# Washington Apple Pi

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## Volume 7     January 1985     Number 1

## Highlights

THE WAP ABBS
PROGRAMMING THE 65C802/816
1001 BINARY TALES - Part 3
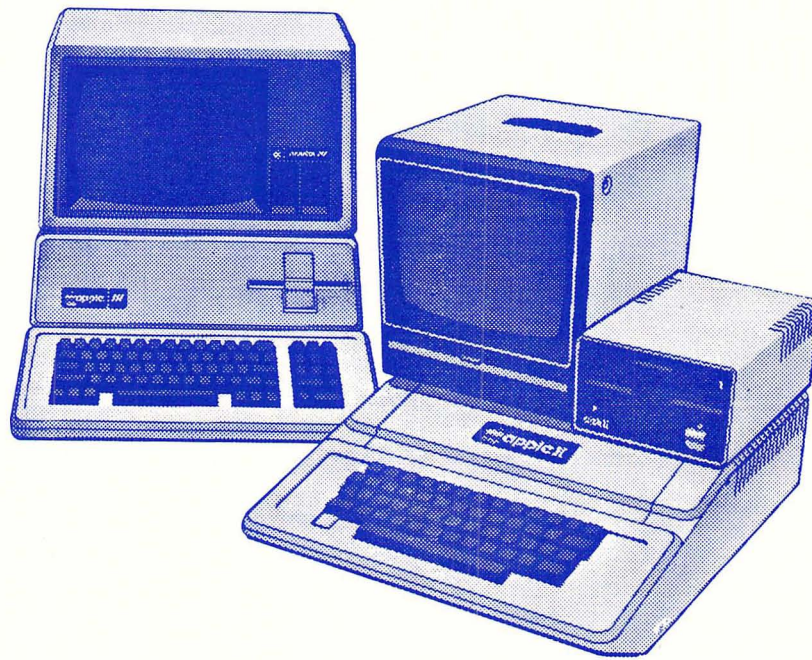THE MUSICAL APPLE - Part 2

## In This Issue

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Happy Holidays and Best Wishes for the New Year.

# PRESIDENT'S CORNER
## by David Morganstein

ACCELERATOR CARD GROUP BUY. Titan Technologies sells, perhaps the only, versatile 6502 speed-up card for the Apple. It permits your computer to run 3.5 times faster. (It works for DOS, ProDOS and Pascal programs only, not CP/M software.) Titan has offered us a group purchase opportunity. The card lists for $600. In quantity they will sell it to us for under $300. If you want to be a part of this buy, you must leave a check at the office by the end of December when the offer expires. Contact the office for more information.

SIG NEWS. LOGO SIG: Nancy Strange, who has served so ably as the co-ordinator of the LOGO SIG, has told us that her current activities prevent her from continuing to serve as Chairperson. Nancy has put in many long volunteer hours to help WAP members see what LOGO has to offer. We want to thank her for her time and fruitful efforts. Those interested in continuing the LOGO activities should meet in the cafeteria after the main meeting in January. Dagobert Soergel, another LOGO enthusiast, has indicated that he can help plan programs for the next few months if other volunteers will shoulder some of the effort needed.

GAMES SIG: Last month we reported Ron Wartow's call to restart the Games SIG at the January meeting. This is a reminder that Ron will be looking for you and your ideas come the fourth Saturday in January.

LISA SIG: Gordon Stubbs and John Day have located 28 LISA owners and are looking for more. They are holding SIG meetings at the office on the second Saturday. The meetings begin at noon, allowing people to start at the Mac meeting at USUHS and move to the office for the LISA gathering afterward. If you own a LISA or know of someone who does, this is an opportunity to learn from others and share what you know.

DUES INCREASE. Those people joining the club or renewing after January 1, 1985 will have to pay twenty dollars for annual dues. (New members continue to pay an additional seven dollar initiation fee.) This is the first dues increase we have had in over four years. In that period we have rented office space and added paid staff members. We made a number of improvements in the appearance of the journal. This Fall, we felt that a part-time bookkeeper was necessary to give us regular financial information from which to make better decisions. We hope that you will understand the need for the dues increase.

APPLEWORKS UPDATE V1.2. There is a new version available as of November. It uses the latest ProDOS Kernel version 1.1.1. and fixes several bugs in the earlier version. It supports the Scribe printer and permits you to modify printer settings for other interface cards. Take your original in to your local dealer.

FREE TUESDAY NIGHT TUTORIAL. To help new members get acquainted with their computer, the Board has decided to provide one free evening of our four-part, Tuesday night series. As of January, new members will receive a coupon good for one evening. The only "catch" is that you must pre-register. You can not just "drop in" and use the coupon. Please call to reserve a seat! We now have eight exceptional instructors for these evenings. Most new owners have found the help invaluable.

OTHER TUTORIALS. We have held few special tutorials this past fall. Do you want any? On what subjects? We have had sessions on Visicalc, Visiplot/trend, ScreenWriter, DB Master and Dbase, among others. If there is interest, we can find the instructors.

ABBS DEVELOPMENTS. Dave Harvey's committee continues its investigation into possibilities. The most desirable alternative would be to find an information service with main-frame capacity and multiple input lines that can be used as our ABBS (for a modest charge). The committee is exploring this approach and hopes to have some news for us.

MACWORKS FOR THE LISA. Macintosh owners generally seem pleased with their computer, other than the delays in software release dates. Apple's pricing of the upgrade from 128K to 512K, on the other hand, has generated considerable disappointment among early buyers who feel they should be "taken better care of" for their trust and support. (The cost of the upgrade seems excessive to most owners, myself included, even though the cost to Apple may not be much less than they are charging.)

Having had the pleasure of working with a LISA with a meg of memory, I wanted to describe the power of the Mac with the extra memory and hard disk. Using Apple's MacWorks and Profile Install programs and a public domain RAM disk program about to be released on a WAP club disk, a LISA owner can have a "Fat Mac" with a 512K RAM disk and hard-disk speed and storage capacity. (The list price of a LISA 2/5 at $4500 is comparable to a Fat Mac with an external hard disk.) No more disk swapping and slow program start-ups! You can use the desk accessory mover (WAP Mac Disk 7) to add several "cute" new accessories and store every font available, as well!

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# * January 1985 *

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | 1<br>Best Wishes<br>for a Happy<br>New Year | 2 | 3 SigMac<br>7:30PM-Lady<br>of Lourdes;<br>DisabledSIG<br>7 PM CCCC-> | ->Thursday,<br>3rd, contd.<br>Apple ///<br>7:30PM W.R. | 5 |
| 6 | 7<br>Deadline<br>for Journal<br>articles | 8<br>Beginning<br>Tutorial #1<br>7:30 PM<br>Office | 9 | 10<br>STOCKSIG<br>8:00 PM<br>Office | 11 | 12 SigMac<br>9:00 AM<br>USUHS;<br>LISASIG<br>Noon-Office |
| 13 | 14 Exec.<br>Board 7:30<br>PM-Office;<br>PI SIG 8:00<br>PM - Office | 15<br>Beginning<br>Tutorial #2<br>7:30 PM<br>Office | 16 | 17 Pascal<br>SIG 8:00 PM<br>Office<br>Telecomm.<br>with Pascal | 18 | 19<br>Forth SIG<br>1:00 PM<br>Office |
| 20 | 21 | 22<br>Beginning<br>Tutorial #3<br>7:30 PM<br>Office | 23 | 24<br>EDSIG<br>7:30 PM<br>Office | 25 | 26<br>WAP Meeting<br>9:00 AM<br>USUHS-Acct.<br>& Finan. |
| 27 | 28 | 29<br>Beginning<br>Tutorial #4<br>7:30 PM<br>Office | 30 | 31 | | |

# * February 1985 *

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5<br>Beginning<br>Tutorial #1<br>7:30 PM<br>Office | 6<br>Deadline<br>for Journal<br>articles | 7 SigMac<br>7:30PM-Lady<br>of Lourdes;<br>DisabledSIG<br>7 PM CCCC | 8 | 9 SigMac<br>9:00 AM<br>USUHS;<br>LISASIG<br>Noon-Office |
| 10 | 11<br>PI SIG<br>8:00 PM<br>Office | 12<br>Beginning<br>Tutorial #2<br>7:30 PM<br>Office | 13<br>Executive<br>Board<br>7:30 PM<br>Office | 14<br>STOCKSIG<br>8:00 PM<br>Office | 15 | 16<br>Forth SIG<br>1:00 PM<br>Office |
| 17 | 18 | 19<br>Beginning<br>Tutorial #3<br>7:30 PM<br>Office | 20 | 21 Pascal<br>SIG 8:00 PM<br>Office<br>Games and<br>Graphics | 22 | 23<br>WAP Meeting<br>9:00 AM<br>USUHS - Tax<br>Preparation |
| 24 | 25 | 26<br>Beginning<br>Tutorial #4<br>7:30 PM<br>Office | 27 | 28<br>EDSIG<br>7:30 PM<br>Office | | |

# MINUTES

## SUMMARY OF NOVEMBER EXECUTIVE BOARD MEETING

The Executive Board of Washington Apple Pi, Ltd. met on November 16, 1984 at the WAP office. John Malcolm summarized disk sales figures. Work continues on the Member Reference Book. The Board voted that the transportation of equipment to and from USUHS for meetings be a compensated item. Six proposals for printing the Journal have been received from printers. Gena Urban will prepare a monthly report of membership size and growth patterns. The Board ratified a $1.00 entrance fee for the December Garage Sale. The search continues for a video projector. The bookkeeper will submit a monthly report to the Board.

## NOVEMBER GENERAL MEETING

WAP, Ltd. met at the USUHS on November 24, 1984 at 10:00 AM, with Vice President Tom Warrick presiding. The next meeting on December 15 will be a Garage Sale. $1.00 admission fee will be collected at the door (exact amount only - no change available). The Games SIG will meet in January. Logo SIG will begin meeting again. WAP dues will be $20 beginning January, 1985. The Journal will accept articles via modem, but this needs to be scheduled with the office. A graphics presentation followed the business session.          ⌘

# 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 26 - Home Accounting and Financial Packages
   February 23 - Tax Preparation on Personal Computers

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

## EQUIPMENT NEEDED FOR ST. MARY'S SCHOOL

St. Mary's School in Rockville needs computer equipment. They would like to acquire by donations (tax deductible) or purchase of used equipment the following: Atari 800's, disk drives and monitors; Commodore 64's, disk drives and monitors; Apple //e's, disk drives and monitors. They also need computer furniture and educational software.

If you can help, contact Gustavo M. Guerra, St. Mary's School, 600 Viers Mill Road, Rockville, MD 20852.

# CLASSIFIEDS

# COMMERCIAL CLASSIFIEDS

# A DISK /// ON A // ?

# $199
## WOW!
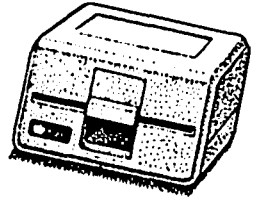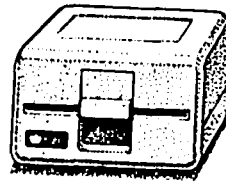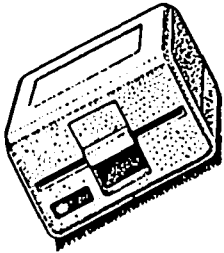
Clinton Computer had an opportunity to buy a limited number of brand new Apple Disk ///s at a very special price from Apple. We made this purchase because we have manufactured an adapter to make these Apple Disk ///s work on the Apple // Plus or Apple //e, with either DOS 3.3 or ProDOS. The adapter requires no modification to the computer, disk drive or cable. These drives will operate on an Apple // or an Apple ///.
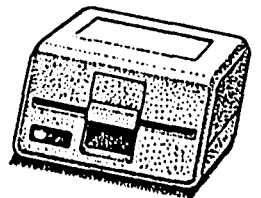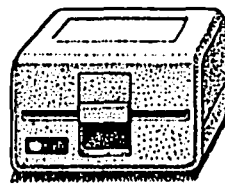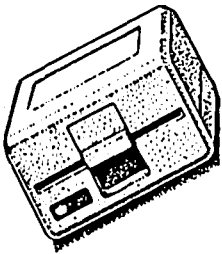
There are many third party drives for the Apple //. Most of them have a low initial price, but are more expensive over the life of the drive because they are not widely serviced or supported. The Apple Disk ///, on the other hand, was built as an improvement over the Disk //. The Disk /// works better and quieter, it looks nicer and it can be serviced by any authorized Apple dealer. A disk controller is also available for $69, if you need one.
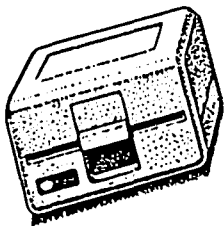
Apple Disk ///s available only at our Clinton location. Call ahead for large quantities.
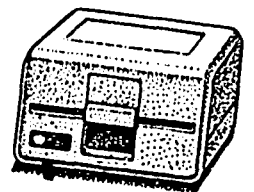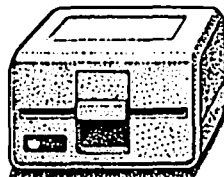
# Clinton Computer

# SIGNEWS

APPLE /// SIG usually meets on the second Thursday of the month at 7:30 PM. However, the next meeting will be on January 3 (1st Thursday) at Walter Reed Institute of Research. From 16th Street entrance go 3/4 around circle. Go in North entrance of the 4-story building on your right and ask the guard for Room 3092. See Apple /// SIG News elsewhere in this issue.

Apple IIc SIG has been organized. Watch for further details in the Journal or call the Chairperson listed in "Officers & Staff".

APPLESEEDS is the special interest group for our younger members. They meet during the regular WAP meeting.

DISABLEDSIG - See the DisabledSIG column elsewhere in this issue. Call Jay Thal for details.

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

FORTHSIG will hold its next meeting on Saturday, January 19 at 1:00 PM in the WAP office.

GAMESIG is being revived. They will meet after the WAP meeting on Saturday, January 26.

LISA SIG meets after the SigMac meeting on the second Saturday of the month. See LISA SIG news elsewhere in this issue.

LOGOSIG - watch for further details in a later issue of the Journal.

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

PIG, the Pascal Interest Group, meets on the third Thursday of each month at 8:00 PM at the Club Office. The meetings are now structured roughly as follows:
    8:00 to  8:30 - Q & A session
    8:30 to  8:45 - PIG business, other news
    8:45 to  9:30 - Main Presentation
    9:30 to 10:00 - Further discussion.
The scheduled presentation/discussion topics for the next two meetings are:
    December 20 - Plotters and digitizers
    January  17 - Telecommunications under Pascal

PI SIG (formerly ASMSIG) meets on the second Monday of each month at 8:00 PM in the WAP office. See Pi SIG News elsewhere in this issue. For further details, call Ray Hobbs at 490-7484.

SigMac meets on the 1st Thursday of each month at 7:30 PM at Our Lady of Lourdes School, 7500 Pearl Street, Bethesda, MD; and on the 2nd Saturday from 9:00 AM to 12:30 PM at USUHS, in the auditorium.

STOCKSIG meetings are on the second Thursday at 8:00 PM at the WAP office.

Telecomm SIG usually meets after the regular WAP meeting.                                                      ⌖

# EDSIG NEWS
## by Peter Combes

Thursday, January 24, 1984, 7:30 PM, at the WAP office.

David Wyatt will talk on "Current Developments in the Use of Microcomputers in Education". All who are interested in education at any level are invited to attend.

Please note that the meeting date and location have been changed.                                           ⌖

# DISABLEDSIG NEWS
## by Judy Rein

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DISABLEDSIG JANUARY MEETING
Thursday, January 3, 1985
Chevy Chase Community Center
Connecticut Ave. & McKinley St.,NW, DC

* * * * * * * * * * * * * * * *

At the January meeting of the DISABLEDSIG, Bud Rizer will speak about peripheral devices that interface with Apple ][ computers to allow severely disabled rehabilitation clients access to computer technology. Bud is the Coordinator of Technology Resources at the Maryland Rehabilitation Center in Baltimore. He has three years experience as the coordinator of an innovative grant which evaluated and identified computerized technologies that enable physically handicapped clients to complete vocational evaluations and participate in vocational training programs. Bud is also an instructor in the Technology in Education graduate program at Johns Hopkins University.

* * * * * * *

The Johns Hopkins University offers a graduate program of studies for a Certificate of Advanced Studies or a Master of Science in Education with a concentration in Technology for Educators. The emphasis of this program is on applications of technology for the handicapped. The program is designed for special educators, physical therapists, occupational therapists, speech and language therapists and other practitioners who provide services in special education. Courses may be completed in a part-time, two-year sequenced program of studies. Areas of study include: programming; analysis of hardware, software and interface devices; review of applications for specific technology systems; and administrative issues related to use of computers. Candidates admitted to the program are eligible for tuition assistance.

For more information contact:

              Dr. Marion Panyon
              Division of Education
              Room 100 Whitehead Hall
              Johns Hopkins University
              Baltimore, Maryland 21218
              (301) 338-8273                    ⌖

# APPLE /// SIG NEWS
## by Charlene Ryan

The Apple /// Special Interest Group is alive and well. We Apple /// owners were all quite upset, to say the least, when Apple Computer announced plans to discontinue further development of the Apple ///. At the meeting that followed, thoughts were voiced on where to go from here. Several things were realized: Most of us love our Apple /// and don't want to be forced to follow a trend that appears to be pushing us toward the mouse and away from the keyboard. If we do wish to continue using our Apple ///, we will need the support of a group like our Apple /// SIG to help each other when we have nowhere else to go. There is much knowledge within our own Apple group.

At the September meeting, Bill Hershey stepped down from leadership of the Apple /// SIG, and Bill Rosenmund accepted the challenge to co-chair with Jerry Chandler. I was asked to play the role of secretary (which is why I'm writing this article).

We had a long discussion and came up with very interesting ideas. Tutorials seem to be the most ambitious of these ideas. We are planning tutorials covering such things as the Sophisticated Operating System (SOS) and drivers. We are also looking forward to having tutorials on software such as Word Juggler and 3 Easy Pieces. We laid out a rough plan which will be discussed at the December 13 meeting at Walter Reed. (This article will not be read until the 15th of December.) Those interested in taking part in this effort to keep the Apple /// going can watch for what's happening in the WAP Journal, and, of course, attend the meetings. We will need assistance in this sharing of knowledge.

Our January 3 (note: 1st Thursday) meeting at Walter Reed will be a special treat. Bruce Hodges, author of the Third Wave Graphic and an engineer for Apple for two years, will be our guest speaker.

New products are still showing up on the market for the Apple /// despite its demise. An upgrade 512K board for Apple /// is now available. More room for your favorite application. I understand that this is especially terrific for folks who work with large spreadsheets. It's available from On Three magazine for $949. It uses 256K memory chips and will work with everything that runs on SOS. If you are interested and wish more information, you can call me at home in the evenings (836-0463).

Our November meeting included a demonstration by Bill Rosenmund of Draw On ///. The program works like MacPaint, but can work with the keyboard or joystick. The plus over the Macintosh is color. The screen image is not as fine as that other little machine, but it is still awesome - especially in color. On Three magazine announced that they have adapted the Draw On /// package to work with the Apple ][ mouse. Using the mouse is much faster than the joystick and I feel that it makes this software package more exciting!

If you have information you would like to share through this column, or wish to contribute directly to the Journal about Apple ///, you may contact me at the above mentioned phone number.  &

# DID JA? ... DID JA CALL?
## by Leon H. Raesly

Did ja? ...did ja call? Wasn't that a gas? Wow, all those voices! What a neat idea!

Did ja? ...did ja call? Did ja hear the band in the background? I wonder how they did that?

Did ja? ...did ja call? Did ja get invited for dinner too? Who was that? I'll go for dinner or anything with a voice like that. Wow!

Did ja? ...did ja call? How about that Steve Jobs! Unassuming way, huh! That was something! And 20 voices in unison. On a speaker phone it sounds much better!

Did ja? ...did ja call? And the Woz! How about him? Deleted his file ...? Hah! Not the Woz! And now it's official. We can call him Woz! Whoooee!

Did ja? ...did ja call? And how about that choir? Pretty neat, huh? And the thunderous applause?

Did ja? ...did ja call? And all from a blind ad. At one time 4000 people backed-up on line! Wow! And they had many trunk lines to handle the calls!

Did ja? ...did ja call? And noticed that there were two versions? Yep. They changed it! The second version is on now.

Did ja? ...did ja call? The ad, appearing in the November 14th issue of Wall Street Journal and USA Today, as well as the November 26 issue of InfoWorld, said, "If you are one of the 2,000,000 owners who've made the Apple ][, //e, and IIc the world's leading family of personal computers, please call: 800-862-7753.

Did ja? ...did ja call?  &

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## DEMONSTRATION OF JAZZ

The Integrated Software Federal Users Group is sponsoring a demonstration of the software package "JAZZ" on January 31, 12:15 PM, at the FAA Building, 3rd Floor Auditorium, 7th and Independence Aves., SW, L'Enfant Plaza Metro stop.

All Washington Apple Pi members are welcome to attend.

# Q & A
# by Bruce F. Field

A little while ago I received a question about an expansion chassis for the Apple. David Scheuer of Houston, Texas wrote to say that he has an early model of the Mountain Computer expansion chassis and that you can toggle back and forth between the chassis and the motherboard slots with either a couple of software POKEs or by pressing a switch. A later model allows you to set dip switches and come up with any user selected mixture of slots. That is, you could start with motherboard slots 1, 2, 5, 6 and expansion chassis slots 0, 3, 4, 7 and then toggle to the reverse combination. David comments:

"The device is well made and has worked well, except that there are compatility problems. I can state positively it didn't like music synthesizer cards. It worked with most of the standard cards. Obviously when one fills a chassis, one is liable to be getting beyond the standard cards, so I suggest your question-er will either have to try before he buys or take his chances.

It is still available since I received an advertise-ment from Elek-Tek (800 621-1269 except 312 677-7660 in Illinois). However there may not be a //e model. In my case when the time came to switch over I got an adapter card from Mountain Hardware; I think it was about $15.00. When the height of the chips on the motherboard prevented me from installing it properly (one of Apple's little changes) Mountain Computer (a most helpful place, very unusual in this industry) advised me how to cope in a minute with a couple of very cheap Radio Shack jumpers. However, if one were dealing with the latest //e with soldered chips I think it would take a very experience person to pull those chips and do an install without damaging the computer.

I have an ALS CP/M+ card with 64K, and a Tecmar Data-mac hard disk in my Apple //e at the office. Both work perfectly with a Grappler+ printer card; neither would work with a Tymac printer card installed. The ALS card also snooted a Seiko printer card which the Datamac accepted. I guess it helps to work in an office with 14 other Apples to trade stuff with."

Last month I had a question about using the Mousepaint program with printers other than the Apple Image-writer. Bill Ayers called to report that a small company, Ahware, (805 Luz Court, Danville, CA 94526) has a program, Mouseprint, that modifies your copy of Mousepaint to work with any printer you specify. When you write, tell them what type of printer you have and what printer interface card. They will send you a version customized for your printer and interface card. Oh yes, almost forgot the price, $22.95.

Quite some time ago I received an interesting publica-tion from "down under". Daryl's Apple Digest is a bibliography obtained from 17 microcomputer publica-tions indexed according to program reviews, game reviews, articles, tips & tutorials, programs to key in, and hardware and construction. Nine of the microcomputer publications indexed are published in the USA; however it is frustrating to have an exciting topic catch your eye only to note that it was pub-lished in the Australian Apple Review. Daryl claims that since it is updated every two months "it is a mine of information for the remote (and not so remote) user". Daryl Jones, 26 Parslow Street, Malvern Vic. 3144, Australia, will send you 6 issues (one year) air mail for $30.

Q. I have been using the S. H. Lam routine to load machine language from Applesoft programs but I have found that it only works if the Lam routine is not in a subroutine. Although I can usually work around this it is inconvenient. Is there some fix?

A. The Lam routine was originally published in Call-A.P.P.L.E. and was reprinted in Call-A.P.P.L.E. In Depth, Number 1, All About Applesoft. The original routine worked only from Integer Basic and was later modified to work with Applesoft. For those not familiar with it I will repeat the Applesoft version here.

```
63000 A$ = "300:A5 00 20 DA FD 60 N D823G" :
      FOR I = 1 TO LEN (A$): POKE 511 + I,
      ASC ( MID$ (A$,I,1)) + 128: NEXT
63010 POKE 72,0: CALL -144
```

The string A$ contains Monitor instructions that are POKEd into the keyboard buffer area and then executed. In this case the Monitor instruction 300:A5 00 20 DA FD 60 stores the hex numbers A5 00 20 DA FD and 60 starting at memory location 300. Any Monitor instructions may be substituted. At the end of the string you should include an "N" to separate the preceding command from the following one, D823G, which returns control to Applesoft. This procedure only works, however, if the routine is not in a subroutine. If you wish to use it in a subroutine (and only in a subroutine) you should replace the D823G with D9C6G. (For a mini "So what did you expect?", figure out what that short machine language program at $300 does.)

Q. What can you tell us about the new processors for the Apple?

A. The Apple IIc contains a 65C02 processor that is slightly different from the 6502 processor used in the Apple ][, ][+, and //e. It is fabricated using a different technology (CMOS, complementary metal-oxide-semiconductor, as opposed to NMOS, N-channel metal-oxide-semiconductor). To the user this means reduced power consumption, which is one reason they use it in the //c. The 65C02 is pin compatible with the 6502 but has 27 additional machine language instructions. Some of the new instructions are PHX, PLX, PHY, and PLY (push and pull the X an Y registers from the stack), BRA (branch always), STZ (store zero), TSB and TRB (test and set or reset bits) and true indirect addressing with indexing, LDA ($23). The indirect addressing mode is now available for ORA, AND, EOR, ADC, STA, LDA, CMP, and SBC. There are also new modes for the BIT and JMP instructions. INC and DEC also work with the A register.

These chips are being manufactured by NCR, GTE, and Rockwell (and possibly others) but they are not all the same. The Rockwell chip contains 4 additional instructions to set, reset, and branch or single bits that are not available in the other chips. All the chips seem to work in the Apple //e but not necessarily in older Apple ][s and ][+s. Some people have had success using 2MHz chips in the older Apples but they don't always work.

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### DATA BASE

| | |
|---|---|
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| Incredible Jack | 93 |
| PFS: File | 86 |
| PFS: Graph | 86 |
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| Visidex | 175 |
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| | |
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| Mr. Cool | 21 |
| Number Farm | 21 |
| PSAT Word Attack Skills | 36 |
| Rocky's Boots | 34 |
| SAT Word Attack Skills | 36 |
| Speed Reader II (Davidson) | 48 |
| Spellicopter | 28 |
| Sticky Bear ABC | 28 |
| Sticky Bear Basket Bounce | 28 |
| Sticky Bear Numbers | 28 |
| Sticky Bear Opposites | 28 |
| Sticky Bear Shapes | 28 |
| Terrapin Logo | 68 |
| Typing Tutor | 20 |
| Typing Tutor III | 35 |
| U.S. Geography | 28 |
| Wizard of Id's Wiz Type | 24 |
| Word Attack | 34 |
| World Builders | 24 |

### LEISURE

| | |
|---|---|
| A.E. | 24 |
| Arcade Machine | 42 |
| Beyond Castle Wolfenstein | 24 |
| Checkers | 34 |
| Chess 7.0 | 48 |
| Computer Ambush | 43 |
| Computer Baseball | 29 |
| Computer Gin Rummy | 18 |
| Computer Quarterback | 29 |
| Cosmic Balance | 29 |
| Cranston Manor | 24 |
| Dark Crystal | 26 |
| Deadline | 35 |
| Decathlon | 24 |
| Enchanter | 28 |
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| Sargon III | 35 |
| Seastalker | 28 |
| Shattered Alliance | 43 |
| Sorceror | 31 |
| Southern Command | 43 |
| Starcross | 35 |
| Suspended | 35 |
| Tigers in the Snow | 29 |
| Time Zone | 68 |
| Transylvania | 25 |
| Tubeway | 21 |
| Ultima II | 42 |
| Ultima III | 42 |
| Ulysses | 23 |
| War in Russia | 58 |
| Warp Factor | 29 |
| Witness | 28 |
| Wizard and the Princess | 23 |
| Wizardry | 34 |
| Zork I | 28 |
| Zork II, III ea. | 31 |

### SPREADSHEET

| | |
|---|---|
| Calcstar (req. CP/M) | 132 |
| Flashcalc | 71 |
| Magicalc | 107 |
| Multiplan | 153 |
| Visicalc | 175 |
| Visitrend/Visiplot | 71 |
| Visischedule | 107 |

### UTILITY/GRAPHICS

| | |
|---|---|
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| Apple Mechanic | 27 |
| Applesoft Compiler | 137 |
| Complete Graphics System | 56 |
| Data Plot | 41 |
| DOS Boss | 17 |
| Double Take | 24 |
| Doubletime Printer | 68 |

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|---|---|
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| Graphics Magician | 42 |
| Graftrix | 44 |
| Hi-Res Secrets | 90 |
| Merlin | 44 |
| Munch-a-Bug | 28 |
| Picture Builder | 28 |
| Printographer | 28 |
| Pronto DOS | 20 |
| Routine Machine | 28 |
| Silicon Salad | 17 |
| Super Disk Copy | 21 |
| Utility City | 20 |
| Zoom Graphics | 35 |

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|---|---|
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| Bank Street Writer | 49 |
| Format II | 102 |
| Homeword | 48 |
| Magic Window II | 107 |
| PIE Writer | 103 |
| Print Shop | 35 |
| Sensible Speller | 85 |
| Screenwriter II (Pro.) | 88 |
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| Super Text Professional | 119 |
| Super Text Home/Office | 85 |
| Word Handler | 55 |
| Wordstar with starcard | 325 |

### MISCELLANEOUS

| | |
|---|---|
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| Micro Barmate | 28 |
| Micro Cookbook | 28 |
| Appetizers | 9 |
| Soups & Salads | 9 |
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So much for the past. Two new chips have recently appeared, the 65802 and 65816. These are both CMOS chips with 16-bit registers and contain a 6502 emulation mode. The 65802 is pin compatible with the 6502 and can be plugged into an Apple and used without any other modification. (I have been told it works in a //e, but I don't know whether it will work in a ][ or ][+.) The 65816 has a slightly different pinout and cannot be used directly in place of a 6502, although it can emulate the software instructions. On both chips though, clearing the emulation bit in the status register will put the chip in the 16-bit mode. In this mode the A, X, and Y registers are extended to 16-bits and a new 16-bit Direct Page register augments the zero page addressing mode to allow zero page addressing anywhere in the first 64K bytes. The 65802 continues to address a maximum of 64K bytes but the 65816 can address up to 16M bytes! Eleven new addressing modes and new interrupt features are added. Most of the forgoing information came from various issues of Apple Assembly Line, a very useful newsletter published by S-C Software, P.O. Box 280300, Dallas, TX 75228.

