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Washington Apple Pi



Volume 3

October 1981

Number 9

Highlights

TWO PASCAL GRAPHICS UNITS

APPLE TO EPSON MX-80
GRAPHICS DUMP

HIT PARADE

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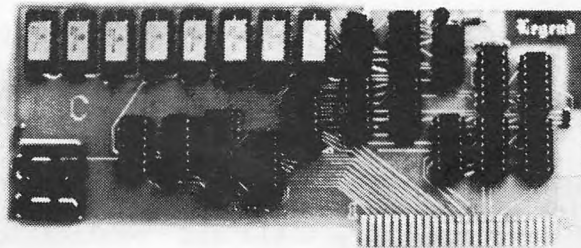
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OFFICERS & STAFF EDITORIAL

President -David Morganstein (301) 972-4263
Vice President -Mark Crosby (202) 488-1980
Treasurer -Dana Schwartz (301) 725-6281
Secretary -Jesse Wagstaff (301) 937-4215
Members-at-Large -John Moon ABBS Sysop
-Nancy Philipp (301) 924-2354
-Rich Wasserstrom (703) 893-9147
Immed.Past Pres. -Bernard Urban (301) 229-3458
Editor -Bernard Urban (above)
Associate Editor -Rich Wasserstrom (above)
-Genevie Urban (301) 229-3458

Librarians:
Disk Mail Order -Sarah Lavilla (301) 926-6355
Disk Pick-up -Bill Bowie (301) 924-3455
Group Purchases -Dick Elkins (301) 384-9297
Advertising -Howard Lefkowitz (301) 649-3373
Membership -Bob Peck (301) 621-2719
Volunteer Coord. -Boris Levine (301) 229-5730

SIG Chairmen:
ASMSIG -Jim Rose (301) 730-2230
EDSIG -Chuck Philipp (301) 924-2354
NEWSIG -Paul Hoffman (301) 831-7433
Pascal(PIG) -Tom Woteki (202) 547-0984
SIGAMES -Al Gass (703) 371-3560
SIG/DISABLED -Curt Robbins ABBS WAP428
8805 Barnsley Court
Laurel, MD 20811

Washington Apple Pi
P. O. Box 34511
Bethesda, MD 20817
(301) 621-2719

ABBS (301) 983-9317

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

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

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

EVENT QUEUE

Washington Apple Pi meets on the 4th Saturday of each month at 9:30 AM, at George Washington University, usually in Building C, on G Street at 23rd Street, NW. (To be sure of the exact location call the club phone or ABBS during the week of the meeting.) The September meeting is on the 26th and the October meeting on the 24th.

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

NOVAPPLE meets on the 2nd Saturday of the month at 1:00 PM at Kings Park Library on Burke Lake Road in Fairfax County; and on the 4th Thursday of the month at 7:30 PM at Computerland of Tysons Corner.

We're back...and Rich has ably passed the editorial baton back to the Urbans. We thank you. Also to Charles Dow and the others who sorted, collated, stuck on mailing labels, passed out copies, crated boxes and all the other chores associated with getting out the Pi, many thanks.

First, let me allay any doubts which may have arisen as a result of the change in dates of publication of the Pi. You have probably noticed that the July issue was dated July/August. This was done at the Board's recommendation for purely psychological reasons. Most people, it was reasoned, get their publications dated one month ahead of actual receipt and like it that way. Sooo..we now have our issues predated. However, you will be getting twelve issues this calendar year. We have established and shall continue to maintain our record of 12 issues per year.

You may have also noticed that the Pi is attracting more and more ads. Some may object to this, but I for one do not. Printing costs are high and membership dues are low - certainly not sufficient to cover costs and to provide extra funds for present and future services to all. Also, I believe that many of you find these ads informative, useful and helpful. However, I will attempt to maintain a proper balance of articles to ads (say 2/3 text to 1/3 ads).

Also, you will note that we have quite a few Pascal articles. To forestall any objections to this by a non-Pascalnik or two out there, I must observe that we seem to have prolific Pascal writers. If you want more of other kinds of articles, I will eagerly accept and publish these as they come in. A suggestion. What about a series of articles by-and-for non-programming APPLE owners. I suspect that there are quite a few who are generally satisfied with purchasing off-the-shelf software for whatever purpose(s) they purchased their computer. Do we really use our computers to store our recipes?

CLASSIFIEDS

FOR SALE: Centronics MP1 printer with card (prints very quickly up to 80 characters per line, but on a 4.5" strip of aluminum paper). Pascal Language Card with Pascal and Fortran software, Serial Interface Card, SSM AIO Interface Card. Best reasonable offers will be accepted. Demetrios Matsakis, 270-0137 (eve.), 254-4219 (day).

contd.

FOR SALE: Dan Paymar for Rev. 6 or earlier, \$40; APPLE Comm Card modified for 300 and 1200 baud, \$150; Dithertizer II by Computer Station, \$225. Best offer. Sheel Raj, (202) 638-0862.

FOR SALE: Centronics 737 printer with APPLE Centronics parallel card and cable. Complete documentation. Excellent condition, 8 months old, \$700 or best offer. Wally Estes, (H) 273-5717, (W) 443-6149.

FOR SALE: Lazer Lower Case Plus, \$45; Tymec Parallel Card PPL-100, \$85. Jay Thal, 244-3649.

WANTED: 80-character per line adapter card. Demetrios Matsakis, 270-0137 (eve.), 254-4219 (day).

SIG-NEWS

SIGAMES is the special interest group of computer hobbyists interested in using their APPLES for entertainment.

This month's newsletter features two new regular SIGAMES columns: HIT PARADE and SIGAMES NEWS, both by John Alden. HIT PARADE is SIGAMES' new buyer's guide to games. Each month a new group of games will be featured. This month's feature is graphic adventure games.

SIGAMES NEWS will present the agenda for the current month's SIGAMES meeting, the next month's agenda, a synopsis of the prior month's meeting and a review of one or two new games.

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

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

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

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

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

A NEW INTEREST GROUP FOR CP/M

Dave Neumann is interested in forming a group, perhaps a SIG, for CP/M (those members with the Z80 Softcard). Anyone interested should listen for the announcement at the regular WAP meeting or call Dave, (301) 776-6133.

MINUTES

EXECUTIVE BOARD MEETING

The Washington Apple Pi Board met at 7:30 PM on August 5, 1981 at the home of Bernie Urban. President David Morganstein conducted, with 14 persons in attendance.

It was announced that all WAP members present at Board meetings may make motions and vote unless regular Board members object. A decision to buy an APPLE for the ABBS will be delayed until receipt of a final report on our tax liability. The club now has liability insurance. Accounting will be improved by use of 3-part receipts. A committee will be appointed to decide store purchases and prices. A motion to accept an advertisement in the Newsletter from Hardcore magazine was defeated by a split vote. SIG/DISABLED and EDSIG were encouraged to write specific proposals for WAP to adopt a school for the handicapped.

The meeting was adjourned at 10:00 PM.

GENERAL MONTHLY MEETING

The monthly meeting of Washington Apple Pi was held at George Washington University on August 22, 1981, and was called to order at 9:30 AM by the Treasurer, Dana Schwartz, with approximately 160 persons in attendance.

Announcements were made: our booth at the Mid-Atlantic Computer Show is being chaired by Bernie Benson; a WAP seminar for beginners is being established; "Inside Apple Pi" is nearly ready; several group purchase items such as fans are available; SIGs are active, including the new Business SIG; there is a continuing need for volunteers; the November WAP meeting will be on the 3rd Saturday and a flea market is being considered for that meeting.

A general question and answer session followed. A variety of new microcomputers were discussed.

The meeting was adjourned to SIGs at 11:00 AM.

Jesse Wagstaff

SIGAMES NEWS by John Alden

Greetings. By popular demand, this column has survived another month. With any appreciable luck this column will be devoted to three tasks: To present information about upcoming SIGAMES events; to present a synopsis of the past month's meeting; and to review new and favorite games.

The next few months promise to be especially exciting at the SIGAMES meetings. (doesn't this sound familiar.) Each meeting will begin by surveying a selection of games. New games will be presented and demonstrated on an Apple in exciting color. Then special guests and speakers will present new and exciting aspects of games.

At this meeting Theron Fuller, President of NOVAPPLES, will introduce speakers on the subject of artificial intelligence. Theron has scheduled speakers who will discuss and demonstrate how artificial intelligence relates to designing games. (come early and bring or send your robot.)

At the last meeting of SIGAMES, Jim Eatherly presented awards to the winners of the SIGAMES game contest. Jim has an article in this issue detailing the results of the contest. Congratulations to each of the winners. Their games were outstanding.

Several games were explained by Jim Eatherly and demonstrated by willing volunteers. Jim Eatherly gave a simultaneous discussion about why each game was a good or not so good game. (there are no bad games! Riiiiight!!!)

Our sincere thanks to Jim for an excellent program.

Do you have a game you would like demonstrated or explained. Lets hear from you. This is your meeting and we want to help people make educated decisions when buying games.

Future reviews will include Orbitron, Both Barrels, Olympic Decathlon, Sneakers, Pool 1.3, Gorgon, Missile Defense, Space Eggs, Autobahn, Time Lord, Deathmaze 5000, Cranston Manor, The Prisoner, and Galactic Quest.

Recently released software includes: Do-Topos, Sword of Zedek, Time Traveler, Softporn Adventure, Mad Venture, His Majesty's Ship 'Impetuous', Savage Island Part 2, Golden Voyage, Adventure in Time, Super Stellar Trek, Rings of Saturn, Sneakers, Epoch and Castle Wolfenstein. We will review some of these games in this issue.

'Castle Wolfenstein' is a spectacular full-color, high-res adventure game. It is in the same league as Ultima. Where Ultima is longer but finite, Castle Wolfenstein is shorter but variable. You start as a prisoner in a World War II German SS castle. Your cellmate gave you a pistol with ten bullets before he was taken away. You must find the German plans for Operation Reingold and escape from the castle. You move through the castle by using a joystick, the paddles, or the keyboard. I'm still a prisoner but I managed to smuggle out notes written on scraps of paper for this column. This game will be demonstrated at this month's SIGAMES meeting. A highly recommended purchase. From Muse for \$29.95.

'Super Stellar Trek' At last, a machine language version of 'A Stellar Trek'. This game is fast and lots of action. It is real-time in spectacular high-res color. A highly recommended purchase. From Rainbow Computing for \$39.95.

'Softporn Adventure' is billed as R-Rated. "It is not suggested for Minors or persons easily offended." It is a text adventure set in the year 2020 A.D. in the gambling city of "Lost Vagueness" where certain diversions are available. The objective is to locate three diversions. You have a sleazy bar with graffiti, a casino with a slot machine and blackjack tables, derelicts, a drug store, and a disco. A very frustrating game. For a select audience, A highly recommended purchase. From On-Line Systems for \$29.95.

'Do-Topos' is another prisoner variation. It is a text adventure set on a distant planet (No! Not a daily one!). While on a return trip with badly needed serum, you were forced down on an alien planet. While being marched to prison, you saw the aliens stripping your ship and removing the cargo. All you have to do is escape the prison, avoid deadly traps, gather your cargo (which is strewn all over the plant), rebuild your ship AND navigate back to Earth with the serum. Easy, right? A recommended purchase. From Sentient Software for \$29.95.

'Pegasus II' is the best arcade game I have seen. It is a variation of the arcade game 'Scrambler'. You can control your flight with paddles or joystick. As opposed to some arcade games, movement with the paddles is as easy as with a joystick. A highly recommended purchase. From On-Line Systems for \$29.95.

'Sneakers' is an arcade game from Sirius without Nasir. While that used to indicate lower quality, that is not true here. Mark Turnell has done an outstanding job with this game. It is a variation of Space Eggs but far superior. On level 1 you have to go past the Sneakers, Cyclops, Saucers, Fangs, Meteors, H-Wings, Scramblers,

contd.

and Scrubs before you can go to level 2. Some will bomb you (and not all bombs go straight). Some will drop down and attack you. Others fly at weird angles. Very addictive. A highly recommended purchase. From Sirius Software for \$29.95

'Falcons' is billed by the authors as 'by far and away the most exciting and challenging game ever.' What they don't say is that it is extremely difficult. It is a variation of the Galaxian games. There are four different formations you must defeat before you reach the mother ship. While that may not seem a lot, it is incredibly hard. Each formation will move back and forth on the screen for a short time (like invaders) Then it gets rough. The individual Falcons start attacking you. They come from all direction (including below you) and fly various pattern like dive bombers. You can only go right and left on the screen. You do have a protective shield to use, But beware. The shield will last 4 seconds and you cannot use it again for 5 seconds. This game will be demonstrated at this meeting of SIGAMES. A very highly recommended purchase. From Piccadilly Software for \$29.95.

'Epoch' is a space-battle game from Sirius by Larry Miller. It is done in high-res color graphics. You have to watch your fuel and time. Both can run out on you in mid-flight. You can go through the Time Portal to recapture time. Refueling is done by flying through your base. This one is a sleeper. A highly recommended purchase. From Sirius for \$29.95.

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You may transfer sectors between disks. This allows you to transfer DOS from one disk to another thereby saving a blown disk when all that's blown is DOS itself; or to restore a portion of a blown disk from its backup disk.

Its unique NIBBLE read routine provides a Hi-Res graphical representation of the data on any track allowing you to immediately ascertain whether your disk is 13 sector or 16 sector. Get an I/O error...is it because you have the wrong DOS up? is it because of a bad address field? or a bad data field? or because a track was erased? This will allow you to tell in an instant without blowing away any program in memory.

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Do you want to add so-called illegal line numbers into your program? or have several of the same line numbers in a program (like the professional programmers do)? or input unavailable commands (like HIMEM to Integer Basic)? or put quotation marks into PRINT statements? Here's the easy way to do them all!

AND MORE

The INSPECTOR provides a USER exit that will interface your own subroutines with those of the INSPECTOR itself. For example, just put a screen dump routine (sample included in documentation) at HEX 0300 and press CTRL-Z. The contents of the screen page will print to your printer.

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The INSPECTOR utilities come on an easily installed EPROM. This makes them always available for instant use. No need to load a disk and run a program.

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All Apple II configurations that have access to Integer Basic (either in ROM or RAM) will support The INSPECTOR. Just place the chip in empty socket D8 either on the mother board or in an Integer firmware card. Apple II+ systems with RAM expansion boards or language systems will receive the INSPECTOR on disk to merge and load with INTBASIC.

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PRESIDENT'S CORNER

by David Morganstein

As we head into the fall, I expect our activities will pick up. Several major issues and projects still pending are: a meeting location; the show at the D. C. Armory; the "Inside Apple Pi" collection of articles; and our four Saturday tutorials on the APPLE. These projects can use all the help possible from interested parties.

Regarding our meeting place: we have not yet obtained a reduction in the G.W. stated price of \$100/meeting. What we have seen is a reduction in service. We did not get air conditioning, frequently found the rest rooms locked and appear to have lost the use of the APPLES for our younger members. A move to the NIH area is looking better and better to me...

Several announcements and expressions of gratitude...Vance and Jill Giboney have begun the work of generating new library disks, so please contact them with your contributions. Remember for every disk of software you give Vance and Jill, the library will give you a free selection of your choosing. They will not be able to expand our collection without your help. We will take any non-copywritten software, either of your own creation or published for public consumption.

Sarah Lavilla is doing well after her surgery and is again performing the mail-out of disks. Thanks again to you, Sarah, and welcome back!! Much appreciation continues to go out to Gordon Stubbs and Ben & Dottie Acton for their help in reproducing library disks. I know that Bill Bowie has other helpers in his monthly work...thanks to you all!!

At least two members recently discussed a general problem with me. Where does the 'somewhat knowledgeable but by no means expert' member go for help. They expressed concern that there was no good place for them to get help. Well I'm sure that we don't need an Intermediate SIG (or do we??). Perhaps the answer is a combination of asking questions at Saturday meetings, calling members who have volunteered their phone numbers and participating in one of the existing SIGs. What is your reaction to this problem? Are there many others who find that their needs are not being met by current WAP services? Please speak up.

My major question for this issue deals with growth. We have just gone over 850 members and there is no end in sight. The planning of the "Inside Apple Pi" collection has raised a question. The Board was thinking of a first printing of 2000 issues with the possibility of advertising in Nibble, Micro or Call-A.P.P.L.E. If such advertising brought the expected rush of orders, a second printing could be made. Well, a natural thought is to include membership

forms and order blanks. The result of this could be an overnight doubling in membership. That may sound good to many but it may also sound a little frightening. We would end up as a group with little in common with the 30 or so interested folks who got this all started.

Growth is not inherently all good, especially if we miss our basic function of helping owners in the Wash/Va/Md area learn how to use their APPLE. I don't have an answer. The growth sounds exciting but should not be rushed into. I want your thoughts on this one...it may be an unavoidable issue. @

SOFTVIEWS: RECENT RELEASES by David Morganstein

THE INSPECTOR (Omega Micro-ware.) From the people who market Locksmith, this utility package is a combination of some of the most useful utilities I have ever needed plus a few new ones to boot (no pun intended...) The novelty of the software is that you can obtain it in two versions, one of which is a D8 ROM for plugging into an APPLE II or putting on an Integer card. Before I describe the utilities, the bad news: the first release has a serious bug. If you have an APPLE II and language card, plugging the ROM into your motherboard will cause a crash when trying to enter Applesoft. Supposedly a quick fix is coming, but as of early September, I had not yet received a revised ROM. Now the good news. The utilities, running in an area of memory virtually untouched by most programs, are constantly available. They include: a Hex/ASCII memory dump, a Hex/ASCII memory search, a track/sector editor, a disk searcher (thats right, search your entire disk for a given string!!) and a nibble read routine. The other marvelous feature is that you can select a 13 or 16 sector format...no need to re-boot another DOS. A truly valuable package.

DRAGON FIRE (by Level 10). I recommend that you examine this one carefully at the store before buying it. Of course, that's good advice for anything, but in this case I think a hard look will lead you to pass it up. Although Level 10 has the Dakin5 name behind it, this weak adventure game is not very remarkable. For those who enjoyed Beneath Apple Manor, this is a poor second to that style. The visuals consist of a Lo-Res maze similar to that shown in the out-of-print red book that came with APPLES three years ago. Rooms are marked by a different color. Once entered, a text display offers one of two uninteresting modes of combat. I just

contd.

