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Washington Apple Pi



Volume 4

June 1982

Number 6

Highlights

SO YOU WANT TO SELL YOUR SOFTWARE
 HARDWARE HIRES RELOCATION
 SUGGESTED PROGRAMMING STANDARDS
 WINDOWING, CLIPPING, AND ROTATION

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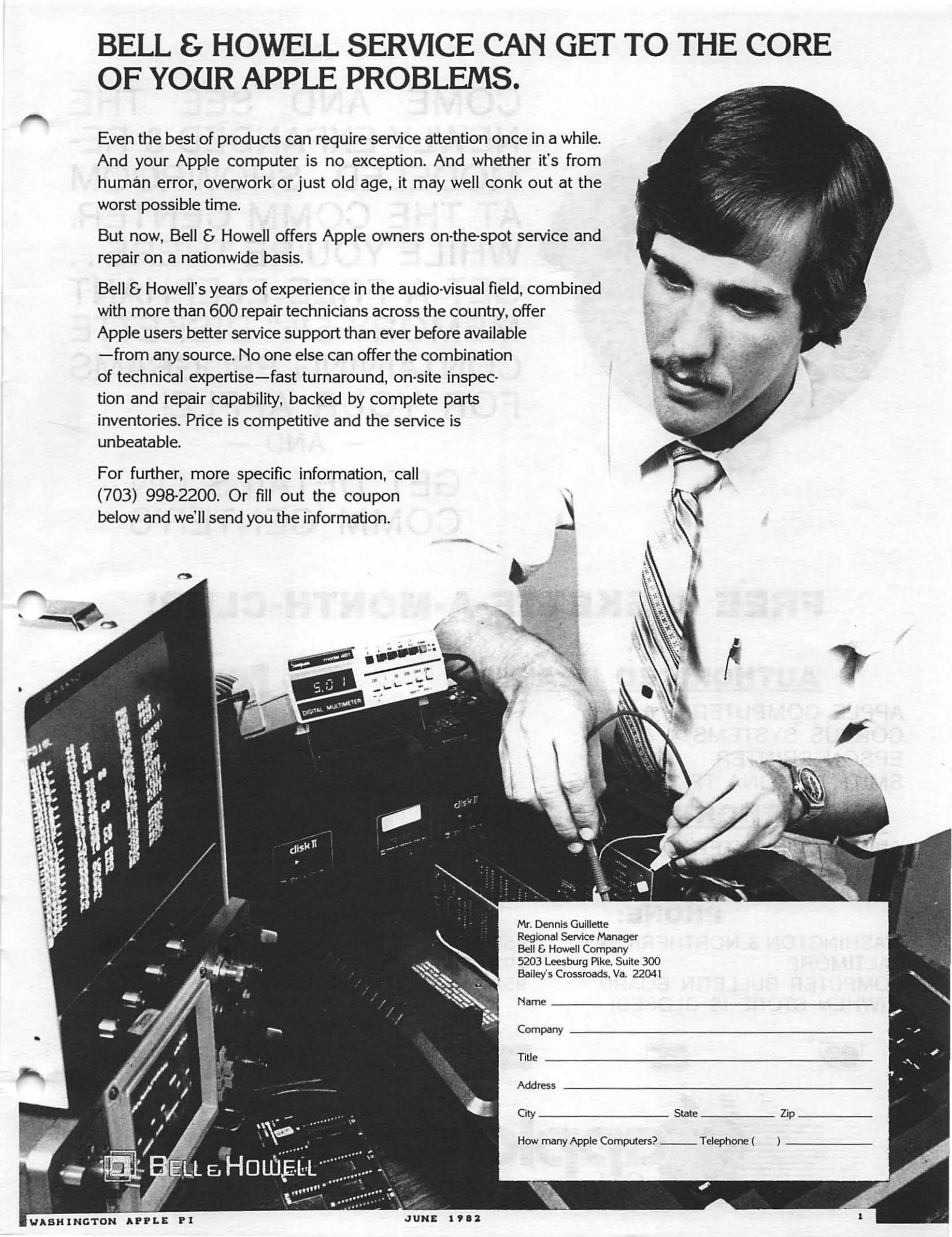
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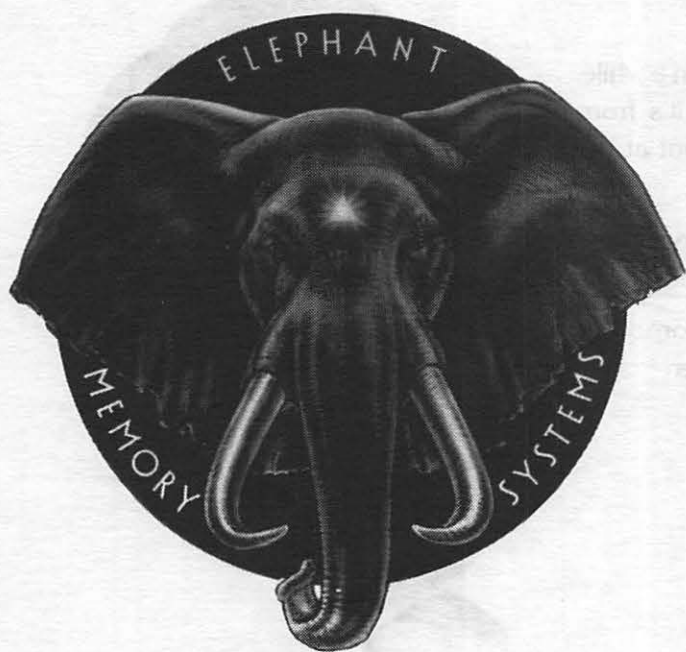
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Membership dues for Washington Apple Pi are \$18.00 per year, beginning in the month joined. If you would like to join, please call the club phone and leave your name and address, or write to the P.O. Box above. A membership application will be mailed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

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

Members who would like to sign onto the Washington Apple Pi ABBS system should call the club phone and leave your name (first and last), WAP number and phone number. You will be notified of your password.

It has finally happened. Our SIG's have really taken hold. You will notice in this issue that we have begun a new phase of friendly competition for space in the Pi. The gamesters were first on the scene and were quickly followed by the Appleseeds and NEWSIG. Now we are hearing from the EDSIG and APPLE /// SIG. Soon to be heard from are the VisiCalc folks and others. That is as it should be.

In addition to the popular Q & A column and Page from the Stack, we have some fine contributions on topics which vary from programming standards, communications via modem, through relocating HIRES and legal aspects of marketing your software, and more. Please keep it coming right through the summer and beyond.

EVENT QUEUE

Washington Apple Pi meets on the 4th Saturday of each month at the Uniformed Services University of the Health Sciences (USUHS), Building B, 4301 Jones Bridge Road, Bethesda, MD, on the campus of the National Naval Medical Center. Sales, library transactions, newsletter pickup, etc. are from 8:30 - 10:00 AM. From 9:00 to 10:00 AM there will be an informal "Help" session in the auditorium. The main meeting starts promptly at 10:00, at which time all sales and services close so that those volunteers can attend the meeting.

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

June 26 - Tom Riley
 Predicting the Future with Your APPLE, or the Mathematical Basis of Astrology Revealed. In plain English, no technical aspects to be covered except if requested during Q&A. Of particular interest to those looking for new ideas for commercial software. The talk calls for a direct frontal assault on astrology and to \$ 4 billion market.

July 24 -

August 28- Bruce Field & Bill Wurzel
 FORTH

ANNUAL ELECTIONS

by Bob Platt

Ballots for our annual election have been mailed to all members. They include both election of Officers and Members-at-Large, and a non-binding referendum. Please return your ballot by June 21.

PRESIDENT'S CORNER

by David Morganstein

Special Meeting. My thanks to the 70 or so folks who turned out for the special meeting to discuss our future direction. To summarize: on the question of to grow or not the answer was an overwhelming GROW!!! To meet the challenge of doing that most people favored our buying some of the services that are now provided by our all-volunteer staff. But purchase prudently...shop around and find the "best buy". Most people favored our obtaining office space though there was some disagreement as to the use. Some wanted the space open to all, both members and prospective members. Some wanted a library of magazines and other materials available. By opening the space we must see to it that the office is staffed to insure its security. On the question of financing growth most people wanted a reasoned accounting of income and expenses after which they felt that club members are prepared to pay for "reasonable" additional expenses. More on a budget later. Agreement was reached on charging new members for the cost of "new member" materials which are sent them, others were willing to charge a little extra to help finance growth. In summary, it was a useful meeting and gave the Exec Board a good sense of direction.

• • • • •

Straw Vote. To check out our assumptions from the special meeting, a straw vote will accompany your elections ballot. Please give thought to these issues and return the ballot and straw vote. The questions posed summarize the differences of opinion expressed on several topics. From your opinions, we will move ahead with a budget for the upcoming year.

• • • • •

Budget. A preliminary look at our revenues and expenses from 1981 and for the first quarter of 1982 indicate tremendous growth in many of our activities. In particular, the group purchases may triple in the coming year. Library disk sales are also on a big increase. While we have not seen a large increase in printing costs, this may not last for long, particularly if we begin to pay for services which are now provided on a volunteer basis. A preliminary budget meeting has been held and a first draft reviewed by the Exec Board. Hopefully, I will have more luck than President Reagan in getting approval on a budget...but then we have no planned deficit (really!!!)

• • • • •

Typesetting of Magazine. Bernie and Gena Urban have been researching the possibility of typesetting the Pi. An interesting observation, the cost to typeset may be entirely offset by the savings brought about from fewer pages to print and by a reduced mailing expense due to lighter weight. I look forward to more information

on this.

• • • • •

New Volunteers. Several new names will appear among the list of volunteers:

SYSOP in training: Tom Warrick (many thanks to all those who volunteered to help. Please check with Tom to see if he can use your contribution...)

Elections & Rules: Bob Platt

General Counsel: Jim Burger

The last volunteer needs further comment. The law firm of Shaw, Pittman, Potts & Trowbridge, where Jim works, has agreed to counsel the WAP on a pro bono basis. (After asking what that means, I was told it means that we don't have to pay!!! Imagine that...) My sincerest thanks to S,P,P & T for their kind offer to help us during the next year. You may be interested to know that one of their legal specialties is copyright law associated with software development. I wouldn't be surprised to discover that many major software vendors are among their clients.

• • • • •

Consumer Advocate. Is there any interest in starting a consumer advocacy program? With a volunteer, perhaps a lawyer, we might be able to help resolve problems between WAP members and local merchants or national distributors. If you would like to see such a service, let me know. If you are interested in serving as an advocate, I'd like to hear from you as well...

• • • • •

Protection Systems. My last comment is a gripe. I have recently tried to use two different game programs developed by one of my favorite authors, NASIR. Much to my dismay, I found that the disks would not boot on either drive in my system. Checking the drives speeds, I found everything in order. A small footnote in the documentation states, "This program contains a routine to check for an exact load of the game. If it fails to load exactly, it will attempt to reload itself. If it cannot reload itself after several attempts then either the disk drive needs adjustment, there is a faulty RAM in the Apple, or in spite of our efforts to test every diskette before shipment, you may have a defective diskette." What the note from Gebelli Software doesn't say is how it "protects" its disks. As many people know, the Apple DOS uses 35 tracks positioned in concentric rings. Some protection mechanisms read and write at track positions between the usual ones, called half-tracks. However, the distance between tracks is maintained as a full track gap because the positioning mechanism of the head is not accurate

contd.

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Apple Disk II, Controller & DOS 3.3	645.00	529.00
Apple Disk II Add Drive	525.00	449.00
Zenith 12" B/Green Monitor	179.00	129.00
Amdek 13" Color Monitor	449.00	399.00
Amdek Video 300 Monitor	249.00	199.00
Joystick II	49.95	45.00
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Epson MX-80 (tractor only)	645.00	499.00
Epson MX-80 F/T	745.00	579.00
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enough to write at half-track intervals. It is my understanding that Gebelli Software is writing data at half-track intervals by trying to position the data on opposite sides of the disk. It appears that many APPLE drives will not be able to read disks using this scheme. If my experience with two different new products on two speed-checked drives is typical, it means that Gebelli is going to get a lot of returns from unhappy purchasers. So goes the saga of the protection debate...

HOT LINE VOLUNTEERS NEEDED

If you are interested in helping other WAP members with questions they have, read on. We are trying to expand our hot line service with new software and hardware coverage. If you feel competent to handle questions about any of the following items, please contact David Morganstein (301) 972-4263 with your phone number and any limitations on the hours you wish to be contacted.

Software.

Data base packages: File Cabinet, Data Factory, DBASE II.

Graphics Packages: Super Hires Graphics, Sub-Logic A2-3D1, HiRes Text, HiRes Graphics.

Communications Packages: VisiTerm, Data Capture, Z-term, ASCII Express.

Basic Compilers: Expediter, TASC, Hayden, SDS.

Hardware.

Super Serial Card, Versacard, CPS Multi-function card.

Printer interfaces: PKASO, Grappler.

If you need help in some other area, let us know and we'll try to connect you with help.

TOPICS & SPEAKERS

The WAP is in need of meeting topics and volunteer speakers. Several topics which have been suggested are:

Hardware Interfacing (Tom Riley may do this one.)

Copyright Laws Dealing with Software (Ken Hautman may be "convinced" to do this one)

Memory Expansion Boards.

Communications Packages.

Time Share Systems.

What subjects would you like to hear about? If you would like to suggest a topic or speak about one of the above or any other of your choice, please contact the Program Chairmen, Tom Woteki or Ernie Forman, or the President, David Morganstein. Ⓔ

A PAGE FROM THE STACK by Jill and Vance Giboney

A number of new disks for the library this month. The first addition is:

Volume 114A ADVENTURE - INIT
Volume 114B ADVENTURE

This is a text adventure game written in Applesoft. As the introduction states: "Somewhere nearby is a colossal cave, where others have found fortunes in treasure and gold, though it is rumored that some who enter are never seen again. Magic is said to work in the cave."

To run the adventure, insert Volume 114A and RUN ADVENTURE*INIT. When the program prompts you to "Insert Text Diskette" insert Volume 114B. Note that BOTH disks are required to run the program.

Also added to the library this month is:

Volume 115 IAC 12/13 MISCELLANEOUS

These two IAC disks have been combined for the WAP library since many of the programs on IAC 13 were contributed from recent WAP disks. The IAC 12 disk includes a set of programs from the Ottawa 6502 User Group. Both games and utilities are included: Cribbage, Concentration, Applesoft List-printer, (Applesoft) Softsymref, etc. From IAC 13 there are a couple of programs from the Apple User Group of Sweden, including a DOS modifier program that allows you to change the DOS error messages and command names.

Another IAC disk that we're adding this month is:

Volume 116 IAC 14 MICROMODEM II

D.C. Hayes, Inc. has put their Micromodem II programs into the public domain and donated them to the IAC. The programs are written to work with the Micromodem II, of course, but could be modified for other uses.

And the final disk we're adding this month:

Volume 117 PICTURE PACKER

This features the hi-res picture packing programs from CREATIVE COMPUTING which allow you to conserve disk space when saving hi-res screens. Also included, of course, are a number of graphics screens in a slide show format. Ⓔ

Please note that if you contribute a disk with public domain programs on it to the WAP Library, we will give you in exchange a WAP Library disk of your choice.

SIG-NEWS

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

PIG, the Pascal Interest Group, meets on the third Thursday of each month at 7:30 PM at the Uniformed Services University of the Health Sciences, Bldg. A, Room 2054 (2nd floor), on the campus of the National Naval Medical Center at 4301 Jones Bridge Road, Bethesda, MD.

EDSIG - the education special interest group - now meets on Tuesdays. Since the last issue of the magazine, EDSIG has met twice, and the next meeting will be on Tuesday, June 8th, at 7:30 PM in Lecture Room A, Building A, USUHS. For details of this and other meetings, see the EDSIG page in this issue.

ASMSIG meets immediately after the regular Washington Apple Pi meeting.

For details of the APPLE /// SIG see their news elsewhere in this issue.

NEWSIG will meet just after the regular Washington Apple Pi meeting. We will answer questions and try to help new owners get their systems up and running. We will also explain how our club operates.

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

Bob Chesley	560-0120
Paul Hoffman	831-7433
Sarah Lavilla	926-6355
Boris Levine	229-5730
John H. Smith	439-4388
Steve Sondag	281-5392

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EDSIG NEWS

by Peter Combes

EDSIG Calendar

Tuesday, June 8th at 7.30 p.m.

An Apple in the Lion's Den

Can an Apple survive in a classroom?

Jim Bruno of RAC has worked with several projects that involved placing Apples in high-risk situations. He will talk about "Battleproofing Apples".

Ros Stern will talk about programs for the classroom, with examples taken from the WAP disks.

Tuesday, July 13th at 7.30 p.m.

Language Arts on the Apple.

Demonstration of a new and exciting language arts package developed by two of our members - Karen Berlin and Mary Brown. The package is for elementary school pupils, and can be used by students, teachers or parents with no previous experience on a computer.

Meeting Reports

Saturday, April 24th

LOGO is here.

It isn't every day that a new language is introduced for the Apple, so perhaps it was no surprise that Lecture Room A was packed on April 24th for EDSIG's premiere of LOGO. It was not the first time that EDSIG had talked about this exciting new language - Brian McLoughlin gave us an entertaining and most informative briefing as long ago as last summer - but it was the first time that we had a system up and running. Indeed, Nancy Strange had rustled up no fewer than three implementations, and we had a chance to see them and compare them.

Anybody who has tried to teach BASIC knows how the trainee is all too soon producing impenetrable code, with GOTO's everywhere, understandable only to himself, and almost impossible to debug. A working LOGO program looks simple, is simple, and is easy for the outsider to understand.

It is particularly easy to "get started". Booting up produces a blank screen with a small triangle - the "turtle". LOGO was originally designed to control a small robot - the turtle - which would trundle round the floor drawing designs on large

pieces of paper. Just as the Apple key marked "BELL" reminds you of when all computers were teletypes, so commands like "PENUP" remind you of LOGO's origins. The command FORWARD 10 will move the screen turtle up the screen, leaving a trail behind it. RIGHT 90 will turn it clockwise 90 degrees, and it always goes in the direction it is facing.

Commands can be put together to make a "procedure"

```
TO SIDE
  FORWARD 10
  RIGHT 90
END
```

So to get a square, you just do four sides.

```
TO SQUARE
  SIDE
  SIDE
  SIDE
  SIDE
END
```

Type SQUARE and the screen turtle draws a square. How many commands do you need to do that in BASIC?

Procedures can call themselves, and dazzling patterns are possible based on very simple ideas. Procedures can be saved as files and called upon when required, by themselves or as parts of other procedures, without having to type them in again.