In an article in the November 19, 1984 InfoWorld, Stephen Wozniak confirmed that a new version of the Apple ][, the IIx will use the 65816 and will be in production in 1986. The December 3, 1984 issue of InfoWorld reported that Wozniak claims there is no IIx project, that the IIx is just a wish list for a product he'd like to see. Hmmm...

Q. ProDOS doesn't want to boot on my Franklin. Is there some way to get it to work?

A. Cornelis Bongers wrote an article on the Basis 108 (Call-A.P.P.L.E., May 1984, pp. 51-54) in which he presented the solution for getting ProDOS to run on the Basis. There is a routine in ProDOS that determines the type of Apple (][, ][+, //e, or //c) by checking several bytes in the Monitor ROMs. Cornelis suggested searching the ProDOS disk with a disk zap utility for the instruction LDX $FBB3 (AE B3 FB) and changing it to LDX #$EA, NOP (A2 EA EA) and also finding ADC #$0B, BNE +5 (69 0B D0 03) and changing it to ADC #$0B, NOP, NOP (69 0B EA EA). This will probably work on the Franklin also.

Bob Stout wrote a short note (Apple Assembly Line, March 1984, p. 20) describing a different technique on how to get ProDOS to work on the Franklin. Boot the ProDOS disk and when it stops spinning press the RESET switch. Get into the Monitor (presumably with CALL -151) and type 2647:EA EA <return> and 2000G <return>.

Q. When I tried to boot up a friend's CP/M disk on my system I got the error message "CAN'T FIND Z80 SOFTCARD". However if I boot up with my CP/M system disk I have no problem. What does this mean?

A. Unlike Apple DOS, CP/M must be configured to work with specific hardware. Apple DOS will load into the top of memory automatically but a common problem with CP/M is having it configured for more memory than is in your Apple. I suspect that this is the case, or possibly one of the versions of CP/M has been customized by the manufacturer to work with a specific Z80 card. If you feel you must be able to run your friend's CP/M make sure it is configured for the amount of memory you have and the locations of the printer interface card, the 80-column card, and the modem (serial) card.

Q. I have just obtained ProDOS and I have a problem when converting DOS 3.3 files from a full disk or a half-filled disk. I receive the error message "no room on volume (disk)" for the files I want to transfer. This only happens when I am using one disk drive, if I use two drives the transfer works.

Does ProDOS use part of the disk for file transfer, or should the files from the original disk be contained in memory and then transferred to the destination disk? Would more memory help? Is there a way to use one disk drive without placing each file on another disk one by one?

A. When converting files, ProDOS reads a file from the original disk in DOS 3.3 format, puts it in memory, and then writes it out to the destination disk in ProDOS format. As far as I know ProDOS does not write anything to the source disk so it should not make any difference if the disk is full or not. Of course your destination disk should have enough room on it for the file being transferred and if there isn't enough room you will get the "no room on volume" error message. If you are sure there is enough room (two sectors of a DOS 3.3 file equal one block of a ProDOS file) then you are probably running into a bug in the CONVERT program or ProDOS. There have been several versions of ProDOS (with CONVERT) released; the version of ProDOS that I have (as of November 1984) is version 1.1.1. Check with your dealer to make sure you have the latest version.

I suppose, although I have never tried it, that if your file is too big to fit in memory all at one time that CONVERT will fill the memory to convert as much as possible with each pass. Unless you are converting very large files extra memory won't do you any good.

It is also possible in theory to write a program to convert an entire disk in a few passes although I don't know of any program to do this. (A few years ago when faced with the task of converting several hundred DOS 3.2 disks to DOS 3.3, I decided it was time to buy a second disk drive!)

Q. I have been using Apple Writer // Version 2.0 on my IIc. Version 2.0 has some enhanced features over Apple Writer //e, such as a Ctrl- (underline) command to get a page and line count from the editing display. The problem is that Version 2.0 won't output a Ctrl- to the printer even if inserted between two Ctrl-V's.

The printer I am using is an IDS Microprism 480. The Ctrl- is the control code to turn on 16.8 CPI print density. Consequently I can't use this feature of my printer. How can I get Apple Writer to output this control code? All other control codes seem to work properly when inserted between Ctrl-V's except this one.

A. I don't have a "for sure" solution for this one but I have a couple of ideas that you might try. In the original Apple Writer II the escape character is used to toggle between upper and lower case. In order to get this control character inserted between Ctrl-V's you had to type Ctrl-V and then type escape three times in succession. The first escape put you in the upper case mode, the second put you in the cursor movement mode and the third finally got inserted in the text. You might try a similar technique with your Ctrl-_ ; type it two or more times after typing Ctrl-V.

If that doesn't work you might try creating a glossary file from outside of Apple Writer. This

file should contain a glossary designator charac-
ter, then Ctrl-V, Ctrl-_, Ctrl-V, carriage return.
It is quite easy to do this from Applesoft. The
following program sets up a Ctrl-_ using the under-
line character (you can substitute any other char-
acter you wish) as the glossary designator. Put
your word processing data disk in your drive and
run the following program.

```
100 PRINT CHR$(4)"OPEN GLOSSARY.FILE"
110 PRINT CHR$(4)"WRITE GLOSSARY.FILE"
120 PRINT CHR$(13);" ";CHR$(22);CHR$(31);CHR$(22)
130 PRINT CHR$(4)"CLOSE"
```

To use this from Apple Writer, type Ctrl-Q to get
the special functions menu. Select "E" to load the
glossary file, and when prompted for the file name
enter GLOSSARY.FILE. To insert a Ctrl-_, type
Ctrl-G and then the underline. Whether this will
work or not is questionable, but it's just possible
that although you can't type Ctrl-_ from the key-
board you can enter it from a glossary.

Q. Can Appleworks use RAM in the Apple //e that is
greater than 128K? I have a Neptune board with 64K
on it now. Is it worth buying more chips to make
it larger?

A. No, Appleworks cannot use more than 128K, 64K on
the motherboard and 64K on the extended memory
card.

Prospective purchasers might check out the rather
negative review of Appleworks in the December 10,
1984 issue of InfoWorld. The reviewer found
Appleworks too limited for business use and mar-
ginally adequate, but too expensive, for personal
use.

Q. When using THE Spreadsheet 2.0, Version 2.173, it
is possible to specify lower case video and
keyboard, printer slot and driver, as well as video
slot and driver for your own system and save these
settings on disk under the file SYS.OPTIONS. When
printing on my FX80, I always use the compressed
printing feature to save space. It requires going
to the Format Subsystem to change Page Width to
132, and Text Width to 132, then going to Print
Subsystem to Enter a Setup String, then I can
finally go to Print Hardcopy and get started. Is
it possible, using a "Disk Zap" type program, to
change the default settings on these other
subsystems on the disk so my printing settings are
the defaults on boot up?

A. If you go to the Configuration Subsystem after you
have set up your printing settings, and select Save
Configuration Files, the Page Width, Text Width,
and other settings should be saved and properly set
on boot up next time. This still leaves us with
the problem of setting the printer to compressed
print. I suggest you use a short Applesoft program
as a boot up program. This program should first
turn on the printer, set it to compressed print,
turn off the printer, and then run THE Spreadsheet.
When you want to run THE Spreadsheet run your
Applesoft program instead.                          ⑮

## 𝕳𝖆𝖛𝖊 𝖆 𝖍𝖆𝖕𝖕𝖞 𝖍𝖔𝖑𝖎𝖉𝖆𝖞...

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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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| Supertext II | Peter Rosden | (301) 229-2288 |
| Word Handler | Jon Vaupel | (301) 977-3054 |
| | Christopher Romero | (703) 471-1949 |
| Work Juggler //e | Carl Eisen | (703) 354-4837 |
| Word Star | Christopher Romero | (703) 471-1949 |

*Calls up until midnight are ok.

# A PAGE FROM THE STACK
## by Dana J. Schwartz

As the Holiday Season approaches, the Disketeria Staff has recommended several selections which you might consider as gifts for that certain Someone. I'm sure you know the one I mean: the cutie pie with 5 1/4 inch stockings over the fireplace; maybe your buddy with the line of credit at the used electronic parts store; perhaps that little rascal who bought a fur coat for his Mouse; or even yourself! Although all WAP disks can make memories to last a lifetime, here are a few that are especially appropriate for this time of year:

```
Volume  72 - Keyboard Games
Volume  74 - Paddle Games (released this month)
Volume 103 - Merry Christmas
Volume 142 - Pinball Games (I really like this one)
Volume 143 - Sports
Volume 157 - Arcade Games
```

This month we introduce four disks that were selected from our old 3.2 series of disks and repackaged by Fred Edwards. Here are the contents and descriptions as provided by Fred.

### VOLUME 74: PADDLE GAMES

All of the games on this disk run in color and are more fun that way, although they can all be played on a regular monitor.

{74.1} BATTLESHIP (1 player) - It's you against Admiral Apple in this one. Use both paddles and either button to place your five ships and select your firing grid. You can sink your own ships so be careful where you shoot. Admiral Apple does not follow up a hit so you should be able to beat him most of the time.

{74.2} FLYING SAUCERS (2 players) - Each player has 10 phaser units to use to destroy the opponent's ship. On a hit· or if both sides use up their phaser units recharging occurs automatically and another round is played. A game is ten rounds with scores shown as the game progresses.

{74.3} FOUR BUDGE GAMES (2 players) - The four games you can choose from are Bumper Pool, Hockey, Scramble and Tennis. Players can select difficulty level and choose to have gravity or no-gravity which really gives some strange results. When you consider that this integer program is only nine sectors long it is a little gem.

{74.4} GRAND PRIX FOR TWO (2 players) - Choose from three difficulty levels and steer your 'car' down a narrowing road. The game shows winner and loser scores at the end.

{74.5} HI-RES BREAKOUT (1 player) - Player gets five balls per game. Pdl(0) puts a ball in play. The speed increases as you keep the ball in play and gets frantic if you're really good. Score is displayed as the game progresses. At the end, hitting any key will start another game. Hit Control-Reset to quit.

{74.6} INVADERS (1 player) - If memory serves, this is the one that started the video game craze. A nice version of a classic.

{74.7} LASER CANNON (1 player) - This one could frustrate a lot of players. Your cannon moves its aim from left to right but you can't see it move. You have to fire a round and then sort of guess where it is aimed when the target comes by. Choose from five levels of difficulty. You shoot until you hit 15 flying saucers and the game then gives you a rating.

{74.8} LE MANS FOR ONE (1 player) - Select from 10 skill levels and steer your 'car' thru a winding track. Five crashes put you out of the race and 10 laps without a crash is a perfect score.

{74.9} MIDWAY (1 player) - You have five aircraft to sink five aircraft carriers by dropping bombs while dodging anti-aircraft fire. Select from 2 skill levels.

{74.10} SAVE THE WORLD (1 player) - You have ten shots to lob a shell on 'it' and blow 'it' up. Use Pdl(0) to set trajectory and button to fire.

{74.11} SHOOT OUT (2 players) - Each player gets 25 rounds of ammunition. Use paddles to duck out from behind a moving wagon and shoot at your opponent.

{74.12} SPACE ADVENTURE (1 player) - It's you against the alien spaceship in this race against the clock. Use Control-Reset to quit.

{74.13} STAR ATTACK (1 player) - Shoot at seven different targets in this 'timed' game. Three of the targets are friendly and subtract from your score if you shoot them so be careful.

{74.14} TENNIS (2 players) - Eleven points wins this game which is more like handball since the walls are played.

{74.15} WIPE OFF (1 player) - You get five balls to clear the screen in this better than average 'bounce' game. There is no maximum score. If you're good enough you can play forever. There is a choice of three difficulty levels and an option to change the screen colors to whatever you want.

### VOLUME 75: COLOR GRAPHICS FOR FUN

The 35 programs on this disk are not utilities and, unless you list them and study the programs, won't teach you much. They are designed to produce interesting things on your color screen, just for fun.

ALL programs on this disk can be stopped by hitting any key while the graphics are running.

{75.1} ABSTRACT ART - Autoruns six screens showing four types of 'abstract art'.

{75.2} ANDROMEDA STRAIN - Autoruns a random lo-res pattern until the screen is full. Clears and runs a new pattern. Let it cycle several times. Some patterns are more interesting than others.

{75.3} ARTSHOW - Menu for eight patterns; Explode, Vortex, Snowflakes, Falling, Flasher, Fan, Slinky and Searchlights. Each choice reverts to menu after running its course.

{75.4} BLOBS

{75.5} BOUNCING BALL

{75.6} BOXES - These three programs will autorun

contd.

forever but change forever too. Remember any key will stop them. Interesting effects.

{75.7} CARDS MENU - Menu for three programs; Playing Cards, Fast Shuffle and Fifty-Two Pickup.

{75.8} CIRCLES - Autoruns a nice effect. After you see an "8" in the pattern it won't change much. If you don't see an "8" you may have an eye problem.

{75.9} COLOR EATER - Autoruns forever. A few minutes is enough unless you want to see if you can get a solid color screen.

{75.10} COLOR TEXT - Menu for three programs: Alphabet Soup, Random Color Alphabet and Messages. Messages lets user set up a six word screen which could be saved and used elsewhere.

{75.11} COLOR WORM - Autoruns and recycles. Let it run a few times. Some screens are better than others.

{75.12} DIGITAL CLOCK - Input the time and, as someone once said, you have a very expensive digital clock.

{75.13} DRIP - The blue drops of water eventually fill the randomly drawn container.

{75.14} EASTER EGG - Autoruns forever.

{75.15} EIGHTS - Don't quit this one too soon. As the screen fills the pattern gets quite interesting.

{75.16} FLAG - A patriotic treat. The sound effects even manage to hit the note in the National Anthem that almost nobody can.

{75.17} GARYS QUICKY - Maybe not as good as Andromeda Strain or Kaleidoscope but worth a run or two.

{75.18} GRANDAPPLE - Three nice user options for this grandfather clock: Tick-Tock, Chimes and Alarm. To stop the Alarm hit any key while it is ringing. Anyone like to write a sub-routine for a second hand??

{75.19} GRAPHIC CRAPS - Input number of rounds you want and try your luck. Keeps track of your wins and losses and tells you on exit.

{75.20} HIDDEN LINES - Good illusion.

{75.21} KALEIDOSCOPE - One of the nicest lo-res screen effects your reviewer has ever seen. A delight.

{75.22} LIGHTHOUSE - Nice color mixes in this one.

{75.23} LINCOLN - Good likeness.

{75.24} OBJECT DRAWING - Menu for eight objects (Ellipse, Squares, Triangles, Rectangles, Etch-a-Sketch, Lines, Dots and Random Design) and a tone generator demo. Etch-a-Sketch uses paddles.

{75.25} PATTERNS - Autoruns eight screens of geometric designs.

{75.26} SANDYS FOLLY - Autoruns a random lo-res pattern until the screen is full. Clears and runs a new pattern. Let it cycle several times. Some patterns are more interesting than others.

{75.27} SEVEN BY KEATING - Menu for seven designs; Cardoid, Hex, Vertex, Lines, Internal Spiral, External Spiral and Garden. Give each design some time. The screen changes and you never know what's next.

{75.28} SEVEN MORE BY KEATING - Menu for seven designs; Skyline, Rug, Target, Frame, Doodle, Zeppelin and Canyon. Give each design some time.

{75.29} SQUARES - Pleasant.

{75.30} SUPEROSE II - Options for automatic or manual mode. This one is fun in either mode. Don't key yourself out too quickly. Sometimes it's hard to tell that drawing is still going on. The program will "beep" when a design is complete.

{75.31} SUPEROSE III - Same as Superose II but a different drawing technique.

{75.32} THE MAZE - The program takes a little time to set up a maze but the wait is worth it when your 'white rat' makes the run for the exit.

{75.33} WASHINGTON - Good likeness.

{75.34} XTAL - Kind of weird.

{75.35} XTAL 3D - Even weirder.

## VOLUME 76: EDUCATION

{76.1} APPLESTAND - A mixed text and graphics simulation which allows student to investigate the effects of price changes on the sales and income of a small applestand. Has a nice feature which permits the student who has not found the best price in five tries to continue until he/she does.

{76.2} BEGINNER MATH - A graphics program which displays simple problems in addition, subtraction and multiplication. Student chooses the type of problem, the number of problems to be done and the maximum number (up to 9) to be used. The program gives the student another try on incorrect answers.

{76.3} DIVISION PRACTICE - A text program which presents 10 simple division problems, gives the student his score and repeats up to three incorrectly answered questions for the student to try again. There is a "reward" message for a perfect score.

{76.4} MATH BY LEVELS - A graphics math game with several levels of difficulty. Level 1 is addition; Level 2 is addition and subtraction; Level 3 is addition, subtraction and multiplication; Levels 4 and up are addition, subtraction, multiplication and division. Size of the numbers increases with the levels. Student has 40 tries (problems) to get to the top of the screen. Graduation to the next level occurs when student is successful. Correct answer is displayed when student answer is wrong.

{76.5} MULTIPLICATION PRACTICE - Same as Division Practice except problems are simple multiplication.

{76.6} NORTHERN CONSTELLATIONS - A graphics program which shows how one may tell time using the Big Dipper. Program also shows visually how the constellations rotate over the hours. Instructions are in the program.

{76.7} SCRAMBLE - A text program with a vocabulary of 100 words. The program selects a word at random, scrambles it and asks the student to input the unscrambled word. If the student is unable to "see" the word hitting "return" twice rescrambles the same word for another try.

{76.8} SOLAR TUTOR - This program presents introductory information about the use of solar energy in the home using a nice mixture of text and graphics. The program uses the technique of chaining one basic program into the next, thus insuring that the graphics memory area is not overrun. The user, however, sees the result as one long continuous program. An address (current as of 11/15/84) is given where additional solar energy information may be obtained by mail.

contd.

{76.9} SOUNDS-LIKE SPELLING - A game to see if the student can spell up to 8 words which end with the same sound. Student selects the number of words he wants for each sound.

{76.10} TALKING CALCULATOR - A text program which "talks" as problems in addition, subtraction and multiplication are entered. Handles both positive and negative values but cannot handle numbers or calculations greater than 32767 since the program is written in Integer Basic.

{76.11} THAT'S RIGHT - A text quiz that presents a series of 10 questions for each of which 5 possible answers are displayed. Student is asked to choose the correct answer. An incorrect answer brings up a statement on why the answer is wrong and asks the student to try again. In some ways the explanations on why answers are incorrect are as interesting as being correct. When a student grows tired of "knowing" the correct answers he/she can be set the task of "pre-explaining" why the other four possible answers to each question are wrong.

{76.12} US PRESIDENTS - Student is asked to rearrange a random list of the presidents into their proper order. Not easy. After all who knew that Pierce was the 14th ?

## VOLUME 77: UTILITIES

{77.1} APPLESOFT LINE WRITER - A programming aid for writing a variety of commonly used routines including DOS strings into a program. Instructions for use are in the program.

{77.2} BIORHYTHM (PRINTER) - An old favorite with a nice printer format. Without restarting, an internal menu permits user to run several different people for same 45 day projection period or several different 45 day projections for the same person or combinations.

{77.3} EXPANDED DUMP-IDS440 - Doubles size of page 1 screen and dumps to a Paper Tiger printer.

{77.4} FIND TEXT-TOKEN - Appends lines to an integer program which can then be searched for specified text string or token.

{77.5} HIRES SKETCH - Drawing routine includes line, triangles (8 types), parallelograms (4 types) and rectangles (3 types). User specifies size, location and color (green, violet or white). Has options for writing text on screen, erasing part or all of screen, save picture to disk and load picture from disk. Command summary included in the program.

{77.6} INTEGER RENUMBER - Used to 'renumber' an integer program. Has options for part or all of program and line increment.

{77.7} LAZARUS - Resurrects a 'dead' integer program fragment. BLOAD it and either: (1) CALL 768 for longest program segment found or (2) CALL 772 for last segment found. Then 'list' to see what was found.

{77.8} LOADMON INSTRUCTIONS - How to use LOADMON.

{77.9} LOADMON - For language card owners who want the 'old' Monitor. Can also be used to load 'new' Monitor.

{77.10} PAPER TIGER HIRES DUMP - Dumps screen to an IDS-440 printer with Apple parallel card in slot 1 with regular prom, not Centronics.

{77.11} PROGRAM TRACE - Appends a series of lines to an integer program which will then list each source statement, either in real time or post-exec.

{77.12} SKYWRITER INSTRUCTIONS - A multi-screen explanation of the skywriter routine and the theory behind vector plotting.

{77.13} SKYWRITER - A 'free-hand' hi-res drawing program that uses vectors to do the plotting. The skywriter (cursor) is a hi-res airplane controlled by paddles or joystick. A command summary is included in the program.

{77.14} SKYWRITER (ONELINER 1) - A one line Applesoft Basic program that produces a complex screen pattern. Loading and listing the program will help in understanding vector plotting.

{77.15} SKYWRITER (ONELINER 2) - Another pattern. Same as above.

{77.16} SKYWRITER (SNOOPY) - Cute demo. User can manipulate with Skywriter commands.

{77.17} SWEET 16 DISASSEMBLER - Disassembles object code to yield Sweet-16 opcodes.

{77.18} TED II+ - An Editor/Assembler. Detailed documentation on WAP disk 101.

{77.19} TEXT FILE READER (REVISED) - Reads a text file to either screen or PR#1 (your choice at start of program).

# INTERFACING THE APPLE IIC AND AN ACOUSTIC MODEM
## by Caird E. Rexroad Jr.

One of the advantages of the Apple IIc is the presence of serial ports that can be used for the printer and communications. My problem was that I desired to use an acoustically coupled 300 baud modem to communicate from home to the computer at work (and to the WAP Bulletin Board). Without spending the $20 - $30 necessary for a store-bought connecting cable, how could I use a Livermore 76B modem with an RS232-C interface?

The apparent solution to the problem was to put a new RCA 5 pin connector onto an old cable, replacing one of the 2 DB 25 pin connectors. Radio Shack had the 5 pin connector for under $2. The information that could not be found for under $50 was the signals provided on each of the pins of the 5 pin connector on the IIc. Because I wanted the reference manuals for my new IIc, I bought the manual, but with the following description maybe you won't have that need.

The following table provides the appropriate connection information that enabled my IIc to communicate using either the port's built-in terminal program accessible from ProDOS or my own Pascal communication program.

| Port 2 Pin | to DB-25 Pin | Signal on Port 2 |
|---|---|---|
| 1 | 20 | Data Terminal Ready (DTR2B) |
| 2 | 2 | Transmit Data (TD2B) |
| 3 | 7,1 | GND (Power and Signal) |
| 4 | 3 | Receive Data (RD2B) |
| 5 | 8 | Data Set Ready (DSR2B) |

The pins on the Apple port are numbered clockwise as you face the port.

It's always possible to save money if you spend enough.                                    ✇

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# SETTING THE DATE WITH PRODOS
## by Bob Velke

Those who purchase the ProDos User's Disk are provided with a utility to set the computer's internal date. The date is accessed when creating or modifying files and shows up under the "CAT" or "CATALOG" commands. However, new Apple IIc owners are provided with the ProDos operating system through the System Utilities Disk which lacks the date-set option. The following program was designed to rectify that omission. If saved as the "STARTUP" program on your ProDos programming disks, it will run automatically when Prodos is booted.

```
10   REM  <PRODOS DATE SET ROUTINE>
20   D$ = CHR$ (4)
30   PRINT D$;"RESTORE DATESAVED": REM   <READ
     PREVIOUS DATE FROM DISK>
40   PRINT D$;"PR#3": REM  <80 COLUMN SWITCH>
50   TEXT : HOME : PRINT
60   REM  <INPUT DATE>
70   VTAB 22: HTAB 1: PRINT "PLEASE ENTER TODAY'S DATE
     (MM/DD/YY)"
75   PRINT "OR <RETURN> TO ACCEPT  ";
80   PRINT MNTH;"/";DAY;"/";YR
90   VTAB 23: HTAB 23: INPUT S$
100  REM  <ERROR CHECKING OF INPUT>
110  IF  LEN (S$) = 0 THEN  GOTO 400: REM
     <END-PREVIOUS DATE ACCEPTED>
120  FOR I = 1 TO  LEN (S$)
130  IF  MID$ (S$,I,1) = "/" THEN S1 = I: GOTO 160
140  NEXT I
150  GOSUB 800: GOTO 60
160  FOR I = S1 + 1 TO  LEN (S$)
170  IF  MID$ (S$,I,1) = "/" THEN S2 = I: GOTO 200
180  NEXT I
190  GOSUB 800: GOTO 60
200  IF S1 = 1 OR S2 - S1 < 2 OR  LEN (S$) - S2 < 2
     THEN GOSUB 800: GOTO 60
210  REM  <DECIPHER INPUT>
220  MNTH =  VAL ( LEFT$ (S$,S1 - 1))
230  DAY =  VAL ( MID$ (S$,S1 + 1,S2 - S1 - 1))
240  YR =  VAL ( RIGHT$ (S$, LEN (S$) - S2))
250  IF MNTH < 1 OR MNTH > 12 OR DAY < 1 OR DAY > 31
     OR YR < 1 OR YR > 99 THEN  GOSUB 800: GOTO 60
260  B1 = YR * 2 +  INT (MNTH / 8)
270  B2 = (MNTH - (8 *  INT (MNTH / 8))) * 32 + DAY
280  POKE 49041,B1
290  POKE 49040,B2
300  PRINT D$;"STORE DATESAVED": REM    <SAVE DATE TO
     DISK>
400  END
800  INVERSE : VTAB 21: HTAB 1: PRINT "PLEASE ENTER
     EXACTLY AS SHOWN": NORMAL
810  RETURN
```

After saving this program and BEFORE running it for the first time you must type the following line with your disk in the drive:

    PRINT CHR$(4);"STORE DATESAVED"

Thereafter the program will save the last date entered in a separate file and restore it as the default the next time the program is run.                               ✇

# DISCOUNTS!

# simpleWORD
# by J.T. (Tom) DeMay Jr.

'simpleWORD' is an elementary "word processing" program. It is very easy to learn, loads quickly, is almost free (except for the typing), will work with DOS 3.3 or ProDOS, on an APPLE //c, //e, or with slight modifications on a ][+. This makes it a natural for those short memos, addressing envelopes, or whatever else you might imagine. simpleWORD is an easy way to put your thoughts on paper.

In thirty-odd lines of APPLESOFT, there lies an elegant yet simple memo writer. I tried to stick to the basics while implementing the necessities. simpleWORD is a line oriented editor. In other words, you enter a line, then press RETURN to tell simpleWORD that you are finished with the line. Changes can be made using the normal APPLESOFT editing procedures until the RETURN key has been pressed. The remainder of the text must be entered before any other corrections can be made to that line. Another restriction is that only 20 lines of text can be entered at a time. Tabs are not supported, but unlike the APPLESOFT INPUT ROUTINE, leading spaces are accepted, as are commas and colons. Text that is entered cannot be saved to a text file, but if you need to keep your work for later modification or printing, I suspect you will want to use your "REAL" word processor. You know, the one that can do everything! The one that takes forever to load. The one with all those seldom used commands that you need to look up whenever you want to use them. The one that was so expensive in the first place. You know, the one I am using to write this article.

simpleWORD could be easily modified to suit your needs. For example, a subroutine could be added to read a clockcard and add the date and time as a heading for the memo. If you have a good idea for an addition, let us all know about it. For now, let's take a look at how it works and maybe learn some APPLESOFT programming tips as we go.

```
10   REM ************************
11   REM **                    **
12   REM **    "simpleWORD"     **
13   REM **        BY           **
14   REM ** "J.T. (Tom) DeMay"  **
15   REM ** COPYRIGHT 1984 WAP  **
16   REM **                    **
17   REM ************************

90   GOTO 150
100  T$ = "": CALL - 657: FOR K = 512 TO 588
110  IF  PEEK (K) = 141 THEN K = 588: GOTO 130
120  T$ = T$ +  CHR$ ( PEEK (K) - 128)
130  NEXT
140  RETURN
150  D$ =  CHR$ (4): DIM I$(20)
160  PRINT : PRINT D$"PR#3"
170  PRINT "simpleWORD - Enter up to 20 lines
     of text.  Press / on a line by itself to
     end.": PRINT
180  FOR I = 1 TO 20: VTAB I + 2: IF I < 10
     THEN  PRINT " ";
190  PRINT I ".   ( there should be 75 spaces
     between the . and the | )          |":
     VTAB I + 2: HTAB 5:
200  GOSUB 100
210  I$(I) = T$:T$ = ""
220  J = I: IF I$(I) = "/" THEN J = I - 1:I = 20
230  NEXT
240  PRINT : VTAB 23: HTAB 1: PRINT "Print,
```

```
     Correct, Restart, or Quit: ";: GET CH$
250  IF CH$ = "P" OR CH$ = "p" THEN 300
260  IF CH$ = "R" OR CH$ = "r" THEN 160
270  IF CH$ = "Q" OR CH$ = "q" THEN  TEXT:
     HOME : END
280  IF CH$ = "C" OR CH$ = "c" THEN  PRINT :
     GOTO 400
290  GOTO 240
300  PRINT : PRINT D$"PR#1":
     PRINT  CHR$ (9) + "80N"
310  IF FLAG THEN FLAG = 0: PRINT  CHR$ (12)
320  FOR I = 1 TO J
330  PRINT I$(I)
340  NEXT
350  PRINT D$"PR#3"
360  VTAB 1: PRINT "Print another copy, Enter a
     new message, or Quit:";: GET CH$: PRINT CH$:
     IF CH$ = "P" OR CH$ = "p" THEN FLAG = 1:
     GOTO 300
370  IF CH$ = "Q" OR CH$ = "q" THEN  TEXT :
     HOME : END
380  IF CH$ = "E" OR CH$ = "e" THEN 160
390  GOTO 360
400  VTAB 23: HTAB 1: CALL  - 868: PRINT "Which
     line (1/"J;") ";: INPUT "";LN$:LN =  VAL
     (LN$): IF LN < 1 OR LN > J THEN 400
410  VTAB LN + 2: POKE 1403,79: PRINT "|";:
     VTAB LN + 2: HTAB 5: GOSUB 100:I$(LN) = T$
420  VTAB 23: CALL  - 868: GOTO 240
430  END
```

Lines 100 thru 140 make up the "INPUT ANYTHING" routine first publicized by Bert Kersey from Beagle Brothers. I modified it slightly to accept lines of only 76 characters. In a program of this size, this subroutine could have been placed anywhere, but it is standard practice to place often used subroutines at the beginning of a program to increase program speed. Next, in line 150 we initialize the D$ variable to Ctrl-D [CHR$(4) and make room for 20 lines of text. Line 160 turns on the eighty column card in slot #3. The simpleWORD title and instructions are printed by line 170.

