ 08404, (609) 345-5191, ext. 278.

April 23-27, 1984 - Council for Exceptional Children's 62nd Annual Convention, Convention Center, Washington, DC. Contact: see address above.

\$10,000 EDUCATIONAL SOFTWARE GIVEAWAY

Micro-Ed Incorporated has announced its willingness to donate up to \$10,000 worth of software to any school district, Special Education cooperative, or parent group willing to establish a school-to-home lending library. No limit has been established on the number of grants Micro-Ed will make.

The donation is not contingent upon the purchase of any Micro-Ed products. The only apparent requirements are that a formal policy governing the in-home use be established and the Superintendent of schools issue a letter of commitment to the program.

Thorward Esbensen, Micro-Ed's president, feels that in helping families make informed decisions local school systems "...can either offer some helpful guidance, or stand back and let events run their fragmented and spasmodic course...(the) grant is designed to encourage the development of an orderly and comprehensive program for dealing with this problem...it envisions the establishment of a free lending library of educational software for families. Important guidance components related to the regular school curriculum would need to be established as well."

Esbensen feels that steering committees need to be formed to develop objectives, and he would like to see the committees comprised of representatives from the PTA, curriculum planning areas, library services, and technical services. The districts could select one copy of any of Micro-Ed's software products up to the \$10,000 limit. Micro-Ed produces nearly 700 programs for Commodore's 64, PET, and VIC-20, and 100 for the Apple II, TI, Atari and Radio Shack. Once the programs are selected the district will have to provide the media necessary for the program material.

For more information contact: Thorward Esbensen, President, Micro-Ed Incorporated, P.O. Box 444005, Eden Prairie, MN 55344. Telephone toll-free (800) MICROED.

contd.

APPLE LOGO ENHANCEMENTS

Coupled with a substantial price-break in Apple Logo to \$99 (from \$175), Apple Computer's retailers are giving their customers free copies of the APPLE LOGO Tool Kit and Sample Programs Disk.

The Tool Kit disk provides enhancements which will allow LOGO users to save and print pictures on dot matrix printers, use step and trace functions such as program debugging tools, access and write machine language programs, and create musical compositions.

The Sample Programs disk contains some 30 programs written by Apple Logo users and provides complete documentation of the new features on the Tool Kit disk.

The Apple retailers may require that the customers provide the blank disks necessary for the duplication.

INTERACTIVE VIDEO DISKS

Those of you who have recently stepped up to video arcade machines have witnessed the impact of a new generation of games. The pictures on the screen are of TV quality rather than hi-res renditions. This comes from the use of interactive video disks. Now conceive of using that potential interlaced with an educational program at a nominal cost. WOW!

Lasersoft, an interactive Video Disk Microcomputer instructional system, has been announced by Micro-Ed, Inc., of Minneapolis, MN. The cost of the controller is under \$200.

Presently available for the Commodore 64 only, Micro-Ed is in the process of modifying the controller box for use with other Micros. The controller is slightly larger than a deck of playing cards, and allows the individual accessing of any of the tens of thousands of pictures that a video disk can contain.

An experimental project between Micro-Ed and the Society for Visual Education has already produced a video disk with over 37,000 photographs. (It is worth noting that the Smithsonian Institution's Air and Space Museum has recently announced that it will be using this technology to store its vast archive of aviation photography, and will sell each disk for \$30.)

For more information on LaserSoft contact Micro-Ed, Inc., P.O. Box 444005, Eden Prairie, MN 55344. (612) 944-8705.

Highlights of DisabledSIG contd. from pg 22

Stan Gowin showed an elegant system, the Visualtek UP-10, that took information from the text screen memory of the Apple, processed it, and sent it back to the video output. The result was large letters on the screen - up to 16x magnification, and full scrolling controls. In its "spiral" mode, the unit would also show the text as a continuous message.

Jerry Goldberg, restricted by muscular dystrophy to moving only his head, was shown in a GAO video-cassette, typing by using a light pen attached to his head. The precision light pen interacts with a "keyboard" shown on an Apple's monitor screen. The Apple converts the light pen signals into regular terminal output for working with a mainframe computer. Jerry Goldberg can thus work fully professionally, as a GAO analyst, in spite of his disability. His equipment, too, was developed by the TRACE center.

As Jay says, the revolution is continuing, and intriguing possibilities are emerging. Can micros be developed, on the one hand to analyze signals at nerve endings, and on the other to stimulate muscles, thus taking the handicaps out of "disabilities"?

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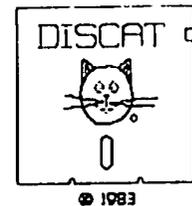
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MCI MAIL AND THE APPLE II

by Stephen M. Libster

In last November's issue of Washington Apple PI, I reported my impressions of E-COM, the Postal Service's entry into the electronic mail market. This article focuses on MCI's electronic mail service, known as MCIMAIL. In recent weeks, MCI has been heavily promoting this service on television and in the printed media as a replacement for the nation's 200-year old postal system. I will examine MCIMAIL's features and its ease of use for Apple II owners with modems.

FEATURES

According to its introductory brochure, MCIMAIL will offer both a single-message service and a bulk-message service. At this writing, only the single-message service is available so that most of my comments are directed towards this service. When MCI announces its bulk-message service, I hope to write a separate review on it.

MCIMAIL users can send text-file "letters" to any point in the 48 states and opt for one of four delivery modes. For instance, one can send a message to another MCIMAIL subscriber. The subscriber can then read this message upon accessing the system. A four-hour delivery mode is available in selected metropolitan areas. Under this option, MCI prints the electronic message at a location close to its destination and dispatches it via local courier to the addressee. An overnight mode provides similar service with a lesser priority of delivery. Lastly, MCI can print messages at a location near the destination and hand them to a local post office for one or two-day delivery.

Obviously, the cost per message rises with the priority of delivery. The four-hour option costs \$25.00 while the overnight option is \$6.00. Postal Service delivery is priced at \$2.00 per letter. To send to another MCIMAIL subscriber, the cost of the unprinted message is one dollar. These rates apply to the first 3-5 pages of text, an MCIMAIL "ounce". Additional "ounces" cost one dollar, regardless of delivery priority. MCI bills only for messages actually sent and not for system time. There are no other fees for the basic service and one need not be a subscriber to MCI long-distance service to send MCIMAIL. The access to MCIMAIL is through a local telephone number.

At these rates MCIMAIL is cost advantageous over certain commercial systems for the long-distance transmission of letters and reports. It is usually cheaper than express services (e.g. Federal Express) or MAILGRAM for comparable delivery priority.

While MCIMAIL is far more expensive than regular First-Class Mail, it can shave several days off of long-distance delivery times, due to its electronic transmission aspect.

MCIMAIL seems best suited for the transmission of textual matter which was previously created and stored on a computer or word processor system. Pictures and graphs are not transmittable. Also, it is rarely cost effective to retype an existing report to a word processor for transmission by MCIMAIL.

A direct cost comparison is difficult to draw between MCIMAIL and the Postal Service's E-COM, an electronic-mail system which also provides "hard-copy" delivery in one or two days. Although E-COM costs only 26

cents per message, including postage, its usage entails a number of hidden costs not borne by the MCIMAIL subscriber. For instance, the E-COM user must pay \$50 per year for registration and must pay an advanced deposit for postage. The E-COM user must also obtain (purchase, rent, or write) special formatting software to conform with Postal Service conventions for the transmission of text. Finally, there are the long-distance telephone connection charges, which one must pay to access the Postal Service's computers. These hidden costs can be partially avoided by subscribing to an E-COM carrier, such as Western Union Electronic Mail, Inc. or Compu-serve. However, use of these E-COM carriers entails connect fees, which add substantially to the per-message postage costs of 26 cents per page.

The prospective user should also consider the exclusive printing features offered by MCIMAIL, which are currently unavailable from E-COM. E-COM restricts the message length to two pages whereas MCIMAIL has no such restriction. MCIMAIL provides high-quality laser printing compared to E-COM's dot-matrix style. For a fee of \$20 per year, MCIMAIL will reproduce the sender's letterhead and signature on any letter. These features give the message the appearance of a hand-typed business letter.

EASE OF USING MCIMAIL

Recently, I composed several letters to determine how easy it was to use the MCIMAIL system. My equipment was an Apple II computer with the Hayes Micromodem II, an 80-column board, and the ASCII EXPRESS PRO communications software. MCIMAIL can also configure a 40-column display and accommodates either 300 or 1200 baud. MCIMAIL provides a simple line editor for formatting letters. I employed this editor for the first part of my letters. For the second part, I composed text on my word processor and then uploaded it to MCIMAIL. This way, I could employ many formatting features unavailable from MCIMAIL's line editor. This technique is also handy to add boilerplate to the body of letters.

The operation of the MCIMAIL system seemed quite straightforward. My first step was to register for MCIMAIL, which I performed on-line. About two weeks later, I received a password to access the system. Then I proceeded to transfer my highly-formatted text file from the Apple to MCIMAIL. The only snag I encountered was a problem with specifying the location of the page breaks. MCIMAIL provides a toll-free hotline which I consulted for this problem. The service representative informed me that the system defaults to 45 lines of text for the first page and 54 lines for subsequent pages. Alternatively, one can use the Control-L to force a page break at any arbitrary line in the text. The representative also warned me that I would have to insert carriage returns at the end of each physical line of text prior to uploading to preserve the integrity of the text's format upon transmission to MCI's computer. Otherwise MCIMAIL might truncate some lines in the middle of words.

CONCLUSIONS

I found that MCIMAIL is a well-designed system for the expeditious transmission of text at a relatively moderate cost. Since MCIMAIL is a new service, it inevi-

contd. on pg 27

TELECOMM

SIG NEWS

by Dave Harvey

The Telecomm SIG held two meetings in November. One was held on November 15 at the WAP office, where a demo of the new Anchor Mark 12 was given by George Kinal. The demo was run using the XICOM serial card to interface with the modem. The modem was used to call up the Source and Comuserve at both 300 and 1200 bauds. In all cases, the modem worked without any difficulty. The terminal program used to demo the modem was ASCII EXPRESS PROFESSIONAL, both the old version and the new 4.2 version. Both versions work great on the //e except that the old version lost the first few characters of each line when operating at 1200 baud.

The second meeting of the month was held after the WAP meeting on November 26. The main topic of discussion at this meeting was again the Anchor Mark 12 and was led by Tom Warrick. Tom pointed out some of the differences between the Anchor and the Hayes Smartmodem, with which it is competing. The differences are that there is no speaker on the Anchor, there are some lights missing that are on the Hayes, and there are no DIP switches. There are only 4 lights on the Mark 12: modem on, carrier detect, hi or low speed, and send and receive. Tom cautioned about using 1200 baud for communicating and pointed out that one problem is the dropping of the first few characters of lines, and that although a terminal program might work fine at 300 baud, at 1200 baud it might not be able to work properly and drop characters. This problem is particularly present on some terminal programs when used with the //e.

Next discussed was serial cards, one of which is required when using the Mark 12 modem. Some of the ones discussed were the CCS 7710 series card, XICOM, and Apple Super Serial card. All of these will work with modems; however, the CCS card requires that the cable going to the modem be modified for use with a modem rather than a printer. The XICOM card must be modified to allow for 1200 baud operation. Instructions on this mod are included with the card.

The next topic discussed was interrupts, and how they are important when operating at 1200 baud. Practically all serial cards will support interrupts; however, some require modification to the card by the addition of jumpers, e.g. the Apple Communications card. Others require only a switch setting, such as with the Apple Super Serial card.

Following this was a discussion of terminal programs and what is available. The meeting was then adjourned and members were invited to the WAP office to see another demo of the Mark 12 by Tom.

Because of the garage sale at the December WAP meeting, there will be no Telecomm SIG meeting. ☺

MCI Mail contd. from pg 26

tably has some areas for improvement, particularly its text editor. I have had only limited experience on how successful the service is in meeting its delivery deadlines, a very important concern. Recently I sent two letters to my home address on different evenings. These letters arrived two mornings later in each case.

Because MCIMAIL offers a service similar to the Postal Service's E-COM, it is inevitable that both organizations will seek to expand and improve service. The Postal Service is currently deliberating on a proposal to abolish the 200-message minimum per transmission to permit entrance of individual messages. Meanwhile, MCIMAIL plans to establish a bulk-mail service which might offer a reduction in its rates to volume users. Also, MCIMAIL is formulating an enhanced service option for \$10 per month that would permit expanded editing features and five-day storage of text. The basic service provides only one-day text storage.

Finally, if the concept behind MCIMAIL and E-COM proves to be popular, this could encourage other communication firms such as AT&T and GTE to offer similar services. For further information on MCIMAIL, call 800-MCI-2255 or 833-8484 in the Washington, DC area.

An update about E-COM: Through a notice in the Federal Register, the Postal Service now wants to alter its earlier plan to restrict telephone access to its facilities. Under the original plan, users would have to phone their messages to the serving post office (SPO) closest to the addressee. Now it appears that users who tender messages in quantities less than 200 will be totally exempt from this requirement. Moreover, there will be a softening of this requirement for larger-volume mailers as well. For these mailers the Postal Service will divide the nation into eight clusters or regions, encompassing all 25 SPOs. To mail to an address within a given cluster, the E-COM user need only to access a single SPO within the cluster.

Interested persons should contact their local postmasters to obtain information. ☺

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COMM-TERM - A COMMUNICATIONS PROGRAM

by George V. Kinal

INTRODUCTION

The program I have entitled "COMM-TERM" is based on the "TAFT" program by Tom Gabrielle, published in BYTE (Ref. 1). However, it has been extensively revised.

The Hayes Micromodem has dominated Apple-based communications for some years now. In my opinion, that is about to change with the advent of low cost "smart" modems which interface via RS-232 serial connection. Since the market for RS-232 modems is much larger than just the Apple market, low costs can result from large sales volume. (One such modem, the Anchor Mark 12, is reviewed by this author elsewhere, and I understand Anchor is also coming out with a \$130 (list) 300 baud "smart" modem.) Since 1200 bps is the coming thing in telecommunications, and since there is no true "plug into the slot" 300/1200 bps modem for the Apple, the serial interface method of equipping for communications is going to be the way to go from now on. Furthermore a serial interface can also be used to drive a printer with RS-232, like the Anderson Jacobson, as well as voice synthesizers, home control, and many other external devices. Try that with your Micromodem!

The TAFT program was a nice piece of work, but was limited in several ways:

It was written for the "Electronic Systems" card, which is no longer readily available.

Its up- and down-loading features were written for a specific host computer.

It used a text file method for saving captured data, which is pathetically slow.

It was oriented towards 300 baud operation only.

It would not produce a local echo (half duplex operation), required by some mainframes.

These shortcomings have been rectified in the COMM-TERM program described here. Nevertheless, my thanks are extended to Mr. Gabrielle for the original program framework, much of which has been retained, and for his permission to publish this semi-plagiarism of his work.

I don't claim that COMM-TERM is the equal or even a pale resemblance of the poorest commercial communications software packages. But if the modem and serial card have set you back for a while and you want to "get on the air" in a useful way, it may suit your purposes.

PROGRAM STRUCTURE

The COMM-TERM "package" consists of an Applesoft main program and a set of machine language (.OBJ) programs. An object code module has been written for each of three generic classes of serial cards:

The Electronic Systems card. (Though not very common, the kits for this card may still be available by mail order for about \$50.)

The SSM A10, AS10, and A10-II, and the popular CCS 7710 cards, all of which can be driven by the same machine language program since they use a 6850 ACIA chip. They also have the ability to switch from

300 to 1200 baud by means of a software "poke." The old Apple Communications card was also of this kind.

The new Apple Super Serial card.

The pre-assembled source code is listed here for the Apple Super Serial card. The changes to the object code for the other cards are as follows:

Location	SSC	SSM/CCS	ES
\$9001	A9	A4	A1
\$9004	08	01	80
\$900B	A8	A5	A0
\$9066	A9	A4	A1
\$9069	16	02	01
\$9070	A8	A5	A2
\$90B8	A9	A4	A1
\$90BB	08	01	80
\$90BF	A8	A5	A0

The disk contributed to the WAP library includes the Applesoft COMM-TERM, a brief program description, the source program described (SSC.SOURCE.S), and the three binary programs ES.OBJ, SSM.OBJ, and SSC.OBJ. It should be fairly straightforward to modify the machine language and Applesoft portions for other serial interfaces that use data and control/status registers. Since the typical user is really only interested in one interface, the driver program should be modified to skip asking which card is desired, and to immediately load the appropriate .OBJ program.

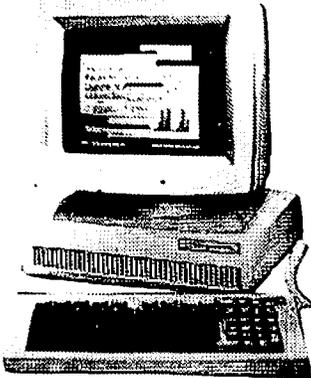
DISCUSSION OF PROGRAM

If you want to have a detailed understanding of COMM-TERM, it will be useful to read Tom Gabriele's TAFT article first, since much of the following discussion will make reference to the changes made.

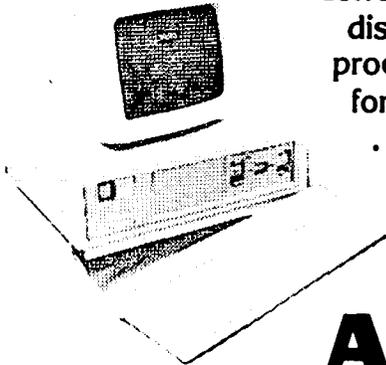
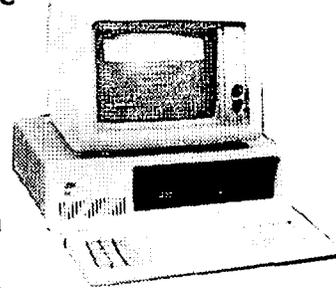
In line 62, HIMEM has been set to a higher value than in TAFT, to allow for a longer program. This proved in retrospect not to be necessary. Line 63 reminds the user that CTRL-T is the mode-switching command. Lines 100 to 130 make absolute memory location references to the machine language program, and must be changed if you modify the object code module. Line 170 asks if you want "DOWNLOAD CAPTURE," as opposed to TAFT's "Host to Apple" mode, and line 190 asks "SEND FILE?" (equivalent to TAFT's Apple to Host mode). The provision in TAFT to send a command sequence to the host when sending a file has been eliminated. Here, this mode is used when you simply want to send someone else a text file, so no specific preamble is necessary. This mode may also be used to send a text file to a serially interfaced printer. The variable UNSAVD (see lines 590 and 831) is part of a feature which allows the user to interrupt a download (capture), and yet choose not to save the captured text at that time, but wait until the session is over, for example. In line 591, s/he is reminded to save the previously captured text before another capture. Lines 630 and 631 are one way in which COMM-TERM is more flexible than TAFT, because here you can enter the character sequence which will trigger the particular transmission. For example, suppose you wanted to capture message number 122 from the WAP ABBS. You would use CTRL-T to exit normal terminal mode, answer "yes" to "DOWNLOAD CAPTURE?", give a file name (e.g., ABBS 122), and then, to answer the question posed by lines 630/631,

contd.

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type "122 <RETURN>". This would send "122 <cr>" to the ABBS, which would then send you message 122. At the end of the message, a CTRL-T would stop capture mode, and you could save it to disk at that point.

Lines 712-860 represent another big difference from TAFT. You do not have to immediately save captured text. But, unlike TAFT, it is no major disaster to decide to save text now, because saving to disk is done at BSAVEing speed, not at the speed of character by character conversion to text and text file saving. The key gimmick is in line 730. Because this is a direct POKE to DOS 3.3, the program will NOT work if DOS is relocated, or if a non-standard Master DOS is used. Line 780 takes care of the fact that a binary file has four extra bytes compared with a text file; these four bytes are replaced by the non-printing character CTRL-A (or SOH). You may substitute some other character if CTRL-A is a problem. But do not use the NUL (CHR\$(0)), because this creates problems when reading text files.

Subroutine 2000-2190 is the serial card selection menu section. The half-duplex (no remote echo) option is taken care of in 2182-2185. This is a rather crude POKEing of NOPs into the machine language code which you should be aware of if the OBJect code is to be modified.

Lines 2200-2240 are for SSM and CCS cards. If the baud rate switches on these cards are set to 1200, the card will operate at this rate. But alternately (line 2235), a quartering of the rate (i.e. to 300 baud) is possible through a control register POKE. Line 2238 reduces the number of lines on the screen from 24 to 16 to reduce character dropping problems at 1200 baud (if you have a true 80 column card, not the pseudo kind on the //e, you will not have this problem and can remove this line).

Lines 2300-2390 do essentially the same thing for the Apple Super Serial card. Since the Electronic Systems card has no software selectable options, no special code is needed for it. After ES.OBJ is loaded, a RETURN to the main routine is made.