The whole idea is that children work these procedures out for themselves with the minimum of help, learning logic and a lot of mathematics in the process. Perhaps even more important, they learn a problem solving technique - try it out, look for the problems, correct, and try again.

Each of the three implementations - Krell, Terrapin, and Apple were easily initiated and running. The most difficult part of the operation was installing the extra memory cards in the Apples. At least one Apple owner was seen to blanch as a RAM was dug out of its bank to make room for the card connector.

Each of the LOGO's showed the dazzling graphics capabilities of LOGO - the speed with which the turtle dashed about the screen was impressive even to the machine language aficionados.

There was a world of difference in the documentation for the three LOGO's available. The very first thing to strike you on reading Krell's documentation is "this program still contains some bugs". Terrapin's documentation is also unimpressive. Apple has produced very appealing booklets to what has been their standard format ever since the last Red Book went into retirement.

contd.

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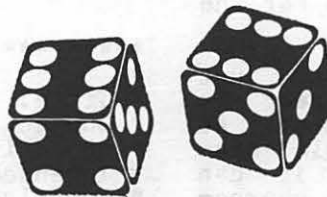
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Krell has an attractive disk called "Alice in Logoland" to introduce LOGO procedures.

Krell and Terrapin use binary files to store procedures. Apple LOGO uses text files for its procedures, so we already have two incompatible LOGO systems for the Apple.

Whisper it ever so quietly, but it just could be that if your main interest is LOGO, then you have the wrong computer. At the moment Texas Instruments' implementation of LOGO looks more capable. It can define "sprites" - little graphic characters that will "keep going until told to stop" - and has many more colors. We are promised lots of developments for Apple Logo, but there are dark rumors that these will need hardware mods - such as a new graphics card for around \$500. Since the limitations of the current Apple graphics appear to be the principle problem, we might expect the Atari Logo, which is being developed, to be even better than the TI version. Will members who change sides please leave their Apples with EDSIG on their way out.

The acid test of LOGO will be - what happens in the home or the classroom? Educational technologists are only too aware of the "Hawthorne Effect" - every educational innovation "works" while it is new and exciting, and while there are lots of experts around to stamp out the bugs. The long term reality can be very different - remember the grand hopes for "new math"? LOGO has emerged into the cold world, and "ordinary" people are buying it and taking it home. The jury will not be out for much longer.

Tuesday, May 11th at 7.30 p.m.

Videodiscs and Apples.

Col. Richard Hodder of USUHS demonstrated a professional videodisc player connected to an Apple. Each disc holds 54,000 TV frames. Each of these frames is identified by two hex bytes, and the player can find any one within 2 sec. The player sometimes is in error by one frame, so some users record each frame twice. The computer hardware requirements are not exotic - Col. Hodder uses a standard Apple Communications Card, connected to the videodisc unit by a RS-232 interface. He has written driver programs in Pascal, Pilot, and Basic. The only problem that arose was that the Apple thinks faster than the videodisc, so a delay loop was necessary to avoid the videodisc getting confused by commands arriving less than a second apart.

The simplicity of the connection makes all sorts of applications possible. Multiple choice testing is easy to set up, and the enormous capacity for separate still images makes it a powerful medium for "library" use. Col. Hodder demonstrated the use of a videodisc to hold and access large numbers of radiograms ("54,000 pictures on one disc is a big jump from a Kodak Carousel holding 40 slides"), and showed remarkable picture quality. He is investigating the development of such discs not only for teaching

but also for diagnostic work.

Continuing our program of having members demonstrate educational programs they have used, Janet Graeber of Stone Ridge School showed five programs.

```

*****
*
* Title: Moptown
* Subject Area: Distinctions
* Objectives: Conceptual skills
* Intended Age Group: 3-6 years
* Usefulness (1-10): 7
* Produced by: Advanced Learning Technology
* Marketed by: Apple Special Delivery
* Price: $50
* Requirements: Applesoft ROM DOS 3.3
* Color Monitor
*****

```

Demons and treasure chests in education! "Magic Spells" contains eleven lists of commonly misspelled words, with the option to add others. When you work out how to "unscramble" a word, you are "given a chest of gold". Get it wrong, and a demon will take some of the gold away.

```

*****
*
* Title: Magic Spells
* Subject Area: Spelling
* Objectives: Player attempts to spell correctly, working with scrambled version of selected word.
* Intended Age Group: 2-6th grade (easier word lists can be entered)
* Usefulness (1-10): 9
* Produced by: Leslie Grimm and daughter
* Marketed by: Apple Special Delivery
* Price: $50
* Requirements: Applesoft ROM DOS 3.3
* Color Monitor
*****

```

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*****
*
* Title: Count and Add
* Subject Area: Basic Arithmetic
* Objectives: Number recognition, counting, addition.
* Intended Age Group: K & 1st grade
* Usefulness (1-10): 7
* Made by: Edusoft
* Price: $20
* Requirements: Applesoft ROM DOS 3.3
*****

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contd.

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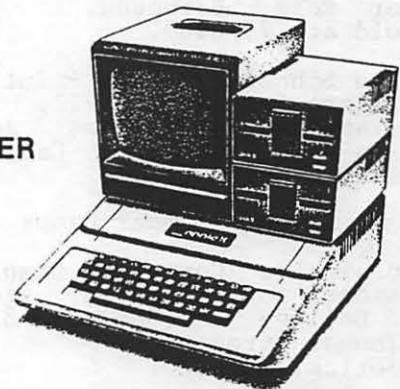
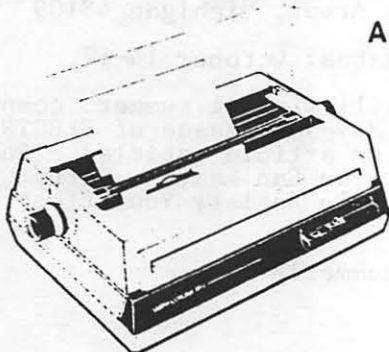
- daisy wheel allows font changes
- microprocessor electronics
- serial or parallel interface
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- character set: 128 ASCII, 88 printable
- character spacing (pitch) 10 CPI or 12 CPI