A FOR...NEXT loop (lines 180-230) is implemented to get the data for each of twenty lines. Pay particular attention to the way in which an early exit is handled. If the only character of a line is a "/" then in line 220, J is set to I minus 1 and I is set to 20. The NEXT in line 230 sends control to the beginning of the FOR...NEXT loop at line 180. Since I is now equal to the upper limit of the loop (20) the loop is exited correctly. If this had not been done, the FOR...NEXT loop would still be in effect. Exiting incorrectly uses the "stack" unnecessarily, and could result in an OUT OF MEMORY error, even if there is sufficient memory still available to the program.

Line 240 asks if you want to print, make corrections, start over again, or exit the program. Lines 250 thru 280 determine where to send control depending on your answer to line 240. If program control gets to line 290, then an invalid request was made and simple-WORD asks for your request again. The actual printing is controlled by lines 300 thru 350. First the printer in slot #1 is turned on and asked to print lines of eighty columns. If the FLAG is set (greater than 0) then it is reset and a FORMFEED is sent to the printer. Can you see where the FLAG is set and why?

The printing is done in a FOR...NEXT loop (lines contd.

320-340). Look back to line 220 and see why the upper limit of this loop is J. J is the number of lines entered. This technique permits printing only the number of lines entered. The printer is turned off and the eighty column card in slot #3 is turned on again in line 350.

Lines 360 thru 390 present a submenu and direct execution to the correct location, again checking for invalid input as was done in lines 240 thru 290. The remainder of the program lines 400 thru 420 are used to enter the corrections, when required. Control is directed here from line 280. Line 430 is not required, but is often included as the last line of a program because it is required by some versions of BASIC, and people who program in several dialects of BASIC add it out of habit.

You can enter the program yourself, or obtain a copy from the Washington Apple Pi disk Library. If you are new to entering programs, just follow these simple steps:

1. BOOT your APPLE with the DOS System Master of your choice. (DOS3.3, PRODOS, etc.)

2. Type NEW to clear the program in memory.

3. Enter the program exactly as listed. You may need to make some changes in the slot # or control codes for your printer. (Note: there should be 75 spaces between the . and the | in line 190).

4. When you have finished entering the program, type LIST and compare the program listing you typed with the listing in the WAP Journal. Make any corrections necessary by retyping the offending lines.

5. Type RUN. This will start the program. Type a sample of text (don't forget to press RETURN at the end of each line). Does the program react as you expect? If everything works as you want, proceed to step 6. If not then go back to step 4.

6. Insert an initialized disk into the disk drive and type: SAVE simpleWORD and press the RETURN key. (DOS will probably change the lowercase letters to uppercase, but that's life. In my mind it will always be called simpleWORD.)

7. Then next time you want to use simpleWORD, load the disk in the disk drive and type: RUN SIMPLEWORD and press the RETURN key.

As always, I solicit your comments and suggestions. Maybe this will have taken some of the MAGIC out of computing. At any rate, I hope you have learned something and most of all, remember to have fun with your computer.

# CALENDAR PROGRAM
# by Thomas S. Warrick

"CALENDAR" is the program that generates the monthly calendar of events that appears in the Washington Apple Pi Journal. It is a menu-driven program that allows you to enter up to 55 characters of information for a given date and to print out that data in a conventional calendar format.

## 1. Configuring CALENDAR.

To set up CALENDAR, you need to tell it these three things:

a.    What is the name of the calendar? You can have several different calendars at the same time by calling each one a different name. This name is stored in CN$, and is defined in line 30. If you give a calendar for January 1984 the name "WORK", it will be saved on the disk as "WORK.CALENDAR.1984.1".

b.    What year is this? This is YR, and is defined in line 50.

c.    On what day of the week does this year start? This is MS(1). The starting dates for February-December are calculated based on MS(1). In this notation, Sunday is 1, Monday is 2, and so on. If you want to be creative, write a function to generate this automatically.

## 2. Using CALENDAR.

Running CALENDAR gives you a menu with four options:

E - ENTER DATA
I - INITIALIZE MONTH
L - LIST ENTRIES ON SCREEN
P - PRINT MONTH

You can exit the program by entering a carriage return or Ctrl-C. If you do, you will be reminded that you can re-enter the program without clearing any of the variables by typing "GOTO 100".

INITIALIZE MONTH:    The first thing to do is to initialize a file for a particular month. First, the program will verify that the month has not already been initialized. This protects you from erroneously erasing a calendar that has been initialized previously.    If you or someone else have already created a file with the same name as the one you are intending to initialize, you will be given the option of erasing the old calendar.

ENTER DATA: This command allows you to enter data for a particular date. You will be asked to select the month and date. Note that if in running the program you have already designated a particular month, its number (January=1, February=2, etc.) will be displayed and you can select that month by pressing RETURN. After you have chosen the date, you will see the day of the week the date falls on and a white square with the date inside it. At this point if you press RETURN you will not make any changes to the entry for that date. If, however, you move the cursor even one space to the right before pressing RETURN, only the text to the left of the cursor will be saved; text underneath the cursor and to the right will be replaced by blank spaces.

Text in the cell is actually a string of 55 characters in 5 rows of 11 characters per row. The date is just

one or two characters of regular text, and can be overwritten if you wish (or if you are not careful). Use the left and right arrows to copy over text you want to preserve and to move around the display. Set up each cell the way you want it to appear and press RETURN.    Remember that, as when entering any text, only the text to the left of the cursor will actually be .entered.    Text underneath the cursor and to the right of the cursor will be replaced by blank spaces.

Each cell entry can be no longer than 55 characters. If you type exactly 55 characters, the cursor will show up on the bottom line of the display box. If you press RETURN at this point the bottom line will go away, but this is what should happen. If you enter more than 55 characters, however, the entry will not be accepted, and you will go back to the way the cell was originally.

LIST ENTRIES ON SCREEN: Use this if you want to see the entries for an entire month without any fancy formatting.    This is intended to be quick and dirty, and you will not see the entries as they will actually appear.    The principal purpose of this command is to let you find a specific entry when you do not know its exact date.    This command displays only those dates that have non-blank characters beginning in the fourth position, i.e., the date alone does not make an entry a non-blank entry.

PRINT MONTH: This command prompts you for the month you wish to print. Like "E", if you have previously selected a month, it will be displayed and you can select it simply by pressing RETURN. As CALENDAR comes to you, the print option is set for an Okidata 92 or 93 printer. The calendar will print from an Apple Parallel Printer Card (or compatible card such as the Grappler or Epson) in slot 1 in 12-pitch type with 8 lines to the inch. To change this for your own printer configuration, change line 1400 based on the instructions in your printer and printer interface card manuals.

PROGRAMMER'S NOTES:    Make sure that A$ is the first variable in the program so that the "INPUT NEARLY ANYTHING" routine will work. This routine, which is POKEd into memory by line 42, allows the entry of commas and colons into an input string. You can use this routine in your own programs so long as A$ is the first variable in the program. Input must be done using the commands CALL 768:A$=MID$(A$,1) and will leave the input string assigned to A$.

I use line 33 as a standard quick-editing line in most of my programs. Whenever I need to edit an already-existing line, I enter GOSUB 33:LIST xxxx where "xxxx" is the line number. This clears the text screen, sets the right margin to 33 and lists the line.    Setting the right margin to 33 supresses Applesoft's desire to center the line on the screen with lots of spaces on either side of it. Supressing spaces allows me to then move the cursor to the first character of the line using ESC-I's and a J, followed by right arrows until I have copied that part of the line I wish not to change. Once you get the hang of this technique, it is quite easy and a great time-saver. On the other hand, if you want to, you can delete lines 32, 33 and 34.

Note that even though line 40 always sets February to 28 days, line 52 fixes it during leap years.
                                                contd.

Lines 10-59 are the initialization commands. Lines 60-61 are a commonly-used routine to read in an entry for a particular date. Lines 100-999 are the main menu routine. Lines 1000-1999 are the Print routine. Lines 2000-2999 are the Enter Data routine. Lines 3000-3999 are the List Entries on Screen routine. Lines 10000-end are the Initialize routine.

Listing

```
10   A$ = " ":J = 0:K = J:M = J: DIM
     E$(31),MN$(12),MD(12),MS(12):S$ =
     "
       ":L$ = "                    ":D$ = CHR$ (4):L = 60: DIM
     DW$(7): REM A$ MUST BE 1ST VAR; L=RECORD LENGTH
20   B = 7: DEF FN M(A) = INT ((A / B - INT (A / B))
     * B + .05) * SGN (A / B)
29   REM CN$=NAME OF CALENDAR
30   CN$ = "WORK"
32   GOTO 34
33   TEXT : HOME : POKE 33,33: RETURN : REM USED FOR
     EASY EDITING
34   REM
40   FOR J = 1 TO 12: READ MN$(J),MD(J): NEXT : DATA
     JANUARY,31,FEBRUARY,28,MARCH,31,APRIL,30,MAY,31,
     JUNE,30,JULY,31,AUGUST,31,SEPTEMBER,30,OCTOBER,31,
     NOVEMBER,30,DECEMBER,31
41   FOR J = 1 TO 7: READ DW$(J): NEXT : DATA SUNDAY,
     MONDAY,TUESDAY,WEDNESDAY,THURSDAY,FRIDAY,SATURDAY
42   FOR J = 768 TO 790: READ K: POKE J,K: NEXT : DATA
     162,0,32,117,253,160,2,138,145,105,200,169,0,145,
     105,200,169,2,145,105,76,57,213: REM INPUT
     ANYTHING ROUTINE
49   REM LINES 51-52:   MS(1)=1 BECAUSE 1984 STARTS ON A
     SUNDAY; LY=LEAP YEAR (1=YES)
50   YR = 1984
51   MS(1) = 1
52   LY = ( INT (YR / 4) = YR / 4): IF LY THEN MD(2) =
     29
53   FOR J = 2 TO 12:MS(J) = FN M(MS(J - 1) + MD(J -
     1)): IF MS(J) = 0 THEN MS(J) = 7
54   NEXT : REM COMPUTE STARTING DAYS
55   F$ = CN$ + ".CALENDAR." + STR$ (YR) + ".": REM
     FILE NAME (WITHOUT MONTH SUFFIX)
59   GOTO 100
60   PRINT D$;"READ";F$;M;",R";D: CALL 768:A$ =
     MID$ (A$,1):E$(D) = A$
61   RETURN
100  TEXT : HOME : PRINT TAB( 16);: INVERSE : PRINT
     " CALENDAR ": NORMAL : PRINT " COPYRIGHT 1983 BY
     THOMAS S. WARRICK": PRINT " NONCOMMERCIAL
     DISTRIBUTION WELCOMED": PRINT : PRINT :ZZ =
     FRE (J): POKE 51,6
110  PRINT SPC( 4);"OPTIONS:": PRINT : PRINT "E -
     ENTER DATA": PRINT : PRINT "I - INITIALIZE
     MONTH": PRINT : PRINT "L - LIST ENTRIES ON
     SCREEN": PRINT
120  PRINT "P - PRINT MONTH": PRINT : PRINT "<RETURN>
     - END": PRINT : PRINT "WHICH? ";: GET A$: PRINT
     A$: IF ASC (A$) = 13 OR ASC (A$) = 3 THEN 999
130  IF ASC (A$) > 95 THEN A$ = CHR$ ( ASC (A$) -
     32)
140  IF A$ > < "E" AND A$ > < "I" AND A$ > < "P"
     AND A$ > < "L" THEN 100
150  PRINT "WHAT MONTH? ";: IF M > 0 THEN PRINT M;
     CHR$ (8); CHR$ (8); CHR$ (8 * (M > 9));
160  INPUT " ";B$: IF LEN (B$) = 0 AND M > 0 THEN 190
170  M = INT ( VAL (B$)): IF M > 0 AND M < 13
     THEN 190
180  PRINT "INVALID MONTH": FOR J = 1 TO 700: NEXT :
     POKE 216,0: GOTO 100
190  POKE 216,0
200  IF A$ = "P" THEN 1000
210  IF A$ = "E" THEN 2000
220  IF A$ = "I" THEN 10000
230  IF A$ = "L" THEN 3000
999  PRINT "ENTER 'GOTO 100' TO RE-ENTER":
     PRINT D$;"PR#0": END
1000 REM PRINT CALENDAR
1010 PRINT D$;"OPEN";F$;M;",L";L
1020 FOR D = 1 TO MD(M): GOSUB 60: NEXT
1400 PRINT D$"PR#1": PRINT CHR$ (9);"85N";
     CHR$ (28); CHR$ (27);"8": REM OKIDATA SETUP
1410 REM PRINT CALENDAR USING 12-PITCH TYPE ON 8 1/2"
     X 11" PAPER, 8 LINES/INCH-ADJUST FOR YOUR
     PRINTER
1420 K = FRE (J): PRINT SPC( 34 - LEN (MN$(M)));:
     FOR K = 1 TO LEN (MN$(M)) + 10: PRINT
     MID$ ("* " + MN$(M) + " " + STR$ (YR) + "
     *",K,1);" ";: NEXT : PRINT : PRINT : PRINT CN$:
     PRINT
1430 PRINT " SUNDAY       MONDAY      TUESDAY
     WEDNESDAY    THURSDAY     FRIDAY      SATURDAY"
1440 R = 0:D = 1
1450 R = R + 1: PRINT "------------"; CHR$
     (252);"------------"; CHR$ (252);"------------";
     CHR$ (252);"------------"; CHR$ (252);
     "------------"; CHR$ (252);"------------";
     CHR$ (252);"------------"
1460 IF R > 1 OR MS(M) = 1 THEN 1540
1470 FOR J = 0 TO 4
1480 FOR K = 1 TO MS(M) - 1: PRINT L$; CHR$ (252);:
     NEXT
1490 FOR D = 1 TO 8 - MS(M): PRINT MID$ (E$(D),J *
     11 + 1,11);: IF D > < 8 - MS(M) THEN
     PRINT CHR$ (252);
1500 NEXT
1510 PRINT
1520 NEXT J
1530 D = 9 - MS(M): GOTO 1450
1540 FOR J = 0 TO 4
1550 FOR K = D TO D + 6: IF K > MD(M) THEN
     PRINT L$;: GOTO 1570
1560 PRINT MID$ (E$(K),J * 11 + 1,11);
1570 IF K < D + 6 THEN PRINT CHR$ (252);
1580 NEXT : PRINT : NEXT J
1590 IF K < = MD(M) THEN D = K: GOTO 1450
1999 PRINT : PRINT : PRINT : PRINT D$;"PR#0":
     GOTO 100
2000 HOME : INPUT "WHAT DATE? ";D: IF D < 1 OR D >
     MD(M) THEN 100 REM ENTER DATA
2010 VTAB 9:K = FN M(MS(M) + D - 1):K = K + 7 *
     (K = 0): PRINT TAB( 23 - LEN (DW$(K)) /
     2);DW$(K): PRINT
2020 PRINT D$;"OPEN";F$;M;",L";L: GOSUB 60: PRINT D$
2030 PRINT TAB( 17);: INVERSE :PRINT "              "
2040 FOR K = 0 TO 4: NORMAL : PRINT TAB( 17);:
     INVERSE : PRINT " ";: NORMAL : PRINT
     MID$ (E$(D),K * 11 + 1,11);: INVERSE :
     PRINT " ": NEXT
2050 NORMAL : PRINT TAB( 17);: INVERSE :
     PRINT "              ": NORMAL
2060 POKE 33,11: POKE 32,17: PRINT : VTAB 12:
     CALL 768:A$ = MID$ (A$,1)
2065 IF LEN (A$) < 2 THEN 100
2070 IF LEN (A$) > 55 THEN TEXT : VTAB 12:
     CALL - 958: GOTO 2040
2077 IF LEN (A$) < 55 THEN A$ = A$ +
     RIGHT$ (S$,55 - LEN (A$))
2080 E$(D) = A$
2090 PRINT D$;"WRITE";F$;M;",R";D: PRINT E$(D):
     PRINT D$;"CLOSE"
2999 GOTO 100
3000 REM LIST CALENDAR ENTRIES ON SCREEN
3010 PRINT D$;"OPEN";F$;M;",L";L
3020 FOR D = 1 TO MD(M): GOSUB 60: NEXT : PRINT
     D$;"CLOSE": HOME : PRINT "SUMMARY OF ENTRIES FOR
     ";MN$(M);":": PRINT
3030 FOR D = 1 TO MD(M): IF MID$ (E$(D),4) > <
     MID$ (S$,4) THEN PRINT E$(D)
3040 NEXT : INPUT "HIT RETURN";A$
3999 GOTO 100
10000 ONERR GOTO 10070: REM INITIALIZE CALENDAR
10010 PRINT D$;"VERIFY";F$;M
10020 PRINT "YOU ALREADY HAVE A CALENDAR FOR THIS
      MONTH. SHOULD IT BE DELETED (Y/CR)? ";:
      GET A$: PRINT A$: IF A$ > < "y" AND A$ > <
      "Y" THEN POKE 216,0: GOTO 100
```

# THE WAP ABBS
# by Thomas S. Warrick

Washington Apple Pi runs two Apple Bulletin Board Systems (ABBS) with electronic mail, programs for downloading and other information for the use of members with access to computer telecommunications equipment. The "main" board is located in Bethesda, Maryland, at telephone number (301) 986-8085. This board runs twenty-four hours a day, seven days a week except during file and program maintenance. A separate "WAP Classifieds" board runs out of Kensington, Maryland, at telephone number (301) 871-7978. It is usually available at all times except between nine a.m. and noon on weekdays. WAP is currently planning to set up a third and perhaps a fourth board in the near future; these will be announced in the WAP Journal.

The WAP Classified board is intended as a "special purpose" board. Messages on it should be limited to:

a. Items offered for sale.
b. Items you are interested in buying.
c. Offers of employment.
d. Solicitations of offers of employment.

Messages on these subjects on other WAP boards may be deleted. In addition, non-WAP members may read messages on the WAP Classifieds board, although they may not leave messages. This enables your message to reach a wider audience than just Pi members.

Any member of Washington Apple Pi with access to a modem (a contraction of "modulator-demodulator") can obtain a password for the ABBS by calling the WAP office in Bethesda, Maryland, at (301) 654-8060. During WAP office hours, a password will be assigned on the spot. Alternatively, a member may call the main ABBS with a modem and leave a message for the System Operator (SYSOP) stating the member's name, WAP membership number and day and evening phone numbers.

The WAPABBS program which runs on WAP's bulletin board systems has a number of special features and commands, and even those users who are experienced with other BBS programs should use the "H" (Help) command to learn about them.

To use the main WAP bulletin board, follow these steps: (WAP's other boards follow similar procedures.)

1. After you have obtained a password, set up your modem to send and receive at 300 baud or 1200 bps. Note that if you want to use 1200 bps, your modem must use what is called 212A protocol. Another 1200 bps protocol called 202 is used by the Novation Apple-Cat, so if you have any other 1200 bps modem you almost certainly are using 212A protocol. Set your modem for full duplex, so that you do not see characters on your screen until they are echoed back to you. The character format is 1 start bit, 8 character bits, no parity, and 1 stop bit. This is the standard full duplex setting on most modems, including the D.C. Hayes Micromodem II. If you are using a Micromodem II in slot 2 with no terminal program, you can activate this by doing:

        IN#2 <RETURN>
        <Ctrl-A> <Ctrl-F>

2. Dial the ABBS at 986-8085 or 871-7978. If you are using a Micromodem II with no terminal program,

you would enter:

        <Ctrl-A><Ctrl-Q>

and then dial the number (slowly). You may well get a busy signal when dialing the ABBS, but if you do, keep trying. (See below for tips on how to have your computer dial the phone until you get a connection.) When you are connected, the ABBS will respond:

        ENTER A CARRIAGE RETURN:

Do so simply by pressing the RETURN key on your keyboard.

3. The ABBS will then say:

        ENTER WAPNNN.PSWD OR WPNNNN.PSWD:

You should enter "WAP" if your Washington Apple Pi number is less than 1000, and "WP" if it is 1000 or greater. You should then enter a "." and your four-character password. If you used a "." to separate your membership number from your password, the password characters will be echoed back to you as underscores ("_"). If you use a comma or some other character, you will see each password character followed by an underscore. Note that all lower-case characters you type will be echoed back to you as upper case. This will happen most of the time. The only time you will see lower case as lower case is in message summaries and message text and then only if you have told WAPABBS to send you lower case. This is explained more fully below.

You have three chances to sign on. After the second incorrect try, you will be asked whether you want assistance in signing on. If you have not logged on successfully after three tries, a brief message will be printed, and you will be allowed to leave a 238-character message for the SYSOP. In entering this message, use the carriage return only at the end of the message.

4. At this point, WAPABBS will load into its memory its recollection of how you like certain things. For example, WAPABBS remembers whether you need linefeeds, whether you want lower-case characters, whether you want some text in 80 columns, and so on. These characteristics are selected by the "U" command, described below. You will then be told the message numbers of all messages for you:

        WELCOME TO WAPABBS.
        The following messages are FOR YOU:
        10 30 73

5. Next you will see the current date, the date of the most recent bulletin, and the date you last signed on:

        It is now:  84/10/14 17:46:30
        Last bulletin update:  84/10/12
        You last called on 84/09/30 at 7:35

The bulletin is a short message from the SYSOP on matters of general interest that all users should read. Note that the last time shown is approximate to the nearest 6 minutes. Of course, the first time you sign on the system, the date you "last" signed on will be incorrect.

6. You will then be asked whether you wish to read the bulletin. If you say no when you mean yes, you can use the "P" command to retrieve the bulletin later.

7. The ABBS will next give you the "COMMAND?" prompt, which allows the user to enter any of the ABBS' commands.

The commands for the main WAP board are: (Other WAP boards may have a subset of these commands.)

Any number from 1 through the largest message number allowed on the board, currently (10/14/84) 255 on the main board - To retrieve a specific message, enter the number of that message. You will then see a two-line summary with the message number, the WAP number of the sender, the WAP number of the recipient, the date the message was entered, and the subject of the message. After a short pause, the ABBS will then list the message. If the message is addressed specifically to you, you will be asked whether you wish to delete it.

Note that it is possible to have a message to one person open to all to read. These messages have a colon between the "to" and the user number of the recipient:

to:WAP538

Messages that are private have a blank space between "to" and the user number.

A - (Amend a message in memory) After a message has been entered using the "E" command (see below), portions of it may be changed using the "A" command. The "A" command gives you access to all of the editing features of the "E" command's Edit mode. After you enter the message number, you will be given a chance to list the message prior to editing it.

B - (Bulletin boards) This command lists the telephone numbers and locations of other computer bulletin board systems, principally in the Washington, D.C. area. This list is kept as current as possible, but computer bulletin boards - particularly private ones - are often ephemeral. Please let the SYSOP know of any changes that should be made.

C - (Chat with the SYSOP) Occasionally the SYSOP will be available to come to the ABBS to give help, advice, opinions, or just to chat. When you use this command, you will be told whether the SYSOP is "available" or "not available." These do not necessarily correspond with the SYSOP's physical presence, because often he or she may be in but unable to come to the keyboard. If the SYSOP is in, you can "call" him or her by causing the ABBS' Apple speaker to sound. Continue using the ABBS, and the SYSOP will come to the keyboard and cut in. Chat mode can be exited at your command by entering ctrl-C or ctrl-K.

D - (Delete a message) Once you have read a message directed specifically to you, you will be asked if you wish to delete it. Deleting messages frees up the space for yourself and other users. Also, if a message of yours has gone unanswered for a month, delete it yourself. Only the sender of a message, the recipient (in the case of a private message), and the SYSOP can delete messages. Periodically the SYSOP deletes all messages more than several weeks old.

E - (Enter a message) When entering a message, you will first have to designate the recipient. You can send it to the SYSOP, in which case the ABBS will convert it to the SYSOP's WAP number (currently WAP538), to a particular individual, using the stand-

ard form WAPnnn or WPnnnn (for WAP numbers 1000 or higher), to ALL, or to cancel the entry of the message (C). If you send a message to an individual, you will then be asked whether you want the message to be private or open to all users to read. If you respond "P", the message will be private and no other users can read the message; otherwise, everyone can read it. You then enter a short summary of the message, not exceeding twenty characters. This summary may be entered using lower case characters (see ctrl-L, below).

You then enter the text of the message, which may be up to 10 lines of up to 39 characters per line. You will be prompted with the line number before each line. If you are in 80-column mode (see "+", below) and not using the abbreviated prompts (see K, below), you will see a line showing you how long 39 characters would be. To end the message before the 10th line, just enter a return. When you get to 10 lines, you will be asked whether you wish to continue the message. If you say "Y", then the message will be continued automatically. After you have entered the message, you will be given a chance to start over or edit the message if you respond "N" to the question "Save to disk?" (Note that if you have continued the message from another message, you can edit only the last message. To edit earlier parts of the message, use the "A" command.)

If you decline to save the message to disk, you will then be asked if you wish to edit it, re-enter it from scratch, or cancel the entry. If you select "E", you will be asked whether you wish to edit the name of the recipient, the summary, or a item selected from the message. The line will be listed in its current form, and the cursor will return to the first character of the line. Use the right-arrow to copy any characters you do not wish to change. You may also add a line to the message, up to a total of 10 lines.

After you have edited the line, you will be asked whether you wish to edit another line or save the message. Note that if you are using the "A" command, re-entering or cancelling the message both have the effect of deleting the message.

G - (Goodbye) "G" will disconnect you from the system. If you fail to enter a character for about 7 minutes when the ABBS expects you to enter a character, you will be automatically disconnected. WAPABBS will ask you a question to make sure you do indeed wish to hang up.

H - (Help) Enter "H" to see a short list of available commands and control characters. This list is also printed in response to any non-legal command. Like other messages, it can be terminated with ctrl-C or ctrl-K.

I - (Instructions) The "I" command gives explanations of available commands much like this description. This listing has more detail than does the "H" command listing.

K - (Knowledgable user) Users who are familiar with the system can use the "K" command to shorten the printing of many prompting messages. Thus, for example, "COMMAND?" becomes "?".

L - (List messages) Use this command to review all messages sent to you or to ALL (whether with "ALL" or as open private messages). You may use the "L" command to list all messages within a certain number of days of SYSDATE, all messages, or all messages entered since the last time you signed on. Zero days would retrieve messages entered on the same date only. After each message is listed, if the messages file is not full, you will be given the opportunity of

contd.

responding to the message, finding out who sent the message, or going on to the next message. If the message is to you alone, you will be asked to delete it. To skip to the next message during a listing, enter ctrl-O.

M - (Meeting notices) "M" lists all meeting dates, times and places for Washington Apple Pi and the Special Interest Groups. Tutorials are also listed.

N - (Nulls) As discussed above, some systems require the insertion of linefeeds, which move the cursor down a line without returning to the left margin. Some systems also require "nulls," which are delays after carriage returns in order, for example, to allow the printer head to return to the left margin. Insertion of linefeeds and the number of nulls may be examined and set by the "N" command. You must have linefeed insertion "on" in order to have delays after carriage returns. You may also set a delay factor to slow up transmission of each character using a "SPEED=" command. Note that entering a linefeed (ctrl-J) at any time also automatically begins sending you linefeeds. Linefeeds can be turned off only with the "N" command. See the "U" command for another, better way to have WAPABBS give you linefeeds.

O - (Opinion poll) Because Washington Apple Pi is a users' group, the opinions of members are of importance to the group. The Opinion poll is intended to sound out users' opinions on questions of interest to the officers of WAP. It also serves as a survey of members' interests and experiences with computer hardware and software. The question is usually changed weekly. Results are discussed in the Bulletin file.

P - (Print bulletin) The "P" command prints the initial signon messages that give the date, the last bulletin date, and the last time you signed on. (See step 5 of the signon procedure.) You will also be asked if you wish to "Request bulletin?"

Q - (Quick summary of messages) "Q" lists only the numbers of messages to you, to all, or from you, all in chronological order, and gives the total number of messages currently in use. The maximum number of messages currently allowed on the main board is 255. You will then be asked whether you wish to flag messages for reading in full. This is identical to the "S" command discussed below, except that only the message number and the summary are displayed.

R - (Recipes) This is WAP's attempt at organizing a recipe exchange among members. Using it is very much like downloading a file, except that a recipe is usually much shorter. See the description of "X" below, or better yet, just try it and see what happens. If you wish to contribute a recipe, please let the SYSOP know.

S - (Summary of messages) "S" is perhaps the most useful and convenient way to retrieve messages. In fact, if you use "S", you may never need to learn anyone's membership number to send messages. "S" will first ask you how far back you wish to search for messages. The choices are the same as in the "L" command. You will then be asked if you wish to flag messages for reading in full. WAPABBS will list the two line summary of all messages within the specified number of days. Entering "0" will retrieve messages from "today" only. The summary lists the message number, the WAP number of the sender, the recipient, the date, and a 20-character summary of the subject. (We are planning to introduce more characters into this header that will give more information, such as whether the message has been read by its recipient. See the "I" file on the bulletin board for further information.) If by the end you have flagged at least one message for reading in full, you will be asked to hit return, and the entire text of the flagged messages will be listed using the "L" command. You can skip the listing of a message using ctrl-O, and if message space is available, you can enter messages.