APPLE AND APPLE COMPATIBLE PRODUCTS

<u>Model No</u>	<u>Description</u>	<u>Cat</u>	<u>Retail</u>	<u>Discount</u>
A2S1048	Apple II PLUS, 48K RAM	CM	1530.00	1095.00
A2B0001	Prototyping Card	B	24.00	21.00
A2B0002	Parallel Card	B	180.00	154.00
EPS-00P	Epson Parallel Card	B	85.00	79.95
GRAPPLER	Graphics Parallel Intfc with software & cable	B	165.00	159.95
A2B0003	Communications Card	B	225.00	193.00
A2B0005	Serial Card	B	195.00	167.00
A2B0006	Pascal Language System	SB	495.00	419.00
A2B0007	Centronics Printer Card	B	225.00	193.00
A2B0009	Applesoft II ROM Card	B	200.00	169.00
A2B0010	Integer BASIC Card	B	200.00	169.00
A2B0015	IEEE-488	B	450.00	389.00
A2B0043	Language Card	B	195.00	175.00
A2M0024	Clock/Calendar	B	280.00	249.00
EPS-00C	Epson Printer Cable	O	25.00	22.50
A2M0044	Disk II w/Intfc/DOS 3.3	DB	645.00	530.00
A2M0003	Disk II Drive	D	525.00	450.00
CCC-Z1	12" Zenith B/W Monitor	T	150.00	142.50
A2M0029	Graphics Tablet	G	795.00	660.00
A2M0007	Hand Controls	O	29.95	26.00
A2M0009	Vinyl Carrying Case	O	30.00	27.00
A2M0019	Programmers Aid #1	O	50.00	46.00
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A2G0001	Vinyl Diskette Pages	O	8.50	7.95
A2G0002	Software Binder	O	9.50	8.95
A2G0003	Apple II Extended Warranty	O	225.00	225.00
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could not get into the program to discover if something interesting finally happens...

TAWALA'S LAST REDOUBT (Broderbund). A somewhat different fourth adventure in the Galactic Sage series. This tale is played out on the planet Farside and pits the evil Prince Tawala against the fair but determined Benth. The object of the game is to plan for the pitched battle-to-come. Preparations are the objective of play: to send spies to explore the land; to send messengers to chieftains to enlist their help; to trade for weapons and men. The game is played with the aid of a Hi-Res map of Farside indicating the location of various cities which can be attacked or visited to make friends. One interesting aspect about the manual is a short discourse on programming techniques used by the author (accompanied by an apology that you could not discover these on your own since the disk is protected.) My last remark is a reminder that owners of APPLE II's with language cards can not use this program as it wipes out the needed Applesoft loaded on the card...yeah, protection systems, we love you!!!

TORPEDO FIRE (Strategic Simulations Inc.) I always approach a new SSI game with excitement and high expectations. Their forte is quality simulation. When this is combined with graphics and sufficient speed, great things happen for war gamers...thus it is with some letdown that I prepare this review. Many of my criticisms of Warp Factor apply to Torpedo as well. It seems a bit less exciting than what I would like. The screen is filled with the ocean (as WF was filled with space) and selectable magnifications of your ships. A novel trick is a view of the surface ships by the attack subs when the two forces close for contact. The entry of commands is reminiscent of Bismarck, a hallmark war game from SSI. I know that you can play various given scenarios or create your own ships and subsequent battles. It is all excellently done. My thoughts are just that the game will not have wide appeal because it is somewhat slow and fairly complicated.

Maybe the real problem is my excitement about "The Shattered Alliance", the very latest from SSI. Having just bought a copy and booted up I can't wait to tell you about the fast action, colorful, magic laden battles you can play...but I'll have to save that for another issue... 

NOVEMBER WAP MEETING *****

Due to the Thanksgiving Holiday, the November meeting of Washington Apple Pi will be on the 3rd Saturday, November 21. A flea market for selling and swapping items is being planned for that date. More details on this later.

APPLESOFT COMPILERS: WHAT'S THE BIG DEAL? by David Morganstein

In this article, we will discuss the recently released compilers for Applesoft programs, their advantages and disadvantages and discuss some caveats regarding their uses. Before that, we will talk about the whys and wherefores of compiling programs as opposed to interpreting (or assembling) them.

Just what is a Basic compiler and why would anyone want one? Well, if you only run other people's programs, you probably won't be interested in a Basic compiler. If however, you write programs in Applesoft and have from time to time said "Gee, this is taking a long time to run", then you may be interested in using a compiler to speed up an already developed and operational Applesoft program. (You may also be interested in studying your code to determine if some basic reworking will eliminate a lot of inefficient steps!! But that is another story.)

It may help to say that most users of Fortran, COBOL and PL/1 (there, I've said those nasty words) use compilers to convert their source code into fast running machine code. Then again, it may not help to say that. How does the APPLE convert your Applesoft program into a working solution? The answer is by means of the Applesoft interpreter found in the ROMs on the motherboard or loaded into a 16K memory board in slot zero.

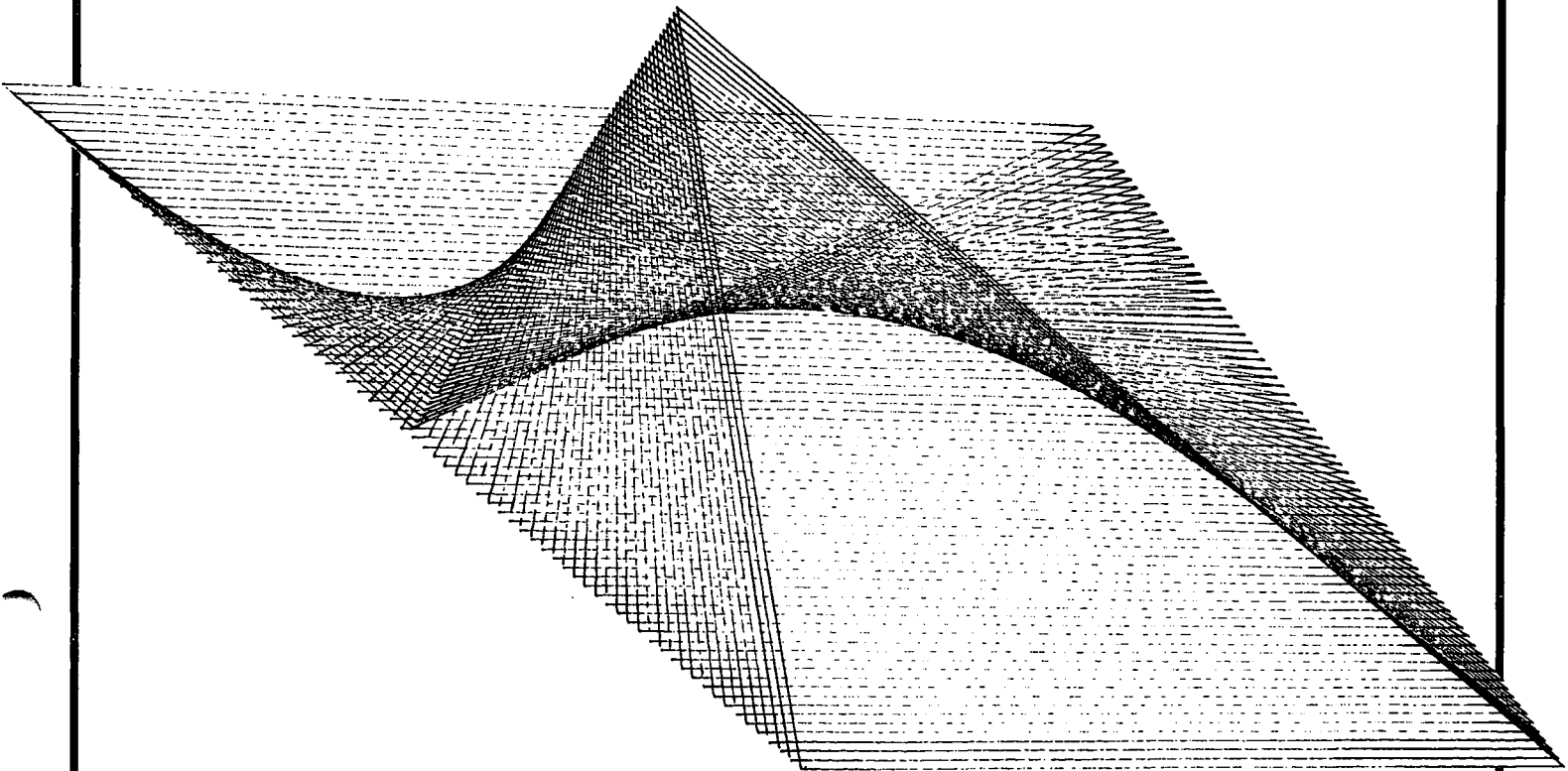
Well, what is an interpreter and how does it differ from a compiler? An interpreter is a piece of software which reads through your Applesoft source program and, on a line-by-line basis, performs machine language routines to carry out the demands of the source code. Each time a line is encountered, the interpreter does its thing over again. Even if a line is in the middle of a lengthy loop, the interpreter takes its painstaking time re-interpreting the Basic instructions indicated. There is no attempt to modify your source code or produce a faster running version of the program with instructions that are closer to those understood by the 6502 microprocessor.

A compiler, however, has a very different task. Running one does not actually exercise your program and yield the desired answer. The compiler has the task of converting your source code into a new program, often a program written in machine code, the microprocessor's native language. Given this new faster operating program, you can now solve your problem by going more directly to the microprocessor. Again, code within a loop is repeated, but the actual time to execute the loop is so

contd.

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much less that great efficiencies can result from the compiling process. I say "can result" because they need not. It depends heavily on the quality of the compiler.

Thus, we see that a compiler can be used to provide faster running programs. However, if you are writing a program for a single run, to find one answer and then throw the program away, a compiler may offer you little. In fact, it may be a waste of time to make the effort needed to get a clean compilation (one that passes the grammatical requirements of the language) and then test it and correct it till it performs properly.

Another comparison between compiling and interpreting occurs during the development stage, getting the program to work correctly. Using an interpreter to develop the program is easier than having to use a compiler. Interpreters generally allow you to temporarily halt execution of programs, examine and change variables and then continue the program. It is easier to make quick changes and rerun the program till all works as it should. Relying on a compiler is a bit more cumbersome and slower. The compiling process is usually slower than the interpreting one (remember, they have different objectives..). The debugging process of correcting both syntax and logic errors is combined when using the interpreter but separate when using a compiler. Just because you get a "clean compile" doesn't mean that your program works! It just means that you have correctly spoken the language.

One big advantage about the new Applesoft compilers is that they work directly on developed Applesoft programs. You can build and debug your program using the benefits of the interpreter, then convert the program to machine code for faster running. This is definitely having the best of both worlds. There are a few Applesoft commands which essentially have no meaning in the world of a compiled machine code environment and are therefore excluded, but they represent no real loss. Things like HIMEM are taken care of by the compiler when assigning variable space.

Well, what then are the disadvantages to using the new Applesoft compilers? There are several, not the least of which is that they are not cheap. The prices seem to run between \$100 and \$200, so far. The most important issue that I've seen is space. Most compilers for Fortran and COBOL produce object code which is shorter than the text file (source code) from which they are generated. Unfortunately, the Expeditor by On-Line Systems and the Hayden compiler both generate more compiled object code than Applesoft Basic source code. Thus, if you have a really big program, you may find that it must be segmented before you can get a compiled version. Depending on your program, trying to break it up into small separate pieces may be quite a job.

As an example, compiling even a minimum sized (2 sectors) Applesoft program will result in an 11-sectored Expeditor object

program. To be fair, this minimum is due to a "run time package" of machine language which is required to use the object code. This "run time package" need not be saved on disk with every compiled program, but must be in memory to use the program.

A second disadvantage deals with dynamic allocation of storage. That is, in Basic you can ask the program user how big an array is to be then substitute a variable in the DIM statement which defines the array. Using the Expeditor, you must statically dimension arrays with a constant (e.g. DIM(100)).

Another bugaboo is string length. Here again, since the compiler needs to know how big the variable space is to be, you must say how long a string is, or at least what the maximum length any element in an array is. For example, if the array NA\$(100) is to contain 100 names, you must tell the compiler what the longest name will be. It will set up 100 locations each capable of holding the longest name. This can be somewhat wasteful of space. The Applesoft interpreter does not do this, rather it allows each element to be as long as the remaining available space permits.

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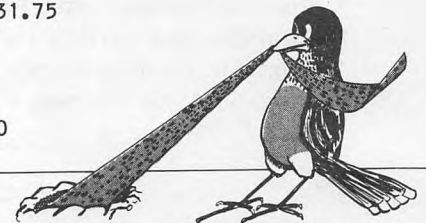
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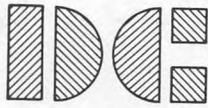
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TWO PASCAL GRAPHICS UNITS

by Ed Knepley

This article describes two APPLE Pascal graphics units. The first, an intrinsic unit, builds on two earlier WAP newsletter articles by Dr. Wo. This unit provides three HIRES graphics procedures - (1) Dump the screen to the Paper Tiger printer, (2) Save the screen to disk and (3) Load the screen from disk. The principle features are the capability to designate HIRES page 1 or page 2 as the object page in all three procedures, and to specify print density and picture placement for the screen dump procedure. The second unit, a Pascal regular unit, provides a second HIRES screen for language card users (page 2 isn't there in case you didn't look).

THE HIRES UNIT =====

The HIRES UNIT is designed to be installed in the SYSTEM.LIBRARY file and will increase the size of the library by four blocks. An external procedure is declared within the unit. This is Dr. Wo's "FILLBLOCK" procedure as described in the May 1980 WAP newsletter. For your convenience it is repeated here (with minor modifications). As described in the May article FILLBLOCK checks every character for four special characters prior to sending the data to the Paper Tiger. The HIRES UNIT eliminates the need to check for everything except CTRL-C through the use of the UNITWRITE procedure and the MODE parameter of this procedure to disable APPLE Pascal's DLE conversion and automatic line feeds. The HIRES UNIT procedures are:

THE PRINTSCREEN PROCEDURE =====

This procedure has the form

```
PRINTSCREEN(PAGE, DENSITY, JUSTIFY)
```

where the parameters allow you to specify which of the two pages are to be dumped, one of three print densities, and horizontal placement of the printed picture. The parameters are defined by the following type declaration

```
TYPE PAGE = 1..2;  
      DENSITY = 8..12;  
      JUSTIFY = (LEFT, RIGHT, CENTER);
```

The three usable Paper Tiger print densities in the graphics mode are 8.3, 10 and 12 characters per inch. These densities translate into picture widths of approximately 6.5, 5.5 and 4.4 inches respectively. The program assumes an 8.5 inch wide paper with one half inch left and right margins (this is easily modified). A density of 8.3 is obtained with a parameter value of 8, a density of 12 with a value of 12, and a density of 10 with any of the remaining three valid

values of the parameter (i.e., 9, 10 and 11). The JUSTIFY parameter allows the picture to be placed flush to the left or right margin or to be centered. Screen dumps with this procedure are fast. The output rate is limited by the speed of the Paper Tiger and not by the APPLE. A typical screen dump takes about one half minute.

THE PUTFOTO AND GETFOTO PROCEDURES =====

These procedures have the form

```
PUTFOTO(PIXNAME, PAGE);  
GETFOTO(PIXNAME, PAGE);
```

where PIXNAME is a string variable containing the filename of the disk file of interest and PAGE is defined as above in PRINTSCREEN. PUTFOTO transfers the contents of the specified HIRES page to Disk II and GETFOTO performs the reverse operation. You might want to modify GETFOTO to protect yourself against the case where the filename you specify doesn't exist on the prefix disk by using the compiler error checking option in conjunction with APPLE Pascal's IORESULT function.

WHAT IN THE BLAISES HAPPENED TO SCREEN TWO? =====

One of the few disadvantages in shifting from APPLE Basic to Pascal is the apparent loss of the second HIRES graphics screen. I say apparent because it's been there all along. The Pascal regular unit described in this article allows Pascal Turtlegraphics capabilities to be used with both HIRES pages. A word of caution is in order regarding implementation dependence of the method. Getting the second page requires tinkering with system internals. We can't depend on things remaining as they are with new releases. The technique of using Pascal's variant record structure to "PEEK" and "POKE" in memory - a requirement to get at page 2 - is well documented. An article by Dr. Wo in the October 1980 newsletter outlines the method for those who are not familiar with it. As you may have noticed, this same variant record scheme is employed in the HIRES UNIT also. The unit for two page Turtlegraphics is:

THE TWOPAGE UNIT =====

This unit is a Pascal regular unit and is intended to be linked into a host program. Three procedures are provided by the unit:

```
DRAWPAGE(PAGENMBR);  
SHOWPAGE(PAGENMBR);  
MOVEPICS(PAGENMBR);
```

contd.

where the parameter is defined by the declaration

```
TYPE
  PAGE = 1..2;
VAR
  PAGENMBR : PAGE;.
```

Procedure DRAWPAGE determines which of the two screens will be used by the Turtlegraphics commands to follow. Procedure SHOWPAGE specifies the page to be displayed. Procedure MOVEPICS transfers the contents of the screen buffer designated by the parameter PAGENMBR to the other screen.

One note regarding the use of page two with Pascal - the Turtlegraphics procedure INITTURTLE does not work with page two. Clearing the screen, moving the Turtle to the center of the screen, and other functions of INITTURTLE must be accomplished by the programmer utilizing normal language features to do the job. All of

the other Turtlegraphics commands work as usual.

The combination of capabilities provided by the units in this article lend themselves to numerous applications. How about doubling the normal resolution (and size) of HIRES graphics for pictures destined for the printer? All that is needed to double the resolution are two screens and a procedure to plot the picture to a "pseudo" screen which is 384 X 280 instead of the usual 192 X 280. Once we have the picture plotted using both screens, back to back calls of PRINTSCREEN - once for page 1 and once for page 2 - gives us our double resolution, double size hardcopy. The same concept works equally well in Basic. A generalized graphics package which provides windowing, scaling and clipping - together with single and double resolution hardcopy output - is the subject of another article.