NOTE THAT ALL CODE is written for the serial cards in SLOT 2! 7 bits, EVEN parity, has been used in all cases, since this works on WAP ABBS, the Source via Telenet, CompuServe, and main-frames we have tried.

Some changes were also made in the machine code. In lines \$9072-9074, provision for "local echo" is made. Location \$905C is particularly important. In TAFT, the back arrow was converted to a DELETE. However, the ABBS and many systems accept the back arrow. You may replace the \$88 at location \$905C with \$7F if you need the DELETE symbol instead. Also important are \$903F - \$904F. Many systems including CompuServe employ the old teletypewriter convention of sending both a carriage return and a line feed. The Apple interprets both as a "RETURN". In \$903F - 9043, then, the line feed (\$0A) in an incoming data stream is replaced by a CTRL-A, or SOH, which is a non-printing character. \$01 is used instead of the NUL \$00 because the latter would cause problems with DOS text file READs. Other non-printing characters could also be used, if CTRL-A is a problem to your printer or other systems to which these files might be sent. \$9045 - 904E replace any incoming lower case letters with upper case equivalents. If you have a lower case chip, you may simply replace the \$20 in \$904E with \$00. Finally, in \$90AD - 90B5, provision is made to terminate downloading by entering CTRL-T at the keyboard, as well as upon receipt of a CTRL-Z from the host computer.

USING COMM-TERM

COMM-TERM may be used with virtually any modem that

interfaces through a serial interface. Since the program does not look for or make use of interface details such as clear-to-send, carrier detect, or ring indicator, most modems can be supported via only three connecting wires - pins 2, 3, and 7. (Some modems require pin 20, DTR, as well). This ultra-simple 3-wire approach seems to work best at both ends of the modem sophistication spectrum: the cheapest dumb acoustic coupler, and the "smart" modems.

Using COMM-TERM requires only that you remember the three possible modes, and that CTRL-T is used to switch:

1) Dumb Terminal Mode.

2) DOWNLOAD CAPTURE mode - in response to a single command sequence from you, the other end will transmit a file which is buffered and can be stored to disk. You cannot easily use this mode to capture the responses to a series of commands or requests. The keyboard is inoperative in this mode, but CTRL-T stops the capture process (without, however, telling the host to stop sending). Remember also that this is not a "file transfer" program, and no protocol whatsoever (even XON-XOFF) is used. Only text files can be accommodated. Still, for the majority of Apple communications uses, this is adequate. The buffer size is 29,696 characters. There is no provision in this version to warn the user that the buffer is about to overflow, but this feature could easily be added in the machine language code after \$90A5.

3) Send a (TEXT) file - this is the other end of the transfer process. Although only text files can be sent, you should be aware of the techniques by which computer programs and binary files can be converted into text - see the DOS manual for a discussion of this regarding Applesoft program conversion.

If you have a "smart" modem, the file-sending mode can be used as a crude form of "macro". With a text editor, the following text can be set up as the text-file "WAP-DIAL":

```
+++ , AT DP , 9868085 <cr>
```

To autodial the WAP ABBS using a Hayes or Anchor smart modem, you would use CTRL-T to bail out of terminal mode, type "N" to DOWNLOAD CAPTURE?, and "Y" to "SEND FILE?". The file name "WAP-DIAL" would then cause the above character string to be sent to the modem, which would follow the instructions. A similar "macro" could be established for the log-on sequence. Creative program modifiers might consider using a separate, more streamlined approach (e.g., use CTRL-Q or CTRL-W to directly ask which macro file should be sent, etc.).

I hope that some readers will find this program of use, and that further improvements will be made and documented. Also useful for the WAP library might be additional object code modules for other interface cards, especially the Mountain Computer CPS card.

Ed. Note. The following addition was submitted at press time:

To modify the object code module from a CCS/SSM version to work with the Apple Comm. card, change all locations given in this article's table under CCS/SSM as follows. Wherever A4 appears, replace with AE. Wherever A5 appears, replace with AF. When Comm-Term shows up in the club library, simply BLOAD SSM.OBJ, CALL -151, and change the A4s and A5s to AEs and AFs. Then Ctrl-C, BSAVE APCOM.OBJ, A\$9000, L\$C5. Next, modify the Applesoft program to BLOAD APCOM.OBJ instead of SSM.OBJ. Last, in lines 2235 and 2236, where POKES

contd.

to 49316 are made, change the POKEd location to 49326.

References:

- 1) "TAFT - Terminal Apple with File Transfer", Tom Gabriele, BYTE, June 1982.
- 2) "Programming the ACIA", C. Mesztenyi, Washington Apple Pi, October 1982.
- 3) "The Cost of Scrolling", C. Mesztenyi, Washington Apple Pi, December 1982.

Listing

```
5 REM **** COMM-TERM ****
10 REM BASED ON 'TAFT', BYTE 6/82
15 REM MODIFIED BY G. KINAL, WASHINGTON APPLE
    PI, 1983.
20 REM * * * * *
62 HIMEM: 7167
63 HOME : PRINT "NOTICE : USE CTRL-T TO SWITCH
    MODES"
64 FOR I = 1 TO 1000: NEXT
65 GOSUB 2000: REM INSTALL CORRECT I/O
80 PTR = 254: REM $FE
90 D$ = CHR$(4):R$ = CHR$(13):CA$ = CHR$(
    1):CZ$ = CHR$(26)
100 OUTCHR = 36965: REM $9065 OUTPUT ROUTINE
    CALLING ADDRESS
110 LAST = 36982: REM $9076 STORAGE ADDRESS FOR
    OUTPUT
120 HOTAP = LAST + 1
130 TERMA = 36864: REM $9000 = ALC STARTING
    ADDRESS
150 HOME
160 CALL TERMA: REM TRANSFER TO ALC
169 PRINT : PRINT : INVERSE
170 INPUT "DOWNLOAD CAPTURE ? (Y/N)";A$
171 NORMAL
180 IF LEFT$(A$,1) = "Y" THEN 590
190 INPUT "SEND FILE ? (Y/N) ";A$
200 IF LEFT$(A$,1) = "Y" THEN 260
210 INPUT "QUIT?";A$
220 IF LEFT$(A$,1) < > "Y" THEN 150
225 IF UNSAVD THEN GOTO 710
230 HIMEM: 38400
240 PRINT : PRINT "GOOD-BYE!": PRINT
250 END
260 INPUT "APPLE SOURCE FILENAME?";AF$
330 ONERR GOTO 520
340 PRINT D$;"OPEN ";AF$
350 PRINT D$;"READ ";AF$
360 L$ = ""
370 GET C$
380 POKE LAST, ASC (C$)
390 CALL OUTCHR
400 IF C$ = R$ THEN GOTO 430
410 L$ = L$ + C$
420 GOTO 370
430 PRINT R$;D$
440 PRINT CA$;L$
450 GOTO 350
460 REM EOF DETECTED, FINISH TRANSFER
470 POKE LAST, ASC (CZ$)
480 CALL OUTCHR
485 POKE 216,0: REM CANCEL ONERR GOTO
490 GOSUB 920
500 FOR I = 1 TO 500: NEXT I
510 GOTO 160
520 BOO = PEEK (222)
530 PRINT D$;"CLOSE ";AF$
540 IF BOO = 5 THEN GOTO 470
550 PRINT "ERROR NUMBER ";BOO;" OCCURRED"
560 GOTO 470
590 IF NOT UNSAVD THEN GOTO 595
591 PRINT : FLASH : PRINT "PREVIOUSLY CAPTURED
    FILE NOT SAVED TO": PRINT "DISK AND WILL BE
    LOST !!": PRINT : NORMAL : INPUT "SAVE
    PREVIOUS FILE FIRST?";CC$
```

```
592 IF LEFT$(CC$,1) = "Y" THEN GOTO 710
595 HOME : INPUT "APPLE DESTINATION FILE ?";AF$
600 CNV = 0
610 INPUT "UPPER CASE CONVERSION? (Y / N)";C$
620 IF LEFT$(C$,1) = "Y" THEN CNV = 1
630 PRINT "ENTER COMMAND SEQUENCE TO SEND TO"
631 INPUT "HOST TO INITIATE DOWNLOAD
    .....";DL$
634 IF DL$ = "" THEN GOTO 690: REM NULL
635 FOR I = 1 TO LEN (DL$)
640 POKE LAST, ASC ( MID$( DL$,I,1))
650 CALL OUTCHR
660 NEXT
690 POKE LAST,CNV
700 CALL HOTAP
710 UL = 256 * PEEK (PTR + 1) + PEEK (PTR)
711 PRINT : PRINT
712 INPUT "SAVE CAPTURED FILE TO DISK NOW (Y/N)
    ?";CH$
713 IF LEFT$(CH$,1) = "N" THEN UNSAVD = 1:
    GOTO 860
714 HOME : FLASH
715 PRINT "WRITING FILE TO DISK...STAND BY PLEASE"
716 NORMAL
720 ONERR GOTO 890
724 PRINT R$;D$;"OPEN ";AF$
725 PRINT R$;D$;"DELETE ";AF$
730 POKE 41790,0: REM FOOL DOS INTO USING BSAVE
    FOR TEXT
740 PRINT D$;"BSAVE ";AF$;" ,A7168,L";UL - 7168
750 POKE 41790,4: REM RESTORE PROPER BINARY FILE
    DESIGNATION IN DOS
760 PRINT R$;D$;"OPEN ";AF$
770 PRINT D$;"WRITE ";AF$;" ,BO"
780 FOR N9 = 1 TO 4: PRINT CHR$(1);: NEXT :
    REM REPLACE BINARY FILE HEADER WITH NON-
    PRINTABLE CHARACTER
785 PRINT R$;D$;"CLOSE ";AF$
786 PRINT D$;"OPEN ";AF$
787 BB$ = STR$(UL - 7164)
788 PRINT R$;D$;"WRITE ";AF$;" ,B";BB$
789 PRINT CHR$(13): REM CLOSING C.R.
790 PRINT R$;D$;"CLOSE "
831 UNSAVD = 0: REM FILE HAS BEEN SAVED
840 PRINT D$: GOSUB 920
860 PRINT "PRESS ANY KEY TO CONTINUE."
870 GET C$
880 GOTO 150
890 BOO = PEEK (222)
900 PRINT "ERROR NUMBER ";BOO;" OCCURRED."
910 GOTO 790
920 PRINT : INVERSE : PRINT "END OF TRANSFER.":
    NORMAL : PRINT : RETURN
2000 REM SELECT I/O
2001 D$ = CHR$(4)
2004 PRINT : PRINT : INVERSE
2005 PRINT "ASSUMES I/O IN SLOT 2 !": PRINT
2006 NORMAL
2010 PRINT "CHOOSE I/O CARD: ": PRINT
2020 PRINT " 1 ELECTRONIC SYSTEMS "
2030 PRINT " 2 SSM AIO "
2040 PRINT " 3 CCS 7710"
2050 PRINT " 4 APPLE SUPER SERIAL"
2100 PRINT : INPUT "GIVE CHOICE BY NUMBER...";XX
2105 PRINT
2110 IF XX = 1 THEN IO$ = "ES.OBJ"
2120 IF XX = 2 THEN IO$ = "SSM.OBJ"
2130 IF XX = 3 THEN IO$ = "SSM.OBJ"
2140 IF XX = 4 THEN IO$ = "SSC.OBJ"
2180 PRINT D$;"BLOAD ";IO$
2182 HOME : PRINT "WILL REMOTE COMPUTER ECHO":
    INPUT "YOUR KEYBOARD INPUTS ? (Y/N) ";E9$
2185 IF E9$ = "Y" THEN POKE 36978,234: POKE
    36979,234: POKE 36980,234: REM PUT NO-OPS
    IN M.L. PGM
2190 ON XX GOTO 2240,2200,2200,2300
2200 REM BAUD SELECT
2210 PRINT "YOUR SERIAL I/O CARD SHOULD BE SET
    TO ": PRINT "THE 1200 BAUD SWITCH POSITION!":
    PRINT
```

contd.

```

2220 INPUT "300 OR 1200 BAUD WANTED NOW?";BD$
2235 IF VAL (BD$) < > 1200 THEN POKE 49316,3
      : POKE 49316,10
2236 IF VAL (BD$) = 1200 THEN POKE 49316,3:
      POKE 49316,9
2237 REM (7 BITS, EVEN PARITY)
2238 IF VAL (BD$) = 1200 THEN HOME : POKE 34,2:
      POKE 35,18: REM REDUCE SCROLLING TIME
2240 RETURN
2300 REM FOR APPLE SUPER SERIAL CARD
2305 SLOT = 2
2306 HX = SLOT * 16: REM OFFSET
2307 R1 = 49290 + HX: REM COMMND REGISTER
2308 R2 = R1 + 1: REM CONTROL REGISTER
2310 INPUT "BAUD RATE - CHOOSE 300 OR 1200 ";BD
2321 IF BD = 300 THEN GOTO 2370
2322 IF BD = 1200 THEN GOTO 2380
2325 REM ....ELSE...WRONG RATE!...
2327 GOTO 2310
2370 POKE R1,105: REM DTR,RTS ON, EVEN PARITY...
      CHANGE TO 9 FOR NO PARITY
2371 POKE R2,54: REM 300 BAUD, 7 DATA BITS, 1
      STOP...CHANGE TO 22 FOR 8 BITS
2372 RETURN
2380 POKE R1,105: REM DTR,RTS ON,EVEN PARITY
2381 POKE R2,56: REM 1200 BAUD, 7 DATA BITS,
      1 STOP
2382 HOME : POKE 34,2: POKE 35,18: REM REDUCE
      WINDOW TO PREVENT LOSS OF CHARACTERS
2390 RETURN

```

```

:ASM
1
2      *          OBJ $9000
3
4      * ASSEMBLY LANGUAGE PORTION
5      * OF THE APPLE TERMINAL PROGRAM
6      * BY GABRIELE, JUNE, 1980
7      * MODIFIED FOR SSC AND ENHANCED
8      * BY G. V. KINAL, W.A.P. 1983
9
10     EQU 2          SERIAL BOARD SLOT NUMBER.
11     INPORT EQU SLOT*10+$C088
12     STATUS EQU INPORT+1
13     OUTPRT EQU INPORT
14     CH      EQU $24
15     BASL   EQU $28
16     PTRLOW EQU $FE      LS BYTE OF ADDRESS
17     PTRHI  EQU $FF      MS BYTE OF ADDRESS
18     ORG   $9000
19
20     * HAS A CHARACTER COME IN?
21     START  LDA STATUS  READ STATUS OF SLOT
22           AND  $808    SAVE INPUT BUFFER FULL BIT
23           BEQ  DOWN    IF BIT=0 BRANCH
24
25     * A CHARACTER HAS BEEN RECEIVED
26
27     JSR UNFLSH REMOVE CURSOR.
28     LDA INPORT  READ INPUT PORT.
29     JSR INCONV  CALL INPUT CONVERSION ROUTINE.
30     MSBLAB  ORA  $80    SET THE MSB.
31     JSR $FDF0  CALL COUTI, OUTPUT.
32     JSR FLASH  PUT UP CURSOR.
33
34     * HAS A CHARACTER BEEN KEYED?
35
36     DOWN   BIT  $C000  GO BACK & READ AGAIN UNTIL...
37           BPL  START  THE MSB IS SET.
38
39     * PROCESS THE KEYED CHARACTER.
40
41     LDA $C000  GET THE LAST CHARACTER KEYED.
42     BIT  $C010  CLEAR KEYBOARD STROBE.
43     CMP  $894  IF CTRL T, RETURN.
44     BEQ  ENDOUT  BRANCH TO RETURN TO BASIC.
45     JSR OUTCON  CALL THE OUTPUT CONVERSION SUBR.
46
47     * OUTPUT THE CHARACTER
48
49     STA LAST   SAVE THE CHARACTER TO GO OUT.
50     JSR OUTCHR  CALL THE OUTPUT ROUTINE.
51     JMP  START
52
53     * MANAGE THE FLASHING CURSOR
54
55     FLASH  LDA  $860  CODE = FLASHING SPACE.
56           JMP  FLDMN
57           LDA  $8A0  CODE = NORMAL SPACE.
58           FLDMN  LDY  CH
59           STA  (BASL),Y
60           RTS
61
62     * RECEIVED CHARACTER CONVERSION SUBROUTINE.
63
64     INCONV  CMP  $80A  SWALLOW LINE FEEDS
65           BNE  LCCOM  NOT A LINE FEED
66           LDA  $801  INSERT A NON-PRINTABLE
67           LCCOM  CMP  $861  COMPARE W. LOWER CASE "A"
68           BCC  ENDINC  IS IT LOWER CASE?
69           CMP  $878  COMPARE WITH LOWER CASE "Z" + 1.
70           BCS  ENDINC  IS IT LOWER CASE?
71           EOR  $820  CONVERT TO UPPER CASE.
72     ENDINC  RTS      ; END OF INPUT CONVERSION ROUTINE.
73

```

```

74     * OUTPUT CHARACTER CONVERSION SUBROUTINE.
75
76     OUTCON  CMP  $89D  IS IT A CTRL N?
77           BNE  DELETE  IF NOT, SKIP DOWN AND TEST FOR NEXT CHARACTER.
78           LDA  $85B  OPEN BRACKET CHARACTER.
79           RTS      STORE THE CHARACTER.
80     DELETE  CMP  $880  IS IT A BACK ARROW CHARACTER?
81           BNE  TAB     IF NOT, SKIP DOWN.
82           LDA  $888  (CHANGE TO $7F DELETE IF U WANT)
83           RTS      STORE THE CHARACTER
84     TAB     CMP  $895  FORWARD ARROW?
85           BNE  ENDOUT  IF NOT, SKIP DOWN.
86           LDA  $9    HORIZONTAL TAB CHARACTER.
87     ENDOUT  RTS      ; END OF OUTPUT CONVERSION S.R.
88
89     * OUTPUT CHARACTER TO SERIAL BOARD
90
91     OUTCHR  LDA  STATUS  READ SLOT STATUS.
92           AND  $816  OUTPUT BUFFER EMPTY BIT
93           BEQ  OUTCHR  POLL UNTIL BUFFER EMPTY.
94           LDA  LAST   GET THE LAST CHARACTER.
95           STA  OUTPRT  WRITE OUTPUT PORT.
96           JSR $FDF0  LOCAL ECHO
97           RTS      ; END OF OUTPUT ROUTINE.
98     LAST   BRK      ; STORAGE FOR LAST CHARACTER
99
100    * HOST TO APPLE FILE TRANSFER CODING.
101
102    * INITIALIZE ASSEMBLY LANG. VARIABLES
103
104    NOTAP  LDA  $81C  BUFFER PTR HI BYTE
105           STA  PTRHI
106           LDY  $0    RESET INDEX REGISTER.
107           STY  PTRLOW  INITIALIZE THE BUFFER POINTER LOW BYTE.
108           LDX  LAST  LOAD THE CONVERSION FLAG.
109
110    * SEND A CARRIAGE RETURN AND DISREGARD HOST ECHO.
111
112           LDA  $813  SEND CARRIAGE RETURN CHARACTER.
113           STA  LAST
114           JSR  OUTCHR
115           JSR  INCHR  DISCARD ECHO OF CARRIAGE RETURN.
116
117    * CHARACTER ACQUISITION LOOP
118
119    CLOOP  JSR  INCHR  GET THE NEXT CHARACTER.
120           CMP  $26  IS IT A CONTROL Z?
121           BEQ  ENDHST  IF SO, BRANCH.
122           CPX  $0    CASE CONVERSION FLAG SET?
123           BEQ  NOCONV  IF NOT, BYPASS CONVERSION SUBROUTINE CALL.
124           JSR  INCONV  CONVERT LOWER CASE.
125           NOCONV  STA  (PTRLOW),Y  STORE THE INCOMING CHARACTER
126           ORA  $80    SET MSB.
127           JSR  $FDF0  CALL COUTI.
128           IMY      ; POINT TO NEXT BYTE.
129           BNE  CLOOP  GET NEXT CHARACTER.
130           INC  PTRHI  POINT TO NEXT PAGE OF MEMORY.
131           JMP  CLOOP
132
133    * END OF TRANSMISSION.
134
135    ENDHST  STY  PTRLOW  SAVE THE FILE LENGTH.
136           RTS
137
138    * INPUT CHARACTER SUBROUTINE
139
140    INCHR  LDA  $C000  KEYBOARD
141           BIT  $C010  CLEAR STROBE
142           CMP  $894  IF CTRL-T, STOP
143           BEQ  CZKEY
144           LDA  STATUS
145           AND  $808  BUFFER FULL BIT
146           BEQ  INCHR  LOOP IF NOTHING.
147           LDA  INPORT  GET CHARACTER.
148           RTS
149           CZKEY  LDA  $26  INSERT A CTRL-Z
150           RTS

```

--- END ASSEMBLY ---

TOTAL ERRORS: 0

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MODIFYING A \$59 COMM. CARD FOR 300/1200 BAUD by George V. Kinal

Way back in the good old days, before the Super Serial card and the Hayes Micromodem, Apple sold the "Communications Card", which was totally distinct and different from the "Serial Card". Now, refurbished, used, or imitation, "Comm. Cards" are available for \$60 or so; one source is XICOM, 801 E. Ogden, Naperville, IL 60540.

