ON THREE®

The Magazine For Apple /// Owners and Users

Volume 6, No. 11/12 **November/December 1989**

Lunar Lander - The Game

More Helpful Hints For Your ///

Apple's Andy Hertzfeld on the Apple ///

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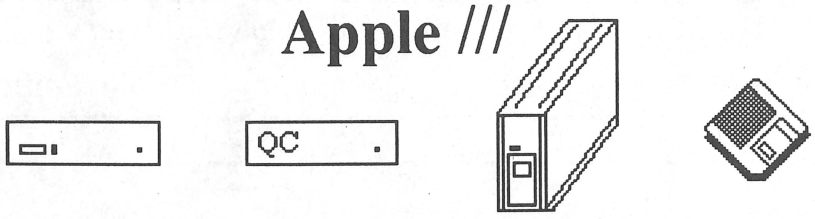
Selector /// - The Best Program Switcher For The Apple ///



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The programs listed above with an asterisk after them are copy protected and require the 'key disk' to be inserted into the built-in drive when you select it from the Selector menu. After the program comes up you can remove that disk. Uncopyproteced versions of PFS: File and PFS: Report are available that work under Selector without the need for a key disk. Likewise an unproteced version of Word Juggler is available for only $15 plus $2 for shipping and handling.

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Apple Sauce

by Bob Consorti

Closing Out Another Year

As we close out another year I have to look back at the maturing Apple /// market. It's been quite exciting over the last few years and will continue to be as we discover new ways to use our beloved Apple ///'s.

As "orphan" computers go, the Apple /// has and continues to have a good support network through companies like Sun and ourselves. It also has a great group of people behind it, folks like Lavona and Richard Rann who put out the TAU newslette/magazine, David Ottalini - author of Three Works, all of the user groups around the country and the countless others who continue to help and promote the Apple ///. I wish I had the space here to name each and every one of you as each has made outstanding contributions to the Apple ///.

It's interesting to note that Apple seems to be using the same type of marketing for the Apple II product line that plagued the Apple ///. Simply put, worse then none! This so-called marketing strategy is limited to (if any) advertising for the Apple II, and then only describing the Apple II product line as a K-9 type machine, while the Macintosh gets all of the play as the computer to use for business and home. In a couple more years we may welcome into our group the Apple II computer, another victim of Apple!

This Time Around...

This issue we're presenting an Apple /// game, Lunar Lander - a graphical lunar expedition. Note that since the program is so long we're offering it on disk for those of you who don't want to spend the time typing it in.

Also in this issue are a couple of helpful hints by regular hinter John Lomartire and a quick interview with Andy Hertzfeld by David Ottalini.

I almost forgot to mention that we're having a special sale on CPS 800K drives with interface cards for the Apple ///. For only $299 plus $10 shipping and handling you can get an inexpensive 800K drive for backups or main storage. Hurry though, supplies are limited and when we run out we'll have to go back up to the regular price.

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Order your memory upgrade today. Remember, the memory chip market is particularly volatile so we may not be able to hold the prices down this low for much longer. Order yours today!

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Call for info. on our spare 128K memory boards and memory board insurance.

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If you need more memory but don't want to change your Apple /// all the way to 512K, the 256K upgrade kit is for you. With 256K installed you'll be able to use programs like Selector, Draw ON, Desktop Manager and more! Includes installation instructions, 256K users guide, Apple /// Confidence Program and chip extractor, free technical support, 90 day warranty and fully populated 256K memory board. All this for only **$169+$10** Order yours today!

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Lunar Lander Game

by Lloyd Cason, Jr.

For those of you who don't want to type in the long program listing at the end of this article, the Lunar Lander game is available on disk for only $9.95 plus $2 for shipping and handling.

In this challenging game of skill, you are the pilot of a lunar excursion module (LEM). Your challenge is to navigate the LEM to a landing pad located on the rocky terrain of the moon and to land as gently and accurately as possible. The tools you are provided are left, right, and vertical thrusters. Thrusters are activated by pressing the corresponding arrow key, and turned off by pressing the same key a second time.

The gentleness of the landing is measured by the summation of vertical and horizontal velocities at touchdown. A total value of four or greater destines you to a stay on the moon. As you navigate, watch your fuel supply! If you have fuel left after a successful landing, the onboard computer will attempt to return you to earth.