(*S+*)

UNIT HIRES; INTRINSIC CODE 24 DATA 25;

INTERFACE

```
TYPE
  PAGE = 1..2;
  DENSITY = 8..12;
  JUSTIFY = (LEFT, RIGHT, CENTER);
```

```
VAR
  FOTOFIL : FILE;
  TIGER : TEXT;
```

PROCEDURE GETFOTO(PICNAME : STRING; PAGENMBR : PAGE);

PROCEDURE PUTFOTO(PICNAME : STRING; PAGENMBR : PAGE);

PROCEDURE PRINTSCREEN(PAGENMBR : PAGE; CPI : DENSITY; MARGIN : JUSTIFY);

IMPLEMENTATION

```
CONST
  SCREENSTART = 8192;
  SCREENSIZE = 16;
```

```
TYPE
  FOTO = PACKED ARRAY[0..8191] OF 0..255;
  FOTOUNION = RECORD
    CASE BOOLEAN OF
      TRUE: (ADDRS : INTEGER);
      FALSE: (CONTENTS : ^FOTO);
```

```
  END;
  ADDRS = ARRAY[0..5] OF INTEGER;
```

```
VAR
  BLOCK : PACKED ARRAY[0..6] OF CHAR;
  PICTURE : FOTOUNION;
  BLOCKSTRANSFERRED : INTEGER;
```

PROCEDURE FILLBLOCK(POINTERS : ADDRS);
EXTERNAL;

PROCEDURE GETFOTO;

```
BEGIN
  PICTURE.ADDRS := PAGENMBR * SCREENSTART;
  RESET(FOTOFIL, PICNAME);
  BLOCKSTRANSFERRED := BLOCKREAD(FOTOFIL, PICTURE.CONTENTST, SCREENSIZE, 0);
  CLOSE(FOTOFIL, LOCK);
END; (* GETFOTO *)
```

contd.

```
PROCEDURE PUTFOTO;
```

```

BEGIN
  PICTURE.ADDRS := PAGENMBR * SCREENSTART;
  REWRITE(FOTOFILE,PICNAME);
  BLOCKSTRANSFERRED := BLOCKWRITE(FOTOFILE,PICTURE.CONTENTST,SCREENSIZE,0);
  CLOSE(FOTOFILE,LOCK);
END; (* PUTFOTO *)

```

```
PROCEDURE PRINTSCREEN;
```

```

CONST
  DOTS8 = 42.9;
  DOTS10 = 51.4;
  DOTS12 = 64.2;

VAR
  STRIP : PACKED ARRAY[0..279] OF CHAR;
  STRIPNUMBER, SPACE : INTEGER;
  NORMAL, ENHANCED, CPI8, CPI10, CPI12, CPINCH, GRAFICS,
  VERTAB, LINEFEED, FORMFEED, RETURN : CHAR;
  PADDING : PACKED ARRAY[0..201] OF CHAR;
  DPI : REAL;

```

```
FUNCTION JUSTIFICATION : INTEGER;
```

```

BEGIN
  IF CPI IN [8,10,12] THEN
    CASE CPI OF
      8 : DPI := DOTS8;
      10 : DPI := DOTS10;
      12 : DPI := DOTS12;
    END (* CASE *)
  ELSE
    DPI := DOTS10;
  CASE MARGIN OF
    LEFT : JUSTIFICATION := 0;
    RIGHT : JUSTIFICATION := TRUNC(7.5 * DPI - 280);
    CENTER : JUSTIFICATION := TRUNC(0.5 * (7.5 * DPI - 280));
  END (* CASE *)
END; (* JUSTIFICATION *)

```

```
PROCEDURE TURNONGRAPHICS;
```

```

BEGIN
  NORMAL := CHR(2);
  ENHANCED := CHR(1);
  GRAFICS := CHR(3);
  CPI8 := CHR(28);
  CPI10 := CHR(29);
  CPI12 := CHR(30);
  VERTAB := CHR(11);
  RETURN := CHR(13);
  LINEFEED := CHR(10);
  FORMFEED := CHR(12);

  IF CPI IN [8,10,12] THEN
    CASE CPI OF
      8 : CPINCH := CPI8;
      10 : CPINCH := CPI10;
      12 : CPINCH := CPI12;
    END (* CASE *)
  ELSE
    CPINCH := CPI10;
  END;

  REWRITE(TIGER,'PRINTER:');
  UNITCLEAR(6);

```

```

WRITE(TIGER);
WRITE(TIGER,GRAFICS);
WRITE(TIGER,GRAFICS,CPINCH);
END; (* TURNONGRAPHICS *)

```

```
PROCEDURE GETSTRIP(STRIPNUMBER : INTEGER);
```

```

VAR
  SCREENROW, BYTENUMBER, BLOCKNUMBER, FIRSTBYTE : INTEGER;
  POINTERS : ADDR;

BEGIN
  FIRSTBYTE := PAGENMBR * SCREENSTART;
  FOR SCREENROW := (6*STRIPNUMBER) TO (6*STRIPNUMBER+5) DO
    POINTERS[SCREENROW MOD 6] := FIRSTBYTE+40*(SCREENROW DIV 64)
      +128*((SCREENROW MOD 64) DIV 8)
      +1024*(SCREENROW MOD 8);

    FOR BLOCKNUMBER := 0 TO 39 DO
      BEGIN
        FILLBLOCK(POINTERS);
        MOVERIGHT(BLOCKNO,STRIP[7*BLOCKNUMBER],7);
        FOR BYTENUMBER := 0 TO 5 DO
          POINTERS[BYTENUMBER] := POINTERS[BYTENUMBER]+1;
        END (* FOR BLOCK... *)
      END; (* GETSTRIP *)
    END;

```

```
PROCEDURE TURNOFFGRAPHICS;
```

```

BEGIN
  WRITE(TIGER,GRAFICS,NORMAL);
  WRITE(TIGER,NORMAL,CPI10);
  CLOSE(TIGER);
END; (* TURNOFFGRAPHICS *)

```

```
BEGIN (* PRINTSCREEN *)
```

```

SPACE := JUSTIFICATION;
FILLCHAR(PADDING, 202, CHR(0));
TURNONGRAPHICS;
FOR STRIPNUMBER := 0 TO 31 DO
  BEGIN
    GETSTRIP(STRIPNUMBER);
    UNITWRITE(6,PADDING,SPACE,0,12);
    UNITWRITE(6,STRIP,280,0,12);
    WRITE(TIGER,GRAFICS,VERTAB);
  END;
  TURNOFFGRAPHICS;
END; (* PRINTSCREEN *)

```

```

BEGIN (* MAIN *)
END. (* MAIN *)

```

```
PAGE - 0
```

```
Current memory available: 8657
```

```

0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:
0000:

```

```

;MACRO TO PULL A WORD FROM
;THE STACK AND SAVE IT IN
;A SPECIFIED LOCATION
.MACRO POP
PLA
STA %1
PLA
STA %1+1
.ENDM

```

```
2 blocks for procedure code 8149 words left
```

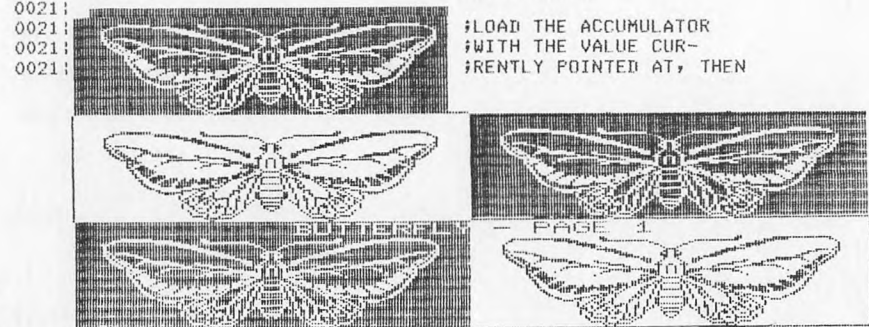
```
contd.
```



```

0000: .PROC FILLBLOCK,1; 1 WORD OF
Current memory available: 8100
0000: ;PARAMETERS
0000:
0000: ;BLOCK IS DECLARED IN THE
0000: ;GLOBAL SEGMENT OF PRINT-
0000: ;SCREEN
0000: .PUBLIC BLOCK
0000:
0000: 0000 PASCAL .EQU 00
0000: 0001 PASCALHI .EQU 01
0000: 0002 POINTER .EQU 02
0000: 0003 POINTERHI .EQU 03
0000: 0004 PNTRSQ .EQU 04
0000: 0005 PNTRSQHI .EQU 05
0000:
0000: ;INITIALIZE BLOCK & COUNTER
0000: A9 00 LDA #00
0002: A2 06 LDX #06
0004: 9D 0000 ZERO STA BLOCK,X
0007: CA DEX
0008: 10FA BPL ZERO
000A:
000A: ;SAVE PASCAL RETURN ADDRESS
000A: POP PASCAL
000A: 68 PLA
000B: 85 00 * STA PASCAL
000D: 68 * PLA
000E: 85 01 * STA PASCAL+1
0010:
0010: ;BEGIN MAIN ROUTINE
0010:
0010: ;POP THE POINTER TO THE SCREEN
0010: ;POINTERS, THEN START THE MAIN
0010: ;LOOP BY LOADING
0010: ;THE ACCUMULATOR WITH A
0010: ;SCREEN POINTER AND SAVING IT
0010: ;IN POINTER.
0010:
0010: POP PNTRSQ
0010: 68 PLA
0011: 85 04 * STA PNTRSQ
0013: 68 * PLA
0014: 85 05 * STA PNTRSQ+1
0016: A0 0B LDY #0B
0018: B1 04 NEWBYTE LDA @PNTRSQ,Y
001A: 85 03 STA POINTERHI
001C: 88 DEY
001D: B1 04 LDA @PNTRSQ,Y
001F: 85 02 STA POINTER

```



```

0021: ;STRIP BITS AND DISTRIBUTE
0021: ; TO BLOCK BYTES
0021: A2 00 LDX #00
0023: A1 02 LDA @POINTER,X
0025: 4A LSR A STRIPBIT
0026: 3E 0000 ROL BLOCK,X
0029: E8 INX
002A: E0 07 CPX #07
002C: D0F7 BNE STRIPBIT
002E:
002E: ;DONE WITH THIS BLOCK?
002E: ;IF NOT, ADJUST POINTERS
002E: ;AND GET THE NEXT SCREEN BYTE
002E: 88 DEY
002F: 10E7 BPL NEWBYTE
0031:
0031: ;WHEN DONE, CHECK FOR CTRL-C
0031: A2 06 LDX #06
0033: BD 0000 TESTCHAR LDA BLOCK,X
0036: C9 03 CMP #03
0038: F0** BEQ ODDCHANGE
003A: CA MORETESTS DEX
003B: 10F6 BPL TESTCHAR
003D:
003D: ;WHEN THROUGH TESTING
003D: ;RETURN TO PASCAL
003D: A5 01 LDA PASCALHI
003F: 48 PHA
0040: A5 00 LDA PASCAL
0042: 48 PHA
0043: 60 RTS
0044:
0038* 0A ODDCHANGE AND #3E
0044: 29 3E STA BLOCK,X
0046: 9D 0000 JMP MORETESTS
0049: 4C 3A00
004C:
004C: .END

```

AB - Absolute LB - Label UD - Undefined MC - Macro
RF - Ref DF - Def PR - Proc FC - Func
PB - Public PV - Private CS - Consts

BLOCK PB ----: FILLBLOC PR ----: MORETEST LB 003A: NEWBYTE LB 0018: ODDCH
ANG LB 0044: PASCAL AB 0000: PASCALHI AB 0001
PNTRSQ AB 0004: PNTRSQHI AB 0005: POINTER AB 0002: POINTERH AB 0003: POP
MC ----: STRIPBIT LB 0025: TESTCHAR LB 0033
ZERO LB 0004:

Current minimum space is 7982 words
Assembly complete: 103 lines
0 Errors flagged on this Assembly

contd.

```

(*$S+*)
UNIT TWOPAGE;

INTERFACE
    TYPE
        PAGE = 1..2;
    PROCEDURE DRAWPAGE(PAGENMBR : PAGE);
    PROCEDURE SHOWPAGE(PAGENMBR : PAGE);
    PROCEDURE MOVEPICS(PAGENMBR : PAGE);
IMPLEMENTATION
CONST
    PAGE1ADDR = 8192; (* START OF HIRES PAGE 1 *)
    PAGE2ADDR = 16384; (* START OF PAGE 2 *)
    TOPOFHEAP = 24576; (* TOP OF RESERVED MEMORY SPACE FOR HIRES *)
TYPE
    BYTE = 0..255;
    FOTO = PACKED ARRAY[0..8191] OF BYTE;
    FOTOUNION = RECORD
        CASE BOOLEAN OF
            TRUE : (ADDRESS : INTEGER);
            FALSE : (CONTENTS : ^FOTO)
        END;
    PAB = PACKED ARRAY[0..1] OF BYTE;
    THREEEYPE = RECORD
        CASE INTEGER OF
            1 : (ADDR : INTEGER);
            2 : (PABPTR : ^PAB);
            3 : (INTPTR : ^INTEGER)
        END;
VAR
    PAGE1, PAGE2 : FOTOUNION;
    TABLE : THREEEYPE;

PROCEDURE INITIALIZE;
VAR
    HEAPTOP : THREEEYPE;
BEGIN
    PAGE1.ADDRESS := PAGE1ADDR;
    PAGE2.ADDRESS := PAGE2ADDR;
    TABLE.ADDR := 254;
    TABLE.ADDR := TABLE.INTPTR+14;
    HEAPTOP.ADDR := TOPOFHEAP;
    RELEASE(HEAPTOP,INTPTR)
END;

PROCEDURE DRAWPAGE;
(* SELECT PAGE TO BE DRAWN *)
BEGIN
    TABLE.INTPTR := PAGENMBR
END;
    
```

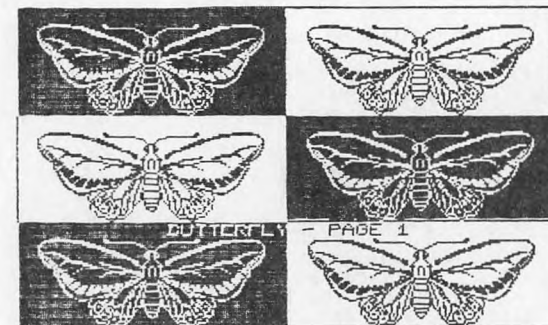
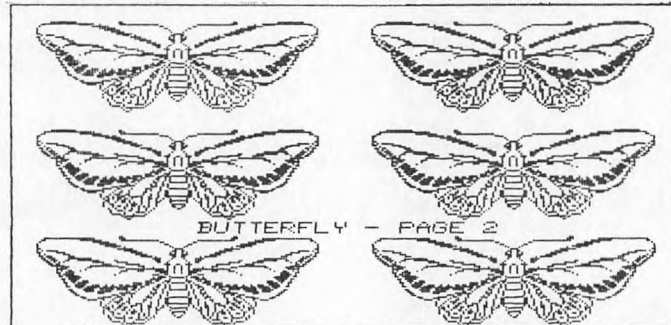
```

PROCEDURE SHOWPAGE;
(* SELECT PAGE TO BE DISPLAYED *)
VAR
    HGR : INTEGER;
    HIRES : THREEEYPE;
BEGIN
    HGR := -16300;
    IF PAGENMBR = 2 THEN
        HGR := -16299;
    HIRES.ADDR := HGR; (* EQUIV. TO *)
    HIRES.PABPTR[0] := 0; (* BASIC POKE *)
END;
    
```

```

PROCEDURE MOVEPICS;
BEGIN
    CASE PAGENMBR OF
        1 : MOVERIGHT(PAGE1.CONTENTST, PAGE2.CONTENTST, 8192);
        2 : MOVELEFT(PAGE2.CONTENTST, PAGE1.CONTENTST, 8192)
    END
END; (* MOVEPIX *)

BEGIN (* MAIN *)
    INITIALIZE;
END.
    
```



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MHP-X031, CPS Multi-Function Card	239.00	179.95	Blank Diskettes		
CPS Cables			Dysan, Pkg. of 10	50.00	42.95
MHP-X036, CPS to Centronics (or Epson)	24.95	21.95	Maxell, Pkg. of 10	55.00	46.95
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48, etc. = Ks of RAM + = Applesoft M = Machine code

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APPLE TO EPSON MX-80 GRAPHICS DUMP with or without the GRAFTRAX PROM SET by Andrew E. Scheck and Terry E. Phillips

The seeming lack of compatibility between the Epson's TRS-80 based graphics and the APPLE's Hi-Resolution graphics is unfortunate and frustrating for those of us who own such a fine, yet inexpensive, printer as the MX-80. Recently, this situation has been remedied somewhat by the introduction of a retrofit PROM set (GRAFTRAX 80 Graphics by Epson) designed to yield APPLE compatible bit-mapped graphics from the Epson at a cost of approximately \$90. But, in addition to the purchase of a PROM set, a software driver is also required to actually achieve a dump of the Hi-Res page to the printer.

Just such a program is presented in Listing A. This program will allow you to dump either Hi-Res page to the printer in a 2.67 X 4.67 inch format in about 40 seconds. The program is 145 bytes long and although it is not relocatable it is easily changed to be run from any convenient location. And for those of you who are in a hurry to dump graphics onto your printer right now, or possibly you are somewhat strapped financially, the program presented in Listing B may be of interest. It is designed to convert the bit-mapped graphics of the APPLE into the equivalent TRS-80 Hi-Res page to the printer WITHOUT the \$90 PROM set. The printed output is in either a 5.6 X 15.6 inch format or a 5.6 X 7.8 inch format, depending on whether the 'FULL' or 'COMPRESSED' mode is selected. The selection is determined by the contents of zero-page location \$FF (Decimal 255), which must be set prior to running this routine. A value of \$40 (Decimal 64) will set the 'COMPRESSED' mode, and a value of \$00 (Decimal 00) will set the 'FULL' mode. The program is 164 bytes long and is completely relocatable. Either program can be executed in the immediate mode or called from within a program (see note below).

The need for two printing modes in the second program is a result of the differences in the incremental spatial resolution of the X and Y axes in both the APPLE and the printer (when printing the TRS-80 graphics characters). This results in a somewhat asymmetric output when a one-to-one correspondence is made between an APPLE's graphic bit and a graphic character pixel. Therefore, two printing modes have been coded, and either may be selected to fit a particular application. The 'FULL' mode generates a one-to-one correspondence between a graphic bit and character pixel. This mode generates a 5.6 X 15.6 inch output and is probably

best suited for plotting graphs. In the 'COMPRESSED' mode, the bit resolution of the APPLE's X axis was divided by two, so that the final printer output is approximately symmetric in the two dimensions: a 5.6 X 7.8 inch output. This was accomplished by logically ORing each graphic bit with its horizontal neighbor to derive a composite bit which was then used to generate a graphic character pixel.

