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Washington Apple Pi

Volume 5 August 1983 Number 8

Highlights

HOME FINANCING ANALYSIS
VISICALC PERSONAL CHECKBOOK
APPLE II <-> IBM PC COMMCATIONS
SELLING YOUR COMPUTER: Consider the Tax Consequences

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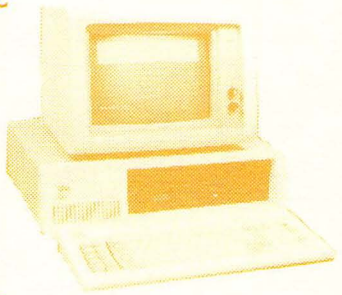

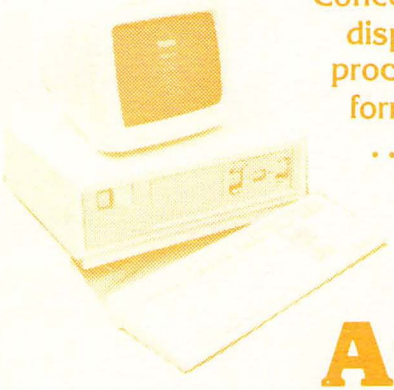

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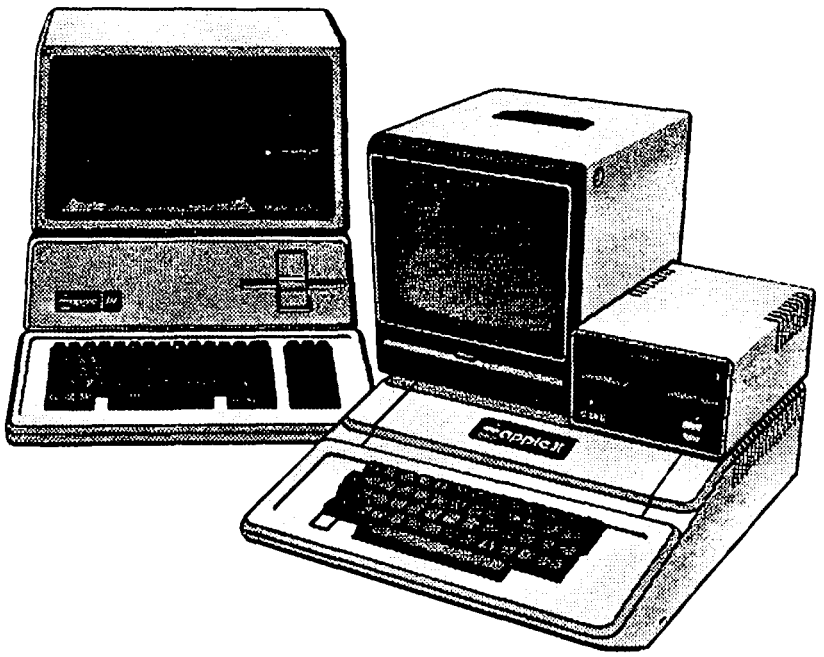

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will hold a free-form seminar for the purpose of exchanging Visicorp templates, applications, and ideas! Visicalc, Visiplot, Visifile, and any Visi-series we can get interest and participation generated around. We are seeking more contributing participants.

WAP members interested in participating leave your name and phone number for Mike Teller at the Comm Center - 953-1110. Mike will return your call later. If you donate a Visi template or application model by September 5th, you will receive a free copy of all contributions. We are presently assembling a list of all participants and their areas of interest - so call now!

- Demonstration & discussion of contributed Visi-applications
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- Volunteers and Visi-reps will be available to answer Visi-questions.
- Store-wide drawing for a free Visicalc

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EDITORIAL

The sea and surf beckon. We are off on our annual sabbatical. Betsy Harriman has graciously offered to prepare the September issue of the Journal. She will be assisted by Tom Warrick et al, for which we say many thanks. Please help them by submitting your article as a standard text file on diskette, as early as possible.

This month we welcome back a "long-lost" columnist, Burt Chambers, with his "Flavors: Little Tidbits". We again thank Bruce Field, Bob Platt and Peter Combes for their steady monthly contributions. Lee Raesly debuts as guest columnist for VisiColumn. Any more aspiring columnists out there??

EVENT QUEUE

Washington Apple PI meets on the 4th Saturday (usually) of each month at the Uniformed Services University of the Health Sciences (USUHS), Building B, 4301 Jones Bridge Road, Bethesda, MD, on the campus of the National Naval Medical Center. Library transactions, newsletter pickup, memberships, etc. are from 8:45 - 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 volunteers can attend the meeting.

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

August 27 - Home Control and Robotics

September 24 -

October 22 -

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

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

GENERAL INFORMATION

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

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

Current Office hours are:

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

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PRESIDENT'S CORNER

by David Morganstein

ELECTIONS. Ours is an unusual organization; it continues to mean a great deal to me on a very personal level. There is no easy way to convey the feelings of those of us who have shared in helping the WAP grow. Some have offered to help as elected officers. Others have just continued to help.

To those officers who have chosen not to seek reelection, Bernie Urban, Jesse Wagstaff and Paula Benson, our warmest affection and heartfelt thanks for your caring. To those who did not receive a majority vote, Bob Platt, Tom DeMay, Jay Thal and Jim Taylor, we thank you for offering to serve in a different way. We look forward to and need the help you have given throughout the past year.

To the recently elected exec board, we begin afresh...

TOMORROW'S APPLES. The thoughts that follow are not based on inside information from Cupertino. While we would like to know what the Apple folk are planning, our user group has never been privy to "inside information". However, many of us who closely watch the development of new products feel a sense that Apple may be falling behind in the race to survive.

Those who have seen the Lisa, our topic for this month's meeting, see it as a fascinating machine but with a price tag that greatly restricts its potential market. The upgrading of the][+ to the //e was indeed a valuable improvement. A question of its cost remains. Since the //e has so many fewer components, one would think a dramatic decrease in price should be possible.

For those families interested in a multi-purpose machine with business, educational and entertainment capabilities, our dear Apple must be a first choice recommendation. But for small businesses, it does not stand out as the most appropriate option. There are several cheaper machines with the same hardware features yet with considerable bundled software included. Alternatively, there are slightly more expensive machines with greater speed and memory potential.

Those wanting an entertainment only system with some programming capacity, will find that the competition grabs the eye with low cost equipment. One example is a 64K hi-res color machine which includes sprites for graphical displays. To generate music, a complex chip is included that yields 3 voices and sophisticated sound manipulations. It can be purchased for less than $200 and includes a BASIC editor in its ROM software.

We anticipate Apple's release of a 68000 based machine, expected to be called the Macintosh, by the end of the year. This machine should be able to take on the business oriented competitors. The usual question of available software remains since no universal operating system for the 68000 has appeared. (Can it be made //e compatible?)

There have been rumors and counter-rumors about a low end machine. Perhaps we will see the //e price drop below the $1000 mark. Time will tell if the winner will be those who have been the first to enter the field with new products or those who follow behind, having learned the lessons of others.

NEW VOLUNTEERS. One of our pillars of volunteer effort, Gordon Stubbs, has asked to step back from his Head Librarian activities. While he will continue to help on the disk reproduction requirements, Gordon is in need of a richly deserved rest. Besides, he has some new plans in the Commercial Library area. John Malcolm, who has worked with Gordon and Dave Weikert, has offered to take on the challenge. Many thanks to Gordon and a welcome to John.

Bob Platt, our creator of new library disks, has expressed a willingness to help coordinate SIG efforts. He has spoken to many SIGs regarding material for the Library and will expand this communication to general activities. If your SIG has questions, needs help or just wants to develop an idea that affects the club, feel free to contact Bob.

Our Vice-President, Dana Schwartz, will be taking a greater role in arranging the monthly meeting activities. He will be assisted by Cara Cira in finding topics and speakers, Signe Larson in setting up demonstrations in the cafeteria and Mike Koenig and Marge Gildenhorn in arrangements. Our thanks to Jim Carpenter, Julie Oliver, Harry Misurielo and Ernie Forman who have spent many hours this past year fulfilling these needs.

SOFTWARE LIBRARY. The leading ballot item for capital expenditures was a software library. As envisioned, this library would be accessible at the office for those interested in examining the documentation and experimenting with the software. It would not be a lending library. To make the software library useful, a second Apple would be needed at the Office to use to run the software.

I am pleased to report that the software library is already underway. Computerland of Rockville has generously donated to the WAP several dozen programs which they no longer carry. These will be listed in an upcoming issue as soon as the office is prepared to handle requests to examine them.

FIRST CLASS MAILING. Some members have expressed a desire to receive the Journal more quickly than third class mail rates permit. We will extend the option of first class postage to any member. The rates are listed in the newsletter. I suggest that you wait to your renewal date to make this change; just forward the renewal amount plus the additional postage expense indicated.

EDUCATIONAL COORDINATORS. To assist local schools and PTAs in computer literacy programs, we are looking for volunteers to help coordinate requests for assistance. One volunteer per county would be handy; more than one ideal. If you can donate a few hours per month to matching schools and PTAs with our members please call me.

MONTHLY TUTORIALS. In September we will be giving four evening tutorials, to be held on Tuesday nights at the office. Topics will all be introductory. The first topic is "Introduction to Apple Computer Hardware"; the second, "How to Use Your Apple Software"; the third, "Beginning Basic"; and the fourth, "Bits, Bytes, Nibbles and Inside View". This sequence will be repeated monthly. You are invited to take any or all at your convenience. Pre-registration will assure you a seat and is preferred. Complete the registration form at the back of this issue.

contd. on pg 33

MINUTES

JUNE GENERAL MEETING

WAP, Ltd. met at USHUHS on June 25, 1983 at 10:00 AM. Members were asked to refrain from sitting in the aisles and from parking in the area reserved for vans. Topics of meetings for July and August were announced, and ideas for future topics were solicited from the members. Suggestions were entertained for a possible new monthly meeting place. Tom Warrick, manager of the recent election, acknowledged old officers, introduced new officers and presented results of the ballot questions. The Membership Directory containing 2265 names will be ready for distribution in July. WAP has over 2800 members, and membership no. 3400 has been assigned. A call for volunteers was made for a program coordinator (Cara Cira responded), a coordinator for delivery of newsletters to stores (Ray Hobbs responded), a specialist in the Eamon games series and a helper for Bob Platt to organize new disks for the club. The budget for 1983-84 was presented and discussed. A parttime clerical office worker is being sought. To alleviate tardy delivery of newsletters, WAP is looking for a commercial service to expedite the bulk mailings. Alternatively, those who wish may pay an extra $8/year for first class postage. The meeting adjourned to the garage sale.

SUMMARY OF JULY BOARD MEETING

The Executive Board of WAP, Ltd. met on July 13, 1983 at 7:30 PM at the WAP office. The agenda included: a need to purchase or rent equipment for the office and meeting room (motion carried that such purchases not exceed $900), assignment of a committee to present to the Board more details concerning the purchase or lease of typesetting equipment vs contracting typesetting services, a request from Montgomery County Public Schools to use, copy and modify WAP software in a pilot program (motion carried that Bob Platt would develop an agreement), establishment of a second corporation within WAP which would have tax exempt status (motion carried 6 to 3 to recommend to the general membership the establishment of 501 (c) (3) status subject to a need to change some of our organizations's structure and the possibility of incurring additional professional expenses), handling of bad checks (motion carried to charge a fee for bad checks and to curtail membership of any chronic offender) and a need for a service contract for the cash register (motion carried). Other items discussed were the nearness of a decision about the parttime clerical helper, contributions to the software library, new duties of several volunteers, October computer show at the D.C. Convention Center, obligations of the officers to the corporation, liability insurance and a request for panelists at a meeting of Metro Research Office.

SIGNEWS

APPLE /// SIG meets on the second Thursday of the month at 7:30 PM. The next meeting will be on August 11 at Universal Computers, 1710 Fern Street, Alexandria, VA.

ASMSIG meets immediately after the regular Washington Apple PI meeting.

Business SIG meets just after the regular Washington Apple PI meeting - (no meeting in July or August).

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

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

LAWSIG provides attorneys and those not versed in the law an opportunity to discuss various aspects of computer applications to the law. The LAWSIG usually meets in downtown Washington, D.C. at noon once a week. For information call Charles G. Field, Chairman, 265-4040, or Jim Burger, 822-1093.

LOGOSIG meets at 12:30 after the regular WAP meeting. The location for July is the French International School.

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
Steve Sondag	281-5392

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

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

STOCKSIG meetings are on the second Thursday at 8:00 PM and are currently held at the home of the chairman, Robert Wood, (703) 893- 9591.

Telecomm SIG usually meets after the regular WAP meeting.

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APPLE TEAS

WAP is conducting small discussion groups around the D.C. area. Below you will find a list of volunteers who will be holding sessions in the next two weeks. These will be informal and last about 2 hours. If you would like to attend, call the host and register with him/her. Each host will limit the size according to his/her wishes and will let you know if there is room left in that particular tea. Hopefully, there will be ample numbers of sessions to meet the interest.

Session leaders may be needed if the host does not feel knowledgeable about the Apple. If you would like to volunteer your help or be a session leader, contact Paula Benson.

APPLE TEA SCHEDULE:

Host	Area	Phone	Date/Time	Date/Time	Topic	Leader
Ronald LaJoy	Upper Marlboro	627-1162	Jul 28/7:00			Needed
Ron Bernstein	Silver Spring	890-6855	Aug 3/7:30		Graph/Sound	Host
Yvonne Powers	Bethesda	251-2468	Aug 8/7:30			B. Field
Dottie & Ben Acton	Germantown	428-3605	Aug 14/7:00			Host
Gloria Seelman	Bethesda	365-2281	Aug 14/3:00		Education	D. Lorenz
Ina Concaugh	Alexandria	256-3062	Aug 16/7:30			M. Pankin
Robert Wood	McLean	893-9591	Sep 22/8:00			Host
David Knight	Annapolis	268-9447	Every 1st Thurs/7:00			Host

A SIMPLE VISICALC PROCEDURE TO BUILD A LEAVE CHART

by Alexander Barnes

With summer vacations planned, a lot of government workers, and others who have use-or-lose leave will be taking a close look at their leave situation to see if they exceed that magic boundary at which they might just as well stay home as come to work, from an earnings point-of-view. It is well known in this town that many government workers regularly give up leave. This happens because they are too busy during a particular calendar year to take enough vacation to use the amount of leave earned; and they had reached the maximum carry-over limit the previous year. This happens especially because, unlike money, we Feds appear to be able to earn more leave than we can use. BOY! I wish I had that problem with money.

The following VisiCalc procedure provides a simple way for one to see, at the end of any pay period, one's leave situation. After completing the chart, one fills in the USD column with leave used, actual or planned. This will provide an immediate display of the balance at the end of the year.

1.	/GC4[CR]	(Global) Column width set to 4 characters.
2.	/GFR	(Global Format) will right-adjust items.
		Begin labeling the columns:
3.	>N8:P.P[->]	for Pay Period.
4.	ERN[->]	for Leave Earned.
5.	USD[->]	for Leave Used.
6.	BAL[CR]	for Balance of Leave.
7.	>N11:1[CR]	Begin numbering pay periods.
8.	>N12:(N11+1) [CR]	Equation to number rest of pay periods.
9.	/R[CR]N13.N36[CR]R	Replication numbers rest of pay periods.
10.	>011:6[CR]	Enters leave earned in first pay period.
11.	/R[CR]012.036[CR]	Replicate leave earned to rest of pay periods.
12.	>035:10[CR]	Correct for year-end bonus to bureaucrats.
13.	>Q10:100[CR]	Sets the opening balance of leave at 100.
14.	>Q11[CR] (Q10+011-P11) [CR]	This equation calculates balance of leave.
15.	/R[CR]Q12.Q36 [CR] RRR	Balance of leave calculation replicated for rest of year.
16.	/SS LEAVE	Saves this handy procedure and data onto file LEAVE. And next time you want to use it you
17.	/SL LEAVE	Load file LEAVE

We have started fairly far to the right in the spreadsheet. This allows for the subsequent inclusion of columns for the particular days of the pay-period worked. You may also find it useful to include an OTR (for other) column for leave not associated with a particular day. This is especially useful in planning leave for a pay-period without assigning it to a particular day. This column can also be used to offset differences between your accounting and the official one. We have also found it useful to include a column in which are stored abbreviations for the ending dates of each of the pay periods.

It should be clear that virtually identical charts can be set up for sick leave, and overtime. For those working the latter, such a chart is indispensible.

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THE APPLE PASCAL (EXPRESS) ROOT

by John Stokes

This program will help you to move into the fast lane with your Apple Pascal and a RAM disk emulator. If you execute this program after a normal cold boot from a floppy disk, your Pascal Operating System will recognize the unit you designate as the root volume. Also, a designated volume will become the prefix volume. Please note that before compiling, you should insert the unit number you wish to become the new root as the constant UnitNumber in the Constants section of the program listing below. You should also change the name or unitnumber of the prefix volume (PrefixName) in Procedure Prefix if you want it to be other than the new root volume.

There are some other options included in this short utility.

A procedure called EnterNew will inform the system that your Editor, Compiler, and Filer are on the new root or any other volume. This procedure can be easily deleted if not desired.

Provision is made for using a clock card for automatic system dating if you have a clock and a suitable assembly language procedure for reading it. You should change or delete this provision as appropriate. All references to it are currently commented out of the program.

Before executing this utility, a copy of SYSTEM.PASCAL MUST BE ON THE VOLUME YOU ARE DESIGNATING AS THE NEW ROOT VOLUME. This program must find SYSTEM.PASCAL on the new root and inform the operating system where it is on that volume.

If you want all of this to happen automatically at boot time, you can use one of two techniques. If your RAM disk emulator uses your Apple's power supply, your SYSTEM.STARTUP routine must invoke an Exec file which copies the necessary system files to the RAM disk and then executes this program. These system files are SYSTEM.PASCAL, SYSTEM.LIBRARY, SYSTEM.MISCINFO (if you use the ASE editor or need to use the I(nit command), and SYSTEM.SYNTAX (optional--needed only if you want the editor to provide compiler error messages). If your RAM disk emulator has its own power supply, simply install this utility as SYSTEM.STARTUP on the floppy disk used for cold booting after the necessary system files have been copied over to the RAM disk. (You could also make this entire program a procedure which you then insert in your current SYSTEM.STARTUP program.)

To do its job this program must change values in the Syscom and several variables in the outer block of the Operating System known as the globals. First, there is a Segment Procedure Dictionary which tells the System where on disk it can find its own segments. In this dictionary, Segments 0 and 2 through 6 belong to the System. The program must update this dictionary for these segments to show that the segments reside on the new root volume and where, by absolute block number, those segments are on that volume. Procedure Getdirectory fetches the directory of the new root volume. Function Findfile locates SYSTEM.PASCAL (the Operating System) on that disk. Procedure FixDict, working with Procedure ChangeOne, puts the correct entries in the Segment Procedure Dictionary.

Procedure Rootfix uses a pointer in the zero page to find the location of the start of SYSCOM. It then places the new root unit number in the correct position in the SYSCOM. In Rootfix, a location the system uses to identify the root volume by name is filled with the name read from the directory of the new root disk. Procedure Prefix fills the location used by the system to identify the prefix volume with that same name, or any volume name substituted in the code.

[This program will appear on PIG11:, which should be available at the August meeting--PIG Librarian]

contd. on pg 9

CLASSIFIEDS

DONATIONS SOUGHT: Anyone interested in donating the Krell SAT Series or other educational software to Montgomery Blair High School and receiving an acknowledgement for income tax purposes, contact Lillian Miller at 530-7942, evenings after 7:30.