Type in the BASIC program from the listing and save to disk before running. BGRAF.INV and REQUEST.INV files from the BASIC system disk must be on the PREFIX$ directory for the program to execute. Also, .GRAFIX and .AUDIO must be in the driver file, SOS.DRIVER, on the disk that was used to boot. You can use a word processor or the BASIC system for entry.

The program listing included with the article has been edited for presentation, and a listing to the screen will not look the same. The only potential typing problem area is the large number of spaces in the print statements beginning in line 1300. The total number of characters between the quote marks is 38 for all of these lines.

Program Operation

The program operates in graphics mode zero, 280 by 192 black and white. Lines 100 to 130 establish this graphics mode and open the .GRAFIX and .AUDIO drivers as files #1 and #2, respectively, for later PRINT statements. Lines 140 to 180 build the graphic image and sound variables; then lines 190 to 390 print an instruction screen.

Line 400 keeps calling itself and creating random numbers until a key is pressed by use of the ON KBD instruction in line 390. Since Business BASIC does not have a RANDOMIZE statement, this type of technique is required so that the program will not be exactly the same each time it starts from a system boot. The random number generator creates the same sequence of numbers each time it is initialized. Waiting for a keypress will require a different amount of time each run and, therefore, result in a different starting point in the list of random numbers. In order to see how this works, boot BASIC and type in the following little program:

```
10    OPEN#1,".PRINTER"
20    FOR i=1 TO 10
30      PRINT#1;RND(1)
40      NEXT
50    END
```

Run the program and save the output. Reboot, run the program again, and compare the two lists of numbers.

The next part of the program, between lines 420 and 720, draws the graphics screen to start the mission. Some stars are sprinkled around by placing dots at random locations. The earth is placed on the upper right part of the screen by use of the drawimage command. A location for the landing pad is chosen and a rocky topography is drawn around the location in lines 510 to 630. The landing pad is drawn, the information line printed, and a starting ship location and velocity is chosen. Fuel supply and thrusts are initialized before beginning the flight loop.

The topography routine deserves a little more explanation. Starting at the left edge of the screen, a height between 10 and 80 pixels is selected. The horizontal distance is incremented from 0 to 37 pixels, and another height is selected. The loop from 590 to 620 paints the area under a line between the two locations. For each pixel in the horizontal direction between the two locations, a line is drawn from the height of the line connect-

ing the two locations to a zero height. If a paint command where available, or if someone would develop one, this programming job would be easier, and the program would operate faster since the command would be in assembly.

In the topography routine, a flat area 39 pixels on either side of the landing location is created to allow room to maneuver the craft. This range could be reduced to increase game difficulty. A minimum of 10 pixels on either side of the landing pad is suggested since the lander is eight wide. Increasing the value of factor would make velocity and location changes larger so the program would seem to operate faster and increase the difficulty. An input routine after the instructions could request a difficulty level and set variables accordingly. Try your hand at this programming change.

The flight loop is located in lines 730 to 1060. All input instructions are handled through an external routine activated by the ON KBD statement in line 425 which will be discussed later. Fuel consumption is calculated if the thrusters are engaged, and when it drops below 100, a warning is sounded. When fuel is exhausted, the KBD routine is deactivated and the engines disengaged. New velocities and ship coordinates are calculated.

If a thruster is engaged, an exhaust image is drawn. For a new position that will be off screen, the program branchs to a message routine. The ship is moved to the new position, and exhaust images are erased. If the ship is flying, land%=0, a check is made to determine if touchdown has occured. Fuel supply and velocity information are updated on the screen, and the flight loop starts again.

Moving the ship and drawing the exhausts uses a special graphics transfer feature in order to preserve the backdrop. The PERFORM xfroption(%2) statement causes the graphics modules to make transfers by XOR instead of replace. What this means is when a dot is to be drawn on top of an existing dot, the pixel is turned off instead, and if the dot will be at an off location, that pixel is turned on. Drawing the ship and exhausts at the same location a second time will erase the image and restore the background that existed without having to first save and then replace an area of screen.

Two routines print result messages. When the ship drifts off screen, the routine at lines 1070 to 1150 will print a message to the text screen. The message depends on remaining fuel and whether returning to earth. The IF NOT land% statements are the same as having writen IF land%=0. The second routine is at lines 1160 to 1760 and is entered when touchdown occurs. The total velocity is calculated as the sum of the absolute horizontal and vertical velocities. For a value of four or greater, you have crashed and a disentegrating image is drawn. The size of the image is relative to the velocity.