In those good old days, 300 baud was the only speed anyone bothered with for communications. The 6850 ACIA used on the Comm. card had a software controllable "switch" that could be set for a lower speed (nominally 110 baud, useful for Telex interface). Apple did publish a wiring modification to convert the card to 1200/300 baud (1200 default, and a software POKE of the ACIA control register for 300). ASCII Express - the Professional makes use of this feature, so that if the card is configured for 1200/300, the "H1" baud rate command (#2) will invoke the 1200 baud default, while the "L0" command (#1) will make the switch to 300 baud. At the prices now being asked for these cards, this is an excellent way of equipping for a 300/1200 baud "smart" modem. Here is the modification procedure arranged so that no soldering to the board itself is required. If you do make a serious mistake and damage one of the chips, or want to restore 300/110 for some reason, obtain replacement chips and put them into the sockets in place of the modified ones.

1. Lift out IC104.
2. Bend up pins 4, 5, 6, 11, and 13 so they will not go back into the socket.
3. Prepare one-inch pieces of 22 ga. solid hookup wire, and insert one into each of IC104 socket pins 1, 8, and 11.
4. Replace IC104 into the socket, along with the wires.
5. Solder the wire from socket pin 8 to the bent-upward IC pin 4.
6. Solder wire from socket pin 1 to IC pins 5 and 6 (together).
7. Solder wire from socket pin 11 to IC pin 13.
8. Remove IC105.
9. Bend upward pin 5.
10. Insert a 1" wire in socket pin 8.
11. Replace IC105.
12. Solder wire from socket pin 8 to IC pin 5.

If you're not a soldering fanatic, you might be able to find a friend who can prepare the chips and wires so that you can then insert them yourself. There is almost no risk of damaging other board components or the Apple itself if you do make a wiring mistake; at worst, you'll have to buy new chips for IC104 and IC105.

There is one other modification required for 1200 baud operation. It is mentioned in the AE-Pro manual. A wire must be added on the board between edge connector pin #30 and pin 7 of the 6850. I suggest you defer this modification until the baud rate modification is completed and tested. The board will work at 1200 baud without this second modification, but some characters will be lost on incoming data. Once you know the board is working at 300 and 1200, then add the interrupt wire modification. 

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1200 BPS AT HALF PRICE - THE ANCHOR MARK 12 MODEM: A Review

by George V. Kinal

1. INTRODUCTION

The last several years have seen prices of personal computer equipment drop dramatically, and communications hardware and software have shared in this trend. Back in the late 1970's, a "plain vanilla" 212A compatible modem could be purchased only through commercial equipment sources, for about \$900. One of the first 1200 bps modems to offer features beyond simple modulation/demodulation was D.C. Hayes' "Smartmodem 1200." This modem was offered at a list price of \$700, and gradual discounting price erosion made these fine units available for as little as \$500.

Most Apple][owners were not involved in the marketplace for 1200 bps modems of any kind, however. The vast majority had joined the telecommunications revolution by purchasing a Hayes Micromodem. Upgrading to 1200 bps would involve buying not only the external modem, but also an interface card. So the total cost still was in the \$700 range. Another alternative, costing about the same, was the Novation Apple Cat with its 212 accessory upgrade.

Meanwhile, a company called Anchor Automation was selling 300 baud (103 type) modems for under \$100. Again, Apple owners were not the only or even the prime target for these external, RS-232 interfaced modems (the "Signalman Mark 1"). But lots of other makes of computers, especially those that came equipped with an RS-232 port, gave Anchor and their retailers a prime marketing opportunity. And so, about June of this year, advertisements for "300/1200 baud, autodial, autoanswer modems" began showing up in BYTE magazine. Sometimes, Anchor was identified as the manufacturer. The list price was \$399, but even the earliest ads showed some discounting. By August, the advertised discount price was \$319. At the time of writing, the lowest price I have seen is now \$244.

What is this? How can anything so cheap be any good? Maybe we should all start asking why anything so simple ever had to be so expensive, considering the economies of volume production made possible by the huge number of Kaypros, Osbornes, Apple IIIs, and you-know-whos which could all easily accomodate 1200 bps operation, and whose often business-oriented owners needed the economies of higher transmission speeds. In a nutshell, the Anchor Signalman Mark XII modem is a "Hayes Smartmodem 1200 compatible" 300 and 1200 (212A type) modem, with full auto-answer, auto-dial features. In my opinion, this one device will have as revolutionary an impact on microcomputer communications as the original Hayes Micromodems. 300 baud will be relegated to the bargain basement home computer users, and to those applications where direct keyboard input and CRT viewing limit the usable speed. For data retrieval and transfer, 1200 bps will be the standard; the horizon for pushing the state of the art and efficiency is now 2400 bps.

2. DESCRIPTION OF ANCHOR MARK XII MODEM

A "smart" modem is one in which all commands are transferred between the terminal or computer and the modem by means of the same RS-232 signals as used for the actual data communications. The modem intercepts those character strings which it recognizes, and responds accordingly. If you've ever embedded control

character sequences for printer control, you understand the concept. But, unlike a printer, the modem also sends "result codes" back to the computer, over the received-data circuit. Functionally, the Anchor modem does everything that the Hayes product does. It does something more than the Micromodem, too. It can either pulse (rotary) or tone dial. It switches between 300 baud 103 operation and 1200 bps 212-type operation, either based on the baud rate of the initial "AT" (attention) command, or when it answers a call and decides at which speed it is being called. There is no way, normally, for the Apple to know at which speed a call has been answered, but both hardware and software solutions to this are possible. The Mark 12 comes in a grey plastic case 6 x 9 x 1 inch, with a separate little plug-in power pack. Instead of an RS-232 connector on the case, it has a 15" ribbon cable which has a male RS-232 plug on it. This makes it possible to plug it directly into many serial interfaces, without requiring the purchase of a separate cable. It also comes with a modular telephone cable, and has an RJ-11 modular jack into which a telephone set can be connected. So you don't need to buy an RJ-11 "Y" connector either.

3. TESTS CONDUCTED

I have tested a Mark 12 for several weeks. On the Apple][and a //e, I used AE-Pro and several homebrew programs (including Comm-Term, written up for this journal separately). On an IBM-PC, I tried both PC-Talk and BLAST. Apple serial interfaces tried were the SSM-A10, the CCS 7710, the old Apple Comm. card, and the Apple Super Serial card. With only one exception, operation of the Mark XII was identical to that of a Hayes Smartmodem 1200 regarding dialing, answering, and general performance. I was even able to test it over mobile satellite circuits, with no performance problems whatsoever. The one exception I noted was that the revision of BLAST which we have was not able to properly command the Anchor to dial, whereas the Hayes would eventually (after some 10 or 15 seconds) dial properly. But the manufacturer of BLAST has sent out a notice that a newer version is necessary in order to properly command even the Hayes. There are a few differences between the two modems, though, which I will describe below. In summary, I cannot find any flaws in the way this modem performs, and I would be willing to bet that if the Hayes and the Anchor were both hidden inside a plain brown wrapper, 95% of the users of these modems would never know the difference.

4. A DIRECT COMPARISON

That is not to say that there are no differences whatsoever between the \$250 Anchor and the \$500 Hayes product. The Hayes has a speaker; not so on the Anchor. You can, however, monitor what's happening after dialing is completed by listening in on the telephone plugged into the Anchor. (A simple modification of a cheap telephone will allow you to listen in even during the dialing - place a .1 mF capacitor in series with the cord). The Hayes case is die-cast aluminum; Anchor uses a thin plastic case. The Hayes requires a separate cable, whereas you might be able to get away without one with the Anchor's ribbon cable (but, ribbon cables are frowned upon in commercial applications). The Anchor has only 4 LEDs on its panel, versus Hayes' eight. The only one of these I

contd.

really missed was the "OH" - Off Hook light. The two critical ones, in my opinion, are Carrier Detect (CD) and High Speed (HS), which both have. The Hayes has seventeen software-loadable registers, while the Anchor has only the first six. For example, in the Hayes you can change the duration and spacing of the Touch-Tones. In the Anchor, these parameters are pre-set by the manufacturer to values like those the Hayes defaults to if you don't command it otherwise. Register S10 is the only one of these that has some special importance to some users. By setting S10 = 255, the modem ignores carrier detect. This allows it to transmit even when no signal from the other end is being received. The Hayes also has eight switches behind the front panel, while the Anchor has none. Actually, four of these eight can be over-ridden by software commands. The other four are: #1 - Force DTR true; #6 Force Carrier Detect true; #7 - For RJ-12 or RJ-13 multiline telephone installations; #8 - Disable Command recognition. Numbers 1 and 6 can be taken care of by modifying your RS-232 cable. (Most Apple serial interfaces take care of DTR; the Carrier detect is useful but not really needed with some interface/software combinations). In other words, Anchor has made some design choices here that will fit the vast majority of normal cases. As for switch 7, if you need a modem to work in the specialized RJ-12 or RJ-13 installation, then the Anchor is not for you. All residential and the bulk of office installations, however, use or can be adapted to the RJ-11. Thus, only switch #8 appears to be of some importance. It is simply not possible to disable command recognition on the Anchor. This is not a big deal, though. Once a connection is made, the modem is no longer in command state. Three plusses (+++) must be sent, with nothing for one second before, and one after, in order to escape back to command state.

The "Preliminary Owners Manual" which I received with the Anchor modem was no match for the thorough Hayes manual. It does seem to have just barely enough information to install and use the modem. I did not encounter any errors in the manual. Presumably, this preliminary version will be revised and expanded.

5. FUNCTIONAL DIFFERENCES

There is also a handful of minor differences in operation between the Hayes and the Anchor products. The Anchor is claimed to be able to recognize both the dial tone and a busy signal, and sends the result codes DIAL TONE or BUSY. I can verify that the dial tone recognition usually worked. But most busy signals were not properly recognized by the Anchor, and only a few times did I get the "BUSY" result code. In the Hayes, the initial Attention command, "AT", must be in upper case letters; the Anchor accepts upper or lower for all commands. On the other hand, the Hayes will give result codes which match the parity you command it in. The Anchor will respond to commands of any parity, but will not send back result codes using 8 bits (so-called 8N1). This fact has apparently led some people to believe that it cannot operate with 8-bit data. That is of course not true; a modem has no way of caring or even knowing what every eighth bit means to you. The only thing wrong is that the result codes garbage when received by an interface expecting 8 bit data. I have never found this to be a problem; every dial-up system I've ever called was perfectly happy with 7 bits, even parity.

6. AN INEXPENSIVE SERIAL CARD

Well, the title says "half price". But, you say, I still have to shell out \$150 for a serial card. That depends. There may be some merit in fancy serial cards with on-board firmware, especially if you use them for printers, etc. But most of the better communications software packages don't use the firmware

on the card anyway. Besides, why pay for a card that operates from 50 to 19,200 bps, if you're going to use it at only two speeds? The old Apple Communications card, with its 6850 ACIA, works very nicely with AE-Pro, for example. Although Apple no longer sells it, there are plenty of direct carbon-copy imitations available. (One source is XICOM, 801 E. Ogden, Naperville, IL 60540. Insist on the Communications card, NOT the RS-232 printer card. They are \$59 plus \$3 shipping). There is a catch, however. This card was sold on the market when only 300 and 110 baud were in demand. The card will support these two rates. AE-Pro, in particular, allows switching between the two with this card. A modification to the card is necessary to make the two rates available 300 and 1200. Another modification, described in the AE-Pro manual, is necessary to reduce character dropping at 1200 bps. See my article on this elsewhere in this Journal. If there is enough interest, the Telecommunications SIG may arrange to have a number of these boards modified, or modification kits made up at nominal cost. Assuming you have AE-Pro, then, the total cost to equip for both 300 and 1200 bps can be as low as \$310 or so, which is half the cost of a Hayes Smartmodem 1200 and a CCS 7710A serial board. ☞

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A PAGE FROM THE STACK

by Robert C. Platt

We are introducing two new utility disks this month plus a three-disk Logo Toolkit. Remember that our library's growth is fueled by your contributions. Please send in your latest efforts and receive a FREE library disk in exchange for every disk that you contribute. Also, please keep on reporting the errors (and any known fixes) that you find on our library disks.

DISK 141: ERRATA

Program PRINT 3UP, which is a part of Mark Crosby's mail list program, has a bug. Line 120 should read:

```
120 PRINT D$;"BLOAD MAIL LIST 2":POKE 1013,76:
    POKE 1014,0:POKE 1015,145
```

Also, in the program RECREATE INDEX, line 130 should read:

```
130 HIMEM: 36608: POKE 1013,76: POKE 1014,0: POKE
    1015,145: PRINT CHR$(4)"BLOAD MAIL LIST 2"
```

DISK 130: DIVERSI-DOS

Diversi-DOS is a copyrighted substitute for Apple's DOS 3.3. Its author asks that if you decide to keep and use his program, you should send the publisher \$30. This charge will cover the cost of future updates and a telephone support staff. We have received a new Diversi-DOS disk with more utility and demo programs. The new documentation announces a price increase to \$30 and also states that Diversi-DOS will work with hard disks and RAM disk emulators. A modified version of the program is required for GPLE, BigMac, DOS Toolkit EDASM, and BPI programs, which will be sent to you upon request if you are a registered Diversi-DOS owner.

Revised copies of Disks 130 and 141 are being added to the library.

Five disks premiered in December: Disk 43 Utilities H, Disk 144 Applesoft Programs, and Disks 145-47 Logo Toolkit.

DISKS 145-147: LOGO TOOLKIT

Logo Computer Systems, Inc. has given WAP permission to include in our disk library three disks designed for use with Apple Logo. These disks (Vols. 145, 146, and 147) have been available casually through the club as they were developed, but are now in their final released form. The disks contain public domain procedures and may be freely copied (by FID or COPY), but not sold for profit. These procedures are in text files and will only work with Apple Logo and Sprite Logo, not with Terrapin or Krell Logo; however, many could be listed out as text files or by a word processor and converted to MIT syntax where comparable abilities in the language exist.

Disk 145 is the Apple Logo Tool Kit which contains utility procedures which allow the user to extend Logo's usefulness.

Disk 146 is the Apple Logo Sample Programs Disk with procedures written by children and adults, which can be used, examined and modified if they do not do just what you want.

Disk 147 is the full documentation for these disks. The documentation is in Apple Writer II, //e compatible files. An Apple Writer WPL program, also found on the documentation disk, will allow printing of different chapters automatically.

A full review of these three disks by Nancy Strange is printed elsewhere in this Journal.

DISK 43: IAC 29 - UTILITIES H

This disk contains a graphics program from IAC Disk 29 donated by the LOGIC Apple Users Group, Ontario, Canada and other useful utilities from our own Tom Warrick.

[43.1] BUG - (Kenneth Lind), the Binary Utility Graphics, is a plotting "language" extension to Applesoft. BUG features 27 commands accessed through the Applesoft & command. The program supports scaled X and Y axes (including logarithmic scales), use of 3 different pages in memory to set up graphs for display, and automatic plotting of points or lines. RUN DISPLAY BUG DOC for detailed documentation. BUG HELLO will automatically load BUG, and is suitable for use as a hello program on your disks. Programs DEM01 through DEM05 are samples using BUG.

[43.2] BUG uses shape table character sets, stored in a format compatible with the DOS Toolkit, to generate text labels for hi-res graphs. Binary files ASCII.SET, BLIPPO BLACK.SET, BYTE.SET, PINOCCHIO.SET and SLANT.SET contain different character fonts which can be used by BUG for labels.

[43.3] MAKE LTX - (Tom Warrick) creates a file which when EXECed will patch your copy of DOS in RAM to add a new command. As you know, you can use LOAD to read an Applesoft or Integer Basic file from disk and BLOAD to read a binary file. Now you will be able to LTX a text file into memory. The format is: LTX FILENAME, A\$2000,L\$7CF where the A and L are the normal DOS address and length parameters. Note that once you have patched LTX in, some programs such as FID, which access the DOS command interpreter directly will not function properly.

[43.4] IMPROVED MASTER CATALOG - (Tom Warrick) is an Applesoft program which automatically reads the catalogs from a series of disks and produces a sorted printout. This version is an improvement over the one on Disk 100. It allows you to enter a disk name rather than merely using the disk's volume number. More disks can be retained in memory because the version in file NEW.MAS.CAT.DM will work with DOS relocated to a 16K card (or to the extra RAM on a //e.) RUN RUN I.M.C. INSTRUCTIONS for details. File I.M.C. HELLO automatically relocates DOS to the 16K card using the machine language stored in RELOCATE DOS TO MEMORY CARD, and then runs the main program. You will probably want to make this the hello program on the disk where you will keep your sorted catalog files.

[43.5] T.NEW.MAS.CAT.48K is the source code assembly language listing for the machine language routines called by the new master catalog program.

[43.6] REMEMBER II - (Tom Warrick) is a terminal program for the Hayes Micromodem. This program has been available for downloading from the ABBS during the past year and is very popular. To use, BRUN REMEMBER II.

contd.



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{43.7} COMPARE STRINGS - (Tom Warrick) is a machine language routine to match an area of memory against a known string. To use, BLOAD COMPARE STRINGS and then CALL 768,J,"STRING" where J has the address of the area of memory to be compared and "STRING" is the item compared against. PEEK(767) will be 1 if they match, 0 if not matched.

{43.8} APPLESOFT ANALYSIS - (Tom Warrick) displays an Applesoft program currently in memory by decoding its tokenized form. This permits you to patch Applesoft programs which have been "broken" due to a disk error. If you have ever saved the only copy of a valuable Applesoft program only to have it reLOADED from disk as unlistable gibberish, then you will appreciate this program. To use, LOAD the Applesoft program, and then BRUN APPLESOFT ANALYSIS. Type an & at the] prompt. You can then select a line to be listed. Pressing M will take you to the monitor where you can change the program byte-by-byte. N will show the next line, and B will return you to Applesoft. RUN APPLESOFT ANALYZER INSTRUCTION for details.

{43.9} MEMORY DUMP - (Tom Warrick) displays the CHR\$ (ASCII code) equivalent of specified memory locations. To use, BLOAD MEMORY DUMP and then CALL 768. Only reset will stop the program.

{43.10} PRINT CONTROL CHARACTERS - (Tom Warrick) will display the "unprintable" control characters that may be present in your disk directory or in disk files.

{43.11} SRTDIR - (Andy O'Brien) sorts your disk catalog so that the files are displayed in alphabetical order. See the November 1981 WAP Journal p. 24, for the source code and documentation.

DISK 144: IAC 27 - APPLESOFT PROGRAMS

This disk has several routines which are helpful in developing Applesoft programs as well as good demonstrations of Applesoft programming techniques. It was assembled by the Adam & Eve User Group in Madison Wisconsin and distributed by the International Apple Core.

{144.1} THE LOTTADATA GRID - (Mike Heckman) demonstrates the use of an Applesoft program to write a second Applesoft program. Delete the last few lines before trying it.

{144.2} ARRAYS - (John Faluidi) illustrates three dimensional Applesoft arrays. Each array element is displayed with a single character. You can change the value of the array elements by specifying coordinates.

{144.3} JUPITER - (Bob Manske) helps astronomers locate the four largest moons of Jupiter. You can specify any date and time and a hi-res image of Jupiter and its moons will be displayed. The program also calculates the exact coordinates for each moon to help you locate them with your telescope. By specifying a time interval, an animated sequence will be generated.

{144.4} HIGH-RES-TEXT/3 - (John Rogers) displays text on the hi-res screen. Run CHARACTERS to create your own character set or HIRETEXTDEMO/3 for a demonstration.

{144.5} DISK FILE ROUTINES - (John Faluidi) demonstrates disk access commands from Applesoft.

{144.6} NEW COPY - (Marty Issacs) is a disk-to-disk copy program.

{144.7} DEMUFFIN - transfers files from a DOS 3.3 disk to a DOS 3.2 disk. RUN DOC.1 for documentation.

{144.8} INLINED - (John Rogers) is a INput LINE Editor. RUN INLINED.DOC for documentation.

{144.9} LIFE - (I. M. Issacs) is an Applesoft version of the classic game involving dots which die out if they lack neighboring dots. You can save your favorite patterns onto disk binary files. Five sample files are included: L.MICE, L.TUMBLER, L.TRAIN, L.GUN, and L.TRASH. (When asked for a file name, do not type the L. prefix.)

{144.10} DISK DUMP - is the sole Integer Basic program on this disk, with a self-explanatory function.

{144.11} SPEP - a simple polynomial expansion program for algebra fans.

{144.12} SOFTFIND - (John Rogers) locates strings within an Applesoft program. This file BLOADs into page 3 and is called using the & command. RUN SOFTFIND.DOC for details.