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Pascal (Express) Root contd. from pg 8

```
PROGRAM NewRoot;

          (*****************************************************)
          (* This program is for use with Apple Pascal 1.1 ONLY *)
          (*****************************************************)

CONST
    UnitNumber = 9; | <<-- Insert your choice for root volume here. |

    System  = -22000;  | These are specific locations in the |
    Default = -22008;  | operating system, SYSTEM.PASCAL.    |
                       | They are highly machine and version |
    Compiler= -21694;  | dependent!!                         |
    Editor  = -21670;  |                                     |
    Filer   = -21646;  |                                     |
                       |                                     |
    Dateloc = -21992;  |                                     |

    SysComP =  248;    | Zero Page location of a pointer to  |
                       | the SYSCOM                          |

TYPE
    VolName = STRING[7];

    Strin   = STRING[23];

    SegDict = ARRAY[0..31] OF RECORD
                                Unitnum:Integer;
                                Blocknum:Integer;
                                Codeleng:Integer;
                              End;|record|

| Directory File Description |
    Volume = VolName;
    Filename = string[15];
    Dates = PACKED RECORD
                Month:1..12;
                Day  :1..31;
                Year :0..99;
              END;|record|
    Filekind = (Vol,Badfile,Code,Text,Info,Data,Graf, Foto,Secure);
    Direntry = RECORD
                Firstblock: INTEGER;
                Lastblock : INTEGER;
                CASE Kind:Filekind OF
                    Vol, Secure:  (Name     : Volume;
                                   EndBlock: INTEGER;
                                   Filenum : INTEGER;
                                   Filler  : INTEGER;
                                   Lastboot:Dates);
                    Badfile,Code,Text,Info,Data,Graf,Foto:
                                  (OneFile   : Filename;
                                   Lastbyte  : 1..512;
                                   LastAccess: Dates);
  END;|case record|

    | End of Directory File Description |

    SysComRec = RECORD | A PARTIAL!! description of SYSCOM |
                  One:INTEGER; |filler|
                  Two:INTEGER; |filler|
                  Boot:INTEGER;
                END;|record|

VAR
    Directory : ARRAY[0..77] OF Direntry;
    Start : INTEGER;
    PrefixName : VolName;
    VersaPoint : RECORD CASE INTEGER OF
                   1:(Point :^INTEGER);
                   2:(Loc   :INTEGER);
                 END;|record|
    SysCom : RECORD CASE INTEGER OF
               1:(Pt  :^SysComRec);
               2:(Add :INTEGER);
             END;|record|
    Newentry : RECORD CASE INTEGER OF
                 1:(Entry:^Strin);
                 2:(Eloc :INTEGER);
               END;|record|
    Dictionary : RECORD CASE INTEGER OF
                   1:(Ptr :^SegDict);
                   2:(Addr:INTEGER);
                 END;|record|
    Volid : PACKED RECORD CASE INTEGER OF
              1:(VName:^VolName);
              2:(Vloc :INTEGER);
            END;|record|
    Memdate : RECORD CASE INTEGER OF
                1:(Date:^Dates);
                2:(Loc :INTEGER);
              END;|record|

PROCEDURE Rootfix;
BEGIN
    Volid.Vloc := System;
    Volid.VName^ := Directory[0].Name;
    VersaPoint.Loc := SysComP;
    SysCom.Add := VersaPoint.Point^;
    SysCom.Pt^.Boot := UnitNumber;
 END;|Rootfix|

PROCEDURE Prefix;                          | This will make the prefix name |
BEGIN                                      | the root volume's.  Any valid  |
    PrefixName := Directory[0].Name;       | volume name or unit number     |
    Volid.Vloc := Default;                 | (^#n^) you wish can be assigned |
    Volid.VName^ := PrefixName;            | to PrefixName.                 |
END;(*Prefix*)

PROCEDURE Message;
BEGIN
    GOTOXY(0,2);
    Volid.Vloc := System;
    WRITE('Root is ',Volid.VName^);
    Volid.Vloc := Default;
    WRITE(' -- Prefix is ',Volid.VName^);
END;|Message|
```

contd.

```
{ The following procedure will cause the operating system to look first }
{ on the specified volumes for the Editor, Compiler and Filer.  Changes }
{ or deletions here will likely be necessary to suit your needs.        }

PROCEDURE Enternew;
BEGIN
    WITH Newentry DO
        BEGIN
            Volid.Vloc := Default;
            ELOC := EDITOR;
            ENTRY^ := CONCAT(Volid.VName^,':SYSTEM.EDITOR');
            Volid.Vloc := Default;
            ELOC := COMPILER;
            ENTRY^ := CONCAT(Volid.VName^,':SYSTEM.COMPILER');
            Volid.Vloc := System;
            ELOC := FILER;
            ENTRY^ := CONCAT(Volid.VName^,':SYSTEM.FILER');
        END;{with}
END;{Enternew}

(*
PROCEDURE Timevalues(VAR Mo,Da,Yr,Hr,Mi,Se:INTEGER); EXTERNAL;
    { If you have an external clock driver, it can be linked here and }
    { used to update the system date.  Note that coding relating to   }
    { this system dating is already "commented out".  If not used, you }
    { can delete this and PROCEDURE Dateit below as well as the       }
    { invocation of Dateit in the main program.                       }
*)

{ The procedure below will change the system date in memory using an }
{ external clock driver linked as the above procedure Timevalues.    }

(*
PROCEDURE Dateit;
VAR Mo,Da,Yr,Hr,Mi,Se : INTEGER;
BEGIN
    Timevalues(Mo,Da,Yr,Hr,Mi,Se);
    Memdate.Loc := Dateloc;
    WITH Memdate.Date^ DO
        BEGIN
           Month := Mo;
           Day   := Da;
           Year  := Yr;
        END;
END;
*)

PROCEDURE Quit(Which:INTEGER);
BEGIN
    PAGE(Output);
    WRITELN('Cannot Continue New Root...');
    CASE Which OF
        1:WRITELN('   Error reading disk directory');
        2:WRITELN('   System.Pascal not on disk');
      END;{case}
    EXIT(PROGRAM);
END;{quit}

PROCEDURE Getdirectory;
VAR Successful : BOOLEAN;
BEGIN
    Successful := FALSE;
    {$I-}
    UNITREAD(Unitnumber,Directory,SIZEOF(Directory),2);
    {$I+}
    Successful := IORESULT = 0;
    IF NOT Successful THEN Quit(1);
END;{Getdirectory}

FUNCTION Findfile:INTEGER;
VAR II : INTEGER;
BEGIN
    IF Directory[0].Filenum = 0 THEN
        Findfile := 0
        ELSE
            FOR II := 1 TO Directory[0].Filenum DO
                IF Directory[II].OneFile = 'SYSTEM.PASCAL' THEN
                    Findfile := II;
END;{Findfile}

PROCEDURE Syspasc;
VAR II : INTEGER;
BEGIN
    II := Findfile;
    IF II < 1 THEN Quit(2);
    Start := Directory[II].Firstblock+1;
END;{Syspasc}

PROCEDURE Changeone(Index,Add:INTEGER);
BEGIN
    WITH Dictionary.Ptr^[Index] DO
        BEGIN
            Unitnum := UnitNumber;
            Blocknum := Start+Add;
        END;
END;{Changeone}

PROCEDURE FixDict;
BEGIN
    Dictionary.Addr := -16834;
    Changeone(0,0);
    Changeone(2,17);
    Changeone(3,18);
    Changeone(4,20);
    Changeone(5,26);
    Changeone(6,35);
END;{FixDict}

BEGIN
    Getdirectory;
    Syspasc;
    FixDict;
    Bootfix;
    Prefix;
    Enternew;
    Message;
    (* Dateit; *)
END.{program}
```

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A PAGE FROM THE STACK
by Robert C. Platt

We are introducing two new educational disks this month. Although both disks mostly contain programs traded from other clubs, I have been able to beef them up with your contributions. Remember, you get a free library disk for every disk that you contribute. So please keep those donations flowing. I am still a few programs short for our first sports disk, so please send in games with a sports theme or sports trivia quizzes.

I would also like to thank Doug Waters for volunteering to document some of our DOS 3.2 disks. Thirty-one disks remain to be written up. If you can spare a few hours, please call me.

NEW MEMBER DISK

Two types of questions have been asked about our New Member Disk (#134) which are not addressed by the article on page 12 of the New Member Reference Book. First, in response to your questions on how to use Mark Crosby's Shape Table Program, a companion article in this issue of the WAP Journal gives step-by-step instructions. Second, some users want to omit the documentation program which appears whenever they boot the disk. The following program will present a menu upon booting the New Member Disk:

```
NEW
10 D$=CHR$(4)
20 HOME:PRINT"<1> DOCUMENTATION"
30 PRINT"<2> CATALOG"
40 PRINT"<3> QUIT"
50 INPUT"YOUR CHOICE =>";I
60 IF I<1 OR I>3 THEN 50
70 IF I=1 THEN PRINT D$;"BRUN DOCUMENTATION"
80 IF I=2 THEN PRINT D$;"CATALOG"
90 END
SAVE HELLO
```

At present, the HELLO program on Disk 134 merely BRUNs DOCUMENTATION. If you type in this program and save it as the HELLO program on Disk 134, it presents the menu automatically whenever you boot the disk.

DISK 139: IAC 24 EDUCATION 3

This IAC disk contains programs developed by Computer Advanced Ideas, Berkeley, Calif. With one exception these are compiled Integer Basic programs. The compiler's runtime library is automatically loaded when you boot the disk. Upon booting, you will be presented with a menu. You can return to the menu from any program by pressing the ESC key in response to any question.

DRILL - provides practice with the four basic arithmetic operations. The student can control the level of difficulty and the amount of time pressure.

ALGEBRA DRILL - same as Drill, but uses signed numbers. Forty problems are presented on each drill, with the percentage correct displayed at the conclusion.

APPLE BARREL - an estimation game. The student guesses the number of apples in a barrel and receives feedback. The level of difficulty varies with the width of the barrel selected by the student.

APPLE ARRAY - uses the same Hi-res graphics as Apple Barrel, but the apples fall into even rows. Can be used as a visual multiplication drill.

FRED FRACTION - Fred is a Hi-res animated character who operates a fraction drill computer. The student chooses the arithmetic operation and the level of difficulty (easy, medium or hard). To move from entering the whole number to the entry of the numerator and demominator, press the RETURN key.

XZONE - The player guesses the location of the intersection of two lines crossing a Cartesian grid. On each turn, the player uncovers points along the two lines. A challenging game. XZONE requires a color monitor or TV to understand the visual clues.

BOXES - A beginning math game.

MAKING CHANGE - How many nickels for two quarters? The feedback on this drill use Hi-res graphics and are instructive. The student has four chances to enter the correct answer to each problem.

VOICE PRINT - (by Peter H. Kosel) a Hi-res graphic display of voice input, useful in speech therapy. It requires Applesoft and a tape recorder connected to the cassette input port.

DISK 140: EDUCATION 4

This education disk is based on Volume 20 of the NOVAPPLE Library and also includes other contributions. Most of the programs on this disk are suitable for younger students. However, Oregon, Algebra 1 and Geography would be challenging to junior high school students.

The disk includes an Applesoft MENU program to permit use without the prior knowledge of the RUN command. Each program ends with a RUN MENU command to return the user to the menu.

ALGEBRA 1 - (by Thomas Jacobsen) will draw a Hi-res graph of a linear function. The student can specify either the Cartesian coordinates of two points (with the computer finding the slope and intercept) or the equation of the function to be plotted.

ERNEST RUTHERFORD EXPT - (by Brandon Weber) will perform a Hi-res animation of a famous physics experiment. Rutherford was able to calculate that the positive charge in an atom is concentrated in its nucleus. Try to use the data from this program to prove that the radius of a gold atom is 6.9E-15 meters.

LIGHT WAVE EXPT - (by Brandon Weber) is a Hi-res animated demonstration of how a photon is emitted when an electron changes its energy level.

MEMORY GAME - (by David Sparks, Green Apples, Waterloo Iowa) challenges you to memorize and repeat a group of random letters. The program selects the letters from separate groups of vowels and consonants so that you can pronounce the letter sequence.

TOM'S MATH DRILL - is a timed addition drill with the number of seconds ticking by on the screen in distractingly large numerals.

SPELLING TEST - (by Richard A. Michael) flashes a word

contd.

on the screen and then expects the user to repeat it with the same correct spelling. The program uses SPELLING LIST to store the words to be tested and includes an editor to modify this word list file.

CALCULATOR - (by Mike Peters) simulates a pocket calculator. The calculator, complete with keys, memory register, and numeric display is realistically drawn on the Hi-res screen. Paddle 0 and its button are used to select a calculator key. To start, select the ON key. To exit the program, press the OFF key.

MATH QUIZ - (by B. Goodson) presents addition, subtraction, multiplication and division drill problems. Wrong answers evoke an "Oh dear, that should have been..." response. Good performance is rewarded with a Lo-res color display.

A & AN - (by Glenn Fisher) the student selects a or an to complete random sentences.

MEET THE ROMANS - a Roman numeral drill by Bobby Goodson and Barbara Mumma.

MULTIPLICATION BINGO - (by Russ Bayler and Bill Wallquist) presents a Lo-res bingo card. Each correct answer to a multiplication problem is rewarded by coloring in a square on the card which is selected at random. The drill continues until five squares in a row are earned. In addition to the bingo square, correct answers receive a randomly selected congratulatory response based upon the last digit of the answer.

SEQUENCES - gives five numbers in a sequence and asks the user to supply the sixth. The program is based on an article by Bob Albrecht in the Dec. '79 Interface Age.

MULTIPLICATION - offers a choice between randomly selected drill problems or practice using a selected multiplier between 1 and 10.

GEOGRAPHY - (by Andy Gumble) asks the user to pick the names of continents, states, Canadian provinces, nations, capitals, rivers, seas and oceans. The user and the computer take turns selecting names which begin with the last letter of the previously selected name. Obviously the computer will win because if the user selects a name that is not stored in the program's impressive collection, the user must select another name. (Hint: memorize geographical names beginning with "a" and "r" before trying this one out.)

OREGON - simulates a trip over the Oregon Trail in 1847. This version features a Hi-res map and animated graphics. Based on an article in the May and June '78 Creative Computing.

NAME THAT DATE - (by Will Bayer) is a multiple choice drill on twenty (obscure) dates in American history. Fortunately, you can easily change the DATA statements to test for other dates.

CAPITALS OF STATES III - (by Dave Alverson) offers a choice of fill-in or multiple choice questions on U.S. state capital cities.

CAPITALS OF STATES V - drills state names and capitals on a region by region basis. Each state must be identified from a Hi-res map.

EAMON CONTEST RULES

In May, we announced our summertime Eamon authoring contest. I am pleased that submissions are beginning to arrive. However, before I become inundated with mystery disks, let's set a few ground rules for entries:

1) All entries must be received by August 27, 1983. Either bring them to the WAP meeting or send them to the WAP office.

2) Indicate the name(s), address and phone numbers of the authors and their ages (if less than 21).

3) To assist the judges, you should include a brief write-up of your adventure. Hints for obscure predicaments will be appreciated. If your game is published, we will include these hints on the disk for the faint-hearted. This writeup can be as short as one paragraph announcing your theme to a couple of pages of hints.

4) The judges will evaluate entries on ability to maintain the player's interest, playability, and over-all presentation (e.g. points off for spelling errors.)

Little programming skill is needed to write your own Eamon adventure. Just use the Dungeon Designer on WAP Disk 180. Have fun!

While we are discussing Eamon, I would like to thank Brad Simpson of Columbia, MD for agreeing to serve as our Eamonologist. Brad is processing our recently-acquired Eamon disks.

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Q & A

by Bruce F. Field

A couple of months ago I had a question on producing subscripts and superscripts with the C. Itoh Prowriter printer. Thanks to Paul Demond and Jim Edwards for taking the time to answer my plea for help. Basically the information in my answer was correct; however in order to have the printer respond properly to the line feed character the printer must first be placed in the Incremental Mode. The normal (default) mode is the Logic-Seek-Mode in which characters are stored in a print buffer. In this mode it is not possible to execute a line feed without a carriage return. Reproduced below is a section of Applesoft code that demonstrates how to do this.

```
10 PRINT CHR$(4)"PR#1"
20 PRINT "THIS IS NORMAL ";
30 PRINT CHR$(27);CHR$(91);: REM SET INCREMENTAL
   MODE
40 PRINT CHR$(27);"T08": REM LF=8/144"
50 PRINT CHR$(10);: REM PRINT LINE FEED
60 PRINT "NOW SUBSCRIPT";
70 PRINT CHR$(27);CHR$(114);: REM REVERSE LINE
   FEED
80 PRINT CHR$(10);:  REM PRINT LINE FEED
90 PRINT CHR$(27);"A";: REM 1/6" LINE FEED
100 PRINT CHR$(27);CHR$(102);: REM FORWARD LINE
    FEED
110 PRINT CHR$(27);CHR$(93);: REM SET LOGIC-SEEK-
    MODE
120 PRINT "AND BACK TO NORMAL"
130 PRINT CHR$(4)"PR#0"
```

This is actually very cumbersome and requires many control codes to be inserted if you are using a word processor. These extra codes often confuse the line formatter thus making the line too short. A much better method of doing subscripts with a word processor is described in "Prowriter Super- and Subscripts" by Steve Wildstrom, elsewhere in this issue.

Q. I use an NEC 8023 printer and Pkaso interface with ScreenWriter II. There are three operations that I have been unable to perform using Screenwriter. First, I would like to print characters such as subscripts from the Pkaso Special Character Set. Secondly, I would like to be able to change back and forth among the various 8023 font types in the middle of a ScreenWriter file. Using the control characters indicated in the 8023 manual, I have managed to print one full line in a font other than Pica. Beginning with the second line, the font reverts to Pica. Thirdly, I would like to be able to use the Pause command to print subscripts in scientific documents. If I embed a pause command in the middle of a line, printing will stop at the beginning of the line; pressing the space bar causes the entire line to be printed. I would appreciate any solutions to these problems.

A. By a funny coincidence it is possible to run the Pkaso special characters from within ScreenWriter if your text file is not too big. Pkaso recommends that you start your characters file at location $8800. Thus all you have to do from within ScreenWriter is [Ctrl-D] BRUN SPECIAL CHARS.8HI,A$8800.

When the Pkaso board is used it does funny things to the printer, so to change back and forth between the character sizes of the printer you should ignore the printer manual codes and instead use the codes in the Pkaso manual. To change the character size the codes to be sent are [Ctrl-I]NF, where N is one of the numbers below.

3 to 40 - 5 char/in	41 to 48 - 6 char/in
49 to 68 - 8.5 char/in	69 to 80 - 10 char/in
81 to 96 - 12 char/in	97 to 255 - 17 char/in

To print subscripts or superscripts, see the question above as the 8023 behaves the same as the Prowriter printer. The reason that the pause command stops at the beginning of a line is because the Pkaso card has sent all the previous characters in the line to the printer and then pauses. But, the printer is saving all the characters in a buffer until it receives a carriage return, so it has printed nothing. If you put the printer in the Logic-Seek-Mode (described above) it will pause at the proper time.

Q. I have a Tymac PPC-100 interface, and Epson MX-80 printer with Graftrax Plus chips. The problem involves the Apple CPU's inability to send out 8 bits to the printer, i.e. values over 127. I want to print up to 8" of graphic data, 7 dots (pins) high by up to 480 dots wide on my MX-80. The problem is that when I ask for help concerning graphics just about everybody I talk to is fixed on the idea of HI-res screen dump. I want to address the pins directly which would allow me to print out graphic information with about four times the resolution of the HI-res screen and to the exact size I want.

A. From the program listings you sent me I can see that in order to print in the graphics mode on the printer you need to send an ESC character followed by the letter "K", followed by two bytes that are the number of graphics columns you want to print. The problem is that together the two bytes form a 16-bit number and must be sent in hex (or binary, as opposed to ASCII) to the printer. To do this you need to be able to send all possible values from 0 to 255. The Apple's CPU is perfectly willing to do this; the problem is with the interface card, or more specifically the combination of interface card and printer.

The Epson printer contains two sets of "characters"; values from 0 to 127 produce the standard ASCII character set while values from 128 to 255 produce a set of Lo-res block graphics characters. The Apple generally (but not always) outputs characters to the printer with the eighth bit set, thus if these characters were sent to the printer you would get nothing but the block graphics. Interface cards get around this problem by having a soft switch to control whether the eighth bit is set or not, or sometimes (and this is true of the Epson parallel interface) the interface is permanently wired with the eighth bit turned off.

The easiest way around this problem is to send the graphics characters in groups of 127 or less. There is no problem with sending four groups of 120 graphics characters to print 480 dots on a line. Simply suppress any carriage return (by putting a ";" at the end of Applesoft print statements) until all four groups have been printed.

Your examples also show another effect that can be traced to the interface card. Most interface cards provide margin control, that is if the line is greater than a specified number of columns, the interface issues a carriage return, line feed, and enough blanks to position the printer head on the next line. With the printer expecting bit-image

contd.

graphics, these characters are interpreted as dot patterns and produce weird patterns in the middle of the desired patterns. You should send the proper command to your interface card before sending the graphics to turn off any margin control. One popular method is to print the character sequence [Ctrl-I]ON, which from Applesoft looks like PRINT CHR$(9)"ON".

Not to discourage you, but there may also be an additional problem. When you send bit-image graphics characters to the printer you need to be able to send all the characters from 0 to 255 (or 0 to 127 for seven bits). Interface cards often use certain control characters - usually Ctrl-I, decimal code 9 - to initiate formatting functions. These characters are trapped by the interface card and not sent to the printer. To get around this problem you may need to bypass the software on the interface card, that is not PRINT the characters but rather POKE the values directly into the memory location that outputs to the printer. The actual memory location will depend on your particular interface card and which slot contains the card. An example of how to do this for the Apple parallel interface card is given in the Epson manual.

Q. Does anyone know of a workable patch for a RAM based Autostart monitor to allow clock interrupts without crashing the DOS page 0 location $45?

A. With the monitor on the RAM card you can patch FA41:0. The IRQ handler will then store the accumulator at location zero. Note that immediately prior to executing an RTI the accumulator must be loaded from location zero rather than $45 as is usual. This will also work for the new monitor in the Apple //e.

Q. I have an Apple II+ with a Saturn 128K RAM card in slot 0, and my Integer card in slot 4. When I am doing my own work, it works fine there. However some software gets hung up with the Integer card in slot 4, and I don't know why or what to do about it. VisiCalc occasionally does not work with it there. Falcons gets hung up, as does Apple Writer. Do you have an idea what is going wrong?

A. I have only a couple of vague clues as to what may be happening. Most likely it is not directly related to the Integer card in slot 4, but the lack of an image of the monitor in the Saturn card. Should the card inadvertently get turned on and the monitor is not present, the system could hang when a monitor subroutine is called. I would certainly try removing the Integer card for a little while and see if the problem still occurs.

There may also be a conflict between the two cards during the RESET procedure. If the switch on the back of the Integer card is in the up position when reset is pressed, the Integer card will turn itself on even if it had previously been off. It is possible that the Saturn card may have been turned on and wants to remain on. The computer will probably hang if both cards are turned on at the same time. If this is the case, make sure that the switch on the Integer card is in the down position.

Unfortunately there is probably not much you can do about this problem with protected programs. I have had no problem using Apple Writer 1 and 2 with a 16K RAM card and the Integer card in slot 2. Perhaps there is something unique about the Saturn card; you might give the manufacturer a call.

Q. When I dial into the Washington Apple Pi ABBS I often get garbage on the screen, but no response to my typing. Can you tell me what is going on?

A. The problem is that the ABBS line is busy. The particular telephone exchange that the ABBS is on puts out a busy signal that fools the modem into thinking that there is a data carrier present. Just pick up your telephone handset and you'll hear the busy signal.

Q. How can I trick the DC Hayes Micromodem into transmitting and receiving lower case?

A. The Micromodem will normally transmit lower case. If you have an Apple //e simply release the caps lock key. On an Apple II or II+ the software that you use to send characters to the modem needs to be set to send lower case letters. When receiving characters, the Micromodem normally converts lower case to upper case. To defeat this,

```
POKE 1784+slot number,0.
```

To return to upper case only,

```
POKE 1784+slot number,32.
```

Where slot number is the number of the slot (1-7) containing the Micromodem.

Q. I understand that there is a so-called "signature byte" in the Apple that a program can interrogate to tell whether the program is running on an Apple II, II+, or //e. Do you know what this byte is?

A. Apple has designated the byte at memory address $FBB3 as a signature byte. This byte resides in the monitor ROM and each revision of the Apple will have a unique value. From Applesoft the value of this byte can be obtained by PEEK(-1101) where the value for an Apple II (original monitor ROM) is 56 decimal, for an Apple II+ (Autostart ROM) it is 234, and for the //e it is 6.

It is also possible to tell whether the //e has the Apple 80 column card plugged into the auxiliary slot by running the short machine language routine listed below. A standard 80 column card plugged into slot 3 will not be detected by this routine.

```
300:AD 1C C0 0A A9 88 2C 18
308:C0 8D 01 C0 08 78 08 8D
310:55 C0 AC 00 04 8D 00 04
318:AD 00 04 8C 00 04 28 B0
320:03 8D 54 C0 30 03 8D 00
328:C0 28 A0 00 C9 88 D0 01
330:C8 84 00 60
```

If the 80 column card is present, memory location 0 will contain a 1, if not location 0 will be 0. This routine, "borrowed" from the Apple //e monitor ROM, is totally relocatable, and although it is shown starting at location $300 it may be run anywhere in memory except in the text page memory ($400-$7FF).