For the printing of Hi-Res pictures that are principally black on a white background, such as the portraits found in Volume 4 of Apple's Contributed Software Library, it is necessary to change the BEQ at line 53 in the first program and line 71 in the second program to BNE.

The programs require Applesoft in ROM and that \$E6 be set to either page 1 or 2 (\$20 or \$40, respectively - this is done for you by Applesoft whenever the Hi-Res mode is executed, i.e. HGR or HGR2). As written the programs were run with the Tymac card. Other cards should work with the second program, provided there is either software or hardware control of bit 7. The first program, in addition to requiring control of bit 7, will probably require that the address of the Printer Ready bit (tested in the COUT routine, line 88) be changed to that used by your particular interface card.

Note: The second routine should not be executed by a DOS 'BRUN' command. It should be BLOADED first, then run. If it is BRUN, it will execute properly, but the APPLE will fail to return normally, i.e. the keyboard will not function until RESET is hit, which brings the machine back to consciousness. This appears to be true for any machine language routine that outputs a character via the \$FDEB output hook under DOS control. If this turns out to be a problem, a possible solution is to substitute the normal output routine with one like the short 4-line program at the bottom of Listing A. This output routine was designed for the Tymac card in slot #1. By using this output routine, DOS and the interface card never know what's being printed, which can eliminate a lot of problems. To use this routine, simply tack it at the end of your program and change all COUT's from \$FDEB to its beginning address. Note that with this change the program is not relocatable. Also note that a BRUN EPSON GRAPHICS DUMP, A\$200 is an ideal place to run either routine.

contd.

```

----- NEXT OBJECT FILE NAME IS GRAFTRAX.OBJ
0300:          1      ORG   $0300
0041:          2 A      EQU   $41
004B:          3 K      EQU   $4B
009D:          4 CNTR   EQU   $9D
009E:          5 DATA  EQU   $9E
00E0:          6 XL     EQU   $E0
00E1:          7 XH     EQU   $E1
00E2:          8 Y      EQU   $E2
0030:          9 BITMASK EQU   $30
0026:         10 BASE   EQU   $26
F411:         11 HPOSN  EQU   $F411
F504:         12 INCRY  EQU   $F504
C090:         13 OUTPUT EQU   $C090
C1C1:         14 DONETST EQU   $C1C1
001B:         15 ESC    EQU   $1B
000D:         16 CR     EQU   $0D
000A:         17 LF     EQU   $0A
0300:         18 *****
0300:A9 0D    19      LDA   #CR           ;START NEW LINE
0302:20 91 03 20      JSR   COUT
0305:A9 0A    21      LDA   #LF
0307:20 91 03 22      JSR   COUT
030A:A9 1B    23      LDA   #ESC           ;SET 8 DOTS/LINE FEED
030C:20 91 03 24      JSR   COUT
030F:A9 41    25      LDA   #A
0311:20 91 03 26      JSR   COUT
0314:A9 08    27      LDA   #$08
0316:20 91 03 28      JSR   COUT
0319:A9 00    29      LDA   #$00           ;SET X=0 & Y=0
031B:85 E2    30 NEWROW STA   Y
031D:48      31      PHA           ;SAVE Y FOR THIS PASS
031E:A9 00    32      LDA   #$00
0320:85 E0    33      STA   XL
0322:85 E1    34      STA   XH
0324:A9 1B    35      LDA   #ESC           ;SET 280 COLUMN GRAPHICS
0326:20 91 03 36      JSR   COUT
0329:A9 4B    37      LDA   #K
032B:20 91 03 38      JSR   COUT
032E:A9 18    39      LDA   #$18
0330:20 91 03 40      JSR   COUT
0333:A9 01    41      LDA   #$01
0335:20 91 03 42      JSR   COUT
0338:A9 08    43 NXTCHR LDA   #$08           ;8 ROWS/PASS
033A:85 9D    44      STA   CNTR
033C:A4 E1    45      LDY   XH           ;FIND GRAPHICS BYTE
033E:A6 E0    46      LDX   XL
0340:A5 E2    47      LDA   Y
0342:20 11 F4 48      JSR   HPOSN
0345:18      49 LOOP  CLC
0346:B1 26    50      LDA   (BASE),Y
0348:25 30    51      AND   BITMASK           ;MASK OF ALL BUT ACTUAL BIT
034A:29 7F    52      AND   #$7F
034C:F0 01    53      BEQ   CLRC           ;BIT NOT SET
034E:38      54      SEC           ;BIT SET
034F:26 9E    55 CLRC  ROL   DATA           ;BUILD DATA BYTE
0351:20 04 F5 56      JSR   INCRY           ;NEXT Y
0354:E6 E2    57      INC   Y
0356:C6 9D    58      DEC   CNTR
0358:D0 EB    59      BNE   LOOP
035A:A5 9E    60      LDA   DATA           ;PRINT DATA

```

contd.

```

0350:20 91 03    61      JSR  COUT
035F:E6 E0      62      INC  XL
0361:D0 02      63      BNE  SKIP
0363:E6 E1      64      INC  XH
0365:A5 E0      65  SKIP  LDA  XL
0367:C9 18      66      CMP  ##18
0369:D0 04      67      BNE  NXTCOL
036B:A5 E1      68      LDA  XH
036D:D0 07      69      BNE  NXTROW
036F:18        70  NXTCOL CLC          ; NOT DONE YET
0370:68        71      PLA          ; RESTORE TOP OF ROW
0371:48        72      PHA
0372:85 E2     73      STA  Y
0374:90 C2     74      BCC  NXTCHR    ; ALWAYS TAKEN
0376:A9 0D     75  NXTROW LDA  #CR      ; END THIS PASS
0378:20 91 03  76      JSR  COUT
037B:A9 0A     77      LDA  #LF
037D:20 91 03  78      JSR  COUT
0380:68        79      PLA          ; CHECK FOR END
0381:A5 E2     80      LDA  Y
0383:C9 C0     81      CMP  ##C0
0385:D0 94     82      BNE  NEWROW
0387:A9 1B     83      LDA  #ESC      ; RESET 6 LINES/INCH
0389:20 91 03  84      JSR  COUT
038C:A9 32     85      LDA  ##32
038E:4C 91 03  86      JMP  COUT
0391:8D 90 C0  87  COUT  STA  OUTPUT
0394:2C C1 C1  88  AGAIN BIT  DONETST
0397:30 FB     89      BMI  AGAIN
0399:60        90      RTS

```

*** SUCCESSFUL ASSEMBLY: NO ERRORS

```

0A LF          0D CR          1B ESC          26 BASE
30 BITMASK    41 A           4B K           9D CNTR
9E DATA      E0 XL          E1 XH          E2 Y
031B NEWROW   0338 NXTCHR    0345 LOOP      034F CLRC
0365 SKIP     036F NXTCOL    0376 NXTROW    0391 COUT
0394 AGAIN    C090 OUTPUT    C1C1 DONETST   F411 HPOSN
F504 INCRY

```

```

41 A          0394 AGAIN      26 BASE
034F CLRC     9D CNTR        0391 COUT
9E DATA      C1C1 DONETST  1B ESC
F504 INCRY    4B K           0A LF
031B NEWROW   0338 NXTCHR    036F NXTCOL
C090 OUTPUT   0365 SKIP      E1 XH
E2 Y

```

contd.

SOURCE FILE: EPSON GRAPHICS5.SOURCE

----- NEXT OBJECT FILE NAME IS EPSON GRAPHICS5.OBJ

```

0300:          1          ORG  $0300
0300:          2 *****
0300:          3 * APPLE II HI-RES SCREEN DUMP *
0300:          4 * WITH EPSON MX-80 CHAR SET *
0300:          5 *
0300:          6 *      BY  TERRY E. PHILLIPS
0300:          7 *      ANDREW E. SCHECK
0300:          8 *
0300:          9 *      MAY 18, 1981
0300:         10 *****
0006:         11 CODE    EQU  $06
0007:         12 COUNTER2 EQU $07
0008:         13 COUNTER3 EQU $08
0009:         14 MASK     EQU  $09
00AA:         15 DIRCOD   EQU  $AA
0019:         16 DATA    EQU  $19
001A:         17 STORAGE  EQU  $1A
001B:         18 COMPRES  EQU  $1B
0026:         19 BASE     EQU  $26
0030:         20 BITMASK  EQU  $30
008D:         21 CTRL.M   EQU  $8D
008F:         22 CTRL.O   EQU  $8F
0092:         23 CTRL.R   EQU  $92
00A0:         24 GRAFCHR  EQU  $A0
00BF:         25 MAX.Y    EQU  191
0117:         26 MAX.X    EQU  279
04F9:         27 CHRMASK  EQU  $04F9
F411:         28 HPOSN    EQU  $F411
F467:         29 DECRX    EQU  $F467
F48A:         30 INCRX    EQU  $F48A
F4D5:         31 DECRY    EQU  $F4D5
F4D3:         32 INTY     EQU  $F4D3
F465:         33 INTX     EQU  $F465
FDED:         34 COUT     EQU  $FDED
0300:         35 *
0300:         36 *
0300:         37 *
0300:A9 8D    38          LDA  #CTRL.M   ; CLEAR PRINTER BUFFER
0302:20 ED FD 39          JSR  COUT
0305:A9 FF    40          LDA  #$FF
0307:8D F9 04 41          STA  CHRMASK   ; SET UP GRAPHICS CHARS
030A:85 09    42          STA  MASK      ; ALL BITS GOOD
030C:A9 8F    43          LDA  #CTRL.O
030E:20 ED FD 44          JSR  COUT     ; SET COMPRESSED CHAR MODE
0311:A2 00    45          LDX  #$00     ; SET VERTICAL
0313:A0 00    46          LDY  #$00     ; AND HORIZONTAL
0315:A9 BF    47          LDA  #MAX.Y    ; SCREEN COORDINATES
0317:20 11 F4 48          JSR  HPOSN   ; CALCULATE ADDRESS
031A:A9 5D    49          LDA  #MAX.X/3  ; HORIZONTAL PASSES
031C:24 18    50          BIT  COMPRES  ; SET UP COUNTER
031E:50 01    51          BVC  COUNT3   ; DEPENDING ON
0320:4A      52          LSR  A       ; MODE SELECTED
0321:85 08    53 COUNT3  STA  COUNTER3 ; BY BIT 6 IN LOC. $1B
0323:A9 60    54 COUNT2  LDA  #MAX.Y/2+1 ; VERTICAL PASSES
0325:85 07    55          STA  COUNTER2
0327:A2 AA    56 COUNT1  LDX  #DIRCOD   ; WILL CONTROL THE MODE
0329:86 06    57          STX  CODE     ; OF THE INCR/DECR X & Y SUBROUTINES
032B:A2 06    58          LDX  #$06     ; NUMBER OF BITS/CHAR

```

contd.

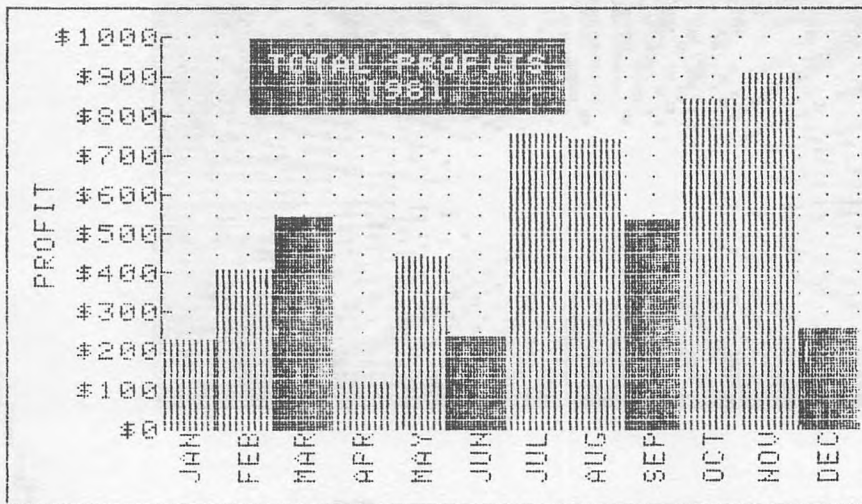
032D:24	1B	59	GET1	BIT	COMPRES	; SET 'V' TO SELECTED MODE
032F:B1	26	60		LDA	(BASE),Y	; LOAD SCREEN BYTE
0331:25	30	61		AND	BITMASK	; MASK OFF EXTRA BITS
0333:29	7F	62		AND	##7F	; CLEAR BIT 7
0335:50	0D	63		BVC	FULL1	; BRANCH IF FULL MODE
0337:85	1A	64		STA	STORAGE	; SAVE BIT
0339:20	8A F4	65		JSR	INCRX	; GOTO NEIGHBORING BIT
033C:B1	26	66		LDA	(BASE),Y	; REPEAT PROCESS
033E:25	30	67		AND	BITMASK	
0340:29	7F	68		AND	##7F	; ALWAYS CLEAR BIT 7
0342:05	1A	69		ORA	STORAGE	; 'OR' ADJACENT BITS
0344:18		70	FULL1	CLC		
0345:F0	01	71		BEQ	CLRC	; NOTHING PLOTTED HERE
0347:38		72		SEC		; POINT PLOTTED HERE
0348:66	19	73	CLRC	ROR	DATA	; BUILD CHARACTER
034A:A5	06	74		LDA	CODE	; SET 'N' FLAG FOR SUBROUTINES
034C:70	02	75		BVS	COMPRS	; SKIP INTX SUBR. IF
034E:30	03	76		BMI	FULL2	; 'N'=1 AND 'V'=0
0350:20	65 F4	77	COMPRS	JSR	INTX	; 'N'=1, DECRX; 'N'=0, INCRX
0353:06	06	78	FULL2	ASL	CODE	; SET 'N' WITH NEXT BIT-CODE
0355:18		79		CLC		; INIT. FOR SUBR.
0356:20	D3 F4	80		JSR	INTY	; 'N'=0, DECRY; 'N'=1, INCRY
0359:CA		81		DEX		; DECREMENT COUNTER
035A:D0	D1	82		BNE	GET1	
035C:A5	19	83		LDA	DATA	; RIGHT JUSTIFY DATA BITS
035E:4A		84		LSR	A	
035F:4A		85		LSR	A	
0360:25	09	86		AND	MASK	; MASK OFF EXTRA BITS
0362:18		87		CLC		; PREPARE FOR ADD
0363:69	A0	88		ADC	#GRAFCHR	; INDEX INTO GRAPHICS CHARS
0365:20	ED FD	89		JSR	COUT	; SEND TO PRINTER
0368:20	D5 F4	90		JSR	DECRY	; MOVE Y COORDINATE TO BEGIN
036B:20	D5 F4	91		JSR	DECRY	; NEXT CHARACTER; WILL
036E:C6	07	92		DEC	COUNTER2	; 'WRAP AROUND' IF AT AN EDGE
0370:F0	10	93		BEQ	CR	; THIS ROW FINISHED
0372:A9	03	94		LDA	##03	
0374:24	1B	95		BIT	COMPRES	; SET-UP TO GET
0376:50	01	96		BVC	FULL3	; THE COUNTER
0378:0A		97		ASL	A	; READY, DEPENDING
0379:AA		98	FULL3	TAX		; ON MODE, TO
037A:20	67 F4	99	DECX	JSR	DECRX	; MOVE X COORDINATE TO BEGIN
037D:CA		100		DEX		; NEXT CHARACTER
037E:D0	FA	101		BNE	DECX	
0380:F0	A5	102		BEQ	COUNT1	; ALWAYS TAKEN
0382:A9	8D	103	CR	LDA	#CTRL.M	
0384:20	ED FD	104		JSR	COUT	; PRINT CARRIAGE RETURN
0387:C6	08	105		DEC	COUNTER3	; SEE IF LAST COMPLETE HORIZONTAL ROW
0389:08		106		PHP		; SAVE BIT 7
038A:D0	0A	107		BNE	NOTLAST	; NOT LAST ROW YET
038C:A9	0F	108		LDA	##0F	; MASK FOR LAST TWO ROWS ONLY
038E:24	1B	109		BIT	COMPRES	; IF IN COMPRESSED MODE
0390:70	02	110		BVS	FULMASK	; OR JUST LAST ROW
0392:A9	03	111		LDA	##03	; IF IN FULL MODE
0394:85	09	112	FULMASK	STA	MASK	
0396:28		113	NOTLAST	PLP		; RESTORE BIT 7
0397:10	8A	114		BPL	COUNT2	; NOT FINISHED YET
0399:A9	92	115		LDA	#CTRL.R	; TURN OFF COMPRESSED CHAR
039B:20	ED FD	116		JSR	COUT	
039E:A9	7F	117		LDA	##7F	; RESET CHARACTER SET
03A0:8D	F9 04	118		STA	CHRMASK	

contd.