{144.13} OLD MONITOR - (The Woz via K. McLauren) in the days before the Autostart monitor for the Apple II+ or the super-tricky monitor for the //e, the Woz wrote an elegant monitor which included a mini-assembler and a Sweet16 interpreter for the Apple II. RUN INT MONITOR FOR PLUS if you have Integer Basic already in memory. Otherwise, RUN INT MONITOR FOR INTEGER to load this valuable program. (Don't ask me why these two files' names are crossed up!)

{144.14} APRIL GOODIES - (K & J Symon) routines for displaying and printing Applesoft listings.

{144.15} HIRES NOFLASH - (Mike Jenkins) demonstrates switching between the hi-res screens.

{144.16} COMPARE - compares two text files for differences.

{144.17} RELOADER - (John Rogers) will reload a machine language program to the top of memory. RUN RELOADER.DOC for documentaton.

{144.18} PROTECT HGR2 FROM APPLESOFT - EXEC this file to move the start of your Applesoft programs above hi-res Page 2.

{144.19} LISAFIND - (John Rogers) adds a string finding function to the LISA 1.5 Assembler. RUN LISAFIND.DOC for details. 

WAP DISKS MAKE GREAT GIFTS

WAP library disks are great gifts for the computer user in your house, for your friend who has a computer, or for yourself. AND, with the big Christmas sale now at WAP (any 5 or more disks are \$4.00 each) they are a super buy.

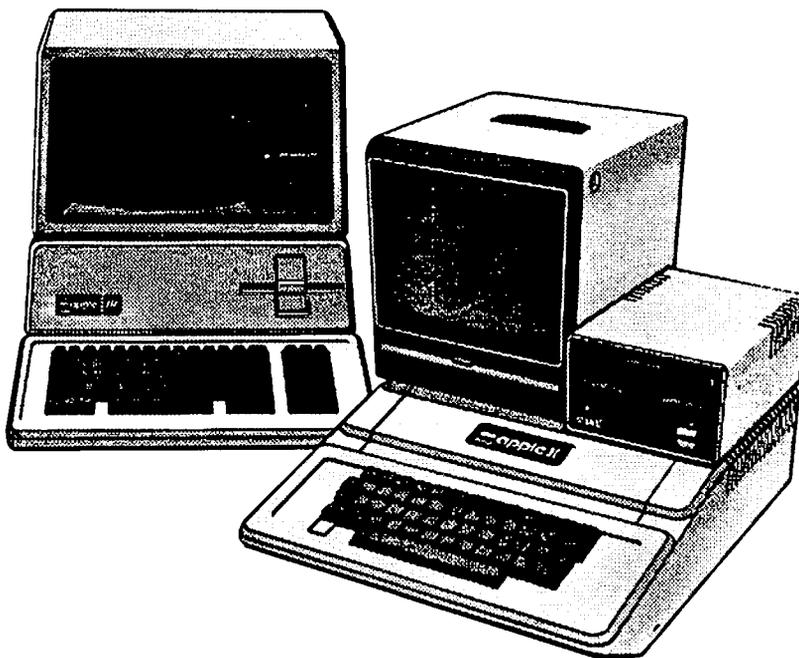
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INTRODUCTION TO MODULA 2

by Robert C. Platt

When the Apple II first appeared, it could only be programmed in Integer Basic or in Assembly Language. Neither approach would produce programs that could also run on non-Apple computers. Today, with most major programming languages available on the Apple, users are faced with a difficult decision in selecting an appropriate programming language.

Users do not want to invest their efforts mastering a language and creating programs that cannot be carried over to more advanced machines in the future. Concerns with obsolescence and transportability led the nation's largest computer user, the Department of Defense, to call for a new general purpose programming language, dubbed "Ada." Like any DOD project, Ada was developed by a committee over a number of years, and microcomputer implementations have only recently become available. In contrast, legend has it that Niklaus Wirth, the Swiss computer science professor that invented Pascal, was invited to participate in Ada's design. But being a man who hates committees, Wirth vowed to create a language to meet Ada's design objectives and to have it implemented long before the Committee could complete its work. That language is called Modula 2, and it reflects a logical consistency which some find lacking in Ada's design.

If you have yet to learn a programming language, or are looking to master yet another, give serious thought to Pascal, Ada or Modula 2. These languages will be around for a long time and are likely to be available on any computer that you will use in the next 10 years. In addition, because these are "structured" programming languages, they encourage good programming habits and have fewer arbitrary rules than BASIC or Fortran.

GETTING STARTED

Your Apple has a copy of the Applesoft interpreter in its ROM memory. This interpreter program takes BASIC programs line-by-line and performs the indicated steps after determining the meaning of your instructions. If a line of BASIC is executed 100 times as a part of your program, the interpreter must translate that line 100 times. The alternative approach to implementing a language is to write a "compiler" program which will translate your program (the source program) into the machine language that the Apple can understand (the object program.) Thus, each line of the program is translated only once, no matter how many times the instructions are executed. Although this results in faster execution speed, it also has the drawbacks of requiring disk space to store both the source and object programs and waiting for the compiler to finish before execution can begin.

To program in Modula 2, you must have the Modula 2 compiler. Volition Systems sells a Modula 2 compiler with a list price of \$495. However, much lower prices are available. The Volition Systems compiler uses the same UCSD p-system that runs Apple Pascal, Fortran and Pilot. Thus, you must have that system (list price \$200) to use the Volition Systems product. One of the purposes of this tutorial is to give you the flavor of Modula 2, before you invest in a compiler.

A SIMPLE PROGRAM

Let's consider a trivial problem: displaying the words "Hello there!" on the screen. The following Modula 2

program can do the job:

```
(* $UPCASE:=TRUE; *)
(* A SIMPLE PROGRAM *)
MODULE SHORT;

FROM TERMINAL IMPORT WRITESTRING;

BEGIN
  WRITESTRING('Hello there!');
END SHORT.
```

The first two lines are comments. In Modula 2 any texts enclosed by (* and *) will be ignored, like a BASIC REMARK. Unlike Pascal, curly brackets {} cannot be used. The first line is a special message to the compiler to tell it to ignore the difference between upper and lower case characters. In Modula 2, keywords like BEGIN must be in capital letters, because "begin" with lower case letters could be used as a variable. So if you have an Apple II without lower case letters, \$UPCASE:=TRUE lets you type your program in using either case, so long as your variable names do not differ by only the way that they are capitalized.

The line MODULE SHORT marks the start of a new program unit which will be stored in your library under the name SHORT. In order to make routines easier to share between programs or even different users Ada and Modula 2 are the first programming languages to be designed around the concept of a program library. Your program consists of one or more modules which perform certain tasks. You can control how much of your modules will be accessible to others ("exported".) In addition, your programs can "import" routines or variables from other modules.

The next line, FROM TERMINAL IMPORT WRITESTRING; is an example of importing a procedure from a different module. Unlike other languages, Modula 2 does not have any input/output commands. Instead, these functions are performed by modules imported from the library. Volition Systems supplies an extensive library with its package, and the WRITESTRING procedure in MODULE TERMINAL is one of many alternative ways of placing text on the Apple screen.

The steps to be performed in a module are enclosed by BEGIN and END statements. Note that the name of the module SHORT and a period must be included as a part of the END statement. Finally the only action to be performed by the program is to call procedure WRITESTRING with the text to be displayed enclosed in parentheses and quotes. Hello there! is an example of a string literal. String literals can be enclosed with either " or ' marks, but if one is used, only the other can appear within the string. The following are legal literals in Modula 2:

```
"It's easy to program"
'I said, "Hello".'
```

INVOKING PROCEDURES

Unlike BASIC where a separate command (GOSUB or CALL) is used to invoke a subroutine, in Modula 2 merely stating the name of a procedure will cause the Apple to stop executing the current procedure, execute the new procedure and then return to where it left off in the original procedure. The original procedure can

contd. on pg 51

DOS MANUALS: A BOOK REVIEW

by Robert C. Platt

Until this summer, the 1981 Edition of the DOS Manual came with every Apple disk control card. Now Apple has replaced our time-tested Bible of disk operations with two new books: the DOS User's Manual and the DOS Programmer's Manual. If you purchased a //e system during 1983 and did not receive these manuals, bring the grey coupon that was packed with your disk drive to an Apple dealer to claim a set. But if you are a long-time Apple owner (or if you bought a non-Apple disk controller), I cannot recommend the purchase of the new books.

USER'S MANUAL

The User's Manual (UM) is a 174 page tutorial on DOS commands and file types. This corresponds to the first four chapters and Appendix I to K of the 1981 Edition. The UM's contents include: a tutorial for new DOS users, how to CATALOG and INIT disks, the use of DOS commands, explanation of DOS error messages and a four page description of the programs on the System Master and Sample Program disks. The UM is well-illustrated and includes many simple examples based upon programs on the Sample Program Disk. Two areas which were inadequately covered in the 1981 Manual have been beefed up: there is a separate chapter on using 13 sector disks and 12 pages on the FID utility.

PROGRAMMER'S MANUAL

The Programmer's Manual (PM) is a 216 page reference text which covers much the same areas as Chapters 5 - 10 of the 1981 manual. The first 15 pages summarize the commands introduced in the UM. The PM starts with switching between Integer and Applesoft Basics and using DOS commands in Applesoft programs (p. 28-31 of

the 1981 DOS Manual). Several programs which are included on the System Master and Sample Program disks are explained and documented, including ONERR DEMO (PM p.31), RENUMBER (PM p.36), MAKE TEXT (PM p. 61), RANDOM (PM p.77), and ADDRESS (PM p.79). More detailed, step-by-step programming examples and better graphics will help a novice master this material.

EVALUATION

The PM and UM offer a better layout and are more carefully written. They take up twice the number of pages to cover the same material. Yet, the only items covered by the PM and UM that are not covered by the DOS Manual are subtle tips such as how to turn off 80 column mode on the //e and to use `D$=CHR$(13)+CHR$(4)` to embed DOS commands in programs that use TRACE or GET. Other technical data, such as the circuit schematic of the Disk II analog board have been omitted.

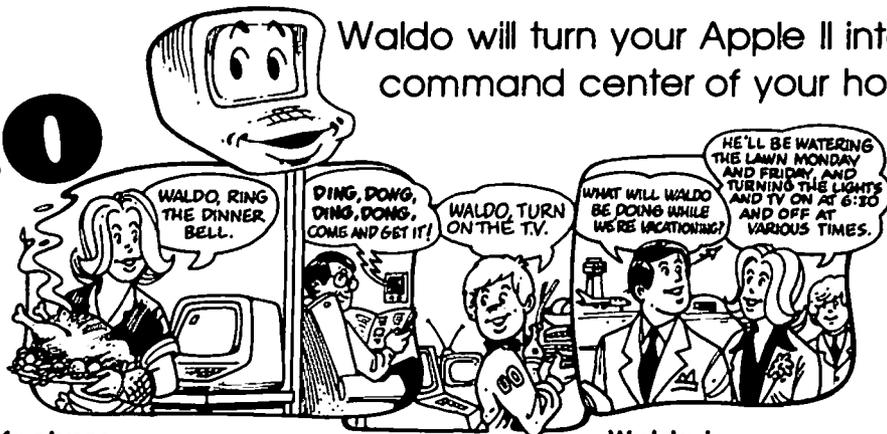
The one danger that Apple raises by publishing these new manuals is that it removes a common ground for writing about DOS. Such old standbys as FID, BOOT13 and MASTER CREATE are referred to as FILEM, CONVERT13 and MASTER (the names of the Applesoft programs which BRUN these utilities.) We must all bear in mind that both sets of manuals will be widely used and should give page references to both versions in future WAP Journal articles.

In summary, if you get the new manuals as a part of your disk purchase, master them. But if you have access to only the 1981 DOS Manual, there is no new material offered in the 1983 version that would justify investing in a second set.

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THE APPLESOFT SPLIT

by Richard Untied

You say you've been writing this Applesoft program with nifty hi-res graphics, but your program wipes out when you get to the HGR? So you changed it to HGR2 and now weird things are happening to your variables? And then you changed it back to HGR and fixed the program to load at \$4000, but now you're running out of memory? Is that your problem, friend? Well, read on. Of course, you wouldn't have that problem if you'd write smaller programs, keep less data in your arrays, or stay away from graphics...

What we have here is a memory problem, also known as the hi-res Applesoft blues. First, a little background. The normal Applesoft load point is \$0801. Hi-res page 1 runs from \$2000-\$3FFF, and page 2 from \$4000-\$5FFF. Standard 48K DOS starts at \$9600. There's only 24 pages (256 bytes per page) of memory between the normal Applesoft load point and hi-res page 1, so a program that shows more than 25 sectors in the CATALOG would have the upper part erased with HGR. If you use HGR2, that ups the max to 56 pages. The CATALOG, by the way, always shows at least one more sector than the number of pages the program actually takes up in memory.

Unless told otherwise, Applesoft is going to start your variables right after your program, and they may run into the graphics page. A way around this is to set LOMEM:16384 above hi-res page 1, or LOMEM:24576 above page 2. This still won't help if your program is more than 56 pages long.

Another useful trick is to make Applesoft load your program above the hi-res page. For hi-res page 1, this can be done with a POKE 104,64: POKE 16384,0 before you LOAD or RUN your program. This will leave you 86 pages free for your program and variables (more if you have relocated DOS to a ram card), but you have lost the 24 pages below hi-res page 1. You can use that area for binary files, though.

There's another technique commonly used when memory gets scarce: break the program into smaller modules, and let each do its thing then call the next module. This works pretty well if your program is fairly modular, and processes serially. Refer to appendix G of the DOS manual, titled "Chaining in Applesoft", for one way to do this using the CHAIN binary program on the system master disk. Adjustment of program load point or LOMEM may still be needed to avoid conflicts with hi-res graphics.

So that's the background. And now for something entirely different. What we're going to do is split the program into two parts, one of which is small enough to fit in the 24 pages below hi-res page 1. We must add a few lines to each part to make Applesoft happy. When we're done, we have two programs instead of one. When we run the lower part, it will load and connect with the upper part, making one big program that skips around the area used by hi-res.

This is the method, step by step:

1. LOAD your Applesoft program.
2. Type in "PRINT PEEK (106)". If the result is less than 32, the end of the program is already below hi-res page 1, and all you have to do is add a line at the beginning with the statement "LOMEM:16384", SAVE the program and you're done..

3. DEL (delete) some lines from the end of the program, and type in "PRINT PEEK (106)". Repeat until the result is less than 32.
4. Delete a few more lines until PEEK (105) is less than 128 or PEEK (106) is 30.
5. If the line increment between the last two lines is one, delete the last line and try again.
6. Write down the line number of the last line. Insert a GOTO to the last line between the two last lines, then delete the last line. For example, if the last line is 1000, type "999 GOTO 1000" and delete line 1000.
7. Write down the first line number of the program.
8. Type in lines 0, 60000 and 60010 from listing 2. If you already have a line 0, renumber it first.
9. SAVE this lower part of your program to disk with a new name.
10. LOAD your original Applesoft program again.
11. Delete all lines up to but not including the one you wrote down in step 6.
12. Type in line 1 from listing 3, using the line number you wrote down in step 7 for the GOTO at the end of the line.
13. SAVE this program to disk as UPPER PART.

That's it. It looks complicated, but the only "hard" part is steps 3 through 5. How it works: When you run the lower part, it jumps to 60000, where the pointers for that line are saved, and program start is changed to point above hi-res page 1. Line 60010 then RUNS the UPPER PART, which will load at \$4000. Line 1 then patches line 60000 so that it points to the second line in the UPPER PART, then clears line 60000 and changes the line number to 0. This is needed so that a GOTO to a line number in the upper part won't cause an undefined statement error, which would occur if Applesoft ran into line 60000 in the lower part. Line 1 next CLEARs, to remove the temporary variables L and H, and ends with a GOTO to the real start of the program. Listing 4 shows what the program will then look like.

A few cautions: do not try to modify or SAVE the split program after it has been run. To make changes, LOAD the appropriate part, enter the changes, and SAVE back to disk before RUNNING the lower part again. Also, whenever you make changes to the lower part, do a PRINT PEEK (106) and make sure it is still less than 32. If not, you will have to shorten the lower part, possibly by moving the split.

If for any reason you need to recombine the two parts into a single program again, the RENUMBER program on the system master should do the job. LOAD the lower part and delete lines 0, 60000, 60010 and the new last line, then put it on hold with "&H". LOAD in the UPPER PART, delete line 1, and merge with "&M".

contd.

Listing 1: A program before splitting.

```
100 REM BEGINNING OF PROGRAM ...
:
1000 REM MORE OF PROGRAM ...
:
```

Listing 2: Lower part after split.

```
0 GOTO 60000
100 REM LOWER PART OF PROGRAM STARTS HERE
999 GOTO 1000
60000 POKE 560, PEEK (121): POKE 561, PEEK (122) -
( PEEK (121) < 16): POKE 104,64: POKE 16384,0
60010 PRINT CHR$(4)"RUN UPPER PART"
```

Listing 3: Upper part after split.

```
1 H = PEEK (121) + 256 * PEEK (122):L = PEEK
(560) + 256 * PEEK (561): POKE L + 1, PEEK (H +
1): POKE L + 2, PEEK (H + 2): POKE L + 3,0:
POKE L + 4,0: POKE L + 5,0: POKE 104,8: CLEAR :
GOTO 100
1000 REM UPPER PART OF PROGRAM STARTS HERE
```

Listing 4: After the split program has been run.

```
0 GOTO 60000
100 REM LOWER PART OF PROGRAM STARTS HERE
999 GOTO 1000
1000 REM UPPER PART OF PROGRAM STARTS HERE
```

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KEESH? NO WAY!

by

Richard Untied

'Tis the season to be merry. Here's some information that came across ARPANET earlier this year:

Real programmers don't eat quiche. In fact, real programmers don't know how to SPELL quiche. They eat Twinkies and Szechuan food.

Real programmers don't write specs --- users should consider themselves lucky to get any programs at all and take what they get.

Real programmers don't comment their code. If it was hard to write, it should be hard to understand.

Real programmers don't document. Documentation is for simps who can't read the listings or the object code.

Real programmers never work 9 to 5. If any real programmers are around at 9 AM, it's because they were up all night.

Real programmers don't write application programs. They program right down on the bare metal. Application programming is for feebs who can't do systems programming.

Real programmers' programs never work right the first time. But if you throw them on the machine, they can be patched into working with "only a few" 30-hour debugging sessions.

Real programmers don't write in BASIC. Actually, no programmers write in BASIC, after the age of 12.

Real programmers don't write in COBOL. COBOL is for wimpy applications programmers.

Real programmers don't write in FORTRAN. FORTRAN is for pipe stress freaks and crystallography weenies.

Real programmers don't write in PL/I. PL/I is for programmers who can't decide whether to write in COBOL or FORTRAN.

Real programmers don't write in PASCAL, or BLISS, or ADA, or any of those pinko computer science languages. Strong typing is for people with weak memories.

*All the happiness
that the Holidays
and the New Year
can bring*

STRANGE FILENAMES

by J.T. (Tom) DeMay Jr.

Recently while writing a program which used several data files, I was looking for something distinctive to set these data files apart from the other files on the disk. The DOS Manual explicitly says, "A file name must begin with a letter." I believed this for quite some time. However, in the three years since I purchased my APPLE, I have learned that most "Can I do that?" type questions are easier answered by trying to "do that" than by reading about it in the manuals. Besides, the manuals could hardly be written to cover every circumstance. With this in mind, I tried several things to set the data files apart. Things like starting the file name with a number or a space. It wouldn't work. The DOS Manual was right. Then I tried using the punctuation symbols. Still with no luck. Then I found it. The left and right square brackets can be used as the beginning character in a file name, or a program name.

If you are a non-believer, try it. It works! Depending on your APPLE configuration, it may be a little difficult. If you have a //e, or an older Apple with one of the enhanced keyboards, simply load a program, then type:

```
SAVE [ PROGRAM NAME ] followed by a RETURN.
```

The program will be saved under the name "[PROGRAM NAME]". Type CATALOG to verify that it did work.

If the square brackets are not available on your keyboard, it will be necessary to rely on software to save programs and files using the square brackets as the beginning characters of the file names. Type in this short program, then RUN it:

```
0 NA$=CHR$(91) + " PROGRAM NAME " + CHR$(93) :  
  PRINT CHR$(4) "SAVE";NA$
```

This will result in the program being saved as [PROGRAM NAME]. This procedure will work with data files as well as programs. However, if the same procedure is used from IMMEDIATE mode, the program will be saved as "NA\$", not as "[PROGRAM NAME]" as one might expect!

If the square brackets can be used as the first character of a filename, then what other forbidden characters could also be used? Enter this one line program to find out:

```
0 FOR X = 64 TO 127 : NA$ = CHR$( X ) +  
  " - " + STR$( X ) : PRINT CHR$( 4 );  
  "SAVE";NA$ : NEXT
```

Insert an initialized blank disk in the drive, then RUN the program. The resulting disk CATALOG should look like this, depending on your APPLE.