Q. I tried to run Apple Pascal 1.1 on my friend's new //e the other day. Everything went well until I hit RESET when I changed disks during the bootup. Instead of completing the bootup the machine did a cold restart. Shouldn't Pascal work on a //e? Any help would be appreciated.

A. Call -A.P.P.L.E. had an article in the June 83 issue on converting Pascal to run on the //e. This should solve your problem.

JSR $FF58: A Quick Return

by David Morganstein

Note: The purpose of this article, which will not become apparent for several paragraphs, is to examine a short routine for determining where in memory a "relocatable" 6502 program has been placed.

It all began with a call from Peter Combes. He wanted to tell me about a letter that he had received from a new Apple owner who, when faced with a problem, had "read the manual". Imagine that!!! (Somewhat sadistically, Peter knew that I had wanted to solve the same problem. He guessed that I had the manual in question...and had probably not read it enough.) "The answer is simple", he said, "look on page..." Yechhh, rub it in Peter!!!

The problem: how to get my PKASO interface card to generate a character set of my choice on my NEC 8023 printer when printing from ScreenWriter II. (A common enough problem...) I had read the manual far enough to figure out how to get the card and printer to use a character set of my design. (The PKASO card even comes with software which will convert the Apple Dos Toolkit character sets for use with the PKASO/NEC connection.) The last wrinkle (which turned out to be no wrinkle at all) was the ScreenWriter connection.

The answer: once ScreenWriter is loaded and running, type something like:

Ctrl-DBRUN character.set.name, A$8800

(see page 14 of the PKASO manual.) The address you BRUN the file at is your own choice, however, it must not conflict with either the ScreenWriter program or the text of your file. To insure this, set aside a buffer in high memory, at, say $9000-$9600. BRUN the file character.set.name at A$9000, instead.

In my own defense, the page 14 reference talks about using the package with Apple Writer...cough (weak, but what else do I have?)

Now, to the real purpose of this article. The PKASO folks provided a method for locating anywhere in memory the character set you are feeding to your NEC printer. To do this, you BRUN a binary file which contains the new set. The BRUN has one purpose, to set a page zero pointer (at $E8, $E9) to the beginning of the character set table. When the PKASO interface card is activated, it will read the pointer to locate the table.

The routine they provide for doing this, explained below, includes a JSR $FF58, located in the ROM monitor. When I see a jump to a subroutine in the monitor, I expect I will have to go to one of the many references on monitor subroutines to explain another one of the wonderous workings of the Woz. Was I ever surprised when I disassembled the routine at $FF58 and found the following code:

```
FF58 - 60       RTS
```

"What!", I muttered. Jump Subroutine to an immediate return? Scratching my head a little and reading on I was able to fathom what this little mystery was about. The entire, brief, routine to locate where the table was and store it at $E8, $E9 is:

```
PHP          ;save the status reg on the stack
SEI          ;prevent interrupts
JSR $FF58    ;jump to the funny subroutine
TSX          ;save the stack pointer in the x-reg
LDA $0100,X  ;pick up the hi byte from the stack
STA $E9      ;save it in $E9
DEX
LDA $0100,X  ;pick up the lo byte
PLP          ;restore the status reg
SEC          ;set the carry before the addition
ADC #$17     ;the table is $17 bytes later
STA $E8
LDA $E9
ADC #$00     ;if a carry was generated, add one to
              $E9
STA $E9
RTS
```

For those familiar with 6502 machine code, you are aware that a jump to subroutine requires that the address of the following instruction be saved on the stack (page one of memory, $0100 to $01FF) so that the computer can pick up where it left off when the subroutine is finished and an RTS (return from subroutine...$60) is encountered.

To understand how the program works, you must know that the 6502 uses page one of memory in a special way. It is called the stack and it is a "last in first out" kind of storage. An analogy would be to write an eight bit number onto a plate and set it on top of a stack of up to one hundred other plates. You (and the 6502) can use this area of memory by "pushing" something onto the stack and later "pulling" it off. Every byte pushed, must later be pulled at the right time or else the stack pointer will be out of sync with what has been stored there. The pointer (the S register) contains a single eight bit byte which automatically decrements and increments as items are pushed onto and pulled off of the stack.

The object of the jump to $FF58, an immediate return, was simply to put the current address on the stack. This is done automatically by the 6502 whenever a JSR is given. Upon return from $FF58, the program puts the stack pointer into the X-register (TSX). The accumulator is then loaded with the high byte of the return address stored somewhere on page one (the stack). This is done with the indirect indexing method LDA $0100,X. This says put into the accumulator the contents of a location on page one determined as $0100 plus the contents of the X register (which now holds the stack pointer.)

This high byte of the address is saved at $E9, X is decremented and the low byte of the return address picked off the stack in the same way. Since the actual location of the table is $17 bytes beyond the return address, the carry flag is set (SEC) and $17 is added to the low byte of the address (ADC #$17). This is stored at $E8. If another carry was generated by the addition, location $E9 is incremented by one via the steps LDA $E9, ADC #$00, and STA $E9. All is done, return to ScreenWriter, Apple Writer or wherever you came from!

—— Operant Systems ——

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EDSIG NEWS
by Peter Combes

EDSIG Calendar

Tuesday, August 2nd at 7.30 p.m.

"Reading Skills and the Apple" - Judy Priven

Tuesday, September 6th at 7.30 p.m.

"Computers in Education - the Ideal Versus the Reality" - a Round Table chaired by Mary Brown.

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

Meeting Reports

Tuesday, July 5th at 7.30 p.m.

"Three Approaches to Educational Programming" -- David Wyatt

David classified the educational uses of computing as Instructional, Collaborative and Facilitative.

The Instructional programs date from the days when programmed instruction was What You Did With Computers. In Drill and Practice and in Tutorial programs the computer is an authority figure.

A Collaborative program - Logo is one example - has the characteristic that the student takes the initiative. The route to the educational goal is not pre-ordained, and indeed may be different for each student. In Logo, for example, the "bugs" may turn out to be more interesting than the original goal. This is close to Simulation in which, too, the student takes the initiative.

A Facilitative program is empty of content, and "simply" helps the educational process. One example is word processing.

"All have their advantages - but not in all areas of education." To make these programs, David classified three approaches - the general purpose programming language, the educational programming language, and the educational authoring system.

The general purpose programming languages, such as BASIC, PASCAL, and LOGO, are of course very well known. If you use one you are in relatively intimate contact with your computer, but you have to do most of the work. A typical problem is that of the pupil's response. If you use the INPUT A$ function, the program will work, but there is little control over what the user can type in, and the messages that result from typing a really inappropriate response ("REENTER") are unhelpful. Better routines can be contructed using the GET A$ function, and you can arrange for the keyboard to be unresponsive to inappropriate answers. However, for many applications, the routine has to be fairly sophisticated.

Matching appropriate answers can be complicated. What answers should one allow for "OF WHAT COUNTRY IS WASHINGTON, D.C. THE CAPITAL?"? Possible answers are "U.S.A.","THE U.S.", "THE UNITED STATES", and so on. Programming to allow all such possibilities is awkward and time-consuming in BASIC.

A General Purpose Programming language, then, has lots of power, but needs a lot of programming to be done by the developer.

A frequent solution is for a developer to build up his own library of frequently needed routines. Delivery systems are also needed, to boot up the system appropriately. Management systems that keep track of score results and maintenance information are often needed.

A real time saver is that BASIC subroutines (and 85 percent of educational programs are developed in BASIC) are now available. David mentioned the Programmer's Aid, Volumes 1 and 2, available from MECC Publications, 2520 Broadway Drive, St. Paul, MN 55113.

Educational Programming Languages

PILOT - the best known educational programming language, now exists in two improved forms - Super Pilot and Pilot Plus. PILOT is quite an old language, developed when drill and practice and tutorial were expected to be the prime educational uses of computers. "It pushes you in the direction of the instructional approach."

A typical piece of PILOT programming looks like this:

```
*part1
g:es
t: This is a lesson on participles.
t:
t:By the way, my memory is very bad.
t:
t:What's your name, please?
t:
a:
t:
t:
t:Ah, now I remember you!
w:5
g:es
pr:s 1
t:
t:Now answer this question:
t:Are you bored?
t:        -----
t:
a:
m:yes!yeah!yup!
t:
ty:I'm sorry to hear that my lesson is
:not too interesting so far.
tn:I'm glad to hear that!
t:
t:Notice what you mean when you say
:you're bored.
t:
t:You mean something which is happening
t:to you.
t:   ---
w:10
t:
t:
t:
t:
a:
g:es
t:
```

contd.

```
t:
t:Now, are you a boring person?
t:                ------
t:
t:
a:
m:no
t:
t:
ty:I agree. You're a very interesting
:person!
tn:I don't think you mean that!
t:
t:When you say boring, you mean
t:something that you do to others!
t:                ---    --
t:
t:
t:The difference between -ING and -ED
:is important for the meaning!
w:10
a:
j:part 1
```

David pointed out the ease of functions such as matching answers. PILOT LOG promises score keeping, when it becomes available. Early versions of PILOT worked very slowly, but apparently this has now been fixed. PILOT and SuperPILOT are available from Apple Computer in Cupertino, and PILOT Plus from IIAT, 2121 Wisconsin Avenue NW, Washington.

Enhanced BASIC - "EnBASIC" is add-on component to the well known Applesoft. EnBASIC includes the following enhancements:

- Text on high resolution page 2 provides upper and lower case regardless of hardware, double size letters, foreign character fonts and editors to modify these. Proportional spacing.
- Delivery system and score management.
- Animation creation.
- Answer judging that is relatively fast - there is some limited Artificial Intelligence.

Unlike PILOT, "it doesn't push you in the direction of instructional programs."

Currently, the graphics are restricted to black and white, but a color version is being developed.

Educational Authoring System

A general purpose language takes hundreds of hours to learn. With PILOT it is easy to learn some simple functions quickly.

The aim of an Educational Authoring System is to minimize the learning time and the programming time. Indeed, with an EAS you do not need to learn how to program, you only need to learn how to use the built in systems of the EAS. A typical EAS is menu driven. You are invited to choose the formats to be used, and the program leads you step by step, prodding you with questions. The number of EAS is growing exponentially, and David gave references for four of them:

The perhaps unfortunately named AIDS is menu driven, with graphics. It was developed in the Virginia schools system. A teacher can sit down with it with no previous experience on computers, and the learning time is typically a few hours.

PASS is a sophisticated system, needing perhaps some 30-40 hours to master, but is very powerful.

David also mentioned Mentor, from DataTech Software, and Z.E.S. from Avant-Garde Creations.

The tradeoff in using an authoring system is that you are giving up a large amount of control and following what the designer thought you would want to do.

Forthcoming Events

Conferences and Workshops

Evening and Saturday classes in Introduction to Microcomputers, BASIC, COBOL, PASCAL, FORTRAN, Data Communications and Systems Design, by the Fairfax County Public Schools. Call 893-1090 for information.

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HOME FINANCING ANALYSIS ON THE APPLE][

by Richard A. Guida

Searching for a house which fulfills your expectations yet is within your budget can be a frustrating and time-consuming endeavor, particularly in the hyper-inflated Washington, D.C. market. Despite this psychological barrier, the sharp decline in mortage interest rates since last year has dramatically increased the interest in buying and selling homes. As of mid-June, for example, there were over 15,000 houses on the market in the northern Virginia area alone.

Since a house is usually the most expensive single item which a person will purchase in his or her lifetime, all aspects of the purchase must receive careful evaluation.

To many prospective home buyers, one of the more complicated aspects of house-hunting is evaluating the financing for the purchase. To do this correctly requires the buyer to figure out exactly what effect alternate financing schemes will have on his or her ability to make mortgage payments and still have enough money left over each month to meet other expenses. This is often difficult to project, because your net after-tax (i.e. "take home") pay without a house is less than it will be with a house. The reason is simple: many of the expenses of home ownership (such as mortgage payment interest and real estate taxes) can be deducted from gross earnings for state and federal income tax purposes.

So to determine what your finances will really look like after you buy a house, you should take your current annual earnings, determine the tax benefits which accrue from home ownership, and then determine how much your net after-tax pay will increase. Simple, right?

Alas, the real estate world is seldom so easy. For one thing, there is a second order effect of paying less state income tax (due to reduced taxable earnings) since this tax is also deductible from federal tax; a reduced deduction here means a higher taxable income for federal tax purposes. The net effect is to slightly reduce the tax benefit otherwise gained from the home ownership deductions. In addition, those first-time home buyers who may not have had enough federal tax deductions to qualify for itemizing on their federal tax returns prior to the purchase (and thus were able to use the "standard" deduction) suffer the penalty of effectively losing part of their itemized deductions since they can no longer use the "standard" deduction.

Many home buyers find themselves in the position of selling their existing house to buy a new one. In this case, they must first determine the tax advantage which their current residence already provides in order to determine the net advantage from a new (and presumably more expensive) home.

Still other homeowners find themselves in the position of wanting to refinance a high-interest mortgage which they obtained when rates were high. This problem is particularly complex because the homeowner must consider three things: (1) the up-front cost of refinancing (e.g. brokerage fees, etc.) which is a disadvantage; (2) the net reduction in tax deductions (since there is less mortgage interest paid at the lower interest rate), which is also a disadvantage; and (3) the monthly reduction in mortgage payments, which is the only advantage. The homeowner must weigh each of these factors to attempt to determine whether refinancing is worthwhile, or whether it is preferable to wait and hope for the prevailing interest rates to decline.

The microcomputer can be an extremely useful tool for a homeowner to determine under what conditions refinancing is appropriate, or what the net effect of buying a new or replacement house would be on the buyer's financial condition. Using the microcomputer, a range of different interest rates and loan principals can be conveniently evaluated.

In the engineering vernacular, this is called a "sensitivity" analysis, because it permits the buyer to understand the differential effect of a change in interest rates or loan principal on the buyer's financial condition. It also permits a more precise determination of his or her "buyer-space", in other words, what combinations of interest rate and loan principal are or are not acceptable, given the buyer's specific taxable income and other constraints. Clearly, the amount which a buyer would be willing to mortgage at a 12% interest rate is greater than what he or she would be willing to finance at 15%.

In theory, the "buyer-space" may be set by how much a lending insitution is willing to lend a specific buyer. In practice, however, this is often a poor measure because different lenders use their own rules to judge a person's loan limit. Moreover, while a lender might conclude that a buyer qualifies for a certain loan, the buyer may not agree to incur such a large debt because it will not leave sufficient resources to live as comfortably as the buyer desires.

I have prepared a short program in Basic which should assist those interested in buying or refinancing a home to perform the sensitivity analyses which will best outline their "buyer space". The program is designed to operate on an Apple II Plus, under DOS 3.3 with a SILENTYPE 80 column printer. A listing of the program follows the article.

For simplicity, the program assumes that the user's tax status is married, filing a joint federal income tax return. This assumption can be easily modified to some other tax status by changing the DATA statements at lines 32000 to 32110; these statements feed the tax table arrays FT, MR and TX described in lines 370 to 420. The program also uses the 1982 tax rates. Depending upon Congressional action, these may change for 1983, requiring the DATA statements to be updated.

Since interest rates have declined and fixed rate, 30 year mortgages have reappeared as the predominant financing vehicle, that form of financing has been used. Since I live in the state of Virginia, which has a constant marginal state tax rate of 5.75%, that value is specified in line 350. For those readers in Maryland or the District of Columbia, you may adjust that percentage for your situation, or even better, move to Virginia.

Because real estate tax methods vary rather dramatically from locality to locality, the program does not include any consideration of real estate taxes. However, individual users can build in this consideration by adjusting the algorithm at lines 1100 to 1130 to include the effect of increased real estate taxes

contd.

(which effectively lower federal and state taxable income, TI).

The program requires the user to supply ten input parameters:

(1) At line 280, the variables PI, PL and PH. These are the lower limit on principal (PL), upper limit (PH), and increment (PI). PL and PH should be selected to bracket the user's region of interest. For example, the user could specify PL = $100,000, PH = $150,000, and PI = $5,000. The program would then evaluate eleven different loan principal values from $100,000 to $150,000 in $5,000 increments.

(2) At line 210, the variables II, IL and IH. These are the lower limit on loan interest (IL), upper limit (IH), and increment (II). IL and IH should be selected to bracket the interest rates being offered by different lenders (or to cover possible interest rate changes before settlement). The program will evaluate each interest value from IL to IH using the increment II. These evaluations will be performed for each value of loan principal previously identified.

(3) At line 290, the variable OI, CI, CT and CS. OI is the user's current annual taxable income after all deductions (Line 37 from the 1982 Form 1040). CI is the user's current annual interest expense from home ownership (Line 16a plus Line 16b of Schedule A, Form 1040); this is obviously zero if the user does not currently own a home. CT is the user's current federal income tax (Line 38 from Form 1040), and CS is the user's current state income tax (Line 11 of Schedule A, Form 1040).

Note that all of the input variables must be entered manually through line changes in Applesoft. Once these variables have been entered, program execution only requires a RUN statement from the keyboard. Those more ambitious readers are invited to append a subroutine which prompts the user for the input.

The program calculates three quantities: (1) the increase in annual interest payments associated with the new mortgage; (2) the monthly reduction in federal tax averaged over the first year of the mortgage; and (3) the monthly reduction in state tax, also averaged over the first year of the mortgage. The sum of (2) and (3) represents the approximate net increase in monthly take-home pay which the user should expect for the interest rate and principal specified. These quantities are calculated for all combinations of interest rates and principals specified by the user, thus permitting a broad range of conditions to be analyzed. Sample output for some "typical" parameters selected in the program listing is provided after the listing.

Although they are not printed out, two other intermediate variables may be of value to some users. MP from line 1020 is the monthly principal plus interest payment calculated from the standard formula:

$$MP = P * (I + 1)^{360} * I / ((I + 1)^{360} - 1)$$

where P = mortgage principal, I = monthly interest rate (= annual rate / 12), and n = 360 months (30 years).

The other variable is NI calculated from the loop at lines 1030 to 1060. This is the net interest over the first twelve months of the mortgage, and it is calculated by summing the interest paid in each of the first twelve monthly payments. That interest is calculated in the same fashion which your mortgage company operates, namely, by taking one twelfth of the annual mortgage percentage rate and applying it to the unpaid balance.

For those users who are interested in refinancing an existing home, the program can be used with some reverse logic. That is, the user should input the parameters at line 190 assuming the refinancing has been accomplished, and then select PH = PL = the current (pre-refinancing) principal, IL = IH = the existing mortgage interest rate. The program will then calculate the difference in annual mortgage interest paid under the current mortgage versus under the refinancing conditions, as well as the federal and state tax effects.

CONCLUSION

The purpose of this article was to give prospective home buyers a more precise means for evaluating their financial condition after purchasing a new or replacement home. It is hoped that this will benefit those readers contemplating such an action, and possibly save them some money which they can then invest in something really useful - like a new microcomputer system.

Listing

```
100  REM  HOME FINANCIAL ANALYSIS PROGRAM
110  REM  REVISION 1
115  REM  16 JUNE 1983
120  REM  COPYRIGHT 1983 RICHARD ANTHONY GUIDA
130  REM  INPUT PARAMETERS ARE AT LINES 210, 280 AND
     190
180  REM   INPUT PARAMETERS OI = CURRENT TAXABLE
     INCOME, CI = CURRENT ANNUAL HOME INTEREST
     EXPENSE, CT = CURRENT FED. TAXES, CS = CURRENT
     STATE TAXES
190  OI = 40000:CI = 10000:CT = 9195:CS = 2300
200  REM  IR() = ANNUAL INTEREST RATE MATRIX, II =
     INCREMENT, IL = LOW, IH = HIGH
210  II = 0.005:IL = .135:IH = .150
220  I = ((IH - IL) / II) + 1
230  DIM IR(I)
240  FOR Z = 1 TO I
250  IR(Z) = IL + (Z - 1) * II
260  NEXT Z
270  REM  PN() = PRINCIPAL MATRIX, PI = INCREMENT, PL
     = LOW, PH = HIGH
280  PI = 5000:PL = 120000:PH = 170000
290  P = ((PH - PL) / PI) + 1
300  DIM PN(P)
310  FOR Z = 1 TO P
320  PN(Z) = PL + (Z - 1) * PI
330  NEXT Z
340  REM  MS = MARGINAL STATE TAX RATE = .0575 FOR
     VIRGINIA
350  MS = .0575
360  REM  NOW CREATE FEDERAL TAX TABLE FOR MARRIED
     COUPLE FILING JOINTLY
370  REM  FT() = FEDERAL TAX BRACKET LOWER LIMIT
375  REM  TX() = FEDERAL TAX AT THAT AMOUNT
380  REM  MR() = MARGINAL RATE AT THAT TAX BRACKET
390  DIM FT(12): DIM MR(12): DIM TX(12)
400  FOR Z = 1 TO 12
410  READ FT(Z),TX(Z),MR(Z)
420  NEXT Z
500  REM  NOW INITIALIZE PRINTER HEADINGS
510  D$ =  CHR$ (4)
520  PRINT D$;"PR#1"
530  PRINT "INT. RATE     PRINCIPAL          INT.
     CHANGE   FED. TAX CHANGE  STATE TAX CHANGE"
535  PRINT  "-----------------------------------------
     ----------------------------------------------
     ------------------"
540  PRINT D$;"PR#0"
600  REM  NOW ITERATE
610  FOR Z1 = 1 TO I
620  FOR Z2 = 1 TO P
630  REM  CALCULATE PARAMETERS
640  GOSUB 1000
650  REM  PRINT THEM OUT
```

contd.

```
660  GOSUB 2000
670  NEXT Z2
680  NEXT Z1
700  END
750  REM  END OF MAIN PROGRAM
1000  REM  SUBROUTINE TO CALCULATE PARAMETERS
1010  REM  FIRST CALCULATE INTEREST EXPENSE OF FIRST
     YEAR ASSUMING THIRTY YEAR, FIXED RATE MORTGAGE
     AT IR(Z1), PN(Z2)
1020  MP = PN(Z2) * (((1 + IR(Z1) / 12) © 360) *
     IR(Z1) / 12) / (((1 + IR(Z1) / 12) © 360) - 1)
1025  OP = PN(Z2):NI = 0
1030  FOR Z3 = 1 TO 12
1040  NI = NI + OP * IR(Z1) / 12
1050  OP = OP - MP + OP * IR(Z1) / 12
1060  NEXT Z3
1070  REM  NOW CALCULATE NET DIFFERENCE IN INTEREST
1080  DI = NI - CI
1090  REM  NOW CALCULATE NEW, LOWER TAXABLE INCOME
1100  TI = OI - DI
1110  REM  NOW CALCULATE REDUCTION IN STATE TAXES
1120  NS = CS - ((OI - TI) * MS)
1130  REM  NOW CALCULATE REDUCTION IN FEDERAL TAXES
     AFTER ADJUSTING FOR LOWER STATE TAXES
1140  TI = TI + (CS - NS)
1150  FOR Z4 = 1 TO 12
1160  IF TI ] FT(Z4) THEN  GOTO 1180
1170  NEXT Z4
1180  Z4 = Z4 - 1
1190  NF = TX(Z4) + (TI - FT(Z4)) * MR(Z4)
1200  DT = CT - NF
1210  RETURN
2000  REM  SUBROUTINE TO PRINT OUT RESULTS
2010  PRINT D$;"PR#1"
2020  PRINT IR(Z1),PN(Z2),DI,DT / 12,(CS - NS) / 12
2030  PRINT D$;"PR#0"
2040  RETURN
32000  DATA  3400,0,.12
32010  DATA  5500,252,.14
32020  DATA  7600,546,.16
32030  DATA  11900,1234,.19
32040  DATA  16000,2013,.22
32050  DATA  20200,2937,.25
32060  DATA  24600,4037,.29
32070  DATA  29900,5574,.33
32080  DATA  35200,7323,.39
32090  DATA  45800,11457,.44
32100  DATA  60000,17705,.49
32110  DATA  85600,30249,.50
```