U - (Update User Record) Any computer bulletin board system must cater to a variety of different systems, but because each user generally calls from the same type of system, the computer - not the user - should keep track of how the user likes things. "U" does this for WAPABBS. WAPABBS will tell you the current settings for:

a. 80-column display vs. 40-column display. (See the "+" command.)

b. Linefeeds after carriage returns. (See the "N" and ctrl-J commands.)

c. Abbreviated or complete prompts. (See the "K" command."

d. Transmit lower-case characters as lower case or translate lower case to UPPER CASE. (See the ctrl-L command.)

For each of these options you will see the current setting and be asked whether you wish to change it. Note that "U" does not have an immediate effect, i.e., it will take effect only the next time you call in.

W - (Who is on the ABBS) To find out the name that belongs to a WAP number or the WAP number associated with a name, use the "W" command. After choosing which type of search you want, enter either the first two letters of the name or the WAP number. A search of a match for a name can take several minutes.

X - (Xfer [Transfer] files) The file transfer subsystem has its own set of instructions, listed in response to an "H" command once inside the file transfer subsystem. The other command is "D" for "downloading." (The opposite of downloading is uploading, which would refer to sending a program from your computer to the ABBS's computer.) There are essentially two ways of retrieving files: as text files captured in the memory of your terminal program, or by loading them directly into the memory of your D.C. Hayes Micromodem-equipped Apple ][, ][+, //e, or IIc. If you do not have a Micromodem, you must have a terminal program in order to download effectively.

When you have selected downloading, you will first be given the menu of files available for downloading, the type of file it is, along with a short remark about each file, which will usually say how long it takes to download the program. Tell the ABBS whether you have a terminal program or whether you are using a Micromodem II or IIe without a terminal program. If you say you have a terminal program, the ABBS will simply send the file without any control characters. It is the responsibility of you and your terminal program to save the file to disk. If you do not have a terminal program and are using a Micromodem, the ABBS will send your Apple a ctrl-R, which should force the modem to exit its internal terminal program so that the file will be loaded directly into your Apple's memory. If the file to be downloaded is a program, the ABBS then does an "FP" or an "INT" and waits in case your Apple needs to load the proper BASIC from disk. It then lists the file and, when the listing is complete, returns you to the terminal program by poking the appropriate value in the FLAGS byte of your Micromodem:

    POKE PEEK(1784)/16+1912,138

contd.

PEEK(1784)/16 is the slot number in which the modem is located, and slot+1912 is the location of the FLAGS byte. One hundred thirty-eight means that the Micromodem will send in full duplex (128), with the terminal program on (8), plus the value that tells the Micromodem to respond to your keyboard commands (2). The ABBS will then give you final instructions on how to save the program to disk.

Uploading files is more complex. Users desiring to send a file to the ABBS should contact the SYSOP.

$ - (Prices on products available through group purchase) "$" will list the current products available to members through WAP's group purchase program, and the latest available price information. No guarantee of accuracy of either prices or products is made. Requests for items should not be made through the ABBS. Contact the appropriate people at the WAP office.

+ - "+" toggles an 80-column mode for users with 80-column boards or printers. If your system has 80-column capability, you can use this command to display some text on one line that would normally take up to two lines. Entry of material is not affected, and is always as if you are in 40-column mode. Note that what the "+" command actually does is to change every other carriage return in most file listings into a space.

? - "?" lists the letters of all available commands. Use it when you don't need to see the short description listed in response to the "H" command.

These control characters are also supported:

Ctrl-C or ctrl-K (up-arrow on the //e or IIc) act as ctrl-C normally does in BASIC: to stop whatever is going on. Ctrl-C and ctrl-K will return to the COMMAND? prompt. They are enabled once your password is accepted, so that you need not wait to see if you have any messages. On some occasions, such as during downloading, ctrl-C is temporarily disabled.

Backspace (ctrl-H or left-arrow) erases the last character from your screen.

Ctrl-J (down-arrow or linefeed) enables linefeed insertion. In this respect, it serves the same function as the "N" command, although it does not set or change the delay following carriage returns. Ctrl-J may be entered anytime the ABBS expects input from you. If linefeed insertion is off, there will be no delay following carriage returns. Ctrl-J may first be entered when the ABBS asks you to "ENTER A CARRIAGE RETURN:". To see whether linefeed insertion is active, use the "N" command.

Ctrl-L toggles lower case translation. If you wish to send and receive lower case, you must enter ctrl-L at some point. (As with ctrl-J, no carriage return is required. Thus, you may enter ctrl-L and another command on the same line. Lower case is only allowed in message text and subject summaries. At all other times, lower case will automatically be translated into upper case before it is echoed back to you.

Ctrl-O allows you to stop the listing of a message during the multiple-message listing commands (L, Q and S).

Ctrl-S temporarily suspends any listing, almost exactly as it does on an Apple ][ with the Autostart ROM. Type any other character to resume. The ABBS expects you to decide when you want to suspend a listing.

Right arrow (ctrl-U) retrieves previously-erased characters.

Ctrl-X behaves exactly as it does in normal Apple ][ line input: it cancels the line being entered and allows you to retype the entire line.

This program undergoes continual modification and improvement. Thus, certain aspects of the operation of WAP's bulletin boards may have changed by the time you read this. These changes may be significant, so keep up with the WAP Journal for details.

One of the more frequently-asked questions is how to get an ABBS session printed on paper. If you have a terminal program, the instructions should tell you how to print while online. If not, this technique works on a Micromodem II and may work on other modems as well:

```
<Ctrl-A><Ctrl-X><RETURN>
PR#1<RETURN>
<Ctrl-A><Ctrl-F>
```

The first line exits terminal mode, the second line activates the printer, and the third line returns you to terminal mode.

Note that when printing, particularly when printing with a parallel printer, you may lose the first character or two on each line. This is because the Apple is "talking" to the printer but not "listening" to the modem. Use the "N" command to give you delays after each carriage return or to slow down transmission. In many respects, however, you may find it easier to save a session in memory using a terminal program, and print out only those portions that need to be preserved in hard copy.

As has been noted above, many people have difficulty in getting through to one of WAP's bulletin boards. The main WAP board gets about 19,000 calls a year. The "peak hours" are in the evenings, although 8:00 a.m. to 10:30 a.m. is also quite busy. Indeed, about the only time you could get it without at least one busy signal is 2:00 a.m. to 6:00 a.m., but even this cannot be guaranteed!

To get around this problem, many WAP members arrange to have their computers dial the bulletin board's phone number repetitively until they get a connection. Terminal programs such as ASCII Express - The Professional have "macros" that allow this. A (relatively) simple Applesoft BASIC program that will do the same thing is:

```
10    Q$ = CHR$ (17):Z$ = CHR$ (26):D$ = CHR$ (4)
20    SL = 5
30    N$ = "986-8085"
40    PRINT D$;"PR#"SL
50    PRINT Q$;N$
60    X = PEEK ( - 16250 + 16 * SL)
70    X = INT (X / 4)
80    IF INT (X / 2) = X / 2 THEN FOR J = 1 TO 2000:
      NEXT : IF INT (X / 2) = X / 2 THEN 140
90    FOR J = 1 TO 200
100   X = PEEK (12 * 4096): REM READ KEYBOARD
110   IF X > 127 THEN POKE 12 * 4096 + 16,0:
      PRINT D$"PR#0": END
120   NEXT
130   GOTO 50
140   PRINT D$;"PR#0"
150   FOR J = 1 TO 5
160   PRINT CHR$ (7);
170   NEXT
180   PRINT
190   PRINT D$;"BRUN REMEMBER II SLOT 5": REM ADJUST
      FOR YOUR TERMINAL PROGRAM                    contd
```

Note that this program will occasionally yield a "false positive," i.e., it will think that the other end answered when in fact you actually got a busy signal. This is a function of the modem hardware and is difficult to avoid. The program has not been known to give any "false negatives," i.e., it does not fail to detect carrier if it is actually there.

## WAP Policy

WAP policy prohibits commercial messages on its bulletin board systems. "Commercial" messages are those offering items for sale or soliciting customers other than for casual sales or purchases. The SYSOPs have the authority to delete commercial messages from the boards. Offers of employment or messages seeking employment are permitted on the WAP Classifieds board only.

WAP policy also prohibits the use of its ABBS's for the furtherance of illegal acts, including particularly the illegal copying of copyrighted software. Disciplinary action may be taken against a member who violates this rule.

Finally, while it is not formal WAP policy, please be very careful when discussing the solution to "puzzle" or adventure games. Others on the board have the right to discover solutions for themselves and not to have their pleasure cheated by being told the solutions. As a general rule, please do not offer hints or clues unless in response to a specific question. When responding to another member's question, please make your response a private message.

A copy of the current version of the WAPABBS 1.1 software is available from the club as Disks 121 and 135-136. You must have all three disks. To run the system, you will need the three disks with the WAPABBS software on them, an Apple ][+, //e or an Apple ][ with either an Applesoft ROM card or a 16K card. You will also need two disk drives (you may be able to get by with one but you will not be able to use many of the informational files), a D.C. Hayes Micromodem II, and, optionally, a printer and a clock card. This is not a simple program, and will require extensive knowledge of BASIC and at least a limited knowledge of assembly language in order to use the program effectively. The disks are fully documented with line-by-line explanations of both the BASIC and Assembly Language code.

The SYSOP usually checks his or her board once every other day or so. In addition, particularly if you are not in the Washington, D.C., area, I can also be reached at MCI Mail mailbox TWARRICK.  &

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Calendar Program contd. from pg 23

```
10030  POKE 216,0: PRINT D$;"OPEN";F$;M;",L";L
10040  FOR K = 1 TO MD(M): PRINT D$;"WRITE";F$;M;",R";
       K: PRINT " ";: IF K < 10 THEN  PRINT " ";
10050  PRINT K; "
              ": NEXT
10060  PRINT D$;"CLOSE": GOTO 100
10070  POKE 216,0: IF  PEEK (222) >  < 6 THEN  PRINT
       "DOS ERROR OF TYPE "; PEEK (222): INPUT "PLEASE
       SEE YOUR MANUAL.  PRESS RETURN   WHEN READY."
10080  GOTO 10030: REM FILE DOES NOT YET EXIST; OK TO
       INITIALIZE
```

# BE CAREFUL IN "THE PRINT SHOP" by Bob Trexler

Having learned from Leon Raesly at the October meeting that "The Print Shop" was a pretty neat program, I visited my local Crown Books and bought a copy.

However, my experience with it is mixed. The program works as advertised; and while it takes a long time to do one page of just about anything, what you get is pretty good looking and easier to come by than by trying to do it with HGR and HPLOTs. My problem, and maybe yours, is that the documentation supplied with it does not give fair warning about the backup diskette procedure.

Broderbund Software states that you may make one backup copy, and that you should do this during the "LOAD" of the original by pressing ESC. There is no warning that any other means of copy will preclude making a backup copy. Unfortunately for me, I tried to make a backup by other means. When that did not work, I went back to the manual to find out what the "official" procedure was. Again, unfortunately for me, when I attempted to follow the procedure, it did not work. Whether it ever works, I cannot now say. If anyone knows what the backup procedure is after you hit escape, I would be interested in knowing too.

My purpose in writing this small cautionary note is to say that: Yes, it is possible to run "The Print Shop" without bothering to read the manual, but you had better read it if you don't want to be cheated out of a backup as I was.  &

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# JOB MART

## HELP WANTED

Tutors Wanted - //e, IIc, Mac - for Upper Montgomery County, Fair Oaks VA, DC, and Silver Spring. Good pay. Hours arranged at your convenience. Share your expertise and earn extra $$$. Call (301) 596-0707, COMPUTER TUTOR, for further information.

Programmer Wanted - Production company seeks student for few hours programming on Dec-Mate II. Need customization to job cost accounting program already written. Is in M-BASIC, CP/M operating system language. $15 - $20 an hour. Must be able to revise one particular section to our needs and enter into computer. Completion needed by year's end. Call Lori Harrington or Tom Bentz, Jack Morton Productions, 1825 Eye Street, NW, 296-9300.

Wanted: Typist with a Macintosh to share in the production of one or more books for publication. Proximity to Alexandria would be helpful but not critical. Please call Bob at (703) 370-2525. Leave message with answering service if not at home.

Clerical Position Open - can be full or part time. Call Mary Ann Forman, (W) 442-7900, (H) 241-1216.  &

# PI SIG NEWS
## by Raymond Hobbs

PI SIG meets at the Woodmont Avenue WAP office on the second Monday of each month, at 8:00 P.M.

December's meeting was held at chez Hobbs, in order to have a live demonstration of music synthesis. (NOTE: as this is being written, that meeting is still a week into the future.) The two synthesizers used are the Alpha Syntauri 16-voice additive synthesizer and the Macintosh 4-voice square wave synthesizer. For those of you who missed out on the performance, please contact me sometime in the next month, and we'll try to arrange another demonstration.

We are also soliciting responses from those of you who would be interested in seeing a repeat of our Assembly Language tutorials. If the interest is there, a series of AL tutorials will be announced soon.

A note on LOTUS' JAZZ for the Mac: The announced release of Jazz, by LOTUS Development Corporation, has been met with a great deal of enthusiasm by those who have been waiting for a spreadsheet with more clout than Microsoft's Multiplan. While the 5-application JAZZ (spreadsheet, database, word processor, graphics and communications) sports plenty of clout, don't sell yourself on the 256 x 8192 cell spreadsheet size - you won't get to use even 10% of it! JAZZ is a SYMPHONY (for IBM-PC) lookalike. Since the Mac (even the Fat Mac) has less memory than a full-blown PC, and since Mac's resident operating system takes up considerable more real estate than does PC DOS, we are betting that you'll wind up getting less spreadsheet space on the Mac than on the PC - to be specific, we think that a 256 x 256 cell spreadsheet will bomb, even before you load data into it (whether or not a cell has data in it, if it is part of the active window of the spreadsheet, it has a couple of bytes of RAM allocated to it). If JAZZ pages RAM into and out from disk in order to beat the space limitation, look for a S-L-O-W running package. We will discuss the LOTUS spreadsheet products at our next meeting. For those members who have an itch to find out something more about the Apple or Mac internals, or merely to brush off some old systems programming skills, you are invited to attend the next (January 14) meeting, ask questions, or just tune in to the "shop talk" about what is going on inside those micros.

For more information on PI SIG (who we are, what we do), call Ray Hobbs (301) 490-7484 or Mike Vore (301) 992-4953.

*Have a happy holiday...*
**Ray Hobbs**

# THE BEST OF WAP ABBS
## by =Alexander-

From WP3587 to ALL    Date=10/24  Subject: Noisy phone lines

Anyone know how to fix (or get the phone company to fix) noisy phone lines. My line has become impossible whenever it rains. HELP! HELP! HELP!

From WP2243 to:WP3587  Date=10/25  Subject: noisy phones(R)

We had (have) a similar problem here at work, and the phone company has been working on it now for 3 years. (and that was even back before the break up when you still could get service.) Problem is usually ground water leaking into an underground or above-ground cable somewhere and is usually very hard to track down. Brett

From WP1095 to:WP3587  Date=10/26  Subject: phone noise

Call phone company maintenance dept and tell them you have water in your outside pole mounted junction box and expect to have it fixed, otherwise threaten to call the Public Service Commission of your state/area.

From WP5181 to ALL    Date=11/03  Subject: Apple 2 ? From a Mac

As one who joined Washington Apple Pi as a Mac owner, I am curious as to why you use the characters "][" and "//" to mark your Roman numerals rather than "II". I am a late-comer to the Apple scene, so I don't know the story behing this. Please explain.

From WP4772 to:WP5181  Date=11/04  Subject: Where from ][, //

I believe that the ][ and // come from the models that they originally came from, the ][ from the first Apple ][, and the // from the Apple //e. It allows for quick ID of the particular model. Hope this helps. Chip....

Fom WAP208 to:WP5181  Date=11/04  Subject: ][ & // use revealed

The original Apple II's logo was the Apple ][. The Apple III's logo was the 'Apple ///.' With the Apple //e 'e' for 'enhanced,' Apple changed to Apple //e, to make it easier for typesetters, I presume, and to promote uniformity between the '//' series and the '///' series. Is that confusing enough?

From WP3111 to:WP5181  Date=11/04  Subject: ][, //

The original Apple 2 computer had APPLE ][ as its written name on the case and all reference material. The APPLE ][+ was the next model. When the Apple 3 came out, slashes were used, Apple ///, and the slashes were carried over to the next Apple 2s, the //e and the //c. Other companies seem to like calling all sorts of things the THIS II or THAT II; Apple goes with ][ and //.

From WAP538 to ALL    Date=11/03  Subject: SOFTALK & A+

I received a letter today from A+ that said that my Softalk subscription would be fulfilled with A+, which many (incl. me) believe to be an up-and-coming maga-

zine (some believe it has already "arrived)." So, some relief for ex-Softalk junkies!    Tom Warrick

From WP4609 to ALL    Date=11/08  Subject: IIc vs Kaypro

As for actual cost vs. money's worth, it appears that Kaypro might give more for the money PLUS easier carrying IF you need something that's portable. This is just a guess.... if anyone knows differently, please comment. Thanks

From WP2243 to:WP4609  Date=11/08  Subject: IIc vs Kaypro

How's about a good used Osborne for more bang for the buck?

From WAP286 to ALL    Date=11/05  Subject: Call-A.P.P.L.E. orders?

I ordered Spreadsheet from Call-A.P.P.L.E. three weeks ago but haven't received it yet. Is it usual for their order system to take so long?

From WAP286 to:WP1500  Date=11/18  Subject: THE Spreadsheet

Thanks for the info on the Call-A.P.P.L.E. delays. I finally did get The Spreadsheet, but I am having some problems with it. It starts dropping a bit in my displays and gives me ASCII characters 8 less than I put in occasionally. It also blows up when I ask it to do report functions. Any ideas? Alan

From WP1468 to ALL    Date=11/08  Subject: VisiCalc

Does anyone know if there is a version of VisiCalc that has individually variable col. widths and runs on an Apple ][+?

From WP3502 to:WP1468  Date=11/08  Subject: VisiCalc

Ultraplan is a VisiCalc type program that is compatible with VisiCalc and VC files. The commands are very similar. Ultraplan offers variable col width. Eric Rall

From WP4795 to:WP1468  Date=11/10  Subject: VisiCalc-FlashCalc

The new program FlashCalc for which you would no doubt soon like to have ProDOS to run has variable col widths plus some other updated items. If you have VisiCalc you may be able to get FlashCalc for $50.00 by sending them a letter. VISICORP 2895 Zanker Rd, San Jose, CA  95134 asking for the program. Include a copy of the bill of sale for the original program or the warranty registration card and a Check for $50. You may check with Computer Learning Tree in Annandale. A salesperson said they could sell the new program to me for the same $50 - this may have been incorrect so call them first. Good Luck---Bob Wood

From WP2825 to All    Date=11/10  Subject: VisiCalc update

Yes, there is a VisiCalc with independently variable column widths. Computerland of Woodbridge had a VisiCalc display board that had a $50.00 upgrade kit during Sept and Oct. I suspect the offer has ended by
contd.

now, and you'll have to pay full price for the kit, but I got one and it is unreal to be able to do so much more with it. It runs on my ][+'s and the IIc. My wife uses it at work for statistics and data reduction. (Sort of driving a Cadillac to a hamburger stand, eh?). Anyway, it's available and it works. Jerry

From WP4099 to All    Date=11/11   Subject: AE Pro on Micromodem

I recently purchased a Micromodem //e with Smartcom I. The software works fine but I would like to use AE Pro. The problem is that AE Pro does not access the speaker, or tone dial. Is there a way to reconfigure AE Pro to do this? Do newer versions offer access to these functions? Thanks.   John Klecker

From WP1755 to:WP4099  Date=11/11  Subject: AE Pro on Micromodem

I bought a T-plug for the back of the Micromodem and a mini-amplifier speaker from Radio Shack for about $10. I modified the cord for the speaker using a capacitor on one lead and it works just like the Smartmodem.

From WAP538 to ALL    Date=11/13  Subject: How to join CompuServe

I've finally decided to take the plunge and join CompuServe. What is the cheapest way to do so?   Tom Warrick

From WP5531 to:WAP538  Date=11/13  Subject: Getting on CompuServe

Tom, you can buy a CompuServe starter kit for about $40.00 which gets you a user's guide and 4 hours of 300 baud connect time. Any other questions leave me a msg as I have a CompuServe membership.

From WAP208 to:WAP538  Date=11/14  Subject: CompuServe Package

B. Dalton's carries a $40 package which gives you 5 'free' hours of time, and includes the docs to formally sign up. Don't know if it's the cheapest way, but it's one of the easiest.

From WP3542 to:WAP538  Date=11/14  Subject: CompuServe Wants You

Hi Tom, (never mind the above title - poor joke). You can find a cheap join-up package at most Radio Shack's in the area. It's like $19 with 5 free hours to see if you're interested in CompuServe's service. Next, you can enter your MasterCard number after you signon by which CompuServe will bill you and then sends you the User's Guide. Its really, really easy. - Chuck -

From [YOU] to:WAP538  Date=11/15  Subject: Compuserve Best Buy

For $20 I got an out-dated, virtually contentless manual and 1 free hour from Radio Shack. I then spent $30 and got 5 free hours, and a good manual from BEST Products.

From WAP538 to:WP5181  Date=11/06  Subject: XON/XOFF w/ Mac

The ABBS supports XON/XOFF from your end, i.e., when you send a Ctrl-S (XOFF) the ABBS waits for you to type another character. The ABBS does not itself send XOFF.   Incidentally, there is a bug in the Mac's serial routines that makes XON/XOFF not work. Programmers must use a RAM driver to get around this. Don't know which Microsoft BASIC uses. Unfortunately, CMD-S is intercepted by MS-BASIC & is not transmitted

to the other system.    Tom Warrick

From [YOU] to ALL    Date=11/14  Subject: How get 128K //e?

What is the best way to upgrade my trusty old 64K //e to 128K? I have Appleworks in mind especially, also Applewriter.   Not a Fat Mac maybe, but just a husky helper.   =Alexander-

From WP2243 to:[YOU]   Date=11/14  Subject: 128K Apple //e

The only way to get a useable 128K //e is to get the Apple ext 80-col card or one of its clones. All of those 128k programs look for that card, and without it you can have the thing stuffed with RAM cards in the other slots, but still only have a 64K Apple as far as they are concerned. Sorry.   Brett

From WP1830 to [YOU]   Date=11/15  Subject: 128K //e

As other people have said, you must have an extended 80 column card. You can buy the Apple one or another good answer would be the one from Micro-Sci. I have Micro-Sci and it works just like the one from Apple. Last time I was at The Comm Center in Laurel they were selling them for just $99.00. A good buy. Any questions just ask.    Scott Rullmann

From WAP017 to:[YOU]   Date=11/22  Subject: 128K for //e

There are a variety of extended 80 col. cards for the //e which will add an additional 64K. The Club group purchase offers 80/64 cards from Micro-Sci and Applied Engineering.   The latter company also offers an expandable card - The Memory Master - which allows adding 128K to the motherboard RAM.                    ✇

# IMPROVING KEYBOARD USE ON LOGO COMPUTER SYSTEMS LOGO
## by Cyril Fefer

The Apple //e's keyboard was not designed with Logo users in mind. Logo frequently requires colon and quote signs which have to be accessed by pressing two keys, the shift key and the key with the colon or quote. It is rather easy to get around this double key press; on the //e the colon shares the same key as the semicolon, and the quote shares the key with the apostrophe. If one were willing to sacrifice the apostrophe, the lower case of the quote key, and to sacrifice as well the semicolon, lower case of the colon key, we could get what we wanted with one key press. Because I neither wanted nor needed the apostrophe or semicolon I did not make provision for their access. With just a bit more complexity these two symbols could be restored, even taking the original places of the colon and quote. But what follows will be clearer by far if that embellishment is left as a reader exercise.

Where and how can this change be made in Logo? By using a disassembler written in Logo (Apple's built-in monitor disassembler works on Logo code only up to $CFFF and there's lots of Logo code on the 16K card) and a hex search also written in Logo, I determined that the keyboard input routine was written on page $B5. (The disassembler therefore was not really needed.) The search amounted to looking for references to $C000, the keypress address. So far, so good. I could break in there, go off on an excursion to some quite unused corner in memory and write a few lines capturing all apostrophes and semicolons and transforming them into Logo friendly symbols and finally return to from where I came.

The problem was in finding an unused corner in the very crowded Logo interpreter. After some looking about, our old favorite piece of real estate, $300, was determined to be the start of the type ahead buffer. Why not kill the buffer provision (by right or eminent domain) and use that area for our own devices? In fact, the type ahead buffer can be a hindrance, especially within procedures containing the READCHARACTER primitive. I use the READCHARACTER technique to force a PAUSE-UNTIL-KEYPRESS while the screen is being read by the program user. If a key is held down too long (automatic repeat on the //e) or keypresses are made during a wait (the Logo primitive WAIT) these keypresses are stored in the buffer. If another PAUSE-UNTIL-KEYPRESS is called for later in the program the result is disaster; pages of text flash by beyond control of the user.

The KILL BUFFER procedure provided below will force Logo to jump over the code that stores the (extra) keystrokes at $300 to $33F. Any keypress beyond one, when that procedure is active, will result in a bell, and that's all. (Under certain circumstances this KILL BUFFER procedure will also serve as a software solution to an auto-repeat key problem in the //e. See Washington Apple Pi, June 1984, for a hardware solution.)

Here is the plan: Protect $300 to $33F from being overwritten; this is PROCEDURE ... KILLBUFF. Write code at $300 that will substitute the colon for the semicolon; this is PROCEDURE ... STEP1. Get into the original Logo code and intercept any keypress with the substitution routine at $300; this is PROCEDURE ... STEP2.

The definitions of the procedures and lists used:

```
TO FIX                            THE PROCEDURE THAT DOES IT ALL
STEP1 768 :PROGRAM.FIX.//E        768 IS $300....:PROGRAM.FIX.//E IS
STEP2                             THE LIST OF HEX CODE THAT DOES
KILLBUFF                          THE JOB AT $300
END

TO STEP1 :ADDRESS :PROGRAM        THE ADDRESS IS IN DECIMAL
IF EMPTYP :PROGRAM [STOP]         PUTS ANY CODE LIST AT ANY ADDRESS
.DEPOSIT :ADDRESS HEXDEC FIRST :PROGRAM
STEP1 :ADDRESS + 1 BF :PROGRAM
END

TO STEP2                          THIS EFFECTS A JUMP (REALLY A
.DEPOSIT 46565 0                  JSR) OUT OF THE LOGO
.DEPOSIT 46566 3                  INTERPRETER TO $300, AN EMPTY SPOT
END

TO KILLBUFF                       HERE IS THE CODE FOR A JUMP OVER
.DEPOSIT 46364 HEXDEC "4C         THE SECTION OF CODE THAT STORES
.DEPOSIT 46365 HEXDEC 31.         KEYSTROKES AT $300 TO $33F
.DEPOSIT 46366 HEXDEC "B5         THE TYPE-AHEAD BUFFER.
END

TO CONV :NUMBER                   CONVERTS A SINGLE HEX DIGIT TO
IF :NUMBER = "F [OP 15]           DECIMAL
IF :NUMBER = "E [OP 14]
IF :NUMBER = "D [OP 13]
IF :NUMBER = "C [OP 12]
IF :NUMBER = "B [OP 11]
IF :NUMBER = "A [OP 10]
OP :NUMBER
END

TO HEXDEC :NUMBER                 CONVERTS TWO DIGIT
IF BF :NUMBER = " [OP CONV FIRST :NUMBER]   HEX NUMBER TO DECIMAL
OP (16 * CONV FIRST :NUMBER) + CONV LAST :NUMBER
END

MAKE "PROGRAM.FIX//E [AD 0 C0 10 0F C9 BB D0 2 A9 BA C9 A7 D0 2 A9 A2 4C
    EF 85 18 60]

                  (THE ABOVE IS THE HEX CODE THAT
                   SUBSTITUTES COLONS FOR SEMI-
                   COLONS AND SO ON.)
```

```
TO UNKILL                         RESTORES THE TYPEAHEAD BUFFER
.DEPOSIT 46364 HEXDEC "C9         PROVISION
.DEPOSIT 46365 HEXDEC 1
.DEPOSIT 46366 HEXDEC "F0
END

TO UNFIX                          UNDOES FIX (BUT DOES NOT TOUCH
.DEPOSIT 46565 HEXDEX "EA         THE KILLBUFF EFFECT)
.DEPOSIT 46566 HEXDEX "B5
END
```

:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

Enter the first 6 procedures above and the one list definition of :PROGRAM.FIX.//E AND RUN FIX.

UNFIX and UNKILL are included for those that wish to return to the original, pure, unadulterated Logo.

:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

For those wanting to examine the Logo code that was changed, here is the original Logo code on page $B5.

```
We will cut in here and go to $300  --> B5E4-   20 EA B5   JSR   $B5EA
                                        B5E7-   90 F3      BCC   $B607
                                        B5E9-   60         RTS
We will copy these two lines (and  --> B5EA-   AD 00 C0   LDA   $C000
the program's logic) at $300       --> B5ED-   10 16      BPL   $B607
We will come back here             --> B5EF-   C9 E0      CMP   #$E0
after we are through at $300           B5F1-   30 02      BMI   $B5F5
                                        B5F3-   49 20      EOR   #$20
                                        B5F5-   49 80      EOR   #$80
                                        B5F7-   C9 53      CMP   #$5E
                                        B5F9-   D0 04      BNE   $B605
                                        B5FB-   A9 5B      LDA   #$5B
                                        B5FD-   D0 06      BNE   $B605
                                        B5FF-   C9 11      CMP   #$11
                                        B601-   D0 02      BNE   $B605
                                        B603-   A9 5C      LDA   #$5C
                                        B605-   38         SEC
                                        B606-   60         RTS
                                        B607-   18         CLC
                                        B608-   60         RTS
```

# CHANGING A FEW INTERNALS IN THE LCS VERSION OF LOGO

## by Cyril Fefer

The reference manual for the Logo Computer System version of Logo makes few references to locations within the code. Occasionally I have found that I wanted to change things about a bit, and that would require changing the original code. Some of these changes and their locations might be of general interest.