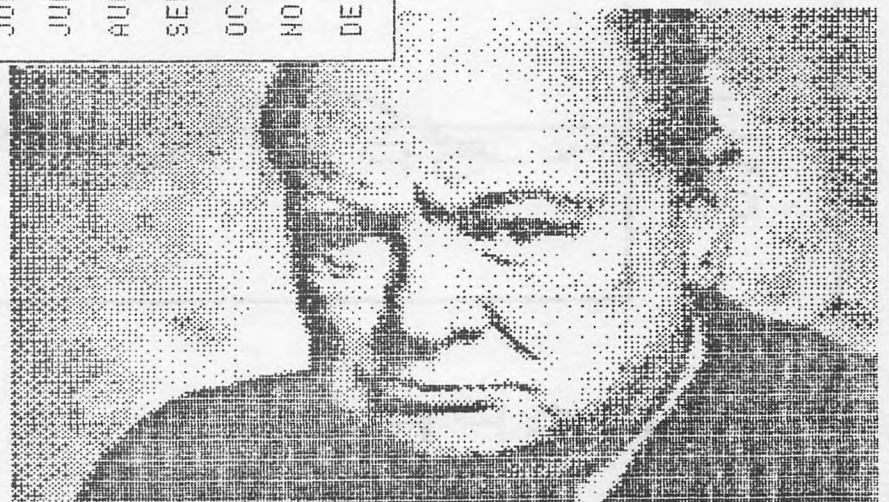
*** SUCCESSFUL ASSEMBLY: NO ERRORS

26 BASE	30 BITMASK	04F9 CHRMASK	0348 CLRC
06 CODE	1B COMPRES	0350 COMPRS	0327 COUNT1
0323 COUNT2	0321 COUNT3	07 COUNTER2	08 COUNTER3
FDED COUT	0382 CR	8D CTRL.M	8F CTRL.O
92 CTRL.R	19 DATA	F467 DECRX	F4D5 DECRY
037A DECX	AA DIRCOD	0344 FULL1	0353 FULL2
0379 FULL3	0394 FULMASK	032D GET1	A0 GRAFCHR
F411 HPOSN	F48A INCRX	F465 INTX	F4D3 INTY
09 MASK	0117 MAX.X	BF MAX.Y	0396 NOTLAST
1A STORAGE			

06 CODE	07 COUNTER2	08 COUNTER3	09 MASK
19 DATA	1A STORAGE	1B COMPRES	26 BASE
30 BITMASK	8D CTRL.M	8F CTRL.O	92 CTRL.R
A0 GRAFCHR	AA DIRCOD	BF MAX.Y	0117 MAX.X
0321 COUNT3	0323 COUNT2	0327 COUNT1	032D GET1
0344 FULL1	0348 CLRC	0350 COMPRS	0353 FULL2
0379 FULL3	037A DECX	0382 CR	0394 FULMASK
0396 NOTLAST	04F9 CHRMASK	F411 HPOSN	F465 INTX
F467 DECRX	F48A INCRX	F4D3 INTY	F4D5 DECRY
FDED COUT			

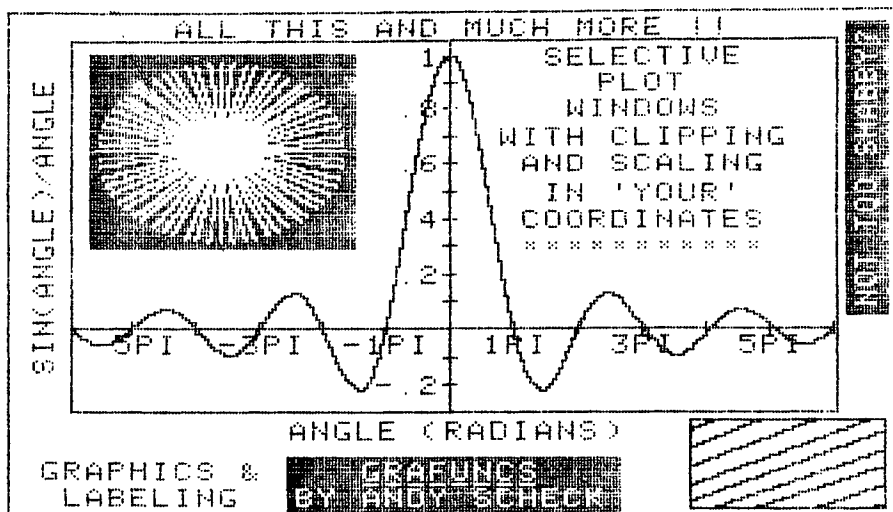


Program A
using Graftrax Proms

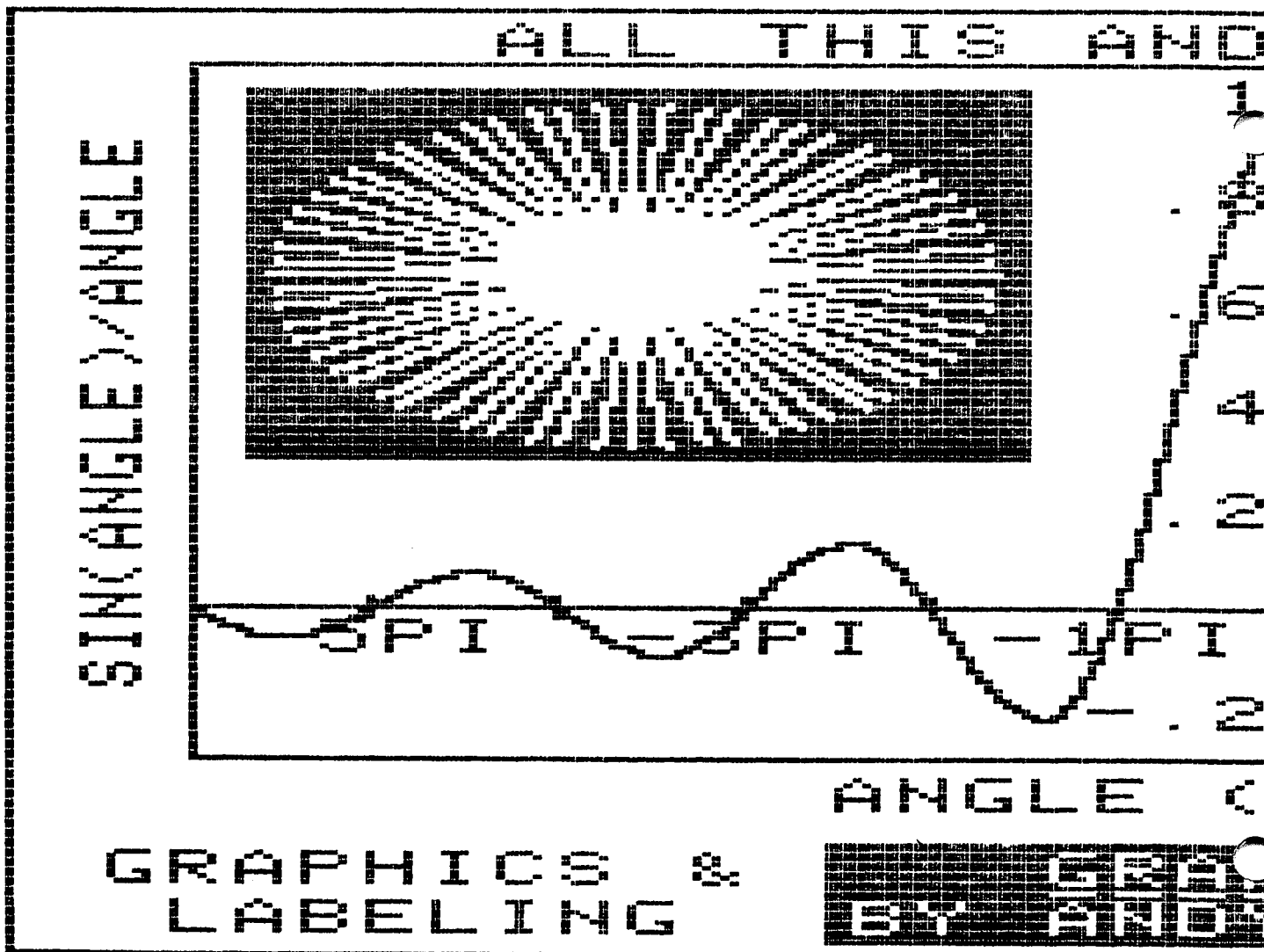


contd.

Program A
using Graftrax Proms



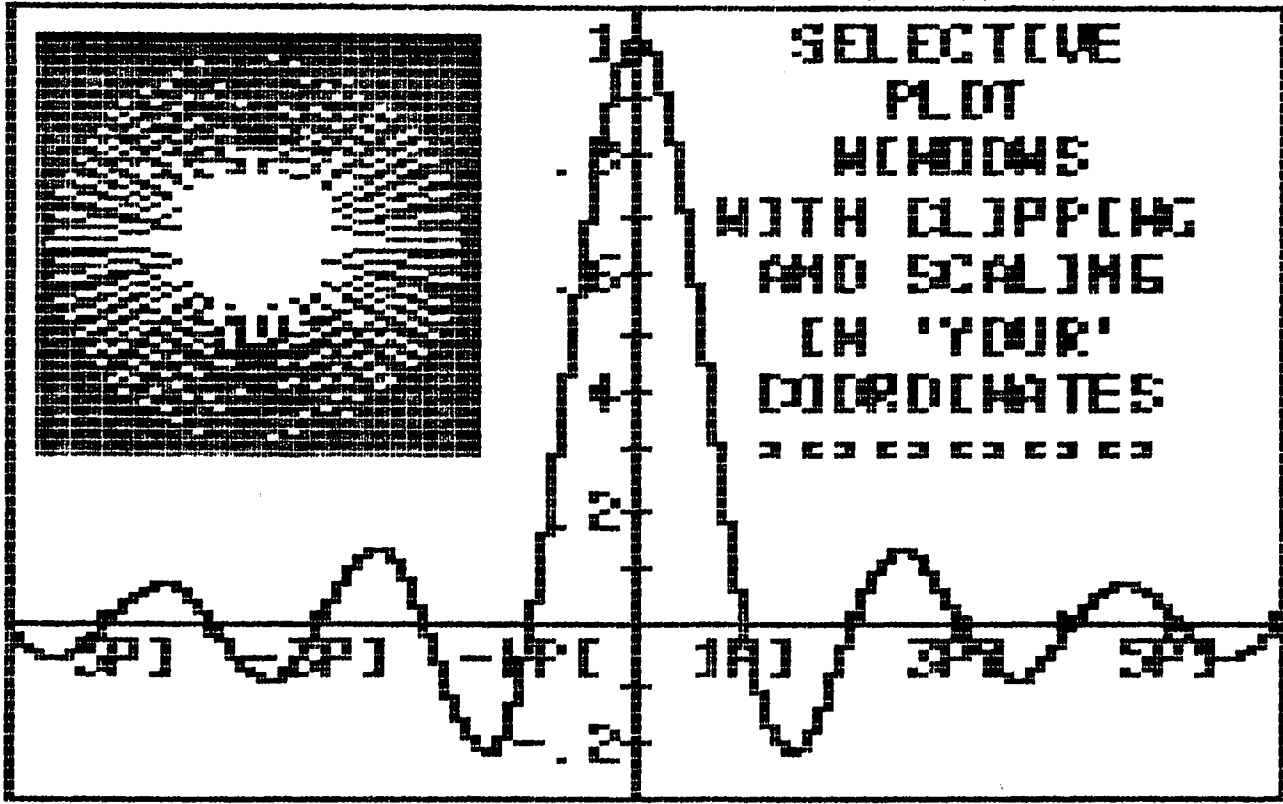
Program B
full mode



ICALL768

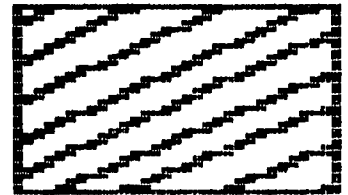
ALL THIS AND MUCH MORE !!

BING ANGLE (RADIANS)

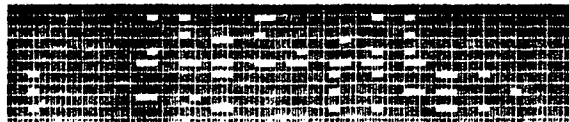


Program B
compressed mode

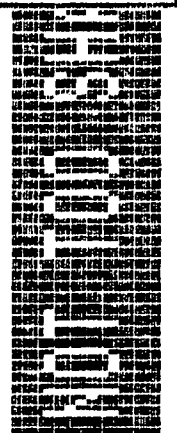
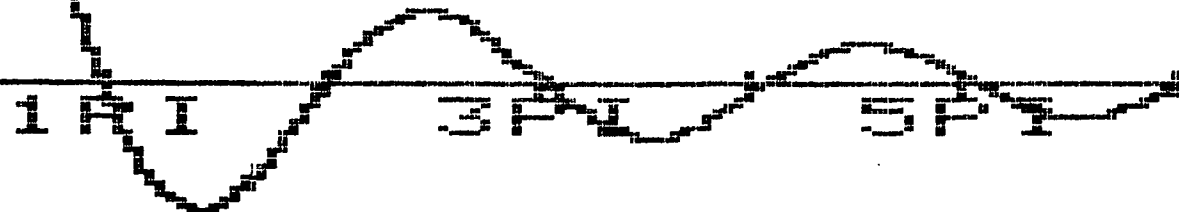
ANGLE (RADIANS)



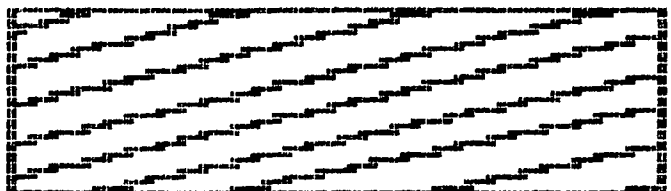
GRAPHICS &
LABELING



WITH CLIPPING
AND SCALING
IN 'YOUR'
COORDINATES
XXXXXXXXXX



(RADIANS)



QUESTIONS, QUESTIONS, QUESTIONS

by Mark L. Crosby

Q. How can I prevent a program from being stopped by hitting "RESET"? I want such a fix to continue execution of my program where it left off.

A. In nibble Vol. 2, No. 5 1981 on page 93 is a machine-language interface by Gary Little to trap "RESET" when it is pressed. This interface requires that you have an active "ON ERR" statement in your program. When RESET is pressed, your "ON ERR GOTO" will be executed and your error handling subroutine will take over. The error that will be sent to your error subroutine is a zero (0) which is a "NEXT WITHOUT FOR ERROR". This is, of course, incorrect but knowing this you can work around it. A short program to illustrate is included below as is the machine-language required. Try hitting RESET while this program is running. To stop it, type Control-C.

```

4     IF PEEK (1010) = 16 THEN 20
5     A = PEEK (1010):
      B = PEEK (1011):
      C = PEEK (1012)
10    PRINT CHR$(4)"BRUN RESET HANDLER"
20    ON ERR GOTO 1000
30    PRINT "TEST ";
40    GOTO 30
1000 IF PEEK (222) = 0 THEN 1100
1005 PRINT "STOPPED AT LINE ";
1010 PRINT PEEK (218) + PEEK (219) *
      254
1015 PRINT " ERROR "; PEEK(222)
1020 POKE 1010,A : POKE 1011,B : POKE
      1012,C
1030 END
1100 GOTO 30

```

RESET HANDLER:
ENTER MONITOR AND TYPE:
CALL-151 (CR)
TYPE:

```

0300:  A9 10 8D F2 03 A9 03 8D (CR)
0308:  F3 03 49 A5 8D F4 03 60 (CR)
0310:  68 A8 68 A6 D6 9A 48 98 (CR)
0318:  48 20 EA 03 4C 12 D4 (CR)

```

TYPE: BSAVE RESET HANDLER,A#300,L31

NOTE: THIS ONLY WORKS WITH THE
AUTOSTART ROM IN PLACE

Due to the UNDERwhelming response of our readers, there are no more questions to answer this month. However, there are some "leftover" answers dealing with Hi-Res graphics that might be useful to those of you who would like to add some zest to your Applesoft graphics.

To SWIFTLY move Hi-Res Page 1 to Hi-Res Page 2, or vice versa, use the following routines. First load a picture on either page.

```

20    REM PAGE 1 TO PAGE 2

```

```

30    A$ = " 4000<2000.3FFFM N D823G"
40    REM PAGE 2 TO PAGE 1
50    A$ = " 2000<4000.5FFFM N D823G"
60    REM CHOOSE EITHER LINE 30 OR 50
      THEN DELETE THE OTHER
70    FOR I = 1 TO LEN (A$)
80    POKE 511 + I, ASC (MID$ (A$,I,1))
      + 128
90    NEXT
100   POKE 72,0 : CALL - 144

```

The routine above puts a monitor "MOVE" (M) command on the keyboard input buffer then calls the monitor line input routine (which executes the move). The "D823G" executes a return to BASIC afterwards.

For those of you who are interested, this routine will work for almost any area of memory - as long as there is no overlap between the source range and the destination range.

Have you ever wanted to be able to "HPLLOT" a line so that it doesn't erase any other lines it runs through? The routines in Applesoft do permit "XDRAW"ing shapes in this mode (called Exclusive-OR) but what about lines?

Well, how about using a shape that has only one plotted line? This works very well and can be used in place of drawing lines in many instances. It is not any faster though as far as I can tell. The "shape" consists of a single plotted line moving to the right when ROTation is set to zero. A program illustrates its use:

```

0     GOTO 20
1     DATA 1,0,4,0,5,0
10    XDRAW 1 AT 139,96: RETURN
20    FOR I = 768 TO 773
30    READ B
40    POKE I,B
50    NEXT
60    POKE 232,0: POKE 233,3
70    HGR2
80    FOR J = 25 TO 85 STEP 5
90    SCALE = J
100   FOR I = 0 TO 63
110   ROT = 1
120   COSUB 5
130   NEXT
140   NEXT
150   SCALE= 255: ROT= 0
160   FOR Y = 0 TO 191
170   XDRAW 1 AT 0,Y
180   NEXT
190   FOR Y = 0 TO 95
200   SCALE= Y + 1: ROT= 0
210   XDRAW 1 AT 0,Y
220   XDRAW 1 AT 0,191 - Y
230   ROT= 32
240   XDRAW 1 AT 254,Y
250   XDRAW 1 AT 254,191 - Y
260   NEXT

```

Please don't be shy about sending your questions in - we need your support to "stay in business" in this column as well as in every club endeavor.

Columbia Computer Systems

The discount house that takes a BIG bite out of game prices.