INT. RATE	PRINCIPAL	INT. CHANGE	FED. TAX CHANGE	STATE TAX CHANGE
.135	120000	6181.11316	184.206727	29.6178339
.135	125000	6855.3262	201.681486	32.8484381
.135	130000	7529.53926	219.156246	36.0790423
.135	135000	8203.75228	236.631004	39.3096463
.135	140000	8877.96537	254.105765	42.5402508
.135	145000	9552.1784	271.580524	45.7708548
.135	150000	10226.3914	289.055283	49.0014589
.135	155000	10900.6045	305.950644	52.2320632
.135	160000	11574.8175	321.30725	55.4626673
.135	165000	12249.0306	336.663857	58.6932715
.135	170000	12923.2436	352.020464	61.9238758
.14	120000	6782.50684	199.794099	32.4995119
.14	125000	7481.77797	217.918333	35.8501861
.14	130000	8181.04907	236.042566	39.2008602
.14	135000	8880.32022	254.166799	42.5515344
.14	140000	9579.59133	272.291033	45.9022085
.14	145000	10278.8624	290.415266	49.2528825
.14	150000	10978.1336	307.716529	52.6035566
.14	155000	11677.4047	323.643887	55.9542308
.14	160000	12376.6758	339.571243	59.3049049
.14	165000	13075.9469	355.498599	62.6555789
.14	170000	13775.218	371.425955	66.006253
.145	120000	7383.83235	215.379705	35.3808633
.145	125000	8108.15869	234.153338	38.8515937
.145	130000	8832.48504	252.926972	42.3223242
.145	135000	9556.81136	271.700604	45.7930544
.145	140000	10281.1377	290.474239	49.263785
.145	145000	11005.4641	308.339039	52.7345153
.145	150000	11729.7904	324.837081	56.2052459
.145	155000	12454.1168	341.335122	59.6759761
.145	160000	13178.4431	357.833164	63.1467065
.145	165000	13902.7695	374.331206	66.6174371
.145	170000	14627.0958	390.829247	70.0881676
.15	120000	7985.0875	230.963487	38.2619776
.15	125000	8734.46616	250.386445	41.8526503
.15	130000	9483.84481	269.809403	45.443323
.15	135000	10233.2234	289.23236	49.0341956
.15	140000	10982.6021	307.81831	52.6249684
.15	145000	11731.9807	324.88697	56.215741
.15	150000	12481.3594	341.95563	59.8065138
.15	155000	13230.738	359.024289	63.3972863
.15	160000	13980.1167	376.09295	66.9880592
.15	165000	14729.4953	393.161609	70.5788317
.15	170000	15478.874	410.230269	74.1696045

THE PUBLIC INTEREST COMPUTER ASSOCIATION by Robert C. Platt

I was pleased to learn of a new computer users group in town, the Public Interest Computer Association (PICA). PICA seeks to assist public interest and non-profit organizations in utilizing microcomputers.

PICA publishes a bimonthly magazine called NEXUS which includes advice on purchasing computers, telecommunication data bases and articles on the impact of computers on society. Sample copies are at the WAP Office.

PICA maintains an office at 122 Maryland Ave, NE (an address well-known in public-interest lobbying circles.) The office has an extensive library of current computer magazines, product information, and application guides. PICA also holds monthly seminar/meetings on topics of general interest to the non-profit community and sponsors classes on the use of dBase II, spreadsheet programs and BASIC programming.

PICA also sponsors users groups for the Radio Shack Model 100, the Televideo, and the Vector Graphic computers.

PICA sponsors guest lectures monthly. Upcoming events include: David Burnham, author of the "The Rise of the Computer State", will be guest lecturer on August 22, beginning at 12:30 PM. Carl Catsky of the Baltimore Information Cooperative will be guest lecturer on September 22, beginning at 2:00 PM. The lectures will be held at the PICA headquarters. Contact Mark Rotenberg at 544-4171 for more information.

Perhaps the WAP can enlighten PICA as to the obvious benefits that Apples can provide in the public-interest sector of Washington computing. If you are involved in such efforts, you may wish to contact PICA at 202-544-4171.

THE (SEMI) INCREDIBLE JACK

by Leslie and Bob Shriner

In last month's issue, Walt Francis bemoaned the fact that none of the local stores seemed to have copies of the new Incredible Jack program in stock, and that no one had yet published a review of the program. Therefore, we were pleasantly surprised when John Williams from the Software Specialists store on downtown K Street offered us a copy of the program to review for him.

We were interested in the program for two different kinds of applications. Leslie was interested in a program that might help her as a student, especially in preparing papers for classes that had lots of calculations and footnotes. Bob was interested in a program that could help him combine mathematical models and record files with word processing for use in doing business plans and reports, marketing letters, and other tasks that are part of the daily routine of a management and economics consultant. By combining a word processor, a calc program, and a file manager in one program, Incredible Jack seemed like the solution to both our needs.

After spending several weeks experimenting with Jack, we have generally been pleased with the results; but there are a number of problems which we discovered in trying to use the program with other hardware and software that we (and many other people) normally use with the Apple II.

The Incredible Jack was designed to use the added capabilities of the //e, including lower case, larger standard memory, improved cursor and function keys, and optional 80 column display. On the //e, the results are impressive; but the belated adaptation of the program to run on earlier II and II+ machines leaves a number of troublesome quirks. In addition, Business Solutions, Inc., the creators and publishers of Incredible Jack, have taken some innovative approaches to customer support that will not please many people.

Overall, we found Incredible Jack to be an excellent program with a few limitations that we'll discuss later.

WORD PROCESSOR

The word processor for Incredible Jack is the central part of the program, able to link with both Jack's calc and file manager subroutines.

The program is relatively easy to use, especially on the Apple //e. Part of what makes it so simple to use is the fact that all possible commands are listed at the top of the screen for quick reference. The means for getting to a command is standardized throughout Incredible Jack. Pressing the "CTRL" key and the first letter of the command is all that is required.

The word processor has a reasonably powerful range of commands, though not quite as powerful as ScreenWriter II, Apple Writer, or EasyWriter. While it has all the basic commands, such as line and character insert and delete, some commands such as "block move" or "block insert" are missing. These omissions, while not impossible to live with, can make your word processing more time consuming and not quite as easy.

The word processor for Jack also handles footnotes. At the user's option, these may be put at the end of the report or the bottom of the page. The way footnotes are handled can be a real asset to students or others who might otherwise lose track of sources or who just want to keep a running list of them.

Perhaps the most powerful feature of the word processor is its ability to imbed calculations and file manager variables in the text. This is extremely useful in creating form letters. All the user adds is the proper variables and numbers. This feature can also be used to eliminate possible errors in math. The computer will automatically calculate and print the correct answers directly into the text (assuming you enter the correct formulas).

While the program is fairly easy to use on the //e, Apple II/II+ users with 40 columns will find some irritating quirks. Since the program is written especially for an 80 column display, the display of the "page" changes when the II/II+ cursor passes the 40th column. As each character is typed in, the screen display moves to the left in order to keep the cursor from running off the screen. This movement causes two major problems. First, the movement of the screen is quite likely to make you a bit "sea-sick" until you become accustomed to it; and second, the menu commands also move into the obscured portion of the screen. The latter caused us several hassles at first because we would accidentally hit the "CTRL" key instead of the "SHIFT" key, thus entering a command mode with sub-menus that were in the hidden portion of the page. By using the command for switching to the alternate side of the "page", we could usually solve the problem but it was very annoying not knowing what prompts were hidden on the other side.

CALC PROGRAM

Jack's calc program is NOT a spreadsheet. It uses user-assigned variable names for its calculations, instead of coordinates, which may make it easier to use for people who don't have a strong math background.

The program is set up so that the user enters his own fields for calculation and uses the fields in formulas of his own design. For example, for a home budget the user might have fields like "car", "groceries", and "computer" for his monthly spending, with values for each field. The formula for calculating the total spent would be "Total = Car + Groceries + Computer". The program would then take the amounts entered in the fields, add them together and POOF! Total spent for month X.

The formulas for the program are entered using the "Footnote" command. Using this command, the computer reads and utilizes the formulas which have been entered; but they do not appear on the screen (or printout) unless they are specifically called up. This prevents unwanted screen clutter and makes the results easier for the user to read.

The calc program is very easy to use. It even handles exponentiation (ie, raising to a power such as "squared", "cubed", etc.) with ease. The main drawback that we found was the same one we found in the word processor: we kept accidentally falling into unwanted menus when we were on the other half of the "page".

contd.

Overall, Incredible Jack handles most of the types of calculations that the average student or businessman would be likely to use. Calculations can be imbedded into text -- form letters, for example -- to permit quick changes in results when input values are changed. Jack will handle multi-equation models, but will not solve simultaneous equations or calculus problems.

FILE MANAGER

The file manager section of Incredible Jack is the simplest to use of all the parts and has many possible applications for both the student and the executive.

You can set-up forms for entering data in any format you wish. This is done by assigning field names and then field lengths. Each field can be "as short as a mailing label or as long as 60 screenfuls of information", according to the manual. Once the fields are in place and locked (so as not to inadvertantly erase or change the fields) the data can be easily entered.

It is easy to search for specific information and to retrieve records. It also has a fast key field search (for first field only) so that the user can take a look at those records which may roughly fit his more detailed search. The file manager also allows the renaming of variables and the use of specific alternate field names, which is useful when data are being used to prepare a table or report via the word processor.

We found two major handicaps in the file manager program: First, it doesn't indicate the number of records which satisfy the critera of a search. Second, it cannot link directly with the calc program or vice versa. The file manager and the calc programs can only link up with the word processor. Despite this limitation, Jack's file manager has many possible applications. It can be used for mailing lists to friends, contacts, clubs, etc. It can be used as a schedule manager to help the user budget his time, plan meetings, or track project status. Teachers and students alike can use it as a grade book on all subjects in school. It is also handy to record library and project information, and can serve as an automatic bibliography for a report if it is properly set up.

Overall, the file manager seems to be the most straight-forward and easiest to use portion of the program.

DOCUMENTATION

The documentation includes a 127 page manual in a compact 5"x5" format that fits inside a disk box, along with a handy "Key Card" which covers all of the conversions from Apple //e function keys to the Apple II keyboard. This card was invaluable as we first learned the program; and even after using the program for a while we still found ourselves referring to it. It is just the perfect size to slip between keyboard and monitor screen for easy utilization!

The manual contains separate tutorial and reference sections, plus an index. While all the information on the program is in the manual, it is sometimes hard to find because the index is rather vague. For example, it took us over an hour to figure out how to unlock our locked files. (Using "lock" on a locked file unlocks it.)

In general, the documentation is complete and easy to understand; but vagueness in the index makes it hard to find details in some cases.

HARDWARE REQUIREMENTS AND QUIRKS

Incredible Jack requires 64K and two disk drives, an increasingly common requirement on business software. Since the minimum memory configuration on the //e is 64K, //e owners will only have to make sure they have two drives; but owners of II and II+ machines who haven't yet added a language card or a RAM card won't be able to run the program.

Much less obvious are problems in the reaction of Incredible Jack with common Apple II/II+ add-on equipment -- most notably the Videx Keyboard Display Enhancer (KDE) and the Hayes Micromodem II. Although the KDE uses virtually identical circuitry and code to the //e (they both use the same ScreenWriter II patches), Jack refuses to recognize the KDE and ignores its U/L case and shift key features, while recognizing those same features on the //e. Given the widespread use of the KDE board, it is difficult to understand why Jack wasn't designed to accept it.

Even more frustrating was our experience in finding that Jack refuses to boot if the Hayes Micromodem II card is in slot 3, where most people put it. At first we thought we had a bad copy of the program, since it simply refused to boot properly. It would begin booting, then stop -- hang -- without returning the cursor, until the machine was turned off and restarted again. We searched the manual for a possible explanation, without success. Finally, we took the program back to Software Specialists and began our sad explanation. John Williams immediately asked if we had a modem card in slot 3, since another user had encountered a similar problem. Sure enough, when we moved the modem card to slot 2, Jack booted perfectly; but then our ASCII Express wouldn't work, since it was configured to expect the modem card to be in slot 3. A potential problem of this magnitude should be noted in the manual. Incredible Jack provides several pages of discussion on error messages and various other problems that may arise; but no mention is made of usage with lower-case adapters or modem cards.

Users who want to transfer files among programs or telecomm them to other locations will also be disappointed since Jack, incredibly, doesn't use DOS-compatible files. That's the main reason EasyWriter and other programs that use non-compatible formats have largely been superseded by programs that use standard DOS text files, which can be moved easily from one program or place to another.

While the program can be operated in 40-column mode, there are two major drawbacks, both of which were noted earlier: hidden command prompts and "motion-sickness." Fortunately, those with 80 column capability won't have such a problem.

Other minor quirks due to hardware differences between the //e and its predecessors include the use of Control-I to move from one field to the next in the file manager, instead of Return, which is used in most other programs. When the program is run on the //e, the TAB key is used (which is logical). Also, on the //e, up-arrow and down-arrow keys are used for vertical scrolling, whereas Control-T and Control-B must be used when running on earlier models.

USER SUPPORT

The Incredible Jack manual includes two "user support" cards. Mail in $20 with one of the cards and Business Solutions will mail you a back-up disk. Mail in $30 with the other card and Business Solutions will mail you a user support ID number and telephone number, which you can use to get hotline help for a year. Without the $30/year hotline subscription and a confirmed ID number, Business Solutions says they will

contd. on pg 41

SOFTVIEWS
by David Morganstein

SPEED/ASM (Randy Hyde). A package of ready-to-use machine language subroutines for the 6502 programmer. The package consists of two binary files (one containing floating point routines and a shorter one without them), a LISA assembler file with the necessary equates identifying the subroutines, a utility for relocating the SPEED/ASM routines, several LISA compatible test programs and a brief 40 page 5"x7" manual.

If you are beginning to learn machine language programming, you may have realized that your task is made easier on the Apple by virtue of the volumes of documentation available on already written routines. You can use existing entry points in the ROM monitor, Applesoft ROMs and the DOS to take advantage of subroutines already written and tested. With some study, you can write programs which contain a large number of JSRs (Jump to SubRoutines) to routines which someone else has already prepared. SA extends this idea further by providing several dozen additional subroutines which are helpful in the development of 6502 programs.

The following list describes many of these routines: output or read a character from the current device; read or write a line of text; for/next loops; if/then tests; move the value of an integer variable to another integer; copy a string from one variable to another; read an integer; onxgoto; single byte CASE statement; test for membership in a set; multiply and divide two-byte integer variables; determine if a string can be found in another; compute the length of a string. The floating point routines contain the following options: read or print an FP number; add, subtract, multiply or divide two FP numbers; convert an FP number to a binary integer. The floating point routines use a one-byte exponent and a seven byte mantissa to give 15 digit precision (during calculation an additional mantissa byte is used to insure accuracy).

The use of pre-programmed routines may carry with it a price tag in terms of run-time speed. To make the package versatile and relocatable, the author readily admits that the use of SA will cause some reduction in speed over straight 6502 code. However, you can expect your programs to run perhaps five to ten times faster than BASIC. You certainly will be able to develop your programs more quickly by taking advantage of the SA routines and not reinventing the wheel.

However, let me alert the potential buyer to several of my concerns about the package. First, the cover of SA indicates that it is not necessary to own the "LISA" assembler in order to operate it. I disagree. Of the two files required to use the package, one, the "equates" file, is written in a LISA format and cannot be read by BIG MAC, Tool Kit or the S-C Assembler. The manual does not contain a listing of these equates to permit the owner of another assembler to type in the 60 or so lines. The equates file contains the connection between the SA labels which you include in your assembly language program and the actual addresses of the routines. Without them, SA is useless. On-line Systems, the distributor, would serve its potential customers well by adding to the disk a standard text file containing these equates or at least listing them in the manual.

Another problem for the non-LISA owner. Randy uses a system of passing data to subroutines by following the JSR with the data, reading the return address and jumping over the data on return from the subroutine. This is accomplished neatly with the ADR pseudo-op in LISA. The definition of ADR is alluded to on page 16 but novices to assemblers may have difficulty figuring out what pseudo-op to use with their assembler.

A few words about the manual. It is brief. There is no table of contents or index. The various routines are described and examples of their implementation are given. The routines are summarized at the end of the manual. They appear in the summary grouped in a more or less functional order. The manual contains the following rather cryptic description of the use of the IF operation, comparing it to a Pascal version:

```
IF (I=5) THEN BEGIN JSR IFIO
                    ADR I,EQ,5
   I=0; BFL INE5
   K=J; JSR LOAD
                    ADR 0,I
END; JSR MOVE
                    ADR J,K
                INEJ:
```

My translation:

```
    Pascal version          S/A version
    ------ -------          --- -------
IF (I=5) THEN BEGIN           JSR IFIO
   I=0;                       BFL INE5
   K=J;                       JSR LOAD
                              ADR 0,I
  END:                        JSR MOVE
                              ADR J,K
                          INE5
```

While I found S/A to be a useful tool for the beginning 6502 programmer, I think more attention is needed to the manual.

A small point: while the manual is labeled as DOS 3.2 or 3.3, it is really 3.2 only! I returned one copy first because I thought it was defective. When the second copy did not boot either, I trotted out the old BASICS disk and was able to get going.

On-Line Systems, 36575 Mudge Ranch Rd, Coarsefold, CA. 93614. Phone (209) 683-6858. $39.95.

• • • • •

How to Program in Applesoft Basic (Scott Banks and James S. Coan). The 43 page 5"x7" manual says "From fundamentals to advanced graphics in 12 self-paced lessons". J.S.Coan, as many of you may know, is the author of several books on BASIC, including the recent "Basic Apple BASIC". In fact, I learned BASIC from one of his earlier texts.

Maybe I'm just spoiled by tutorials like Bruce Tognazzini's Introduction to the Apple //e. Maybe my sights are too high. I just think learning something can be fun if the C.A.I. programmer uses the power of the computer's graphics and sound to keep your interest and drive home a point.

"How To" is a straightforward, by-the-numbers, multiple-choice feedback kind of learning experience. You may have the patience to stay with it (especially if you are reading a good book, like Coan's Basic Apple

contd. on pg 31

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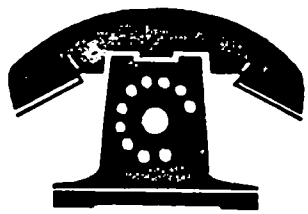

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FLAVORS: Little Tidbits

by Burton S. Chambers III

(The flavors chosen for each tidbit are not necessarily an identification of content.)

It has been over two years since this column has appeared in the WAP newsletter. Since this irregularly published column is new to most of you (and the rest may have forgotten), allow me to describe its flavor. This column usually contains information about the Apple Pascal version of the UCSD Pascal Operating System and its supported languagaes. Sometimes brief personal experiences with hardware are included. Infrequently, DOS 3.3 and Basic are discussed. In all cases, each topic or comment starts with the name of a fruit flavor followed by the topic's title.

APPLE: (A registered trademark of Apple Computer, Inc.)

FIG: Introduction to Apple Pascal

Pascal is an extremely powerful language which you can use to express the work you want your Apple to perform. (Basic and Fortran are also languages, each having strengths and weaknesses.) Apple Pascal consists of more than a language; it also includes an operating system, which can be thought of as a set of tools that communicate with one another. This particular operating system is well thought out and is the one Apple selected for their internal use three years ago. In order to run this operating system on a Apple II a 16K card or equivalent is needed. (An Apple //e always contains enough memory.)

ORANGE: DataComm

Since the last Flavors, DataComm II was released by Hayes Microcomputer Products, Inc. It is written in Apple Pascal and for $50 they provide you with source code. DataComm was written by one of the senior people at Hayes, and was his first attempt at Pascal. It's a large program for a first attempt, but he did a reasonably good job anyway. The strength of the program is the "secrets" it divulges about accessing the Micromodem from Pascal - even when it is in a slot not recognized by the Pascal operating system. It is a good investment if you own a Micromodem and have or plan to get Apple Pascal. The only caution is that there exists some minor errors, which you may never experience - unless you type like me! If you buy DataComm and want to know about the minor errors, come to the PIG (Pascal Interest Group) meetings. In any case I highly recommend that you purchase it, especially since you will be able to modify it when someone comes out with new hardware that no one could have possibly imagined a few years ago (see PEACH below).

GRAPEFRUIT: ASE - Advanced Screen Editor

This article has been prepared on the Volition System's ASE version 0.8a, and it's the slickest Editor I have ever used. A simple text formatter (and a darn good letter quality printer - a Diablo 630) make it an excellent word processing tool. If you have never considered programming in Pascal, you way want to invest in Apple Pascal just to run ASE. The cost for ASE is about $175, although group purchases may be possible, as was the case for PIG members last September.

BANANA: MICROBOOK: Database Management

A book has recently been published that describes an implementation of a database managment system for an Apple II written in Pascal. It will probably work directly on the //e or /// as well. It was written by Ted Lewis and published by dilithium Press. It also includes the entire source, and an order form for the p-code on disk for about $16, and the source code for just under $50. The author encourages its customization and has included a simple but powerful query language. The latter allows you to set up reports and perform analysis of the data in the database. The book (cost: about $20) should be available at many of the chain bookstores that specialize in computer books. While you probably won't be happy with the program as is, and hence you will want to customize it (and will be able to with the source), it is worth it as a very good learning exercise in database construction and query language design.