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```

*****
*                               *
* Title:           Alphabet/    *
*                 Guess the Number *
* Subject Area:   Basic skills  *
* Objectives:     Number and Letter *
*                 Recognition    *
* Intended Age Group: Kindergarten *
* Usefulness (1-10) 7          *
* Produced by:     Edusoft       *
* Price:           $20          *
* Requirements:    Applesoft ROM *
*                 DOS 3.3       *
*****

```

3. Lawrence W. Menapause Summer Science Program. Two week sessions for children ages 10-17. (914) 471-3240. Marist College Poughkeepsie, NY 12601
4. Cedars Camp. Two week sessions for Christian Science families. (314) 821-6622. The Cedars 1009 Dovergate Street St. Louis, Missouri 63122
5. MBC Co-Ed Computer Camps. Computers plus recreation and sports - advanced classes available. (703) 885-0811. Mary Baldwin College Staunton, VA 24401

Other News:

The EDSIG group purchase of LOGO is well under way, and has eleven buyers already. If you are interested, call Nancy Strange at 691-1619.

Our Workshops and Courses chairman - Dianne Lorenz - presents the following list of upcoming events:

CLASSES * SUMMER CAMPS
WORKSHOPS * CONFERENCES

Several Apple Pi members have brought the following listings to the attention of EDSIG. If you become aware of an interesting class, conference, or workshop, please call Dianne Lorenz at 530-7881.

* Additional Classes and Updates *

1. Electronic Learning Facilitators' classes in Basic and Logo will be held at Town and Country Day School in Bethesda, not at Bethesda Elementary as formerly reported. Call Mrs. Carolyn Adler for information at 530-3299.
2. Stone Ridge School - A wide range of classes for teachers including programming in Basic and Logo, computer literacy, and administrative planning workshops. Basic programming for elementary, junior and senior high students. Call 258-5150.
3. Prodigy Summer - MIT Logo for children ages 3 and up. Two hours a day from June 21st to July 16th. \$290. Taught by Prof. Betty Sims, University of Maryland, at Bartholomew's School, 6900 River Road, Bethesda. Call Janine Eisold at 279-0963.
4. Landon School for Boys - Introduction to computers for grades 9-12. Intermediate programming for grades 7 and 8. 6101 Wilson Lane, Bethesda. Call Kathy Driscoll at 320-3200.

* More Summer Camps *

1. Mountainside Computer Camp - 2 week sessions for children ages 9-18 at Hood College (301) 695-8844 222 Thomas Street Frederick, MD 21701
2. Duke University Computer Camp 107 Bivens Duke University Durham, NC 27708 (919) 684-6259

* Summer/Fall Conferences *

1. National Educational Computing Conference - NECC-82 - objectives are listed as follows. (1) to present in one forum major work regarding computers in instruction; (2) to promote interaction among individuals at all levels in the various aspects of computer uses in education; (3) to develop and coordinate the various professional groups involved with computer uses in instruction; and (4) to produce a proceedings documenting the status of computers in education.

Contact: Michael Staman
NECC-82 General Chairman
University of Missouri-Columbia
Columbia, Missouri 65211
(314) 882-8205

Conference dates: June 27-30, Kansas City, Missouri.

2. The Computer Extension of the Human Mind - Current developments and future trends.

Contact: Ms. Jude Ridge
College of Education
University of Oregon
Eugene, OR 97403-1215
(503) 686-3405

Conference dates: July 21-23.

3. North American Simulation and Gaming Annual Conference - Weekend minicourse on 'Microcomputers in Gaming'.

Contact: Frederick L. Goodman
University of Michigan
4122 School of Education Bldg.
Ann Arbor, Michigan 48109

Conference dates: October 14-17.

If you are still without summer computer plans, see the May-June issue of ELECTRONIC LEARNING for an article entitled "Summer Computing: What You Can Learn - Fifty Camps and Courses to Help Satisfy Your Electronic Yearning".

Have a happy summer!

APPLE /// SIG NEWS

by Ronald L. Askew

The third meeting of the APPLE /// SIG was held on Thursday, April 15, at the Walter Reed Army Medical Center, Building 40, Room 404 at 7:30 PM. The meeting was hosted by Dr. Richard N. Miller and chaired by its Pro Temp Chairman, Charles N. Dow. Eleven of the twenty members on the rolls were present.

The next meeting was scheduled for Thursday, May 13 at the Universal Computers, 1710 Fern Street, Alexandria, VA at 7:30 PM. The program was arranged by Joe Abate of Universal Computers and featured an APPLE R-2 representative.

The established meeting schedule is the second Thursday of the month at 7:30 PM and will alternate between the Walter Reed Medical Center and Universal Computers until further notices.

Michael Konvalinka, the APPLE /// SIG librarian, has collected virtually every important article, ad and publication referencing the APPLE /// and relevant hardware and software. He promises that as soon as PFS is up and running, a library catalog will be published and distributed to members.

It was recognized that the members of the APPLE /// SIG should accept responsibility for the contribution of articles about the APPLE /// and of interest to APPLE /// owners, as well as informal reports on the APPLE /// SIG meetings. Ronald L. Askew has volunteered to make the APPLE /// contribution to the WAP SIGNEWS column. The future will tell who the article contributors will be.

William Hershey, General Engineer, of Sverdrup & Parcel and Associates, made the program presentation. He shared with the group a unique and creative approach without using any programming language, but using VisiCalc, the APPLE /// Pascal Editor, Script ///, and Access /// to solve a complex, multi-phase engineering problem. The presentation was brilliant, replete with a scale model, briefing charts and tips on the use and peculiarities of the software used. Bill has graciously consented to produce a summary write-up of his work as a contributed article to WAP. The APPLE /// members appreciated and were greatly enriched by the experience. Thank you, Bill.


The presentation was followed by a Q & A session focused on hardware compatible with the APPLE ///, especially printers.

The character and the content of future meetings were discussed. The consensus was that the meetings give an even-handed coverage to languages and programming on the APPLE ///, hands-on use of APPLE /// software, and the open Q & A session that everyone seemed to enjoy so much. The group also approved by consensus that we

share information gained by members through publications, and user applications and experiences with all aspect of APPLE /// ownership and use.

After the hard-talk, conversation drifted to general impressions of area computer stores and group purchases. It was agreed that all new software and hardware releases will be evaluated collectively and after an assessment we would determine the interest in a group buy, the mechanics of which are to be determined at a later date.

Members repeatedly claimed to have much to learn about the APPLE /// and its uses. The conduct and character of the group will be focused to that end.

And a final note: Charlie Dow has done such a good job so far in maintaining the focus of the group,, it is quite possible that he will break all records in terms of tenure of pro temp chairmen, in spite of the prospect of the members having to hear the monthly speech emphasizing the 'Pro Temp'. 

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THE 1982 BOSTON APPLEFEST

by David Morganstein

(or "I Saved So Much Money, I'm Broke...")

When Bernie & Gena Urban invited me to share the nine-hour commute to the Boston Applefest, I was at first hesitant. I had never been to a large show before; my only experience with shows was limited to the D.C. Armory which had very little to offer. But I needed a little vacation, and I thought it would be an interesting adventure.

Can you imagine a football field filled with Apple products and enthusiasts? The rows of exhibitors seemed to go on forever!!! The most overwhelming thing of it all was that it all began in a garage just five short years ago...

Both Steve Jobs and Steve Wozniak were on hand for a talk on Saturday afternoon. S. J. took our breath away when he began a sentence, "I'd like to announce a new computer product. Apple will be selling a new 17-bit micro; we decided to leap-frog the competition..." The laughter at the joke was mixed with sighs of disappointment. Many enthusiasts have been awaiting two new product announcements and had hoped the Boston show would unveil them. (Current rumors are: 1) The Super II, a low-price, perhaps \$750, replacement for the APPLE II maintaining total compatability but using new lower-power, more compact chips like eight 64 X 1 bit memory chips to give a full 64K, and 2) The Lisa, a 68000 desk-top machine with built-in 5 megabyte Winchester hard disk.)

The Boston show was the site for the annual IAC meeting and some very exciting news for the WAP was the election of Bernie Urban as the Chairman of the IAC Exec Board. My congratulations go out to him with best wishes for a challenging year ahead...most of us who work with him know how important the IAC has been to him, and see his election as a good sign for the future growth and maturity of the IAC.

I can't say that I found a lot of exciting new products at the fair. Perhaps the most interesting was an Apple clone called the Basis 108. This made-in-Europe machine contains a 6502 and a 280 chip standard, has a full ASCII keyboard with upper lower case and 15 programmable keys, and comes standard with 64K of memory. A disadvantage is that in order to use color you need a very expensive RGB monitor. The Basis lists for \$1995 (The company did not make the terrible mistake of another company which duplicated the Apple's ROM monitor software thereby leaving itself open to legal action...)

Perhaps what appealed to me most were the people I met at the fair. People I had read about through their articles or whose products I have purchased. People like Val Golding of Call-A.P.P.L.E., Bob Sander-Cederlof author of the S.C.Assembler (the

second commercial assembler for the Apple), Roger Keating author of several marvelous war-game simulations, Dave Hayden whose "Legend"ary company is mind-expanding the Apple's memory, and Dave Alpert whose company sells the well-known (perhaps infamous) "Locksmith" as well as several other valuable APPLE products. We have all been bitten by the same bug. The only difference is that they have chosen to hitch their business futures to what most of us use as a hobby.

There is, I think, something very exciting and attractive about the notion of starting your own small business and the possibility of seeing it grow and succeed because of your hard work and creativity. Maybe that's why the entrance of the "other" personal computer from the giant bothers me. Apple was started by a couple of relative youngsters with a good idea and a lot of work. It feels as though they earned their success. It's easy to send well wishes to the dozens of small businesses represented at the fair, businesses that didn't even exist five years ago. They represent a vitality we want to see succeed.

WAP HOTLINE

Have a problem? The following club members have agreed to help. PLEASE, respect all telephone restrictions, where listed, and no calls after 10:00 PM.

General

Robert Fretwell	971-2621
Dave Harvey	527-2704
Robert Martin	498-6074

Operating Systems

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

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

A	Peter Combes	871-1455
A,I	Jeff Dillon	422-6458
A	Mark Pankin	370-9219
A,I,P,M	Bill Schultheis	538-4575
	(except Tue., Thurs.)	
A,I,M	Richard Untied	241-8678
P	Robert Fretwell	971-2621

DB Master

Dave Einhorn	593-8420
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Printers

General	Walt Francis	966-5742
MX-80	Jeff Dillon	422-6458
Silentype	Bruce Field	340-7038
IDS 460	Jeff Stetekluh	521-4882

Word Processors

Walt Francis	966-5742	
Apple Writer	Bruce Field	340-7038
Letter Perfect	Bill Schultheis	538-4575
Superscribe II	Peter Combes	871-1455
Supertext	Peter Rosden	229-2288
WordStar	David Inouye	422-8926

contd. on page 21
WASHINGTON APPLE PI

MINUTES

EXECUTIVE BOARD MEETING

Washington Apple Pi Board met on April 12, 1982 at 7:30 PM at the Urbans. President Morganstein presided with 19 people present.

A motion carried that the club purchase from the present SYSOP the APPLE II ABBS system for \$2000. Commercial sales, displays, or ads will not be permitted at our club meetings, but a faire at a different place may be considered. Election plans were discussed and the report of the nominating committee accepted. An amendment to the Bylaws is recommended that adds the Past President, the Editor, and the Librarian to the Board. Jim Burger as our General Counsel suggested that the club incorporate and get our nonprofit status cleared up. Commercial copying of club disks for library distribution will be tested. The May general meeting will be May 29. A forwarding phone has been installed for group purchases. The Board recommends to the club that growth be encouraged and that steps be taken to put us on a more business-like footing. The Editor needs photocopy service.

The meeting was adjourned at 10:15 PM.

SPECIAL MEETING

A special meeting of Washington Apple Pi was held on April 17, 1982 at USUHS at 10

AM. President Morganstein presided with about 60 people present. The purpose was to discuss the future direction of the club and how to manage growth; unless changes are made our volunteer system may collapse. Limiting growth and splitting the club were discussed but the general feeling was that we encourage growth, investigate getting an office and paid help, and raise dues together with a fee for new memberships.

GENERAL MONTHLY MEETING

Washington Apple Pi met on April 24, 1982 at USUHS at 10 AM. President Morganstein presided with about 320 people present. Items covered included: next club meeting on May 29; ideas for future presentations and tutorials; microcomputer summer camps; possibility of a faire; amendments to be presented for final vote at May meeting regarding increase in number of Members-at-Large to 6, increase election process to 2 months, change Constitution wording to satisfy IRS concerns, make the Past President, Editor and Librarian voting Board members; nominations were presented and opened to the floor.

A presentation on telecommunications with the APPLE was presented by John Moon and Ben Acton.

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COMMUNICATION WITH THE APPLE II

by Paula & Bernie Benson

Receiving and transmitting data with your APPLE II is a very useful function. It is often overlooked or viewed as over complicated by many personal computer owners. This article was inspired by the presentation on Telecommunications at the April meeting of WAP. John Moon discussed the D.C. Hayes Micromodem II and the WAP ABBS (Automatic Bulletin Board System). Ben Acton demonstrated the Novation Apple Cat II modem. Hopefully we can bridge the communication gap between you and your APPLE II.

A very useful aspect of communication is the ability to access large amounts of information on other small and large computers. Several commercial information services such as THE SOURCE, MICRONET, and DOW JONES offer a wide range of online data searching and retrieval. Information is available on almost any topic imaginable. Most services charge an initial startup fee and an hourly rate for connect time. Other facilities such as the WAP ABBS permit private message exchanges between users as well as general announcements.

Communication also gives your APPLE the capability of acting as a standard computer terminal. This can come in really handy on days when you wish to work at home on the office computer. Text and other files can be created using standard APPLE software and later transmitted quickly and easily to other computers without leaving your keyboard.

As with most functions of the computer, there are hardware and software considerations. To communicate with other devices, say another computer, your computer will need a modem, and possibly a serial interface board. A modem (modulator/demodulator) is a device which converts digital signals that your computer understands to analog signals that the telephone system understands. The digital communication done in the computer is done 8 bits (1 character) at a time in parallel fashion. The modem breaks each character into its elementary bits and transmits them one at a time, i.e. in serial fashion. The receiving modem collects the 8 bits and reconstructs them as a character.

Modems like the Micromodem and the Apple Cat II plug directly into a card slot in the APPLE motherboard and require no additional hardware. Other more general purpose modems such as the Bell 103, do not plug directly into the Apple and must be connected through a serial I/O board using standard RS-232 communication protocol.

To connect a modem to the telephone line, there are two categories of devices. Some modems are the direct connect type that use standard modular plugs. Others use an acoustic coupler. These require that the handset of the telephone be placed in a coupler device. The latter kind are usu-

ally a little less expensive but can not do auto dialing or auto answer, to be discussed later.

After connecting the modem to the APPLE and the phone line, additional software may be required to properly control the communication link. Some software gives you the ability to store the phone numbers of several computers, select a specific number, dial the number, and configure your system to properly work with that computer.

You may be asking yourself which modem shall I buy. One way to go about selecting one is to find software that fills your needs; then find a modem compatible with that software. For example, if you plan to do a lot of large file transferring from other computers to your Apple (downloading), you must have software which has file transfer protocol. If you're interested in being able to do auto dialing - unattended dialing where your computer dials numbers for you, you need software compatible with your modem. If you are going to use CP/M, Pascal, or APPLE DOS, the communication software must be compatible with that system.

The software you buy should give you the ability to control certain features of the modem such as baud rate, parity, duplex, start and stop bits, and status. These are general terms normally associated with serial communication between most computer devices.

BAUD RATE - describes the speed at which bits are sent and received. These settings are generally 110, 300 or 1200 bits per second. The number of characters per second can be calculated by dividing the baud rate by 10 - considering the 8 bits that make up a character plus one bit for start and one for stop. Most micro-computers are content to run at 300 baud. The greater expense of 1200 baud can be worthwhile if large files must be transferred or applications are highly interactive.

PARITY - describes an error checking procedure. The sender and the receiver agree in advance to always have an even or odd number of 1 bits in each transmitted character, thus, EVEN or ODD parity. The sender sets the 8th bit to comply with the agreed upon format. The receiver confirms that this condition still exists after the 8 bits have been received. In this way the receiver knows if the character is in error and can then request retransmission. Most modems can use odd, even, or no parity. Odd parity is the standard. The software determines if the parity bit will be used for error checking or some other use.

DUPLEX - describes the simultaneous direction of communication. Half duplex is when only one person can send at a time. Full duplex means both modems can send and receive simultaneously. Most modems can

contd.

run in full duplex mode.

START and STOP BITS - describes extra bits added before and after the regular 8 bits that make up a character. The start bit signals the modem to expect a character. In asynchronous mode, the receiving modem starts its internal clock in time with the sending modem when a start bit is detected. In synchronous mode, the timing bits are not needed. The modems are continuously sending and receiving. Most micromodems work in asynchronous mode.

Modem status are conditions indicated by the modem and used by the software to determine if the communication link is complete. Some of these conditions include carrier detect, ring indicator, and clear to send.

CARRIER DETECT - indicates the modem has properly connected with another modem and is receiving the proper carrier signal.

RING INDICATOR - on a direct connect modem indicates a call is in-coming, i.e. the phone is ringing.

CLEAR TO SEND - indicates to the computer that the modem is ready to send data from the computer to the receiving device.

Other capabilities of a modem include the ability to place a call (originate mode) and the ability to automatically answer a call (answer mode). Auto dial and auto disconnect are features of most direct connect modems, they are not found with the acoustic coupler modems. Dialing mode is another feature to consider. Pulse dialing is fine for most systems, but touch tone is required by some long distance telephone services.

The D.C. Hayes Micromodem II is the most popular modem for the Apple II computer. It plugs directly into a card slot on the motherboard with no serial I/O board required. It connects directly to the telephone system, using a standard modular plug. No acoustic coupler is needed. It can do auto dialing (pulse dialing) and auto answer. It runs at 300 baud, full or half duplex. It has a large amount of APPLE software programs written for it. It is manufactured by D.C. Hayes Co. and sold by many dealers for about \$300.

The Novation Apple Cat II modem is a fairly new product on the market priced slightly higher than the Micromodem. It also plugs directly into the APPLE and needs no additional serial I/O board. It can dial using touch tone or pulse dialing. Full or half duplex along with many other features are user selectable from menu driven software. It can run faster than the Micromodem, at 1200 baud, while using the very popular Bell 212A 1200 baud protocol. The 212 compatibility, however, requires an additional upgrade board which costs as much as the original modem. A very nice feature of the Cat is the built in BSR X-10 controller through which the computer can be made to turn household devices on and off, such as a coffee pot or light. This can be done by means of a phone call from any touch tone phone to the Cat or by a program running in the computer using a real time clock.

There is a lot of communication power available through your APPLE. As new ideas, such as on-going conferencing, and services involving data sharing become available, we think you will find that communication can be a very worthwhile tool in your computer workshop. After all, communication is something we humans seem to spend a lot of time doing; the computer is just a new channel.

For further information, refer to MINI-MICRO SYSTEMS, March 1982, or MICHIGAN APPLE-GRAM, June 1981. ☼

NOTICE TO WAP AUTHORS (PAST, PRESENT AND FUTURE)

The editors of Washington Apple Pi gladly accept articles in any format. However, since many of you use word processors on your APPLE, machine readable text is a great help to us. We can accept output from any word processor that produces a text file or a binary file. We use Super-cribe II (now called Screen Writer) as the official WAP word processor, and with minor modifications it can accept files from Apple Writer, Apple Pie, Super Text, etc. We can also convert Pascal files to DOS files which can be used. Also, listings of computer programs can be processed and formatted through our system.

We will make every effort to return your disk or give you a blank disk in exchange.

Again, let us emphasize that if you do not have your article in machine readable form, we are still willing to accept it in printed or handwritten copy. ☼

\$\$\$ DISCOUNT PRICES \$\$\$

D.C. Hayes Micromodem II	\$280
MX-80G Epson Printer (Grafix included)	\$450
MX-100 Epson Printer	\$725
MEC 8023 Printer	\$465
Grappier (Cable included - specify printer)	\$150
Axlon Ramdisk 320K	\$1050
Visicalc 3.3	\$155
Expansion Chassis Mountain Hardware	\$600
Nu-Rath (Native Apple - not IBM)	\$200
Amdak RGB Color Monitor	\$750
Amdak RGB DVBBOARD	\$160
MEC 7710 Spinwriter (RS 232)	\$2350
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THE FUTURE OF WASHINGTON APPLE PI by Walton Francis

During the next several meetings club members will be debating and voting on several propositions of great importance to the club. This article is written to provide my suggestions as to the services that Washington Apple Pi should provide in the future.

At present, the club provides over a half dozen major services to us members. First, second, and third, it provides a series of services including lectures, question and answer sessions, and meeting facilities for special interest groups through monthly meetings. Fourth, it arranges for creation of "library" disks of games, utilities, and educational programs for members. Fifth, it arranges for group purchases of selected equipment at substantial discounts. Sixth, it publishes our magazine with its wealth of information on everything under the sun pertaining to the APPLE. Seventh, it is just beginning to provide actual instruction in APPLE related subjects. Lastly, it provides us an informal support network, both practical and friendly, for meeting and talking to each other (I haven't yet heard of any marriages of WAP members, but know of lots of friendships begun through the club).

The club does this through a budget which is rapidly approaching thirty thousand cash dollars in membership dues alone, and has probably passed the six figure mark counting the value of volunteer time. For example, if the average time investment per page of article is three hours, then 30 pages times 12 issues times \$15 per hour means that uncompensated time invested in WAP articles alone is over \$15,000 per year. And editorial, distribution, and management time undoubtedly raise that figure to somewhere near \$25,000, about the cash outlay needed to print the magazine.

All of which is a roundabout way of saying that we get an awful lot of services for a minuscule cash outlay in relation either to value received or our investment in our APPLES.

But we are not getting nearly enough! What we get now was appropriate to the club of the long ago times in 1980, when there were several hundred members. But sometime soon we will get our two thousandth member. We are no longer a small band of enthusiast pioneers, but a large organization. You know well enough the costs of size, such as the inability to know by name more than a fraction of the 500 or more members who now attend monthly meetings, and the mob scenes at library disk lines. But size brings benefits as well, not least of which are economies of scale and a membership base large enough to support more services. Which brings me to my specific suggestions for future directions.

There are no fewer than a dozen magazines of importance to APPLE owners, and dozens

of books as well. The latest issues of many but not all of these can be found in the racks of almost any computer store (I would bet that most members have never even seen a copy of PEELINGS II, which is by a wide margin the best source of software reviews for the APPLE). This is all very well if everything worth reading is in the latest issue of CREATIVE COMPUTING or NIBBLE--but of course it isn't. Bernie Urban recently reviewed a new book called THE INDEX, which contains references to over 12,000 personal computer articles. I spend hundreds of dollars a year on magazines, and I doubt that I am much more compulsive than average when I see a particular article I want to read. The solution is simple--it's called a library. And all that is needed is for the club to sponsor a facility where members can come and use a serious collection of computer publications (one approach, if we didn't need an office for other reasons, would be to designate one of the local public libraries for this purpose). Not only would a library be of inestimable value to many members in their pursuit of APPLE related information, it would provide a genuine cash saving for all of us who could drop some of our own purchases and rely on using the club subscriptions, and a tax deduction for those of us who have a few hundred back issues we would be willing to donate. Such a facility would be a luxury for a small club, but for WAP the cost per member would be dimes per year for subscriptions and at most a dollar or two per year including a pro rata share of space rental and staff salary.

I have dwelled on the library example at length simply because it illustrates so well the potential benefits of expanded services. Other candidates of mine (I am sure you have your own personal list) include:

- A place to buy library disks. Why should we have to stand in line once a month and lose almost a full hour of meeting time when most disk purchases could be made (and tested!) at a time of our own choosing if the club had an office?
- A way to try software and hardware (much already owned by the club, much more undoubtedly just waiting to be donated by members, and some purchasable at pennies per member) at leisure, without fighting the crowds or enduring the glares of salesmen at local computer stores.
- A place for special interest groups to meet, without having to lug Apples around or do without.
- A regular meeting time and place (every Thursday evening?) for those who can't wait for or simply can't come to Saturday meetings to have a chance to talk to fellow members about their questions and ideas.

contd.

• A contact person (other than club officers and random volunteers) for those who would like to leave questions or messages for others. Such a person would need to be available at regular hours, at least several days a week, and have some APPLE expertise as well as the ability to call on club members for help—a human ABBS.

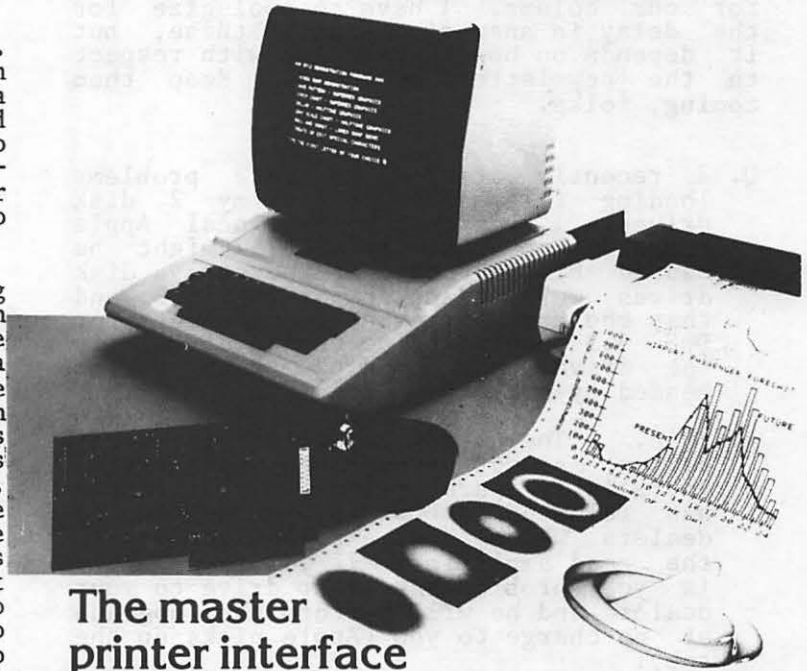
This should be enough for the general idea. Most of these ideas have three common threads—they all require a place, a person, and the money to pay for rent and salary. The person is needed not only to run things (answer phones, set up equipment, manage, and the like), but also for simple security—someone has to be there to let members in and keep an eye on things.

Ultimately, it all boils down to paying money to get a clubhouse. Renting an office is easy, provided you have the wherewithal. And money is just what a large organization can provide. Some intensive services, such as tutorials, can and should be paid for by users. But it is not sensible to charge people for services such as spending an hour in the library. At present, members pay in dues about the dollar cost (but not the true cost) of the magazine alone. So my proposition is simple—raise dues by some small but nontrivial amount and use the proceeds to rent an office and pay part time staff (two evenings and two afternoons a week?) to provide new services. Simple arithmetic suggests that an extra \$12 a year times the 2,500 members or so we are likely to have in 1983, together with the modest profits from disk sales, would finance a small but adequate operation. (For example, 16 hours a week at \$20 per hour inclusive of fringe benefits and 200 square feet of space at \$10 a foot would together with supplies, subscriptions, and the like total about \$40,000 a year).

Maybe it would cost a little less (why not count on 3,000 members?), maybe a little more. But anything in that ballpark would be worth far more to me and, I believe, to most members, than a few extra dollars a year. In fact, as suggested above, most members could probably save far more in hard cash than the nominal cost and get improved services to boot. Other members, those who have no need for any extra services, would be free to vote with their feet by dropping out.

I vote for more service from the club. There are other arguments for office space, such as solving the increasingly unwieldy logistical arrangements necessary to provide existing services for an organization which has outgrown the sustainable level of part time volunteer effort (the problem is not getting volunteers, but coordinating them), but these arguments are in my opinion trivial compared to the benefits we should be getting from an organization of our size. Let's take the steps necessary for WAP to grow in service as well as in size, and to put a small club dimension back into our lives. &

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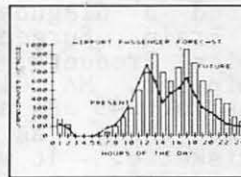
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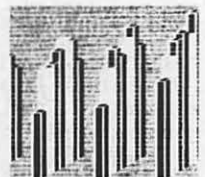
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Q&A

by Bruce F. Field

Well, we seem to be getting some questions for our column. I have to apologize for the delay in answering some of these, but it depends on how they arrive with respect to the newsletter schedule. Keep them coming, folks.

Q. I recently started to have problems loading files from one of my 2 disk drives. I was told by my local Apple repair shop that the problem might be caused by the fact that the early disk drives were adjusted for DOS 3.2 and that the more stringent requirements for DOS 3.3 required fine tuning of R21 in the drive, and a mod has been recommended by Apple.

A. True. The read amplifier in early drives may not have enough sensitivity to reliably operate with DOS 3.3. Apple has released a DOS 3.3 Upgrade Kit to dealers which adds a potentiometer to the read amplifier. If you think this is your problem take your drive to your dealer and he will perform the upgrade at no charge to you (Apple picks up the tab).

Q. What disks for checking the operation of the Apple and DOS are available besides simple memory checks?

A. WAP Library disk #1 contains a couple of diagnostic tests. DISC SPEED TEST allows you to adjust the speed of your drive and there are a couple of memory tests. Apple dealers have a Dealer diagnostic diskette that checks the Read-Only-Memory and a few of the standard Apple peripherals. Also I have seen advertised a diagnostic package called "The Brain Surgeon" sold by Nikrom Technical Products, 25 Prospect Street, Leominster, MA 01453. This package sells for \$45 and appears to do much the same thing as the Dealer diagnostic diskette. It was recently advertised in NIBBLE.

Q. How do I know whether it is a disk or disk drive that needs cleaning?

A. IF anything needs cleaning it is the disk drive. Disks (or more properly diskettes) should NEVER be cleaned, touched, folded, spindled, mutilated... sorry, got carried away! Using Library disk #1 (see question above) you can check to make sure your disk drive speed is within tolerance. In general, if you can read diskettes written with your drive but have trouble reading diskettes written on another system it's a good chance that disk speed is the problem. If you have trouble reading anything it may be time to clean the disk drive head. There are several commercial head cleaning packages available. There has

been some controversy as to whether they are too abrasive and will unnecessarily wear the head. I have no information about this, but I feel that if cleaning is done only occasionally there should be no problem. My personal solution is to dismantle my drives about every 6 months and carefully clean the head with a cotton swab and isopropyl alcohol. Keeping your diskettes clean and dust free is probably the best way to eliminate disk I/O errors.

Q. How do I get a screen echo for my Game I/O printer driver - for example see BIG MAC from Call-A.P.P.L.E.

A. Actually you already have the answer, but are just a bit confused. The program I think you are referring to is the Game Paddle Printer Driver program that appeared in the February 1982 issue of Call-A.P.P.L.E. This program is written expressly for IDS 440 and IDS 225 printers, but can be used with most any serial input TTL compatible printer. This program allows you to have program listings simultaneously displayed on the screen and printed on the printer without restricting the printer output to 40 columns. To do this follow the instructions with the article to POKE the desired values into the specified locations. For example:

POKE 970,80	for 80 column listing
POKE 971,255	for a Basic-like listing
POKE 972,0	to turn video on
POKE 33,33	to disable linefeed generation by BASIC

BIG MAC is an assembler program that was used to assemble the Game Paddle Printer Driver and the Printer Driver can be used to print out listings from BIG MAC.

Q. How do I fix IMPROVED CATALOG from WAP #1 (DOS 3.2) to run the whole catalog on DOS 3.3 where MUFFINed. It now only returns blanks or the last section of a long catalog.

A. It's already been done for you and is available on WAP Disk #100. In most cases when converting from DOS 3.2 to DOS 3.3 everything works fine. Exceptions are when the program does not go through the DOS file manager (as it does with LOAD, SAVE, OPEN, READ, WRITE, etc.) but instead reads the disk directly through the Read-Write-Track-Sector (RWTS) subroutine. This is what IMPROVED CATALOG does. It is not always safe to generalize but in most cases the program can be made to work by changing all references from 13 sectors to 16 sectors.

Q. With Visicalc, is there any way to
contd.

obtain a hardcopy of the expressions that make up a particular entry and all the entries? Using "/P" we can print results from evaluations of these expressions but I would like to print the expressions also.

A. There is a standard command on the 16 sector version of Visicalc to do this, it is "/SS". If you have the earlier 13 sector version there are several utilities available to do this. One is Visi-list from Computer Station, 11610 Page Service Dr., St. Louis, MO 63141.

Q. Last year I bought an EPSON MX-70 for my Apple II+. The dealer also sold me the "standard" EPSON Apple Parallel interface and cable. However, the interface and cable only send 7 bits to the printer, not 8. The graphics mode of the printer uses all 8 bits. Why do they sell an interface kit with the high order bit dropped out? Did I get cheated? Do others have this setup? Must it be replaced before I use a commercial hi-res screen dump routine?

A. Be assured that you are not alone with this interface. The problem is a slight incompatibility in the ASCII code generated by the Apple and that used by the printer. With 8 bits, 256 "things" can be represented, the EPSON printer is designed with items 0-127 to be the 128 standard ASCII characters and items 128-255 to be chunky block graphics characters. Apple on the other hand outputs its ASCII characters with numbers 128-255 (i.e. the high bit is set). To get around this problem, the EPSON interface card ignores the 8th bit from the Apple and uses a jumper to ground the line to the printer, permanently enabling the ASCII characters. Unless you are a TRS-80 fanatic you will never miss the block graphics characters. There are several hi-res dump routines available that will work with this interface. One that I know of is Grafpak Zoom +.by Smartware, 2281 Cobble Stone Court, Dayton OH 45431. This was advertised in the January WAP newsletter for \$34.95. A friend has told me it was well worth the money.

Q. Is there a program (assembly language or tricky BASIC) that will allow one to replace/update the data that is stored in the DATA statements of a program with new data that is calculated in the program or read from a disk file? That is, without having to retype the DATA statements.

A. There are a couple of ways to do this but the easiest is to use a text file and EXEC it into memory. It works like this. You can use any editor that creates Apple DOS compatible text files to make a text file containing the replacement DATA statements. Type them in just as you normally would for the program, i.e. a line number, the word "DATA", and the data separated by commas. You will need to use the exact same line numbers as the DATA statements already in the program to be updated.


Then either from the keyboard or from the program itself "EXEC" the text file into memory. Ta da! Your program now has the updated DATA statements. Now if you want to get fancier the program can generate it's own text file containing the updated DATA statements (see the Apple DOS manual on how to create text files). Also remember that EXEC files can contain anything you can normally type from the keyboard so it is possible to DElete all the DATA statements already in the program before adding the new ones.

(Ed. Note. In submitting questions to the Q&A column, we prefer that they be submitted in writing to the P.O. Box. However, in emergencies you may call (301) 340-7038, Bruce Field.)

Hotline contd. from pg. 14

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SO YOU WANT TO SELL YOUR SOFTWARE

by Kenneth J. Hautman, Esq.
& James M. Burger, Esq.

I. INTRODUCTION

All of us dream about developing a new product, licensing someone else to manufacture and distribute it, then receiving a payment for each copy sold. That dream, however, has become a reality for the creators of the wide range of computer software needed to meet the seemingly insatiable demand of microcomputer purchasers. This software runs the spectrum from business software (e.g. VisiCalc) to entertainment software (e.g. Snack Attack). Unfortunately, many who develop such software are ill-equipped to negotiate an agreement with the companies which do the lion's share of distributing and marketing these products. As a result, many a software author has ended up with a less than favorable deal. This article discusses some of the ways to avoid ending up in that position.

II. PUBLISHERS

Most software authors exploit their initial products through so-called publishers. These publishers generally market and promote software products on their own. Sometimes they make a deal with a particular microcomputer manufacturer. In the latter arrangement, the manufacturer promotes and sells the software in conjunction with promotion and sale of its microcomputer. A publisher generally requires the software author to give it exclusive world-wide rights to the software product in exchange for payments to the author based on sales. The publisher generally retains those rights, at a minimum, for the life of the copyright in the software product (i.e. life of the author plus fifty years). This in effect places the future of the author's product, as well as the author's future income from that product, exclusively in the hands of another. Becoming contractually involved with a publisher is much like a marriage. Accordingly, an author should evaluate and choose a publisher, if possible, with the same degree of caution (if not more) as choosing a prospective spouse.

Several points should be considered: (1) What software is the publisher presently marketing; (2) Does this software compete with or complement the author's software; (3) How is the publisher marketing its present software; (4) How successful has it been with that software; (5) How experienced is the publisher in the computer software field; (6) What resources does the publisher have to commit to market software products generally; (7) What is the publisher's level of interest in the author's software; and (8) How long has it generally taken the publisher to get a software product on the market after it has been received by the publisher in a form suitable for reproduction. Finding a willing and able publisher, though, is only the first step. The next step is negotiating a publishing agreement.

III. THE PUBLISHING AGREEMENT

A publishing agreement (sometimes referred to as a "licensing agreement") is the key document establishing the rights and obligations of the software author as well as the publisher. Before you sign such an agreement, it is important that the document be reviewed and analyzed very carefully. Such agreements are generally replete with traps for the unwary. In fact, it is likely that the better the answers posed to the eight questions above about the capability of the publisher, the more likely the publishing agreement handed the author will strongly favor the publisher. If you, as an author, believe that your product has a good potential market it may well be worth an upfront investment in professional advice both before and during negotiations. If the software is a success, that money could be returned many, many times. One thing you can be sure of, the software publisher will have hired legal counsel to ensure that all of its interests are protected. The major provisions that are generally present, or should be present, in a publishing agreement are discussed below. This article, however, is intended as a primer and not a substitute for professional advice governing the specific agreement that may confront the software author.

Given the exclusivity feature of most publishing agreements, a software author must have some assurances that the publisher will make a certain amount of effort to promote the product; and, if the publisher does not make such an effort, the author can cancel the agreement and take the product elsewhere. If the agreement is silent on this issue, most courts will imply a provision obligating the publisher to use "best efforts" to market and promote the product. Unfortunately, this "best efforts" requirement is generally satisfied if the publisher makes only minimal "good faith" efforts. Obviously, a software author wants a stronger obligation.

One way to do this is to establish minimum sales amounts in the agreement; if the publisher fails to sell those amounts it loses the exclusive right to sell the software and/or the agreement terminates. Obtaining minimum sales amounts is difficult. The next best provision would be a stronger "best efforts" clause holding the publisher to a higher standard of performance than the ordinarily implied "best efforts" requirement. Finally, the software author could seek to have some kind of noncompetition clause inserted in the agreement prohibiting the publisher from marketing competing software. Without such a provision, however, the publisher has no obligation to refrain from doing so.

Another crucial provision of any publishing agreement is the one dealing with payments. The payments provision should basically

contd.

address four points. First, the amount which the software author will receive for each unit of the product sold by the publisher. If units are "sold" by the publisher to a hardware manufacturer that will be actually marketing and promoting the product for its particular machine, the payment per unit to the author should be higher since the publisher will be doing less work. Second, the agreement should specify the timing of the payments. Third, on signing the agreement, the software author should receive an advance against future payments. This is standard in the industry. Fourth, the provision should address whether there are any sales of the product to which the payments provision does not apply.

Ownership of the copyright in the software product is also an important issue. If at all possible, the software author should avoid transferring the copyright in the software to the publisher. In this regard, the agreement should also require the publisher to ensure that the proper copyright notice is affixed to each copy of the product showing the software author as the owner of the copyright. (See "Copyright and Computer Programs" in the May 1982 issue of WAP.) Many software authors also seek to require the publisher to include a statement on the product and all promotional materials acknowledging the author's role in creating the product.

Another provision which appears universally in publishing agreements deals with the publisher's rights to versions of the software product for different kinds of hardware ("new versions") and revisions or updates to the software product ("revisions"). Obviously, a publisher who is investing time and money developing a market for a software product wants to ensure that the author cannot create and distribute a revision or new version of the software product or use another publisher for distribution. On the other hand, the software author wants to have the ability to develop new products which may use some of the coding from the original software product and have the option of negotiating a better deal with the original publisher or a different publisher. Thus, a situation arises where publishers desire a broad definition of "new versions" and "revisions" while authors struggle to limit the definition. The language ultimately used in any agreement is generally the result of creative draftsmanship and negotiation.

The name for your software product and the rights of the respective parties in that name should also be covered by the agreement. Thus, the agreement should address: (a) who owns the name, (b) what rights the non-owner has to utilize the name, and (c) what happens to ownership of the name in the event there is a breach and termination of the agreement. For example, if you are the software author and do not own the name, you may want to have the ability to utilize the name as much as possible to promote yourself during the term of the agreement.

Finally, publishing agreements usually address what the publisher will receive from the author in the way of software

code. The software author should seek to restrict the publisher, giving him access only to the software in machine readable object code suitable for mass production. Publishers, however, prefer to have possession of the source code so that they have guaranteed access to the "heart" of the software in the event the author disappears or goes out of business. Allowing the publisher such access, however, not only potentially diminishes the author's proprietary rights in the source code, but also diminishes the author's limited bargaining power over the publisher in the event of a dispute. Thus, the author should seek to retain control of the source code, while being sensitive to the publisher's concerns. There are mechanisms available to accomplish this which have proven satisfactory to both parties.

IV. CONCLUSION

From this very summary overview, one can see that the path to selling your software through a publisher is fraught with pitfalls. Moreover, an author's ability to obtain concessions from a publisher is somewhat limited because, at least initially, authors are too anxious to obtain an agreement and get on with the marketing of their product. Thus, they have little leverage to use against the publisher. Nonetheless, some concessions can be obtained through skillful negotiations. This is especially true if an author knows what to try to get in an agreement, what to try to keep out, and how this particular publisher has compromised in the past. &

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PRINTING THE TEXT SCREEN

by Thomas S. Warrick

One of the corollaries to Murphy's Law must be that the more something is desired and the simpler it seems, the more difficult it is to achieve. One indication to the universal validity of this principle to the APPLE is printing out on paper the very characters currently appearing on the screen. The short program at the end of this article solves this problem.

Most printers for the APPLE cannot print whatever is currently on the text screen, although some can print whatever is currently on the high-resolution screen. (The author is not aware of any printer that can print low-resolution graphics appearing on the screen.) On the other hand, this problem seems simple because, unlike on some computer systems, the APPLE's entire text screen resides in memory. As you might suspect, however, the problem is more difficult: the order of the lines in memory does not correspond exactly to the order of their presentation on the screen. While the top line on the screen is in fact the first line in memory, the second line on the screen is actually line four in memory. Further complicating the picture, every third line in memory is followed by an additional eight bytes used by peripheral devices such as printers and modems.

The program that follows prints the contents of the text screen to your printer. Although relocatable, it is shown as starting at 900 (decimal) or \$384 (hexadecimal). After entering the monitor (CALL -151), enter the lines following the program listing. After re-entering Basic (3DOG), save the program on disk if you desire (BSAVE PRINT TEXT SCREEN,A900,170).

To use the program, make sure that either (1) your printer is in slot 1, or (2) you change location 901 (decimal) or \$385 (hexadecimal) to correspond to the slot your printer is in. Then enter CALL 900. This should print the screen including the "CALL 900". To avoid this, if your application permits, put the CALL 900 in your program, or set up the "&" vector at \$3F8-\$3FA to read \$4C \$84 \$03. (The decimal equivalent in Basic is POKE 1013,76: POKE 1014,132; POKE 1015,3.) You may activate the routine by entering an ampersand and return following the Basic prompt "]". Another alternative, if you are using the monitor, is to set up the Control-Y vector at \$3FB-\$3FD in a similar manner.

The program itself is, for an assembly language program, simple and straightforward. The program uses the monitor's own mnemonics. See APPLE][Reference Manual, pages 136-137, 146, 149-150 or the corresponding (similar but better-annotated) pages for the monitor ROM listing. Lines 17-22 verify that the user has put a valid slot number in location \$385 (901 decimal). Lines 24-27 save the current CSW locations, which point the APPLE to the correct program it should be using for

output. If DOS were not running, this would usually be \$F0 and \$FD for CSWL and CSWH, since the routine at \$FDF0, called COUT1, is the standard text screen output routine. When DOS is in charge of the computer, these locations contain \$BD and \$9E, making your APPLE use the DOS output routine, which in turn usually refers the computer to \$FDF0 anyway. Lines 29-35 set up the printer's CSW locations. This is, incidentally, what a "PR#/slot" command does, where "slot" is not zero. The current cursor position is also saved, which will make Basic put the cursor where it would have been after you typed the "CALL 900".

The main routine starts at the top line and uses BASCALC to calculate the point in memory where the screen line starts. Each line is printed out using the Y register as an index. When a line is finished, the program increments CV and goes back to LOOP1 (line 37). When all 40 lines are printed, the program restores the beginning cursor position and CSW settings.

To enter the program, go into the monitor ("CALL -151") and type:

```
384: A2 01 F0 47 30 45 E0 08
38C: 10 41 A0 00 A5 37 48 A5
394: 36 48 8A 09 C0 85 37 84
39C: 36 A5 25 48 84 25 A5 25
3A4: C9 18 F0 1E 20 C1 FB A0
3AC: 00 B1 28 09 80 C9 A0 B0
3B4: 02 09 40 20 ED FD C8 C0
3BC: 28 D0 EE 20 8E FD E6 25
3C4: D0 DC 68 85 25 68 85 36
3CC: 68 85 37 60
```

Program Notes:

1. Inverse and flashing characters are printed as normal characters. If numerals and most non-alphabetic characters (including spaces) are flashing, they will be converted into lowercase characters or other symbols.
2. Make sure that the printer will not echo characters back to the screen. After all, you want to print the screen as it is, without additional characters. (Control-T turns the screen echo on and off on the Silentyper.)
3. If you BRUN this program directly off of the disk, the first line of the printout will print correctly, but it will start over to the right of the left margin.
4. Note that some word processors such as Apple Writer use a non-standard character set, and some of its characters - especially spaces - will not be printed correctly. (If the readers of this article are interested, there is a simple program that converts Apple Writer characters into standard ASCII characters, which can be covered in a

contd.

future issue. Send a short note to the Editor or leave a note on the ABBS.)

5. Many similar text screen dump routines have already been written by others - indeed, Call-A.P.P.L.E. recently published a (much longer and more complex) text screen dump routine in its February 1982 issue, which the author received after this program was written. The routine that follows in this article differs from the Call-A.P.P.L.E. program and most other screen dump programs in that it does not affect a basic program or data in memory, and does not write over the first half of page \$03, which may contain short machine-language programs. Virtually no memory is disturbed other than the 76 bytes actually taken up by the program.

6. Machine language programmers will note that the routine returns with the accumulator holding CSWH: usually \$9E if DOS is active, \$FD otherwise; X holding the slot number loaded in line 17; Y holding \$28; P usually in the form lxllxx01, where x is that bit's value before entering the routine; and S unchanged.

7. Finally, the program may sometimes appear temperamental. If it fails to perform as desired, BRUN or BLOAD the program again. As with any program, the responsibility for failure - and success - is yours.