PROGRAM	SYSTEM	MFG	LIST \$	SALE \$	PROGRAM	SYSTEM	MFG	LIST \$	SALE \$
Galactic Saga:					Snoggle	D48M	BS	24.95	20.95
I Galactic Empire	D48+	BS	24.95	19.95	The Prisoner	D48M	EW	29.95	24.95
II Galactic Trader	D48+	BS	24.95	19.95	Operation Apocalypse	D48M	ST	59.95	48.95
III Galactic Revolution	D48+	BS	24.95	19.95	Cartels & Cutthroats	D48M	ST	39.95	33.95
IV Tawala's Last Redoubt	D48+	BS	29.95	22.95	Torpedo Fire	D48M	ST	59.95	48.95
Galactic I, II & III			74.85	55.00	Warp Factor	D48M	ST	39.95	33.95
Galactic I, II, III & IV			104.80	75.95	Computer Quarterback	D48M	ST	39.95	33.95
Adventure	D48+	MS	29.95	25.95	Computer Conflict	D48M	ST	39.95	33.95
Stellar Trek	D48+	RC	24.95	19.95	Computer Air Combat	D48M	ST	59.95	49.95
Datestones of Ryn	D48+	AS	19.95	15.95	Computer Napoleonic	D48M	ST	59.95	49.95
Morloc's Tower	D48+	AS	19.95	15.95	Computer Ambush	D48M	ST	59.95	49.95
Temple of Apsah	D48+	AS	39.95	32.95	Computer Bismarck	D48M	ST	59.95	49.95
Hellfire Warrior	D48+	AS	39.95	32.95	Gorgon	D48M	SS	39.95	33.95
Zork	D48+	PS	39.95	32.95	Space Eggs	D48M	SS	29.95	22.95
Special Sale					Pulsar II	D48M	SS	29.95	22.95
Ultima	D48+	CP	39.95	29.95	Autobahn	D48M	SS	29.95	22.95
<i>Coming Soon — Ultima II — Revenge of the Enchantress</i>					Orbitron	D48M	SS	29.95	22.95
Hi-Res Adventures:					Gamma Goblins	D48M	SS	29.95	22.95
#0-Mission Asteroid	D48+	OL	19.95	15.95	Star Cruiser	D48M	SS	24.95	18.75
#1-Mystery House	D48+	OL	24.95	18.75	Cyber Strike	D48M	SS	39.95	33.95
#2-Wizard & Princess	D48+	OL	32.95	27.95	Sneakers	D48M	SS	29.95	22.95
#3-Cranston Manor	D48+	OL	34.95	28.95	Both Barrels	D48M	SS	24.95	18.75
Apple Oids	D48M	CP	29.95	22.95	Phantom's 5	D48M	SS	29.95	22.95
Akalabeth	D48M	CP	34.95	28.95	EZ Draw 3.3	D48M	SS	49.95	39.95
Raster Blaster	D48M	BC	29.95	22.95	Special Sale				
3-D Graphics System	D48M	BC	39.95	33.95	Pool 1.5	D48M	ID	34.95	26.95
Space Album	D48M	BC	39.95	33.95	Shuffleboard	D48M	ID	29.95	22.95
Trilogy of Games	D48M	BC	29.95	22.95	Missile Defense	D48M	OL	29.95	22.95
Fender Bender	D48M	BC	24.95	19.95	Hires Soccer	D48M	OL	29.95	22.95
Cosmos Mission	D48M	BC	24.95	19.95	Hires Football	D48M	OL	39.95	33.95
Scott Adams'					Hires Cribbage	D48M	OL	24.95	18.75
Adventure 1, 2 & 3	D48M	AI	39.95	31.95	Sabotage	D48M	OL	24.95	18.75
Adventure 4, 5 & 6	D48M	AI	39.95	31.95	Paddle Graphics	D48M	OL	39.95	33.95
Adventure 7, 8 & 9	D48M	AI	39.95	31.95	Tablet Graphics	D48M	OL	49.95	39.95
Special Sale					Hyper Head-on	D32+	BS	24.95	18.75
New Adventure 10, 11 & 12	D48M	AI	39.95	29.95	Galaxy Wars	D32+	BS	24.95	18.75
<i>Savage Island, Parts 1 & 2 and Golden Voyage</i>					Tank Command	D32+	BS	29.95	22.95
Alien Rain	D48M	BS	24.95	20.95	Devil's Dungeon	D16I	RC	15.95	12.95
Alien Typhoon	D48M	BS	24.95	20.95	Golden Mountain	C32+	BS	19.95	15.95

D = Disk
C = Cassette
48, etc. = Ks of RAM
+ = Applesoft
I = Integer
M = Machine code

AI = Adventure International
AS = Automated Simulations
BC = BudgeCo
BS = Broderbund Software
CP = California Pacific

EW = Edu-Ware
ID = Innovative Design Software
MS = Microsoft
On-Line Systems

PS = Personal Software
RC = Rainbow Computing
SS = Sirius Software
ST = Strategic Simulations

- VISA, MC add 3% (include card number and expiration date).
- Allow 3 weeks for personal check to clear.
- COD's require 10% deposit—all COD charges to be paid by customer.
- Prices subject to change without notice—all items subject to availability.

- Money order, certified check, cashier's check or bank wire deposit accepted.
- Include \$2.50 for postage and handling per software shipment (UPS).
- DC residents add 6% tax. If tax exempt, include number.

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HIT PARADE

by John Alden

WELCOME to the second in a continuing series of game surveys. This article is a result of a survey of SIGAMES members during the July meeting. During the following months, other games will be surveyed at the SIGAMES meetings.

The groupings include adventure games, simulations, war games, arcade games, board games, and puzzle games. Each grouping (except arcade and board games) will be subgrouped into text or graphical games.

Each category or subcategory will be surveyed at the beginning of the SIGAMES meeting. The results will be presented at the next SIGAMES meeting and published in the following issue of the club newsletter.

Anyone who cannot attend the meetings and would like to contribute to the surveys should contact Al Gass (703) 371-3560 or John Alden (202) 686-1656.

New contributions will be incorporated into the appropriate survey and it will be republished as soon as possible.

Here is the schedule for conducting the surveys:

MEETING	CATEGORY SURVEYED
September	Simulation (all)
October	Arcade
November	Space games (graphic)
December	Space games (text)
January	Sport games (all)
February	Puzzle games (all)
March	Board games
April	Adventure (graphic)
May	War games (all)
June	Adventure (text)

The following surveys have been conducted:

June	Adventure (graphic)
July	War games (all)
August	Adventure (text)

CATEGORIES

The surveys are based on the following seven categories:

ACTION: The action is the series of events which form the plot or theme of any game. It is the pace of the game. It should move along rapidly, yet the player should not have to defend his or her life when entering each new room or area. The game should not grind to a halt because the player cannot locate the tool or object

necessary to advance past an obstacle.

REALISM: In a fantasy game????? Absolutely!!!! In the August issue of "Creative Computing," Robert Plamondon stated that realism "means that none of the events breaks the character's 'willing suspension of disbelief.' Players can accept magic and dragons as part of the background of the fantasy world. They cannot accept worlds that turn upside down at night, outdoor human colonies on the sun, or personal clues displayed on billboards."

RULES: Traditionally, the worst aspect of most games has been the rules. If they were complete, they were written for cryptographers. If the rules were at all understandable, they were incomplete.

BALANCE: How quickly were you killed the last time you tried an adventure game? Balance refers to the capability of the program to act as a referee and as your opponent and still present you with a fair chance to win.

STRATEGY: What is the overall game plan? Is it to get the golden apple, rescue the princess, destroy the asteroid, or escape the island? Strategy is the planning and developing of game goals.

TACTICS: Hand-to-hand combat!!! You versus the computer dragon!!! Tactics is the step-by-step process for a successful strategy.

CUMM: The cumulative score for each of the games surveyed.

LIST \$: The manufacturer's suggested list price.

The category of GRAPHICS was changed to COMPONENTS in the last survey. By popular demand it has been deleted from the surveys.

RESULTS

COMPUTER CONFLICT took the number one spot on the survey. It captured all categories except ACTION and COMPONENTS. In the ACTION category the game was considered to be average; rather an unusual position for a top wargame.

The real surprise was GUNSHIP. It is a simulation of helicopter action in Vietnam and done in hi-res. We will have a review of this game in the next issue of WAP.

contd.

WARGAMES:	ACTION	REALISM	RULES	BALANCE	STRATEGY	TACTICS	CUMM:	LIST \$
COMPUTER CONFLICT	5.00	10.00	10.00	10.00	10.00	10.00	7.86	39.95
GUNSHIP	9.00	8.50	9.50	8.00	7.50	8.50	7.29	14.95
COMPUTER AIR COMB.	7.67	9.67	6.00	5.00	8.00	9.00	6.48	49.95
TAMALA'S REDOUBT	8.00	7.00	7.00	7.00	8.00	8.00	6.43	29.95
COMPUTER NAPOLEONI	7.00	9.50	6.50	6.50	7.00	8.00	6.36	49.95
SHATTERED ALLIANCE	8.00	8.00	7.00	5.00	7.00	7.00	6.00	59.95
TORPEDO FIRE	7.00	7.00	6.00	7.50	6.00	7.50	5.86	59.95
COMPUTER APOCALYPA	5.00	10.00	5.00	5.00	7.00	7.00	5.57	59.95
COMPUTER AMBUSH	5.00	10.00	5.00	5.00	7.00	7.00	5.57	59.95
TANKTICS	6.00	7.00	6.00	6.00	6.00	8.00	5.57	20.00
COMPUTER BISMARCK	4.00	9.00	4.33	5.67	6.67	5.33	5.00	59.95
MIDWAY CAMPAIGN	4.33	6.67	5.33	4.00	5.00	4.67	4.29	14.95
NUCLEAR BOMBER	4.50	6.50	5.00	4.50	4.50	4.50	4.21	14.95
NUKEWAR	4.33	6.00	4.67	4.00	4.67	4.00	3.95	14.95
CONVOY RAIDER	3.00	6.00	5.00	3.50	4.00	3.50	3.57	14.95

NEW CLUB ADDRESS

Please note that there is a change in the city, state and zip code of the club address. We haven't moved but the Post Office has given us a new location label. The new address is:

Washington Apple Pi
P.O. Box 34511
Bethesda, MD 20817

'AUTOMATIC' ZIP CODE CHANGES

Speaking of zip code changes...For all members who have had a general zip code change by the Post Office, it is not necessary for you to send us a notice of that change. Dana Schwartz has programmed the APPLE to make those changes in our mailing list. However, we would like you to check your label this month and make sure that the change we have made is correct.

PLAIN TALK ABOUT "COPY PROTECTION"

A lot has been said and written about copy protection and software piracy since Omega made Locksmith available to Apple II users earlier this year. We have been accused of encouraging illegal copying of copyrighted software. Software publishers have threatened to boycott magazines which carry our advertising, and the pros and cons of Locksmith and copy protection devices have been debated in Apple forums throughout the country. But, we at Omega haven't really told you, the Apple user, our side of the story.

Locksmith was originally developed as an intellectual exercise by an Apple user over a year ago. And we suspect that sufficient information about the Apple DOS and the way information is stored on a disk has been long available to the general public, so that ANYONE who was REALLY interested, and who wished to spend a LOT of time, could have written a program that does many of the things that Locksmith does. Similarly, there is really no "secret" to writing data base programs, adventure programs, or even spread sheet programs. The literature is there if you want to look for it. But it takes a lot of hard work to develop any software package that works in all cases, that is crashproof, that interfaces easily with a non-experienced computer user, and that is well documented. A LOT of hard work.

But even before Locksmith was available to us, we, as Apple users, recognized a definite problem with the software we were buying and using. Much of it worked well. But it was very aggravating to not be able to make a backup copy of certain "copy protected" programs. Most software publishers didn't supply backups of their programs, and those that had any policy required signing oppressive agreements or paying questionably high yearly fees for presumed, but not guaranteed, updates. Among those who did not offer back-up was one who 'sold'

us a new copy (when we returned our crashed disk). Although they advertised the importance of having their program running every day, they made us wait up to 6 weeks to get the replacement. Most vendors just ignored the problem. We, as consumers, were simply taken advantage of. In many cases we relied so much on a particular program, that it became very costly to have to wait weeks or more to replace a blown disk. Software publishers were just not responsive to the users problems caused by "copy protection".

When we first became aware of Locksmith, we investigated the state of the law, and discovered that no one knew whether the owner of a program could copy it for backup. And for quite a while we debated whether we should market Locksmith.

On December 12, 1980, a change was made to the Copyright Act which resolved these questions. It is now the law of the United States that the existence of a copyright notice on a computer program does NOT make it illegal for the legitimate owner of that program to copy it for archival purposes. Backups are now clearly legal. (Of course, when you sell your purchased program, you must destroy the backups you have made). Only after such use clearly became legal did we decide to sell Locksmith.

Now with the new copyright law, which for the first time gave software publishers clear rights that were enforceable in court, but which also gave "backup" rights to software purchasers, and with the demonstration that Locksmith could and would provide back-up for the user, we assumed that software publishers would drop their copy protection schemes and educate the public as to their rights and responsibilities. Even the use of hardware protection that gives copy-ability to the software would be acceptable. Unfortunately, their

response has been to pressure magazine publishers into refusing our advertising, and to invent new copy protection schemes.

Well, the word about Locksmith was impossible to stop. We couldn't advertise, but we have sold a gratifyingly large number of programs. As to new copy protection schemes, the new Locksmith (version 4.0) will adjust to them, and copy virtually anything protected that way. But please. For us, for yourselves, and for the entire industry, use Locksmith only for its intended legal purposes.

The new version is more than just the best copy program available. There are also four additional utilities included. A disk speed program, a degausser, a nibble editor and a media surface analyzer are included. And we stand behind our products. Our customer service department is available (and anxious) to help with problems.

Locksmith 4.0 is available from us, or your local dealer. Visa and Mastercard users call Toll Free 1-800-835-2246. Kansas residents call 1-800-362-2421 or send \$99.95. (Registered owners of prior versions can obtain an update for only \$20. If you haven't received a letter from us, please call.)

Another Quality Product from Omega MicroWare, Inc.

(formerly Omega Software Products, Inc.)
222 So. Riverside Plaza
Chicago, IL 60606
Phone 312-648-1944



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HIRES BINARY MOSAICS (For those who don't have graphics printers)

by Howard W. Mitchell

Many thanks for printing the "Mad-Rabbit" presentation of the Binary Mosaics idea. I was pleased, not only with what I produced, but also with your acceptance and printing quality.

The idea is remarkably applicable to other-similar media (other than printing - e.g. Needlepoint). I am including an example.

Also included is a HIRES Mosaics program - given that many don't have a graphics printer (yet).

Even though I stumbled upon the concept through using sophisticated equipment, I find that it is easy-as-Pi to develop and reveal a Mosaic - one doesn't have to have even heard of computers! A sheet of coarse-grid graph paper, the numerical order of the letters of the alphabet, and the ability to add and subtract numbers from 1 to 26 is about all that is needed.

"Needlepoint Thinking"

FOR THE LETTERS IN WASHINGTON APPLE PI,
YOU MIGHT CARRY OUT THE FOLLOWING THINKING:

IN COLUMN ONE IS THE LETTER W (THAT'S THE TWENTY-THIRD LETTER IN THE ALPHABET).
THAT'S SIXTEEN PLUS FOUR PLUS TWO PLUS ONE.
(YOU'D MARK THE FIFTH, THIRD, SECOND, AND FIRST ROWS.)

IN COLUMN TWO IS THE LETTER A (THAT'S THE FIRST LETTER IN THE ALPHABET).
THAT'S ONE.
(YOU'D MARK THE FIRST ROW.)

IN COLUMN THREE IS THE LETTER S (THAT'S THE NINETEENTH LETTER IN THE ALPHABET).
THAT'S SIXTEEN PLUS TWO PLUS ONE.
(YOU'D MARK THE FIFTH, SECOND, AND FIRST ROWS.)

IN COLUMN FOUR IS THE LETTER H (THAT'S THE EIGHTH LETTER IN THE ALPHABET).
THAT'S EIGHT.
(YOU'D MARK THE FOURTH ROW.)

IN COLUMN FIVE IS THE LETTER I (THAT'S THE NINTH LETTER IN THE ALPHABET).
THAT'S EIGHT PLUS ONE.
(YOU'D MARK THE FOURTH, AND FIRST ROWS.)

IN COLUMN SIX IS THE LETTER N (THAT'S THE FOURTEENTH LETTER IN THE ALPHABET).
THAT'S EIGHT PLUS FOUR PLUS TWO.
(YOU'D MARK THE FOURTH, THIRD, AND SECOND ROWS.)

IN COLUMN SEVEN IS THE LETTER G (THAT'S THE SEVENTH LETTER IN THE ALPHABET).
THAT'S FOUR PLUS TWO PLUS ONE.
(YOU'D MARK THE THIRD, SECOND, AND FIRST ROWS.)