DISK VOLUME 254

A 002 @ - 64	A 002 V - 86	A 002 + - 107
A 002 A - 65	A 002 W - 87	A 002 , - 108
A 002 B - 66	A 002 X - 88	A 002 - - 109
A 002 C - 67	A 002 Y - 89	A 002 . - 110
A 002 D - 68	A 002 Z - 90	A 002 / - 111
A 002 E - 69	A 002 [- 91	A 002 0 - 112
A 002 F - 70	A 002 \ - 92	A 002 1 - 113
A 002 G - 71	A 002] - 93	A 002 2 - 114
A 002 H - 72	A 002 ^ - 94	A 002 3 - 115
A 002 I - 73	A 002 _ - 95	A 002 4 - 116
A 002 J - 74	A 002 - - 96	A 002 5 - 117
A 002 K - 75	A 002 ! - 97	A 002 6 - 118
A 002 L - 76	A 002 " - 98	A 002 7 - 119
A 002 M - 77	A 002 # - 99	A 002 8 - 120
A 002 N - 78	A 002 \$ - 100	A 002 9 - 121
A 002 O - 79	A 002 % - 101	A 002 : - 122
A 002 P - 80	A 002 & - 102	A 002 ; - 123
A 002 Q - 81	A 002 ' - 103	A 002 < - 124
A 002 R - 82	A 002 (- 104	A 002 = - 125
A 002 S - 83	A 002) - 105	A 002 > - 126
A 002 T - 84	A 002 * - 106	A 002 ? - 127
A 002 U - 85		

Three columns were used here to save space. The actual CATALOG output will be in a single column. If this CATALOG is printed on a standard Apple, one that doesn't display lower case, it will look like the above listing. Turn on your printer, and then list the CATALOG again. The output will certainly be different. For example, the symbols associated with the numbers 97 thru 122 will be lower case "a" thru "z". The other symbols will be represented differently, depending on your printer.

After you have examined the CATALOG thoroughly, change the "SAVE" in the program to "DELETE", and RUN the program again. This is the easiest way to remove these programs from the disk, short of INITIALIZING it.

It is also possible to replace the 64, and the 127 with 192 and 255 respectively. The resulting CATALOG will look the same on the Apple screen as the previous one, except that the numbers printed will be 192 thru 255. The printed version may be the same, have italics characters, or graphics characters, depending on the printer interface card and the printer configuration. Try it on your printer and see what happens.

By now, you are probably asking yourself "Why is he telling me this?"; "What do I care?". The answer is: "TO ENCOURAGE EXPERIMENTATION!" You can't hurt the Apple, so why not jump right in and do something unusual? You may discover some as yet unknown application for the APPLE. But be sure that your important disks are safely locked away in the vault before you begin. If you do find something interesting, share it with us. Good luck and happy computing.

(Author's note: Shortly after I wrote this, I purchased my first Beagle Bros. program, Apple Mechanic. And wouldn't you know it, Bert Kersey has been using the] as the first character in the names of the character fonts on this disk for quite some time. There I go again reinventing the wheel.

Happy New Year

HOW TO TURN A PAGE

by C. Swift, Prop.

How often we beginners are told to "PRESS SPACE BAR TO CONTINUE". Sometimes we are asked "WANT INSTRUCTIONS? (Y/N) " (and there's that little flashing cursor demanding immediate attention).

And how often we find that the space bar isn't critical; any key will allow us to "CONTINUE". And we aren't limited to the "N" to avoid instructions. Again any key (except, of course "Y") gets us moving right along.

Now, there is nothing wrong with this, you understand. It works, and that's what it's supposed to do. The problem I have is that it is disappointing. Why didn't the writer of the program take just a little more time to "firm up" the routine? Was it ineptitude? Surely not. Was it laziness? Perhaps. Was it sloppy? Yes, I resoundingly answer!

The reason is simple: my computer is a severe task-master that jumps down my throat every time I make a small boo-boo, yet here it is tossing my carefully learned caution to the winds. It is not only disappointing, it is WICKED!

Perhaps it is over-rigidity on my part. Perhaps I have lost the flexibility of youth that once was mine. Perhaps it is simply a desire to see something done well. Or whatever ...

To encourage would-be neat programmers to avoid such haphazard tactics I offer the modest GOSUB routine below. It is simple, it is concise, and mostly it's fun. (And maybe, just maybe, it is better programming practice than one often sees!)

```
1000 REM *** TURNING PAGES ***
1001 VTAB 24: HTAB 26
1002 INVERSE: PRINT "TURN PAGE ==>": NORMAL
1003 GET Z$: IF Z$ < > CHR$(13) THEN 1003
1004 POKE 34,0: HOME
1005 PRINT SPC(32);
1006 X = X + 1: Z = X + 1
1007 INVERSE : PRINT "PAGE ";Z : NORMAL
1008 POKE 34,4 : HOME
1009 RETURN
```

Line 1003 rejects all keys except <RETURN>. Aha! an almost dead keyboard, protected against stray slips of the finger. Not really necessary, but so neat, so tidy!

Line 1006 keeps track of the "page" number, starting of course with page two. Whoever wants to number the second page as page one anyway? Again, not really necessary, but so neat, so tidy!

The POKE 34's control the top of the screen so that the "page" number remains unencumbered by the text. Not really necessary, but so neat, so tidy!

Try this little program just for fun. Who knows? - You may even want to use something like it yourself in some program of momentous consequence:

```
10 HOME
20 PRINT "START HERE"
30 GOSUB 1000
40 PRINT "THIS IS PAGE TWO"
50 GOSUB 1000
60 PRINT "THIS IS PAGE THREE"
```

```
70 GOSUB 1000
80 PRINT "ENOUGH IS ENOUGH"
90 POKE 34,0: END
```

And that, friends, is how to add a little formality to an otherwise undisciplined program. Call me harsh... call me severe...call me over-reactive. I don't care. I still prefer a program that asks as much of my computer as it asks of me!

Now, moving on to the subject of proper documentation...(O.K., O.K., I'll stop.....) 

A BIT OF MISCHIEF

For those of you with devious minds, here is a small program submitted by Guy Black, and made even more devious by Peter Combes. When run, the computer will accept any input until the user attempts to RUN or LIST, at which time he will only see RUN or LIST. As Guy suggests, try using it on a computer in a store where the sales people are uncooperative.

```
5 C$ = CHR$(93)
6 PRINT C$;
10 GET A$
16 IF ASC(A$) = 13 THEN PRINT: PRINT C$;: GOTO 10
20 PRINT A$;
30 IF A$ = "#" THEN 50
40 GOTO 10
50 END 
```

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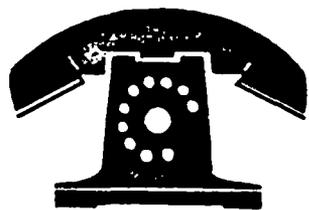
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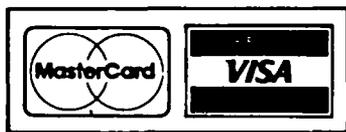
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I AM WHAT I AM . . . AND WHAT I AM, I AM

by John A. Love III



So, you really thought the Apple could multiply? Well ... you're correct, it can! Or, can it??? The answer really depends on how you define "it". If "it" is the total Apple system - the KEYBOARD DECODER, the BASIC INTERPRETER, the INPUT/OUTPUT (I/O) BUFFER and the 6502 CENTRAL PROCESSING UNIT (CPU) - then, yes "it" can! However, if "it" is simply the CPU, then "it" cannot multiply. Please don't panic and write the "WOZ" to complain because the total Apple system can -- and that is the bottom line.

How does the "can't multiply" of the CPU get translated to the "can multiply" of the total Apple? Let's see!

By the way, before I proceed to answer this question, I'd like to share with you another book on Assembly language. This book's title is Apple Assembly Language by W. Douglas Maurer and is published by George Washington University Computer Science Press. This book is SUPER because it is written as a teaching text with a voluminous amount of problems for the student. These problems range from the "quick and dirty" to the more extensive type requiring the student to write a comprehensive program. Another good point about this book is that the subject matter is integrated with that of the LISA Assembler, a good Assembler by the way. Dr. Maurer's book, therefore, "leads you by the hand" through parts of LISA. "Two for the price of one", so to speak - Assembly Language and LISA. Even if you own another Assembler such as Southwestern Data System's MERLIN or Call-A.P.P.L.E.'s BIG MAC, "two for the price of one" still applies.

Now, back to the main event -- the CPU can only add and subtract, which is okay because it turns out that one can simply surround just the add instruction with appropriate non-arithmetic instructions to generate a subroutine for multiplying. In short, even the subtract instruction is redundant for the purposes of multiplying.

I have written a relatively short Assembly language subroutine that multiplies two binary numbers. Why binary numbers? Simple - the CPU only understands binary! Before we look at the Assembly code itself, we should first look at the methodology behind this code - in short, how do we want to multiply two binary numbers? Let's look at the square of 221 (decimal) as an example:

```

X =      11011101
Y =      11011101
          11011101
          00000000
           11011101
           11011101
           11011101
           00000000
           11011101
           11011101
           11011101
    
```

Z = X * Y = 101111011001001

First, you can now see that X * Y does reduce to addition, in this case, of eight numbers. "Eight" corresponds to the number of digits in the multi-

multiplier, Y. Second, each of these added numbers is either zero or the multiplicand.

Third, it looks like the length of each of these eight added numbers is identical to the length of the multiplicand, X. Well, I guess it is! Except, I have chosen to extend each of these eight numbers to two bytes, or the length of the resulting product in this case. I can justify this uniform length only on the basis that two-byte numbers add to a two-byte number, with or without a carry. To be candid, Dr. Maurer does not use a two-byte variable here and his routine is more compact than mine. I bow to his expertise. Nevertheless, I found it more time efficient to generate my own code from scratch than attempt to understand his more concise code. Boy, does that ring old bells! Anyway, let's press on.

The extension of the eight addends to two-bytes looks like this:

```

X =      11011101
Y =      11011101
          0000000011011101
          0000000000000000
          0000001101110100
          0000011011101000
          0000110111010000
          0000000000000000
          0011011101000000
          0110111010000000
          0110111010000000
Z = X * Y = 101111011001001
              (MSB)  (LSB)
    
```

The eight bits to the left line depict the Most Significant Byte (MSB) and the eight bits to the right depict the Least Significant Byte (LSB) of the two-byte sum/addends.

The fourth, and final, general observation is that, reading from top to bottom, each of the eight addends is shifted one more space to the left. Even when the addend is zero, this "zero" can be imagined as being shifted to the left.

Now to the Assembly language program itself (printed at the end of this article):

First, how do we use it?

- 1) Enter the subroutine with the multiplicand stored in the X-register and the multiplier stored in the Y-register.
- 2) Type "JSR MULT" in your Assembly code; or, if in the Monitor, type "300G".
- 3) Exit with the resulting product, its MSB in the X-register and its LSB in the Y-register. With this partition:

Product = 256 PEEK(X-register) +
PEEK(Y-register)

Second, how does this code work?

contd.

1) Lines 15-16:

- a) Store the multiplicand and the multiplier in "XCAND" (a two-byte variable) and "XLIER" (a one-byte variable). More about this later.
- b) Initialize the two-byte product ("PROD") to zero, as well as the MSB of the multiplicand.
- c) Initialize the loop count to 8 for subsequent decrementing (Line 47). When we've travelled through this loop eight times we've added eight numbers; therefore, we exit the routine as described in (3) above. Said loop begins at the label "BEGIN" and ends with the label "RETURN".

2) Remember above when I said that each of the eight addends is either zero or the multiplicand? The choice is simply dependent on whether we are multiplying by a "0" or a "1" in the multiplier. Line 27 shifts the multiplier one space to the right and places the digit that "fell off" into the carry register. Line 28 keeps what's left and Line 29 tests the carry register (if clear, the multiplier digit = 0 and otherwise = 1). This test is via the instruction, "Branch if Carry is Clear (BCC)".

3) If this multiplier digit = 0, then we branch to label "ZERO" where we shift the multiplicand (MSB and LSB) over one space to left. When working with a two-byte number, which "XCAND" is, we combine as shown the two instructions "Arithmetic Shift Left (ASL)" and "Rotate Left (ROL)". This combination is called a "double shift", "double" because we are doing the same thing to two bytes. With the multiplier digit = 0, note that the sum of the addends ("PROD") is not affected ($s + 0 = s$). Only when this multiplier digit = 1, do we cumulate the sum as shown next.

4) If the multiplier digit = 1, then we "fall through" the "BCC" instruction to the label "ONE", wherein :

- a) first we reset this multiplier digit to zero by "Clearing the Carry (CLC)" to prepare for the ensuing additions ("ADC").
- b) then we add the previous addend sum to the multiplicand. Since the addend sum ("PROD") and the multiplicand ("XCAND") are two-byte numbers, we have to be concerned with both the MSB and the LSB.
- c) lines 32-34 execute this addition for the LSB ($PROD = PROD + XCAND$). If there is a carry as a result of this LSB addition, then a "1" is added to the MSB of PROD on Line 37.

No Carry:

$$PROD = PROD + XCAND \text{ ----- (LSB)}$$

$$(PROD+1) = (PROD+1) + (XCAND+1) \text{ ----- (MSB)}$$

Carry :

$$PROD = PROD + XCAND \text{ ----- (LSB)}$$

$$(PROD+1) = (PROD+1) + (XCAND+1) + 1.0 \text{ -- (MSB)}$$

Note : (PROD+1) = MSB of PROD
 (XCAND+1) = MSB of XCAND
 1.0 = Adding one due to carry

Even after we're all finished with the case when the multiplier digit = 1, we still have to "double shift" the multiplicand (label "ZERO") just as we did before when this multiplier digit = 0. In either case, this "double shift" is necessary because of the fourth general observation described above.

: A S M

```

1  *****
2  *
3  * ASSEMBLY LANGUAGE PROGRAM *
4  *
5  * "MULT" *
6  *
7  * PROGRAM TO MULTIPLY *
8  * TWO BINARY NUMBERS *
9  *
10 *****
11 *
12 * OBJ $0300
13 * ORG $0300
14 *
15 * MULT STX XCAND ;STORE MULTIPLICAND.
16 * 0303: 0C 4C 03 STY XLIER ;STORE MULTIPLIER
17 *
18 * LDA #0 ;INITIALIZE THE PRODUCT
19 * 0306: A9 00 18 STA PROD ;(OR, REALLY THE SUM)
20 * 0308: 8D 4E 03 STA PROD+1 ;AND THE MSB OF THE
21 * 030E: 8D 4B 03 STA XCAND+1 ;MULTIPLICAND TO 0.
22 *
23 * LDA #8 ;INITIALIZE THE
24 * 0311: 8D 4D 03 STA COUNT ;LOOP COUNTER TO 8.
25 *
26 * BEGIN LDA XLIER ;TEST THE PARITY OF THE
27 * 0316: AD 4C 03 LSR ;RIGHT-MOST BIT OF THE
28 * 0319: 4A 27 STA XLIER ;MULTIPLIER. PRODUCT (SUM)
29 * 031A: 8D 4C 03 BCC ZERO ;DOES NOT CHANGE FOR BIT=0.
30 *
31 * ONE CLC ;IF RIGHT-MOST
32 * 031F: 18 31 LDA XCAND ;BIT = 1, THEN
33 * 0320: AD 4A 03 ADC PROD ; PROD =
34 * 0323: 6D 4E 03 STA PROD ;PROD + XCAND.
35 *
36 * LDA XCAND+1 ;THEN, CALCULATE THE
37 * 0329: AD 4B 03 ADC PROD+1 ;MSB OF THE PRODUCT
38 * 032C: 6D 4F 03 STA PROD+1 ;(SUM CARRY LEFT OVER
39 * 0332: 18 39 CLC ;FROM LSB CALCULATION).
40 *
41 * ZERO LDA XCAND ;"DOUBLE SHIFT"
42 * 0333: AD 4A 03 ASL ;MULTIPLICAND
43 * 0336: 0A 42 STA XCAND ;(MSB AND LSB)
44 * 0337: 8D 4A 03 ROL XCAND+1 ;OVER ONE SPACE
45 * 033A: 2E 4B 03 CLC ;TO THE LEFT.
46 *
47 * RETURN DEC COUNT ;DECREMENT LOOP COUNTER,
48 * 033E: CE 4D 03 BNE BEGIN ;COUNT = 1 TO 8.
49 * 0341: 00 03 LDX PROD+1 ;X = MSB OF PRODUCT.
50 * 0343: AE 4F 03 LDY PROD ;Y = LSB OF PRODUCT.
51 * 0346: AC 4E 03 RTS ;RETURN.
52 *
53 * ***** DATA *****
54 *
55 * XCAND DS 2 ;MULTIPLICAND.
56 * XLIER DS 1 ;MULTIPLIER.
57 * COUNT DS 1 ;LOOP COUNTER.
58 * PROD DS 2 ;RESULTING PRODUCT.
59 *
60 * ***** END OF SUBROUTINE *****

```

--End assembly, 80 bytes, Errors: 0

Well, I think I'm finished for now. So &

Modula 2 contd. from pg 42

pass values to the new procedure, called "parameters" which are enclosed in parentheses after the name of the called procedure. In some cases, the called procedure can also pass values back to the original procedure. The WRITESTRING procedure in this case will merely take the one string parameter 'Hello there!' and place it on the screen. It does not return any information.

RUNNING THE PROGRAM

You can use the Pascal editor to type in the above program and create a TEXT file for input to the compiler. If you have your compiler and your library present in your disk drives, selecting Run from the Command menu will compile and execute your program. (Two drives are needed for all practical purposes. The library file MODULA.LIBRARY must be present on the prefix volume.) If your program compiles successfully, the object code version will be saved in SYSTEM.WRK.CODE and can be reexecuted without repeating the compilation step.

In future installments, we will cover how to incorporate your program into the library using Volition System's Librarian program and will walk through a more complete sample program: a simple computer-based flash card drill driver.

PEACHTEXT WORD PROCESSOR:

A REVIEW

by Carl Eisen

One of the worst ordeals any computer owner faces today is the selection of word processing software. The number of available programs for the Apple][-][+//e has been growing rapidly, thus complicating matters considerably. These programs (over 30, at last count) range in price from \$50 to more than \$500 and offer a bewildering array of features that promise to do everything except walk the dog.

If you are about to embark on this arduous task of word processor shopping, you should give very serious consideration to PeachText (formerly known as Magic Wand), published by Peachtree Software of Atlanta, Georgia. When used in conjunction with Peachtree's spelling proofreader, mailing list, spreadsheet, and telecommunications programs, PeachText becomes a very powerful business tool. The only problem you'll encounter with this program is in the difficulty of finding it locally (it is, however, widely available through mail order) and, worse, getting someone to demonstrate it for you. However, this situation is beginning to change. I've noticed that several area computer stores have begun to stock PeachText, but most of the salespersons know very little about its operation. Once you've seen it in action, though, you'll be hard pressed to find any word processor available for the Apple computer that can surpass it. It has more features than WordStar, but it's much easier to learn and to work with.

The suggested list price is \$500, but I purchased it in a package called Peachpak 9, which also includes the Spelling Proofreader and Mailing List Manager, for under \$250, an incredible bargain. You receive one copy of the distribution disk (which is not copy-protected, since PeachText runs under the CP/M operating system), and two configuration disks - one for your terminal and the other for your printer. In order to run PeachText, you'll need a Z-80 Softcard, 2 disk drives, at least 48K of memory (64K is preferable), the shift-key modification for the][or][+, and an 80-column text card. I use PeachText on the //e with the Microsoft Z-80 Softcard and the Apple 80-column text card, which works perfectly.

INSTALLATION

Before you begin working on your first document, you must install PeachText on a copy of your distribution disk. **DO NOT INSTALL THE PROGRAM ON YOUR ORIGINAL DISK!** If you've never had the pleasure of installing a CP/M program before, you're in for a real treat. Be patient and read the instructions in the manual at least 30 times and then call an experienced CP/M user to do it for you. If you attempt to install PeachText yourself, take it slowly and don't wreak your vengeance on your poor hapless Apple. All kidding aside, it's not a particularly difficult job, but you must have at least a working knowledge of CP/M lingo to get through installation with a minimum of difficulty. I won't go into all the gory details here, but remember these very important points:

1. If you have the Apple 80-column card that came with your Apple //e package, choose Videx Videoterm in response to the selection concerning terminal drivers. The code to use is TERMVX.HEX.
2. If you have a letter quality printer, you will be able to choose from an assortment of printer drivers listed in the manual. However, if you have

a dot matrix printer, your printer selection must be 'DRAFT'. The code for the dot matrix driver is PRNTRDFT.HEX.

Once you have made a copy of the distribution disk, copied CP/M system tracks onto it, and installed PeachText, you're ready to begin composing your first masterpiece.