When a safe landing has been achieved, an appropriate message recognizing the gentleness of your touchdown is printed. Distance to the landing pad is calculated, and another appropriate message is printed. If you have any fuel remaining, a return to earth is attempted. Input is suspended, horizontal thrusters are disengaged, the vertical thruster is engaged, and the program loops back to the start of the flight routine.

The section from line 1800 to 1930 is the KBD routine that accepts all input during flight. If a correct arrow key is pressed, the approriate thruster is turned on or off. Logical statements are used within a calculation to control the thrusters instead of using compound IF statements. When used this way, the same type of results occur with less code.

Let's look at the left arrow key routine in line 1810 as an example. The portion after the IF reads: thrustside = (thrustside<>1). The portion in parenthises is the logical statement. If thrustside is not one, then this result is one, just as in an IF statement, and the thruster is turned on. If thrustside is one, then the result is zero, and the truster is turned off. Since thrustside can have a value of -1, 0, or 1, an IF statement to accomplish the same results would have to look like the following:

```
IF thrustside<1 THEN
thrustside=1:ELSE thrustside=0
```

The last code section of the program is the subroutine from line 2000 to line 2040 that checks for touchdown. External function xycolor returns the color code of the current pen location that was set to a leg of the LEM before calling the routine. Since we are in black and white mode, the value will be 0 or 15.

Three offsetting pixels are also interrogated, and the colors accumulated. Upon return, color% will have a value of 0, 15, 30, 45, or 60 depending on the number of offsetting pixels turned on. A value greater than 15 means that two or more pixels are on, and a touchdown is assumed.

Happy navigating and I hope this discussion has helped you learn some Apple /// Business BASIC programming techniques.