IN COLUMN EIGHT IS THE LETTER T (THAT'S THE TWENTIETH LETTER IN THE ALPHABET).
THAT'S SIXTEEN PLUS FOUR.
(YOU'D MARK THE FIFTH, AND THIRD ROWS.)

contd.


```

50 REM *****
   * "BINARY MOSAICS" *
   * ----- *
   * PROGRAM FOR GENERATING & *
   * DISPLAYING UNIQUE HIRES *
   * PATTERNS - DERIVED FROM *
   * WORDS, NAMES, & PHRASES. *
   *****

60 LOMEM: 4 * 16 ^ 3: REM :
   PROTECT HIRES SCREEN.

100 TEXT : HOME
110 HTAB 3
120 PRINT "*** HIRES BINARY MOSAIC
   PATTERNS ***"
   -----": PRINT

130 PRINT " THIS PROGRAM WILL G
   ENERATE SYMMETRICAL MOSAIC PA
   TTERNS FROM WORDS AND PHRASE
   S.": PRINT

140 PRINT " (THE NUMERICAL VALU
   ES OF THE LETTERS IN WORDS
   AND PHRASES ARE EXPRESSED AS
   BINARY DOT PATTERNS - EXT
   ENDED BY MIRROR IMAGES TO
   FORM MOSAICS.)": PRINT

150 PRINT " A SINGLE, DOUBLE-SI
   ZE MOSAIC WILL BE PRINTED F
   IRST, FOLLOWED BY SEVERAL RO
   WS OF SEVERAL UNIT-SIZE MOSA
   ICS."

160 PRINT : PRINT
170 INPUT " TYPE IN THE DESIRED
   WORD OR PHRASE:
   "; PHRASE$

180 IF PH$ = "" THEN PRINT : PRINT
   " (PROGRAM ENDED)": END
190 DIM BINARY(31,10), REF(280)
200 L = LEN (PH$): FOR N = L TO
   1 STEP - 1: PH$ = PH$ + MID$
   (PH$,N,1): NEXT N

205 REM *****
   * IN LINE #200, THE INPUT *
   * PHRASE IS MIRROR-IMAGED *
   * (I.E. THE WORD "WATER" *
   * BECOMES "WATERRETAW"). *
   *****

210 IF BACK > 0 THEN 280: REM :
   INITIALIZATION HAS BEEN COM-
   PLETED, SO SKIP THAT STEP.

220 PRINT : HTAB 12: PRINT "- IN
   ITIALIZING -"

230 FOR A = 0 TO 1: FOR B = 0 TO
   1: FOR C = 0 TO 1: FOR D = 0
   TO 1: FOR E = 0 TO 1

240 SUM = A * 16 + B * 8 + C * 4 +
   D * 2 + E

250 BI(SUM,1) = A:BI(SUM,2) = B:
   BI(SUM,3) = C:BI(SUM,4) = D:
   BI(SUM,5) = E

260 FOR BACK = 6 TO 10:BI(SUM,BA
   CK) = BI(SUM,11 - BACK): NEXT
   BACK

270 NEXT E,D,C,B,A
280 L = LEN (PH$)
290 FOR N = 1 TO L
300 REF = ASC ( MID$ ( PH$,N)) -
   64: IF REF < 0 THEN REF = 0
310 REF(N) = REF
320 NEXT N
330 REM *****
   * AT THIS POINT, WE HAVE *
   * BINARY NUMBERS AND THEIR *
   * MIRROR-IMAGES IN THE AR- *
   * RAY BIN(0-31,1-10), AND *
   * PHRASE-DERIVED SUBSCRIPTS *
   * IN "REFERENCE" ARRAY. *
   *****

340 HOME : HGR
350 VTAB 21: PRINT "BINARY MOSAI
   CS DERIVED FROM:": PRINT : PRI
   "": LEFT$ ( PH$,L / 2)":""

360 VTAB 1
370 REM *****
   * PLOT A CENTERED 2X PAT'N.*
   *****

380 EXCESS = (139 - L)
390 FOR LEVEL = 1 TO 10
400 FOR SCAN = 1 TO L
410 HCOLOR= BINARY(REF(SCAN),LEV
   EL) * 3

420 X = EXCESS + SCAN * 2:Y = LEV
   EL * 2
430 H PLOT X,Y TO X + 1,Y TO X +
   1,Y + 1 TO X,Y + 1
440 NEXT SCAN,LEVEL
450 REM *****
   * PLOT A CENTERED, SINGLE *
   * ROW OF 1X MOSAICS. *
   *****

460 PTNSZ = 150 / L + .5
470 DOTS = PTNSZ * L
480 EXCESSZ = (280 - DOTS) / 2
490 FOR LEVEL = 1 TO 10:Y = LEVE
   L + 40
500 X = EXCESSZ
510 FOR REP = 1 TO PTNSZ
520 FOR SCAN = 1 TO L
530 X = X + 1: HCOLOR= BINARY(REF
   (SCAN),LEVEL) * 3: H PLOT X,Y
   :
540 NEXT SCAN,REP:Y = Y + 1: NEXT
   LEVEL
545 REM *****
   * PLOT 5 CENTERED ROWS OF *
   * 1X MOSAICS. *
   *****

550 FOR LINE = 1 TO 5
560 Y = LINE * 10 + 60
570 FOR LEVEL = 1 TO 10
580 X = EXCESSZ
590 FOR REP = 1 TO PTNSZ
600 FOR SCAN = 1 TO L
610 X = X + 1
620 HCOLOR= BINARY(REF(SCAN),LEV
   EL) * 3
630 H PLOT X,Y
640 NEXT SCAN,REP
650 Y = Y + 1
660 NEXT LEVEL,LINE
665 GOSUB 700: REM : SAVE HIRES
   PICTURE?
670 HOME : VTAB 21: INPUT "NEXT
   WORD OR PHRASE ?

```

*** MAGNIFIED BINARY PATTERNS ***

```

>--> "%PHRASE$
680 IF PH$ = "" THEN END
690 GOTO 200
700 REM *****
    *   SAVE HIRES PICTURE.   *
    *****

705 PRINT CHR$ (7)
710 HOME : VTAB 21: PRINT "WOULD
    YOU LIKE TO SAVE THIS MOSAI
    C ON DISK (Y/N) ? " : GET
    ANS$: PRINT
720 IF ANS$ ( ) "Y" THEN 750
725 FILE$ = "BIN.MOSAIC-" + LEFT$
    (PHRASE$,L / 2) + " ":D$ = CHR$
    (4)
730 HOME : VTAB 22: FLASH : PRINT
    "SAVING "%FI$: NORMAL
735 PRINT D$;"BSAVE "%FI$";,A$20
    00,L$2000"
750 RETURN
26000 REM *****
    *                               *
    * HOWIE MITCHELL *             *
    * 408 JACKSON AVE. *          *
    * LEXINGTON, VA. 24450 *      *
    * AUGUST, 1981 *              *
    *                               *
    *****
  
```

*** 'WASHINGTON APPLE PI' ***



*** 'APPLE II COMPUTER' ***



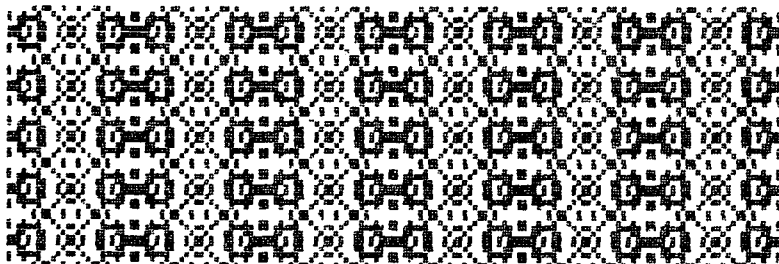
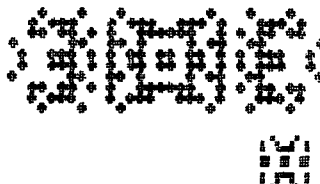
*** 'BINARY MOSAIC PATTERNS' ***



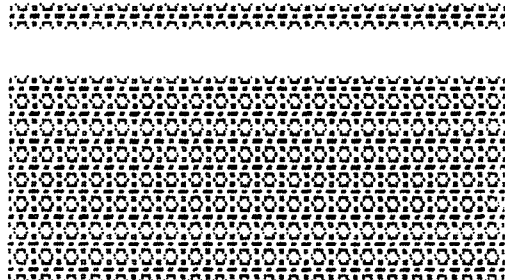
*** 'ENTHUSIASM' ***



*** 'BALTIMORE ORIOLE' ***



BINARY MOSAIC - FROM THE WORD MAGNETOSPHERE



('MAPLE')



NAMELIST INPUT IN APPLESOFT

by Charles K. Mesztenyi

INTRODUCTION

Many useful programs require a lot of input from the user specifying certain parameters such as hardware configurations, problem related data, etc., some or all of which can be preset by default values. In these cases, the user should only need to specify these values if they differ from the preset ones. In a Fortran type of language, input statements using the name declared in NAMELIST statements allow the user to input actual data values only to those variables which he wishes to change. Briefly, the declaration statement has the (approximate) form:

```
NAMELIST S(V1,V2,...,VN)
```

where S is the name of the namelist and V1,V2,...,VN are variable names. A subsequent input statement

```
INPUT S
```

requires an input line in the form of simple assignment statements separated by commas (or other separator), e.g.

```
V1=2.5,V3=-10
```

where not all variables, V1,V2,...,VN need to be present.

APPLESOFT IMPLEMENTATION

To implement such a feature in Applesoft is much easier than in Fortran, since there is no need for any declaration statement. It is necessary in Fortran to carry over the symbol table part associated with the variable names V1,V2,...,VN and their corresponding storage locations. Basic, being an interpretive language, carries the names of the variables with their values during run time; thus this association is readily available.

The INPUT part of this feature is also simple but, unfortunately, it has a flaw. This procedure consists of placing an END statement in place of the INPUT statement. When an END statement is encountered during run time (in deferred mode), the Applesoft interpreter turns into immediate mode with a display of the prompt "J" and flashing cursor. At this point, one can type in all the necessary assign statements separated by colons or in separate lines. In fact, any statement allowed in immediate mode can be given as "input". Finally, typing CONT returns the control to the stored program following the END statement. This procedure is so simple (no extra program is needed) that one hates to find a flaw in it.

The problem occurs when the statements typed in immediate mode as input have an error. The appropriate error message is given and proper statements may be typed in again, but when CONT is typed one

receives the message that it cannot continue. That is, Applesoft forgets where it came from when an error occurs and any ONERR GOTO statement in the stored program loses its effect. The only remedy is to restart the program. Thus the above simple implementation of selective input requires very careful typing by the user.

The following 54 bytes-long interface program corrects this flaw in Applesoft. It is completely relocatable and it mainly uses subroutines, available in Applesoft, which were previously published by J. Crossley in the March/April 1980 issue of Apple Orchard. The two unpublished entry points are TOKENS and ERROR. Of these, TOKENS needs some extra comments. As mentioned in the Applesoft manual, some of the characters and keywords are replaced with tokens (page 121). This replacement occurs in the input buffer (\$200-\$2FF). One may consider this as a compilation, i.e. the stored program is not in the form as typed. Thus Applesoft Basic is not a pure interpretive language. The TOKENS entry works as a compiler which may be used in other contexts. E.g., one can read statements as strings, remove the high-order bits, place a zero at the end of it (these operations are done in the INLIN routine); then "compile" it with the TOKENS routine after setting the text-pointer (\$B8,\$B9) to its first character. One can also execute it through the NEWSTATEMENT entry in Applesoft, but this entry is not a subroutine entry and thus it does not return.

```
*****
*
*       NAMELIST INPUT INTERFACE
*       FOR APPLESOFT
*       CHARLES K. MESZTENYI
*       JULY 1981.
*
* THE PROGRAM MAY BE RELOCATED BY
* CHANGING THE OLD ADDRESS.
* USE:
*   FROM APPLESOFT PROGRAM:
* (AFTER ONERR GOTO IS SET)
*   CALL XXXX
* WHERE XXXX IS THE DECIMAL EQUIVALENT
* OF ORG ADDRESS.
* THE INPUT IS REQUESTED BY SHOWING
* FLASHING CURSOR, THE INPUT LINE (UP
* TO 255 CHARACTERS) SHOULD BE SIMPLE
* ASSIGN STATEMENTS, VARIABLE=EXPRES.,
* SEPARATED BY COLONS (:). IN CASE OF
* TYPING ERROR (SYNTACTIC ERROR) THE
* PROGRAM RETURNS TO THE STATEMENT
* LINE SPECIFIED BY ONERR STATEMENT IN
* THE APPLESOFT PROGRAM.
*
*****
*
INLIN EQU $D52C
TOKENS EQU $D559
CHRGET EQU $00B1
CHRGOT EQU $00B7
LET EQU $DA46
```

contd.

```

ERROR EQU $DEC9
SV1 EQU $FE
SV2 EQU $FF
ORG $6000
*
LDA $B8 SAVE TEXTPOINTER
STA SV1
LDA $B9
STA SV2
JSR INLIN GET INPUT LINE
STX $B8 SET TEXTPOINTER
STY $B9 TO INPUT BUFFER
JSR CHRGET GET FIRST CHARACTER
BEQ END ZERO = EMPTY
JSR TOKENS TOKENIZE INPUT LINE
LOOP JSR CHRGET POSITION TEXTPOINTER
JSR LET EXECUTE ASSIGN STATEMENT
JSR CHRGOT GET NEXT CHARACTER
CMP #$3A IS IT ":"?
BEQ LOOP YES, TAKE NEXT ASSIGN ST.
END TAX SAVE LAST CHAR.
LDA SV1 RESTORE TEXTPOINTER
STA $B8
LDA SV2
STA $B9
TXA RECALL LAST CHAR.
BNE ER IF NON-ZERO THEN ERROR
RTS ZERO, THUS RETURN
ER JMP ERROR EXIT THROUGH ERROR

```

Hexadecimal Listing:

```

$6000: A5 B8 85 FE A5 B9 85 FF
        20 2C D5 86 B8 84 B9 20
        B1 00 F0 10 20 59 D5 20
        B1 00 20 46 DA 20 B7 00
        C9 3A F0 F3 AA A5 FE 85
        B8 A5 FF 85 B9 8A D0 01
        60 4C C9 DE

```

Applesoft Testing Program:

```

10 REM ASSUMES THAT 48 BYTES INTERFACE
PROGRAM IS LOADED AT $6000=24576.
A, B AND C$ ARE THE VARIABLES
WHOSE VALUES MAY BE CHANGED.
20 LOMEM:25624
30 A=1:B=1:C$="FIRST":REM PRESET VALUES
40 PRINT "THE PARAMETERS A, B AND C$ ARE":
PRINT A,B,C$:
PRINT "TYPE IN ASSIGN STATEMENTS FOR
THOSE TO BE CHANGED THEN CR"
50 ONERR GOTO 80
60 CALL 24576:POKE 216,0:
PRINT "INPUT LINE ACCEPTED, A,B,C$=":
PRINT A,B,C$:
INPUT "CONTINUE (Y) OR NOT (N): ";D$:
IF D$="Y" THEN GOTO 40
70 END
80 PRINT "INPUT LINE MISTYPED, PLEASE
TYPE IT AGAIN": GOTO 60

```

Warning: Also not listed in the Applesoft manual, when an ONERR GOTO nnnn statement is executed, the Applesoft interpreter skips the rest of the line. Thus one should always have ONERR GOTO STATEMENTS as the last statement on its labeled line. The interpreter at the locations \$F2E3 contains JSR \$D9A6 instead of JSR \$D9A3, which would cause a skip to next statement separator (:). It may happen that this location is used in other contexts also, but in any case the manual should contain the warning.

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WRITE PROTECT SWITCH

by Kevin Duffy

Have you ever wished you had the capability to override the write protect switch on your disk drive? Persons that are in the habit of using the backs of their disks to store programs would find this particularly desirable. Well, here is a little inexpensive hardware modification that anyone able to solder can implement. The finished product will be a little switch and LED on the front of your disk drive that will override the write protect. When the light is on, the write protect is off. This will enable you to write to the back of a disk without punching a hole. You will also be freed of removing the write protect tapes. Just make sure the LED is off to prevent accidental writing and erasing of data on protected disks.

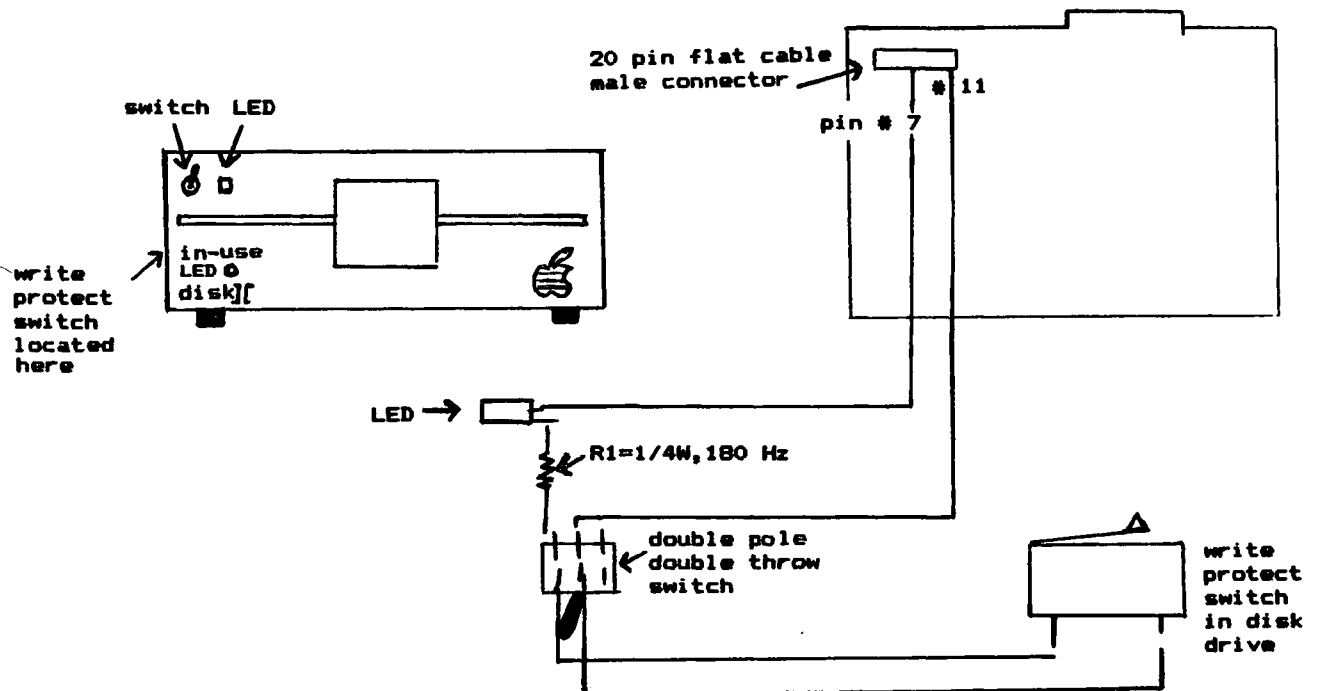
You will need the following items to make the modification: LED, double pole double throw switch, 1/4 watt 180 Hz. resistor, approximately 36 inches of wire, solder, and a soldering iron.

This hardware modification was not my own, but I have implemented it on my own disk drive and it works great.

The first thing you must do is remove your disk drive cover, which will void your warranty. You will see the analog II board on the top. Remove the cable which connects the computer to the disk drive. Upon removing this, you will now be able

to see the numbering on the 20 pin flat cable male connector. Solder one 8-inch wire to pin 7 and one 8-inch wire to pin 11. Next you must drill two small holes on the front of the disk drive above the "in-use" LED and above the disk slot. Place the LED and the double pole double throw switch in the two holes. Run the two wires toward the front. After cutting to length, solder the number 11 wire to a middle connection on the newly installed switch. Solder the number 7 wire to the short pin of the LED. Solder the 1/4 watt 180 Hz. resistor to the long pin of the LED (either end). Solder the other end to an end connection on the same side of the switch as the number eleven wire. Directly opposite the two connections on the switch, solder two 10-inch wires on the middle and end connections. Run these two wires over top of the analog board toward the back of the drive. Run the wires along the bottom toward the write protect switch on the front bottom of the left side of the drive. If you are having trouble locating this switch, place a blank disk in the drive and the switch arm will poke up through the write protect hole. After cutting to length, solder the end wire to the frontmost pin on the bottom of the write protect switch, and solder the middle wire to the pin nearer to the back of the drive. Before you try the operation make sure your resulting job matches the schematic.

DISK II ANALOG BOARD



PREVENTING ACCIDENTAL RESET

by Boris Levine

For those who may have just come on the APPLE scene...There has been a flurry of discussions in the computer magazines on the subject of accidental "RESET"s, what they do and how they should be prevented. This is a summary of several recent articles on "Preventing Accidental RESET", PAR (meet another acronym).