EDITING A DOCUMENT

Boot your installed PeachText into Drive A: (use Drive B: for your data files) and type 'PT' at the CP/M prompt. You will then see the PeachText Menu. The list of available selections is:

DOCUMENT COMMANDS

ED - Edit Document
PR - Print Document
CO - Copy Document
DE - Delete Document
RE - Rename Document
DI - Display Directory
?? - Get Help!
EN - End PeachText

DISK COMMANDS

SW - Swap Disks
CH - Change Default

SPECIAL COMMANDS

P - Spelling Proofreader
TC - Telecommunications
ML - Mailing List Manager
PC - PeachCalc

To start a new document or edit an existing one, you simply type 'ED' at the main menu, type your filename and PeachText will then display the EDIT STATUS SCREEN. On this screen you'll find information about your file: amount of memory available for editing, amount of memory both used and remaining, type of file, tab settings, line width. On an Apple with 64K, you have approximately 38,000 characters available to store in memory (about 35 typewritten pages). Available commands on the EDIT STATUS SCREEN allow writing all or a portion of your file into memory from disk, merging files (all or part), text block manipulations, file deletions, and CP/M file directory examinations. You can also print your file from the EDIT STATUS SCREEN, but any embedded commands will not be in effect in this mode and will print out with the rest of your file. This feature comes in handy when you want a rough draft of your file and need to know what commands you've embedded in it.

PeachText also allows you to print one file while working on another. This is known in the word processing world as spooling. Spooling with PeachText slows down editing considerably, but since the PRINT program allows you to print a fully formatted file to disk, it can be a blessing when you're in a rush and don't have the time to sit there while you watch your printer work.

To enter text, you press <return> at the EDIT STATUS SCREEN and you are then presented with a totally blank screen, ready for keyboard input. Just begin typing the desired material. Word wraparound is present by default, but it can be turned off for entering source code for programming languages. There's no need to worry about carriage returns until you reach the end of a paragraph. Cursor movements are done with the CTRL key plus one other key, for example, CTRL-T for top of document, CTRL-B for bottom of document, etc. The right and left arrow keys are used to move your cursor right and left without erasing existing text. There is a separate stick-on reference card in the manual for the terminal you select in the installation

contd.

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program. This card lists all the control key sequences used in editing and is designed to be placed in a designated spot in your larger reference card. The cursor can also be moved up or down one line, to the top or bottom of your working screen, to the beginning or end of the current cursor line, or by using the TAB key, to the specified tab settings. Characters, lines, or words can be inserted or deleted and blocks of material of any size can be moved, copied, or deleted at any time. One of my favorite features of PeachText is the full/end insert mode, which clears the screen from the cursor position and allows you to enter large amounts of text without having to reformat the remainder of your text afterwards. When you have to insert an omitted or additional block of text in the middle of a document, you'll find that this feature is a godsend. When you're finished entering the additional text, type the full/end insert mode key (CTRL-O) and your document closes up to format the new text that you've typed. No other Apple word processor that I have encountered has this feature, which is a very valuable time saver.

Other available edit functions include Search and Replace with which you can find a desired word or words in your document. You can perform a single or multiple replace of occurrences of your target word, either a fixed number of times or globally. This function can then be repeated later in the edit mode without having to re-enter the target word or words.

PRINTING A DOCUMENT

When you've finished editing your file, return to the main menu to select the print program. You can use print commands either entered from the keyboard or embedded in your text file to control the exact format of your page. A Print Status Display Screen is shown that lists the current values of the internal variables that control the printed output. Commands are available to change the left/right margins, line spacing, page length, paragraph indentation, justification (right, left, normal, expanded), boldfacing, underlining, headers, footers, etc. All these commands can also be embedded in your text.

Two other special print commands are available which further demonstrate PeachText's extraordinary versatility. The first is the OUT command, which allows you to choose virtually any of a dot matrix printer's special print features without having to patch the printer driver during installation, as you must do with WordStar. Be sure to have your printer's manual available for this task, since you'll need to know the special printer codes to access the various print faces such as condensed, italics, elite, enlarged, superscript, subscript, and any other combination which your printer offers. If you embed the OUT command in your text file, you can change print faces as often as you like throughout a file. I use an Epson FX-80 dot matrix printer and have been able to use all the print faces available with that printer. What other word processor on the market today allows you to accomplish so much with your printer?

The other special print command is called 'SCREEN ON'. This allows you to print your text file to the screen instead of to the printer. If you have embedded the underline command in your text file, you can actually see the underlines on your screen. Page breaks, headers, footers, page numbers, and selected margins are also shown. If you don't like what you see, change the appropriate command at the Print Display Status Screen; there's no need to return to the Edit screen and alter any embedded commands.

In addition to all this, you can select single sheet or continuous paper, insert conditional new page commands, print multiple copies of a document, start

and stop printing a text file wherever you want, insert conditional hyphens in your text, or use reverse or hanging indentation. In short, if there is any special way you want your file printed, PeachText can probably do it.

VARIABLES AND DATA FILES

A majority of the features previously discussed are standard in most full-featured word processors. However, in the use of variables and data files PeachText distinguishes itself from the rest of the crowd.

By printing or testing internal variables, you can keep track of the current column number, line number, page number, and number of lines left on the page. Other internal variables record the number of copies you have printed, and keep track of the external data files you are using. These variables can be used to print page numbers, determine how many lines you have left on a page, skip to a given line, or determine the status of your data file.

You may also define your own variables to control what is printed and how it is printed. Up to 128 different variables are available in your text file. You can define string variables, numeric integer variables, or decimal dollar variables. These variables can be printed in your text, changing them dynamically for multiple printouts of the same file. You can add and subtract numeric variables, assign the value of one variable to another, use IF statements to test and compare the length of variables in a manner very similar to programming in BASIC. The SKIP command lets you skip over a given number of lines in your text or skip to a specific character in your file. By combining IF statements with SKIP statements, you can make the variables you have defined control what portion of your text is printed.

The values of the variables may be set directly in your text file or entered from the keyboard or disk file at the Print Status Display Screen. A prompt can be issued to the screen requesting the input of a variable. If you are running multiple copies of the same file, you can test a variable and request its input only if it has not been previously entered.

Data files can either be text files with variable line lengths, or fixed record length files generated by another program. For example, you can access a fixed record length name and address file and print a mixture of three and four line address labels using PeachText. And you can do all this without having to purchase any other software support program!

DOCUMENTATION

PeachText comes with a 400-page manual, 8 1/2" by 11", in looseleaf format. The first section provides general information about word processing and using PeachText, making copies of the distribution disk using your CP/M copy program, placing the CP/M system on your disk, and installing PeachText on your working system disk. There is also a short discussion of CP/M terminology which proves to be quite helpful for new users of that operating system.

The second section is a 150 page tutorial which leads you through each feature found in PeachText and uses sample files which are provided on your distribution disk. The tutorial is clear, concise, and takes you one step at a time through the myriad of features. There are numerous screen representations so you can check your progress as you proceed. Every software publisher should use this tutorial as an example of how to write software documentation--it's the finest I've ever seen.

contd.

The remainder of the manual is a giant reference section discussing all the features in greater detail and an 8 page section on hints and tips. This is followed by the appendices which include a glossary of PeachText, CP/M and word processing terminology; notes for programmers; 16 pages of error messages you might encounter and how to solve them; and a complete index for the entire manual. Also included with the manual is a fold out reference card, similar to the card supplied with WordStar.

All in all, this is a very impressive manual, remarkably free of computerese, and geared to the beginner. The manuals for the Spelling Proofreader and Mailing List Manager are equally well-written. Peachtree has obviously put in a lot of effort into ensuring that their manuals are all top-notch.

SUPPORT

It says in the manual that Peachtree Software will provide you with an extended one-year support plan allowing you to call as often as you like for an outrageous \$150 a year. Forget that. I had several questions after my 30-day introductory support expired and even though I did not choose the extended plan, I received very courteous and helpful support from the technical staff at Peachtree. They even gave me a patch for the printer driver to make my Epson perform a couple of special tricks.

CONCLUSION

I used PeachText this past summer to type a technical book of more than 500 pages and I grew to love this program more than any other software program I had used before and since. There are a number of good word processing programs available for Apple today but none can approach the outstanding versatility and ease of learning of PeachText:

Apple Writer //e, which is great for small documents, but very quirky and unpredictable when working on large documents;

ScreenWriter][, probably the most powerful non-CP/M Apple word processor with a large number of advanced features, but with a totally impossible manual and very hard to read 70 column character set (this has changed with the release of a new version for the //e);

Letter Perfect, which supposedly is a fairly decent word processor, but is saddled with the worst documentation that I've ever seen. Run-on sentences and typing errors abound. If you're trying to learn the program from the manual, the result is a total nightmare.

WordStar, one of the best and well known word processing programs, takes time and patience to learn and requires a lot of effort to master. It is also quite expensive and has a poorly organized manual. This is my second choice after PeachText if you need a very powerful word processor.

PeachText combines very powerful features with excellent documentation and support from Peachtree which, in the opinion of this reviewer, makes it a truly outstanding word processor for both home and business use. Consider it seriously when you're buying your word processor program.

If you have any questions about PeachText or would like to see it demonstrated, please feel free to call me on (703) 354-4837. ☺

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PUSHED KICKING AND SCREAMING INTO CP/M - PART 2

by Leon H. Raesly



WordStar!! THE word processor to beat if you are writing a word processor program! The word processor that your program will inevitably be compared with if you are trying to sell a word processor! Is it really that good? YES! Is it worth the money? Not necessarily! Is it the best? That depends on your use!

Let's take a moment to look at those questions, then we will get back to looking at WordStar itself.

WordStar currently costs \$495 (list). It currently comes bundled with a Z-80 card (not MicroSoft's). It requires you to have a monitor, instead of a TV screen. If you are using an Apple II +, you must also have an 80-column card. As far as I know, if you already have a Z-80 card, the WordStar program still costs the same. So the question of being worth the difference really depends on if you need its special features, and if the outlay of whatever you need to buy and run the program is financially appropriate for you.

The second question depends on your use. I have WordStar, and I use it for some manuscripts, etc. For quick correspondence, I use Letter Perfect. However, if I am going to type several letters, all different, and print them, then I use WordStar, since I can type and print at the same time (well, sort of!).

In addition, I have several billing and invoicing applications that are just not suitable for WordStar, but work very well with Letter Perfect. So for me, if I could have only one word processor program, it would be Letter Perfect (or ScreenWriter) program. For you, it might be different. WordStar is particularly suited for manuscripts and articles.

O.K. Now let's look at WordStar itself. When you first get it, you must install the Z-80 card, and then boot CP/M. The reason? You have to run a program called INSTALL before you can run WordStar. Of course, when you get CP/M booted, you would make a USE copy of WordStar, using the COPY utility of CP/M.

And this is one of the BEST features, in my mind, of WordStar. It is not copy protected. Thus, you can have as many backup copies as you need. I usually make one archival copy, and one use copy. Then I place the archival copy, and the original in two DIFFERENT places, and use the use copy. If I ever need to make a replacement use copy, I make it from the archival copy, and leave the original alone. This gives me extra protection.

So let's get on with WordStar. After you have made your archival or use copy, then run the program INSTALL. With the A> showing on the screen, type:

INSTALL

WordStar will ask you a couple of questions, and for the first time, choose the easy answers. You want a normal installation; tell it what type of video you have, what printer (if shown on list) or "teletype-like" device, no communications protocol, and choose the CP/M device (answer A). WordStar responds to each of the questions with a detailed explanation of what it is going to do, and asks "O.K.? (Y/N)".

Word Star will then boot itself, and gives you its "No File" menu. At this point if you are actually running WordStar, it is time to seek help! I suggest a book called "Introduction to WordStar" by Arthur Naimen. It is published by SYBEX, Inc. and is available at most bookstores. I used it myself and think it is very good.

Now let's talk about some of the strong points of WordStar, then some of it's weak points.

First are the menus and help screens. There are 6 separate menus. These are NO-FILE, BLOCK, QUICK, PRINT, ON-SCREEN, and MAIN. There are 9 help menus. They are: Status, Margins, Flags, Dot Commands, Paragraph Reform, Ruler Line, Place Markers, Moving Text, and Display Help.

The NO-FILE menu, which comes up whenever you first load WordStar, is essentially a file menu. It allows you to DELETE, RENAME, COPY or PRINT a file. From it you also can SET HELP level, RUN another program in WordStar environment, or EXIT to the CP/M system. You can also RUN MAILMERGE and SPELLSTAR. The final two things you can do relate to EDITING a file. You can open a new, or previously written DOCUMENT file (which is just that, a regular WordStar file), or a NON-DOCUMENT file. This is used to write a COMMAND file for dBASE II, for example.

The MAIN menu is really a type of HELP menu. It displays the primary CURSOR move commands, SCROLLING commands, DELETE commands, and a few miscellaneous, but often used commands.

The BLOCK menu is BLOCK and FILE menu. It displays the commands to SAVE and resume editing same file, SAVE and get new file, ABANDON file you were editing (throws away memory, but does nothing with the file on the disk), PLACE markers within the text (to which you can return at a later date), PLACE beginning and end of BLOCK markers, HIDE or DISPLAY those markers, COPY, DELETE, MOVE a BLOCK, or WRITE a BLOCK to disk. It also allows you within WordStar to do many file operations, without having to exit the text. These include READING, PRINTING, COPYING, and RENAMING a file; as well as change logged disk, and get a DIRECTORY of either, or any disk.

One of the neat things with the BLOCK menu, is that you can move copy by columns, as well as the normal row method. Thus, if you have a table, and wish to MOVE (or COPY, WRITE, etc.) a column, you just do it! All you do is specify the column command, place your block markers as normal, and then do what you wish with the column.

The QUICK menu is just that, a menu to do things QUICKly. The CURSOR move commands are extended here. You can quickly move to either end of the line you are on, to the end, or beginning of the text, and can scroll rapidly in either direction. CURSOR movement on the QUICK menu can be to the end, or beginning, of a block, to a marker, or to the last REPLACE that you did.

On the QUICK menu you can also do a SEARCH, or a SEARCH and REPLACE, with many options. You can also automatically repeat any command, until a SPACE BAR is

contd.

depressed. You can also access SPELLSTAR from within the text that you are editing, without having to exit either memory, or the program.

The PRINT menu allows you to embed many commands within the text. These include ALTERNATE ribbon, STANDARD or ALTERNATE pitch, BOLD, UNDERSCORE, SUBSCRIPT, SUPERScript, STRIKEOVER, and four user patches.

The one thing that you cannot do from the PRINT menu is print! You do that from the BLOCK menu. Just one of the many idiosyncracies of WordStar. Others are that CTRL I is TAB, CTRL G is DELETE, etc.!

The last menu that we will look at is the ON-SCREEN menu. This menu allows you to SET and CLEAR TABS, USE a paragraph TAB, center text (and it literally centers it on your screen -- WHAT YOU SEE IS WHAT YOU GET! (practically) -- WORD WRAP on/off, JUSTIFY on/off (and the text is justified on the screen - WYSIWYG, as I said before!

If you have ever used a dedicated word processor, you will really appreciate the next two features. The first is a soft hyphen. If you have the soft hyphen on, and a hyphen is placed in a word, or words, WordStar will use them at the end of a line if needed, and if not will discard it on printing. In addition, hyphen help, when reformatting a paragraph, will show you a possible place to place a hyphen at the end of a line if needed, and if desired you can insert the hyphen, or move the position, and insert the hyphen!

The HELP menus usually have several pages for each one. You can turn off the HELP menus, so that you have a larger screen. When you are printing, WordStar allows you to work on a text while you are printing. Not at the same time, though. While you are typing, the printer stops. Then any time you stop, the printer prints. For me this was somewhat disconcerting, as I felt that I was keeping the printer from being able to do its work!

Now what are some of its disadvantages? First, printing is slow. Even if you are only printing, and not editing, it is slow. If you are used to Letter Perfect, or Apple Writer II, it prints at about one half the speed.

Second, it works with CP/M. Thus, if you want to transfer copy to someone else with an Apple word processor, the odds are that theirs will be in Apple DOS, so you must first convert one or the other files, to be compatible.

Third (or maybe this is first!), is the cost. As I indicated above, you need to ask yourself, "Does the number of features I will gain in my circumstances equal or exceed (for me) the cost?"

Well, now you have a picture of WordStar. If you are a regular user of WordStar, and feel that I left out some important feature or technique that you liked, why not drop a note to the PI, and they can cover that in the next issue. Thanks for listening. 

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SOFTVIEWS

by David Morganstein

Intellectual Decathlon. (Gabor Laufer) The market for "games" on the Apple is unsurpassed. Most of the games involve shoot-em-ups in fast action, high resolution color or battle simulations. Some of the "games" are educational, aimed primarily for the young. Gabor, a WAP member and physician, has written an ingenious set of ten tests of mental acuity for people of all ages. You will have to undergo a mental training program before you are ready for his decathlon! If you have ever played "Olympic Decathlon" you will find the same features permitting you to practice any event, to save the Decathlon in mid-play and to restart a saved session. Some of the events can be played by two, and all identify the maximum attainable score (a little carrot out there for those who love challenges!) Let me describe some of my favorite events.

Safecracker is a mental challenge which asks you to unlock the nine-clock timer on a bank vault. All of the clocks have to be set to midnight to open the safe. Sounds easy? Ha! Unfortunately, you cannot simply turn each clock independently. There are nine combinations, each of which causes a set of from three to five clocks to move one quarter of a rotation. Using the nine combinations you can reset all the clocks to midnight in a fixed number of selections. The challenge: find the right order!

Apple Derby is a real thought-provoker, even if you have never been to the races. Gabor presents you with the results of five previous races for six horses. The results describe various factors, such as length of the track, skill of the jockey, weather, etc. Using these data, you can determine how sensitive the various horses are to these conditions. The puzzle: given a new race, to place your bets and win what really is a sure thing, if you can figure out the clues.

Most of the events have a common theme, to decode available information. In brainblender, each of the keys of the keyboard have a value of either +1 or -1. After entering a set of three keys, the values are added and a frame on the screen moved left, right, up or down according to the resulting sum. You have to figure out what the codes are by selecting patterns of keys and seeing what the resulting movement is. You can begin with a small number of keys and build to the Decathlon event. Don't try this one after a hard day... Distributed by MUSE, 347 N. Charles St., Balto. Md. 21201.(301) 659-7212. Price: \$39.95.

Homeword. This recently released word processor from Sierra-On Line is a radical break from the standard. It is a low-cost, easy to learn, though limited capability word processor. It is aimed at competing with a package like Bank Street Writer. It features icons (just like the LISA!) to select the various options. The manual is short and contains many pictures of the various screens. The text window is, like Screen-Writer II (another Sierra product), at the top of the screen, above the command options displayed along the bottom. Only 15 lines of forty columns of text can be viewed. Homeword does not permit an eighty column display but does have a novel feature to tell the user what the page will look like. As text is entered, the format of the printed page containing the text above appears as a small picture in the lower right-hand corner. The picture contains dots representing the words but definitely conveys the indenting and tabbing

specified within the text. As you move through the document the picture is updated as text changes. It's the next best thing to a sixty line screen. Homeword comes with an audio cassette (and printed transcript for those who don't own a cassette player) containing a short tutorial. The commands are easy to learn and the icons mostly meaningful. There is an open file cabinet with an arrow coming out which means get a file. There is a diskette with question marks on it. If you guessed this would catalog the diskette, you are right. I think the effectiveness of the program is due as much to simplicity as it is to the novelty of the icons. (Sierra-On Line, Sierra On-Line Building, Coarsegold, CA. 93614) Price: \$49.95

Diversi-DOS Version 4-C. (Bill Basham) The WAP Library has a disk, volume 130, entitled Diversi-DOS, a greatly improved version of Apple DOS. This disk was given to us by Bill Basham for distribution to members for their examination. The library version is 2-C. If you like what the disk does, you are asked to send \$25.00 to Bill to purchase it. Bill allows clubs to charge up to \$10.00 for this free home trial demonstration of Diversi-DOS. We have recently received version 4-C and it should appear in our disk listing in early 1984. Bill has increased the price to \$30.00 for the new version. Registered owners of early versions can update for a nominal fee of \$5.00. What is Diversi-DOS and what is new about version 4-C? As anyone knows who has written programs which read text files, Apple DOS can be very slow at times. Diversi-DOS speeds up DOS, permitting faster LOADs, BLOADs and saves, as well as faster text file access. But it is more. It comes with a printer spooler for Apples with 64K of memory. A spooler permits your programs to load text into a memory buffer and be printing it from the buffer while an Applesoft program is running. Alternatively, you can move the DOS into the upper 16K memory area and have an extra block of memory for longer Applesoft programs. The new features of version 4-C include a TLIST command which permits you to view the contents of a text file. There is a line editor which permits the insertion and deletion of characters in an Applesoft program. You can create keyboard macros, single keystrokes which transmit multiple characters to DOS or BASIC (imagine being able to type CATALOG D2 with a single keystroke!). You need no longer remember the start point and length of a binary file to save it, version 4-C will use the parameters from the last BLOAD. All in all, a wonderful set of utilities at a low price. The best part is the Bill believes so strongly in his product, he allows you to obtain a copy through the WAP library for examination. If you like it, send him the \$30.00, if not, simply erase your copy. (Diversified Software Research, Inc., 5848 Crampton Ct., Rockford, Ill., 61111) Price: \$30.00. Ⓢ

Happy Holidays!