Lunar Lander Program Listing

```
100   PRINT CHR$(16);CHR$(0);CHR$(28);CHR$(6);
109   REM *** 40x24 B&W Text, Home, Cursor Off
110   INVOKE"BGRAF.INV","REQUEST.INV"
120   PERFORM grafixmode(%0,%1):REM 280x192 B&W Graphics
130   PERFORM initgrafix:PERFORM fillport:OPEN#1,".GRAFIX":OPEN#2,".AUDIO"
140   DIM lem%(8),earth%(95),pad%(2)
150   sound$=CHR$(128)+CHR$(63)+CHR$(255)+CHR$(63)+CHR$(3)+CHR$(0)
159   REM *** Build the images
160   FOR i%=0 TO 2:pad%(i%)=0:NEXT
170   FOR i%=0 TO 8:READ a$:lem%(i%)=TEN(a$):NEXT
180   FOR i%=0 TO 95:READ a$:earth%(i%)=TEN(a$):NEXT
190   VPOS=2:HPOS=7:PRINT"* * *  OUT ON A LEM  * * *"
200   VPOS=5:HPOS=1
210   PRINT"A challenging game of skill ..."
220   PRINT
230   PRINT"Use the special <--, -->, and the ||"
240   PRINT"keys to run your left, right,     \/"
250   PRINT"and vertical thrusters.  You are to"
260   PRINT"land the lunar excursion module (LEM)"
270   PRINT"as gently and accurately as possible."
280   PRINT
290   PRINT"Turn a given thruster off by pressing"
300   PRINT"the same key a second time."
310   PRINT
320   PRINT"Watch your fuel supply!"
330   PRINT
340   PRINT"If you have fuel left, the onboard"
350   PRINT"computer will -attempt- to return"
360   PRINT"you to earth ..."
370   PRINT:PRINT"ESCAPE key will end the game."
380   VPOS=24:HPOS=9:PRINT"Press any key to begin";
389   REM *** Randomize routine
390   ON KBD GOTO 410
400   x=RND(1):GOTO 400
410   OFF KBD:HOME
419   REM *** Clear keyboard
420   x2=0:land%=0:PERFORM control(%5,@a$)".CONSOLE"
425   ON KBD GOTO 1800
430   PERFORM xfroption(%0):PERFORM fillport:PERFORM grafixon
439   REM *** Sprinkle a few stars around
440   FOR i%=1 TO 250
450     x%=280*RND(1):y%=192*RND(1)
460     PERFORM dotat(%x%,%y%)
470     NEXT
479   REM *** Draw the earth
480   PERFORM moveto(%225,%160):PERFORM drawimage(@earth%(0),
      %6,%0,%0,%44,%32)
489   REM *** Choose site for landing pad
490   xland%=120+40*RND(1)
500   yland%=22-10*RND(1)
509   REM *** Create topographical features of moon
510   x1=x2:x2=x1+37*RND(1)
520   IF x2>279 THEN x2=279:IF x1>278 THEN x2=278
530   y1=y2:y2=10+70*RND(1)
540   IF y1=0 THEN 530
550   IF x2<xland%-39 THEN 580
560   IF x2>xland%+39 THEN 580
570   y2=yland%
580   slope=(y2-y1)/(x2-x1)
590   FOR i=x1 TO x2
600     y=y1+INT(slope*(i-x1))
610     PERFORM moveto(%i,%y):PERFORM lineto(%i,%0)
620     NEXT
630   IF x2<279 THEN 510
634   REM *** Draw the landing pad
635   PERFORM moveto(%xland%-3,%yland%-1):PERFORM drawimage(@pad%(0),
      %1,%0,%0,%8,%3)
639   REM *** Print fuel and velocity line
640   PERFORM moveto(%8,%7):PRINT#1;" FUEL      HORZ.SPEED";
      "    VER.SPEED    ";
645   PERFORM xfroption(%2)
649   REM *** Slightly random starting location for ship
650   shipx=45*RND(1)
660   shipy=191-20*RND(1)
669   REM *** Slightly random starting velocity for ship
670   velx=7+RND(1)*3
680   vely=1+RND(1)
689   REM *** Starting conditions
690   PERFORM moveto(%shipx,%shipy):PERFORM drawimage(@lem%(0),
      %2,%0,%0,%9,%9)
700   factor=0.1
710   fuel=1250
720   thrustup=-3:thrustside=0
729   REM *** Main flight loop starts here
730   IF thrustup>0 THEN fuel=fuel-9.7
740   IF thrustside<>0 THEN fuel=fuel-5.3
750   IF fuel<0 THEN fuel=0
760   IF fuel>99 THEN 820
770   IF fuel>0 THEN PRINT#2;sound$;:GOTO 820
779   REM *** No more fuel left, disengage engines
780   PRINT#2;sound$;
790   OFF KBD
800   thrustup=-3:thrustside=0
810   IF land% THEN land%=0
819   REM *** Compute new velocities and position
820   velx=velx+factor*thrustside*3
830   vely=vely+factor*thrustup
840   oldx=shipx:oldy=shipy
850   shipx=shipx+factor*velx*3:shipy=shipy+factor*vely
859   REM *** Use XOR to draw images to preserve background
860   PERFORM xfroption(%2)
869   REM *** Put exhaust images in view if necessary
870   IF thrustside<0 THEN PERFORM moveto(%shipx+7,%shipy-3):PERFORM
      linerel(%2,%0):flagl%=1
880   IF thrustside>0 THEN PERFORM moveto(%shipx-2,%shipy-3):PERFORM
      linerel(%2,%0):flagr%=1
890   IF thrustup>0 THEN PERFORM moveto(%shipx+4,%shipy-7):PERFORM
      linerel(%0,%-3):flagu%=1
899   REM *** Has ship drifted off screen?
900   IF shipy>191 THEN 1070
910   IF shipx<2 THEN 1070
920   IF shipx>268 THEN 1070
929   REM *** Erase old ship image
930   PERFORM moveto(%oldx,%oldy):PERFORM drawimage(@lem%(0),
      %2,%0,%0,%9,%9)
939   REM *** Draw new ship image onto the background
940   PERFORM moveto(%shipx,%shipy):PERFORM drawimage(@lem%(0),
      %2,%0,%0,%9,%9)
949   REM *** Erase the exhaust images if necessary
950   IF flagl% THEN PERFORM moveto(%shipx+7,%shipy-3):PERFORM
      linerel(%2,%0):flagl%=0
960   IF flagr% THEN PERFORM moveto(%shipx-2,%shipy-3):PERFORM
      linerel(%2,%0):flagr%=0
970   IF flagu% THEN PERFORM moveto(%shipx+4,%shipy-7):PERFORM
      linerel(%0,%-3):flagu%=0
974   REM *** Switch back to replace mode
975   PERFORM xfroption(%0)
979   REM *** Skip landing check for awhile if returning to earth
980   IF land% THEN 1030
989   REM *** Are landing pads touching the moon (and not the earth)?