The next few paragraphs will (1) outline methods to avoid the exclamation point at the end of a line, (2) describe how to change the prompt, (3) provide a non-flashing cursor, and (4) provide the addresses which allow changes to the text window.

### (1) THE EXCLAMATION POINT

The use of the '!' as the 40th character of a line more than 39 characters long is useful when making or examining complex procedures. Long lines, with the "different" logic from that of many small lines, are made visible. It is, however, a pain to behold as screen output, especially when that output is to be viewed by those not familiar with Logo.

A method to avoid these mandatory exclamations is to have a space ($20) printed instead of the !($21). The routine for providing a terminal ! is on page $B8. At $B848(47176), if $20(32) is substituted for $21 this patch is accomplished. To implement this directly in Logo without a permanent effect, have certain procedures defined in this form:

```
TO WHATEVER
.DEPOSIT 47176 32
PRINT [ANY LONG LINE, EVEN MORE THAN 40 CHARACTERS]
.DEPOSIT 47176 33
END
```

In this way, the ! is preserved for use in the Editor and only specified procedures make use of the patch.

### (2) THE PROMPT

The Logo prompt outside the Editor is the "?". Special circumstances may dictate another prompt, perhaps more procedure oriented; if music enhancements have been loaded the percent sign might be used as the prompt. Ordinarily $3F(63) is at $E75C(59228). Merely .DEPOSIT 29228 64 (or 93 or 60 or your choice). These custom prompts can be overdone.

(Note 1) The ability to write to the 16K card is sometimes disabled. Page $E7 for Logo (the page containing $375C) is on the 16K card and if the above .DEPOSIT is not successful enable a write to page $E7 with .DEPOSIT 49291 0 repeated twice. After this you can .DEPOSIT 59228 64, for example.

(Note 2) To find the code for the prompt I had to examine page $E7. The ROM monitor is of little use in seeing any code beyond $D000. This is because the .BPT primitive does not access Logo's code from $D000 to $FFF because this code is located on the 16K card and .BPT reads the motherboard ROM only. For this reason I examined Logo's code by writing disassembler procedures in Logo itself.

### (3) NON-FLASHING CURSOR

To obtain a non-flashing cursor change $B5C4 from $40 to $0 by typing .DEPOSIT 46532 0 or by including that

deposit line in a procedure. Other cursors are available. The underline is becoming fashionable.

### (4) THE TEXT WINDOW ADDRESSES

A programming convenience not provided by this version of Logo is that of being able to restrict the text screen window. Here are the default parameters and addresses:

|  | ADDRESS | | NORMAL CONTENTS | |
|---|---|---|---|---|
|  | HEX | DECIMAL | HEX | DECIMAL |
| SCREEN TOP | $342 | (834) | 0 | (0) |
| BOTTOM | $343 | (835) | $17 | (23) |
| LEFT | $344 | (836) | 0 | (0) |
| RIGHT | $345 | (837) | $27 | (39) |

Example: To make the window exclude four lines at the top and ten lines at the bottom of the screen, type in the following:

```
.DEPOSIT 834 4 .DEPOSIT 835 13
```

Make your .DEPOSITs with care to avoid conflicts; left window-edge to the right of the right window-edge spells disaster.

---

Improving Keyboard Use on LCS Logo contd. from pg 32

STEP2 will have this effect on the above:

```
B5E4-    20 00 03   JSR   $300              TAKE A DETOUR TO $300
```

Here is what was written in machine language, and subsequently transformed into the list :PROGRAM.FIX.//E. Look at the 2nd, 3rd and 4th columns on the left and compare to the list :PROGRAM.FIX.//E.

```
300-   AD 00 CO   LDA   $C000      READ A KEY
303-   10 OF      BPL   $0314      KEY NOT PRESSED - START OVER
305-   C9 BB      CMP   #$BB       IS IT AN APOSTROPHE?
307-   DO 02      BNE   $030B      IF NOT SKIP NEXT SUBSTITUTION
309-   A9 BA      LDA   #$BA       SUBSTITUTE A QUOTE
30B-   C9 A7      CMP   #$A7       IS IT A SEMICOLON?
30D-   DO 02      BNE   $0311      IF NOT SKIP NEXT SUBSTITUTION
30F-   A9 A2      LDA   #$A2       SUBSTITUTE A QUOTE
311-   4C EF B5   JMP   $B5EF      GO BACK TO ORIGINAL LOGO CODE
314-   18         CLC
315-   60         RTS
```

What about a provision that allows us to access other machine language programs? Consider the following code:

```
300-   AD 00 CO   LDA   $C000
303-   10 07      BPL   $030C
305-   C9 A6      CMP   #$A6       IS IT AN AMPERSAND?
307-   FO 05      BEQ   $030E      IF SO THEN EXECUTE CODE AT $30E
309-   4C EF B5   JMP   $B5EF      PROVIDED $030E STARTS A ROUTINE
30C-   18         CLC
30D    60         RTS
303    60         RTS
```

Once the above 15 bytes have been entered (and don't forget KILLBUFF and STEP2): (1) If another M/L routine is installed at $30E (782) containing no more than the remaining 50 bytes of the former TYPE-AHEAD BUFFER, and (2) an ampersand is typed in while in Logo, then (3) that M/L routine at $30E will be executed. If no routine is so placed then the & and its CALL are ignored (except for a bell). Of course, we cannot use the ampersand for another purpose once it has been so dedicated.

As an example, the following small collection of 10 bytes will cause inverse output, one letter at a time, provided that the ampersand has been pressed first. To get an inverse-T, press the & key and then the two keys <Control> and T key at the same time. Until this is done any other key will be ignored.

The keypress after the inverse-T is shown on the screen will be normal unless it too is preceded by an ampersand.

```
30E-   AD 00 CO   LDA   $C000
311-   C9 9B      CMP   $9B        IS THE KEYPRESS A CTRL CHARACTER?
313-   10 F9      BPL   $30E       NO. WAIT FOR ONE
315-   4C F7 B5   JMP   $B5F7      GOT ONE, NOW RETURN TO ORIGINAL LOGO
```

# PROGRAMMING THE 65C802/816
## by Lawrence Husick

Being somewhat of a purist and a snob, I scoffed at IBM when their PC was introduced as a "16-bit" microcomputer system. The thought of a chip with 16 bit wide internal registers tied to an 8 bit wide data bus seemed absurdly wasteful. After all, how could you fit two people through a turnstile designed for one?

In the three years since the PC's introduction, marketing seems to have prevailed over engineering sense, and now even Apple uses the size of a micro-processor's internal registers as the bit size of the machine (thus the Mac and Lisa are "Apple 32s"). While there are other important numbers to consider in evaluation of a personal computer, it is often the amount of RAM and the word size which make a splash with the buying public and press. By these "stand-ards" then, my old Apple ][+ is obsolete beyond belief! At only 8 bits and 64K, it is small and slow (never mind that it runs rings around my IBM for those functions where it really counts, like word processing and graphics!)

The IBM PC is a 16 bit computer capable of using up to 640K of RAM. (While it uses an 8 bit data bus, which slows it down considerably...see BYTE, it is still advertised as 16 bit.) The Mac is a 32 bit machine with up to 512K, and the Lisa is 32 bit with up to 1 Megabyte of RAM.

If all of this sounds like silly one-upsmanship, that's because, in large part, it is. What really counts is the computer's usefulness to people, an area where it's hard to beat Apple. However, there are times when a little faster crunching, or a little bigger spreadsheet would be nice...

Enter the 65C816/65C802

Just when you thought that your good old Apple ][, ][+, //e, or //c was obsolete, a designer named William Mensch has rescued it from the trash heap. The rescue comes in the form of a couple of new microprocessors with a very respectable family tree.

The 65C802 is to the 6502 as the 80C88 is to the 8080. While that analogy is absolutely useless to 99% of all readers, it is, nonetheless, true. The 8080 is an 8 bit chip (most used in early CP/M systems before the Z-80 took over the world.) Intel's follow-up act was the 8086, a 16 bit chip which shared many of the characteristics of the 8080. Another member of the family is the 8088 which is 16 bits wide internally but is able to use the older 8 bit wide data bus. It is this 8088 chip which is the heart of the IBM PC and most of the compatibles.

The "C" in the middle denotes the process used in making the chip. Older chips (those in the Apple ][, ][+, and //e) are NMOS (N-channel Metal Oxide Semi-conductor). These are relatively fast and easy to make. The newer type of chip is CMOS (Complementary Metal Oxide Semiconductor) which is harder to make, but just as fast, and uses lots less electricity! The Apple //c uses a 65C02, which is a CMOS 6502. That chip uses about 1% of the electricity used by the older NMOS 6502 in most Apples. (By the way, other chips are also made using CMOS, so that machines which can run for long periods on batteries, and can keep their memory chips (RAM) on all the time can be prac-tical.)

The 65C802 is a 16 bit chip internally, but communi-cates with the rest of the computer via an 8 bit wide data bus. The most exciting thing about the chip is that all of its pins are identical to those of the 6502 or 65C02 in your current Apple! That's right, take out your microprocessor, and plug in a new one with more horsepower, with NO changes to the machine. Of course, at this stage of the game, you'll have to write programs to take advantage of the added compu-tational power, but in the meanwhile, the 65C802 will look to the Apple just like your old 6502, or rather, like a 65C02 since there are some minor differences between the chips. (These are not a problem for 99% of the software on the market. Only super strange protected stuff which used un-documented commands of the 6502 will fail to run. However, if it runs on the //c, it runs on a 65C802.)

The 65C816 is a slightly different chip from the 65C802 in that some of the pins differ from the 6502. These pins, however, allow some real magic. First, the 816 can address 16 megabytes, not 64K like the 6502. This tremendous addressing capacity is achieved by putting an extra eight bits of address information in "bank registers" and placing this address informa-tion on the 8 data lines by multiplexing. (During certain times, lines D0-D7 have data on them and at other times, they become BA0-BA7, the bank address lines.) The information which is used on these bank address lines is contained in three new registers in the 816 chip - the X Data Bank Register, the Y Data Bank Register, and the Program Bank register. These registers are 8 bit extensions to the X, Y, and Program Counter Registers respectively.

Other additions to the internal registers include an extra 8 bits of Accumulator, and a 16 bit "Direct Register". This register allows the 816 to have the equivalent of 6502 Zero-Page addressing mode, but over the entire first 64K of RAM! Since the zero-page addressing mode is one of the reasons for the 6502's speediness in comparison with other 8 bit micro-processors, the direct register's expansion of this concept should allow comparable performance in the 16 bit mode.

Finally, one more bit is present in the processor's status register. In addition to the standard flags, a new one, the E (Emulation) flag is present. This flag is "stacked" over the Carry flag, and indicates whether the 816/802 is to appear to be a 65C02, or a 16 bit processor. If the flag is set (1) the chip looks just like an 8 bit 65C02. However, if the E flag is cleared (0), the chip becomes a 16 bit pro-cessor. (The new instruction XCE, eXchange Carry with Emulate does this.) Other new flags include the Index Register Select (X) and Memory Select (M), which tell the processor whether to use 8 or 16 bit registers and memory addressing. (Of course, in the 806, the M flag is inoperative due to its 16 bit address bus limita-tion.)

Some of the pins which make the 816 really perform are: Valid Data Address (VDA) and Valid Program Address (VPA) which allow cycle-stealing DMA; Abort input which stops the execution of any instruction without changing any memory address or internal regis-ter; Vector Pull (VP) for implementing vectored interrupt designs.

Finally, the 816 has 11 new addressing modes to complement the 6502's 13 original modes, and has some new and very powerful instructions:

| | | |
|---|---|---|
| BRA | - | Branch Always |
| BRL | - | Branch Long |
| COP | - | CoProcessor Instruction |
| JML | - | Jump Long |
| JSL | - | Jump Subroutine Long |

| | | |
|---|---|---|
| MVN | - | Memory to Memory Move Backward |
| MVP | - | Memory to Memory Move Forward |
| WAI | - | Wait for Interrupt - Standby Mode |
| STP | - | Stop the Clock - Standby Mode |
| XBA | - | Exchange Accumulator MSB with LSB |
| XCE | - | Exchange Carry with Emulate |

More on programming the 65C802/816 in the next installment.

## W65SC816 Processor Programming Model

| 8 BITS | 8 BITS | 8 BITS |
|---|---|---|
| Data Bank Reg. (DBR) | X Register Hi (XH) (X) | X Register Low (XL) |
| Data Bank Reg. (DBR) | Y Register Hi (YH) (Y) | Y Register Low (YL) |
| 00 | Stack Register Hi (SH) (S) | Stack Reg. Low (SL) |
| | Accumulator (B) (C) | Accumulator (A) |
| Program Bank Reg. (PBR) | Program (PCH) (PC) | Counter (PCL) |
| 00 | Direct Reg. Hi (DH) (D) | Direct Reg. Low (DL) |

## Status Register Coding

```
        STATUS REG.
           (P)          E  ───▶ EMULATION 1 = 6502
      N V M X D I Z C
                    └─CARRY         1 = TRUE
                  └─ZERO            1 = RESULT ZERO
                └─IRQ DISABLE       1 = DISABLE
              └─DECIMAL MODE        1 = TRUE
            └─INDEX REG. SELECT     1 = 8 BIT, 0 = 16 BIT
          └─MEMORY SELECT           1 = 8 BIT, 0 = 16 BIT
        └─OVER FLOW                 1 = TRUE
      └─NEGATIVE                    1 = NEGATIVE
```

## Pin Configuration

W65SC816

| | | | |
|---|---|---|---|
| VP | 1 | 40 | RES |
| RDY | 2 | 39 | VDA |
| ABORT | 3 | 38 | M/X |
| IRQ | 4 | 37 | ϕ2 (IN) |
| ML | 5 | 36 | BE |
| NMI | 6 | 35 | E |
| VPA | 7 | 34 | R/W |
| VDD | 8 | 33 | D0/BA0 |
| A0 | 9 | 32 | D1/BA1 |
| A1 | 10 | 31 | D2/BA2 |
| A2 | 11 | 30 | D3/BA3 |
| A3 | 12 | 29 | D4/BA4 |
| A4 | 13 | 28 | D5/BA5 |
| A5 | 14 | 27 | D6/BA6 |
| A6 | 15 | 26 | D7/BA7 |
| A7 | 16 | 25 | A15 |
| A8 | 17 | 24 | A14 |
| A9 | 18 | 23 | A13 |
| A10 | 19 | 22 | A12 |
| A11 | 20 | 21 | Vss |

W65SC802

| | | | |
|---|---|---|---|
| Vss | 1 | 40 | RES |
| RDY | 2 | 39 | ϕ2(OUT) |
| ϕ1 (OUT) | 3 | 38 | SO |
| IRQ | 4 | 37 | ϕ0 (IN) |
| NC | 5 | 36 | NC |
| NMI | 6 | 35 | NC |
| SYNC | 7 | 34 | R/W |
| VDD | 8 | 33 | D0 |
| A0 | 9 | 32 | D1 |
| A1 | 10 | 31 | D2 |
| A2 | 11 | 30 | D3 |
| A3 | 12 | 29 | D4 |
| A4 | 13 | 28 | D5 |
| A5 | 14 | 27 | D6 |
| A6 | 15 | 26 | D7 |
| A7 | 16 | 25 | A15 |
| A8 | 17 | 24 | A14 |
| A9 | 18 | 23 | A13 |
| A10 | 19 | 22 | A12 |
| A11 | 20 | 21 | Vss |

# BUGS & OTHER PARASITES

The following is contributed by Michael Hartman:

There is a small error in the ATTACH documention from Apple on PIG0:. In the file DOC.1.TEXT, under section A, Character-Oriented Devices, point 5, the stack for CONSOLE: status should look like:

```
CONTROL WORD
POINTER TO STATUS RECORD
RETURN ADDRESS            <--TOS
```

Also, on PIG4:, the PASCALZAP program has a bug which prevents patching in values between $01 and $0F on a disk. A new version of the program is available at PIG meetings, and a revised WAP library disk will be available shortly.
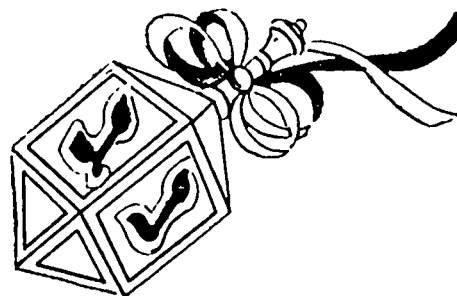
# VIEWS AND REVIEWS
## by Raymond Hobbs

This month's reviews consist of a potpourri of stocking stuffers, plus a couple of real workhorses (better wrap these up instead of stuffing them in socks!).

### LETTER PERFECT (LJK Inc.)

This one is thanks to a small blurb Lee Raesley put in the WAP Journal for October '84, in which he put us all onto one of the best deals I have seen for getting a good piece of software for a great price. Refer to Lee's article for details on how to order LETTER PERFECT (or one of its companions) at a $50 discount - almost 50% off! I did so, and I'm writing this column on LETTER PERFECT right now.

LETTER PERFECT is yet one more entry into the word processing arena. Now, a word processor is only as good as its ability to keep up with the user - that is, if you find yourself fumbling for keys, or waiting an interminable time for some textual operation to take place, the package belongs on the shelf, not in RAM. Being an old hand with Wordstar, I am comfortable with a particular set of commands for cursor placement and text block operations, so I didn't look forward to learning another command set. Happily, LETTER PERFECT's commands are both logical and easy to learn - plus LJK includes one of the best quick-reference cards I've seen (command orientation on one side and keyboard orientation on the other). The package is full-featured, including cursor placement by letter, word, line, paragraph, page, block and file, and insertion/deletion is just as precise. Text block operations (move, insert, etc.) are also quite powerful, as are reformatting and printer control commands.

LETTER PERFECT includes a spelling checker with a one-disk dictionary, which works well for most applications (technical writers will have to know how to spell their own jargon, though). If a word is unknown to the dictionary, it will try to find a match through phonetics - usually it's a pretty good guesser.

The only gripe I have with LETTER PERFECT is its inability to load in blocks of text from several files. LETTER PERFECT works in native Apple mode, 40 or 80 column, and is menu driven. All parts (Editor, File Handler, Printer, etc.) are resident at all times, though you'll have to insert the dictionary disk to check spelling. However, if you happen to have only one disk drive, it is quite handy to be able to boot the system with LETTER PERFECT and then take out the program disk and replace it with your data disk. You can put the program disk away, as a matter of fact - LETTER PERFECT truly needs only one disk drive to operate efficiently. LETTER PERFECT is not copy-protected, so you can make a backup disk for a working copy of the program.

### RECORD MASTER (Bridget Software Co.)

My thanks to Valus White for his review of RECORD MASTER. The review was so complete, I'm putting it in just as he wrote it.

RECORD MASTER, by Bridget Software Co. of Silver Spring, Md. is billed as "The complete data base system for Apple computers". I decided that the purpose of my review was to explore the completeness of the software and make a stab as to how "suitable" it might be to 1) the casual user, and 2) the professional user.

I began my analysis by reading the documentation cover to cover. The book comes in an 8 x 11 format with the pages bound to permit use with a copy stand. The type consisted of a variety of sizes and shading to emphasize chapters, main point and plain narrative text. The booklet has a table of contents and an index; an abstract of Record Master's features appears on the back cover. The physical layout of the book itself made it very easy to read. Instructions on how to use the different commands, cautions and hints were plainly laid out. The manual was clearly geared to a non-technical person unfamiliar with the software, and led the reader by the hand, explaining what each command does and what the user is supposed to do in order to get the desired result. I value good documentation as and aid to productivity and as a courtesy to a customer. Clearly, a great deal of thought went into the manual.

After reading the manual, I put it away for a week, then blindly began to work the software. Friendly software can be used without constantly referring to the manual, and I had only one major problem in that regard: I had trouble redefining the record structure of a file. It was necessary to go back to the manual for that. In addition, designing report formats requires practice and reading, practice and reading... The manual points out that there is such a variety to the report formats one can develop, the procedure can take more time to learn than the other procedures in Record Master. For the most part, however, using Record Master was very easy.

Here is my list of positive and negative attributes:

+ copyable, DOS 3.3.
+ Written in Applesoft and machine language using overlays.
+ Password protection actually works.
+ Compatible with the entire Apple II series.
+ Can repeat previous field when doing data entry.
+ Can restart data entry for a given record.
+ <ctrl>A rather than <ctrl>C cancels add records function (in many packages, <ctrl>C is the cancel command).
+ Update or change each field, one-by-one, or en masse (by global search and replace).
+ Deletes can be either automatic or prompted (to be sure you really want to delete the data).
+ Uses Shell-Metzner sort, which means that sorting, while not the fastest, is fairly quick.
+ Sorts are either ascending or descending (user selectable).
+ Sorts up to 10 fields at once.
+ Data types can be character, numeric, date, dollar or computed (add, subtract, multiply, divide) to produce other fields.
+ Printer defaults support Epson printers only; however the documentation describes several ways that other printers can be supported.
+ Data is stored in regular DOS TEXT files, which means they can be transmitted to remote computers via modem, or edited by a word processor.
+ Does averages and other calculations (in addition to those mentioned above).
+ Special features for mailing labels.
+ When you have completed your work for the day, the

program will ask you for today's date plus a comment. This is a good feature, especially for maintaining audit trails and records of file updates.

+ Seems to be "at home" with either 1 or 2 disk drives; no swapping of disks is necessary (data can be written on the program diskette).
+ Can store up to 750 one-hundred character records per diskette.
- Single letter commands should not require the <RETURN> key to be pressed.
- Default responses are marked with an apostrophe; they would be easier to pick up if they were in inverse print instead.
- Under the "VIEW" option, there is a continuous print feature wherein whole records are scrolled by at about 1 per second, which is too fast; however, the user can use another feature to manually scroll records.
- When asked for file statistics, Record Master will give you memory left, disk space left, and other technical details; however, as a user, I want to know how many records I can fit into the machine.
- When you mess up, Record Master tells you "ERROR HAS OCCURRED", and refuses to let you back out; it should also tell you what you have done wrong.
- Every time you get an opportunity to specify files (such as when initially asking for the file to be worked on), the program should give you a catalog of files to choose from.
- Record Master does not use indexing. Indexing would speed up the sort process, but storing the indices could create a space problem on the diskette.

My final comment is concerning suitability. Record Master would be more than adequate for keeping track of checkbooks, collections, inventories and so on. With some ingenuity, it could be used in a small business, certainly in a classroom (and in fact, Bridget says that it has been used by the Department of Defense). I think that it competes with dbase II (which is in the CP/M environment) for most file management and basic data base applications. (* RFH Note: dBASE II is programmable, though.*) I believe that $49.95 for this program would be very well spent.

System requirements for Record Master are 48K or 64K Apple ][, ][+, //e or IIc, 1 or 2 disk drives, DOS 3.3, Printer (for reports only).


MACPROJECT ( Apple Computer, Inc.)

MacProject is a project management tool from Apple which tracks your project's progress task-by-task from beginning to end (or, alternatively, from end to beginning!). For those of you who have trouble getting organized, MacProject should be on your MUST list - not your WISH list. MacProject runs on a 128K or 512K Macintosh, and outputs to the Imagewriter printer.

You begin by defining those tasks which have to be done in order to complete the project, in terms of resources used (time and personnel). This is done by first drawing a rectangle a la MacPaint, typing in the task (inside the box - MacProject will default the cursor there for you), then accessing a resource screen to enter the resource data. If you draw the box too small for all the text to fit in, not to worry. MacProject has all the text, and you can enlarge the box by dragging a corner. Want all the task boxes to be the same size? Easy. Just duplicate your first box umpteen times to get umpteen identical boxes. Each box will be just like the first, sans text. After you have entered all your tasks and resource data, line up the task boxes in order of dependency, from left to right (by dragging, of course). If you run out of screen, scrolling is automatic in all directions. Connect dependent tasks

to the tasks upon which they are dependent by dragging from INSIDE the box on the left to the box on the right. If some tasks are independent of the others, they may be drawn underneath or above instead of to the right of other tasks. In other words, you may pretty much design your own chart. MacProject will calculate the time at which each task must begin, will print that information on the chart, and will determine and identify the critical path by making the task boxes and dependency lines boldface. If you have milestone events (and START must be one), MacProject lets you change a task box into a milestone box, or vice-versa. If you have to redraw or rearrange anything, MacProject will remember all dependencies and will move the dependency lines correctly as you drag task boxes from one location to another. MacProject will produce PERT and GANTT charts, cost out projects and allow you to track by resources or by task. It will also, incidentally, make sure that your chart is printed correctly, no matter how long it is. In other words, Apple did about everything right in this one.

I really haven't said anything about the documentation, but I don't want to neglect that aspect of the package. Like the operating system and the MacWrite/MacPaint application, Apple included a "guided tour" disk and cassette tape as a tutorial. For those of you who do not respond well to the sound and light show, the tutorial appears in the manual as well, and can be used sans cassette tape and guided tour disk. The tutorial process, in either event, is a snap. The reference section is similar to that found in the operating system and MacWrite/MacPaint packages - you may have to hunt around a bit if you are looking for an explanation of some nitty gritty thing. I've seen a lot better reference manuals than those available from Apple for the Mac. On the whole, though, the package is quality throughout.

Finally, the price: here I fell down on you. I got the package direct from the factory at a bit of a discount, so I don't know exactly what the retail price will be. I suspect somewhere in the $100-$125 range. Sorry - shoot me if I'm wrong; but if it were $150, it would be a bargain IF YOU NEED THE PROJECT TRACKING FUNCTION IT PROVIDES. One other thing - it isn't protected, so you can put your data safely onto a program disk and work easily if you have just one drive.


THE ROUTINE MACHINE & CHART (Roger Wagner Publishing, Inc.)

On occasion we more experienced users forget what it was like when we were not so experienced. On a hunch, I gave this package to a less experienced user to see how much expertise might be needed to use it to full advantage. The following is Betsy Lew's review, from the standpoint of a relative newcomer to the Apple micro community. I've added my comments at the end.

Hardware Requirements: Apple IIc or //e with 64K and a single disk drive. It also will support double hi-resolution graphics mode on Apple IIc or //e with extended memory 80-column card.

Copy Protected? No.

Language: BASIC

Documentation: The single disk contains a demonstration of the routines as well as a tutorial. The examples in the manual, illustrating various capabilities are fairly easy to follow. Instructions are probably easy to understand for an experienced programmer; however, a certain level of BASIC programming experience and know-how is assumed. There is no

quick-reference card or a reference section. Additionally, the manual is not tabbed or indexed.

Evaluation: As described in the manual, the Routine Machine Amper-Chart is a series of subroutines which may be incorporated into a BASIC program to generate shapes, create pie charts, bar graphs, or plot line graphs on your own defined X and Y axes, which may be labeled both horizontally and vertically. Graphics can be displayed with associated text and can be designated for specific parts of the screen. Included are also routines which will create different backgrounds and fills (in colors) for the graphics, reallocate memory to allow for long routines without interfering with hi-res graphics, store a rectangular area of the screen into an integer array and then later restore that area, transfer graphics information from a hi-res to a lo-res graphics page, and flow-charting.

This is a good software package designed for the experienced BASIC programmer who wants to use graphics routines without going through the agony of writing them from scratch.

RFH's NOTES:

Betsy experienced difficulty connecting the ampersand-routines to her BASIC program. Although I had no particular trouble getting the ampersand-routines to interface properly, upon re-reading the manual I did become aware that there are several steps which must be taken in order to connect the ampersand hooks properly, and a minor slip in any one of the steps could very well bomb out the interface. I think that a beginner can do it, but had better follow the manual pretty closely. Here, in a nutshell, are the steps:

1. Boot the program disk.
2. ESCape back to APPLESOFT.
3. Enter "FP" to clear RAM.
4. EXEC the AMPERSAND SETUP program (this establishes the &-hooks).
5. BRUN the ROUTINE MACHINE program.
6. APPEND and NAME two subroutines (this is menu-prompted).
7. Enter your BASIC program code, which may include the ROUTINE MACHINE-supplied extended commands.

Additional capabilities of the ROUTINE MACHINE include windowing, clip-region definition, graphics page flipping, text-on-graphics, text printed sideways, change plot axes to log or linear, graphic scaling, color reversal, and a few more. There are also some utilities which may be invoked for use with or without the ROUTINE MACHINE in place, including zoom-graphics with or without change curve smoothing, program splitter and graphics printer dump.

There actually is a reference section in the manual - it's not well-marked, though, and it's not very handy for quick access. I made a duplicate copy of the several pages and I keep them handy in lieu of the manual. Similarly, there are five orange-colored pages in the back that index the commands used by the ROUTINE MACHINE. However, you must know the command you are looking for in order to use the index.

One last comment - I ran the ROUTINE MACHINE on an Apple ][+, and can vouch for the fact that it will run properly (but don't look for double hi-res!). I think that this is a great package, and at $39.95 it's a fantastic stocking-stuffer! However, keep in mind that I have several years' programming experience. Like Betsy said, it's designed for the programmer, not the new user!

## HUMANFORMS (The Reference Corporation)

The Reference Corporation sent me a demo disk of their HUMANFORMS package for the Macintosh, at $59.95. Let me say up front that what it does, it does well, and it's easy to use. I'm just not sure that what it does is all that useful.

HUMANFORMS is a collection of MacPaint files, depicting both male and female figures, unencumbered by clothing, in a variety of poses by body section. By lassoing and dragging the various parts and appendages to their proper connection point, one can assemble a picture of a human male or female in virtually any position imaginable this side of the Kama Sutra. Since there are little x's marking the connection points, it's almost impossible to misplace a limb.