COMMANDING THE OKIDATA 92 USING MAGIC WINDOW I

by Fred Fear

Until the November meeting I thought I was one of a tiny minority of Apple II+ owners who used the Magic Window word processor. When at that meeting I heard questions raised about controlling the Okidata 92 printer from MW I figured others might benefit from my experience.

The following results from several hours of frustrating experimenting and several calls to Artsci. (The frustration, at least, was free.) The people at Artsci were always willing to answer the question asked, though I learned that sometimes I asked the wrong question - they never clued me in on this, though that may be expecting too much.

MW comes with a procedure for including printer control characters in text. It essentially involves typing, "Ctrl B" followed by the ASCII equivalent of the CHR\$ string the printer manuals contain. Thus, to illustrate, the correspondence quality print mode of the Okidata 92 is turned on by the sequence "Escape 1" or "CHR\$(27),1". The MW equivalent sequence is, "CTRL B, Escape, 1."

This works for all sequences involving the Okidata "ESCAPE" or "CHR\$" and one digit commands. It is best to embed these commands at the beginning of an empty line on the page because, while the command sequence will not print, it will affect any of the line justification commands, i.e., if you use the printer command on a line with a centered title, the centering will be thrown off. I usually put commands that will apply to the whole document in the header line where they will be repeated on each page and where I won't have to worry about them interfering with other text commands.

Things get slightly more complicated when the Okidata sequences involve letters. The letters -- note this well because it is the source of nearly all my wasted time in formatting -- the letters must be CAPITALS and the spaces preceding and following the embedded command must be included unless you do not want a word break, that is you could underline only part of a word or single letter.

I thought that was all there was to it. Then I wanted to access characters that were not part of the Apple character set, namely CHR\$ 28 and CHR\$ 31 which are needed to get the double width print mode. The solution for me was to try putting the PKASO commands in the MW format. THEY WORK! In short, you can control the Okidata using either MW or PKASO commands.

The biggest problem is being certain that capital letters have been used in the printer commands. The second biggest is to be certain to turn the underline off at the end of each line of print. That is necessary because if the underline extends to the following line the printer leaps to the first column -- most of us do not type on the page edge to edge. It's a bit of a hassle but it works perfectly. The only other bit of difficulty is in justifying the right margins. Since there is no margin release feature, you cannot crowd the printer control characters beyond the margin you have set. Thus, ending a print mode at the end of the line obligates you to think a bit ahead and make sure you have the spaces to accommodate the control sequence even though it doesn't print.

This may be unnecessary, but the following is a list-

ing of the most often used control sequences from the Okidata manual, their MW and PKASO equivalents.

Okidata Sequence	MW Sequence	PKASO
correspondence mode. CHR\$(27),1	>B ESC 1 *	
return to normal ... CHR\$(27),0	" " 0	
horizontal emphasized print CHR\$(27),T	" " T	
vertical emphasized print CHR\$(27),H	" " H	
cancel either emphasized mode CHR\$(27),I	" " I	
superscript CHR\$(27),J	" " J	
end superscript CHR\$(27),L	" " K or L	
or K		
subscript CHR\$(27),L	" " L	
end subscript CHR\$(27),J	" " M or J	
or M		
underline CHR\$(27),C	" " C	
end underline CHR\$(27),D	" " D	
10 cpi CHR\$(30)	" "	>I67F
12 cpi CHR\$(28)	n/a	>I81F
17 cpi CHR\$(29)	" ESC]	>I97F
5 cpi CHR\$(30),	n/a	>I3F
CHR\$(31)		
6 cpi CHR\$(28),	n/a	>I41F
CHR\$(31)		
8.5 cpi CHR\$(29),	n/a	>I49F
CHR\$(31)		
8 lines per inch ... CHR\$(27),8	" ESC 8	
6 lines per inch ... CHR\$(27),6	" " 6	

* > designates control characters

I have shown the PKASO commands only where the Apple keyboard would not let you send the Okidata command. There is a procedure described in the PKASO manual that would let you use PKASO commands for all printer functions (assuming, of course, that you have the PKASO board to fit your printer).

Once all this dawned and I started issuing the right commands, I found that the Okidata is indeed as good as its notices and the Magic Window does indeed make it as easy as advertised to produce quite good looking documents.

One gentleman at the meeting told me he had a Franklin with the Acewriter word processor published by Artsci - a good chance that it is Magic Window in disguise. The codes differ a good deal as do the codes controlling other printers. I just hope the techniques pointed out here give some others a leg-up on the problem. Lotsaluck.

P.S. I have ordered the Magic Window II to succeed the I to take advantage of my 80-column card. If the printer control sequences differ substantially, I'll submit an update.

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C. ITOH/PROWRITER CHARACTER FONT

by Bert Morris

What dot matrix printers may lack in letter quality, they more than make up for in versatility, having several fonts to choose from and special printing features as long as your arm. The C.Itoh/Prowriter is no exception and its flexibility is most appreciated by the user who wants to be creative at the keyboard. Unfortunately, the Greek letters, symbols, and the various graphic characters have to be activated through the Apple's standard keyboard, which only has the normal QWERTY layout. This means you have to look up the table in the back of your printer manual to find out which of your ASCII keys will activate the desired character once you have sent the commands that place the printer in that alternate font.

Fortunately, each of the two substitute tables start with the same ASCII value (32) as the standard alphanumeric keyboard. The spacebar will generate a space, naturally, in ASCII, the letter alpha (α) in the Greek mode, and a single straight underline () in the graphic mode. Similarly, both the graphic bTock █ and the Greek letter Θ (each ASCII value 39) are generated with the apostrophe (keyshift 7). The ASCII values from 32 to 127 represent the entire QWERTY board. The Greek replaces values 32 to 94, and the graphics 32 to 87.

It seemed a simple task to have the Apple ask the printer to print out each ASCII value number, a space, the character itself, another space, and then the next ASCII value, etc. I was not prepared for the chaos that followed. Reams of paper and many phone calls later to my friend, Henry, I hit on the right program steps that enabled the printer to do what I wanted it to do. After printing it, I cut it out and put it between the keyboard and the monitor so I could refer to it as needed.

You will especially enjoy this table if you use Word-Star or other word processing programs that allow you to define the user patch areas. It becomes a simple matter of programming the address of the printer control function keys with the hexadecimal numbers that activate (and restore from) each character font. Then you type merrily along, shifting in and out of your fonts, looking up their ASCII replacements on the table as you go.

With some modifications, this program should work for any dot matrix printer. You will have to supply the correct information for the CHR\$() commands and the numbers of values in each font that apply to your printer.

In the hard copy which follows the listing below, each printed value has been double struck for greater visibility. I hope it saves you many hours of tedious looking-up. Give it a shot and let me know how it works for you.

Listing

```

10 PR# 1
20 PRINT CHR$( 27); CHR$( 33); CHR$( 14);:
   REM BOLDFACE & DOUBLE WIDTH
30 PRINT "      C.ITOH/PROWRITER CHARACTER FONT"
40 PRINT "      MATCH-UP TABLE"
50 PRINT CHR$( 15); CHR$( 27); CHR$( 34);:
   REM RESTORE FROM DOUBLE WIDTH BOLDFACE
60 PRINT "                                BY BERT
   MORRIS"

```

```

70 PRINT : PRINT
80 PRINT "TO USE GREEK, OR GRAPHIC FONTS, LOCATE THE
   NUMBER TO THE LEFT OF EACH CHARACTER, THEN FIND
   IT'S ASCII EQUIVALENT AND TYPE IT. FOR SPACING
   YOU MUST GO BACK INTO ASCII ALPHANUMERIC AND USE
   THE SPACEBAR."
90 PRINT : PRINT
100 FOR C = 1 TO 3
110 LET V = 32:S = 0
120 IF C = 1 THEN GOSUB 200
130 IF C = 2 THEN GOSUB 300
140 IF C = 3 THEN GOSUB 400
150 PRINT CHR$( 27); CHR$( 36);" ";: REM ASCII
   RESTORE
160 NEXT C
170 PRINT : PRINT
180 PR# 0
190 END
200 PRINT CHR$( 27); CHR$( 36); CHR$( 27); CHR$( 33)
210 PRINT "STANDARD ASCII ALPHANUMERIC:"
220 PRINT : PRINT CHR$( 27); CHR$( 34);
230 PRINT V;" "; CHR$( 27); CHR$( 33); CHR$( V);
   CHR$( 27); CHR$( 34);" ";
240 LET V = V + 1
250 IF V < = 100 THEN Z = 5
255 IF V > = 100 THEN Z = 6
260 LET S = S + Z
265 IF S > = 80 THEN GOSUB 900
270 IF V = 123 THEN GOSUB 900
280 IF V = 128 THEN RETURN
290 GOTO 230
300 PRINT : PRINT : PRINT CHR$( 27);
   CHR$( 33);
310 PRINT "GREEK & SYMBOLS:"; CHR$( 27); CHR$( 34)
320 PRINT
330 PRINT V;" ";
335 GOSUB 1000
340 LET V = V + 1
350 IF V < 100 THEN Z = 2
355 IF V > = 100 THEN Z = 3
360 LET S = S + Z
370 IF S > = 31 THEN GOSUB 900
380 IF V = 95 THEN RETURN
390 GOTO 330
400 PRINT : PRINT : PRINT CHR$( 27);
   CHR$( 33);
410 PRINT "GRAPHICS CHARACTERS:"; CHR$( 27);
   CHR$( 34)
420 PRINT
430 PRINT V;" ";
435 GOSUB 2000
440 LET V = V + 1
450 IF V < 100 THEN Z = 2
455 IF V > = 100 THEN Z = 3
460 LET S = S + Z
470 IF S > = 31 THEN GOSUB 900
480 IF V = 88 THEN RETURN
490 GOTO 430
900 PRINT
910 LET S = 0
920 RETURN
1000 PRINT CHR$( 27); CHR$( 38);: REM GREEK
   CHARACTERS
1010 PRINT CHR$( 27); CHR$( 33);: REM BOLD SELECT
1020 PRINT CHR$( V); CHR$( 27); CHR$( 34);:
   REM PRINT VALUE & CLEAR BOLD
1030 PRINT CHR$( 27); CHR$( 36);" ";: REM ASCII
   RESTORE & PRINT SPACE
1040 RETURN
2000 PRINT CHR$( 27); CHR$( 35);: REM GRAPHICS
   CHARACTERS

```

contd.

```

2010 PRINT CHR$ (27); CHR$ (33);: REM BOLD SELECT
2020 PRINT CHR$ (V); CHR$ (27); CHR$ (34);:
REM PRINT VALUE & CLEAR BOLD
2030 PRINT CHR$ (27); CHR$ (36);" ";: REM ASCII
RESTORE & PRINT SPACE
2040 RETURN

```

**C. ITOH/PROWRITER CHARACTER FONT
MATCH-UP TABLE**
BY BERT MORRIS

TO USE GREEK, OR GRAPHIC FONTS, LOCATE THE NUMBER TO THE LEFT OF EACH CHARACTER, THEN FIND IT'S ASCII EQUIVALENT AND TYPE IT. FOR SPACING YOU MUST GO BACK INTO ASCII ALPHANUMERIC AND USE THE SPACEBAR.

STANDARD ASCII ALPHANUMERIC:

```

32 33 ! 34 " 35 # 36 $ 37 % 38 & 39 ' 40 ( 41 ) 42 * 43 + 44 , 45 - 46 . 47 /
48 0 49 1 50 2 51 3 52 4 53 5 54 6 55 7 56 8 57 9 58 : 59 ; 60 < 61 = 62 > 63 ?
64 @ 65 A 66 B 67 C 68 D 69 E 70 F 71 G 72 H 73 I 74 J 75 K 76 L 77 M 78 N 79 O
80 P 81 Q 82 R 83 S 84 T 85 U 86 V 87 W 88 X 89 Y 90 Z 91 [ 92 \ 93 ] 94 ^ 95 _
96 ` 97 a 98 b 99 c 100 d 101 e 102 f 103 g 104 h 105 i 106 j 107 k 108 l 109 m
110 n 111 o 112 p 113 q 114 r 115 s 116 t 117 u 118 v 119 w 120 x 121 y 122 z
123 ( 124 | 125 ) 126 ~ 127

```

GREEK & SYMBOLS:

```

32 α 33 ρ 34 γ 35 ε 36 € 37 ζ 38 η 39 θ 40 ι 41 κ 42 λ 43 μ 44 ν 45 ξ 46 ο 47 π
48 ϕ 49 σ 50 τ 51 υ 52 ϕ 53 χ 54 ψ 55 ω 56 Δ 57 Γ 58 Σ 59 Λ 60 Ω 61 ρ 62 ↓ 63 °
64 † 65 ‡ 66 † 67 † 68 ± 69 * 70 † 71 † 72 ≈ 73 · 74 ⊕ 75 ⊖ 76 ∴ 77 † 78 † 79 °
80 † 81 † 82 † 83 † 84 † 85 † 86 † 87 † 88 † 89 † 90 † 91 † 92 † 93 † 94 †

```

GRAPHICS CHARACTERS:

```

32 _ 33 _ 34 _ 35 _ 36 _ 37 _ 38 _ 39 _ 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 †
48 † 49 † 50 † 51 † 52 † 53 † 54 | 55 | 56 † 57 † 58 † 59 † 60 † 61 † 62 † 63 †
64 = 65 † 66 † 67 † 68 † 69 † 70 † 71 † 72 † 73 † 74 † 75 † 76 † 77 † 78 † 79 †
80 X 81 - 82 | 83 † 84 † 85 † 86 † 87 †

```



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GAMES PEOPLE PLAY

by Leslie Shriener

Ultima III, by Lord British

This is the best Ultima yet. The program mixes all the best aspects of both the Ultima and Wizardry series into a great game for beginners and serious adventurers alike.

The object of this game is to destroy an evil enchanter and his minions in Sosaria. Ultima III allows the player to create a party of warriors with up to 4 members. These characters become the player's alter-egos for the duration of the game. As the player progresses through the game, characters gain experience, strength, and ability. With this increase in ability, more progress can be made toward winning the game. As time goes on, the game gradually becomes tougher; the monsters increase in number and become harder to kill, and the problems that must be solved become more complex up until the final confrontation between the players and the enchanter. While an exceptional player might be able to complete the game in as little as three weeks, most players will require six weeks or more. The game is therefore extremely challenging.

By traveling on land, sea and in dungeons, and by using the moon-doors, the player discovers clues which lead to other clues and eventually to the winning of the game. While searching for clues your group of adventurers encounters bands of roaming monsters and you do battle, to the death. To fight these monsters, there are a variety of weapons and over thirty spells to choose from.

Through the rest of this review, I will briefly highlight some of the individual sections of the game, noting the principal good and bad parts.

CHARACTER CLASSES

In deciding on your characters, you must pick from five races and eleven character classes, each having its own special attributes. Although your party can only be of four characters, the disk will store up to twenty characters. These can be used if two or more people play the game simultaneously.

Races: The races of beings from which the player can choose include the old standbys, the Dwarf, the Elf, and the Human. In addition, Lord British has now added two new races, the Fuzzy and the Bobbit. Each race is specially suited to one or more character classes. For example, Dwarves make good fighters and Fuzzies make excellent wizards and thieves.

Classes: There are eleven classes, each with special characteristics. Some are suited to only one job; the fighter, thief, wizard and cleric, for example. Other types have special abilities which give them combined features of more than one class, with limitations. The druid, paladin and barbarian are examples of these combination characters. The player must choose his party carefully in order to get the best results for future use.

TRAVEL AND COMBAT

On Land: Movement on land is very straight-forward -- just hit the direction key and move. In Ultima III the player has the choice of walking or going on horseback. Horseback riding is preferable but expen-

sive (unless you know how to steal them...) As in previous "Ultimas", the player cannot walk on water or travel through mountains. In Ultima III a new twist is added; you cannot see a whole screenful at one time. Unlike some other games, you cannot see past mountains or tall trees. The screen display is a little disorienting at first but the player soon adjusts to this realistic touch.

On the Ocean: Movement over the sea obviously requires a ship. There are plenty of them, if you know how to secure one. Lord British has added a new feature to ocean travel, winds. As in a real ship, one cannot sail against the winds; one must tack around them. This is a very good idea, but it is poorly executed. The winds change randomly, even in the middle of a move. Therefore, when the player looks up, sees the winds are not against him and goes to hit the direction key, often the wind changes before he can execute the move. This is very annoying. It is also not obvious at first that wind changes are occurring because the wind direction indicator is at the bottom of the screen where it is not readily visible. When one goes against the wind, all the program says is "invalid move"; no reason why you can't move is indicated, just that you can't.

In Dungeons: Unlike in the first two "Ultimas", mastering the dungeons is essential to winning the game. In them are treasures, magic fountains, and other hidden things. Each dungeon has eight levels and each level is different from the others. The dungeons can be a bit confusing (especially to avid Wizardry players) because the side views and the views through doorways are strange and difficult to map. I found mapping helpful at first but after my characters increased in spell-casting ability mapping became an unnecessary hassle.

In Towns and Castles: Travel in towns and castles is essentially the same as in Ultima II, you walk around inside without getting a full view. This can be quite a challenge if, for example, you find a town which is all trees. In the towns you will find armories, weapon stores, thieves guilds and other shops. Each type of shop is not found in each town, however. The player must discover which towns have which shops.

In Combat: Combat, whether on land, on the sea, or in a dungeōn, is to the death. The display increases in size to form an arena in which the fight takes place. Players use their ready weapons and magic spells to defeat all types of monsters; from the ever-popular but rather weak Orcs to the extremely powerful Orcusses. This new addition speeds up the game because it eliminates the problem in Ultima II of having the monsters run away.

MAGIC

Unlike previous games in this series, magic is very important to Ultima III. Since there are more than thirty spells, a player's character can become quite powerful compared to the everyday band of monsters. There is a good balance of spells, ranging from healing to combat. This aspect of the game is certainly much better than in earlier "Ultimas".

GRAPHICS AND SOUND

As in all of Lord British's games, state of the art
contd. on pg 63

FILECABINET GOES TO THE RACES - LISTING

The following listing was erroneously omitted from the December 1983 Journal, "Filecabinet Goes to the Races", by Robert C. Platt.

```
5 REM COPYRIGHT (C) 1983 WASHINGTON APPLE PI, LTD.
10 REM FILE CABINET FIELD UPDATE PGM
20 HOME :D$ = CHR$(4): PRINT " FILE CABINET COLUMN
  UPDATES"
25 PRINT "A QUICK WAY TO UPDATE THE SAME": PRINT
  "HEADER ITEM IN MULTIPLE RECORDS."
27 VTAB 10: PRINT "BY RC PLATT, WASHIGTON APPLE PI"
30 INPUT "NAME OF FILE=>";F$:F$ = F$ + " "
40 PRINT D$;"OPEN ";F$;"HEADERFILE"
50 PRINT D$;"READ ";F$;"HEADERFILE"
60 INPUT NF: DIM FLDS$(NF):FLDS$(0) = "REC#"
70 FOR I = 1 TO NF: INPUT FLDS$(I): NEXT I
80 PRINT D$;"CLOSE ";F$;"HEADERFILE"
90 PRINT D$;"OPEN ";F$;"INDEXFILE"
100 PRINT D$;"READ ";F$;"INDEXFILE"
110 INPUT N: DIM N$(N,NF)
120 FOR I = 1 TO N: FOR J = 1 TO NF
130 INPUT N$(I,J): NEXT J: NEXT I
135 PRINT D$;"CLOSE ";F$;"INDEXFILE"
140 REM UPDATES MENU
150 HOME : PRINT "FILE = ";F$
160 PRINT "UPDATE WHICH FIELD?"
170 PRINT "0 <TO QUIT & SAVE>"
180 FOR I = 1 TO NF: PRINT I;" ";FLDS$(I): NEXT I
190 INPUT "YOUR CHOICE =>";A$:C = VAL (A$)
200 IF C < 0 OR C > NF THEN 190
210 IF C = 0 THEN 1000
220 REM GET UPDATES
221 HOME : PRINT "UPDATING ";FLDS$(C)
223 PRINT "SEARCH ON WHICH FIELD?": PRINT "0
  REC#": FOR R = 1 TO NF: PRINT R;" ";
  FLDS$(R): NEXT R
225 INPUT "HEADER #=>";A$:SH = VAL (A$): IF
  SH < 0 OR SH > NF THEN 225
230 HOME : PRINT "UPDATING ";FLDS$(C);" SEARCHING
  ON ";FLDS$(SH)
235 PRINT "ENTER ";FLDS$(SH);" OR Q TO QUIT"
240 INPUT "LOOK FOR =>";A$: IF SH = 0 THEN R =
  VAL (A$): GOTO 249
241 R = 0: IF A$ = "Q" THEN 150
242 FOR I = 1 TO N: IF N$(I,SH) = A$ THEN R = I
244 NEXT I
249 IF R < 1 OR R > N THEN 150
250 VTAB 5: PRINT FLDS$(I);"=";N$(R,I): IF SH
  < > 1 THEN PRINT FLDS$(SH);"=";N$(R,SH)
260 PRINT "OLD ";FLDS$(C);"=";N$(R,C)
270 PRINT "ENTER NEW VALUE OR <RETURN>": PRINT
  "TO LEAVE ITEM UNCHANGED"
280 INPUT "NEW VALUE =>";A$
290 IF LEN (A$) > 0 THEN N$(R,C) = A$
300 GOTO 230
1000 HOME : PRINT "FILE CABINET COLUMN UPDATES"
1010 VTAB 5: PRINT "<1> SAVE ";F$
1020 PRINT "<2> RETURN TO HEADER MENU"
1030 PRINT "<3> QUIT WITHOUT SAVING ";F$
1040 INPUT "YOUR CHOICE =>";A$:A = VAL (A$)
1050 IF A < 1 OR A > 3 THEN 1040
1060 IF A = 2 THEN 150
1070 IF A = 3 THEN END
1075 PRINT "SAVING FILE, PLEASE WAIT"
1080 REM SAVE FILE ROUTINE
1090 PRINT D$;"OPEN ";F$;"INDEXFILE"
1100 PRINT D$;"WRITE ";F$;"INDEXFILE"
1110 PRINT N
1120 FOR I = 1 TO N: FOR J = 1 TO NF
1130 PRINT N$(I,J)
1140 NEXT J: NEXT I
1150 PRINT D$;"CLOSE ";F$;"INDEXFILE"
1160 GOTO 1000
```

Games People Play contd. from pg 62

sound and graphics are used. The graphics are colorful but not glaring. For example, ocean waves move in a realistic and unobtrusive way (previous players will be glad of this.) Each character type and monster type is animated -- the fighters flex their muscles, Balrons wave their wings, Titans swing their battle-axes, etc. While new sounds have been introduced and are neat at first, they slow down the game and may become annoying. Fortunately, the player can turn them off.