990   PERFORM moveto(%shipx,%shipy-8):GOSUB 2000
1000  IF color%>15 AND shipy<85 THEN 1160
1010  PERFORM moveto(%shipx+7,%shipy-8):GOSUB 2000
1020  IF color%>15 AND shipy<85 THEN 1160
1029  REM *** Update the fuel supply and velocities
1030  PERFORM moveto(%49,%7):PRINT#1 USING"####";fuel;
1040  PERFORM moveto(%161,%7):PRINT#1 USING"##";ABS(velx);
1050  PERFORM moveto(%252,%7):PRINT#1 USING"##";ABS(vely);
1059  REM *** Keep on flying
1060  GOTO 730
1069  REM *** You just drifted off screen
1070  OFF KBD
1080  PRINT CHR$(15);CHR$(12);:VPOS=12:HPOS=4
1090  IF fuel>0 THEN 1130
1100  IF land% THEN PRINT"MISSION ABORTED, RETURN TO EARTH"
1110  IF NOT land% THEN PRINT"        WELCOME HOME HERO       "
1120  GET a$:GOTO 420
1130  IF NOT land% THEN PRINT"MISSION ABORTED, RETURN TO EARTH"
1140  IF land% THEN PRINT"        WELCOME HOME HERO       "
1150  GET a$:GOTO 420
1159  REM *** You landed!  But how did you fare?
1160  vel=ABS(velx)+ABS(vely)
1170  PERFORM moveto(%0,%191)
1180  IF vel<4 THEN 1350
1189  REM *** Disintegrating ship, parts streaking out from crater
1190  FOR i=1 TO vel*0.7
1200    PERFORM moveto(%shipx+4,%shipy-8)
1210    delx=9*vel*(RND(1)-0.5)
1220    dely=7*vel*RND(1)
1230    PERFORM linerel(%delx,%dely)
1240    NEXT
1250  PERFORM moveto(%0,%191)
1259  REM *** Fast enough to dig new crater?
1260  IF vel<8 THEN 1300
1270  PRINT#1;"New crater is ";:PRINT#1 USING"####";vel*vel/7;:PRINT#1;
      " meters wide ..."
1280  FOR i=0 TO 520*5:NEXT
```

```
1290  GOTO 420
1299  REM *** Landing was too rough, sorry
1300  PRINT#1;"Damaged beyond repair ...              ";
1310  PERFORM moveto(%0,%183)
1319  REM *** All print strings are 38 characters
1320  PRINT#1;"Enjoy your stay!                       ";
1330  FOR i=0 TO 520*5:NEXT
1340  GOTO 420
1349  REM *** Landed OK, just how well did you do?
1350  IF vel<3 THEN 1380
1360  PRINT#1;"Fairly soft landing                    ";
1370  GOTO 1510
1380  IF vel<2 THEN 1410
1390  PRINT#1;"Nice job!                              ";
1400  GOTO 1510
1410  IF vel<1 THEN 1440
1420  PRINT#1;"Excellent soft landing!                ";
1430  GOTO 1510
1440  IF(shipx-xland%+4)<3 THEN 1470
1450  PRINT#1;"Superior landing job!                  ";
1460  GOTO 1510
1470  PRINT#1;"The President calls with his           ";
1480  PERFORM moveto(%0,%183)
1490  PRINT#1;"congradulations on a superb landing! ";
1500  GOTO 1630
1509  REM *** OK, so how close to the landing pad are you?
1510  dis=ABS(shipx-xland%+4)+ABS(shipy-yland%-8)
1520  PERFORM moveto(%0,%183)
1530  IF dis<50 THEN 1560
1540  PRINT#1;"But you're way out in the bonnies!     ";
1550  GOTO 1630
1560  IF dis<10 THEN 1590
1570  PRINT#1;"But you missed the landing site!       ";
1580  GOTO 1630
1590  IF dis<3 THEN 1620
1600  PRINT#1;"But you missed the spot by ";:PRINT#1 USING"##";
      dis;:PRINT#1;" meters.";
1610  GOTO 1630
1620  PRINT#1;"And you landed right on target!        ";
1630  FOR i%=0 TO 520*5:NEXT
1639  REM *** Shall we try a return to earth?
1640  IF fuel=0 THEN 1760
1650  OFF KBD
1660  PERFORM moveto(%0,%191)
1670  PRINT#1;"Earth calling - return home            ";
1680  PERFORM moveto(%0,%183)
1690  PRINT#1; SPC(38);
1700  velx=0:vely=1:land%=1:thrustup=7:thrustside=0
1710  FOR i%=0 TO 520*5:NEXT
1720  PERFORM moveto(%0,%191)
1730  PRINT#1;"LEM computer engaged - returning home";
1739  REM *** Clear typeahead buffer
1740  PERFORM control(%5,@a$)".CONSOLE"
1750  GOTO 730
1760  PERFORM moveto(%0,%191)
1770  PRINT#1;"No fuel remaining. Enjoy your stay!  ";
1780  FOR i%=0 TO 520*5:NEXT
1790  GOTO 420
1799  REM *** KBD routine
1800  IF KBD=27 THEN 1900
1810  IF KBD=8 THEN thrustside=(thrustside<>1)
1820  IF KBD=21 THEN thrustside=-(thrustside<>-1)
1830  IF KBD=10 THEN thrustup=7*(thrustup=-3)-3*(thrustup=7)
1840  ON KBD GOTO 1800
1850  RETURN
1900  TEXT:HOME
1910  FOR i%=0 TO 3:PERFORM release:NEXT
1920  INVOKE
1930  RUN"HELLO"
1999  REM *** Read screen to see if about to touch moon
2000  color%= EXFN%.xycolor:PERFORM moverel(%0,%-1)
2010  color%=color%+ EXFN%.xycolor:PERFORM moverel(%1,%0)
2020  color%=color%+ EXFN%.xycolor:PERFORM moverel(%0,%1)
2030  color%=color%+ EXFN%.xycolor
2040  RETURN
2100  DATA "0000","1C00","3E00","3E00","3E00","1C00","2200","4100"
2105  DATA "0000","0000","1FE0","0000","0007","E7DE","0000","003F"
2110  DATA "E783","0000","00FF","F313","0000","01FF","E110","0800"
2115  DATA "0304","1051","FC00","0753","C037","FE00","0FB7","C007"
2120  DATA "FF00","1FFF","003F","FF80","3FFF","003F","BC40","7FFF"
2125  DATA "003C","C3E0","7FFE","0018","67E0","FFFE","0003","01F0"
2130  DATA "BF8C","000F","C7F0","9F04","003F","FFF0","8F00","007F"
2135  DATA "FDF0","83E6","807F","FED0","80E0","007F","FF10","8067"
2140  DATA "007F","FF90","803F","F03B","FF90","401F","F803","FF20"
2145  DATA "401F","F807","FC20","201F","F803","FC40","100F","F801"
2150  DATA "F880","080F","F001","F900","0407","E001","F200","0207"
2155  DATA "E001","F400","0103","C001","F800","00C3","C001","F000"
2160  DATA "003B","C001","C000","0007","C01E","0000","0000","7FE0"
2165  DATA "0000"
```