Let's start at the end, that is, Prevention. Recent APPLES provide a RESET change, described in a bulletin called "The Apple Encoder Board" dated 1980 (Ref. 1). A switch under the keyboard permits using RESET direct, or alternatively, with CTRL followed by RESET. This two-stage action is to minimize the effects of mis-typing. In order to determine if you have this switch, take the cover off your APPLE and look underneath, roughly between keyboard keys 6 and 7. If you have a small slide switch there, you've got a built-in solution. With the switch to the right, under key 7, RESET operates direct; with the slide to the left, under key 6, the RESET function requires CTRL-RESET.

In "Apple Cart", Chuck Carpenter (Ref. 2) describes two solutions which in effect make it harder to casually press RESET. One is a small paper collar around the RESET key; another is the use of an "O" ring to make it harder to push the key down. The "O" ring suggested is a National AS-108. Still another solution is the use of a disk of closed-cell foam, also making it harder to push the key down unintentionally.

Some of the word processor producers, the Easywriter folks for one, suggest something similar, like a small rubber washer.

There are also several hardware approaches, ranging from mechanical latches to electronic circuit boards. "Softalk" (Ref. 3) has an ad for "Reset Guard", a lever which, apparently flips over the key and obstructs accidental strikes. A make-it-yourself plug-in electronic circuit is described in "On Guard" (Ref. 4). Also, I've seen at least one ad for a commercial board that does the same thing.

Now, why the fuss?

Why?...Because RESET stops your program - that's why! And depending on your equipment configuration and what you were doing, you may get put back into Basic or the Monitor program. If you happen to be in Apple Writer you get the Editor menu, etc. If RESET was accidental, none of this is what you wanted.

And just how devastating is this accident. Again, that depends on your APPLE and what you were doing when you RESET. In some cases you can recover quickly and suffer only a short delay or slight irritation.

If you have Autostart ROM and no DOS, RESET puts you into Basic and you can recover your program with CTRL-C.

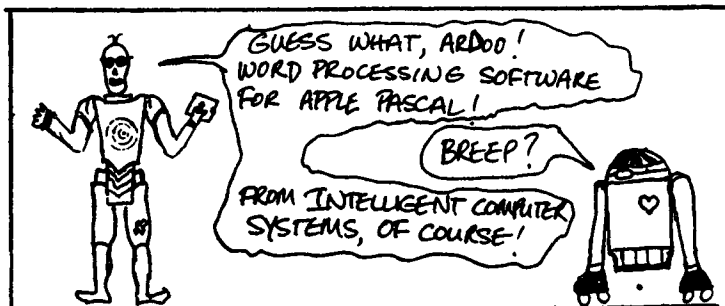
But it can be worse. For example, in Apple Writer with Autostart ROM, you may destroy some of the contents of memory. Apple Writer recommends that before you resume editing, check the memory and save it if it is intact (Ref. 5). For full details, see the manual for your particular APPLE configuration.

So, for the purposes of this article, let's stay with the prevention of accidental RESETs.

References:

1. Bulletin, "Apple Encoder Board", Apple Part #030-0096-00, 1980.
2. Creative Computing, July 1980, pages 150 and 151.
3. Softalk, June 1981, page 9.
4. Microcomputing, June 1981, page 122.
5. Apple Writer Text Editing System, page 31.

(Ed. Note: See Mark Crosby's fix in his "Questions" column elsewhere in this issue. This may help under certain circumstances.)



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WRITING BUSINESS LETTERS WITH PASCAL

by Herb Klonsner

What if you want to use your computer for writing business letters? There is no easy way to do this using Basic since in the Basic mode, every line that is entered is interpreted as a command. The only way to accomplish text entry under Basic is to run a program that accepts the input as text for a letter instead of as Basic commands. There are many text processing programs on the market that accept text and produce letters or documents. However, for anyone who has the Pascal Language System, there is another method that can be used.

The Pascal editor is one of the software modes that comes with the Language System. It provides a complete environment for entering and editing text. The text can be anything from the source code needed for a Pascal program to the text for a business letter. This article was entered and edited using the Pascal editor. While in a text entry mode in the editor, one can power type without looking at the screen. As the text approaches the end of the line, if a word will not fit on the end of the line, the editor automatically moves the entire word down to the next line. The typist need never look at the screen. The editor handles the end-of-line word movement so fast that there is no interruption in typing.

The user also has the option of setting his right and left margins, and the number of columns to indent his paragraphs. I have an 80 column board (Smarterm) so I set my margins to 0 and 79 to see an entire page of output.

In summary, if you have the Language system, you have the perfect tool for writing letters. Now, if you write business letters frequently enough to merit setting aside one diskette specifically for that, read on. You can set up one diskette that, when booted, will automatically bring up a skeleton form letter. This saves you the repetitive task of setting up your return address, salutation, and the closing. It can also preset the margins and paragraph indentation setting for your letters.

In order to have a form letter skeleton appear on your screen automatically upon turning on your Apple, you will need to have the latest version (1.1) of Pascal. It allows Exec files, which will be needed to enter the editor without first coming to the command line. Before getting into the Exec file, let's look at the files that are needed to produce a "business letter" diskette. A "business letter" diskette can be built by initializing a new diskette, transferring the files that were needed from the APPLE1 Pascal diskette, and adding three additional files.

The files on the diskette are:

SYSTEM.APPLE	- from APPLE1
SYSTEM.PASCAL	- from APPLE1
SYSTEM.MISCINFO	- from APPLE1
SYSTEM.EDITOR	- from APPLE1
SYSTEM.FILER	- from APPLE1
SYSTEM.LIBRARY	- from APPLE1
SYSTEM.STARTUP	- a compile of STARTUP.TEXT (see below)
STRT_EDIT.TEXT	- Exec file to automatically invoke the editor
SYSTEM.WRK.TEXT	- skeleton business letter

SYSTEM.STARTUP is the "turnkey" file that executes after initially turning on your computer. The purpose of the file is to automatically invoke

an Exec file to initiate the editor. SYSTEM.STARTUP is the code file for the program shown below:

```
PROGRAM STARTUP;
USES CHAINSTUFF; (*NEEDED FOR STARTING AN EXEC FILE*)

BEGIN
  WRITE(CHR(20),'CO'); (*This is only needed if you have a SMARTERM *)
                      (*80 column board. It sets the cursor to a *)
                      (*fast blinking mode for easier editing. This*)
                      (*is the normal Pascal mode without this board*)
  SETCHAIN('EXEC/#4:STRT_EDIT'); (*Execute an Exec file to initiate *)
                                (*the editor *)
END;
```

It starts the Exec file called STRT_EDIT. That file contains the same commands one would have used to go from the initial Pascal command level into the editor. That is, it contains the "E" that you would have typed in on the keyboard to go to the editor.

To make the Exec file, the M(ake command is used from the main Command level of Pascal. Enter the "E" to request the editor, and then enter "%" to terminate your Exec. This is further explained in the "Addendum to the Apple Pascal Operating System Reference Manual" provided with the version 1.1 Language System.

The last step in setting up your automatic letter diskette is to provide a skeleton of a business letter in the Pascal work file (SYSTEM.WRK.TEXT). A sample form would look like the following:

1111 Peach Street
Bananaville, Virginia 22222
August 20, 1981

XYZ Corporation
Apple Court
Grape, Ma. 11111

Dear Sirs:

----- put your letter body here -----

Sincerely,

Herb Klonsner

In order to produce business letters, you need to have a printer to get a hard copy. If you have an Epson MX-80 printer, you can get a nice looking final copy of your letter by printing it out in an emphasized mode. This can be easily done by putting an "E" command at the beginning of your letter and using the PRINT program to produce the final letter. The PRINT program was described in the June 1981 "Washington Apple Pi" magazine (volume 3).

In summary, the following is needed to produce letters in the mode described above. This method is only recommended if you already have the

contd.
PAGE 41

Pascal Language System since a cheaper word processor could be purchased to do the same job.

1. Pascal Version 1.1 (needed for Exec files)
2. An upper/lower case board such as Smarterterm
3. A printer to produce a hard copy
4. The PRINT program (if your printer is an Epson MX-80) to print the letter in whatever format is desired (emphasized, etc)

Happy writing!

SOFT CTRL SYSTEMS

+ ROMPLUS a review

by Bob Schmidt

This article describes an Applesoft utility add-on which I have found to be most useful for disk and program utilities. I am really talking about two systems which reside in one slot and can perform up to six functions. These are the Mountain Computer ROM Plus board and the Soft CTRL Systems chips. Right now, I can (1) boot 3.2 DOS from 3.3 without the Basics disk; (2) catalog the disk by full screen "pages" with utility routines (load, lock, unlock, run, delete, change drive, and display track/sector map); (3) search for or change a variable or Applesoft command while editing a program; or (4) call up the Program Line Editor (PLE), including user defined escape functions, while editing a program.

Granted, these are all available in one form or another in the club utility disks, but the agony of saving a developing program in order to enter PLE or a variable search routine before re-entering my program has driven me to utilize the Soft CTRL chips. These routines are contained in their own ROMs and can be called up anytime. All I have to type is PR#5 (my ROM Plus board is in slot 5); shift-CTRL-N (this turns on the control ROM on the ROM PLUS board; and 2A (this selects the "A" routine in the second of six possible ROMs).

Club disk programs are definitely cheaper, but if you do much programming or many disk searches, you might consider the utility of this combo. Give me a call (736-4698) if you want to talk about them.

FLAG by

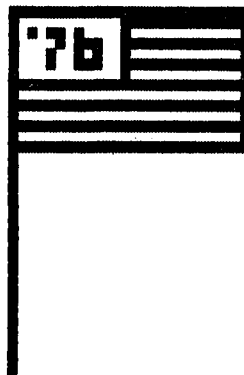
Craig Feinstein

```
J
5  REM  USE THE MX-80 PRINTER BY
    EPSON WITH THE GRAFTRAX 80
    GRAPHICS AND YOU'LL GET THE
    OLD AMERICAN FLAG BY CRAIG
    FEINSTEIN AGE 11
10  PR# 1
15  PRINT CHR# (27)"G"
17  PRINT CHR# (14)"OUR COUNTRY"
    S OLD FLAG"
20  PRINT CHR# (27) CHR# (62)
30  PRINT "JCC33#K/////5"
40  PRINT "J H!W5JSSSSSS5"
50  PRINT "J,,,,,,,,,5"
60  PRINT "JSSSSSSSSSSSS5"
70  PRINT "J,,,,,,,,,% "
80  FOR I = 1 TO 7
90  PRINT "J"
100 NEXT I
120 PRINT CHR# (27) CHR# (61); PR#
    0: END
```

IRUN

OUR COUNTRY'S OLD

FLAG



LETTERS TO THE EDITOR

Dear Editor,

The point was made in the President's Corner in the September 1981 WAP Newsletter that we should be responsive to the needs of our more experienced members. I wholeheartedly support this. A few months ago at a Board meeting I raised the issue of the needs of the new members. The response was marvelous. First, I was given a job in the club and second, in NEWSIG, I witnessed some of the best instruction and sharing of information that I have ever seen, in universities or elsewhere. But what can those of us at beginning and intermediate levels do for those who are more advanced? In general, they should give us some suggestions and then we must act on them.

At this time I have one suggestion to follow up on a need expressed at the August WAP meeting. There is a great deal of information available on disks and on paper regarding APPLE and related subjects, but that information needs better organization and indexing. Reviews of the excellent caliber as that on word processors by Walt Francis in the September 81 Newsletter are very helpful, and we should encourage the writing of more of them. But the number and range of interests of our members are so large that reviews will never cover everything. And besides, review writers need indexes and other support. The WAP Newsletter is not indexed. As the issues pile up, it will get harder and harder to find things.

Come on, all you out there in WAPland. If you ever used a card catalog in grade school or have heard of KWIC, KWOC, or inverted file or are into artificial intelligence, you can help. Perhaps talents and needs can be shared among the SIGs, especially the NEWSIG. If you feel a need for better organization and indexing of programs, articles and other information on APPLE, please contact Boris Levine who will start the process of coordinating volunteers.

D. Jesse Wagstaff

Ⓒ

Dear Editor,

I recently had an annoying repair experience, which I am writing about to illustrate a problem and propose a solution.

My problem started when my disk drives could not boot Pascal. I took them to my neighborhood store, where I was told that they specialize in disk drives, and that the problem could almost certainly be solved for \$25 shop time plus parts. When I picked up my disk drives, the bill was for \$50 and they told me that they could not make one particular adjustment because my early-mode analog cards needed replac-

ing, which they could do for \$130 more. I took the drives home and found they were worse than ever. I then called Computers Plus in Virginia, and learned that it was Apple policy to update the analog card for free (if necessary), and that they could do the work for their minimum shop fee of \$25. A little later, they called me to say that the drives had been adjusted all wrong, and they would have to charge an additional \$40 for more shop time to get it straightened out. I told them to go ahead, and when I picked the drives up, they had replaced only one of the analog cards and decided to reduce the bill to the original \$25 estimate. The drives have worked fine every since.

My point is not just that one shop is much better than another, but that APPLE users can be quite vulnerable to incompetent (or unscrupulous) repairpersons. Very little information can be gained from one person's experience, but by pooling our information we can not only protect our membership but also help good repair shops to establish and maintain their reputations. It is my suggestion that a committee be formed to do a statistical analysis of our repair experiences, similar to what Checkbook and Consumer Reports do now. Since our membership contains a large fraction of the APPLE users in the D.C. area, we should come very close to a complete sampling, and our results will by definition be very accurate.

Such a statistical analysis would require some care, of course, since a variety of effects would tend to distort the results, e. g.

1. Dissatisfied customers will be much more likely to contact the committee than satisfied customers.
2. Customers' impressions of what happened may not be completely accurate.
3. Certain kinds of repairs are much harder to fix than others.
4. In cases where the work was done in two different shops, there may be questions as to who is responsible for what.
5. Even computer repairpersons have off-days.
6. In digitizing the information for analysis, proper care must be taken to avoid over-simplification.

I think all of these problems can be dealt with, and the solution to most of them is, in fact, to have a lot of data and try to get everyone to report.

A simpler and perhaps less time-consuming variation of this idea is to set up a

contd.

mediation committee, which could talk to any repair shops on behalf of any dissatisfied customers (as does the AAA for cars). In the event the committee is unable to find a satisfactory solution and believes the shop is at fault, a letter describing the situation could appear in the next edition of the WAP newsletter.

Demetrios Matsakis

DOS 3.3.1 IS COMING!

by David Morganstein

It would seem about time that a new version of DOS 3.3 should appear, wouldn't you say? Well, I've seen a disk with a HELLO program that suggests it is already here. This new version contains only utility programs. I do not know what corrections and improvements are in it, but I can describe the utilities.

These include a form of the well-known Double DOS which allows the user to switch back and forth between 13 and 16 sectored formats without rebooting. It contains a FID program for DOS 3.2 like the one written by our own Sandy Greenfarb, and found on Volume 32 of the Library. It also contains a NIFFUM program like the

one Sandy wrote. Of course, there is the traditional update program so that you can revise the DOS on 3.3 disks to 3.3.1.

Another interesting program is WOZBOOT13 which apparently lets P5A PROM owners (used for booting 16 sector disks) boot 13 sector disks directly, much like commercial programs are doing. For those librarians out there making multiple copies of 16 sector disks, there is a quick copy for use with 2-disk controllers. This routine keeps both disks whirling continually and can make a copy of 3.3 disks in about thirty seconds. However, I guess we will have to wait for official word from Apple Inc. to learn more about the changes to the DOS which necessitated the release.

CP/M INTEREST GROUP *****

For any of you with a Z-80 Softcard for the APPLE, your attention is called to the announcement under SIGNEWS regarding the formation of a new CP/M interest group.



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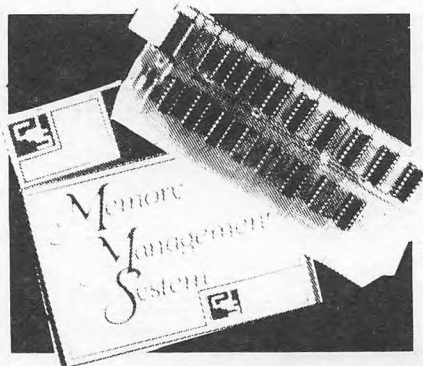
HOW IT DOES IT

MMS II removes the Apple Disk Operating System (DOS) from your Apple's memory and places it on a 16K RAM Expansion board in slot 0. Once DOS is removed, the memory it took up is now **available** for your use. DOS is still active but it no longer takes up precious memory. You have **regained** the full capabilities of your 48K Apple.

16K EXPANSION BOARDS

The following 16K Expansion boards are compatible with **MMS II**.

- Apple Language Card
- Microsoft RAMCard
- Prometheus MEM-1
- Computer Stop CS16K



- Andromeda 16K RAM Board
- and all others

DUAL LANGUAGE CAPABILITY

Apple owners who need both Applesoft and Integer BASICs and, simultaneously, wish to have **MMS II** active must have another 16K RAM or ROM card in their computer. **MMS II** will recognize this second card in whatever slot you select.

ENHANCED VERSION

The original **MMS** was very well received by many Apple owners. But a few people wrote to us and asked for some modifications. We have **incorporated** these suggestions into **MMS II**.

- MMS II** is **copyable** and is not protected. It can now become the boot 'Hello' program on your work disk.

- Once **MMS II** is initialized it will **automatically** run whatever program you direct it to.
- MMS II** allows you to specify the slot that contains the second ROM/RAM card.
- All DOS commands are enabled in **MMS II** and are available for your use.
- MMS II** is compatible with programs that use page 3 of memory (i.e. programs that use the ampersand, &, vector.)

WHAT IS REQUIRED

- 48K Apple II or Apple II Plus
- 1 or more disk drives
- 1 16K RAM Expansion board
- MMS II** by CDS

UPGRADE POLICY

Current owners of **MMS** can upgrade their system to **MMS II** by returning their original **MMS** diskette and \$20.00. **MMS II** will be returned immediately.

HOW TO ORDER

MMS II is available through your local computer store, or you can order direct by calling **COMPUTER DATA SERVICES** at (603) 673-7375. VISA, MasterCard, and COD accepted.

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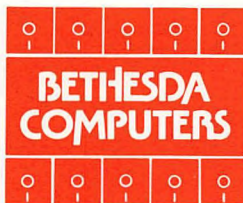
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