```

03AB:A0 00 41 LDY #S00 START AT LEFT OF LINE
03AD:B1 28 42 LOOP2: LDA (BASL),Y LOAD CHARACTER FROM SCREEN
                                43 ORA #S80 CONVERT INVERSE & FLASH TO NORMAL
                                44 CMP #S40 SPACE
                                45 BCS SKIP1 TAKEN IF CHARACTER IS A CTRL-CHARACTER
                                46 ORA #S40 MAKE CONTROL CHARACTERS INTO NORMAL CHARACTERS
                                47 SKIP1: JSR COUT PRINT IT
                                48 INY
                                49 CPY #S28 IS COLUMN NOW SET TO 40?
                                50 BNE LOOP2 IF NOT, PRINT NEXT CHARACTER
                                51 JSR CROUT PRINT A CARRIAGE RETURN
                                52 INC CV NEXT LINE
                                53 BNE LOOP1 BRANCH ALWAYS TAKEN
                                54 * RESTORE CV AND CSW
                                55 RESTORE: PLA
                                56 STA CV
                                57 PLA
                                58 STA CSWL
                                59 PLA
                                60 STA CSWH
                                61 RETURN: RTS

*** SUCCESSFUL ASSEMBLY: NO ERRORS
FBC1 BASCALC 28 BASL FD8E CROUT FD8E CROUT
37 CSWH 36 CSWL 25 CV 03A2 LOOP1
03AD LOOP2 03C6 RESTORE 03B7 SKIP1 03B7 SKIP1
03CF RETURN 25 CV 28 BASL 36 CSWL 37 CSWH
03A2 LOOP1 03AD LOOP2 03B7 SKIP1 03C6 RESTORE
03CF RETURN FBC1 BASCALC FD8E CROUT

```

```

0000: 1 *****
0000: 2 *
0000: 3 * PRINT TEXT SCREEN
0000: 4 *
0000: 5 *****

0384: 7 ORG $384 =900 DECIMAL
0025: 9 CV EQU $25 CURSOR-VERTICAL POSITION
0028: 10 BASL EQU $28 BASE LOCATION FOR LINE IN SCREEN BUFFER
0036: 11 CSWL EQU $36 CHARACTER OUTPUT SWITCH-LOW
0037: 12 CSWH EQU $37 CHARACTER OUTPUT SWITCH-HIGH
FBC1: 13 BASCALC EQU $FBC1 COMPUTE BASL USING CV
FD8E: 14 COUT EQU $FD8E PRINT VALUE OF ACC USING CSW
FD8E: 15 CROUT EQU $FD8E PRINT A CARRIAGE RETURN

0384:A2 01 17 LDX #S01 LOAD PRINTER'S SLOT #
0386:F0 47 18 BEQ RETURN WILL RETURN IF SLOT WAS NOT 1-7 INCLUSIVE
0388:30 45 19 BMI RETURN
038A:E0 08 20 CPX #S08
038C:10 41 21 BPL RETURN
038E:A0 00 22 LDY #S00
0390: 23 * SAVE CURRENT CHARACTER OUTPUT SWITCH
0390:A5 37 24 LDA CSWH
0392:48 25 PHA
0393:A5 36 26 LDA CSWL
0395:48 27 PHA
0396: 28 * CONVERT SLOT N INTO $CN FORM & SET UP CSW
0396:8A 29 TXA
0397:09 C0 30 ORA #S00
0399:85 37 31 STA CSWH
039B:84 36 32 STY CSWL
039D:A5 25 33 LDA CV SAVE CV & SET TO 0
039F:48 34 PHA
03A0:84 25 35 STY CV
03A2: 36 * MAIN ROUTINE
03A2:A5 25 37 LOOP1: LDA CV
03A4:C9 18 38 CMP #S18 IS LINE NOW SET TO 24?
03A6:F0 1E 39 BEQ RESTORE IF SO, EXIT
03A8:20 C1 FB 40 JSR BASCALC COMPUTE ADDRESS OF START OF LINE

```

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HARDWARE HIRES RELOCATION

by Terry Phillips

Have you ever written a relatively large Applesoft program that uses Hires graphics, and found that the HGR/HGR2 command erases part of your program or variable storage area. It's not an uncommon problem and, depending on the particulars, there are a few techniques to get around it, such as using Page 2 instead of Page 1, setting LOMEM: to somewhere above the Hires page, or even splitting the Applesoft program (see "Space War or How to Live with the Hires Page" by David Morganstein, WAP December, 1981, page 17).

Sometimes though, these solutions aren't always that satisfactory; you can lose more than you gain. I've often wondered, as I'm sure you have, why it was necessary to position the Hires pages in such an ungainly location. There surely are better places where they could have been located. Though, in defense of the APPLE [I designer, one should be aware of the fact that when the Apple [I was brought out in 1976-77, 16K of RAM cost \$600. With 48K of RAM costing more than the basic machine, the positioning of the Hires pages in the lower region of memory address space is much more understandable. Until a short time ago, I thought that this Hires memory area was permanently fixed in the APPLE hardware, i.e. written in stone; that if you ran into a memory conflict, you had no choice but to program around it. Well, that's not necessarily true. There is another way to deal with this problem, and that is an actual hardware relocation of the Hires memory areas. It is the intent of this article to describe 8 different Hires hardware based relocations you can make with very little effort.

Now before you start cringing uncontrollably at the thought of performing major surgery on your helpless APPLE, anesthetized or not, let me reassure you that the modifications presented here involve absolutely no trace cutting; they take about 10 to 30 minutes to perform; and they are completely reversible (assuming no mistakes are made). In Table 1 you will find listed 8 different mods, the resulting Hires relocation, and somewhat cryptic instructions for making these modifications. Please be aware that you can make only one modification at a time, except for Mod #8 which can be made in combination with any one of the others. They are presented approximately in descending order of utility and ease of implementation. There is no obvious pattern in the different relocated Hires memory areas presented. I arrived at these combinations by searching the hardware for the simplest modifications I could find. There are other modifications possible, but I've listed only those that I felt were of interest. As a word of warning, please remember that if you attempt any modification of your APPLE, you will be voiding the conditions of your warranty. If you've never inserted an IC in a socket, used a soldering iron, or if

you can't find pin 14 of IC J1, then you had better postpone this project for awhile.

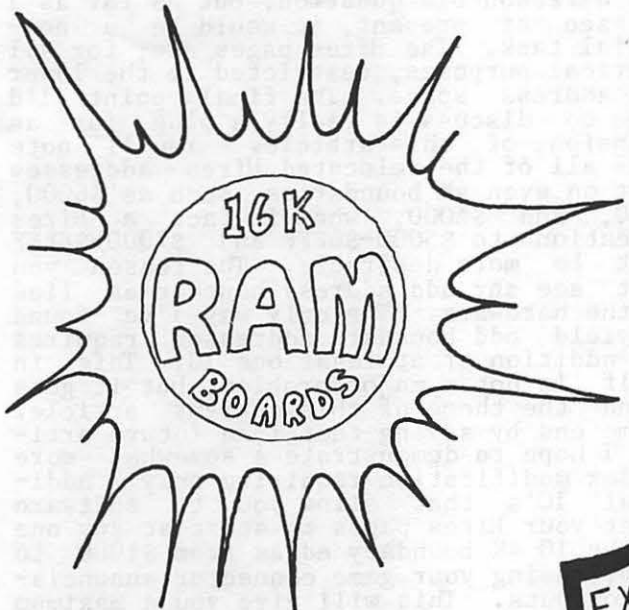
Mod #1 is the simplest one to make. It will relocate Page 1, which normally resides at \$2000-\$3FFF, to \$6000-\$7FFF. If you don't use Page 2, which, by the way, remains unchanged, this Mod will give you an additional 16K of contiguous memory space for your Applesoft program/variables. Mod #2 is a little more difficult to make, but it is probably the most useful. This Mod will relocate Hires Page 1 and Page 2 to \$A000-\$BFFF and \$8000-\$9FFF, respectively. If you have a Ramcard and relocate DOS into the card (see "Loading DOS 3.3 on the Language Card" by Cornelius Bongers, Call-A.P.P.L.E., July/August 1981), this Mod will give you >38K of contiguous memory with one Hires page, or >30K with two Hires pages. You can't do much better than that.

For those of you who have 48K and DOS, which is probably most of us, you may also want to use this Hires relocation and relocate your DOS beneath the Hires page(s) which you are using. This will protect your Hires page(s) and eliminate most memory conflicts. It's relatively easy to relocate DOS downward, but that's a whole other story.

Mods #3 - #7 are other less useful variants and are included in the event that they might be interesting to someone. Mod #4 is somewhat interesting in that the relocation of Page 2 to \$000-\$1FFF will give you a neat Hires representation of page Zero, the stack area, keyboard buffer and text page...neat, but not that useful. The last Mod in Table 1, Mod #8, isn't really a Hires memory relocation, but it does allow you to display TEXT Page 1 while using Hires Page 2 in the mixed-graphics mode. Trying to do this with a normal APPLE would result in four lines of garbage at the bottom of the Hires screen. I've included it because there really aren't any easy software tricks to overcome that particular problem. And as I mentioned earlier, this Mod can be made independently of the other modifications.

Now, how do you make the Mods? PLEASE READ THIS SECTION CAREFULLY! The only additional hardware you'll need, other than wire and solder, is a solder-tail IC socket and a wire-wrap IC socket for each IC to be changed. There are a total of 3 different IC's involved in these Mods. They are C12, H1, and J1. The identification codes are those used by Apple in their schematics. Both C12 and J1 are a 16-pin 74LS257 and H1 is a 14-pin 74LS08. Any one Mod involves a maximum of only 2 IC's and 2 wiring changes, so to demonstrate how it's done, let'd do Mod #2 as an example.

First, TURN THE POWER OFF! Referring to Table 1, you will see in the wiring
contd.



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instructions that pins 14 and 11 of IC J1 are to be disconnected from the APPLE board and reconnected to pin 10 of IC H1 and pin 8 of IC J1, respectively. This is accomplished as follows:

CAREFULLY remove IC J1 from its socket on the APPLE board (be sure you remember the orientation) and reinsert it in a 16-pin wire-wrap socket. Before inserting the wire-wrap socket, containing IC J1, into the solder-tail socket, bend wire-wrap leg #14 and #11 outward just a bit. Now insert the wire-wrap socket into the solder-tail socket. Legs #14 and #11 should be dangling on the outside of the solder-tail socket. The modified socket should look like Figure 1. Do the same to IC H1, except no wire-wrap legs are to be bent. Solder a wire (approx. 3") from the disconnected J1-14 wire-wrap leg, to the H1-10 wire-wrap leg, and another wire (approx. 1") from the disconnected J1-11 wire-wrap leg to the J1-9 wire-wrap leg. That's it. Now carefully reinsert the modified sockets back into the APPLE. Triple check your work. At this point, all a mistake will cost you is some time.

Now that you've made your chosen Mod, there are a few things you must do to use it. As you can no longer use the HGR or HGR2 commands, because they expect the Hires pages to start at \$2000 and \$4000 respectively, you will have to set up the machine so that Applesoft can handle the modified Hires pages. The first step is to set the Zero-page pointer used by Applesoft to point to the Hires page boundary you have chosen. To do this, POKE 230, (with the high byte of the Hires page boundary address). For example, if the Hires page of interest starts at \$A000, the high byte is \$A0, which equals 160 (decimal). Therefore a POKE 230,160 will prepare Applesoft properly for all future HPL0T's etc. To get into the Hires mode you must use the software switches to turn the Hires on (see page 13 of the Apple Reference Manual). For example, if you wanted to activate Page 1 which you have relocated to start at \$A000 (Mod #2 or #5), you would follow this procedure:

- 1) POKE 230,160: REM SET APPLESOFT HIRES POINTER
- 2) POKE -16297,0: REM SET HIRES MODE
- 3) POKE -16300,0: REM DISPLAY PAGE 1
- 4) POKE :16304,0: REM TURN ON THE GRAPHICS
- 5) CALL -3086: REM CLEAR SELECTED HIRES SCREEN

These 5 steps are what HGR would have done for you on a normal APPLE. If you want Page 2, change the value POKE'd in step 1 to your relocated Page 2 address and change step 3 to POKE -16299,0. And if you're using Applesoft in a Ramcard, you can simplify matters by modifying Applesoft so that the HGR and HGR2 commands still work. Write Enable your Ramcard, and POKE -3101, (high byte of your relocated Page 1) and POKE -3105, (high byte of relocated Page 2). Now Write Protect your card. That's all there is to it.

In closing, there are two more points I'd like to discuss. The first is in anticipation of the question, "How about using the memory in a Ramcard as the Hires pages?"

It's a reasonable question, but as far as I can see at present, it would be a non-trivial task. The Hires pages are, for all practical purposes, restricted to the lower 48K address space. The final point I'd like to discuss is really a plug for an extension of this article. You'll note that all of the relocated Hires addresses start on even 4K boundaries, such as \$6000, \$8000, and \$A000, when in fact a Hires relocation to \$5000-\$6FFF and \$7000-\$8FFF might be more desirable. The reason you don't see any odd address boundaries lies in the hardware. The only way I've found to yield odd boundary addresses requires the addition of at least one IC. This in itself is not a major problem, but it goes beyond the theme of this current article. Let me end by saying that in a future article I hope to demonstrate a somewhat more complex modification requiring only 2 additional IC's that allow you to software select your Hires pages to start at any one of the 10 4K boundary edges from \$1000 to \$A000, using your game connector annunciator outputs. This will give you a maximum of 5 software/hardware selectable Hires pages at one time.

Although all the modifications described have been tested and are believed to perform properly as presented, the author disclaims any responsibility for any damage or liability that may be incurred as a result of these modifications.

contd.

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TABLE 1

MOD #	HIRES RELOCATION (Start-End Address) (in Hex)		DISCONNECT "xx-x" from solder tail socket	and then	CONNECT it to "yy-y"
1	6000-7FFF	(unchanged)	H1-9	----->	(leave) (unconnected)
2	A000-BFFF	8000-9FFF	J1-14 J1-11	-----> ----->	H1-10 J1-8
3	(unchanged)	6000-7FFF	C12-10	----->	C12-1
4	6000-7FFF	0000-1FFF	J1-11	----->	J1-2
5	A000-BFFF	(unchanged)	J1-14	----->	J1-2
6	6000-7FFF	8000-9FFF	J1-14 J1-11	-----> ----->	H1-8 J1-2
7	(unchanged)	8000-9FFF	J1-14 J1-11	-----> ----->	H1-8 J1-8
8	(see text)		C12-2 C12-5	-----> ----->	(leave) (unconnected) C12-8

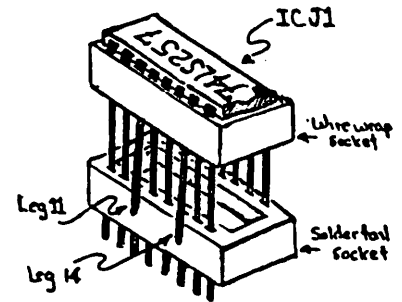


Figure 1

6

WHAT, ANOTHER IMPROVEMENT ?

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YOUR DISKETTES COST TOO MUCH

by Tom Van Flandern

Is the price of blank diskettes a constant drain on your Apple budget? Read on! You'll be glad you did.

Discussions of the subject of diskettes usually result in the propagation of "disk myths", or statements about diskettes which have three attributes: 1) They originate from diskette manufacturers or dealers, not users; 2) they are all reasons why you should pay more for your diskettes; and 3) they are untrue. Let us consider the most common of these myths.

THE ONE-SIDED MYTH. You have probably been exposed to the controversy over using one or both sides of your "single-sided" diskettes. I have often heard repeated the disk myth that the manufacturers put their label on whichever side of a diskette which first passes their surface quality tests. By implication, the other side may have failed such a test, and therefore may be expected to be of inferior quality. Sounds plausible, doesn't it? Cuts manufacturing costs, and why certify both sides when only one is usable as the disk is sold? There is just one problem with the theory - the box of diskettes doesn't know what type of computer or drive it is headed for use on. Did you know that Apple disk drives always write on the bottom side of your diskettes? In fact there is no standard among computers. Some have single-sided disk drives which write on one side, some use the other side. Manufacturers are therefore obliged to certify both sides of diskettes with equal care.

THE TWO-SIDED MYTH. What keeps you from turning your diskettes over and using the magnetic surface on the other side? There is a small rectangular notch along one edge, centered at 1-5/16 inches from the top edge of your 5-1/4 inch floppy diskettes. This notch permits your disk drive to sense that it is okay to write on the disk. If you cover this notch, the disk is write-protected. To make the other side usable, just punch a similar hole along the opposite edge at the same distance from the top, turn the diskette over, insert it into the drive, and use in the normal way. The shape of the notch is not important - circular or rectangular are equally good - but it must be at the correct location, about 1/4 inch wide, and not quite as deep. Use an ordinary hole puncher for good results. To get the location correct, just turn over another diskette and line it up with the one to be punched. For mass production, make a mask 5-1/4 inches long which can be placed quickly over the disk and show you where to punch. Don't be concerned if you get the hole slightly too large. Your chances of damaging the diskette are small with ordinary care, and are less from making too large a hole than they are from using too crude a cutting instrument, causing the diskette to be pinched inside its cardboard jacket.

The disk myth in this connection is that you risk losing data on the original side of the disk if you write on the other side in a one-sided disk drive. The reason cited is that magnetic particles will accumulate on the pressure pad which presses against the side opposite the read/write head, and these can destroy information on the side they come in contact with. The principal argument against this theory is empirical - it just doesn't happen, at least not over a period as short as a few years in ordinary usage. (See caution below under "The Cleaning Kit Myth", however.) The failure rate for diskettes used one-sided and two-sided is statistically indistinguishable, resulting in an interesting correlation. The probability of a micro-computer owner using his diskettes two-sided is directly proportional to his experience. Almost all users eventually try this, and the best proof of its effectiveness is that they stay with it. The most experienced Apple owners with the largest files almost all use all their diskettes two-sided, and smile knowingly at the novices who are reticent because "if it were that simple, the manufacturers would tell you so"!

THE DOUBLE-DENSITY MYTH. This disk myth is insidious, because the manufacturers allow the consumers to fool themselves, and simply fail to provide them with information needed to correct the myth. Double-density diskettes cost more because they have a thicker magnetic coating. So they must surely be better, right? Why not keep your really important files on double-density diskettes? Woe to you, naive and trusting user. The purpose of the double-density diskettes is to support disk drives capable of generating a stronger magnetic signal than Apple drives. This is usually needed if more bits are to be written per inch, but is quite unnecessary for the information density at which Apple disk drives operate. More importantly, though, since the signal generated by Apple drives is not strong enough for double-density diskettes, you actually have a slightly higher risk of losing those valuable files if you wrote them on a double-density diskette!

THE HUB RING MYTH. Some diskettes come with hub rings, and this too is supposed to be worth paying extra for. Hub rings are circular metallic bands on the inner edge of your diskette which provide extra strength to that edge. Their main function is to keep the inner edge from getting crunched if the diskette is off-center when the lid and pressure pad are lowered after the diskette is inserted into the drive. With just a minimum of care, however, the lid can be closed slowly, and lifted and closed again if it meets resistance, so as not to damage the diskette. Another recommended practice is to boot your disk ("PR#6") and start it spinning before lowering the door lid. This not only aids self-centering, but also prevents the read/

contd.

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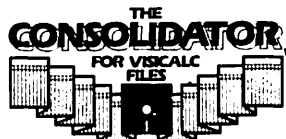


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write head from pressing against the disk surface as it retracts for recalibration (the clackety noise you hear). In other words ordinary good disk-handling practice (which even children can be expected to follow) will allow the diskette a chance to self-center and prevent damage. The problem caused by the hub rings is that, if the diskette has any tendency to bind in its jacket, preventing it from gaining full rotation speed, it is easier for it to slip with hub rings than without. If you ever tried a disk-speed test and occasionally see some measures go off scale, this is usually from binding up, and may be exacerbated by hub rings.

THE NAME BRAND MYTH. Occasionally a brand of diskettes in its entirety, or a particular batch of diskettes from some well known manufacturer, will be flawed and produce much user grief. However there is a lot of incentive for manufacturers who want to stay in business to prevent this from happening, and most are successful. Once the diskettes pass the surface certification tests, if they are properly shipped and handled, they are all essentially equally good, regardless of name brand or claims to the contrary. Almost all diskette failure is due to handling problems (see below). Failure rates of factory-shipped diskettes are about 12 per 1000, on average, with little variation between brands and no correlation with price. The myth here is that paying more for a name brand buys a tangible benefit. In fact, many generic brand diskettes are available, often made by the same big-name manufacturers but without the name-brand label, for much less cost than the identical diskette with the label pasted on it. Is the label really worth that much extra cost to you? There is also the question of whether a manufacturer will stand behind its guarantee. Apple Avocation Alliance recently reported that Verbatim refused to honor its diskette guarantee, and criticized the Apple organization for selling Verbatim's product "too cheaply".

THE CLEANING KIT MYTH. "Buy a cleaning kit for your disk drive. Clean the read/write heads at least once a week." Before I knew any better I bought just such a head cleaning kit. At the time I wondered at the "Important notice to purchaser" in small print on the box, which I quote in part: "Neither seller nor manufacturer shall be liable for any injury, loss or damage arising out of the use of the product. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith." I assumed, as most people must, that this was just legal mumbo-jumbo to protect the manufacturer from frivolous lawsuits by incompetent users. After all, the product was being widely sold for the purpose of cleaning disk drive heads, and that was surely a desirable end. Wrong again! I began to have one diskette failure after another, and it was several months before I realized the correlation with use of the head cleaner.

The sad truth is that the cleaning fluid used with the kit is a strong solvent. The recommended method of application results

in the pressure pad getting soaked with solvent. If you then use a diskette in the drive, the magnetic surface on the other side of the diskette is scoured by the solvent and actually dissolved in the process! The damage can be so extensive that it may no longer be possible to initialize the damaged surface. Of course if I had not been using my diskettes two-sided, I might not have discovered the problem. But I now know that, in truth, head cleaning usually needs to be done at intervals of one to four years, not weeks, and is easily done with isopropyl alcohol applied directly to the head, without damage to either pressure pad or diskettes.

PROPER CARE AND HANDLING. Most diskette failure is caused by improper care and handling, rather than anything under the control of the manufacturer. Of course, diskettes must be kept away from magnetic fields, such as emitted by some TV's and certain other electronic devices. They must be kept clean and dry. And the importance of never writing on a diskette label with an object which can apply pressure to the magnetic surface below cannot be over-emphasized. But there are more subtle problems which can be as devastating as spilling hot coffee over a diskette. If you have a shag carpet, and pick up a static charge when walking on it, you must not be touching a diskette at the time if you expect it to retain its information. Such static charges can also be lethal to your Apple's integrated circuits as well.

Perhaps the single most common cause of random diskette failure not caused by disk drives is binding in the cardboard jackets. This is why you are advised to store diskettes vertically, and avoid the temptation to stack them horizontally. Anything which applies pressure to the jackets (including crowded storage of diskettes, horizontally or vertically) can cause binding, which prevents the diskette from spinning at full speed continuously while in use, which causes intermittent failures.

I hope the preceding information proves useful to you, and saves you money, as well as headaches, with your diskettes.

NOTE: The opinions expressed above are those of the author and not necessarily those of Washington Apple Pi. One Board member who has owned his APPLE for more than four years recommends against the use of the back sides of diskettes, because the magnetic flux can possibly pass through to the opposite side, thereby ruining data.

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IAC CORNER

by Bernie Urban

With this issue, I am initiating a column on matters dealing with the International Apple Core. Hopefully, it will provide you with timely information on the organization and inspire you to help me in my role as Regional Director to make it more useful to you.

Some news about the IAC Annual Meeting (Saturday, May 15, Boston, MA).

After some introductory comments by Ken Silverman, President, and Jerry Vitt, Chairman of the Board; Ken, with assistance from Joe Budge, Secretary, conducted the business meeting which lasted all of five minutes. Ken then announced the results of the annual elections which were as follows:

West	- Steve Lloyd	19 votes
	Michael Develle	9 votes
North	- Barry Bayer	uncontested
South	- Robert Mills	6 votes
	Bob Sander-Cederlof	10 votes
East	- Robert Ramsdell	13 votes
	John McMullen	9 votes
	Don Lehmbeck	9 votes
Canada	- Auby Mandell	uncontested
Australia	- Roger Keating	uncontested

Wolfgang Dederichs remains acting Director until a to-be-scheduled nomination and election procedure is properly conducted in Europe. Jim Simpson (West), Jim Hassler (North), Jerry Vitt (South) and Bernie Urban (East) begin the second year of their terms. This completes the roster of IAC Directors for 1982-1983.

Subsequent to a few reports from Committee and SIG Chairmen in attendance, Ken opened the session to questions and comments from the floor.

Folks seemed to be concerned about the usual problem of communications...in particular they complained about inadequate information about the nomination and election procedure for Regional Directors. (Evidence of this is amply provided by the figures above, where only 75 out of a total of 215 paid-up clubs actually participated in the election.) This must and will be improved! They also complained about Apple's policy of restraining purchase of their products by mail. Most present seemed to want IAC to take a stand on this.

Others were impressed with a report by Librarian Major Terry Taylor who indicated that he had over 800 diskettes of software and a huge store of member club newsletters. They asked the Board to find ways to make the material available to members in a timely fashion. In response to a complaint concerning insufficient services from IAC to its members, Ken hinted that several items were in the works. One would be a technical publication series which would replace the ApNotes. Formal announcement will be given once negotia-

contd. on page 39

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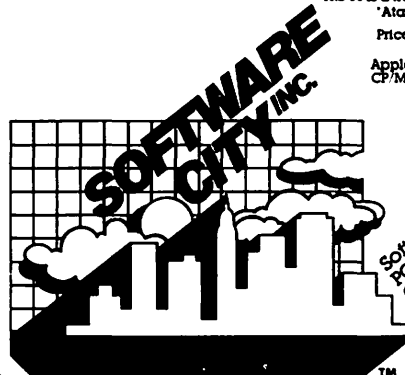
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SOME SUGGESTED PROGRAMMING STANDARDS FOR THE APPLE II AND /// by Ronald L. Askew

When a member of a micro users group sits down to write an article for the club newsletter, he/she does it for one of a number of reasons. Some do it to establish themselves as experts on a particular subject. Some will perform the chore out of loyalty to the group and to insure the quality of the club's information function. Others are content to invest their creative writing talents in the hope that someone else might learn something useful from it. I am writing for none of those reasons. My motivation springs from a groundswell of one of the most important and most highly advertised benefits of user club membership, i.e., access to the club program library.

Whether you are a novice programmer or have been at it for years, I am sure that you have had occasion to dig out one of your old programs hoping to update it with a few embellishments for some particular and important applications. Or perhaps you spent hours copying a listing of some promising contributed program from a micro magazine. It doesn't matter if the program was a game, a print utility or a super file management application, you probably spent too much time trying to figure out how the old program worked before you could modify it at all.

And how about the programs on your club's program disks! Of course, you got the programs for slightly more than the cost of the diskettes, but how often should you be expected to have to shell out your hard earned cash for a disk-full of frustration. And if you think you can take many of those nifty little programs and modify them for some special purpose, you might as well resign yourself and settle in for the near certainty of having to invest hours and hours of work just figuring out how the code works.

This article is written as a plea to Basic programmers to change their evil ways. I am offering, herewith, some general programming principles to help make your code in the Basic language easier to read, write, debug, and easier for the author or anyone else to maintain and modify. It is common knowledge that, generally, those who learn to program in Basic are infamous for their poor coding habits and even poorer documentation techniques, and this includes yours truly. Consider for a moment that the software you spent \$150.00 for might have been written by some one-time hobbyist who, though he/she might be a genius, chose to set the price of the software based on the amount of code and time spent in writing and debugging it. Now consider how unreliable and bug-infested this software might be. This is a serious problem for the whole micro industry. If the problem is not addressed by the hobbyist/user, we might find what some suspect to be already the case, that although micros are convenient and useful tools for home and business, the majority of software available is

unreliable and unnecessarily overpriced.

The principles that follow are borrowed from a number of sources and do not pretend to be an exhaustive approach to structured programming. The general approach is an abbreviated and simplified hybrid of the 'Top Down' and 'Step Wise Refinement' methods of software development.

Examples are written in APPLE /// Business Basic because of obviously superior built-in software devices that contribute and encourage structured programming. Most of the principles can be generalized and applied to any extended Basic (including APPLE][Integer and Applesoft) and all apply, ultimately, to most languages that are not self-documenting and do not demand structure.

STRUCTURE

1. OUTLINE

When you sit down to write, the first thing you should do is to outline the major functional parts of the program and identify a range of line numbers for the code and mark them with REM statements. Make sure you have allowed room for short utility routines that might be called often by the other modules. Principles that should be kept in mind are as follows:

- Short subroutines that are accessed often should be placed at or near the beginning of the program. This enhances execution speed because GOSUBs and GOTOs, in interpretive Basics, tend to search from the beginning of the code for the destination line number. Speed is also enhanced because the program is shorter due to the non-redundance of frequently executed code. Each subroutine should list the parameters it must receive. The major advantage of this approach, even in cases where speed and brevity are not considered important, is that your subroutines are all labeled and in one place so that they can be easily found when you want to debug or modify them.

- Try to anticipate what subroutines you might require. Certain common routines should be in a library somewhere so that you can renumber them and EXEC them into the project at hand. Common routines might be for text centering, numeric input routines with string to numeric conversion, generalizing menus, graphics initialization, 'hit any key to continue', output formatting, etc.

- Longer routines, especially if not accessed very often, should be positioned at the end of the program.

- Modules should be generalized, that is if you have one routine that accepts

contd.

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numeric input and another that has a numeric entry routine incorporated in it, you have been redundant. It would be better to write one generalized routine than to have several versions of it.

- The initialization section is usually executed only once and should be located at the very end of the program. This includes all DATA, DIM and IMAGE statements, and control character and other variable constant initializations. Should your program involve chaining to other programs that require only the sharing of constants, divide your initialization module into two or more submodules. By doing this, you can CLEAR unneeded overhead and only the necessary variable baggage is available to the chained program.

Figure 1. is an example of a skeleton structure.

2 . CONTROL LOGIC

Now you can actually write the code for your main control logic. If the program is complex then you might want to perform step 1 (of Figure 1) to subdivide and outline the major modules of your main control logic section. The main control logic may be organized by menu options and their branches and/or internally controlled options and branches dictated by calculations, the value of key variables, or any other program branching criteria.

Figure 2 is an example of a simple main control logic module. Note how the program fills in as you determine what constant, variable, and subroutines are needed. The dummy PRINT statement for the 'add' routine demonstrates how the menu module can be tested even though the subroutine it calls is not yet written.

3 . SUBROUTINES

You should incorporate subroutines into the program on an 'as needed' basis, testing each from IMMEDIATE execution mode with GOSUBs to insure the operating integrity of your software.

- The special and temporary variables should be given names that will not conflict with the other program variables and that can be used by other subroutines that it neither CALLs or that CALL it. Suggested variable names are:

```
TMP]%, $, &(TMP.INDEX)[,
STRG$](TMP.INDEX)[,
TMP.STRG$](TMP, INDEX)[, etc.
```

- Always qualify FOR...NEXT loops in subroutines that may be called from within another FOR...NEXT loop. A qualified FOR...NEXT loop has the control variable identified in the NEXT part of the construct. For example:

```
100 NEXT J      is qualified
100 NEXT        is not qualified.
```

4 . WRITE CODE

Now you can write and hook each major functional module using Steps 1 to 3, in turn, until the program is complete. First outlining, then writing the code and adding subroutines. The subsequent examples provide sequenced snapshot views of the development of the program following these principles.

- Each module should be tested before moving on to the next one. If the module has been designed as has been suggested, this can be done from the keyboard in immediate mode by typing 'GOSUB <line number>'. This approach reduces the complexity of debugging a large hunk of code at one time and it serves to isolate the type of logic errors that are most difficult to find. Often you will have to initialize, from the keyboard, some dummy data that the module needs before GOSUBing.

- As the coding progresses and new ideas impose on the structure and/or the scope of the project, it is often necessary to reevaluate the existing structure. This activity is much simplified when the above principles have been adopted.

READABILITY

Your programs will be fairly readable just through the application of the structuring techniques described above. Here are some additional tricks to make it even more readable.

- Offset your REM statement from the other program lines by embedding control characters. There are exotic ways of doing this but here is the simplest technique (the character in brackets is a control character):

```
100 REM[J]***turn on thermostat***[J]
```

This will cause the line to be separated from the lines above and below it and might look like this:

```
90 IF temperature (= freezing) THEN 200
95 RETURN
100 REM      ***turn on thermostat***
```

```
105 GOSUB 60000: GOSUB 61000
110 ON ERR GOTO 62000
```

- Variable names should give the reader a good idea what the value of a variable is. To this end, it is a good idea to adopt certain naming conventions. Temporary variables should be names as we discussed above. Control characters should be given names like A\$, B\$ or Ctrl.A\$, Ctrl.B\$, and these should be declared in an initialization section. Other variable names should be descriptive as follows:

```
63000 freezing = 32: boiling = 212: screen
length% = 24: first.name$ = "Sam":
lastname$ = "Jones": int.max% = 32767
```

If, for the sake of speed, it is necessary to shorten variable names or to eliminate REM statements, it is best to publish the

contd.

slow documented version with the advice to users that they should use appropriate REM removal and text editor utility programs for that purpose.

FLOW OF CONTROL CONSTRUCTS

I have also included a listing of skeleton routines that may be of assistance to Basic programmers adapting routines from an algorithmic language or from other languages that incorporate some of the more common 'flow of control' constructs. They may be used to help in direct translations from such a language or by the ambitious Basic programmer who wishes to simplify program logic and branching techniques. It is assumed that readers need not be briefed on the use of the FOR..NEXT, GOTO, GOSUB... RETURN, and IF..THEN..ELSE constructs.

1 . WHILE

This construct will evaluate a logical expression prior to the execution of the following block of code. This means that it will only execute the block that follows if the logical expression is true or, since Basic does not have Boolean data types, if the numerical value of the expression is not zero the code will be executed. If the expression evaluates as false (or zero), the block of code will be ignored.

Applications of this construct are common to many programming problems. Suppose you want to continue to allow user input and processing only if the user responds with alphanumeric characters, as in an input routine. Or suppose you want to continue processing all values but you only want to print results while they are non-negative. Finally, suppose you want to read from a file 'while' the file still has data in it.

2 . REPEAT

This construct is the functional opposite of WHILE. The block of code will execute at least once and repeat only if a condition evaluates as true or non-zero. If the expression is always false (or zero), an infinite loop results.

Applications include the reading of a random file that is known to exist and has as its first record data describing the number of pointers to subsequent records (linked lists). If the condition tested was whether or not the next record in the list has a null pointer, execution will continue until a record is read that has such a pointer, but it will read at least one record (the header record) before the loop terminates.

3 . CASE

The CASE construct is most useful as an alternative to a long list of IF statements testing for some specific condition. An expression is compared to a list of selectors of the same data type. Each selector is associated with a statement or block of

statements to be executed. The first matching selector determines the code to be executed. If none of the selectors matches the expression, no statements are selected or executed.

One special application may provide the best example. Suppose you have a menu where the legal options are selected by the entry of a letter from "A" to "G" (in upper or lowercase) or the control character produced by pressing the <RETURN> and the <ESCAPE> keys.

IN CONCLUSION

It would be encouraging if user groups imposed some standards upon the software they accept into their libraries. I am sure that most, if not all, disk librarians and newsletter editors are down-in-the-mouth about the problems of having to respond to members who have, in turn, responded negatively to the quality of important organizational software materials. If a computer club is not willing to impose standards, it becomes the responsibility of the contributors to make the best contribution they can, or we're all in trouble.

contd.

IAC Corner contd. from pg. 35

tions are completed with Apple Computer, Inc.

The special meeting of the Board was held on Saturday afternoon and Sunday morning, during which the Board appointed the following Officers:

- Ken Silverman continues as President and General Manager of the IAC for the remainder of his three-year contract.

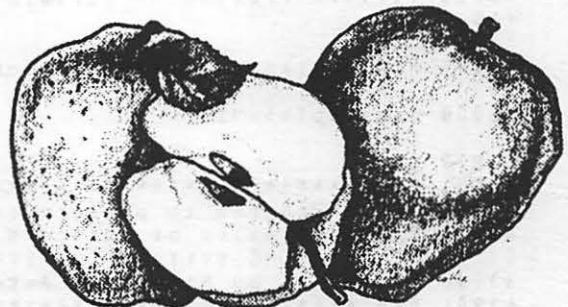
- Harlan Felt is Vice President for faires, Applefests and special meetings, and is next in line to succeed Ken Silverman.

- Lou Millard of Toronto, Canada, is Vice President for Special Interest Groups.

- Dave Alpert is reappointed Treasurer of the IAC.

- Joe Budge is reappointed Secretary of the IAC.

- Bernie Urban is the new Chairman of the Board.



```

1 GOSUB 62600:GOSUB 62700

9 REM short subroutines

38 REM setup protected field
39 REM fld.len% := length of field, horz%,vert% := coordinates

58 REM input integer
59 REM parameters not yet determined

2998 REM add 2 numbers
2999 REM operand1% := 1st operand, operand2% := 2d operand

3998 REM subtract 2 numbers
3999 REM operand1% := 1st operand, operand2% := 2d operand

59999 REM menu - control module

62599 REM constant initialization

62699 REM variable initialization

63899 REM
63901 REM *****
63910 REM * Program to perform calculations *
63910 REM * on pairs of integers *
63930 REM * Copyright (C) 1982 *
63940 REM * by Ronald L. Askew *
63941 REM *****

```

Figure 1.

```

1 GOSUB 62600:GOSUB 62700

9 REM short subroutines

38 REM setup protected field
39 REM fld.len% := length of field, horz%,vert% := coordinates

58 REM input integer
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2999 REM operand1% := 1st operand, operand2% := 2d operand

3998 REM subtract 2 numbers
3999 REM operand1% := 1st operand, operand2% := 2d operand

59999 REM menu - control module

60000 TEXT:HOME:VPOS=4:PRINT USING 63600; titles
60001 REM *****
60002 REM 1. Addition
60003 REM
60004 REM 2. Subtraction
60005 REM
60006 REM *****
60007 REM Enter Selection:
60010 WINDOW 20,8 to 24,80: REM set viewport for options
60020 PRINT screenoff::INDENT = 0:LIST 60001 TO 60009
60030 WINDOW 1,8 TO 29,24: HOME: PRINT screen.on$: REM erase linenumbers
60040 GET respond$: if NOT INSTR(menu.opts$,respond$) THEN 60040
60050 ON INSTR(menu.opts$,respond$) GOSUB 3000,4000: GOTO 60000

62599 REM constant initialization
63600 IMAGE 78c
63610 titles$="Program to perform calculations": screenoff$=chr$(14): screen.on$=chr$(15)

62699 REM variable initialization

63000 menu.opts$="12"

63899 REM
63901 REM *****
63910 REM * Program to perform calculations *
63910 REM * on pairs of integers *
63930 REM * Copyright (C) 1982 *
63940 REM * by Ronald L. Askew *
63941 REM *****

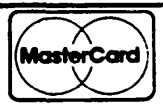
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Figure 2.