Variable Description and Cross Reference Table

```
A$ - Input Character
      170   180   420  1120  1150  1750
COLOR% - Summed Value of 4 Pixels
     1000  1020  2000  2010  2020  2030
DELX - Incremental Distance in X Direction for Crater
     1210  1230
DELY - Incremental Distance in Y Direction for Crater
     1220  1230
DIS - Landed Distance from Pad
     1510  1530  1560  1590  1600
EARTH%( ) - Array for Drawing Earth
      140   180   480
FACTOR - Multiplier for Velocities and Positions
      700   820   830   850
FLAGL% - Boolean Flag for Left Thruster; 1/On, 0/Off
      870   950   950
FLAGR% - Boolean Flag for Right Thruster; 1/On, 0/Off
      880   960   960
FLAGU% - Boolean Flag for Vertical Thruster; 1/On, 0/Off
      890   970   970
FUEL - Fuel on Board Ship
      710   730   740   750   760   770  1030  1090  1640
I - Loop Counter
      590   600   610  1190  1280  1330
I% - Loop Counter
      160   170   180   440  1630  1720  1910
LAND% - Boolean Flag for Flying Status; 1/Returning, 0/Flying
      420   810   980  1100  1110  1130  1140  1710
LEM%( ) - Array for Drawing Ship
      140   170   690   930   940
OLDX - X Location of Ship Before Move
      840   930
OLDY - Y Location of Ship Before Move
      840   930
PAD%( ) - Array for Drawing Landing Pad
      140   160   635
SHIPX - Location of Ship in X Direction
      650   690   840   850   870   880   890   910   920   940
      950   960   970   990  1010  1200  1440  1510
SHIPY - Location of Ship in Y Direction
      660   690   840   850   870   880   890   900   940
      950   960   970   990  1000  1010  1020  1200  1510
SLOPE - Slope of Line for Drawing Terrain
      580   600
SOUND$ - String Variable Holding Characters to Generate Sound
      150   770   780
THRUSTSIDE - Thrust in X Direction
      720   740   800   820   870   880  1710  1810  1820
THRUSTUP - Thrust in Y Direction
      720   730   800   830   890  1710  1830
VEL - Total Velocity of Ship
     1160  1180  1190  1210  1220  1260  1270  1350  1380  1410
VELX - Ship Velocity in X Direction
      670   820   850  1040  1160  1710
VELY - Ship Velocity in X Direction
      680   830   850  1050  1160  1710
X - Random Number For RANDOMIZE
      400
X% - X Position of Star
      450   460
X1 - X Coordinate to Draw Landscape
      510   520   580   590   600
X2 - X Coordinate to Draw Landscape
      420   510   520   550   560   580   590   630
XLAND% - X Coordinate of Landing Pad
      490   550   560   635  1440  1510
Y  - Y Coordinate to Draw Landscape
      600   610
Y% - Y Position of Star
      450   460
Y1 - Y Coordinate to Draw Landscape
      530   540   580   600
Y2 - Y Coordinate to Draw Landscape
      530   570   580
YLAND% - Y Coordinate of Landing Pad
      500   570   635  1510
```