Look for considerable software being sold this way. It's a good way for programmers (novices or advanced) to purchase products that probably aren't as slick as the major releases, but can be customized. The price will probably come down by about a factor of two.

LEMON: CHICKEN LITTLE strikes again.

Beware of those automatic sprinklers! Most of us don't have sprinklers in our homes, but what about them Apples in the office?

GRAPE: JAMS (A Hazard)

Jamming can be a problem on some printers. If you don't have your paper feeding just right on some printers, they can jam up. This happened to me with an office MX-80 on a 20 hour calculation two years ago. As best as I could determine the paper had jammed a few hours before another employee had discovered the printer starting to smoke. The printer had neatly bludgeoned a giant hole in the paper and the internals must have been really getting hot while the printer attempted to move the paper as it relentlessly printed my results on the aluminum carriage. If it had smoked and set off the detectors, what would the sprinklers have done to the operating Apple? Another alarmist, you say?

Although the MX-80 wasn't used in the overnight mode again, it has worked great since.

APRICOT: Initializing Apple Pascal Units

When more than one unit is being used in a program, the Operating System will perform the code found in the initialization part of each unit before the first program instruction is executed. If one of the units uses yet another unit in its initialization part, and furthermore won't work properly until the used unit has itself been initialized, you may find your program does not work as intended since the order in which the initialization is done is not always in the logical order you might have desired. The easiest and safest way to avoid any problems is to always write your units with a publically available procedure that initializes the unit. Then any other unit can force its initialization.

contd.

LIME: Using a UNIT in a Pascal Program

This is a small example of how you use a UNIT in a program while you are trying to check it out. The words in the manuals obscure where it would be placed within the program; however, the syntax "railroad maps" in one of the appendices suggest this arrangement (ignoring my "cute" comments), which will produce the value 5 when run.

```
(*$S+*) (* Swapping On when using UNITS *)

Program Test_units;

(*  Unit intest is set off with comments *)
(*  merely for show.  After you debug it *)
(*  you would normally compile it alone. *)

(* U *)  UNIT intest;
(* N *)  INTERFACE
(* I *)    FUNCTION f: INTEGER;
(* T *)  IMPLEMENTATION
(*   *)    FUNCTION f;
(* I *)
(* n *)    BEGIN
(* t *)      f := 5;
(* e *)    END;
(* s *)  BEGIN (*initialization*)
(* t *)  END;

USES intest;

BEGIN (* Main Program *)
  WRITELN ('Start f');
  WRITELN (f);
END.
```

APRICOT: Apple Pascal Compilation of String Constants

Use of String Constants, while they work fine, can cause you some inconvenience if you use many of them. Strangely enough, the compiler requires about 4 words for EVERY character in the String Constant. For large programs you may not be able to compile with both swapping at the Command level, and compiler double swapping on. Such was the case when I was trying to compile a program, which is heavily menu driven and I was using many String Constants.

Apple had been advised early in 1981 by this author and quickly responded with a friendly letter explaining that the compiler does use appreciable space when compiling string constants (or literals). However, I doubt that they consider it a problem that needs any attention in the near future. The compiler handles literals as intended, albeit with much compiler table space.

You can avoid running out of compile space so quickly by declaring each string as a variable and set it by using an assignment statement. Whether this practice will waste memory at run-time was not investigated by this writer.

BANANA: Fun (?) with Pascal Filer

Save paper by obtaining directory lists for only those files you really want listed. This is done simply by typing an E in the Filer and then supplying a line similar to the example below which references drive #4.

```
#4:?,PRINTER:
```

The system will then prompt you with questions on the screen, and the results printed for those files you selected. (What did you expect from a monkey-food tidbit?)

More seriously, if you only wanted the TEXT files, resident on volume #4, listed to the PRINTER:; you could use:

```
#4:=TEXT,PRINTER:
```

This saves you paper and TIME.

CHERRY: Use of Slot 3 in Pascal

For those unfamiliar with the Apple Pascal system I include the following information, which is also included in Apple's (Apple+) documentation.

When the operating system is loaded, it looks to see if slot #3 is occupied by a card. If it finds one there, Apple Pascal will assume it is for an external console, and will not produce output on the standard video signal. If you don't intend to use an external console, keep slot #3 vacant.

WATERMELON: Bug in VisiCalc?

Try to print a locked file with VisiCalc. If you succeed, please write an article in the WAP newsletter explaining how you did it.

A slight bug is thought to exist (by this writer) in the DOS 3.3 version of VisiCalc (trademark of Personal Software Inc., now VisiCorp). When you select the option to save your worksheet template on a disk file, and that file already exists and is locked, and then you instruct VisiCalc to replace it with the current worksheet, VisiCalc correctly refuses, informing you that the file is locked.

Some flag must then be set in VisiCalc (conjecture) that does not get properly reset (more conjecture), for when you attempt to print any portion of the worksheet, VisiCalc tells you your "file is locked".

There are probably a number of ways to "reset this flag". One way I have used is to save the worksheet to a new disk file. This "clears the flag" and you can then print whatever portion of the worksheet that you desire.

Otherwise, the 3.3 version of VisiCalc is a great improvement over the early versions. The added feature of most importance (to me) is the ability to easily edit those VisiCalc value entries. The one feature that is still lacking is direct lower case entry, and display of lower case on the monitor (or television) if it happens to wander into the worksheet (see Plum below).

PLUM: Lower Case in VisiCalc Templates

It is relatively easy to modify your VisiCalc templates to include lower case in your worksheets. This makes it possible to design forms that non-computer types might be able to read.

To enter lower case into VisiCalc only requires a DOS TEXT file editor. As luck would have it, an article written by Bruce Field and published in the June 1981 issue of the WAP newsletter provided you with a TEXT editor, if you own Apple Writer (trademark of Apple Computer, Inc.). Bruce's TEXT editor is actually an interface to Apple Writer and he aptly calls it the Filer. Apple Writer is the TEXT editor, which normally stores its text as a DOS BINARY file. Bruce's program does the conversions, quickly, too, since it is implemented in 6502 machine code.

You must make the modifications to Apple Writer that were discussed in Bruce's article, "TEXT FILE MANIPULATOR USING APPLE WRITER". You will also need the fine program written by Bruce, printed as it would be

contd.

listed using the Apple monitor. If you decide to use this material, change the line (in the mod to Apple Writer's TEDITOR), since it was in error in the WAP article:

```
1004: D4
```

to:

```
1009: D4
```

Now to return to the original purpose of this Plum.

With this great capability you can load a VisiCalc worksheet template, which you will recall is a DOS TEXT file, and edit it character by character in Apple Writer. Replacing upper case letters as desired with lower case is straightforward. When Bruce's program asks about converting upper to lower case (and vice versa), respond "N" for no. Never answer yes to Bruce's questions, if you are trying to modify your VisiCalc templates using this technique. You want to leave the VisiCalc coordinates in upper case, ... I think.

One last comment. This procedure will introduce lower case into the TEXT file, and hence the template. When you print your template on a printer capable of displaying lower case, it will be there as you intended. Unfortunately, it won't be displayed on your visual Apple display, even with a lower case adaptor. Why not, authors of VisiCalc? It seems to me that the opportune time for the introduction of lower case in VisiCalc was the new release for the 16-sector DOS 3.3.

TANGERINE: Last Minute Addition

This article was supposed to make it into the July/August 1981 edition, but unfortunately I didn't get around to mailing it in. Since the time I wrote the above material, Bruce Field made some modifications to his neat program to fix a problem with getting syntax errors. I had noticed the problem also, but worked around it by doing a CATALOG using the Ctrl-D CATALOG sequence with a comma D2, or whatever to reset the DOS pointers. The only reason I bother mentioned this is because I couldn't get Bruce's fix to work. Instead, it makes the problem worse by not loading a file if it can't find it, or worse yet it hangs. Since Bruce was on vacation when I found this I wanted to keep you all out there informed. (Is anyone reading this? ...)

TOMATO: Apple Writer Trick

When Apple Writer requests what file you wish to list, it first asks if it's file "such and such" - the latest file you referenced. If you say no, it overwrites this name when it asks you for the file. But what if you had a long file name (27 characters with all sorts of weird combinations of letters, e.g. QXG8-7FR-QZP-RSE...etc. - clearly a code name for your SNOOPY calendar)? You could just retype it (shudder), or you could adopt the practice of using less descriptive (what?) file names, such as "A".

Well, if you have an Apple with Autostart ROM (and if you don't know if you do or not, the probability is very high that you do), then don't answer the question until you have first entered two keystrokes: (1) ESC and (2) M. Then answer with a "N". You should notice that the file name is still there, and the new question is now on the line below. Now you can "copy" the file name or any part of it with the Autostart ROM Escape capability. First enter an Escape character followed by the usual cursor moving commands utilizing the I, J, K, and M keys.

PEACH: The Fast Lane

Well, someone finally came through with a faster processor for the Apple II and II+ that I was willing to invest in. It's the Saturn System Accelerator II. Simply stated, it usurps control of your Apple and allows your software to execute its 6502 code on a 3.6 MHz version of the 6502. That means your software (a pre-boot may be necessary if you don't use it in Slot 0 - and I'm told that most users don't) can run with no patches or changes. Since most of your hardware (disk controllers and modems, for example) may depend on the 1 MHz timing, the Accelerator comes with hardware switches on the card so you can tell it which card must be operated with the Apple's processor. Since I use Pascal almost exclusively, and only had a 16K language card, I replaced my language card with the Accelerator. Now my programs run from 3 to 3.5 times as fast. Your whole perception of some of the commercial packages changes when they operate so much faster. Even VisiCalc operates at an acceptable speed with large tables. The retail price is $595, which is worth it if you are depending on your Apple for serious work. The Accelerator won't be ready for the //e until after July, so meanwhile some of you Apple II and II+ owners can outperform the newer Apple //e's.

The big advantage of this solution is that it requires no patching to recognize hardware differences. Maybe this will suffice until Apple puts out the Macintosh.

DATE: How Good Is Pascal? (Or ODE to a SOAP BOX)

I have been hearing a lot of stone throwing and promises of great new products that are going to solve all of the problems Pascal didn't solve. (I read my ACM Journals). If you ask me (and I'll say it anyway) that is a bunch of misleading information. First, it isn't important to me whether Standard Pascal is adequate or not. I don't use it. I use Apple Pascal, an extension, that allows me to do an awful lot of work. I think it is enjoyable to use. Modula II is probably a better starting point than Pascal (you all know that N. Wirth developed Pascal, and then improved upon it in Modula II). When the implementers get around to fixing the bugs that make it difficult to develop code, maybe I'll switch. It didn't take me long to switch to Apple Pascal when I first got my Apple.

CANTELOPE: Quick File for Apple //e

Not a bad program. Very well thought out. It may have a bug. If you have a nearly full disk as your data disk and try to save a changed file, and if you agree to throw the changes away, and THEN use Escape, the program hangs in a loop while printing ... select: all records.

HONEYDEW: Apple Business Graphics

Fantastically well done program. It is implemented in Pascal, but can read DOS 3.2, 3.3 files as well as other commercial programs, e.g. the Visi-series. This program is very nice with the Accelerator II.

This program was developed by BPS over two years ago. Apple bought the rights, I thinks for some limited time, and did a nice job on its manual. The program is highly segmented, which means it does its job somewhat slowly. However, since it allows what it calls TAKE files, you can set up a long running job, and walk away. I won't go into much more detail; I recommend you take the time to check this package out at your local Apple dealer.

Apple Business Graphics produces line, bar, and pie charts and interfaces with most popular printers and plotting devices. If you printer is not directly

contd.

supported, yours diskettes will need to be "PicKed" with a program that dealers can get from BPS. They recommend a charge of $50 to $75 to have your diskettes "picked", but I know at least one dealer who does it for free (if you buy Apple Business Graphics from him).

KIWI: RamDisk on Apple //e

PIG11 will be released shortly (I hope). Some of the goodies should be routines that allow use of the 64K (62K of it) RAM on the extended TEXT card as a RAMDISK in Pascal. It's a great place to put your editor, especially if it's the ASE.

RAISIN: Review of Data Tree

A few months ago I purchased a copy of Data Tree. I intended to do a review for the club. Since the program had some serious limitations, I thought it would be wise to first check with the software developers, Arizona Computer Systems, Inc. They were willing to allow me to review their product. I asked them if they had a better version than the one released under Apple's SDS program. They said one was due out soon that would take care of the deficiencies that I had mentioned, and would send it along. Later, they said they weren't going to have it ready for my review, then planned for March, and suggested I review it as is. Well, here goes.

First, the program converts all lower case to upper case, which to me is a serious handicap because I want to generate reports that I can use in my own reports. I doubt that the community I work in is ready to regress to all upper case.

Second, the program needs better logical operations for sorting and searching. On the positive side there is a way for searching for similar data. However, the search on many conditions is highly restricted.

Third, there are no floating point REALS. Data are stored as alpha, numeric or dollar types. Alpha are all printable characters in the ASCII set. Numerics are strings of the ten digits 0 .. 9 without decimal points. Dollars would better be called cents, since no dollar sign or decimal point is included. The last two digits in a dollar type are interpreted as cents. This limited data structure capacity is unduly restrictive.

Fourth, the program does not allow for user generated TEXT files for certain input. Restrictions of these types greatly reduce a program's utility. The TEXT file was designed as the means of communicating between programs. Their use, although slow, greatly increases any package's utility.

Finally, the package is copy-protected. The SYSTEM.STARTUP file is supposedly not copyable, although Locksmith 3 might be successful in copying it. Further, most of the files must be on volume 4, which reduces the program's utility with Ram Disk and Hard Disk systems.

The limitations above so demotivated me about the package that its use to me has been minimal. I hope they greatly improve it. Either that or a competitor should come out with a superior product.

Good computing !

(Ed. Note: We could not comply with the author's request to publish his article as sent to us in "camera ready" form. However we reproduce here a sample so that you can see the advantages of proportional spacing on a letter quality printer.)

GRAPEFRUIT: ASE - Advanced Screen Editor

This article has been prepared on the Volition System's ASE version 0.8a and its the slickest Editor I have ever used. A simple text formatter (and a darn good letter quality printer - a Diablo 630) make it an excellent word processing tool. If you never considered programming in Pascal, you may want to invest in Apple Pascal just to run ASE. The cost for ASE is about $175, although group purchases may be possible, as was the case for PIG members last September.

Softviews contd. from pg 25

BASIC) along with the effort. One good point is the inclusion of exercises in the manual with answers at the end. The program allows you to exit from within any lesson or to select a sub-lesson. Perhaps my complaint is the absence of the Apple's special features in the author's approach. The program would probably run with little modification (except for the lesson on graphics) on another machine.

There are twelve lessons which take you from the PRINT statement and variables to Hi-res graphics. I consider the price to be a bit steep at $49.95. I suggest the publisher consider repackaging it with the Coan book for a combined lower price.

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A BEGINNER'S GUIDE TO CROSBY'S SHAPE TABLE MAKER

by Robert C. Platt

Mark Crosby's shape table maker is one of the most useful utilities on the New Member Disk (Disk 134). With this utility you can design patterns which can be displayed by your Applesoft programs. Applesoft gives you the flexibility to rotate, enlarge or animate such patterns once they have been safely stored on disk. (See pages 91-99 of the Applesoft Basic Programming Reference Manual.) With Mark's program, creating shapes can be as easy as using them.

STEP 1: COPYING THE PROGRAMS

BRUN FID from your DOS System Master Disk to copy Mark's program from the New Member Disk to a disk which you have INITialized. Use a disk with plenty of spare room for your shapes. Copy the following files:

SHAPE MENU
SHAPER
ASSEMBLER

STEP 2: FIX THE BUGS

If you purchased your New Member Disk before May 12, you need to make the following changes to the ASSEMBLER program:

a) Delete lines 80, 90 and 100
b) Change line 110 to read: 110 LA=43616
c) Add the following line:
   525 SH=SH+1:POKE SH,0
d) Change line 730 to:
   730 PRINT: HOME: POKE 0,55

In addition, if you have more than one disk drive, you will want to change line 740 to read:

740 PRINT D$;"RUN SHAPE MENU,D1"

You will also need to change two lines in the program SHAPER. Lines 2030 and 2080 should both read:

PRINT D$;"RUN SHAPE MENU,D1"

STEP 3: START THE PROGRAM

RUN SHAPE MENU from your newly copied and corrected disk. Select the first option to design a shape. This will read in the SHAPER program. Read the directions. You will then be asked, "ENTER THE STARTING ADDRESS OF SHAPE IN HEX (SUGGEST $4000 FOR A 48K SYSTEM)". At the question mark, type 4000. Do NOT type a dollar sign!

STEP 4: REVIEW ALLOWED COMMANDS

A Control-F indicates that you are finished. A Control-W forgets previous commands and allows you to start over at the select-a-starting-address question. Note that designing a shape is like drawing a picture on paper. The commands U, D, L, and R control the movement of your pen. But you must pay careful attention to whether you want to lift your pen off the paper and move it to a new location without leaving a trail. You start with your pen lifted from the paper (OFF). Since you will control the exact placement of your shape on the screen in the Applesoft program which uses the shape table, you will usually lower the pen as your first command. Type a P.

STEP 5: DESIGN THE SHAPE

I will use a box as a simple example. Type UULLDDRR

STEP 6: CHECK THE SHAPE

Type Control-F to tell the computer that you have finished drawing the box. Note that the shape is displayed at scales 1, 2 and 3 times your original size. The Apple will also tell you both the decimal and hex address range of the shape. Press any key to continue.

STEP 7: SAVING THE SHAPE

If the shape looks correct, save it by answering Y to the question, "DO YOU WANT TO SAVE THIS SHAPE?" It will ask for the name of the shape. If you want to save the shape on the same disk as Mark's program, type in a new name. However, if you want to save it on the disk in drive 2, type the name of the shape followed by ,D2 with your answer enclosed in quote marks. For example, type:

"BOX,D2" <return>

You will be returned to the menu.

STEP 8: ASSEMBLING A SHAPE TABLE

A shape table is an organized collection of all shapes to be referenced within an Applesoft program. After you have repeated steps 3 through 7 for all the shapes you need, select the menu option for assembling the shape table. You will be shown a CATALOG of the disk and asked to enter the names of the shapes. Just type in each name you want to use in the order in which the shapes are to appear in the finished shape table. (Your Applesoft program will refer to shapes by number rather than by name, so it is important to keep track of the numbers which you assign to each shape.) To specify a shape from the other disk drive, add a ,D2 after the name and enclose your answer in quote marks. Type <return> when you have finished selecting shapes for the table. The program will then review your selections and will ask you to confirm them with a Y.

Type the name of your shape table. This should be different from the name of any of the shapes on your disk. After the new table is written on the disk, you will be returned to the menu.

STEP 9: USING THE SHAPE TABLE

The shape table file should be copied onto each disk which has a copy of your Applesoft program that uses it. In addition, you will need to add a line to the start of your Applesoft program to read in the shape table and connect it to your program. For example, if you saved your shape table under the name MYTABLE, you could use the following Applesoft line in your program:

```
10 PRINT CHR$(4);"BLOAD MYTABLE,A24576": POKE 232,0:
   POKE 233,96
```

Read pages 91-99 of the Applesoft Reference Manual for further details on how to use shapes. Shapes are also covered in Pelczarski's Graphically Speaking column in Softalk Magazine.

MICROCOMPUTERS AND MEDICINE

by Eleanor M. Pomeroy

Software developers are seeking untapped markets, and medicine is certainly witness to this trend. In a recent survey of medical microcomputer software, retrieved from the computerized International Software Database, Ref. (1), nearly two hundred medical software packages were identified. Approximately seventy percent of the medical software related to a variety of administrative and managment functions of hospitals and physician practices. Billing systems, scheduling and patient recordkeeping systems were the most common types of software in this category. The second largest category of medical software was concerned with a variety of clinical services such as patient diagnosis, treatment protocols, and the tracking and reporting of medical monitoring equipment such as is found in hospital intensive care units. There was relatively little available in the areas of medical education (patient education or continuing education for health professionals) from the commercial market at this time.

But a closer look at recent medical and software literature demonstrates that this is changing. Commercial firms are emerging such as Computer Medical Evaluation which has recently begun marketing a clinical simulation series on cardiology which runs on the Apple II. In the absence of commercially available medical education software, many health professionals have taken to program development themselves, or are having it custom made. One of the most innovative continuing medical education projects currently under development is a Microcomputer-Videodisc continuing education program series for the nursing staff of the Children's Medical Services of the Florida State Department of Health and Rehabilitation. The project consists of eight continuing medical education programs designed to run on an Apple II interfaced with a Pioneer videodisc player. Subject areas range from Case Management of Spina Bifida patients to counseling the parents of a terminally ill child. A microcomputer interfaced with a videodisc player is located at each of the Children's Medical Services training sites statewide. The hardware is contained in a portable carrel so it is also easily transportable.

How much microcomputers are actually being used by individual health profesionals is still a matter of conjecture. One spot check survey by the editors of Medical Economics confirmed that one in five physicians already owns a microcomputer, and that number is expected to double in two years.

Certainly, one of the attractions of a microcomputer is its ability to play "dumb", and act as a communication device. There are many medical information databases which health professionals could more easily access through the use of a microcomputer, especially since more frequently now, these databases are equipped with user friendly software for searching purposes. One recently developed medical information system was sponsored by the Americal Medical Association which joined forces with GTE to produce AMA/NET. In fact, this system currently provides health professionals four databases:

- Disease information base, whereby the users inputs symptoms and a list of diseases containing those symptoms is retrieved
- Drug information base
- Medical nomenclature base
- Bibliographic base of non-clinical material related to social and economic issues.

It is obvious that there is a growing demand by health professionals for a spectrum of well developed programming with application to the multiplicity of their needs: medical education, communication, diagnostics, to name just a few. Software developers have only to respond.

(1) Software, Ltd. International Software Directory. Palo Alto, CA: Dialog Information Services, 1983.

President's Corner contd. from pg 4

THE ANDERSON JACOBSON PRINTER. WAP thanks Anderson Jacobson for updating the office printer (on loan in exchange for monthly ad space) to an AJ833. The update was made in time to prepare the Membership Directory, using a 15 pitch daisy wheel and 17 pitch character spacing. Also, the increased speed has greatly facilitated the production of the WAP Journal.