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Morton's Fork	29.95	22.95	Kaves of Karahan	49.95	36.95	Carters & Cuthroast	39.95	31.95
Graphic Adventure 1, 2 & 3 (each)	29.95	22.95	Rings of Saturn	39.95	31.95	The Shattered Alliance	59.95	49.95
AVALON HILL								
Galaxy	CALL	CALL	Alchemstone	39.95	31.95	Computer Baseball	39.95	31.95
Onweper River Line	CALL	CALL	Beutron	29.95	22.95	President Elect	39.95	31.95
Close Assault—Computer Squad Leader	CALL	CALL	DATAMOST					
BRODERBUND								
Star Blazer	31.95	23.95	Thief	20.95	22.95	Battle of Shioh	39.95	31.95
CALIFORNIA PACIFIC								
Hungry Boy	24.95	20.95	Snack Attack	20.95	22.95	Tigers in the Snow	39.95	31.95
CAVALIER COMPUTER								
Microvare	CALL	CALL	County Fair	9.95	22.95	Southern Command	39.95	31.95
DAKIN 5								
Worm Hole	29.95	22.95	EDU-WARE					
DATAMOST								
Missing Ring	20.95	22.95	The Prisoner	20.95	24.95	Dungeon Campaign	30.00	21.95
Swashbuckler	34.95	26.95	Terrorist	20.95	24.95	Wilderness Campaign	20.00	13.95
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ULTIMA II—Available Soon	64.95	54.95	Russian Duck	24.95	26.95	Firebird	29.95	21.95
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PENGUIN SOFTWARE								
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Special Effects (TABLET VER)	69.95	52.95	ABM	24.95	19.95	ABM		
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ARVIS								
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UTILITIES								
ADVENTURE INTERNATIONAL								
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Language Plus (Vol 2)	75.00	59.95	Star Crusier	24.95	18.95	Star Crusier		
MUSE								
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ATARI 810 Disk Drive	599.00	599.00	ATARI 810 Disk Drive					
ATARI 400 (16K)	399.00	329.00	ATARI 400 (16K)					
ATARI 410 Tape Recorder	99.95	89.95	ATARI 410 Tape Recorder					
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```

100 REM *****
103 REM ** **
105 REM **          Structured Business Basic -          **
110 REM **          A set of Subroutine Skeletons          **
115 REM **          by          **
120 REM **          **
125 REM **          Ronald L. Askew          **
130 REM **          **
140 REM *****

200 REM *****
205 REM ** **
206 REM **          Emulation of the While Statement          **
207 REM **          **
208 REM *****

210 IF condition%=testvalue% THEN operation1=executed::ELSE GOTO 250
220 operation2=executed
230 operation3=executed
240 etc...=executed
245 GOTO 210
250 REM continue sequential processing

300 REM *****
305 REM ** **
306 REM **          Emulation of the Repeat Statement          **
307 REM **          **
308 REM *****

309 true=1:false=0
310 FOR test=false TO true
315   operation1=executed
320   operation2=executed
330   operation3=executed
340   etc...=executed
345   test=(condition%=testvalue%)
350 NEXT test
360 REM continue sequential processing

400 REM *****
405 REM ** **
406 REM **          Emulation of the Case Statement          **
407 REM **          **
408 REM *****

409 escapekey%=CHR$(27):returnkey%=CHR$(13)
410 acceptable.chars%="ABCDEFGHabcdefgh"+escapekey%+returnkey%
420 GET respond.char%:IF NOT INSTR(acceptable.chars%,respond.char%) THEN 420
430 ON INSTR(acceptable.chars%,respond.char%) GOSUB 500,510,520,530,540,550,
560,500,510,520,530,540,550,560,600,610
450 REM continue sequential processing

```

A DEBUGGING PROBLEM AND SOLUTION

by Robert V. Rusk

Legend has it that in the vacuum-tube days of digital computers insect infestation caused failures henceforth known as "bugs". Because of this, when termites colonized the tree stump in my front yard I hired a pest control company to keep them from entering the house. Stump today, floor-board tomorrow, and motherboard next week, I figured.

When they came to termite-proof the house they made a mistake. The pest control operator squirted Chlordane solution into the basement with a high-pressure injector. You know what it hit, don't you...all over the APPLE, from across the room!

After decanting, blotting, and fan drying, the APPLE ran, but it was clear that it needed still more help. Following a few days in various solvent tanks and careful testing, it appears that damage was limited to the keyboard area and 10-key pad, where pesticide flowed into the works. I lost three diskettes (backed-up, thankfully) to pesticide solution; yet the programs on the disk in drive 1 were not debugged. Damaged items are, of course, being replaced by the exterminator's insurance company.

Perhaps the moral of this story is that improper debugging techniques cause more grief than they cure. At least, it is now clear why Chlordane spray is not recommended for APPLES. ☹

PASCAL TEXT SCREEN UNIT UPDATE

by Ed Knepley

The May newsletter article describing a Pascal UNIT to dump the text screen buffer to a printer was written for a system without an 80 column upper/lowercase board. This is an update to describe the differences encountered using the Videx Videoterm board with the Videx softswitch.

There are two areas that change when using the Videoterm board. First, the character codes are standard ASCII as opposed to APPLE's own unique character code - this change was to be expected and simplifies the program. The second area of change was a surprise - the screen buffer is not in APPLE RAM but in RAM contained on the Videoterm board. Thanks to decent documentation this change was easy to accommodate. The owner's manual has a small sample program related to screen buffer mapping that illustrates the steps required. Without the documentation things would have been difficult since the board pages through four 512 byte blocks of RAM to provide a 2K buffer.

The program that was included with the article requires minimal change to work with the Videoterm board. Replace the long IF...IF ELSE section in TEXTDUMP with a one-liner that performs straight ASCII conversion. Also, replace the text buffer address computation with a procedure analogous to the one described in the user's manual. This is maybe a 10 percent or less change in the code of the overall program. ☹

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DIASCRPTIVE READING: a review

by Bernie Urban

I was intrigued by an ad in the April, 1982 issue of Creative Computing, which described a new series of educational programs for the APPLE][, TRS-80 and the Pet. The programs, marketed by Educational Activities, Inc., cover reading, math and computer programming in Basic for elementary (and higher) students. The series, entitled "Diascriptive Reading", was developed by Carol Buchter, M.S., Reading Specialist, and by Ron Buchter, M.A., Computer Specialist. The ad states that "The programs diagnose the reading skills of each student, prescribe what is needed for improvement and evaluate performance at each level before directing the student to the next program. If the student did poorly, he/she will be directed to a lower level program for remediation. If he/she did well, the student will be directed to a higher level program for further developmental activities".

I thought that perhaps my son who has a learning handicap might benefit from this package. I called EAI and asked whether this package could be used for this purpose. Not knowing whether it could or not, they kindly offered to mail a preview set to me to try out for 30 days.

The package was shipped UPS and arrived in excellent condition. In it were seven diskettes and one 10-page program guide. A quick reading of the guide left many questions in my mind. The set of programs are meant to be used in a classroom situation. You are instructed to load the Diagnostic Disk and to subject each student to the entire set of six diagnostic tests. Two items are tested at any one time, e.g. vocabulary and sequence, main idea and fact/opinion, details and inference. Not all of the tests need be taken by the student at one sitting. The disk-based series records the results automatically on the master diskette, filing them by the student's first and last name.

The teacher is able to review the results of the testing, by student or by the entire class. When prompted by the computer to respond with a first name (of the next child to be tested) the teacher may type DUMP, and the program will then request whether the information is to be for a particular student or for the entire file (class). If the file option is chosen the teacher is given a choice of a screen presentation or a printout on a printer.

Once tests are completed, the student is then allowed to begin one of the 36 development reading programs, levels 3 to 8 for each skill area. If the student is newly assigned to one of these lessons, the computer instructs the student to call the teacher to the keyboard. Upon striking Ctrl-A, the teacher is requested to specify the appropriate level (3-8) for the "new" student. One keystroke later, the student begins.


In my sampling of the diskette lessons, I found them to be comprised of reading paragraphs with or without numbered sentences followed by multiple choice questions. The text appears slowly on the screen apparently as an attempt to retain the interest of the reader. The student is requested typically to respond by typing a, b, c or d. By experimenting with the system I found that the student is given two or three chances to choose a correct answer. He/she is also prompted to hit the ESC key to review the paragraph being studied. A return to the question is effected by hitting any key. A correct answer typically elicits a well-done arcade game type graphic animation, and, if appropriate, a textual "You have done very well" at the end of the test. The teacher has the opportunity to review progress as before by using the DUMP (student, file) to (screen, printer) options.

MY REACTIONS

The system is very well prepared for use by a non-computerist. The APPLE][Autostart and the explicit prompting by the program, together with the availability to the teacher of only a few simple commands makes it quite simple to use. However, there appears to be no way to break off a session in mid-stream without turning the computer off. The tests which I took were limited to multiple choice, which in my opinion, is not sufficient for proper learning. While the starting level is set at the discretion of the teacher, the length and complexity of the introductory passages do not seem to vary with the level. A third grader might easily be overwhelmed by a complete screenfull of text unless he/she is already reading at say a 5th grade level. The animations were the same throughout any one lesson (except for a count of successes) and could become boring to the child. To my knowledge, there is no way available to the teacher for modifying either the questions or the method of testing. It would be nice to intermingle the animations in some random way so as to surprise and thereby maintain the child's interest. There should also be a provision for allowing the teacher to return the SPEED of presentation to normal.

This teaching technique seems to offer little improvement over that of reading materials in a text and responding. The system would in my opinion become far more useful if the teacher could introduce material considered to be more appropriate for the student and solicit "fill-in" or "yes-no" responses to questions as well as multiple choice responses.

(I have concluded that this package would not be appropriate for my son.)

"Diascriptive Reading" is available from Educational Activities, Inc., P.O. Box 87, Baldwin, NY 11510, for \$245. 

READ FORTHDOC

by Stephen E. Bach

I am grateful to William D. Wurzel who did the work for WAP's FORTH Disk (Volume 105). But the machine language program on that disk, READ FORTH DOCUMENTATION, does not work for those of us who still feed their IDS printers through the game I/O port. So I wrote the enclosed program to print FORTHDOC, the file on Volume 105 of FORTH documentation. It might be helpful to some others. It can be used with appropriate modifications as noted by people with any kind of printer arrangement.