Helpful Hints

A Practical Guide To Keeping Your Apple /// Running Smoothly

If you have a helpful hint, please share it with other Apple /// owners by sending it to our editorial office listed below:

ON THREE, Inc.
Attn: Helpful Hints
123 Groveland Avenue
Riverside, IL 60546

SpreadSheet Repairing

by John Lomartire

I had a large Advanced Visicalc file that refused to load from a disk. Gave I/O Error time and again. Unfortunately, Adv. VC does not give you much more information so I was stumped on how to salvage this file since it represented a lot of work.

Then I remembered that Visicalc files are TEXT files, so I loaded the problem file into Applewriter. I found that repeated loadings produced different failure points, and by saving the listing with the most recovered data, and cleaning up any obvious problems (like an indicated cell with no information) I was able to load this corrected file into VC and cut down on the amount of cell-refilling that had to be done to get the spreadsheet up and running.

Bolting Down the Internal Disk Drive

by John Lomartire

If you have ever had to remove the internal disk drive on an Apple ///, you know that it is fastened to the case by a "metal lip piece" in the back and two Phillips head bolts in the front. Loosening up the back "metal lip" usually presents no problem, and removing the front two bolts is not exactly a problem, but requires that you use a Phillips head screwdriver with a long enough shaft to reach down about two inches to get to the bolts. When I have removed an internal drive, these two bolts, each accompanied by a small washer, generally fall out of the drive, and if I am lucky, into my hand.

When you are ready to re-install the drive, the back "metal-lip" can be positioned with relative ease, and if it is done correctly, you can look down the front end of the drive and see where the front "bolt slots" are aligned with the bolt holes.

Now comes the tricky part!

You cannot get fingers down inside the drive to start the bolt in the bolt hole. Also, the bolt-washer combination has a tendency to lose its washer and you don't want it or the bolt to drop onto the mother-board underneath because then you have a bigger retrieval job. Just dropping the bolt-washer assembly down onto the disk drive interior and then trying to align it with the bolt hole with a screwdriver, or other tool can be a frustrating and time consuming technique. I have successfully used a magnetic screwdriver to insert these bolts, but I am leery of getting magnetic fields near chips.

What I would recommend is this:

Take a 1 to 1 1/2 inch strip of Scotch tape and gently poke the bolt-washer combination through the middle of the tape so that the bolt and washer are on the sticky side of the tape. Insert a Phillips screwdriver in the bold head slots and fold the sticky ends of the tape up over the shaft of the screwdriver. Now the whole assembly can be lowered into the drive, aligned with the bolt hole, and tightened. When you snug the bolt down tight, the screwdriver shaft will tear the tape, but a bit of tape in that particular location will do no harm and the amount of frustration that you have avoided has been great. If you are concerned about the excess tape, it can be removed with a tweezer or forceps.