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PROWRITER SUPER- AND SUBSCRIPTS

by Steve Wildstrom

In the May Q & A column, Bruce Field said he had been unable to figure out a way to get the C.Itoh Prowriter to superscript and subscript. While it is true that the reverse linefeed, while available, does not work properly (because the linefeed automatically generates a carriage return) there is a way to do it; in fact there are two ways.

If all that is needed is a simple numerical superscript, say for a footnote, the printer has superscripts available as part of the Greek character set. To access this set, the printer command <ESC>& must be sent. <ESC>$ returns you to the normal character set. In Basic, the ESCAPE is CHR$(27). Most word processors have special procedures for sending an ESCAPE; ScreenWriter requires a Ctrl-X first. (In machine language, it is possible to access the Greek character set by setting the high bit if your printer card will handle it. But I doubt that many of us generate much text by writing assembler code.) The superscript characters, 0 through 9, replace letters O through X, ASCII codes 79 through 88, or $4F through $58. To add a superscript "2" after the letter "x" enter x<ESC>&Q<ESC>$. Neither the ESCAPEs nor the dollar sign and ampersand will print and the Q will print as a small, superscript 2 (see Fig. 1).

The Prowriter, used with a competent word processing program, is capable of printing mathematical expressions of a capability limited only by your patience to do some careful, but not particularly difficult, formatting. But a different technique must be used. The two keys here are the Greek character set, which includes a number of mathematical symbols, and the variable line spacing feature. The method is as follows:

Set the printer for half spacing. If using the normal six lines per inch, use the command <ESC>T12, which sets the line space to 12/144 or 1/12 inch.

Enter the "main" line of the expression, leaving spaces where any superscripts (exponents or subscripts will go.

Move up and insert a line. Enter the superscript characters directly above the spaces you have left for them.

Move to the line below the "main" line. Enter any subscripts directly below the spaces you have left for them. The expression will now appear as it will print (assuming no Greek characters have been used) except that the super- and subscripts will have a full line space between them and the main expression on the screen.

If you need Greek characters, enter the appropriate printer commands only after you have formatted the entire expression. The ESCAPE codes will not affect the alignment of the printed product, but they will mess up the screen version. (Do not attempt to use this approach with proportional spacing; it won't work correctly.)

Examples of what the Prowriter can do are shown in Fig. 2. This method will seem a bit tedious at first, but it gets much easier with practice. The whole process can be facilitated, if your word processor allows, by creating keyboard macros for the printer commands needed to shift in and out of the Greek set and to set variable and normal line spacing.

Figure 1

To get the expression:

$$x^2+y^2=z^2$$

Enter:

x<ESC>&Q<ESC>$+y<ESC>&Q<ESC>$=z<ESC>&Q<ESC>$

Figure 2

$$a_1x^n+a_2x^{n-1}+\ldots+a_{n-1}x+a_n=0$$

$$\sin^2\theta + \cos\theta^2 = 1$$

COMPUTER SIMULATION OF CRYSTAL FORMATION

by C. Swift, Prop.

The formation of crystals takes place at the molecular level, and therefore is not commonly observed by the casual viewer! One common method of seeing this beautiful phenomenon, however, is with the use of polarized light passing through a supersaturated solution of any anisotrophic material - potassium nitrate, for example, is highly suitable. A magnification of about 400X gives an excellent view.

For those readers not too interested in anisotrophism (if you don't know what it is, how can you know your're not interested in it?), I offer the program below as an interesting and surprisingly accurate simulation of the process of crystal formation. The final crystal does not produce the colors seen in the simulation, but those familiar with the transmission of polarized light through anisotrophic materials will understand why such amazing colors do appear during crystal formation.

```
10 HOME
20 HGR2
30 H = 279
40 V = V + 1: IF V > 179 THEN V = V - V + 1
50 HCOLOR = INT ((RND (1) * 7) + 1)
60 A = A + 1: IF A = 279 THEN A = A - A
70 B = B + 1: IF B = 179 THEN B = B - B + 1
80 HPLOT H,V TO A,B
90 GOTO 40
```

A running time of only a minute or two will be sufficient to show the layering effect that produces the final large crystal.

SCREENWRITER HOTLINE

by Peter Combes

A few months ago, we had some discussion of using ScreenWriter to print files in different character sets. Dr. David Evans points out that this is quite easy with the combination of NEC printer and PKASO interface card. "All one has to do is to use a file on the PKASO disk to convert DOS character sets to PKASO sets, save them, and then, using ScreenWriter commands, enter <CTRL> X, <CTRL> IIS to print the characters. To leave the set, press <CTRL> X, <CTRL> IS, and you're back in the 'native' character set. Before running the letter or document, BRUN RUSSIAN. .SET, A$8800 (or whatever you have called the character set), and enter RUNOFF, printing the document."

Lofty Becker last month mentioned the ScreenWriter Spooler, and this is popular among those with tractor feed Epson printers. Sierra On-Line is extending the list of spoolers that are available; the new ScreenWriter //e appears to have Spooler drivers for the SSM serial and parallel cards, the Apple parallel card, the Centronics printers and the Grappler card.

Incidentally, ScreenWriter will work on all text files, and you can make text files of either listings or catalogs. To make a text file of a catalog, use the following program:

```
10 PRINT CHR$(4)"OPEN CATALOGFILE"
20 PRINT CHR$(4)"WRITE CATALOGFILE"
30 PRINT CHR$(4)"CATALOG"
40 PRINT CHR$(4)"CLOSE CATALOGFILE"
```

To make a text file that is the listing of a program, you need a spare line number at the beginning of the program. For example, if your program begins at line number 1, add the following line to the beginning of the program:

```
0 PRINT CHR$(4) "OPEN LISTINGFILE":PRINT CHR$(4)"WRITE
LISTINGFILE":LIST1-:PRINTCHR$(4)"CLOSE":END
```

and RUN the program. You can use the resulting text file with RUNOFF to print it out, and can also use it with EDITOR if functions like Global Search and Replace are useful. To turn the file back into a program, EXEC the file.

THE BOTTOM LINE

by

Leon H. Raesly

Hello there. I hope that the summer has been going well for you. It appears that with the Apple, it is the same as other situations, things generally seem to slow down for the summer, and big new events begin again in the fall.

Apple has announced its new PRO-DOS during the first of July, and it is supposed to be available in early '84. What it will mean to us as personal, professional and business users remains to be seen. I am sure that we will hear more about it in the PI later on.

As every thing else seems to have slowed down, so have I. I have been writing an article on transportability for this month, and have most of my facts, but have run out of time. So I will take a vacation and talk with you next month. Thanks for listening.

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VISICOLUMN: VisiCalc N' Stuff

by Leon H. Raesly

(Guest Columnist)

I would like to share a number of tips and other information about Visicalc with you. The first concerns various updates that have been made available by VisiCorp over the last several years. The current version contains a function known as @IF, which allows the user to make Boolean (true, false) choices. This capability was added about 24 months ago. If you are not sure if your older version has this capability, and wish to test your version, type in the following:

@IF(

If your version will not accept this, it will beep at you, and return you to the primary cursor mode. This means, of course, that your older version does not have this function. If it does not beep, then it will handle this function. There was a period of almost 6 months between manuals, when there was no reference in the manual to this function, even though it was in the program. In addition, in the next manual update, there was only a single reference that it was one of the functions, and this continued for over 12 months!

For those with earlier versions that actually have the @IF function, but you didn't know it, @IF takes the following form:

@IF(logical expression , value #1 , value #2)

where the "logical expression" is any expression that will evaluate either TRUE or FALSE (such as 2>1, or A1 = A2, etc.) and "value #1" is any value, formula, cell coordinate, function, etc. and "value #2" is also any value, formula, cell coordinate, function, etc.

While in the earlier versions that had @IF, nesting was restricted, the current version lets you nest any other function within the @IF, including @IF itself, and do it to the level of 9 nestings. This greatly expands the usefulness of this function. If you return some value, formula, cell value or function (Such as @COUNT) as the "If TRUE" value, and another @IF as the "If FALSE" value, you can cover many logical contingencies in each formula, since the @IF function operates as the IF ... THEN ... ELSE statement in some Basics, giving you essentially and IF ... THEN ... ELSE ... ELSE ... ELSE ... ELSE ... ELSE ... (but then you get the Ideal And up to 9 ELSE's!)

The manual itself has been greatly improved and expanded, adding a complete new section giving detailed coverage by topic of each of the functions and commands.

Further, the latest version for both the][+ and //e have two new features that were not in some of the earlier versions. Originally, @AVERAGE would count ALL cells in the row or column, whether a zero, or blank, and use this as the divisor. The current version does not count blanks, and thus gives a truer average.

Another advance of the current version is with the INSERT command, in conjunction with @SUM and @AVERAGE commands. For earlier versions, if you inserted a row or column within a row (or column) which was being summed by the @SUM command (or the @AVERAGE or @COUNT command), the command would return @ERROR, and you would manually have to change all command references to add the additional row (or column). The current version will do two important things. If you INSERT a row (or column) it will automatically update the @SUM (or @AVERAGE or @COUNT) command to include the new row (or column).

In addition, the new version will not only skip any blanks with these commands, it will also skip automatically any cell with literals in it (such as titles).

Although none of the current versions will give a true @NA function (meaning skip this cell, and return the commanded value) you can achieve it with the new version by leaving the cell blank. This will then function as an Not Applicable function. In addition, you can use the @NA function in your template to function as an alert. If, when setting up the format, you make all the cells where you intend to add data in future use the @NA function, then when you are using the template, fill all the cells with data, and blank any cells you don't use with the blank command:

/ B

It will serve as an alert that a cell was missed by returning NA instead of a value.

One of the awkward tasks with VisiCalc is to "proof" your template, to see if all of your formulas are accurate. One way that I do this is to first save the template to disk, with blanks in the data areas. Then I place a one (1) in each data area of the template, give the recalculate command and check for values. Then I give the recalculate command again, check again, and give the recalculate command a third time. Then I check again. Thus, I get two things from this. The first is I am able to check how I have formatted my template in terms of calculation. If any values change with each recalculation, they are immediately apparent. In fact, I usually print between each recalculation, to compare hard copy. Second, since I am using ones, the values of any formula's are easily determined (@SUM over five cells should return the value of 5, or @AVERAGE over five cells return the value of one).

One other comment about VisiCalc. If you have the //e, this applies to you. There is a version of VisiCalc just for the //e. It uses the delete key, and the Up and Down arrow keys, as well as the Open/Closed apple, and, of course, the 80 column display. Many dealers, especially discount houses, do not yet have this version in stock, although it has been out for six months.s The reason is that such houses generally buy in quantity, and have a stock on hand. Also, distributors buy in quantity, and most move this stock first.

You can tell the difference in the store between the][+ version (which will run on the //e, but will not implement the //e special features) by the following:
1. The //e version will have //e printed directly on the carton from Visicorp. The][+ only version will usually have a green sticker affixed to the outside of the carton saying //e. This is really the][+ version, and although it will run on the //e, it will not implement the //e features. Of course, you can tell the difference at home by trying to use the up or down keys. If they work, you have the //e version, and if they don't, you have the earlier][+ version. You might want to insist that the dealer replace it for you with the new version, and without cost!

contd. on pg 41

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VISICALC PERSONAL CHECKBOOK

by Leon H. Raesly

The following personalized checkbook is an expanded version of the one appearing on Volume 137, Spreadsheet A from our WAP library. The original author is apparently anonymous. At least his name was not given on the spreadsheet. It is expanded to include up to 50 checks and deposits. In addition, it has been reset so that you can easily include additional rows for more checks if desired. Just go to the dotted line at the bottom of the checks, and type: / I R and it will not only insert the row or rows, the totals will be updated to include your new rows. Then you need only replicate the row above to the new row, and your template has been expanded!

Further, you can either blank the deposit amount if you enter a check, or leave the label in that cell. Either way, it will not affect the addition. The same is true for the check column.

There is space to personalize it by typing your name, address, city, state and zip at the top. A place has been provided for month and year in the heading. In addition, since many people are using NOW accounts, which pay interest to you for your checking account, the reconciliation takes that into account, plus any bank charges. In case you also kept a paper copy as you went along through the month, it gives a trial balance between the data entered in the VisiCalc template, and you paper checkbook copy.

A window has been set at the bottom to see your balance as you enter each check, and an additional row of titles has been set at the bottom, to aid in entering your data.

Reconciliation is accomplished by moving to column B, and entering a 1 if the check has not been returned, or the deposit is in transit. The actual reconciliation calculations are performed in the lower window. As usual, to get there simply depress ; and then move to the appropriate cells, and insert the data called for. The reconciliation area also has a little gimmick to help you spot errors. As most accountants know, if the answer is a transposition, then the error is usually divisible by nine. Consequently, there is a cell labeled "TRASNPTN" which, if the error is most likely a transposition, will show 3 asterisks!

If you are using "THE" Spreadsheet, Version 2.0, some additional features are available for you. Use the variable column command / L to set the first column to a width of 3, the second column to a width of 3, and the third column to a width of 5. This will enable you to both print at full size the entire spreadsheet to 80 columns (through spreadsheet column J), as well as if you have an 80 column board in your Apple, be able to see all the spreadsheet columns at one time on your screen. Of course, if you have the new Videx 132/160 column board, it will be no problem!

So, good luck. If you use the template, I hope that all your checkbooks are balanced!!

ABREVIATIONS USED:

I# = Check or Deposit item number (not check #)
'I' = 0 is check back from bank at reconciliation, 1 is check not returned yet.
CHK # = Check number
DESCRP = Description (Memo)
TRASNPTN = Is error likely to be a transposition?

```
>C91:"C.S.W.
>B91:"AESLY, L.
>A91:"LEON H. R
>C90:"DED BY:
>B90:"AND EXPAND
>A90:"MODIFIED
>C89:"KNOWN
>B89:"AUTHOR UN
>A89:"ORIGINAL
>G87:"EGATIVE
>F87:"AVOR IF N
>E87:"IN YOUR F
>D87:"POSITIVE**
>C87:"FAVOR IF P
>B87:"IN BANKS F
>D86:"ERO
>C86:"O.K. IF Z
>H85:/F*@IF(G83=0,0,(@IF(G83/9=@INT(G83/9),3,0)))
>G85:"TRASNPTN
>H84:/F*
>E84:+E71-E73+E75-E79+E81
>D84:"ATION--->
>C84:"RECONCILI
>G83:+E71-F77
>H82:"E IS:
>G82:"DIFFERENC
>H81:"CKBOOK
>G81:"TRIAL/CHE
>E81:0
>D81:"MENTS--->
>C81:"EREST PAY
>B81:"ENTER INT
>H79:"NCE.
>G79:"BOOK BALA
>E79:/F$0
>D79:"GES  --->
>C79:"BANK CHAR
>B79:"   ENTER
>H78:"UAL CHECK
>G78:"SHOULD EQ
>H77:"ALANCE
>G77:"  TRIAL B
>F77:+G36
>E77:"-------->
>D77:"ANCE ----
>C77:"TRIAL BAL
>E75:+166
>D75:"G    --->
>C75:"UTSTANDIN
>B75:"CHECKS  O
>E73:+J66
>D73:"T    --->
>C73:"IN TRANSIT
>B73:"DEPOSITS
>E71:/F$0
>D71:"LANCE--->
>C71:"CKBOOK BA
>B71:"ENTER CHE
>E69:/F$0
>D69:"LANCE--->
>C69:"TEMENT BA
>B69:"ENTER STA
>J67:/--
>I67:/--
>H67:/--
>G67:/--
>F67:/--
>E67:/--
>D67:/--
>C67:/--
>B67:/--
```

contd.

```
>A67:/--
>J66:@SUM(J14...J64)
>I66:@SUM(I14...I64)
>G66:+G63
>F66:@SUM(F14...F64)
>E66:@SUM(E14...E64)
>B66:"  TOTALS
>G65:" BALANCE
>F65:"  DEP AMT
>E65:"  CK AMT
>D65:"DESCRIPTN
>C65:"CHK/DEP#
>B65:""1"=NOTRT
>A65:"ITEM #
>J64:/--
>I64:/--
>H64:/--
>G64:/--
>F64:/--
>E64:/--
>D64:/--
>C64:/--
>B64:/--
>A64:/--
>J63:@IF(B63=1,0,F63)
>I63:@IF(B63=1,0,E63)
>G63:/F$+G62+(F63-E63)
>F63:"DEP. AMT.
>E63:"CHK AMT.
>D63:"  DESCRP
>C63:/FL"CHK #
>B63:/FL0
>A63:/FL+A62+1
>J62:@IF(B62=1,0,F62)
>I62:@IF(B62=1,0,E62)
>G62:/F$+G61+(F62-E62)
>F62:"DEP. AMT.
>E62:"CHK AMT.
>D62:"  DESCRP
>C62:/FL"CHK #
>B62:/FL0
>A62:/FL+A61+1
>J61:@IF(B61=1,0,F61)
>I61:@IF(B61=1,0,E61)
>G61:/F$+G60+(F61-E61)
>F61:"DEP. AMT.
>E61:"CHK AMT.
>D61:"  DESCRP
>C61:/FL"CHK #
>B61:/FL0
>A61:/FL+A60+1
>J60:@IF(B60=1,0,F60)
>I60:@IF(B60=1,0,E60)
>G60:/F$+G59+(F60-E60)
>F60:"DEP. AMT.
>E60:"CHK AMT.
>D60:"  DESCRP
>C60:/FL"CHK #
>B60:/FL0
>A60:/FL+A59+1
>J59:@IF(B59=1,0,F59)
>I59:@IF(B59=1,0,E59)
>G59:/F$+G58+(F59-E59)
>F59:"DEP. AMT.
>E59:"CHK AMT.
>D59:"  DESCRP
>C59:/FL"CHK #
>B59:/FL0
>A59:/FL+A58+1
>J58:@IF(B58=1,0,F58)
>I58:@IF(B58=1,0,E58)
>G58:/F$+G57+(F58-E58)
>F58:"DEP. AMT.
>E58:"CHK AMT.
>D58:"  DESCRP
>C58:/FL"CHK #
>B58:/FL0
>A58:/FL+A57+1
>J57:@IF(B57=1,0,F57)
>I57:@IF(B57=1,0,E57)
>G57:/F$+G56+(F57-E57)
>F57:"DEP. AMT.
>E57:"CHK AMT.
>D57:"  DESCRP
>C57:/FL"CHK #
>B57:/FL0
>A57:/FL+A56+1
>J56:@IF(B56=1,0,F56)
>I56:@IF(B56=1,0,E56)
>G56:/F$+G55+(F56-E56)
>F56:"DEP. AMT.
>E56:"CHK AMT.
>D56:"  DESCRP
>C56:/FL"CHK #
>B56:/FL0
>A56:/FL+A55+1
>J55:@IF(B55=1,0,F55)
>I55:@IF(B55=1,0,E55)
>G55:/F$+G54+(F55-E55)
>F55:"DEP. AMT.
>E55:"CHK AMT.
>D55:"  DESCRP
>C55:/FL"CHK #
>B55:/FL0
>A55:/FL+A54+1
>J54:@IF(B54=1,0,F54)
>I54:@IF(B54=1,0,E54)
>G54:/F$+G53+(F54-E54)
>F54:"DEP. AMT.
>E54:"CHK AMT.
>D54:"  DESCRP
>C54:/FL"CHK #
>B54:/FL0
>A54:/FL+A53+1
>J53:@IF(B53=1,0,F53)
>I53:@IF(B53=1,0,E53)
>G53:/F$+G52+(F53-E53)
>F53:"DEP. AMT.
>E53:"CHK AMT.
>D53:"  DESCRP
>C53:/FL"CHK #
>B53:/FL0
>A53:/FL+A52+1
>J52:@IF(B52=1,0,F52)
>I52:@IF(B52=1,0,E52)
>G52:/F$+G51+(F52-E52)
>F52:"DEP. AMT.
>E52:"CHK AMT.
>D52:"  DESCRP
>C52:/FL"CHK #
>B52:/FL0
>A52:/FL+A51+1
>J51:@IF(B51=1,0,F51)
>I51:@IF(B51=1,0,E51)
>G51:/F$+G50+(F51-E51)
>F51:"DEP. AMT.
>E51:"CHK AMT.
>D51:"  DESCRP
>C51:/FL"CHK #
>B51:/FL0
>A51:/FL+A50+1
>J50:@IF(B50=1,0,F50)
>I50:@IF(B50=1,0,E50)
>G50:/F$+G49+(F50-E50)
>F50:"DEP. AMT.
>E50:"CHK AMT.
>D50:"  DESCRP
>C50:/FL"CHK #
>B50:/FL0
>A50:/FL+A49+1
>J49:@IF(B49=1,0,F49)
>I49:@IF(B49=1,0,E49)
>G49:/F$+G48+(F49-E49)
>F49:"DEP. AMT.
>E49:"CHK AMT.
>D49:"  DESCRP
>C49:/FL"CHK #
>B49:/FL0
>A49:/FL+A48+1
>J48:@IF(B48=1,0,F48)
>I48:@IF(B48=1,0,E48)
>G48:/F$+G47+(F48-E48)
>F48:"DEP. AMT.
>E48:"CHK AMT.
>D48:"  DESCRP
>C48:/FL"CHK #
>B48:/FL0
>A48:/FL+A47+1
>J47:@IF(B47=1,0,F47)
>I47:@IF(B47=1,0,E47)
>G47:/F$+G46+(F47-E47)
>F47:"DEP. AMT.
>E47:"CHK AMT.
>D47:"  DESCRP
>C47:/FL"CHK #
>B47:/FL0
>A47:/FL+A46+1
>J46:@IF(B46=1,0,F46)
>I46:@IF(B46=1,0,E46)
>G46:/F$+G45+(F46-E46)
>F46:"DEP. AMT.
>E46:"CHK AMT.
>D46:"  DESCRP
>C46:/FL"CHK #
>B46:/FL0
>A46:/FL+A45+1
>J45:@IF(B45=1,0,F45)
>I45:@IF(B45=1,0,E45)
>G45:/F$+G44+(F45-E45)
>F45:"DEP. AMT.
>E45:"CHK AMT.
>D45:"  DESCRP
>C45:/FL"CHK #
>B45:/FL0
>A45:/FL+A44+1
>J44:@IF(B44=1,0,F44)
>I44:@IF(B44=1,0,E44)
>G44:/F$+G43+(F44-E44)
>F44:"DEP. AMT.
>E44:"CHK AMT.
>D44:"  DESCRP
>C44:/FL"CHK #
>B44:/FL0
>A44:/FL+A43+1
>J43:@IF(B43=1,0,F43)
>I43:@IF(B43=1,0,E43)
>G43:/F$+G42+(F43-E43)
>F43:"DEP. AMT.
>E43:"CHK AMT.
>D43:"  DESCRP
>C43:/FL"CHK #
>B43:/FL0
>A43:/FL+A42+1
>J42:@IF(B42=1,0,F42)
>I42:@IF(B42=1,0,E42)
>G42:/F$+G41+(F42-E42)
>F42:"DEP. AMT.
>E42:"CHK AMT.
>D42:"  DESCRP
>C42:/FL"CHK #
>B42:/FL0
>A42:/FL+A41+1
>J41:@IF(B41=1,0,F41)
>I41:@IF(B41=1,0,E41)
>G41:/F$+G40+(F41-E41)
>F41:"DEP. AMT.
>E41:"CHK AMT.
>D41:"  DESCRP
>C41:/FL"CHK #
>B41:/FL0
>A41:/FL+A40+1
>J40:@IF(B40=1,0,F40)
>I40:@IF(B40=1,0,E40)
>G40:/F$+G39+(F40-E40)
>F40:"DEP. AMT.
>E40:"CHK AMT.
>D40:"  DESCRP
```