DOCUMENTATION

The documentation is complete, though it seems a bit more like narrative than like instructions. The spells are well documented, as are the shops and the monsters. The only weak spot is in the section on creating a character. For the most part, it is informative and fun to read.

OVERALL

This is Lord British's best game ever. It is a role-playing game with challenging problems. It is structured and balanced to give the player the best parts of the Wizardry series as well as improving on previous games in the Ultima series. Every time Lord British releases a new program I think, "How can he improve on this!?" O.K. British, surprise me... again. &

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YOUR FEDERAL INCOME TAX REVISITED FOR 1983

by Roy Rosfeld

It's almost time for that proverbial nemesis to visit us all again - our federal (and state) income taxes. The time has crept up on me slowly and I haven't had a chance to completely update the income tax template from last year. I promise to do so (and will probably have done so by the time this reaches you) but for those of you who would like to get going, this advance preview should give you a head start.

As of this writing, the IRS has not yet unveiled the final tax forms, but I have had a peek at the print proof copies which are usually tantamount to the final forms. At any rate, this article is just the preview.

There are not too many changes. Most significant are the changes in the tax rates. You will find the new rates below so that if you want to take your last year's VisiCalc template and change the rates there, you should be ready to move right along.

Besides the rate changes, the most significant change that will impact most people is the medical expense floor. For previous years you were required to deduct 1% of your adjusted gross income from your drugs and medicines before arriving at an allowable amount for them, and then deduct 3% of your adjusted gross income from all your medical expenses to arrive at the allowable amount. Well sports fans, the 1% is the same but you must now subtract a whopping 5% of your adjusted gross income to get the allowable medical expenses. In addition, there is no longer a separate deduction for medical insurance as in the past. Now you must include the medical insurance in your other medical expenses and deduct them only if they exceed the 5% floor. What this means is that if your medical expenses are less than 5% of your adjusted gross income, you get no deduction for 1983. TIP: If you are close to the 5% figure, cram as much as you can into this year. If you are scheduled to visit your eye doctor in January or February, consider seeing him or her in December - also, if you need a change in your prescription, order it and pay for it in advance. Pay as much in advance as you can reasonably afford, but remember that you can't make advance payments for services "to be rendered." But you can negotiate with the orthodontist to prepay an agreed upon fee. Remember also that you can pay your bills by credit card and deduct them in the year charged.

Remember your usual deductions, such as contributions, taxes, etc. This year even if you do not itemize you can deduct up to 1/4 of \$100 of your 1983 contributions, in essence, a \$25 deduction. As for political contributions, (if you make any) you may take a credit of up to \$100 on a joint return, \$50 on a single one. The difference between a deduction and a credit is that the deduction is used to reduce your "income", whereas the credit is used to reduce your "tax."

If you itemize and pay your state income taxes on the estimated method, consider paying the last installment in December instead of in January, that way you can get the deduction in 1983. Similarly, if you are considering buying a new car, you might want to buy it this year and get the sales tax deduction.

This year you are allowed to deduct 10% of the lower earnings of a working couple, as opposed to 5% last year. Accordingly, change schedule W to reflect a change from 5% to 10%.

The above are some of the items applicable to the bulk of the taxpaying public. For more esoteric aspects, see your friendly tax expert.

Meanwhile, back to the income tax template from last year. While you are waiting for the revision, you may want to boot up the template and make those modifications noted above. The tables below reflect only the single and married filing joint return situations, since for the time being, that covers the bulk of you.

JOINT RETURNS

Taxable Income

not over \$3,400	no tax
\$ 3,401-\$5,500	11%
\$ 5,501-\$7,600	\$ 231 plus 13%
\$ 7,601-\$11,900	\$ 504 plus 15%
\$ 11,900-\$16,000	\$ 1,149 plus 17%
\$ 15,001-\$20,200	\$ 1,846 plus 19%
\$ 20,201-\$24,600	\$ 2,644 plus 23%
\$ 24,601-\$29,900	\$ 3,656 plus 26%
\$ 29,901-\$35,200	\$ 5,034 plus 30%
\$ 35,201-\$48,800	\$ 6,624 plus 35%
\$ 45,801-\$60,000	\$10,334 plus 40%
\$ 60,001-\$85,600	\$16,014 plus 44%
\$ 85,600-\$109,400	\$27,278 plus 48%
\$109,401-\$162,400	\$38,702 plus 50%
over \$162,400	\$65,202 plus 50%

SINGLE RETURNS

not over \$2,300	no tax
\$ 2,301-\$3,400	\$ 11%
\$ 3,401-\$4,400	\$ 121 plus 13%
\$ 4,401-\$6,500	\$ 251 plus 13%
\$ 6,501-\$8,500	\$ 566 plus 15%
\$ 8,501-\$10,800	\$ 866 plus 17%
\$ 10,801-\$12,900	\$ 1,257 plus 19%
\$ 12,901-\$15,000	\$ 1,656 plus 21%
\$ 15,001-\$18,200	\$ 2,097 plus 24%
\$ 18,201-\$23,500	\$ 2,865 plus 28%
\$ 23,501-\$28,800	\$ 4,349 plus 32%
\$ 28,801-\$34,100	\$ 6,045 plus 36%
\$ 34,101-\$41,500	\$ 7,953 plus 40%
\$ 41,501-\$55,300	\$10,913 plus 45%
\$ 55,301-\$81,800	\$17,123 plus 50%
over \$81,800	\$30,373 plus 50%

That should be enough of a patch to get you started. Hopefully, the updated disk will be available in January sometime.

In the meantime, keep taxulating!!!

WAP TUTORIALS

by Stephen M. Stern

A major advantage of a user group is sharing of knowledge among members - the more experienced members helping the less experienced "learn the ropes" about their Apple computers. In this tradition, Washington Apple Pi has established a policy of providing low-cost tutorials. This year we are offering two types: beginning level tutorials on the "ABC's" of the Apple, and more advanced tutorials on specific topics and software packages. The beginning tutorials are given four weeks each month at the club office in Bethesda on Tuesday evenings from 7:30 to 9:00 PM. A detailed outline of these tutorials appeared on page 8 of the September 1983 WAP Journal. Registration forms for these tutorials appear at the back of this issue.

Seven advanced tutorials have been announced commencing in January. Topics are: soldering and electronic repair (Jan.), VisiCalc (Feb.), VisiPlot (Feb.), Advanced Applesoft (Mar.), CP/M (Apr.), dBase II (May), and Pascal (June). Detailed outlines for the first two tutorials appear below. Outlines for subsequent tutorials will appear in later issues. Registration forms for these tutorials appear at the back of this issue. These tutorials will be held at the club office on Wednesday evenings and Saturday mornings, as specified on the registration forms. Attendance for these tutorials is limited and by prior registration. Priority will be given to members over non-members. For those tutorials recommending that you bring your Apples, attendees are advised to do so to maximize their learning experience. WAP will not provide Apples, nor can refunds be provided unless WAP cancels the tutorials.

Remember, the person leading these advanced tutorials is an unpaid volunteer. If you believe you can contribute by being a tutorial leader, please contact Steve Stern, Lee Raesly, or the office.

ELEMENTARY ELECTRONICS - FIRST TUTORIAL (Tom Riley)

This tutorial is intended as a first lesson in electronics. Anyone wishing their Apple to stop being a magic box and start being a part of their real world might attend. I would like to encourage women and young people 12 and up to attend. If you have the following on hand, bring: soldering iron, 25 to 45 watts, stand and solder; calculator; dikes, long nose pliers, wire strippers; a handful of junk electronic parts. Do Not Bring Your Apple.

- I. Introduction
 - A. Scope of Tutorial
 - B. Why Learn Hardware
- II. Volts, Amps, and Watts - Basic Units
- III. The Players
 - A. The Resistor - Fixed and Pots
 - B. The Capacitor
 - C. The Inductor
 - D. The Transistor
 - E. The Chip
 - F. The Diode - Power and LED
 - G. Miscellaneous - Varistor and Thermistor
- IV. Tools
 - A. Hand tools
 - B. Meters
 - C. Soldering Irons
 - D. Expensive Stuff
- V. Soldering
 - A. The Right Iron
 - B. Steps
 1. Clean
 2. Tin
 3. Mechanical Connection

- V. Soldering, Steps contd.
 4. Heating
 5. Applying Solder
 6. Inspection
- C. Don't's
- D. Safety
- VI. What To Do, What To Do
 - A. Appropriate Projects for Beginners
 - B. Where to Get the Stuff

ELEMENTARY ELECTRONICS - SECOND TUTORIAL (Tom Riley)

- I. Introduction
 - A. Review of First Tutorial
 - B. Scope of Second Tutorial
- II. Ohm's Law: $E = R * I$
- III. Power Law: $P = E * I$
- IV. Kirchoff's First Law: The sum of voltages in a loop is zero.
- V. Designing a Circuit
 - A. Single LED
 - B. Double LED
 - C. Photo Transistor
- VI. Care and Feeding of an Apple
 - A. Inserting a Chip into a Socket
 - B. Cleaning Edge Connectors
 - C. General Cleaning
 - D. Cooling
 - E. Setting the Drive Speed
 - F. Resoldering the Motherboard
 - G. Don't's

VISICALC TUTORIAL (Lee Raesly)

This tutorial has been traditionally called the VisiCalc Tutorial, but in fact it will be beneficial with any spreadsheet that follows the VisiCalc conventions for commands, such as Spreadsheet 2.0, MagicCalc, UltraCalc and SuperCalc. If you are planning to use Multi-Plan, you will find the concepts helpful, but Multi-Calc has a different way of operating and there will be much to learn about it on your own.

- I. Introduction
 - A. Who We All Are
 - B. Overview
- II. Startup
 - A. Definitions
 - B. Booting the System
 - C. Booting VisiCalc
 - D. Initializing a Disk
- III. Getting Familiar with the Screen
- IV. Screen Concepts
- V. Cursor Movements
- VI. Titles
- VII. First Look at Commands

B	l	a	n	k			
C	l	e	a	r			
D	e	l	e	t			
E	d	i	t				
F	o	r	m	a	t		
G	l	o	b	a	l		
I	n	s	e	r	t		
M	o	v	e				
P	r	i	n	t			
R	e	p	l	i	c	a	t
- VIII. Replicate
- IX. Inserting
- X. Global
- XI. Format
- XII. Storage
- XIII. Print
- XIV. Titles
- XV. Window
- XVI. Functions
- XVII. Template Design

LETTER TO THE EDITOR

Dear Editor,

I enjoyed the article by Leon H. Raesly on displaying "VisiCalc Formulas in Screen Format" in the November issue of the Journal. In fact, I put it to use immediately with my Apple III and VisiCalc III.

I have a suggestion, however, to modify the procedures. Under the current set of procedures, entering the extra row and column to allow you to insert row numbers and column letters will shift all the formulas over one column and down one row, and any "relative" portions of the formulas will refer to the new row/column positions, disagreeing with the labels inserted at the top and left side. For example, a formula that states "+F8-G8" in the original form, will now read "+G9-H9" and cause confusion.

The answer is to modify the template with your word processor before putting in the row and column labels.

Then, after you have saved it to disk and loaded it back into VisiCalc, you can insert the new row and column and the necessary labels. This will also avoid a problem with the use of the Replicated formula that produces the row labels. (I further recommend that you place "1" in cell A2, not "2", to keep things straight.)

One final note: If your original template contains no entry in cell A1, you should modify the last line when working with it in your word processor. This line normally reads /X>A1:>A1:. It will end up as /X>A1:">A1:" and VisiCalc cell A1 will thus read >A1:". To prevent this, remove the first quotation mark with the word processor. (Or, you can do /B in cell A1 under VisiCalc to remove the erroneous entry.)

Hopefully, this will help some VisiCalc users who work with complicated VisiCalc formulas as I do.

Hobart S. Cable, II

✠

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- () *Volume 198 Deathtrap
- () *Volume 199 The Black Death
- () *Volume 200 The Temple of Ngurct
- () *Volume 201 Black Mountain
- () *Volume 202 Nuclear Nightmare

- Pascal
- () Volume 300 PIGO: ATTACH/BIOS
 - () Volume 301 PIG1:
 - () Volume 302 PIG2:
 - () Volume 303 PIG3:
 - () Volume 304 PIG4:
 - () Volume 305 PIG5:
 - () Volume 306 PIG6:
 - () Volume 307 PIG7:
 - () Volume 308 PIG8:
 - () Volume 309 PIG9:
 - () Volume 310 PIG10:
 - () Volume 311 PIG11:
- See also Volume 133

- CP/M
- () Volume 401
 - () Volume 402
 - () Volume 403
 - () Volume 404
 - () Volume 405
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 Bethesda, MD 20814

WAP TUTORIAL REGISTRATION

The following four WAP tutorials are being offered on Tuesday evenings from 7:30 to 9:00 PM, at the office, 8227 Woodmont Avenue, Room 202, Bethesda, MD. (The tutorials start promptly at 7:30; if you bring your computer please arrive 15 minutes early to set up.) You may sign up for any or all of the series. They are designed for the "beginner" and will be repeated monthly. A detailed outline of the tutorials was given on page 8 of the September Journal.

- () January 10 - INTRODUCTION TO APPLE COMPUTER HARDWARE () February 7
() January 17 - HOW TO USE YOUR APPLE SOFTWARE () February 14
() January 24 - BEGINNING BASIC () February 21
() January 31 - BITS, BYTES, NIBBLES () February 28

The fee for each tutorial is \$10.00 with an Apple, monitor and disk drive, \$15.00 without. Please note that WAP does not have equipment for you to use; if you do not bring your own, you will have to look over someone's shoulder.

- ___ Tutorials at \$10.00 (with equipment)
___ Tutorials at \$15.00 (without equipment)

The following "non-regular" tutorials are being offered (also at the office).

SOLDERING AND ELECTRONIC REPAIR - Tom Riley, Wed. PM, January 11 and January 18, 7:30-9:30

Don't bring your Apple. Fee: () \$20 for both, members () \$25 for both, non-members

VISICALC - Lee Raesly, Sat. AM Feb. 11 9:30-12:00

VISIPLLOT - Lee Raesly, Sat. AM Feb. 18 9:30-12:00

- () \$10 with Apple, member () \$15 with, non-member () \$10 with Apple, member () \$15 with, non-member
() \$15 w/o Apple, member () \$20 w/o, non-member () \$15 w/o Apple, member () \$20 w/o, non-member

ADVANCED APPLESOFT - Richard Untied, Sat. AM Mar. 10 9:30-12:00

CP/M - Bob Fretwell, Sat. AM Apr. 14, 9:30-12:00

- () \$10 with Apple, member () \$15 with, non-member () \$10 with Apple, member () \$15 with, non-member
() \$15 w/o Apple, member () \$20 w/o, non-member () \$15 w/o Apple, member () \$20 w/o, non-member

dBase II - Lee Raesly, Sat. AM, May 5, 9:30-12:00

- () \$10 with Apple, member () \$15 with, non-member
() \$15 w/o Apple, member () \$20 w/o, non-member

The following tutorials are planned but no exact date yet:

Pascal - Pascal Sig - June.

Please check the desired tutorials and return this form with the proper fee(s) payable to Washington Apple P1, Ltd. to:

Washington Apple P1, Ltd.
Attn. Tutorials
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

Name _____

Daytime Phone _____ Evening Phone _____

Total Enclosed \$ _____

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CLINTON COMPUTER LEARNING CENTER

Classes scheduled for January thru March

NEW APPLE OWNERS COURSE. 4 1/2 hours. \$100. Alternate Saturdays. 9am-1:30pm. Learn the basic operating procedures of the world's most popular small computer! Course includes five program disks.

NEW CP/M OWNERS COURSE. 4 hours. \$100. Alternate Saturdays. 9am-1pm. Hands-on instruction in this standard operating system. A must for new owners of CP/M-based computers.

LOGO I FOR TEACHERS. 14 hours. \$125. Jan. 11, 18, 25, Feb. 1, 8, 15, & 22. 6:30-8:30pm. Gain experience using LOGO Graphics. Learn how to apply the microcomputer in the classroom and to incorporate its use into an existing curriculum. (The cost of this course is \$100 if you sign up for both LOGO courses.)

LOGO II FOR TEACHERS. 14 hours. \$125. Feb. 29, Mar. 7, 14, 21, 28, April 4, 11. 6:30-8:30pm. Learn to use LOGO for activities with numbers, words, and lists. This class is a follow-up to "LOGO I for Teachers." (The cost of this course is \$100 if you sign up for both LOGO courses.)

APPLEWRITER IIe. 2 1/2 hours. \$46. Jan. 17, Feb. 21, & Mar. 20. 6:00-8:30pm. Understand what a word processing system is and how it works. Learn how to create/revise letters and documents quickly and easily.

APPLESOFT BASIC PROGRAMMING I. 6 hours. \$65. Call for details. Hands-on instruction for computer novices in this simple programming language. Classroom exercises and optional homework assignments.

APPLESOFT BASIC PROGRAMMING II. 6 hours. \$65. Call for details. Learn new Basic commands and additional programming techniques. Classroom exercises and homework assignments. Prerequisite: Basic Programming I or equivalent.

INTRODUCTION TO WORDSTAR. 2 hours. \$40. Jan. 24, Feb. 7, March 6. 6:30-8:30pm. Learn how to create documents quickly and easily by using this popular word processing system.

ADVANCED WORDSTAR. 2 hours. \$40. Jan. 31, Feb. 14, March 13. 6:30-8:30pm. Experiment with more advanced Wordstar commands, and learn file merging techniques. Prerequisite: Wordstar I or equivalent.

MICROSOFT BASIC PROGRAMMING I. 6 hours. \$65. Call for details. Hands-on instruction on the features of Microsoft Basic for the computer novice. Classroom exercises and optional homework assignments.

MICROSOFT BASIC PROGRAMMING II. 6 hours. \$65. Call for details. Learn additional programming techniques in Microsoft Basic. Classroom exercises and homework assignments. Prerequisite: Microsoft Basic Programming I or equivalent.

COMPUTER CAMP FOR KIDS. 10 hours. \$110. Jan. 7, 14, 21, 28 & Feb 4. 2:00-4:00pm. Optional Lab with instructor, 4:00-5:00pm. Introduce your child to the world of small computers! Hands-on programming and instruction in practical applications.

CHOOSING APPLE EDUCATIONAL SOFTWARE. 2 hours. \$20. Jan 16. 6:30-8:30pm. Discussion and demonstrations of educational software. (Price of class may be credited toward purchase of educational software in our retail store)

The Learning Center also provides custom-designed instruction on-site or in our classroom. Course discounts available with system purchases. Contact us at 301/856-2500 for details and inquiries.

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