The drawings are very well done, and quite accurate. Although The Reference Corporation suggests that the drawings would be very useful in a scientific application (Anatomy 101 or something), I believe that any such application would require reference to bone, ligament and muscle placement. What HUMANFORMS gives you is skin. Now, I have nothing against skin - some of my best friends possess skin by the raftload. For that reason, and because I cannot see any other application for HUMANFORMS (except perhaps for a doodling fashion designer), I recommend the package as a stocking stuffer only for the budding Playboy artist/Vargas lookalike who does his designing with a Mac. And what I do with the demo disk is none of your business.                                                      ✍

# LISA SIG NEWS
# by John F. Day

The first meeting of the Lisa special interest group took place on Saturday, November 9th at the WAP office. The turnout was excellent. The meeting was used to introduce interested Lisa owners to each other and to get an idea of what each of us has learned about using our Lisas. The wide range of interests of the different users included restaurant management, Macintosh software development, insurance, writing, accounting, general business and just plain hobbyist activities. The result was a better understanding of who was in the SIG, what the collective Lisa knowledge level of the group was, and the topics that the members wish the SIG to pursue.

The general consensus seemed to indicate that the Lisa SIG should work in the following areas:

1) Collection of hardware information, to include technical help on specific pieces of equipment.

2) Collection of software information, to include help with software packages.

3) Compilation of tips and tricks.

4) Review and demonstration of new products.

5) Generating interest in the Flagship of the Apple fleet.

6) Providing a list of other Lisa owners to the members of the SIG.

7) Writing articles on Lisa subjects for the WAP Journal.

8) Providing information on alternate operating systems for the Lisa, such as MacWorks, the Lisa Workshop, and Unix.

# DESKTOP CALENDAR FOR THE LISA
## by John F. Day

As many Lisa owners know, there is a general paucity of software available for the Lisa series of computers. Most of us are using the basic programs from Apple that come in the Lisa 7/7 software system, and are quite happy with the spectacular performance that they provide. Occasionally, however, we yearn for wider horizons and features that were not part of the package. This article covers a product that works in conjunction with the Lisa 7/7 software and provides a significant enhancement to the 7/7 system.

Desktop Calendar is a time management tool for the Lisa 7/7 Office System. The program is made by Videx, a name long associated with high quality software and hardware for the Apple ][ series. Desktop Calendar is the first venture for Videx into the world of the Apple Super 32 Family, with the promise of more products to come in the future. It is an automated appointment calendar that allows you to keep track of appointments, hold addresses for easy reference, and reminds you of important events. Desktop Calendar is specifically designed to work like any other Lisa 7/7 tool, and has all the normal features found in a standard Lisa window such as pull-down menus, scrolling controls, and the Lisa editing features we have all come to love.

Installation of Desktop Calendar is similar to that of the other Lisa 7/7 tools and is easy to accomplish. The user is supplied with a pad of Desktop Calendar "paper" and starts to use the program by tearing a sheet of calendar paper off the pad, naming the calendar and opening the newly named calendar. Each sheet of calendar paper has a distinctive icon that makes identification of a Desktop Calendar document simple. When opened, the user is presented with a window that looks essentially like most other Lisa windows. The Desktop Calendar window is divided into two parts, a graphic calendar that depicts a normal calendar, and a calendar notes portion that is used to enter related notes and appointments about a particular day. The graphic calendar is sequential for one year and is accessed by use of the scroll controls.

To enter an appointment pertaining to a certain day, use the mouse to select the day of the appointment on the graphic calendar, and then enter the time of the appointment and the reminder note in the calendar note portion of the window. Any note in the calendar notes portion can be made into an audible and visual reminder by first filling in the calendar note portion of the window, and then pulling down the "Reminders" menu and selecting "Set Reminder" from the reminder menu. When the time of the appointment reminder comes, the Lisa will stop whatever else it is doing and alert you with a beep and a visual message on the screen. For example, you have an important meeting with your boss at 2 p.m. on Tuesday January 22, 1985 and you want your Lisa to help you remember it. First, select January 22, fill in the time of the appointment in the calendar notes, type the reminder in the note list column, and then select "Set Reminder" from the pull-down menu. At 2 p.m. on January 22, your Lisa will beep and display the message that you entered. You are then given the option of canceling the reminder, or having it alert you again in 5 minutes, 30 minutes or 1 hour. The reminder feature will work even if you are working with another of the Lisa tools such as LisaDraw. When the reminder time comes, Desktop Calendar will interupt your work to remind you of your appointment.

There is no limit to the number of notes you can add to the calendar, as long as you have room on your hard disk. The times can be displayed in either 12 or 24 hour formats, and the days can give an optional Julian date to the side of the normal date. Holidays and vacation periods can be highlighted to distinguish them from normal days. A notepad is also built into the calendar to allow you to put commonly used notes, addresses, phone numbers, or whatever else you need at your fingertips. There is also a feature called work-load gauges that puts a visual indicator of work load in the graphic calendar to help the user distribute his/her work more evenly through a month. A built-in search function allows you to find specific entries in the calendar notes easily. Desktop Calendar has split screen capability, similar to that of LisaCalc, for either the graphic calendar or the calendar notes. Both the graphic calendar and the calendar notes can be printed, though it is not possible to print the calendar notes in the graphic calendar itself.

I have used the Desktop Calendar over the last three months and have been very impressed with its utility and quality. The documentation provided is excellent, as I have come to expect from Videx, and is very similar in style to the Lisa 7/7 documentation.

I have only two minor complaints about the program. The calendar reminders will not work if the calendar is put away. I work around this problem by leaving my working calendar at the bottom of the desktop all the time, like the calculator or wastebasket. Also, the cost of $295 seems rather high, although I suspect that it is a function of expected sales rather than price gouging.

In summary, the Videx Desktop Calendar is an easy to use, powerful and welcome addition to the family of Lisa software. If you have a need to manage your time, Desktop Calendar is the product for you.
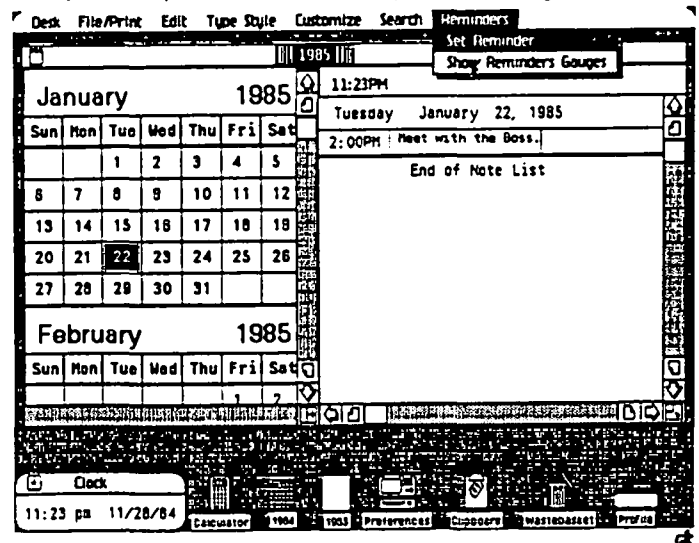
The members were encouraged to submit articles concerning the Lisa to the WAP Jurnal. The meeting was an excellent start for the Lisa SIG.

The next meeting of the Lisa SIG will be on the 12th of January, 1985, at the WAP office and will include a discussion of Lisa operating tips and a software demonstration.

# THE 512K MACINTOSH - THE REAL BENEFITS

## by Steve Hunt

If you have been following the announcements and stories about the new 512K Macintosh, you already know that main memory has been increased four times, that some applications can work with larger files, and that you get greater processing speed with some applications.

What does this really mean to you? Is the added investment really worth it? Are there any "tricks" for taking advantage of this added capability? This article will address these issues and give you a few suggestions which may help you make up your own mind.

### FIRST SOME BACKGROUND

To get the most out of the 512K Mac, you really need a software program called "RamDisk". There are several versions of this RamDisk in circulation and ads are already appearing for more powerful versions. (I am using an unnamed version dated 17 October.) A short explanation of this program will help set the stage.

RamDisk is a very small program (about 2K) which generally resides in the System folder on a disk. (In addition, the System file has been updated by the Resource Mover to properly initialize the program.) When the disk is loaded, the main memory of the Mac is automatically partitioned into two sections - (1) a work area and (2) a "RamDisk" area set aside for copies of application programs and the system folder.

By moving the applications and system folder into main memory, the Mac can do everything in main memory and DOES NOT need to access the internal or external disk drive except to get or save a file from that disk. The improved speed of all applications working in this environment is truely impressive.

### THE RESULTS:

With the RamDisk version I am using, the initial set-up time is about 40 seconds but the time savings once this set-up is completed makes it well worth while. For example:

| Action | Seconds Required | |
|--------|------------------|---|
| | 512K Mac Single Drive | 512K Mac w/RamDisk Single Drive |
| Set-up RamDisk | 0 | 40 |
| Start MacWrite | 19 | 5 |
| Search for Partial Word in MacWrite | 3 | 3 |
| Save MacWrite file to Disk | 15 * | 7 |
| Start MacPaint | 20 | 7 |
| Select Paint File from Another Disk | 22 ** | 5 |
| Close Application and Return to DeskTop | 16 | 7 |

\* Required one disk swap
\*\* Required several disk swaps

When using RamDisk you quickly SEE how much faster the Mac can be - there is very little delay as you take actions or move between applications. If you find yourself getting frustrated with the length of time required to do routine "housekeeping" functions I believe you will be pleasantly surprised to find these delays have been largely eliminated.

There is an additional benefit which may be of even greater value than the time savings - YOU DON'T REALLY NEED AN EXTERNAL DISK DRIVE. You can probably save the cost of buying a second disk drive and yet still achieve the same performance of a two drive system. Let me explain why.

With RamDisk in operation, you actually have the equivalent of two disk drives - (1) one 'disk image' in main memory and (2) the internal drive. (If you have an external drive connected, you would actually have the equivalent of three drives.)

### HOW DO YOU MAKE IT WORK?

The first step is to set up your start-up disk. To do this, take the existing start-up disk and copy over the RamDisk icon, the system file, and an application "Move to Top". (The system file on the RamDisk includes initialization routines which automatically start up the RamDisk application.)

Second, turn on the Mac and load this new start-up disk. You will see TWO disk icons on the desk-top - (1) the actual start-up disk itself and (2) an icon for the "RamDisk".

Third, select the applications on the start-up disk, the system file, and "Move to Top" (I draw a "box" around the files I want to select) and drag them all to the RamDisk icon. These files are then copied from the disk into main memory. This transfer takes about 40 seconds but does not require any disk swapping.

Fourth, select the start-up disk icon and EJECT that disk.

Fifth, 'double click' on the icon for the "Move to Top" application. This sets the RamDisk system file (vice the system on the start-up disk) as the primary system.

Sixth, insert your data disk. If you want to have several different data disks available you should insert and eject each so that they show on the desk top. If you intend to get or save files using a separate disk, you have to insert at least one disk before starting up an application.

Seventh, open the RamDisk window and start an application.

NOTE: This seems like a complex process when you read it, but once you try these steps they really come quite naturally. (Hopefully, the new commercial RamDisk products are going to provide an even easier start-up sequence.)

### HOW DO YOU TAKE MAXIMUM ADVANTAGE OF THIS CAPABILITY?

I have arranged my start-up disks as follows. (All System Folders include the RamDisk application, "Move to Top", and the revised System File described above.)

*Mac Section*

contd.

| Start Up Disk | Companion Data Disks |
|---|---|

**Primary Desk-Top Tools**

```
System Folder
MacWrite (2.0) *         MacWrite File (**)
MacPaint                 MacPaint Files (**)
Rolodex (from SigMac Disk 2)  Click Art Disks
```

**Communications Tools**

```
System Folder
MacTerminal
Basic & Utilities        Download/Upload
                           Files (**)
```

**Project Management Tools**

```
System Folder
MacProject               Project Work
                           Files (**)
MacDraw                  Draw Work Files (**)
```

\* The new disk-based MacWrite (3.0) is NOT compatible
with my RamDisk version. Perhaps other versions
will not have this problem.

\*\* Do NOT install a system on these data disks.

Depending on your needs and desires, you can group
applications on your disks to suit the way you work.
If you plan to do a lot of "cutting and pasting"
between applications, you should group those applica-
tions on the same start-up disk to get the maximum
speed.

A note of caution! You do need to be careful about
the total size of the files you load to RamDisk. The
memory reserved for RamDisk is 320k. If you try to
exceed the space available, the system will indicate
that there is not enough room on the "disk". If you
pack the RamDisk too full, you will have difficulty
opening new files or printing. Try to leave at least
40K of space free in RamDisk. When setting up your
RamDisk, select only those applications which you need
at that time (rather than 'select all') and follow the
same procedures above.

SUMMARY

I think you will find - as I did - that the new
RamDisk application AND the 512k Mac provide a signif-
icant improvement in speed and utility and also
reduces some of the hassle of the "floppy shuffle".
You should try it before you buy, but I believe you
will find this added power is really valuable.          &

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# SIG MAC NEWS
## by Steve Hunt

Because of the early press date for this issue of the
Journal, the December meeting notes and Q & A will be
delayed until the next issue.

We are trying to schedule a demonstration of JAZZ and
Microsoft BASIC 2.0 for the January 12 meeting at
USUHS.

We are also planning a tutorial on telecommunications
for the Mac, tentatively scheduled for January 19 at
Our Lady of Lourdes School, at 9:00 AM. The cost per
attendee will probably be $10. Please call the office
for further details.          &

# 1001 BINARY TALES : Mac Innards
# Part 3
# by Raymond Hobbs

This month we will begin to explore the procedure calls available in Quickdraw. There is a lot to cover - too much for one article, I'm afraid - but we'll begin with the same basics as before (grafPorts), and continue until we get the whole thing under our belts.

## Using Grafport Routines

This subset of the Quickdraw routines is used to generate most of the "MacMagic" we see on the Macintosh screen. There are no drawing or text operations here, but the basis for windowing, picture merging, and the super-fast Macintosh graphics response is contained in Quickdraw's handling of grafPorts. Let's take a look into how grafPort routines interact with the graphic entities we defined over the last few months (see the WAP Journal, October and November, 1984).

## Operations on Grafports

InitGraf - A call to InitGraf, performed once at the beginning of a program initializes and allocates storage for the global variables which define the grafPort pointer, screen size, cursor and background patterns (a set of five). The initialization results in the full-size Mac screen with a pointing arrow cursor, a NIL pointer, and screen patterns of 100% white, 100% black, 25% gray, 50% gray and 75% gray. A random seed of 1 is also generated. Recall that grafPorts are records defining the display, drawing and movement of screen areas - the pointer defined in InitGraf will be used to point to the grafPorts you use.

OpenPort - This procedure allocates space for a grafPort, and makes it the current port. Notice that OpenPort operates on a specific grafPort, whereas InitGraf operates of Grafports generic.

InitPort - This procedure is used to reinitialize a given grafPort to be the current port (assuming that it has been opened previously).

ClosePort - ClosePort releases the space created for a grafPort by OpenPort.

SetPort - A call to SetPort makes the grafPort indicated by the Grafport pointer the active port. This routine is called by both OpenPort and InitPort.

GetPort - This procedure returns a pointer to the active grafPort. There are two reasons why you may wish to call this procedure. First, during an interactive program, your routines may respond to the AREA the user is accessing (via the mouse or whatever), so your program may not need to know what is active at any given time - only when it needs to respond to user actions. Second, you may wish to pass the pointer along to another routine. Many programmers are used to doing a considerable amount of housekeeping on their own (especially with the Apple), but with Mac it is useful to let Quickdraw do a lot of this type of work for you.

GrafDevice - GrafDevice points the port to an indicated device. The default for this procedure is, as indicated above in InitGraf, the Macintosh screen.

SetPortBits - This routine points the port to an indicated bitmap. By redirecting the port's bitmap pointer to a RAM buffer, the program can draw off-screen and later zap the image onto the visible screen area.

PortSize - PortSize changes the size of the active grafPort's portRect. What is changed is only the portRect active area - what is seen on the screen remains unchanged. In other words, this procedure only modifies that area of the screen in which subsequent portRect work will be done.

MovePortTo - Similar to PortSize in that no screen change takes place, this procedure changes the location at which future drawing inside the port will take place.

SetOrigin - A call to SetOrigin changes the local coodinate system within an active grafPort for subsequent drawing operations. Again, the screen does not change immediately.

SetClip - This procedure alters the clipRegion of the current grafPort. A handle is passed to enable the program to access the new region (which is a copy of the old). The new clipRegion may be anywhere inside the grafPort or outside of it.

GetClip - This operation is essentially the reverse of SetClip. The current region is set to the clipRegion of the active grafPort.

ClipRect - This procedure changes the clipregion of the current grafPort to an indicated rectangle. Thus, it may be used to move and/or alter the size of the port's clipRegion.

BackPat - BackPat sets the background of the active grafPort to the indicated pattern. This pattern will fill in behind an image within the grafPort which is moved or otherwise erased.

Now, let's see some of the things that you can do with these Quickdraw routines (and also what you can't do!):

First, for the can't do's (but keep in mind that we have only covered a fraction of the available Quickdraw procedures so far):

1. You can't draw anything on the screen.
2. You can't write text to the screen.
3. You can't use the cursor on the screen.
4. You can't operate directly on rectangles, ovals, round rectangles, arcs or wedges.
5. You can't operate directly on bit images, pictures or regions.

Wow! That seems like a list of everything that we wanted to do in the first place! Hey, Ray. What's left that I can do? Elementary, my dear Whatsit.

1. You can initialize all the major grafPort record structures.
2. You can open numerous grafPorts and assign them to a device (presumably, but not necessarily, the screen).
3. You can establish the working and visible areas of each grafPort.
4. You can establish the order in which overlapping grafPorts are "stacked".
5. You can establish the background pattern to be

# NOTES ON USING THE MAC FONT EDITOR VER. 2.0

## by Peter Trinder

SOUTH BRAMBLE
SUNNING AVENUE
SUNNINGDALE
BERKSHIRE ENGLAND
SL5 9PV    44 990 20232

The Font Editor that is supplied with the Software Supplement for Inside Macintosh is a preliminary Version and has a few quirks that the first time user may find a bit tricky to use, so I thought a few notes would be helpful.

Make up a disk with a System Folder, the Font Editor, the Resource Mover, and if there is room a copy of MacWrite. Alternatively have a second disk in the external drive with just MacWrite on it.

Start-up and double-click on the Font Mover Icon. The program will load and present a dialog box with the word "System" high-lighted; DON'T accept this because the program will bomb!! Instead press backspace, then Return. You will now see a blank Editor window and the Mac will double beep at you.

Font Editor is an EDITOR, not a Creator, so to make a different font you should first select Load From Resource... from the file menu. A dialog box will ask you for a font name. If you want Chicago 12 type System and want to ignore the Current Size and New Size check boxes, click OK or hit return.

Chicago should now be loaded and visible on the screen. Assuming you are going to edit this into something else, it is now best to save it into a resource file by selecting from the file menu Save Font In. A new dialog box comes up, so type MYFONT 12 and accept by clicking in the O.K. box.

At any time you can Read Font... by selecting this command and typing MYFONT 12 into the dialog box. If you now want this font to be 24 point, select Read Font... and type MYFONT 12, but before accepting change the Newsize checkbox to 24.

The actual editing is fairly straightforward, so I won't take up space describing this. There appear to be no pitfalls or serious bugs in this section, but do save by using Save Font regularly in case of power outs etc.

Don't try Undo All Changes - mine Bombs !

Once you have created your masterpiece, the next task is to install it. With the font in memory select Install FontI. The dialog box will ask you for Name. Type your font name (just a name, no size), select the current and new sizes, e.g. 24 and 24 if it is 24 point or 12 and 12 if it's 12 point. The program will tell you it is saving your font. It takes a while, so be patient until it writes to disk. Then it's almost done.

Now quit the Font Editor and you will see a file with a rectangular Icon labeled fonts. This contains your new font. Startup the Resource Mover. The Resource Mover has a bug in the pointer refresh, so it leaves the watch showing, but if you don't like it select the Alarm Clock click on the switch on the right and the arrow will be restored.

When the Resource Mover is running, click on the Fonts file and select Open from the file menu. Highlight BOTH files in the window of the Fonts file, select Copy from the Edit menu, click on the Main Resource Mover window to bring it to the front, then select System and Open this file. You can scroll down to the Fonts section and you will see the various fonts in

the System. Now select Paste and your Font will be installed.

Quit the Resource Mover and run MacWrite to test your masterpiece.

Fonts are allocated a number and there is, as you may have noticed, one extra file in the Fonts file when you used the Resource Mover. This just contains the Font Name, but must be present. Its number is NUMBER * 128. The NUMBER, I think, is available on application from Apple, but the Font Editor does assign a default when you install a font and you can change it in the Resource Mover by using Change ID. A twelve point font number is NUMBER * 125 + 12 (point size).

If you have the Font Mover on the same disk make certain that its Fonts files are renamed, say, xFonts, before you run the Font Editor. Conversely, if you use the Font Mover and the Editors Fonts file is on the disk, you will get an alert box saying that this program didn't create Fonts.

I hope this is all fairly clear and wish you all good luck with the Editor.
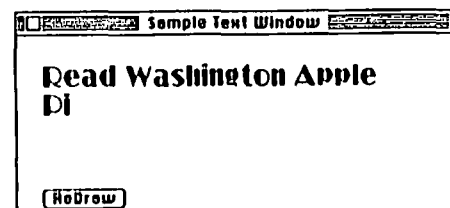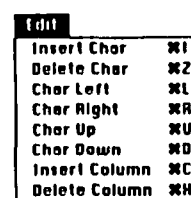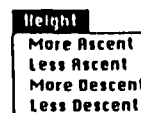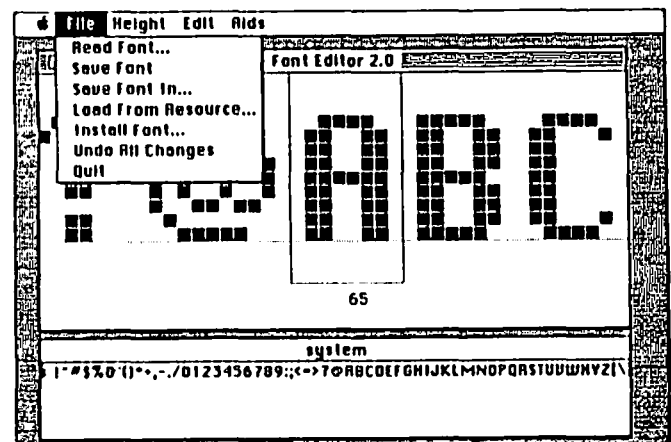
# MicronEye™: A Review
# by Steve Crandall

There has been some interest in connecting digitizing cameras to the Mac, and a few pieces of hardware have already been announced. I have had the opportunity to spend some time with one of these - the MicronEye™ by Micron Technology, Inc. (Vision Systems Group, 2805 East Columbia Road, Boise, Idaho 83706).

The MicronEye has been around for some time now in Apple ][, TRS-80, IBM PC and Commodore 64 versions. The Macintosh version includes a small solid-state camera, a tripod, an interface box, cables to the Mac's modem port, and a software disk, in its $395 price. Absent was any technical documentation, so my technical comments are from information on the earlier non-Mac versions (the hardware appears to be identical).

Video cameras (conventional TV), although dropping rapidly in price, are still rather expensive. If you wish to connect one of these to any computer you will need a frame buffer to convert the TV signal to a digital signal that the computer can understand - more $$$. The approach taken by Micron is to take advantage of the fact that RAM memories are optically sensitive. The image sensor consists of an exposed 64K RAM arranged in two cells measuring 256 by 128 cells. To start an exposure, a capacitor in each cell is charged. As photons of light strike the cell, the capacitor discharges proportionally to the number of photons. At the end of the exposure (set by a software timer) the cells are addressed like a normal cell would be read. During this read the voltage value of each cell is compared with a threshold value and the result of the decision is called an "1" or an "0". We now have a two-grey level view (black and white only) of whatever was imaged on the sensor.

So how does all of this work? The answer is, pretty well. I unpackaged the parts and had an image on the screen within 15 minutes. The fun is in getting a quality image. The first problem you will have is that of exposure. I taped a photo to the wall, aimed the camera at it, and proceeded to make trial exposures, adjusting the exposure time (it can vary from 1 millisecond to many seconds) and the camera f-stop (you get a 16 mm Computar f1.6 "tv" lens). For the first several tries you will only get completely black or white scenes. When you get one with both, it's time to adjust the focus. Now that you have an image, you can optimize it with different exposures or use special modes that generate shaded images with multiple exposures. A "photo" can be modified by inverting the bitmap (change black to white and white to black), edge smoothing, outlining images, "correcting" pixels that are close to clumps of pixels, etc., etc. You can dump the result to your printer or save it as a MacPaint document for further modifications.

The end results aren't bad, considering the price. I mentioned earlier that the RAM is segmented in two pieces. You can take a photo with either an upper half or a lower half (each is about 128 high by 256 wide). With care, a large picture can be made by fooling with the tripod and/or the subject. I found that most of my subjects required a few seconds exposure in ordinary room lighting with conservative f numbers (to desensitize the focus).

How would I improve this? It would be nice to have some ability to program the unit via some standard Macintosh language. The unit would be "insanely great" if the Mac could do more than two grey levels. I have heard rumors that the memory-expanded Mac can support 8 or 16 grey levels, given the appropriate software (hint to the Mac developers...).



Height of an exposure
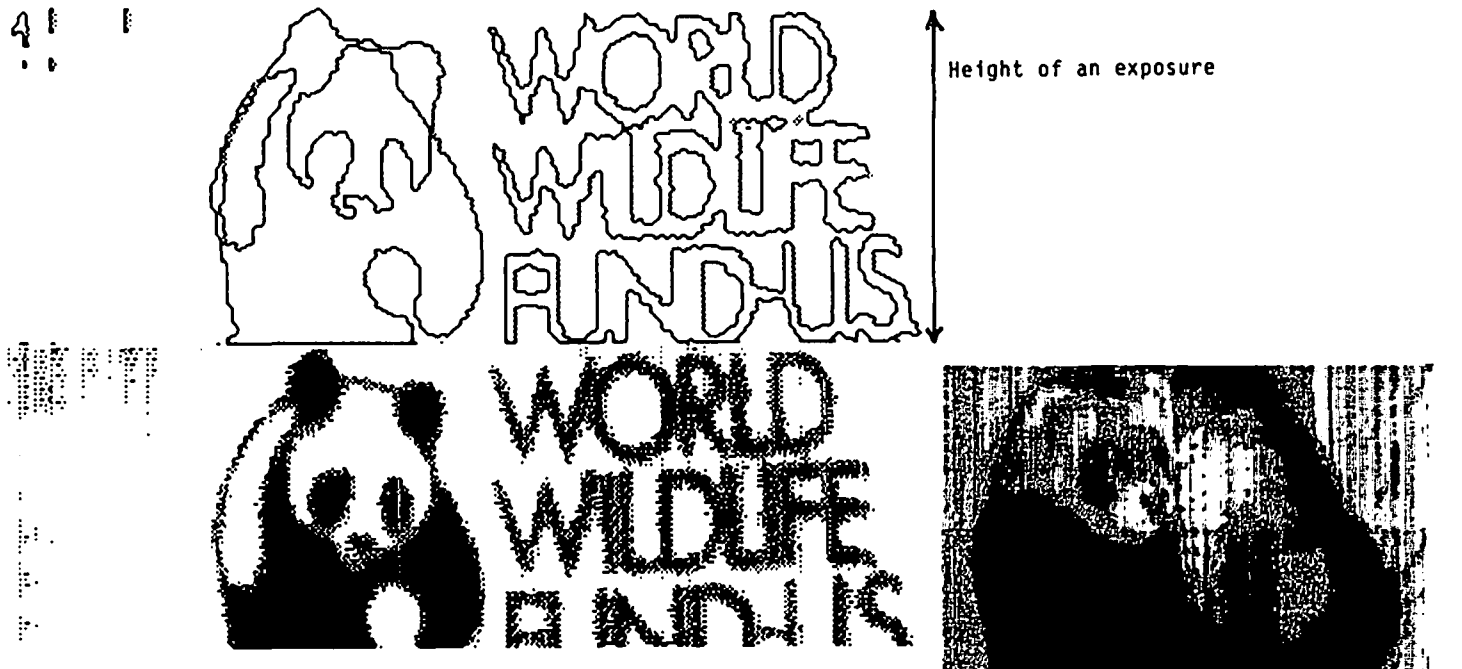
# LOVE AT FIRST BYTE
## by Rana Pennington

I had bought my Macintosh only three weeks earlier, and was still completely infatuated with it. I was very happy with things as they were - just me and my Mac - and could only pity those poor fools around me who might never know the joys of this friendly little bundle of bits and bytes, the Happy Mac.

Still, one can't live forever cut off from the world. When it came time to rejoin society, I naturally sought out the company of like-minded enthusiasts - a Macintosh Users Groups. One call to Washington Apple Pi, and two days later I found myself at a SigMac meeting.

I am new to computers, and was somewhat apprehensive about wandering all alone into a computer users group. I had never been around " hackers" before, and I had a certain image of what sort of people they would be: in a word, strange. They would surely all wear glasses; the ones with heavy black frames. Pale skin, from the hours spent hunched over the terminal. Disheveled hair. Wrinkled white shirts, nondescript slacks, tennis shoes (old tennis shoes, mind you - no New Balance for this crowd). A certain ascetic air, a sort of other-worldiness.

My first surprise came in the parking garage. The people I saw there, who were apparently headed for the SigMac meeting, didn't fit the stereotype at all. In fact, they looked a lot like me (up and coming young intellectual, of course). My surprise increased when I followed these people into the auditorium and saw that most of the group seemed similarly normal. My immediate impression was one of great energy. There was a wide cross-section of people in the room; all ages and appearances. And the majority of them looked - well, sharp. Not wimps at all.

Three men were seated in front of the audience, conducting a question and answer session. They were all young, obviously intelligent, and - wonder of wonders - they had a sense of humor! There was Don, dressed in denim and docksiders. Withers, in vest, slacks and hiking boots. Tony, with a very non-computerish beard, and boots like mine (obviously a person of taste).