contd.

```
>C40:/FL"CHK #
>B40:/FLO
>A40:/FL+A39+1
>J39:@IF(B39=1,0,F39)
>I39:@IF(B39=1,0,E39)
>G39:/F$+G38+(F39-E39)
>F39:"DEP. AMT.
>E39:"CHK AMT.
>D39:"  DESCRP
>C39:/FL"CHK #
>B39:/FLO
>A39:/FL+A38+1
>J38:@IF(B38=1,0,F38)
>I38:@IF(B38=1,0,E38)
>G38:/F$+G37+(F38-E38)
>F38:"DEP. AMT.
>E38:"CHK AMT.
>D38:"  DESCRP
>C38:/FL"CHK #
>B38:/FLO
>A38:/FL+A37+1
>J37:@IF(B37=1,0,F37)
>I37:@IF(B37=1,0,E37)
>G37:/F$+G36+(F37-E37)
>F37:"DEP. AMT.
>E37:"CHK AMT.
>D37:"  DESCRP
>C37:/FL"CHK #
>B37:/FLO
>A37:/FL+A36+1
>J36:@IF(B36=1,0,F36)
>I36:@IF(B36=1,0,E36)
>G36:/F$+G35+(F36-E36)
>F36:"DEP. AMT.
>E36:"CHK AMT.
>D36:"  DESCRP
>C36:/FL"CHK #
>B36:/FLO
>A36:/FL+A35+1
>J35:@IF(B35=1,0,F35)
>I35:@IF(B35=1,0,E35)
>G35:/F$+G34+(F35-E35)
>F35:"DEP. AMT.
>E35:"CHK AMT.
>D35:"  DESCRP
>C35:/FL"CHK #
>B35:/FLO
>A35:/FL+A34+1
>J34:@IF(B34=1,0,F34)
>I34:@IF(B34=1,0,E34)
>G34:/F$+G33+(F34-E34)
>F34:"DEP. AMT.
>E34:"CHK AMT.
>D34:"  DESCRP
>C34:/FL"CHK #
>B34:/FLO
>A34:/FL+A33+1
>J33:@IF(B33=1,0,F33)
>I33:@IF(B33=1,0,E33)
>G33:/F$+G32+(F33-E33)
>F33:"DEP. AMT.
>E33:"CHK AMT.
>D33:"  DESCRP
>C33:/FL"CHK #
>B33:/FLO
>A33:/FL+A32+1
>J32:@IF(B32=1,0,F32)
>I32:@IF(B32=1,0,E32)
>G32:/F$+G31+(F32-E32)
>F32:"DEP. AMT.
>E32:"CHK AMT.
>D32:"  DESCRP
>C32:/FL"CHK #
>B32:/FLO
>A32:/FL+A31+1
>J31:@IF(B31=1,0,F31)
>I31:@IF(B31=1,0,E31)
>G31:/F$+G30+(F31-E31)
>F31:"DEP. AMT.
>E31:"CHK AMT.
>D31:"  DESCRP
>C31:/FL"CHK #
>B31:/FLO
>A31:/FL+A30+1
>J30:@IF(B30=1,0,F30)
>I30:@IF(B30=1,0,E30)
>G30:/F$+G29+(F30-E30)
>F30:"DEP. AMT.
>E30:"CHK AMT.
>D30:"  DESCRP
>C30:/FL"CHK #
>B30:/FLO
>A30:/FL+A29+1
>J29:@IF(B29=1,0,F29)
>I29:@IF(B29=1,0,E29)
>G29:/F$+G28+(F29-E29)
>F29:"DEP. AMT.
>E29:"CHK AMT.
>D29:"  DESCRP
>C29:/FL"CHK #
>B29:/FLO
>A29:/FL+A28+1
>J28:@IF(B28=1,0,F28)
>I28:@IF(B28=1,0,E28)
>G28:/F$+G27+(F28-E28)
>F28:"DEP. AMT.
>E28:"CHK AMT.
>D28:"  DESCRP
>C28:/FL"CHK #
>B28:/FLO
>A28:/FL+A27+1
>J27:@IF(B27=1,0,F27)
>I27:@IF(B27=1,0,E27)
>G27:/F$"IN BANKS FAVOR IF
     POSITIVE"IN YOUR FAVOR IF N
>F27:"DEP. AMT.
>E27:"CHK AMT.
>D27:"  DESCRP
>C27:/FL"CHK #
>B27:/FLO
>A27:/FL+A26+1
>G26:/F$+G25+(F26-E26)
>F26:"DEP. AMT.
>E26:"CHK AMT.
>D26:"  DESCRP
>C26:/FL"CHK #
>B26:/FLO
>A26:/FL+A25+1
>J25:@IF(B25=1,0,F25)
>I25:@IF(B25=1,0,E25)
>G25:/F$+G24+(F25-E25)
>F25:"DEP. AMT.
>E25:"CHK AMT.
>D25:"  DESCRP
>C25:/FL"CHK #
>B25:/FLO
>A25:/FL+A24+1
>J24:@IF(B24=1,0,F24)
>I24:@IF(B24=1,0,E24)
>G24:/F$+G23+(F24-E24)
>F24:"DEP. AMT.
>E24:"CHK AMT.
>D24:"  DESCRP
>C24:/FL"CHK #
>B24:/FLO
>A24:/FL+A23+1
>J23:@IF(B23=1,0,F23)
>I23:@IF(B23=1,0,E23)
>G23:/F$+G22+(F23-E23)
>F23:"DEP. AMT.
>E23:"CHK AMT.
>D23:"  DESCRP
>C23:/FL"CHK #
>B23:/FLO
>A23:/FL+A22+1
>J22:@IF(B22=1,0,F22)
>I22:@IF(B22=1,0,E22)
>G22:/F$+G21+(F22-E22)
>F22:"DEP. AMT.
>E22:"CHK AMT.
>D22:"  DESCRP
>C22:/FL"CHK #
>B22:/FLO
>A22:/FL+A21+1
>J21:@IF(B21=1,0,F21)
>I21:@IF(B21=1,0,E21)
>G21:/F$+G20+(F21-E21)
>F21:"DEP. AMT.
>E21:"CHK AMT.
>D21:"  DESCRP
>C21:/FL"CHK #
>B21:/FLO
>A21:/FL+A20+1
>J20:@IF(B20=1,0,F20)
>I20:@IF(B20=1,0,E20)
>G20:/F$+G19+(F20-E20)
>F20:"DEP. AMT.
>E20:"CHK AMT.
>D20:"  DESCRP
>C20:/FL"CHK #
>B20:/FLO
>A20:/FL+A19+1
>J19:@IF(B19=1,0,F19)
>I19:@IF(B19=1,0,E19)
>G19:/F$+G18+(F19-E19)
>F19:"DEP. AMT.
>E19:"CHK AMT.
>D19:"  DESCRP
>C19:/FL"CHK #
>B19:/FLO
>A19:/FL+A18+1
>J18:@IF(B18=1,0,F18)
>I18:@IF(B18=1,0,E18)
>G18:/F$+G17+(F18-E18)
>F18:"DEP. AMT.
>E18:"CHK AMT.
>D18:"  DESCRP
>C18:/FL"CHK #
>B18:/FLO
>A18:/FL+A17+1
>J17:@IF(B17=1,0,F17)
>I17:@IF(B17=1,0,E17)
>G17:/F$+G16+(F17-E17)
>F17:"DEP. AMT.
>E17:"CHK AMT.
>D17:"  DESCRP
>C17:/FL"CHK #
>B17:/FLO
>A17:/FL+A16+1
>J16:@IF(B16=1,0,F16)
>I16:@IF(B16=1,0,E16)
>G16:/F$+G15+(F16-E16)
>F16:"DEP. AMT.
>E16:"CHK AMT.
>D16:"  DESCRP
>C16:/FL"CHK #
>B16:/FLO
>A16:/FL+A15+1
>J15:@IF(B15=1,0,F15)
>I15:@IF(B15=1,0,E15)
>G15:/F$+G14+(F15-E15)
>F15:"DEP. AMT.
>E15:"CHK AMT.
>D15:"  DESCRP
>C15:/FL"CHK #
>B15:/FLO
>A15:/FL+A14+1
>J14:@IF(B14=1,0,F14)
>I14:@IF(B14=1,0,E14)
>G14:/F$+G12+(F14-E14)
>F14:"DEP. AMT.
>E14:"CHK AMT.
>D14:"  DESCRP
>C14:/FL"CHK #
>B14:/FLO
>A14:/FL1
>J12:@IF(B12=1,0,F12)
```

contd.

```
>I12:@IF(B12=1,0,E12)
>G12:/F$0
>E12:"ALANCE-->
>D12:"OPENING B
>J10:/--
>I10:/--
>H10:/--
>G10:/--
>F10:/--
>E10:/--
>D10:/--
>C10:/--
>B10:/--
>A10:/--
>J9:"DEPOSITS
>I9:"  CHECKS
>G9:/FR"BALANCE
>F9:/FR"DEPOSITS
>E9:/FR"CHECKS
>D9:"  ITEM
>C9:/FR"CHK#/DEP
>B9:"'1'=RTND
>A9:"I#
>J8:"RED BANK
>I8:" NOT CLEA
>J7:"WORK AREA
>I7:"VISICALC
>G7:"YEAR:
>E7:"MONTH:
>H5:"E
>G5:", ZIP HER
>F5:"TY, STATE
>E5:"  YOUR CI
>G4:"ERE
>F4:"ADDRESS H
>E4:"    YOUR
>F3:"YOUR NAME
>E3:" OF:
>D3:"CHECKBOOK
>B1:"TO J100
>A1:/FG"PRINT A1
/W1
/GOC
/GRM
/XH18
/GF$
/GC9
/X!/X>D1:>F3:;/GF$
/GC9
/X>A65:>A65:/TH
/X-/X>A65:>A66:;
```

BELOW IS WHAT THE COMPLETED TEMPLATE WILL LOOK LIKE:

PRNT A1 TO J91

```
          CHECKBOOK OF:     YOUR NAME
                       YOUR ADDRESS HERE
                     YOUR CITY, STATE, ZIP HERE

                   MONTH:            YEAR:            VISICALC WORK AREA
                                                       NOT CLEARED BANK
I# '1'CHK#/  ITEM      CHECKS DEPOSITS  BALANCE          CHECKS DEPOSITS
-----------------------------------------------------------------------------

          OPENING BALANCE-->                0.00              0.00     0.00

 1  0 CHK #  DESCRP CHK AMT. DEP. AMT.      0.00              0.00     0.00
 2  0 CHK #  DESCRP CHK AMT. DEP. AMT.      0.00              0.00     0.00
 :
 :
 50 0 CHK #  DESCRP CHK AMT. DEP. AMT.      0.00              0.00     0.00
-----------------------------------------------------------------------------
ITE"1"CHK/DDESCRIPTN  CK AMT   DEP AMT BALANCE
     TOTALS              0.00     0.00     0.00              0.00     0.00
-----------------------------------------------------------------------------
RECONCILIATION AREA:
         ENTER STATEMENT BALANCE--->     0.00

         ENTER CHECKBOOK BALANCE--->     0.00

         DEPOSITS IN TRANSIT    --->     0.00

         CHECKS OUTSTANDING     --->     0.00

                 TRIAL BALANCE ------------>     0.00  TRIAL BALANCE
                                                      SHOULD EQUAL CHECK
            ENTER BANK CHARGES  --->     0.00         BOOK BALANCE.

         ENTER INTEREST PAYMENTS--->     0.00         TRIAL/CHECKBOOK
                                                      DIFFERENCE IS:
                                                           0.00
                 RECONCILIATION--->     0.00
                                                      TRASNPTN
                 O.K. IF ZERO
         IN BANKS FAVOR IF POSITIVE*IN YOUR FAVOR IF NEGATIVE
```

ORIGINAL AUTHOR UNKNOWN
MODIFIED AND EXPANDED BY:
LEON H. RAESLY, L.C.S.W.

Incredible Jack contd. from pg 24

provide help only by mail.

This is an innovative approach for controlling the publisher's user support costs; but it's likely to be unpopular with most potential purchasers of the program. If John Williams hadn't been able to diagnose the problem we encountered trying to boot up, we'd have been "up the creek" since we weren't hotline subscribers. Unfortunately, many people will only discover this problem after they've bought the program, since the extra charge for user support is not apparent until you read the manual carefully.

THE BOTTOM LINE

If you have an 80-column Apple //e and don't need to move files from one program or place to another, Incredible Jack could be a good program to combine word processing, calculations, and file management. If you have a][or][+, or if you need file transferability, you may decide Jack isn't the program for you.

VisiColumn contd. from pg 36

In addition, the latest versions of VisiCalc are being packaged with Cdex included at no additional cost. Cdex is a tape training program to use as a kind of "personal tutor" to teach the use and functions of VisiCalc. A handy little feature for new purchasers!

So for all the above features, you might wish to get an update from VisiCorp. They charge $65, and return a new program disk (still copyable for backups with any nibble copier), and a new manual. Or maybe you just might wish to buy a copy of The Spreadsheet 2.0 from the Pi (if you are also a Call A.P.P.L.E. member).

If anyone wishes additional assistance with your purchased copy of VisiCalc, just give me, or any of the other people listed on the Pi's Hotline, a call. That's what we are all there for. Thanks for listening.

APPLE II ⟷ IBM PC COMMUNICATIONS
Plus "CHANGE FILE TYPE IN CATALOG"

by George V. Kinal

There are many programs appearing on the market which are intended to allow transfer of data between an Apple and the IBM-PC. I suppose that there may be a belief by some that such a specialized set of programs is needed to accomplish such transfers. I have found another way. Most of the results also apply to communications to other machines, especially CP/M systems.

As is probably well known, ordinary text can be sent between almost any two computers (with one minor problem having to do with line feeds). Although it might seem that there would never be any reason to send an Apple binary or Applesoft file to a non-Apple machine, at least one application may occur: using the non-Apple (or Apple operating under a different operating system) as a temporary intermediate storage for later transfer to another Apple. We have been able, for example, to store Apple binary graphics files on the IBM-PC hard disk for later remote retrieval.

Some experiments were conducted using ASCII Express - Professional on an Apple //e, and PC-Talk on the IBM-PC. Both of these programs employ the Christensen protocol for verified file transfer. Our first attempts concerned transfers of text files. In order to do so, the IBM should be considered to be a CP/M machine. That is, the CHFORM utility supplied with AE-Pro is used to convert the original DOS 3.3 text file into a CP/M-compatible text file (the new file is still a DOS 3.3 file insofar as disk format is concerned). This takes care of the missing carriage returns and removes the eighth-bit-set. The new, converted "CP/M" text file is the one sent to the IBM. Text received from the IBM should also have the CHFORM "treatment", this time in the CP/M to DOS direction. These conversions apply only to file transfers, and not to direct buffered terminal communications.

Suppose the transfer of a file type other than text is attempted.... Since there is no AE-Pro on the other end, the file is treated as if it were a text file, but transfers in both directions work just fine! That is, AE-Pro does not prohibit you from sending a non-text file. However, when a file is received by the Apple, there is no way to know that it is not a text file; the resulting file is designated as a text ("T") file in the catalog, regardless of what it "really" is. Now, a file which is a "T" cannot be RUN or BRUN, used by a graphics program, or by a word processing program which expects a binary file. That's where the utility program listed below comes in. It simply changes the file type designation in the catalog; no internal changes are made to the file contents. This utility may have uses in word processing, or in other cases where changing the file type allows an otherwise unreadable file to be listed or loaded.

How is this better than the method suggested in the AE-Pro manual? AE-Pro comes with utilities which (off-line) convert Applesoft (or Integer Basic) files to text equivalents (essentially, the program is LISTed in a new file). But when a program is converted in this way, its length increases some 20 to 30%. When the text-form listing is later received by another Apple, it must be EXECed into memory, then SAVEd (again, off-line). Operating with a binary file is even clumsier. The supplied utility does not convert the binary disk file to a text equivalent. Rather, a binary file must be BLOADed. You then find its address and length through appropriate PEEKs or Monitor examination. Then, one of the utilities BFD8 or BFD92 is applied to create a text file equivalent to be transmitted. But beware! Whereas a BASIC file grows 20 or 30% when converted, binary files TRIPLE in length! For example, the 8K graphics image becomes a 24K text file. (WAP Disk 117 has a graphics "packer" which compresses such files.) Such a file would take something like 20 minutes to send at 300 baud. Next, the conversion back to binary by the recipient is tedious. The procedure is to use the Editor to attach a "CALL -151" in front of the file. This modified file is then EXECed, which is a horribly slow process. Now residing in memory is the appropriate binary image. A BSAVE of the proper memory locations finally gives the recipient the desired binary file on disk. WHEW! In contrast, with the Change File Type utility, there is only one manual, off line step required: the recipient changes the file designation from its improper "T" to "B".

Other communications programs which are implemented on both Apples and other machines (e.g., BLAST, ASCOM) may also be amenable to the use of this technique. If the program will not permit you to send anything other than a text file, use the utility to change the file designation at the sending end (BUT, the software MUST be able to send 8-bit data, which is not always possible. Indeed, AE-Pro sends the full 8 bits only in verified mode). A very obvious use for this technique is in the transfer of spread-sheet data, e.g. VisiCalc files.

- CHANGE FILE TYPE IN CATALOG UTILITY PROGRAM -

```
 10  REM   CHANGE FILE TYPE IN CATALOG
 11  H1 = 38400
 12  HIMEM: (H1 - 256)
 13  HOME
 15  PRINT "UTILITY BY G KINAL, WASH. APPLE PI,1983"
 16  PRINT : PRINT
 17  DIM FM$(50): REM     FILE NAMES
 18  DIM FQ(50): REM      FILE TYPES
 19  DIM FO(50): REM     TRACK NUMBERS
 20  PRINT "* * *  GEORGE'S FILE TYPE CHANGE": PRINT :
     PRINT "            UTILITY        * * * ": PRINT
 30  INPUT "FILE NAME TO HAVE TYPE CHANGED ? ";NM$
 50  GOSUB 1000
 60  PRINT : INPUT "ANOTHER  ?  (Y/N) ";CH$
 70  IF CH$ = "Y" THEN  GOTO 30
 100  END
 998 :
 999  REM  * * * * * * * * * * * * *
1000  REM   CATALOG READER
1020  POKE 47084,17
1040  POKE 47085,15: REM   SECTOR 15 FIRST
1060  POKE 47092,1
1080  POKE 47083,0
1100  POKE 47091,0
1120  LOC = H1 - 255: REM   RWTS BUFFER START
1140  POKE 47088,LOC -  INT (LOC / 256) * 256
1160  POKE 47089, INT (LOC / 256)
1180  POKE 768,32: POKE 769,227
1200  POKE 770,3: POKE 771,76
1220  POKE 772,217: POKE 773,3
1240  XE = 1
```

contd.

```
1260  CALL 768: REM     CALL  RWTS
1279  :
1280  FOR X = (LOC + 14) TO (LOC + 224) STEP 35
1300  JJ =  INT ((X - LOC) / 35) + 1
1320  FM$(JJ) = ""
1340  FOR Y = 0 TO 29
1360  FM$(JJ) = FM$(JJ) +  CHR$ ( PEEK (X + Y))
1380  NEXT Y
1400  FO(JJ) =  PEEK (X - 3)
1410  FQ(JJ) =  PEEK (X - 1): REM  FILE TYPE
1420  NEXT X
1421  :
1440  FOR X = 1 TO 7
1460  IF FO(X) = 255 THEN  GOTO 1540: REM   DELETED
      NAME
1480  IF  NOT FO(X) THEN X = 7:NS =  - 1: GOTO 1580:
      REM   END OF LIST
1500  GOSUB 1620: REM   GO SEE IF THIS IS THE ONE YOU
      WANTED
1520  IF YT THEN  GOSUB 5000: REM    MATCH WAS FOUND
1540  NEXT X
1541  :
1560  NS =  PEEK (LOC + 2): REM   NEXT SECTOR
1580  IF NS >  - 1 THEN  POKE 47085,NS: GOTO 1260
1600  RETURN : REM    FROM SUBR. #1000
1601  :
1602  REM  * * * * * * * * * * *
1619  :
1620  REM   SPECIAL STRING MATCHER
1640  L7 =  LEN (NM$)
1660  YT = 1: REM  ASSUME MATCHED FIRST
1680  FOR QW = 1 TO L7
1700  LW$ =  MID$ (FM$(X),QW,1):LX$ =  MID$ (NM$,QW,1)
1720  LW =  ASC (LW$) - 128:LX =  ASC (LX$)
1740  IF LW <  > LX THEN YT = 0:QW = L7
1760  NEXT QW: RETURN
1761  :
4999  :
5000  REM    CHANGE TYPE HERE....
5010  HOME
5020  PRINT "A FILE ENTRY WITH THE NAME  ": PRINT :
      PRINT FM$(X): PRINT : PRINT " HAS BEEN FOUND,
      WITH FILE TYPE ": PRINT
5030  PP = FQ(X)
5039  TY$ = ""
5040  IF ((PP = 0) OR (PP = 128)) THEN TY$ = "00
      TEXT"
5041  IF ((PP = 1) OR (PP = 129)) THEN TY$ = "01
      INTEGER BASIC"
5042  IF ((PP = 2) OR (PP = 130)) THEN TY$ = "02
      APPLESOFT"
5043  IF ((PP = 4) OR (PP = 132)) THEN TY$ = "04
      BINARY"
5044  IF ((PP = 8) OR (PP = 136)) THEN TY$ = "08   S
      TYPE"
5045  IF TY$ = "" THEN TY$ = "A SPECIAL TYPE OF FILE"
5060  PRINT "    ";TY$
5061  PRINT
5082  PRINT "WHAT TYPE OF FILE DO YOU WANT IT"
5083  PRINT "CHANGED TO IN THE CATALOG ?"
5085  PRINT "USE ";: INVERSE : PRINT "ONLY";: NORMAL :
      PRINT " THE FOLLOWING NUMERICAL DESIGNATIONS"
5100  PRINT "   TEXT.....USE '0' "
5102  PRINT "   INTEGER BASIC..  1 "
5103  PRINT "   APPLESOFT   .... 2"
5104  PRINT "   BINARY .......   4 "
5105  PRINT "   S - TYPE ....    8 "
5106  PRINT "   RELOCATABLE     16 "
5107  PRINT "   A -TYPE         32 "
5108  PRINT "   B- TYPE         64 "
5110  PRINT : PRINT "FOR NO CHANGE ,  ENTER  '99' ":
      PRINT
5120  INPUT "WHICH TO CHANGE TO ?";CN
5125  IF CN = 99 THEN  GOTO 5200
5130  PK = LOC + ((X - 1) * 35) + 13
5140  POKE PK,CN
5150  POKE 47092,2: REM   TO WRITE!
5160  CALL 768
5170  POKE 47092,1: REM  RESTORE READ
5200  RETURN : REM   FROM  SUBR. # 5000
```


****

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THINKING OF SELLING YOUR COMPUTER: Consider the Tax Consequences

by Richard J. O'Connor

(Editor's Note: Richard O'Connor has an LLM in Taxation from Georgetown. Although not an Apple owner, he prepared this article at the suggestion of WAP members who are considering trading-up to a //e. We appreciate his making this analysis available to the whole club. This recapture business sounds like a space invaders game, but we hope that this article will alert you to a potential problem and the need to seek expert tax help.)