```

10 REM
11 REM      READ FORTHDOC FROM WAP DISK 105
12 REM      (FORTHDOC IS A TEXTFILE ON WAP DISK
13 REM      105)
20 D$ = CHR$(4): DIM T$(330)
30 FOR I = 0 TO 70: READ BYTE: POKE 768 +
  I, BYTE: NEXT: REM STORE INPUT ROUTINE
  WHICH WILL ACCEPT PUNCTUATION, BEGINNING
  AT $300.
31 REM FROM PAGE 8, JUNE 1981 WAP
40 ONERR GOTO 90: REM TO DEAL WITH THE END
  OF DATA ERROR WHEN WE REACH THE END OF
  THE TEXT FILE.
50 GOSUB 110: PRINT CHR$(28): PRINT
  D$"PR#0": REM HERE WE SET PRINTER (IDS
  440) FOR 8.3 CHARACTERS/INCH. IF YOU
  HAVE A CLOCK CARD YOU COULD INSERT A
  CALL HERE TO PRINT THE TIME AND DATE.
60 PRINT D$"OPEN FORTHDOC": PRINT D$
  "POSITION FORTHDOC, R"COUNT: PRINT D$
  "READ FORTHDOC"
70 FOR I = 0 TO 330: CALL 768, T$(I):
  COUNT = COUNT + 1: NEXT: PRINT D$
  "CLOSE"
80 GOSUB 110: FOR I = 0 TO 330: PRINT
  T$(I): NEXT: PRINT D$"PR#0": GOTO 60
90 A = PEEK(222): IF A = 5 THEN N = I-1:
  POKE 216, 0: PRINT D$"CLOSE": GOSUB 110
  : FOR I = 0 TO N: PRINT T$(I): NEXT:
  PRINT CHR$(30): PRINT D$"PR#0": END
100 PRINT D$"CLOSE": PRINT D$"PR#0": PRINT
  "ERROR CODE IS "A: PRINT "ERROR IS IN
  LINE "PEEK(218) + PEEK(219) * 256:
  PRINT "PROGRAM ABORTED.": POKE 216, 0:
  END
110 CALL 49408: REM MY PRINTER TURN-ON SUB
  ROUTINE. FOR REGULAR PRINTERS IN SLOT 1
  SUBSTITUTE PRINT D$"PR#1" HERE.
120 RETURN
130 :
140 DATA 32,190,222,32,227,223,166,17,48,5,
  162,163,76,18,212,133,133,132,134,165,
  184,164,185,133,135,132,136,32,44,213,
  173,0,2,201,3,208,3,76,99,216,169,0,
  133,13,133,14,169,0,160,2,32,237,227,
  32,61,231,32,123,218,165,135,164,136,
  133,184,132
150 DATA 185,32,183,0,96
  
```


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GRAPHICS FUNCTIONS INCLUDING WINDOWING, CLIPPING, AND ROTATION by Ed Knepley

In order to do a job easily the right tools are necessary. This is true in computers just as it is in plumbing, cabinet making or auto repairs. Most often the computer "tool" is software which performs certain basic functions. Graphics applications are usually greatly simplified if the right tools are available. This article describes several of the most fundamental graphics functions - windowing, clipping and rotation. An additional function known as a viewport, a logical offshoot from the windowing/clipping functions, is also described. Through the use of these functions the majority of graphics tasks and applications can be accomplished easily.

Rather than attempt a long winded tutorial that would interest only a small number of readers, let's examine each of these functions by means of sample graphic outputs. Several "before & after" series of drawings will be shown based on the logo (Washington Apple Pi) shown in Figure 1 to illustrate what each of our graphics functions does. Figure 1 and each of the subsequent figures is a HIRES screen dump where the frame around the picture depicts the limits of the APPLE's 280 x 192 screen. Keep in mind that although our picture looks like three letters to us, to the computer it is just another drawing made up of a number of line segments. To the computer it could just as easily be a graph, a bar chart, or any drawing, and the functions of this article apply to any line drawings. We use the logo rather than a graph only because it's easier to follow the series of figures from beginning to end and see what's going on.

WINDOWING & CLIPPING

=====

In the simplest sense, windowing is the function which allows us to define what part of a drawing is to be displayed. It also is the function which allows AUTOMATIC scaling of coordinates, i.e. it allows us to convert from the coordinates of the data to be plotted into the 280 x 192 world of the APPLE's HIRES screen. Figures 2a, 3a & 4a graphically depict windows. For example, in Figure 2a the window surrounds the letters "WA" in WAP (Washington Apple Pi). WAP is the "entire world" in this case and our "window" on the world is focused only on the first two letters - recall that the function of the window is to define what part of a drawing will be displayed. In Figure 3a, the window is selecting a piece out of the display; in Figure 4a the window is around the hole in the letter "P". If the drawing were a graph of monthly sales volume for the past 60 months, the window could be used to focus on the data for one particular time segment, e.g. only 1980. Also, though it is not apparent in these examples, the windowing feature automatically scales our drawing to fit within the viewing area that we choose. For example, the sales volumes could range from a monthly low of 25 units to a high of 2500,

and extend over a period of 60 months, i.e. 1-60. The APPLE's screen, unfortunately, has coordinates of 0-279 and 0-191 and our data isn't going to fit in this space without some effort on our part (scaling). Not to worry, implement a windowing feature and this is all done automatically without any effort on your part at all.

Each of the above figures was generated interactively thus providing what is essentially a graphics editing capability. The picture that we're interested in is displayed on the screen, and then by changing the dimensions and positions of the "window" we can selectively pick and choose what we want to display in our final drawing.

In order to display only the "windowed" portion of the drawing, we have to get rid of unwanted material. A special procedure is required to do this since, in general, a line may be partly in and partly out of the window. Look at Figure 3a, for example, where the "A" is specified by the end points of eleven separate straight line segments (count 'em). The task to be performed is to determine which portions of every line segment in the "world" of the drawing falls inside the window. This function is known as clipping, i.e. clip off the portion of lines that fall outside the window. The trick in implementing a clipping function is computational efficiency. Since every line in the drawing must be evaluated to determine which portion of the line segment falls inside the specified window, potentially large amounts of time can be chewed up here. This becomes a more significant problem if we're doing this interactively.

THE VIEWPORT

=====

Another useful function in the development of a graphics tool kit is the notion of a "viewport". Whereas the window defines what part of the picture we are going to see, the viewport defines where in our viewing area we will see it. Our viewing area is typically the HIRES screen and/or a printer or plotter. The need for the viewport arises because it isn't likely that we want the portion of the drawing selected for display by windowing to be displayed at its original location or original size - enter the viewport. The portion of the picture in the window will be "viewed" where the viewport is placed. The windowed picture will relocate its position to the position of the viewport, and the windowed picture will contract and or expand as necessary to fit within the entire viewport - all automatically. Figures 2b, 3b & 4b depict three different viewport selections. The viewport has many uses. An example, not shown, goes back to our sales volume graph. We use the viewport to define three separate screen areas for graphs - one being a tall, skinny area on the left for

contd.

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the Y-axis and associated labels; a similar wide, short area along the bottom for the X-axis; and finally, everything that's left for the graph proper, i.e. when drawing this graph we actually compose three separate pictures into a single output unit.

THE BIG PICTURE

Let's put the window and viewport together and look at the result. In Figure 2b, the viewport is just inside the frame that shows the limits of the HIRES screen, i.e. the viewport is the entire screen (almost). We selected "WA" for display in the window of 2a and therefore "WA" will be displayed within the viewport - and we get Figure 2c. Notice that a viewport larger than the window, as we have here in Figure 2, enlarges the original drawing. Depending on whether or not we enlarge (or shrink) equally in the vertical and horizontal directions, the shape of the drawing can be modified. Through this enlargement feature, we can examine details of drawings. If we make the viewport smaller than the window, the windowed portion of the drawing is reduced in size. This would allow us, for example, to display several drawings (or parts of drawings) on a single display. In Figure 3b, we chose a viewport which moves the location of the drawing while simultaneously shrinking it in the horizontal direction and expanding it vertically. Figure 3c is the result. Figure 4b sets a large viewport for the hole in the "P". One additional function was used in going to the resultant output of Figure 4c. A rotation of 135 degrees clockwise about the center of the window was specified. The highly magnified, rotated "hole" is shown in Figure 4c.

These tools allow the accomplishment of the majority of graphics jobs that most of us want to do with the APPLE. A program to automatically scale, label and draw graphs can be implemented with a small amount of code plus these functions as CALLable procedures. Graphs that "go forever" in the X-axis directions are easy to accommodate on your printer (assuming you can dump the HIRES screen) - window in on the time frame from left to right a chunk at a time; leave the whole screen as the viewport; rotate 90 degrees; print this chunk and repeat the process for the next X-axis segment. There's no need for those expensive boards to manipulate your graphics and tie up another slot when you can do it in software. Interactive graphics editing is simple. How about graphics for your game programs? Draw one picture of the alien ship to any scale that's convenient and move him through your hyperspace using nothing more than the viewport - simple. Use the window and viewport in combination to bring the alien gradually into view as you turn your ship toward him to begin your attack - simple again so long as we have the right tools. Imagine trying to do this without some comparable capability! One other thought - recall a roadmap of a highly congested area. That section is usually enlarged and shown elsewhere on the map. The analogous feature is available by windowing in (zooming in) on the congested part of the drawing and selecting a large

viewport. The key feature and advantage in all of this is that you draw (more correctly, you define) your drawing in the coordinates of its world once and only once. Having done this you are free from the burden of redrawing, rescaling, etc. every time a change is required. Isn't this what tools are all about - to free us from burdensome, error prone details? Otherwise, we may as well use pencil and paper - it's certainly easier.

Shape tables available in Basic provide some of the capabilities discussed, but not all. There is no way to window and clip; each shape is in effect an entire picture and there is no way to extract just a portion of it for display. The shapes can be scaled and rotated; however, the resolution available is very limited.

Figure 5 shows the flexibility available with the right set of tools (although why anyone would want to write WAP all over his screen is still a mystery to my wife who is convinced that I've flipped out). This was done interactively in several minutes (the drawing, that is - flipping out took longer). The programs which implement these functions are written in Pascal as UNITS which can be linked into any program that requires graphics. An excellent reference for anyone who would like more information is Newman and Sproul, Principles of Interactive Graphics, 2nd Edition, McGraw-Hill.

contd.

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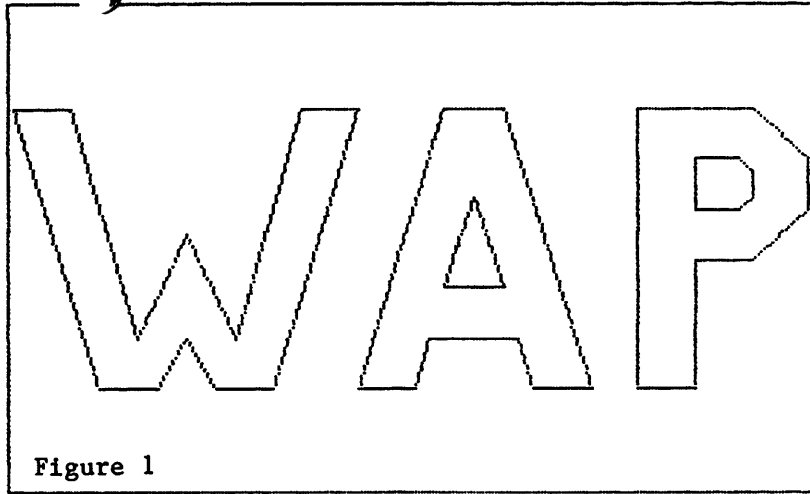


Figure 1

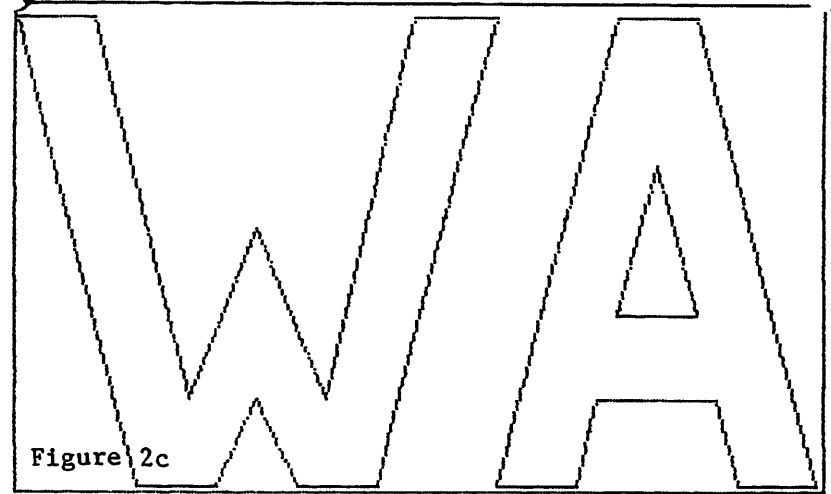


Figure 2c

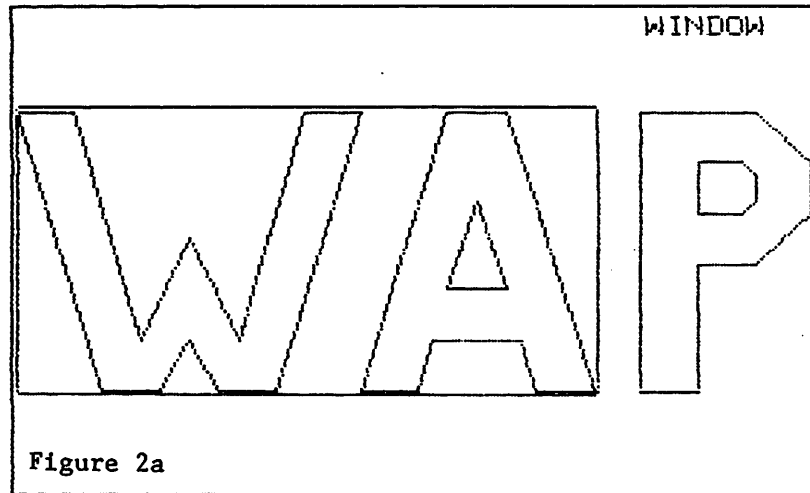


Figure 2a

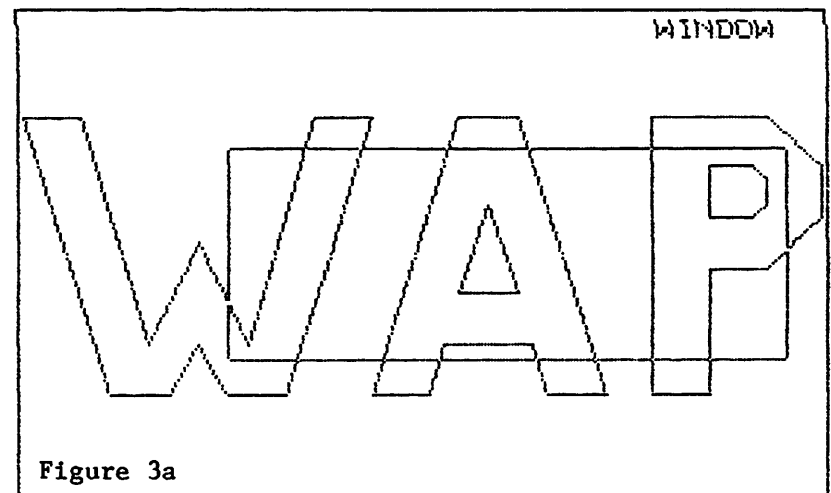


Figure 3a

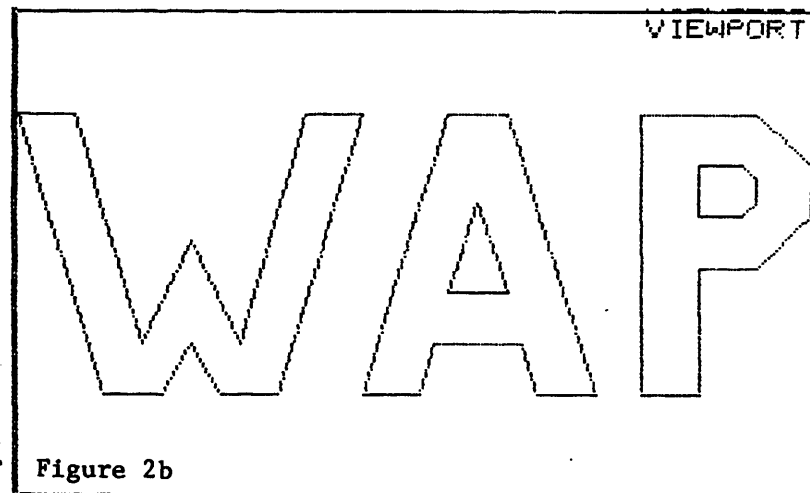


Figure 2b

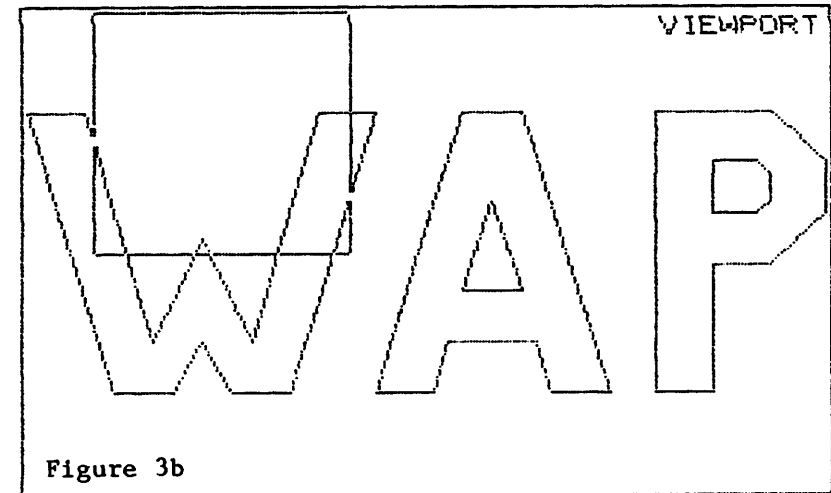
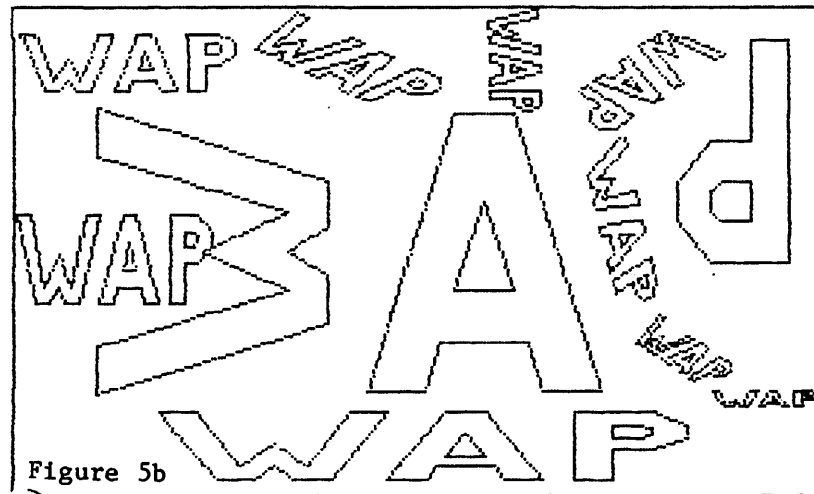
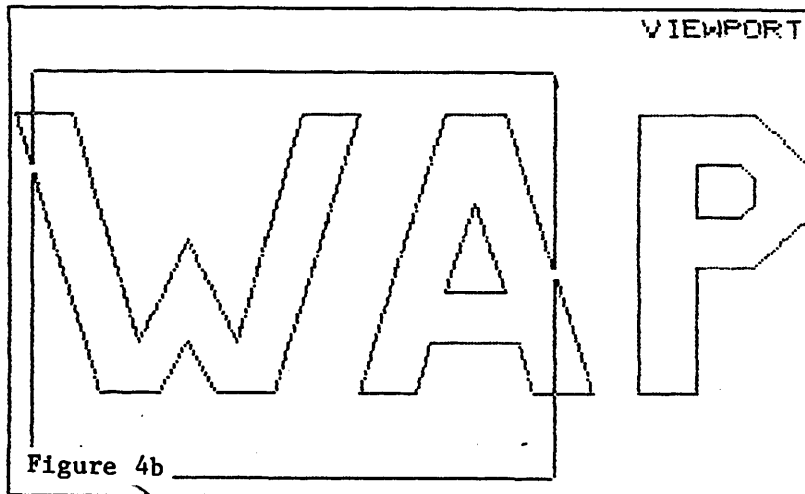
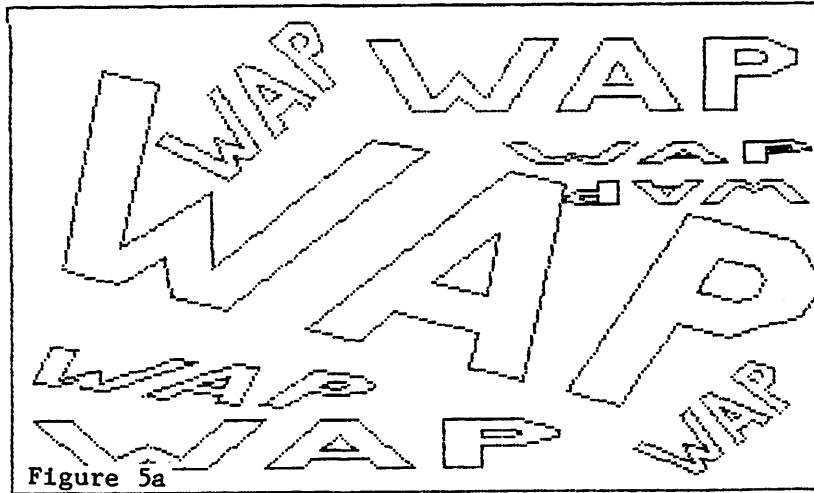
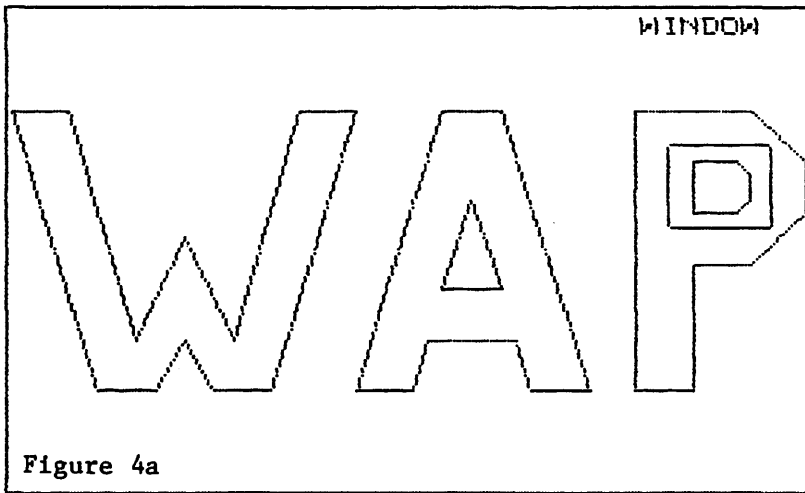
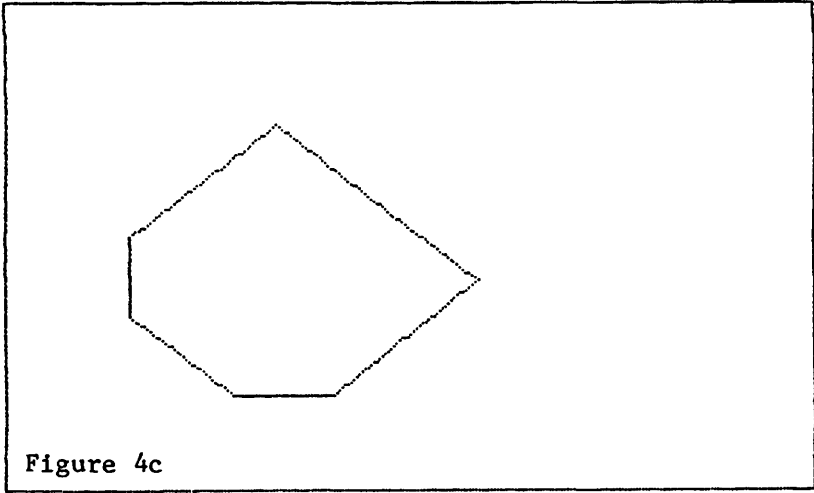
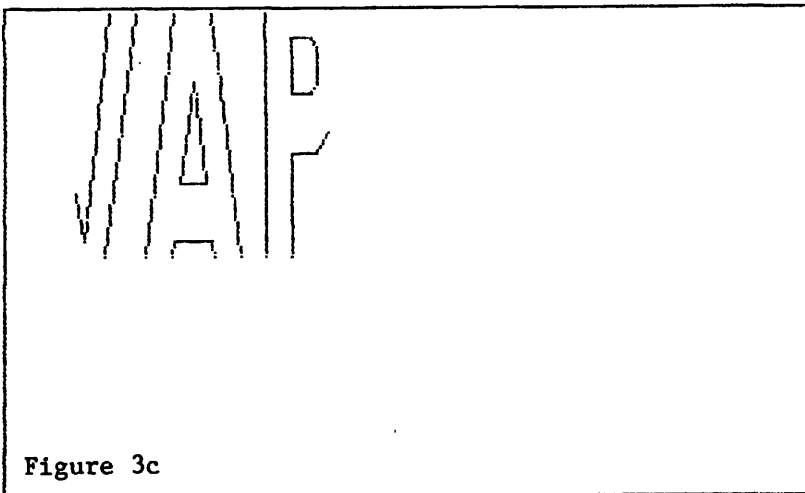


Figure 3b



MORE ON HANDY ACCESS TO INTEGER BASIC

by George H. Levine | by George Kinal

The May 1982 Washington Apple Pi had an article by Boris Levine which showed how owners of the APPLE II+ with Applesoft Basic in ROM could make use of the large library of Integer Basic programs which are available.

It would, perhaps, be even simpler to use if a diskette were set aside for the Integer Basic programs, with a "HELLO" program that automatically ran the INTEGER BASIC-DISK program. As a minimum, the following Applesoft program could be used on a newly initialized diskette or could replace the "HELLO" program on an existing diskette.

```
10 TEXT : PRINT : HOME
20 PRINT "DISKETTE IDENTIFICATION INFORMATION"
30 PRINT CHR$(4); "BRUN INTEGER BASIC-DISK"
40 END
```

With this arrangement there need be no concern about whether the program was in Applesoft or Integer Basic; the only command needed is:

```
RUN <program name>
```

One still has to remember to have the INTEGER BASIC-DISK program available on the special diskette, with a BSAVE, address A2048, and length L5305.

Thanks to Boris Levine for the timely article on using Integer Basic. An additional note might be in order regarding the fact that Library Disk 14 is in DOS 3.2. Some additional maneuvers are needed to run DOS 3.3 Integer programs (e.g. those on Volume 102). The following is one of several possible approaches that can be used.

- 1) Boot WAP Library Disk 101
- 2) RUN SWITCH 3.2.1/3.3.1
- 3) Use '&' command to switch to DOS 3.2
- 4) Boot WAP Disk 14
- 5) BLOAD INTEGER BASIC-DISK
(do not run!)
- 6) Use '&' command to switch to DOS 3.3
- 7) Boot the 3.3 disk of interest
- 8) BSAVE INTEGER BASIC-DISK, A2048, L5305
or
BRUN INTEGER BASIC-DISK

I suggest that the club librarian add the Integer interpreter program to all disks that need it (and have the space), e.g. Volumes 18, 102, etc., since the majority of APPLES sold these days are the Plus models.

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