These three fielded questions in a very impressive way, answering straight-forwardly and understandably, deferring answers to other people when appropriate, and keeping the audience more or less in control. It was a free-form meeting, which is a polite way of saying that most of the time several things were going on at once. A little overwhelming to the newcomer. Each question sparked numerous side conversations in the audience. With over a hundred people in the room, it was occasionally distracting, though probably unavoidable.

Even so, there was a satisfying blend of seriousness and professionalism, tempered with laughter. I learned some important truisms of computer work: 1) errors occur in direct proportion to the value of the document being worked on; 2) programs always fail after five pm and/or on weekends when the publisher can't be reached; and 3) those seemingly unexplained glitches are actually the work of devilish and undetectable cosmic rays.

The meeting was extremely informative. I took numerous notes during the question session and the demonstrations. I received some very important hints on using the programs I own. Hearing about other people's experiences gave me important information about programs I was considering buying. The demonstrations were especially interesting; I had read about MacDraw and MacProject, but seeing the demos really brought home the capabilities of those programs.

Most important was meeting the other people in the group. As soon as I sat down, I was drawn into discussions about using Filevision, the problems of copy protection, and the merits of the various Apple dealers in the metro area. It was wonderful to be able to talk to other people about the Mac, and see their eyes shining with the same sort of enthusiasm I feel. (When I talk to my non-Mac friends and colleagues, their eyes usually glaze over as I ramble on about the raptures of FatBits or clicking and dragging.)

Of course, I wouldn't adopt all the people I met. I suppose there's always One in Every Crowd, and SigMac has at least one - the person who is somehow oblivious to reality, as shown by their repeated irrelevant questions and generally annoying behavior. But this was a minor irritation. As has often been said, a perfect world would be very boring. (Sometimes, I wonder!)

All in all, SigMac turned out to be exactly what I would have wished for in a users group. Now, if I can just find a way to keep my membership when I transfer to Anchorage next summer....
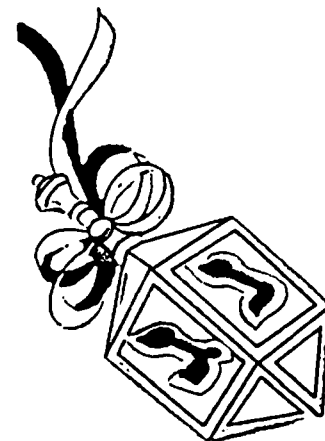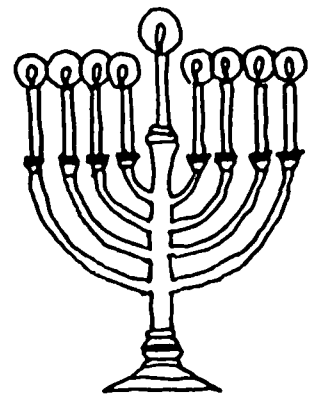
# MY MAC AND MY VAX
## by Bob Wilson

Missing my VAX while on vacation, I bought a Macintosh to have a PLC (Proper Little Computer) around the house. But once vacation was over, I brought my new little friend into work to meet my VAX.

Where to plug it in, was solved by Cary Lu's The Apple Macintosh Book and forty-five dollars in parts. After connecting the modem port to a 9600 baud VAX terminal port, the only remaining task was to fire up MacTerminal.

One reason for getting a Macintosh was the VT-100 like feel of the keyboard and keypad. But retail store demos only provide a taste of things to come. In real use, MacTerminal keyboard quirks take getting used to.

The first problem was the new location of the CONTROL key which is known as COMMAND key on the Macintosh (see Figure). VT-100 keyboards place the CONTROL key on the far left while the Macintosh key is under the left palm. Touch typists must lower the left little finger below Z key rather than reach over the CAPS-LOCK. Don't make the mistake of using the left thumb since this "curls" the thumb under the hand and loses home position which results in many mistakes. Furthermore, MacTerminal uses CONTROL key pairs for otherwise single VT-100 keys. Examples include DELETE, LINE-FEED, ESCAPE and the ARROW keys. Using two keys is always slower and more prone to error. Consider the problem of the arrow keys.

MacTerminal ARROW keys map over the VAX editor keys for DELETE-LINE, DELETE-WORD, and DELETE-CHARACTER. Failure to hold the COMMAND key deletes text instead of moving the cursor (OUCH)!

The VAX editor can ease the transition by redefining key functions. For example, consider the following VAX edit file:

```
DEFINE KEY CONTROL H AS "-CD+C."  (BACKSPACE
                                   becomes DELETE)
DEFINE KEY GOLD u AS "-V." (GOLD u becomes up arrow)
DEFINE KEY GOLD d AS "+V." (GOLD d becomes
                                   down arrow)
DEFINE KEY GOLD r AS "+C." (GOLD r becomes
                                   right arrow)
DEFINE KEY GOLD l AS "-C." (GOLD l becomes
                                   left arrow)
```

Not only does the BACKSPACE become the familiar DELETE key, but the disastrous effects of ARROW key operation without COMMAND are avoided. This is probably acceptable for "hunt and peck" but touch typist should not delay learning the new keyboard since only the VAX editor has this service.

With practice, the number of mistakes goes down and the Macintosh keyboard begins to feel comfortable. Compared to the new "ergomatic" keyboards on terminals and PCs, the Selectric style which Macintosh uses still feels best.

When communicating at 9600 baud, MacTerminal screen output lags about ten to fifteen lines behind the last characters received causing CONTROL-S (pause output) to overshoot. Furthermore, there is an intermittent communication lag of one or two seconds on first key entry after a typing pause.

Otherwise, the Macintosh works a lot better than any

dumb terminal when the VAX is down. Also, working at home is easier since the Mac does not hog the telephone (why dial-up if the Macintosh can travel directly to the VAX).

In summary, whatever MacTerminal may lack in exact keyboard compatability can be softened by the VAX editor and is more than made up for by the standalone power of a Macintosh.

NOTE: One might be tempted to always use MacWrite and transfer the file to the VAX. This works for short first drafts but takes too long when only a small number of changes are needed. Also, the VAX is not size limited compared to MacWrite and the 3.5 inch disks.

### VT-100 Keyboard



### Macintosh Keyboard
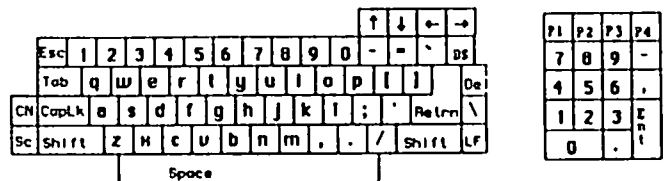


▨ VT-100 Keys Using CNTL/CMD
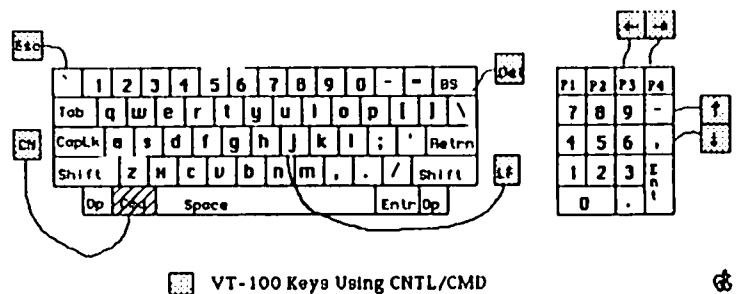
*All the happiness that the Holidays and the New Year can bring*

# USING MACTEP FOR VAX/VMS COMMUNICATIONS

## by Kenneth Nellis

At a SigMac meeting several weeks (months?) ago I heard a member lamenting the fact that MacTEP is not very well suited for interacting with VMS, the standard operating stystem on DEC's line of VAX computers. The problem is that three critical keys found on full ASCII keyboards are missing on the Macintosh keyboard: the DEL (sometimes RUBOUT) key, the ESC (escape) key, and the CTRL (control) key.

As VMS users well know, the DEL key is used to correct single-character mis-types from an input line. Each time the key is pressed, it deletes the last character from the input line, thus defining a new "last" character. Without the DEL key, when a character is mis-typed to the VAX, the only way to correct the error is to kill the entire line by pressing CTRL/U (⌘-U from the Macintosh keyboard), hardly ideal.

The absence of the the ESC key makes editing with DEC's SOS text editor very difficult. This key is used to delimit search and replace strings and to terminate input from "alter" mode.

The CTRL key also plays a major role in VMS interactions. The Mac's "command" (⌘) key may be used as a substitute for the missing CTRL key except for ⌘-C. Pressing ⌘-C while running a BASIC program will abort the program and return you to BASIC command level. However, pressing the "Enter" key on the Mac's keyboard will send a CTRL/C down the line. This is a feature of BASIC's INKEY$ function, used by MacTEP.

Below is a four-line patch that I suggest for the MacTEP terminal emulation program that is found on SigMac Disk 1. This patch causes the Macintosh to transmit the ASCII DEL and ESC codes when the user presses the BACKSPACE and "grave accent" (`) keys, respectively. (The grave accent is the unshifted upper-leftmost key on the Mac's keyboard.) This patch leaves no provision for actually sending a BACKSPACE or grave accent character down the line. The four lines to be added are shown below, preceded with a bullet (●) and shown sandwiched by the original lines with their original lines numbers from MacTEP:

```
    2100 XOFF=19: XOFF$=CHR$(XOFF)
  ● 2101 BS$=CHR$(8): DEL$=CHR$(127)
  ● 2102 GRACC$=CHR$(96): ESC$=CHR$(27)
    2110 REM

    6160 IF C$=CMDT$ THEN CALL LINE(0,4): GOTO 9000
  ● 6162 IF C$=BS$ THEN C$=DEL$
  ● 6164 IF C$=GRACC$ THEN C$=ESC$
    6170 PRINT #1,C$;
```

# Computer Aid for System Designers

**The powers of Apple's Macintosh micro help a designer and his clients visualize solar installations before flux meets solder.**



The mouse does most of the work, and first-time users rely on it almost exclusively. But the keyboard is a powerful tool, and you can use it together with the mouse to shrink and enlarge pieces, and move them precisely.

## By Dan Chiles

Chiles Power Supply has been a distributor of solar/radiant-energy systems since 1980. Our niche is hybrid energy systems. In the old days we sold the promise of system performance backed with a typewritten list of materials, brochures, and a lot of client hand-holding. But when we saw the Apple Macintosh salesman performing graphic wonders on a 9-inch screen, we stood and faced the future.

Almost without negotiation we bought the Mac and took it home for the kids to draw pictures with. After eight hours at the office the next day, we put our old Apple II up for sale and there was no turning back.
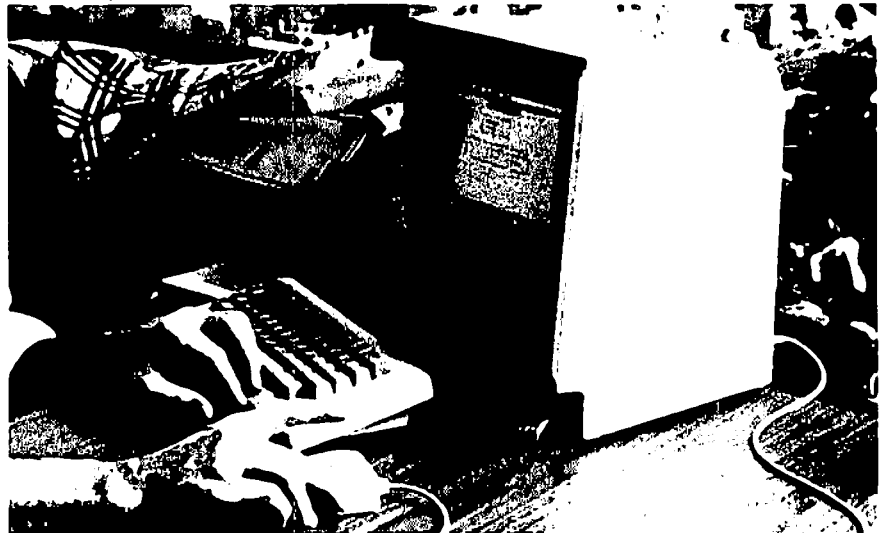
After three days we had a working relationship with a 32-bit microcomputer that has 128K of random-access memory (RAM) and one built-in 400K cartridge disk-drive. We now use it to produce detailed and convincing schematics for the benefit of both the client and the installer.

### For the client

Our typical client is building from scratch or doing serious remodeling, with a wishlist in hand for the latest and best heating and cooling systems. About 30 percent will install the systems themselves. We design their systems around several key com-

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*Dan Chiles is vice-president of Chiles Power Supply. His disk, which includes over 100 plumbing/control icons and several completed schematics, is available for $49.95 prepaid (3131 W. Chestnut Expressway, Springfield, Mo. 65802). Questions can be answered at extension 31, 1-800-641-3322 in the United States or 1-800-492-3322 in Missouri.*

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ponents: solar collectors, site-built storage tanks, radiant floors, water-source heat pumps, high efficiency gas heaters, and wood boilers. Then there are the trimmings: zone valves, smart controls, 12-volt backup systems for power failures, fan-coil units, chillers, stainless-steel heat exchangers, and circulating pumps.

Using the Mac is often the first thing we do for a client. The Mac pictures the complicated relationships between the components as no ordinary list of materials can. We print the schematics on expensive paper, along with an estimate that lists all the major components. Then we sit down with the client and discuss the system in detail, examining each component, considering needs, payback periods, and options.

We encourage our clients to take the drawings to their accountants, plumbers, builders, or architects to get their approval. Although some of the drawings are complex, each time clients explain them to someone, their understanding and involvement with the project increases. Often the schematic becomes a part of the AIA contract we fill out and sign.

Designs we have drawn on the Mac in the last four months have covered pool-heating, space-heating, DHW, and greenhouse root-zone heating, snow melting, glazed and unglazed collectors, wood, heat-pump, and electric back-up systems. We

also use it to lay our pre-plumbed modules for plumbing and controls.

### For the installer

With the Mac schematic, the installer can do better work. The Mac forces designers to do all their thinking in advance instead of ignoring the details until the actual day a system goes in. Installers get all the facts before showing up at the site, in a clear, concise fashion that allows them to ask the right questions.

### MacPaint

To draw system schematics, the MacPaint
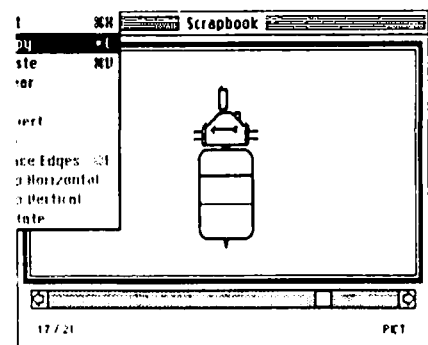


**Figure 1.** Pulling icons out of the "scrapbook." The Macintosh scrapbook is where icons, logos, legal disclaimers, title pages—anything that is used repeatedly—are stored. This icon represents the Extrol Package.
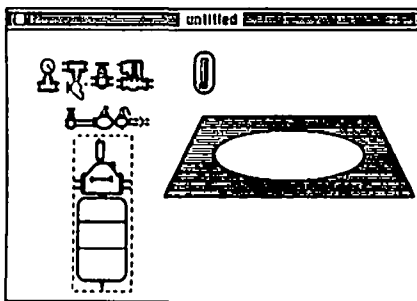
Figure 2. The selected icon appears on the screen surrounded by a "selection rectangle" and is moved by the arrow until it is in position on the screen.
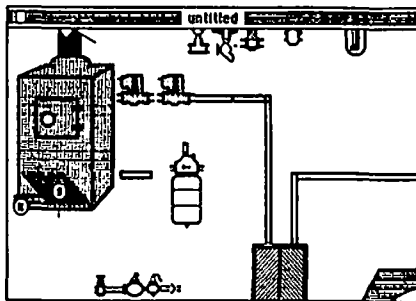


Figure 3. The larger items are placed on the screen and then joined with piping. All the pieces are positioned and connected before they are labeled. Note the other plumbing icons "floating" on the screen, waiting to be moved.



Figure 4. The "show page" reveals how the drawing will look on an 8½ by 11 sheet before the components are labeled.

software disk presents a window-oriented menu bar across the top of a good-sized drawing area. The graphic symbols, called icons, on the left of the screen include tools to copy, duplicate, stretch, and move things from place to place; an "A" to insert 9- to 72-point text; a "paint bucket" for filling spaces with patterns and a "spray can" that sprays black, white, or patterns for shading; an "eraser" for cleaning up areas, a "pencil" to draw thin lines, various shapes that can be used for pipes, and different line thicknesses that are good for piping and wiring.

Also included in the file menu is the "Fat Bits" mode that can magnify a specified portion of the drawing by eight times so you can use the pencil to clean up pipe joints, electrical connections, fuzzy letters, and tiny mistakes.

The "scrapbook" and "clipboard" modes are extremely useful. The clipboard is where you store an image or whole screen that you may want to move to other applications or to a different part of the page. It also holds things temporarily while you call up the scrapbook, where you store images long-term. The scrapbook is where I file almost everything I may need again, including legal disclaimers, company logos, title pages, and plumbing and electrical pieces at different scales. Pipes, storage tanks, and water heaters are easier to draw than they are to store.

## The mouse

Everyone's seen the "mouse" in the Apple ads. It's hard to describe how to use it. I spent years operating a backhoe, and one day a kid asked me what all the levers did. I stared at my hands hoping *they* could explain what they did all day. The controls had become a nonverbal extension of my hands and feet. With time, the mouse is the same way, becoming as familiar as a toothbrush in your hand.

The mouse does most of the work, and first-time users rely on it almost exclusively. But the keyboard is a powerful tool, and using it together with the mouse you can shrink and enlarge pieces, reproduce them, and move them precisely.

## Helpful hints

Draw your intended picture on paper first, and arrange it the way you want to see it on the screen. This will save hours of time. Remember that you only have the size of a single page to get everything in. Then, on the screen, draw or plug in the major components such as storage tanks, boilers, solar collectors, and heat pumps (Figure 2). Position them (Figure 3). Select a pipe size that fits both the scale of the drawing and the components you have in storage and connect the pieces with piping before labeling (Figure 4.).

Start a notebook with pictures of actual plumbing, control, and solar items. Icons turn out better if you are staring at the actual item or a good picture of it when you draw. Fortunately, most of the drawing process is straightforward and simple. There are few problems with perspective, shading, or motion. Angled lines except for 45 degrees are not perfect, so avoid them. I do storage tanks in perspective, but very little else. Electrical lines should only be drawn in the X- and Y-axis or else they become too distorted. They need to be distinctive to avoid installation confusion.

Traditional legends to explain the icons usually take up too much of the limited space on a single page. I usually label at least one of duplicate components and leave identical ones unlabeled. The exceptions are the traditional schematic for an engineer or when the drawing is so crammed that a legend actually saves space.

Group and store icons of the same scale together on the scrapbook. Each scrapbook retrieval takes at least five steps, and this will save time.

Don't be tempted to overuse the textures. It will make the finished product too much like a crazy quilt. Leave lots of "white space" and give major components a prominent border to make them stand out. Pipes should be drawn with a double thickness line or else they disappear in the clutter.

The MacPaint program can also be used to draw small schematics to be inserted into proposals. Draw with MacPaint, store on the clipboard, eject, and set up the Mac-
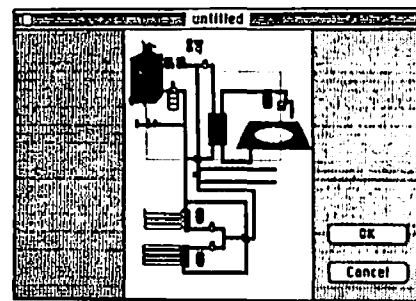
Write word-processing program. The blinking cursor will spot the new location for the drawing. Print quality on the MacWrite is better than on the MacPaint because it takes twice the font size you select and shrinks it for the final printing.

The printing ribbons cost $15 each. But the inexpensive solution is an "inker." We use one called the MacInker ($59.95 from Computer Friends, 6415 S.W. Canyon Ct., #10, Portland, Ore. 97225, (503) 297-2321). It comes complete with stand, motor, and ink to automatically re-ink your ribbons. It takes 40 minutes to work, so I keep several spares pre-inked.

## Mac pros

Its small size and portability are great. My desk top with a Mac still has room for other work, and when I can't finish at the office, I take everything home — including the computer.

The 3½-inch drives hold 400K of information. They're small enough to carry in your shirt pocket, in a hard cartridge that keeps the magnetic surface clean and protected.

The 9-inch black-and-white screen is wonderful. I can sit at the computer all day and not develop any more eyestrain than with the paper and typewriter I grew up with. The keyboard is small and simple. The Mac can print a picture of the screen at the touch of three keys, bypassing all the save and print instructions.

## Mac cons

There isn't a lot of software available, and the disks fill up rapidly. A complicated one-page drawing can use up 30K of information, so don't start on anything without at least 70K of memory available on the working disk. I recommend the second external drive to make your life easier.

The Mac is a true hybrid 32/16 bit processor, which means speed in computer lingo. Still, I dread the moments I sit watching the gray screen waiting for the computer to process something. I schedule daydreams during processing. The same is true of the "high mode" printing time for final letters or schematics.

The printer has a pin- and a friction-feed and both are fairly accurate, except when
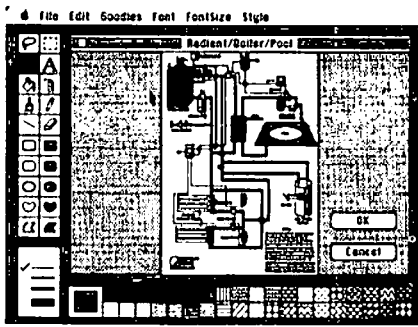
**Figure 5.** The final show page before printing. The left axis displays the tools used to create the drawing, and the bottom axis shows the textures available. Even if you're not a great artist, MacPaint includes special tools for designing everything from technical illustrations to office forms.

using large areas of dark patterns. Then it fails to feed precisely and faint lines appear on the page.

## Mac disasters

Avoid running out of disk space on a valuable drawing when the machine asks you "Any changes?" by always answering yes. Save frequently if you value your time. I lost an hour of finishing touches once by clicking the "no" box.

Once I tediously revised a complex drawing several times only to have a friend step on the power cord and pull it out of the wall. Design your workstation carefully, and save frequently. The computer actually keeps two versions of each drawing on the disk and updates them as you move the screen. This helps explain the very large space you must keep available on a disk when you draw.

If you value your sleep at night, include a legalistic disclaimer on every schematic. You don't know who'll be making copies of your drawings once they're out of your hands.

Don't attempt to compete with the professional engineer. There is a clear distinction between *designing* and *engineering*. With the Macintosh, you can make an engineer's job easier by making the presentation to client and installer more clear. ✿
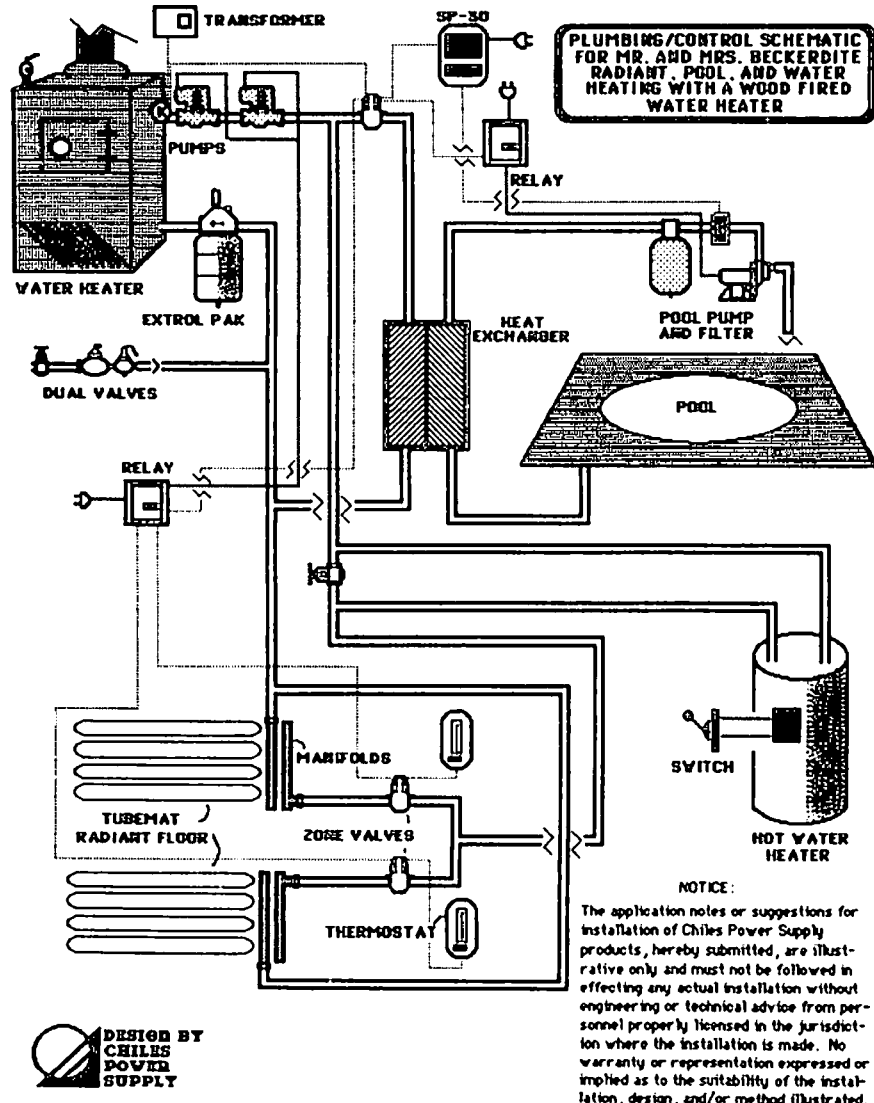
filled in when an erase or move operation is performed.
6. You can associate bitmaps with your grafPorts.
7. You can change the size and shape of your grafPort's working area.
8. You can make any grafPort active.

In other words, you can prepare the graf-Ports for any given piece of graphic magic you are planning to do - these are the setup lines; the punch line comes later. Now, let's get one more piece of housekeeping done before we move on to putting images onto the screen.

**Operations on the Cursor**

InitCursor - The first cursor operation is to initialize it, and set up its default values. The defaults set the cursor bitpattern to an arrow pointing up and to the left, with "level" of 0 (visible), and with the hotspot at the point of the arrow.

SetCursor - This routine lets you change the appearance of the cursor by associating it with the bit image you have defined as a Cursor RECORD.

HideCursor - This procedure erases the cursor. The empty space will be filled by whatever background pattern was set by BackPat for the grafPort in which the cursor was visible. Even while invisible, by the way, the cursor will follow the mouse. HideCursor decrements the "level" of the cursor (which is only visible when it equals 0.

ShowCursor - Wherever the cursor is when this routine is called, it will pop into view. If you called SetCursor while the cursor was hidden, and you changed the appearance of it, the new cursor will be shown. ShowCursor can be called while the cursor is visible, and it won't do anything but waste a few cycles. This is because the "level" cannot be incremented to a value greater than 0. However, repeated HideCursor calls can be damaging since the "level" can be decremented repeatedly (remember, only "level" = 0 is visible). Therefore, each HideCursor call should be balanced by a ShowCursor, although the reverse is not necessary. Easy, ne-c'est pas?

ObscureCursor - This somewhat aggravating procedure is the explanation for one of the things that frequently bothers Mac users. ObscureCursor will make the cursor invisible until the next time the mouse is moved. It does not increment or decrement the cursor "level", so it doesn't need to be balanced by anything. And you thought that it was a bug in the package when you couldn't see the cursor until you moved the mouse, right?

The cursor routines are pretty self-explanatory, so I won't say anything else about them. We will come back to the Grafport routines with some regularity, though, because they are really the heart of Quickdraw. Next time, we'll go into text-drawing and pen and line-drawing procedures, so that we can get some pictures onto the screen. ✿



**Figure 6.** The final page given to clients and installers, along with a major components list and estimate. This is the schematic for a radiant-heating, pool-heating, and water-heating system with a wood-fired water heater.

# DOLLARS AND $ENSE : A Review
## by Kevin Nealon

Dollars and Sense is a home or business accounting package for MS-DOS, Apple ][ series and, in this review, the Macintosh computer. This program is for the person who itemizes his tax return, and would like to keep a budget. In fact, any person who does a fair amount of bookkeeping would be interested in this program. Now, bookkeeping has got to be one of the most boring jobs around. You just don't hear people saying how they can't wait to get home and balance that check book. No program can make bookkeeping fun, even on the Macintosh, and Dollars and Sense is no different. What Dollars and Sense does accomplish is to make good bookkeeping practices easier to learn and keep up. It rewards you with the creation of an easy to understand financial history which shows you what you did with all that hard earned money.

Dollars and Sense has a good introduction to how the program works with the mouse and keyboard, and how it organizes its files. More importantly, the manual follows with a first-time tutorial. As this was my first-time at any kind of bookkeeping I found it quite helpful in learning how to set up accounts and budgets. The program also has help screens for each of its pull-down menus. Creating a file of accounts is a simple matter of filling in the blanks of a dialog box with fiscal year, beginning month and file name. However, care must be taken at this step as none of the mentioned items can be changed. Once done, you create your list of accounts. Accounts are categories of money, such as "paycheck", or "car repairs", that tell where the money comes from, or where it's going. Specifically, each account consists of an ID#, the account's name, the account type (either expense, income, asset, liability or check), a monthly budget and a starting balance where appropriate.

Dollars and Sense gives you the option of either starting with a ready made list of accounts, or building your own from scratch. Editing is easy to do with either mouse or equivalent keyboard commands. Two accounts, titled Check Interest and Check Charges, are mandatory in any list of accounts. I don't see any reason why the designers did this, but it doesn't bother me. The list of accounts is automatically ordered by ID#, but when you need to index the account to credit or debit money to it, you index it by its name. An important feature is that accounts can have either a fixed or variable monthly budget. The list of accounts can be edited at any time and in any way with the only restriction being that accounts with transactions credited to them cannot be deleted from the lists, or have their account type changed, though you can protect them from further use.