If you currently own a computer which you've used in a business, and you are considering the sale of that computer (to acquire an Apple //e, or for any other reason), you should keep in mind the tax consequences of a sale. This article reviews these tax consequences and suggests some planning options. I hope that one or more of the following suggestions will be useful to you.

TAX CONSEQUENCES OF THE SALE OF A COMPUTER USED IN BUSINESS

The sale of a computer used in a business can result in either: (1) a "gain", (2) a "loss," or (3) neither a gain nor a loss. Each of these possibilities has tax consequences.

A computer is sold at a "gain" if the sale price exceeds the seller's "adjusted basis" in the computer. For a person who has taken depreciation on his computer, the adjusted basis will be the inital purchase price minus the total amount of depreciation taken. For example, an Apple bought in 1981 for $2,200 for business use could have produced depreciation deductions of $330 in 1981 and $484 in 1982 (approximately), or a total of $814. The owner's adjusted basis in 1983 is $2,200 minus $814 or $1,386.

If the computer can be sold for more than the adjusted basis, then the seller must consider the "depreciation recapture" provisions of the Internal Revenue Code (IRC). The ordinary rule governing the taxation of a gain on the sale of property is that only 40% of the gain is included in the seller's gross income. However, in the event that the seller has taken depreciation on the property sold, a different rule applies. In this case, so much of the gain on the sale as does not exceed the amount of depreciation previously taken is taxed as ordinary income to the seller. The 60% capital gain deduction is unavailable. This can provide an unwelcome tax result. In our example, if the Apple is sold for $2,000 (wishful thinking, I know!) then all of the $614 gain would be included as ordinary income.

Of course, depreciation recapture is no problem if the computer is sold for a price equal to the seller's adjusted basis. However, there may be a problem with investment tax credit recapture, as will be discussed below.

If the computer is sold for a price below the seller's adjusted basis, he has a "loss." For a person who has used a computer in a business, this loss creates a tax deduction equal to the full amount of the loss (IRC Section 1231.)

If the Apple owner elected to deduct the cost of his Apple currently, rather than to depreciate, the cost of the computer under Section 179 of the IRC, there are similar recapture problems. A law passed in late 1982 provides for recapture of the deduction if property expensed under Section 179 is no longer used in a business at any time before the close of the second year following the tax year in which it was first used in the business. (IRC Section 179(d)(10)). The tax result could be harsh. If an Apple is purchased in 1982 for $2,200, and expensed under Secton 179, the sale of that Apple in 1983 for $1,500 would be taxed as ordinary income to the seller.

The sale of a computer for which investment tax credit (ITC) was taken can also produce negative tax results. The Code provides for ITC "recapture" if the property is disposed of prior to the end of the applicable "recapture period." (IRC Section 47). The recapture period for a computer is five years. The amount of ITC recapture is 100% of the original ITC taken if the property is disposed of within one year after being placed in service. It's 80% if disposed of in the succeeding year, and 60% if disposed of in the next succeeding year, and so on. Unlike depreciation recapture, the amount of ITC recapture is added to the actual tax due on a dollar-for-dollar basis. (Depreciation recapture is merely added to your income and taxed at your otherwise applicable tax bracket.)

CAN A BETTER TAX RESULT BE ACHIEVED?

Is there a way to avoid the undesirable tax consequences resulting from the sale of your computer? The answer is that there are ways to achieve better results, which may or may not be helpful, depending upon the facts and circumstances of your case. Consider the following possibilities:

1) EXCHANGING YOUR APPLE FOR A NEW COMPUTER

A retailer may be willing to accept your current computer as part of the consideration for a new model, such as the Apple //e. An exchange makes good tax sense since the exchange transaction will not result in depreciation recapture or the recapture of a Section 179 deduction (IRC Section 1245(b)(4)). The exchange will result in ITC recapture. It is true that the recapture potential inherent in the old computer at the time of the exchange is transferred over to the new computer. However, that is a problem only in the event that the new computer is sold. (If it were traded-in for a Macintosh, the problem could be postponed again.)

A computer-owner could save hundreds of dollars in taxes by making an exchange.

2) GIVING THE APPLE TO ONE OF YOUR CHILDREN

It might make sense to give your Apple to one of your children, for his/her use, or for subsequent sale. The gift will not result in depreciation recapture. (IRC Section 1245(b)(1)). A subsequent sale in the child's name would result in recapture, but, assuming that the child is in a low tax bracket, the tax result is good. There may be a problem if the Apple is no longer used in a business. If you expensed the computer under Section 179, then giving the computer to your child may be a "retirement" of the computer from business which would result in a recaputure of the Section 179 deduction which you took in the year of its purchase.

contd. on pg 46

MASTER CATALOG AND YOUR NEC 8023A/C

by Rick Jones

You've just finished entering all of your volumes into the MASTER CATALOG program and you want to print out the results. Fine. From out of your printer comes a mishmash of unintelligible garbage. So what do you do? If you own a NEC 8023A/C printer and a Pkaso interface all you need do is change a few statements in the program.

First, exit the program by typing 9 at the main menu. Then delete lines 4240 and 4250 by typing:

```
DEL 4240-4250
```

These two lines aren't needed with the NEC 8023A/C. Now it's time to change several lines to the following:

```
4220 PRINT CHR$(1);"132F";:REM 132 COLS AND NO VIDEO
4230 PRINT CHR$(27);"A";:REM SET 6 LPI
4260 PRINT CHR$(27);"(";"044,088,000."; :REM SET TAB
     STOPS
4270 IF C$="Y" THEN PRINT CHR$(27);"!";: REM SET
     ENHANCED PRINT
4300 IF A$="Y" THEN PRINT CHR$(27);"Q"; : REM SET
     CONDENSED PRINT
4500 FOR LF=1 TO 10 : PRINT CHR$(10); : NEXT LF: REM
     EJECT PAGE W/O FORM FEED
4580 PRINT CHR$(27);"34"; : PRINT CHR$(1); "80F"; :
     REM RESET 10 CHARS/INCH AND KILL ENHANCEMENT
4590 PRINT CHR$(12); : PRINT CHR$(1) ; CHR$(9); :
     PRINT D$"PR#0" : REM EJECT PAGE RESET INTERFACE
     CHAR AND TURN-OFF PRINTER
```

Lines 4220 and 4580 contain statements that are interface specific and you should consult your manual if you use something other than the PKASO.

If you think that there may be stray Ctrl characters in your file names then you should enter the following lines:

```
4434 HT$= CHR$(255) :REM TEMP DISABLE TAB
4435 PRINT CHR$(9) ; CHR$(1) : HT$= CHR$(9) : REM
     RESET INTERFACE CHAR AND TAB CHAR
```

These lines will reset the command lead-in character should any stray Ctrl chars in the program names set the interface character back to CHR$(9). If this occurs then every time that the program prints HT$ (tab) the interface swallows it before it can get to the printer - and thus no more neat columns!

Once you have made the necessary changes you should type "SAVE MASTER CATALOG 8023". From then on it should be smooth sailing! Good luck!

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"LITERARY MACHINES": A Review by Robert C. Platt

Literary Machines by Ted Nelson is a delightful book. In many ways, it is an important sequel to his popular book Dream Machines and Computer Lib (1) which explored the implications of the home computer revolution a decade ago.

That book introduced an intriguing concept, hypertext. Literary Machines is devoted to defining Nelson's hypertext concept and to exploring its impact upon society. Nelson proposes to use computer-based hypertexts as a principal means for disseminating written information in the future.

A hypertext is a free form data base composed of documents. Each document has frames of text, graphics, video disk displays or computer-assisted instruction lessons. Some documents quote other documents or are merely an index to other more detailed documents. The documents are linked together with extensive cross-references to related ideas. As a result, the user can browse through a network of materials looking up references or digressions as they catch his interest. Since the computer always keeps track of the user's path through the data base, the user can retrace his steps to return to an earlier frame of information. The system also keeps track of the user's status between sessions in a "bookmark" record.

Nelson foresees that the availability of computer-based hypertext will make current print media obsolete. By liberating literature from the linear organization of the printed page, our expectations of how ideas should be communicated will change dramatically. Instead of confining readers to a single sequence of presentation, literature will be written with non-sequential access in mind. He also proposes a form of electronic publishing which could govern the distribution of literature on a hypertext system.

Although a number of "information utilities" such as the Source and Compuserve have appeared since Nelson first made his hypertext proposals, few systems have attempted to implement his sweeping vision. Nelson attempted his own implementation with a staff which he christened Project Xanadu (a literary reference to Samuel Taylor Coleridge's unfinished poem "Kubla Khan.") This Ann Arbor-based group is still seeking venture capital.

A more modest hypertext system was developed on a CDC Cyber computer under the PLATO system. As this work was funded at the University of Illinois Medical School, it's not surprising that Pathology was the subject of the world's first operational hypertext system. (3) Frank Mabry, who implemented the PLATO hypertext driver, later wrote a driver to run hypertexts on the Apple. This system is very impressive, with the only distractions caused by the need to switch between floppy disks. (Imagine how much knowledge could be presented and accessed with a 10 megabyte hard disk!)

Now that the club's ABBS has a hard disk, perhaps WAP should experiment with applying hypertext concepts to the presentation of Apple-related information. Whether you are actively involved in designing computer applications or are just an Apple user, you will enjoy reading Ted Nelson's book. Nelson offers many elegant innovations which will prompt his readers into giving serious thought to how and why they use their microcomputers.

(Literary Machines is a self-published book. It can be ordered from The Distributors, 702 S. Michigan, South Bend, IN 46618 for $15.)

REFERENCES:

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(2) Barney, The Prophet from Xanadu, PC World, Vol. 1, No. 3 p. 293 (April 1983).

(3) Thrush & Mabry, An Interactive Hypertext of Pathology, Fourth Annual IEEE Symposium on Computer Applications in Medical Care, p. 1820 (1980).

(4) Nelson, Interactive Systems and Virtuality, Creative Computing, Vol. 6, No. 11, p. 56 (Nov. 1980) and Vol. 6, No. 12, p. 94 (Dec. 1980).

Selling Your Computer contd. from pg 44

3) SELLING THE COMPUTER TO A RELATIVE AT A LOSS

The Code provides rules limiting this option. (IRC Section 267). No loss deduction is available upon a sale to a brother, sister, spouse, an ancestor, or a lineal descendent. (IRC Section 267(c)(4)). A loss deduction is available upon a sale to other relatives, such as a brother- or sister-in-law, a nephew or neice, or an aunt or uncle.

There are two other options that do not appear promising: (1) making a charitable contribution of the computer, or (2) making a sale on an installment basis. The attractiveness of making a charitable contribution is reduced by the rule that the amount of a charitable deduction must be reduced by an amount equal to any recapture potential inherent in the property at the time of the contribution. This means that the deduction cannot exceed the donor's adjusted basis, if the property was depreciated. (IRC Section 170(e)).

A sale on an installment basis would produce a bad tax result. If the computer is Section 179 property, that is if you deducted its entire cost in the year you purchased it, the Code dictates that ALL scheduled payments are deemed to be received in the year of the disposition, up to the amount of the Section 179 deduction. If the Apple had depreciation recapture potential at the time of the installment sale, the amount of recapture is treated as being received first. (Income Tax Regulations, Section 1.1245-6(d)).

NOTE: The tax law is constantly changing. If you are considering purchasing a computer today, you should be aware that for 1983 (but not for prior years) the rule is that the basis in the Apple must be reduced by 50% of the ITC. (IRC Section 48(q)). This downward basis adjustment is treated as a deduction allowed for depreciation, for purposes of computing depreciation recapture. However, taxpayers can avoid the basis adjustment by electing (on their tax return) to take a reduced ITC of 8% rather than the full 10%. Of course, if the Apple-owner elects to expense the cost of the computer under Section 179, the rules governing ITC are inapplicable.

PEACE AND QUIET : A Mod For the Non-Engineer

by Samuel Swersky

According to your source, the best things in life are: a) free, b) fattening, c) sinful or d) probably carcinogenic. Of course, when it comes to you and your Apple, the best things in life probably are noisy. Most of us are so used to the sounds of our computers that we don't realize what a racket they can produce (at say, 2 a.m. during a successful game of "MICRO-WAVE"). Unfortunately, our spouses, children and next door neighbors are rarely so oblivious! For a variety of reasons, domestic tranquility being one of them, it would be nice if we could still our beloved computers.

The solution offered here is admittedly crude, but it does the job. To make this simple modification you will need two fingers, a flashlight (optional), and a piece of Scotch tape (also optional). With the power off, carefully remove the top of your Apple and peer into the innards. If you look on the main board just below the "1" and "2" keys, you'll see the pesky little speaker! Aha! Now, notice that two black wires run from the speaker to the other side of the motherboard ending in a white plastic plug that's located just to the side of the air vents on the bottom of the Apple. See it? It's virtually below the RETURN key and is plugged into the motherboard. Aha!! Aha!! Notice also that the letters "S-P-E-A-K-E-R" have been silkscreened at the point where the white plug is attached.... Eureka!! Finally, gently pull the white plug, making sure not to bend the fragile prongs that the plug is inserted into. If you like, you can tape the plug to keep it out of the way. The right side of the Apple is a natural place to tape it.

You're done with the modification. Now, turn the power on. Whoa... what happened to the little (or BIG, according to your family) BEEP that accompanied the Apple II message? Gone! Try hitting the RESET key. Well, you get the same results, but silently. Similarly, Applesoft errors are no longer humiliatingly announced. My goodness, you probably never noticed all the sounds of your Apple!

Obviously, total silence is not for everybody. You may have only wanted to quiet the Apple temporarily or perhaps you really miss the BEEPS, the arcade tunes, or the family strife. Needless to say, you can always plug the speaker back in. Hope this has been of some help to you! Excuse me, I have to get back to the computer now: hmm... shall I play "Sammy Lightfoot" or shall I program in "Applesoft"....?

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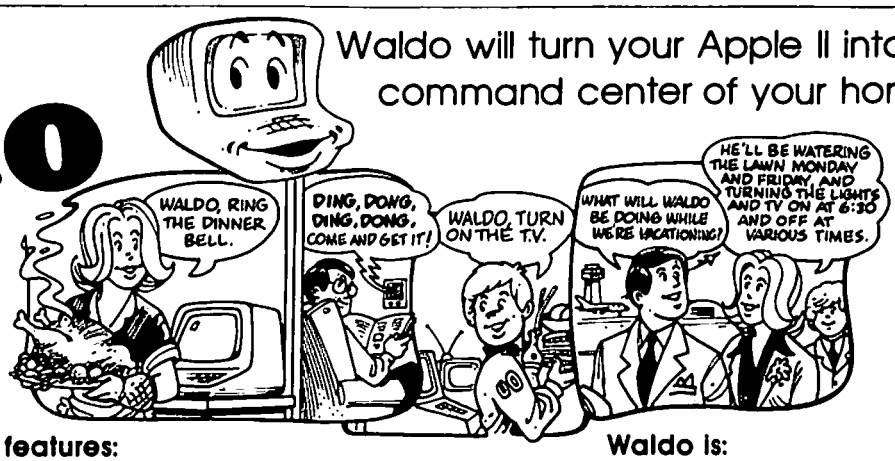

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BUGS AND OTHER PARASITES

The following lines were omitted from the listing of "TIP (.) - The Invoice Printer" by James T. DeMay Jr., in the July 1983 WAP Journal.

```
30000  TEXT
30005  ER =  PEEK (222): POKE 216,0
30010  XE =  PEEK (218) +  PEEK (219) * 256
30015  IF ER = 255 THEN 10
30020  IF ER = 5 THEN 11020
30030  TEXT
30050  PRINT "ERROR #";ER;" IN LINE #";XE;".": PRINT
       "TYPE <GOTO 10> TO RECOVER, HOPEFULLY!"
30060  ER = 0:XE = 0
49999  END
```

APPLE TECH NOTES
by Ed Schenker

This month I am devoting the Tech Notes to two business packages, Business Basics and Business Graphics III.

BUSINESS BASICS

Error codes - Here are some error codes that are not in the manual:

37 device disconnected
38 resource unavailable
39 directory full
40 duplicate volume

These messages will print on the screen if the program doesn't have ONERR enabled. #39 will only show up in the root directory under SOS 1.1.

Renumber: unreferenced lines - The RENUMBER program on the Business Basics diskette won't be able to properly renumber the following sample program:

```
10 GOTO 20
```

It's obvious in this example that the GOTO 20 in line 10 references a line that doesn't exist but in a large program it won't always be obvious. One way to check for this situation is to use the XREF function in the RENUMBER program to determine that there are no "phantom" line numbers before attempting to renumber.

Swap - The SWAP command will exchange the values of two variables of the same type. There are several reserved variables like HPOS and VPOS that SWAP will not work with.

```
10 SWAP A$,B$      - will work
20 SWAP A$,HPOS    - won't work
30 Temp$ = A$: A$ = HPOS: = Temp$ - will work
```

Print Using - The string specifications in PRINT USING will only take as many characters of a long string as are required to fill it's field length. The rest of the string is ignored.

```
A$ = "abcdefghijklmnopqrstuvwxyz"
PRINT USING "3X,10A,3X";A$

abcdefghij
```

A$ appears to be truncated to 10 characters. Use the MID$ function to split up a string into multiple lines.

Variable Error - The most common cause for a variable error is to use SWAP with at least one of the arguments set to a null string. This creates an error in the string variable storage area. However, Business Basic won't notice this error until it runs short on storage space and tries to consolidate all the free space. The variable error will occur when the consolidation routine finds the swapped null string.

BUSINESS GRAPHICS III

Interfacing Printers to Business Graphics - Drivers designed to print graphics on various printers and plotters are available from:

Business and Professional Software
143 Binney Street
Cambridge, MA 02142
617-491-3377

Interchange - The Interchange command will add a ".TEXT" suffix to your file name. You must add a period at the end of the file name to disable this feature.

Enter	What Interchange tries to find
FILE	FILE.TEXT
FILE.	FILE

HP Plotters - The Business Graphics package is provided with a set of drivers for different Graphics Plotters, and one of them is the HP 7225A plotter. HP has now changed their product line and the 7225A Plotter has been replaced by the HP 7470A plotter. To connect this graphic plotter to the Apple /// Business Graphics package, do the following:

1) Use the Apple Modem Eliminator Cable (A3M0019) and the cable supplied with the plotter (AMP 07470-60090).

2) Set the .PRinter Driver to 1200 BAUD and one (1) STOP-BIT.

3) Set the switches on the plotter as follows: S2-0, S1-1,Y-0,US-0,B4-0,B3-1,B2-1,B1-1

4) Enter the command SET DEVice HP 7225A to initialize the plotter from Business Graphics.

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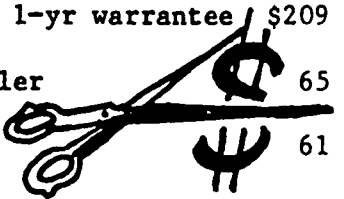

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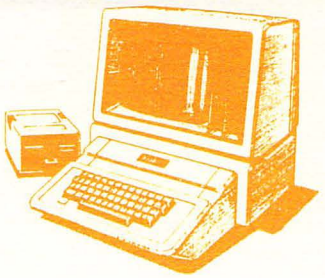

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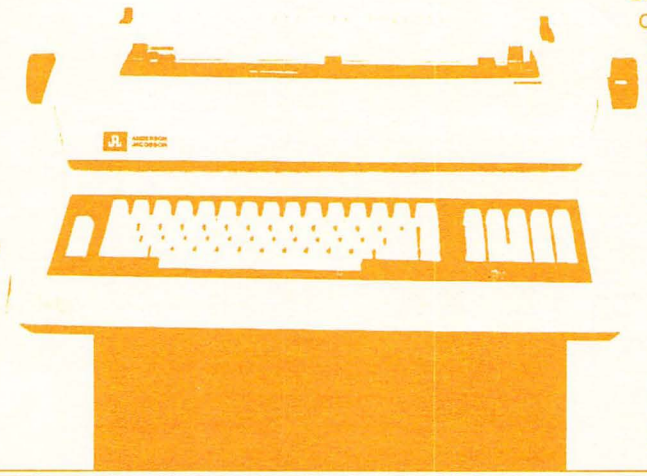
- Printwheel, ribbon cartridge, and cable included
- 30-day parts/labor warranty



And you can choose from a list of options including forms tractor, pin-feed platen, paper trays, side shelves, extra printwheels, APL keyboard and 2K buffer.

Call your nearest AJ regional office for details: San Jose, CA (408) 946-2900; Rosemont, IL (312) 671-7155; Hackensack, NJ (201) 488-2525. Or check the phone book for the number of your local AJ sales/service office.

*Price excludes options and is subject to change without notice. Model shown includes certain options. Offer available only in the contiguous U.S.

ANDERSON JACOBSON

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