The entry of money spent and money received is just as easy as account creation. Dollars and Sense uses the double entry method of bookkeeping. This means that every time you take money out of one account, checking for instance, to pay the gas bill, Dollars and Sense will show the debit in "Personal Checking", and will automaticaly put a credit in the account named "Gas Company". This lets you easily see where the money came from and what it went to. There are three transaction screens, one each for checking, assets (a bank account), or liabilities (your charge card). All entry screens share a base account, which is where the money is coming from, and a distribution account where the money is going. Dollars and Sense indexes the various accounts alphabetically, and it is possible to just type in the first few letters to get the one you want. And if that's not it, you can scroll through the list either with mouse or keyboard.

Once again, editability of records is very good. The check entry screen features a column to indicate whether the check has cleared, automatic check numbering, the ability to void checks, and write the checks on preprinted forms. All the entry screens can flag transactions that relate to your taxes. Dollars and Sense can also create sets of automatic transactions for such items as mortgage payments. This cuts down on the entries you have to type. For report generation you can create composite accounts to compare related items; for example you can bundle all you automotive expenses to see how you spend money on your car.

Dollars and Sense has a large number of report formats. The problem is that the manual does not really describe all the options, leaving the user to discover what he likes best for himself. It might have been better to allow use of a menu to pick the information to appear on the report. Dollars and Sense also produces a number of graphs, and with the use of composite accounts can clearly demonstrate how a financially complicated item like a car or house uses money, and tell you which items are within or exceeding budget.

Some dry statistics of Dollars and Sense: it accomodates 120 accounts, and 2000 transactions per account. If this is not enough capacity it is possible to extend the file, an operation which starts a new file that has the same list of accounts, and transfers any balances. The files are rather large and they require a minimum of 140K on the disk, and a lot more when you start to record transactions, so two drives make work easier. The system loads the entire program on a 512K Mac and spins the disk only when updating data files. However the program is fast enough on a 128K Mac.

The well indexed manual is both an asset and a detraction from the product. The first-time tutorial is quite good and the examples give you some ideas of what Dollars and Sense can do. The reference section, however, lacks detailed information on specifics of the product. It should also include small examples to illustrate these specifics.

My only other gripe is how the numbers are entered. The program recognizes either the TAB or RETURN keys but not the ENTRY key as a means to enter data. This means that if you have a Macintosh Numeric Keypad you can type the number on the keypad, but you have to use the enter key on the main keyboard instead of the more convenient one on the keypad.

Overall, Dollars and Sense is a very good product. Its few flaws detract little from its quality of operation. The chore of bookkeeping is reduced to a minimum, and the little effort that is required produces some very useful information. Monogram, which publishes Dollars and Sense, has announced the future release of a tax preparation program that will work with or without Dollars and Sense. Dollars and Sense lists for $149, but many stores and mail order houses have discounted it to around $100. For those interested in this product, a copy for review is available at the office.

# NOTES ON "INSIDE MACINTOSH": The Author Responds

## by Raymond Hobbs

With respect to Mike Hartman's defense of Inside Macintosh, which appeared in the November WAP Journal, I feel that I must stand by my conclusions on several points. My intention was to try to explain why software for the Mac was not being generated by the bargeload, and I still think that I demonstrated that quite clearly. Certainly, nobody would argue that there is a bargeload of software out there yet. Naturally, I cannot speak for all the thousands of software developers throughout the country, but I personally know several developers for Mac, and I believe that I addressed many of the frustrations they have experienced. Some specific clarifications should be made, however.

First, whether or not purchase of Inside Mac is open to the general public is immaterial. My frame of reference was software developers, not the entire range of purchasers of the Mac. As a matter of fact, Inside Mac is sold through a mail drop in California. The address is obtainable by personal communication - that is, the publication is neither advertised nor retailed. The software sold by my company is marketed in a similar way. If you know that it exists, you can order it, otherwise it can't be found. I do not consider this to be generally available to the public.

Second, the information contained in Inside Mac to which I referred was just that - not Inside Mac plus another $100 worth of supplements (which really should have been available to developers free of charge, anyway, considering the stiff $150 price tag placed on Inside Mac by Apple Computer). Again, I was trying to give the reader some insight into the problems the developer has experienced in trying to get products out the door - I was not critiqueing Apple's literary efforts.

Third, I will acknowledge that if the developer pur-chased every product suggested by Apple for software development, the level of available information would be improved. Mike might recall, however, that much of the information was promised FREE to certified developers, only to have a price tag put on it after Apple had cashed the original developers' checks. To date, if I had purchased everything suggested by Apple for developers, I would have invested almost $20,000 (and I still wouldn't have an assembler/debugger, which Apple originally promised for March, 1984!).

The suggestion in Mike's letter that developers who experience problems with Inside Mac are less than adequate programmers, and that assembly language programmers may be merely hackers, really shouldn't be addressed at all. However, let me point out two things: 1) Apple Computer requires evidence of pro-gramming capability for certification as a developer. Is Mike suggesting that Apple merely cashes the checks and disregards the applicant's qualifications? 2) The Macintosh ROM is written entirely in machine language. Are the authors of that code merely hackers?

Please don't get me wrong. I think that the Mac is a great piece of engineering. It's just that, unlike some, I don't automatically ooh and aah at everything Apple does. I believe that just as IBM makes barely adequate hardware coupled with great marketing and support, Apple makes great hardware coupled with barely adequate marketing and questionable support. Mike may sincerely believe that Apple Computer is "doing all it can do" to support the software developer. My experience is different (unanswered letters, promises broken, development tools withheld). Developers and users both have a responsibility to positively reinforce Apple's good efforts and nega-tively reinforce Apple's poor efforts. To neglect this responsibility threatens an otherwise excellent computer with market extinction.                     ⑯

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# WHAT'S NEW WITH FORTH

## by Bruce F. Field

The FORTH Special Interest Group has been active recently and we have issued a new version of the Fig-FORTH language. This new disk will be swapped for the original copy of WAP disk 105 which contained the original Fig-FORTH system. The new disk is numbered WAP disk 703. Newcomers to FORTH are always welcome, of course, and we highly recommend two books by C. Kevin McCabe: Forth Fundamentals, Volumes 1 and 2, for users who want to get the most from our system.

WAP disk 703 contains a complete Fig-FORTH language system and has almost everything you need to write FORTH programs. Disk 701 has a full screen editor that can be included in your system. This most recent version of the editor will work with a 40-column Apple, Smarterm 80-column card, or the Apple //e 80-column card. Disk 700 contains a rudimentary line editor, a FORTH assembler, and several utilities. One of these two editors is required if you wish to save your source code to disk. WAP disk 702 is a tutorial program to help you learn FORTH.

The new FORTH system (release 1.2) has several improvements over the old version (release 1.0). The placement of the FORTH screens on the disk has been changed to avoid conflicts with DOS 3.3. As a result, the FORTH system, DOS 3.3 and 100 FORTH screens now reside on the same diskette. This means that you can boot your FORTH system and keep your FORTH source code on the same diskette. Although this rearrangement of FORTH screens is incompatible with the previous ver-sion, a FORTH variable has been included to permit reading of the old-format diskettes. The system has also been modified to work correctly with an 80-column card. Although you could turn on an 80-column card with the old system, if you got an error or pressed RESET, the Apple reverted to the 40-column mode. With the new system you may set 80-column as the default mode and the system stays in the 80-column mode. The system also performs EMPTY-BUFFERS on a cold start. No longer do you have to remember to type EMPTY-BUFFERS before your start! A couple of bugs in ENCLOSE, and U> have been fixed. Other than the changes noted above, the systems works the same as the old version; try the new system though, we think you'll find it easier to use.

For inexperienced FORTH programmers the system can seem confusing at first. The FORTH SIG urges you to come to one of our meetings and let us help you get started. We usually meet at 1:00 pm on the third Saturday of the month at the WAP office.                     ⑯

# The Musical Apple
## by Raymond Hobbs

Judging from the feedback I got from the last article (Computer Music - A Replay, which appeared in the WAP Journal for November), there are quite a few members out there who are interested in turning their Apples (and Macs!) into soft-wired combos. That's great, and I'd like to hear from more of you. Maybe we can organize a computer-music-symposium (or synthe-symposium)!

This month we will explore tone envelopes, and see how they affect the tonal quality of synthesized music. You will recall that envelopes define the attack, sustain and decay phase parameters of each note played. Let's start out with a short review.

As we saw in November, each note has its own life in which it is created, grows, sustains itself, then decays and dies. How these phases of the note's life are defined plays a large part in defining its character. To illustrate, we used the examples of an organ, a piano and a violin (see figures below).
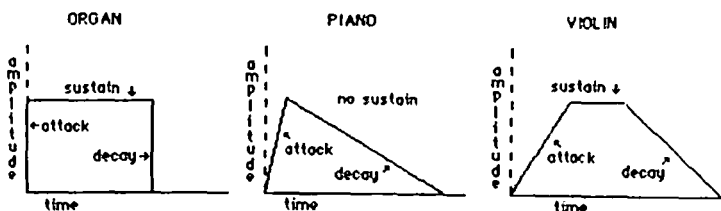


The organ possesses an instantaneous presence - that is, its attack time is zero. The tone experiences no decay thereafter, but disappears when the organ key is released (however, if the organ is located in a room with acoustical reverberation properties, a decaying echo will be heard). The organ's envelope, therefore, shows no attack or decay time and a constant volume throughout the life of the note. In contrast, the piano, which produces tones by a felt hammer striking one, two or three strings (all tuned to the same pitch), does have a short attack slope, since the greatest volume will be produced only after the string (or strings) have had time to set up resonant sympathetic vibrations in the instrument. This will take place within a very short space of time, so the attack slope is quite steep. Unlike the organ, the piano has no facility for sustaining that peak volume, so the tone immediately begins to decay. This is represented by the lack of a sustain parameter in the envelope. The violin's envelope has a shallower attack slope, suggesting the more gentle stimulus of bowing the string to set up the vibration, rather than striking it. The tone is sustained at its given volume (aside from the dynamics introduced by the performer) until the bow is withdrawn, at which time the tone decays in much the same manner as that of the piano.

We can see how much the envelope affects the sound that is produced. The waveform of a violin tone, played in the envelope of an organ, in fact, sounds nothing like a violin. The envelope tells us how the instrument is played. It does not tell us very much about what shape the instrument is, but it does suggest whether the sound is produced by a string, a reed, a column of air or a membrane. For example, a flute's tone decays rapidly when the performer stops blowing across the mouthpiece, but the strings on a cello continue to vibrate after the bow is withdrawn. Therefore, we can expect the decay slope of the flute's envelope to be steeper than that of the cello. On the other side of the envelope, we can expect the attack slope of a plucked violin to be steeper than that of a bowed violin.
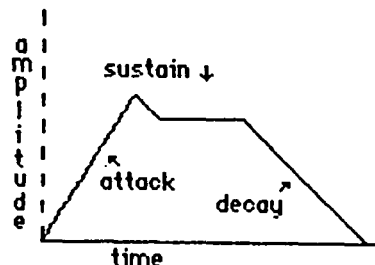


The trick to designing instrument envelopes is to visualize how the sound of the desired instrument is produced, then translate that image into an envelope. The envelope may, of course, be for an existing instrument, or for one that you dream up yourself (like a bowed tuba or a percussion oboe). Keep in mind, though, that the shape of the instrument will be determined mainly by the waveform you use - more about that next time.

During the Romantic period of musical history, from Beethoven's time through Tchaikovsky's (including the works of composers such as Chopin, Smetana, Schumann, Liszt and Mendelssohn), the music was composed to represent visual images, or scenes. The composer learned to look with his ears. In designing instruments for music synthesis, the artist must learn to do the reverse - listen with his eyes. The desired sound must be translated into an instrument shape (waveform) and the method of playing (envelope) in order to produce the desired tone quality.

Of course, I'm not suggesting that instruments cannot be created by accident - random hacking with the instrument definition parameters - but I am suggesting that to produce the desired effect on a steady, consistent basis, there is a reasonable way to approach the problem, and it requires the artist to learn to deal with the abstract of seeing sound - much like the postclassical composers learned to hear scenes. It is a musical discipline which can be mastered.

As I close out this article, I would like to mention one interesting thing that I have found while studying envelopes of various instruments, both those I have created and those which were created by others. To me, the most musically pleasing sounds are those which are "bittersweet" - the viola, for example. The sound is rich and full, and when it dies away it remains with you, somewhere just beyond reach. The envelopes which represent these sounds demonstrate a rapid (but not sudden) growth, a full sustain, and a long, gentle decay - surprisingly reminiscent of the envelopes which might surround a human life in birth, growth, middle age and old age. Perhaps we respond to images of ourselves in music, too.

# WAP TUTORIALS
# by Bruce F. Field

Our series of four monthly tutorials will start again in January after a break for the holidays. They are held on Tuesday evenings at the office from 7:30 to 9:00 pm. If you bring your computer, please arrive 15 minutes early to allow for setup. The cost is $10 if you bring a computer, $15 without.

The four tutorials are arranged in two groups of two. Tutorials #1 and #2 are for beginners and are designed to help you become familiar with your Apple, how to load and run programs, and how to make backup copies. We suggest that you take tutorial #1 before tutorial #2. If you bring your computer please also bring your DOS 3.3 System Master diskette (or a copy of it) and a blank disk.

Tutorials #3 and #4 are to help beginners learn the Applesoft BASIC programming language. Again, we suggest that you take tutorial #3 before tutorial #4. These tutorials will give you a good basis for programming in BASIC, and with the help of a book or two should be all you need to get you off and programming.

## Session 1. Welcome to the World of Apple

A. Overview of a Computer
     CPU, memory, input and output

B. Using floppy disks
     Care and handling
     Booting a disk

C. CATALOG - what's on this disk
     The file name
     Locked or unlocked?
     File types - A, I, B, T, R
     File size

D. Other important DOS commands
     LOAD - load image of program from disk into
      memory
     RUN
     LOCK and UNLOCK
     DELETE
     BRUN

E. Printing - text and graphics

F. Using COPYA - the importance of backups

## Session 2. How to use your Apple software

A. Initializing a disk - what it does
     143Kbytes of information
     Different versions of DOS - 3.2, 3.3, ProDOS

B. Using FID to copy files

C. Introduction to ProDOS
     Pathnames
     - (smart run)
     Filer
     Convert

D. Disk recovery programs

E. Selected programs from the New Members Disk

## Session 3. Welcome to Applesoft Basic

A. What is programming?

B. PRINT Statement
     Difference between constants and variables

C. String and numeric variables
     Assignment (LET) statement

D. Immediate mode and program storage
     LIST, NEW, DEL, RUN

E. INPUT statement

F. Program editing
     ESC I, J, K, M

G. Simple branching
     IF . . . THEN
     GOTO

## Session 4. Applesoft Basic continued

A. Looping and Branching
     I = I +1 type loop
     FOR . . . NEXT loops

B. Subroutines
     GOSUB, RETURN

C. Character strings and string functions
     Definition of strings - assignment with " "
     LEFT$, MID$,RIGHT$, VAL, LEN
     Concatenation

D. Arrays
     DIM
     Using arrays ( with FOR . . . NEXT loops )

E. READ . . . DATA

F. Multiple statements on a line
     Multiple statements with an
            IF . . . THEN statement

G. REM

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### DISKETERIA TO PHASE OUT DOS 3.2 DISKS

The Disketeria staff is sad to announce that it will cease selling WAP disks Volumes 1 through 40, the old DOS 3.2 series, effective January 1, 1985. This is necessary because there is no longer sufficient demand for these disks, and most of the programs on these disks have been improved, combined and reissued as Volumes 70 - 79 (DOS 3.3).

However, as a service to its members, WAP will keep an "archive" set of disks 1-40 in the office. Should you need a copy of one of these early disks, the office staff will copy it on a "demand" basis for a cost of $5.00.

Disks from Washington Apple Pi's Disketeria are available for purchase. This form is only for ordering disks that you want mailed to you.

5 1/4" DISKETTES: - Members $ 5.00 ea.; Non-members $ 8.00 ea., Plus $1.00 ea. postage up to a maximum of $5.00
3 1/2"  "       - Members $ 7.00 ea.; Non-members $ 10.00 ea., Plus $1.00 ea. postage up to a maximum of $5.00

Note: DOS 3.2 disks (Volumes 1 - 40) have been discontinued. The office will maintain an "archival" copy of each of these.

**DOS 3.3**
( ) Volume 41 IAC 25 Mach. Lang. Util.
( ) Volume 42 One Key DOS ***
( ) Volume 43 IAC 29 Utilities H
( ) Volume 44 Utilities I
( ) Volume 45 Diversi-Copy ***

( ) Volume 70 Business/Math/Statistics
( ) Volume 71 Music
( ) Volume 72 Keyboard Games
( ) Volume 73 Text Adventure Games
( ) Volume 74 Paddle Games
( ) Volume 75 Color Graphics for Fun
( ) Volume 76 Education
( ) Volume 77 Utilities

( ) Volume 90 Spreadsheet C Genl. Bus.
( ) Volume 91 Spreadsheet D Investment
( ) Volume 92 Spreadsheet E Bus. Recd.
( ) Volume 93 VisiPlot and VisiTrend
( ) Volume 100 Utilities A
( ) Volume 101 Utilities B
( ) Volume 102 Games A
( ) Volume 103 Merry Christmas
( ) Volume 104 Business A
( ) Volume 106 Science Engineering
( ) Volume 107 Games B
( ) Volume 108 IAC 10 (Graphics)
( ) Volume 109 IAC 11 (Applesoft Tutorial)
( ) Volume 110 Personal/Education
( ) Volume 111 Games C
( ) Volume 112 Utilities C
( ) Volume 113 Business B
( ) Volume 115 IAC 12/13 Misc.
( ) Volume 116 IAC 14 MicromodemII
( ) Volume 117 Picture Packer
( ) Volume 118 Utilities D
( ) Volume 119 IAC 15 Misc.
( ) Volume 120 IAC 16 Misc.
( ) Volume 121 WAPABBS 1.1 Doc. **
( ) Volume 122 IAC 17 Misc.
( ) Volume 123 French Vocabulary
( ) Volume 124 Utilities E
( ) Volume 125 IAC 18 Misc.
( ) Volume 126 Sights and Sounds
( ) Volume 127 Math/Science
( ) Volume 128 Games D
( ) Volume 129 GLAQ
( ) Volume 130 Diversi-DOS ***
( ) Volume 131 Personal/Educ. 2
( ) Volume 132 IAC 19 - Utilities F
( ) Volume 133 IAC 20 - Pascal & DOS 3.3
( ) Volume 134 New Members Disk

**DOS 3.3 contd.**
( ) Volume 135 WAPABBS 1.1 Disk 1 **
( ) Volume 136 WAPABBS 1.1 Disk 2 **
( ) Volume 137 IAC 21 Spreadsheet A
( ) Volume 138 IAC 23 Utilities G
( ) Volume 139 IAC 24 Education 3
( ) Volume 140 Education 4
( ) Volume 141 Special Data Bases
( ) Volume 142 IAC 28 Pinball Games
( ) Volume 143 Sports
( ) Volume 144 IAC 27 Applesoft Prog.
( ) Volume 145 Apple Logo Tool Kit
( ) Volume 146 Apple Logo Sample Prog.
( ) Volume 147 Logo Documentation
( ) Volume 150 EDSIG1 (Elem. Math)
( ) Volume 151 1983 Tax Template
( ) Volume 152 IAC 31 Miscellaneous
( ) Volume 153 Investments A
( ) Volume 154 Investments B
( ) Volume 155 IAC 33 Miscellaneous
( ) Volume 156 IAC 35 Applesoft-AW//e
( ) Volume 157 IAC 36 Arcade Games
( ) Volume 158 Apple Logo Programs

**Eamon Series**
( ) Volume 180 Dungeon Designer
( ) Volume 181 Beginners Cave
( )*Volume 182 Lair of Minotaur
( )*Volume 183 Cave of the Mind
( )*Volume 184 Zyphur Riverventure
( )*Volume 185 Castle of Doom
( )*Volume 186 Death Star
( )*Volume 187 Devil's Tomb
( )*Volume 188 Caves of Treas.Isl.
( )*Volume 189 Furioso
( )*Volume 190 The Magic Kingdom
( )*Volume 191 The Tomb of Molinar
( )*Volume 192 Lost Isl. of Apple
( )*Volume 193 Abductor's Quarters
( )*Volume 194 Quest for Trezore
( )*Volume 195 Underground City
( )*Volume 196 Merlin's Castle
( )*Volume 197 Horgrath Castle
( )*Volume 198 Deathtrap
( )*Volume 199 The Black Death
( )*Volume 200 The Temple of Ngurct
( )*Volume 201 Black Mountain
( )*Volume 202 Nuclear Nightmare
( )*Volume 203 Feast of Carroll
( )*Volume 204 The Master's Dungeon
( )*Volume 205 The Crystal Mountain
( )*Volume 206 The Lost Adventure
( )*Volume 207 The Manxome Foe

**Pascal    (See also Volume 133)**
( ) Volume 300 PIG0: ATTACH 1.1/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:
( ) Volume 312 PIG12:
( ) Volume 313 PIG13: Guerilla Guide
( ) Volume 314 PIG14:

**CP/M**
( ) Volume 401 Master Catalog
( ) Volume 402 Utilities 1
( ) Volume 403 Communications
( ) Volume 404 Utilities 2
( ) Volume 405 Utilities 3
( ) Volume 406 ZCPR2 Install
( ) Volume 407 ZCPR2 Documentation
( ) Volume 408 ZCPR2 Utilities
( ) Volume 409 Modem 730

**Forth**
( ) Volume 700 Assembler/Disassembler
( ) Volume 701 Full Screen Editor
( ) Volume 702 GoForth Tutorial
( ) Volume 703 Fig-Forth

**Macintosh - @$7.00 (see above)**
( ) SigMac Disk 1 MS-BASIC Pgms
( ) SigMac Disk 2 Atkinson's Goodies
( ) SigMac Disk 3 Fonts
( ) SigMac Disk 4 MS-BASIC Pgms
( ) SigMac Disk 5 Desk Accessories
( ) SigMac Disk 6 Mac Paintings
( ) SigMac Disk 7 Desk Calendar & MS-BASIC

* Volume 181 required with these disks.      ** Vols. 121, 135, 136 must be purchased together.
*** Use of this disk requires sending money to the author ($30 for Diversi-disks and $9 for One Key Dos.)

(NOTE: ALLOW 3 TO 4 WEEKS FOR MAILING.)    Total Order = ____ disks.; postage $____ ; Total amount enclosed $____

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Attn. Disketeria
8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

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# 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 is given elsewhere in this issue..

( )  January  8  - INTRODUCTION TO APPLE COMPUTER HARDWARE    ( )  February   5
( )  January 15  - HOW TO USE YOUR APPLE SOFTWARE             ( )  February  12
( )  January 22  - BEGINNING APPLESOFT BASIC                  ( )  February  19
( )  January 29  - INTERMEDIATE APPLESOFT BASIC               ( )  February  26

The fee for each tutorial is $10.00 with an Apple, monitor and disk drive, $15.00 without (monitors available for 1st 5 registrants - call office). 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)

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

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8227 Woodmont Avenue, Suite 201
Bethesda, MD 20814

Name _____

Daytime Phone _____  Evening Phone _____    Total Enclosed $ _____

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# —— Operant Systems ——

## -- HARDWARE --

**PRINTERS--**
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Epson FX-80 (160 cps, tractor/single sheet, graphics).. 435
      FX-100 (wide carriage version of the above)...... 625
      RX-80F/T (100 cps tractor/single sheet, graphics) 305
      LQ-1500 (200 cps, fantastic letter-quality mode) 1095
Fingerprint (pushbutton font selection for RX/FX).... 39/49
Okidata 92 (160 cps, graphics, BEST print for price)... 395
        93 (132 column version of above)............ 629
Toshiba 1340 (144 cps draft, BEST letter-qual matrix).. 799
Texas Instruments TI-855 (150 cps draft, 35 cps NLQ).. 795
IDS Prism-80 (200 cps, color/sheet-feed options avail) 999
Gemini 10X (120 cps, tractor/single sheet, graphics).. 265
       15X (wide-carriage, same features as Epson MX).. 375
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      Smartmodem 1200 (1200 baud, RS-232, auto-dial)... 469
      Smartmodem 300 (300 baud, as above)............. 199
Novation Apple-Cat II (w/ Comware; 1200 baud capable). 235
         Smart-Cat 300 (RS-232, direct-connect)....... 175
         Smart-Cat 300/1200 (as above)................ 389
Prometheus Promodem (300/1200 baud, RS-232, auto-dial). 365
Microcom ERA 2 (300/1200 baud card with software)..... 359
Zoom Telephonics Networker (300 baud card w/software).. 149
US Robotics Password (300/1200 baud, auto-dial/answer). 335
Anchor Automation Mark 12 (300/1200 baud, RS-232)..... 269
                 Volksmodem (300 baud, RS-232)....... 59
```

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MicroSci A2 drive (100% Apple-compatible Shugart 390).. 199
Rana Systems Elite One drive (40 track, 163K)......... 259
             Elite Two (40 track, double side, 326K).. 389
             Elite Three (80 track, double side, 652K) 449
             10-MEG Winchester drive.................. 1149
TEAC Thinline drive (40 track, 100% Apple compatible).. 219
Axlon 320K Ramdisk.................................... 829
Davong, Corvus, and Corona Winchester drives........(call)
```

**CP/M & 6502C SYSTEMS--**
```
Applicard (6 Mhz Z-80, 64K to 192K RAM, 70-col video).. 249
Microsoft Softcard ][e (Z-80, 80 col & 64K on one card) 265
          Softcard (includes CP/M 2.2 and MBASIC)..... 259
DR Gold Card (6 Mhz, 80-col, 64-192K, CP/M 3.0, CBASIC) 259
Titan Systems Accelerator ][ (3.6 Mhz 6502C processor). 425
Speed Demon (6502C high-speed coprocessor)............ 219
```

**MONITORS--**
```
Amdek 300G (12" green anti-glare screen, 18Mhz)....... 125
      300A (12" amber anti-glare screen, 18Mhz)....... 145
NEC JB-1201/1205 (green/amber anti-glare screen, 20Mhz) 155
    JB-1260 (12" green, 15Mhz, best value for money)... 109
USI PI-2 (12" green anti-glare screen, 20 Mhz)........ 125
    PI-3 (12" amber anti-glare screen, 20 Mhz)........ 125
```

**INTERFACES & BUFFERS & CLOCKS--**
```
Pkaso/U printer interface (superior graphics & more !!) 129
ShuffleBuffer (32K--128K w/cut & paste/ser and par).... 269
Grappler+ printer interface (parallel w/ graphics).... 109
Buffered Grappler+ (16K to 64K buffer plus graphics)... 169
CCS 7711 Super Serial (for printers & modems)......... 95
Wizard IPI (graphics, text dump, page formatting )..... 69
Practical Peripherals ProClock (ProDos compatible)..... 109
```

**VIDEO & KEYBOARD--**
```
Videx Ultraterm (160 column/48 row display !!)........ 249
      Videoterm (80-column w/ softswitch & inverse).... 209
MicroSci 80-col card w/64K RAM for ][e................ 125
Keytronic KB-200 low-profile detached keyboard........ 235
```

**MEMORY EXPANSION--**
```
Wespercorp Wizard 16K RAM card (2-yr warranty)........ 59
Titan Systems 128K RAM card........................... 349
```

## -- SOFTWARE --

**WORD PROCESSING--**
```
Wordstar 3.3 (including 6 Mhz Z-80 Applicard !!!).. 299
ScreenWriter II (70 col display, spooling, more!).. 85
Super-Text Professional.............................. 115
Bank Street Writer or Speller........................ 45
pfs: Write ][e or Proof ][e.........................85/49
Pie Writer........................................... 99
Word Handler + List Handler + Spell Handler.......... 109
HomeWord or HomeWord Speller.......................45/35
Sensible Speller IV (checks ANY file type)........... 85
The Word Plus (super spelling checker for CP/M).... 99
```

**SPREADSHEETS & FORTUNE-TELLERS--**
```
Multiplan (state-of-the-art spreadsheet)............. 129
FlashCalc (VisiCalc gets a facelift)................. 75
SuperCalc 2 (powerful CP/M spreadsheet).............. 179
```

**INFORMATION MANAGEMENT--**
```
dBASE II (w/ ZIP screen generator)................... 299
pfs: File, Report, or Graph.......................... 85
The General Manager 2.0.............................. 149
Thinktank (electronic thought organizer)............. 99
DB Master 4.0 (latest version)....................... 225
```

**BUSINESS & ACCOUNTING--**
```
Dollars & Sense (accounting + graphics).........69 & 79
Peachtree Peachpak (GL/AR/AP).......... all three: 229
            Back to Basics Accounting (GL/AR/AP)... 129
BPI Accounting (AR/AP/PAYROLL/INVENTORY) ea module: 249
```

**COMMUNICATIONS--**
```
Ascii Express Professional (for DOS 3.3)............. 89
Z-term Professional (for CP/M)....................... 99
pfs:Access (basic communications for the ][e)....... 49
CompuServe Starter Kit (password & 5 free hours)... 29
```

**LANGUAGES--**
```
Microsoft TASC Applesoft compiler.................... 119
Softech UCSD p-System................................ 425
Microsoft Fortran-80................................. 129
BDS C compiler....................................... 115
Micromotion FORTH-83................................. 79
Terrapin Logo........................................ 69
```

**ODDS & ENDS--**
```
Kensington System Saver Fan (w/surge protector).... 66
Kraft Joystick / TG Joystick / Hayes III...... 35/35/40
KoalaPad Graphics Tablet (with graphics software).. 85
Maxell, Verbatim, Dysan, Memorex, Wabash disks.. (call)
```

```
        Filevision (database system)......................... 129
M       Odesta Helix (another database system)............ 249
A       Main Street Filer (yes...yet another database)..... 145
C       Dollars & Sense...................................... 99
I       Microsoft Word (what MacWrite should have been).... 129
N                Chart....................................... 85
T       Mac the Knife (canned doodles)....................... 29
O       T/Maker Click Art (...more doodles).................. 39
S       Kensington MacModem (300 baud)....................... 99
H                Surge Protector (replaces power cord)... 39
        Tecmar, Davong hard disk systems.................. (call)
```

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