Remember, if you have a hint, share it with us and we'll share it with all Apple /// owners.

Desktop Plan ///

This program speeds up and automates your financial and business planning. It is a highly organized planning, budgeting, and analysis package that guides you from original layout of your financial model through computerized calculations to final printout of boardroom-quality report using your Apple ///. It can produce its own line and bar graphs. It can handle very large models, also. It guides you from start to finish with instructions that appear on the screen. The instruction manual has an illustrated tutorial section plus a reference guide. If you already own Visicalc, Desktop Plan /// is better. You can even transfer your Visicalc spreadsheets directly to Desktop Plan ///.

Desktop Plan originally sold for $300.00. You can now have the original, complete Desktop Plan /// for only $23.00 plus $2.00 to cover shipping. Supplies are limited, so send your order before we run out --- first-come-first-serve.

Mail your check for **$25.00** to
AIM Outlet, 3010 N. Sterling Ave., Peoria, IL 61604

Apple ///'s For Sale

I you've been looking for a spare or backup Apple ///, now's the time to get one. The powerful Apple /// computers with monitor & a 90 day warranty is now available from ON THREE.

Save hundreds of dollars on one of the worlds finest microcomputers. Please add $35 for shipping, handling and insurance.

The **512K** Apple /// with monitor is now **only $799** and a **256K** Apple /// with monitor is **only $399**.

Don't be caught with a dead Apple ///, get an extra one today!

Side Print ///™

For years people have been asking if there was a way to print very wide spreadsheets sideways on the Apple ///. Until now there wasn't. But with our new Side Print /// you can print your /// E-Z Pieces, VisiCalc and Advanced VisiCalc spreadsheets sideways on your Apple DMP, ImageWriter, Epson or OkiData brand printers.

Side Print /// is available today for only $29.95 plus $3 for shipping and handling.

ON THREE O'Clock

Did you know that the Apple /// has provisions for a built-in clock and calendar? The ON THREE O'Clock is easy to install and does not require a slot. Compatible with all Apple /// programs, simply save your files and the time and date will be saved along with it. You can then use the System Utilities or other file listing utility to see the date that files were created or modified.

Includes battery holder, cable, micro chip and easy to follow instructions for installation and use. Batteries not included. Now only **$39.95+$3!!!**

AUTHORS WANTED!

We are accepting article submissions for review and possible publication from readers who are willing to share their Apple /// knowledge and experiences with others. If you would like to contribute to the pages of ON THREE Magazine, here's your chance! We're looking for articles of general interest, short programs, tutorials, hints on getting things done easier & more efficiently, games and anecdotes. Anything goes!

Just send your article or program on diskette to ON THREE. If it's chosen for publication we will check it for accuracy and even correct those silly spellling errors. Before you know it, you will become a rich (at least in spirit) and famous author. Your work will be read worldwide, by a captivated & spellbound audience.

For a copy of our author guidelines, please send a self-addressed, stamped envelope to **ON THREE Magazine, 123 Groveland Avenue, Riverside, IL 60546**, or give us a call at (708) 447-3924.

Apple's Andy Hertzfeld on the Apple ///

by David Ottalini

A Quick Talk With Andy Hertzfeld

David Ottalini is the chairperson for the Apple /// SIG (Special Interest Group) of Washington Apple Pi, a national user group. Washington Apple Pi has SIG's for every Apple. For further information contact:

David Ottalini
906 Robin Road
Silver Spring, MD. 20901
(301) 681-5792

During Washinton Apple Pi's 10 Year Anniversary Celebration this past December, I had a chance to conduct a very quick interview with Andy Hertzfeld. He's a long-time Apple employee (a member of the original Mac team) who gave the Keynote Address at the Anniversary Dinner. Andy spoke very kindly about our ///, calling it an "Apple // with glands"! Below are some additional comments about SARA:

When did you first get started with the Apple ///?

A few weeks after I got started at Apple in August, 1979. I saw this prototype a technician was building on his workbench along with Wendell Sander, the designer of the machine. In those days, they would be changing the hardware every day, since the design of the machine was not frozen. And since I was interested in all these new features the hardware had, I would help test them out the day they got it going.

What about the "Running Horses" display?

I did that to test the downloadable character set feature in the Apple /// just a few days after they put it in. I was thinking "What impressive thing could I get up on the screen that would be very hard to do without that?" And I conceived that putting all these colored horses all running at once could be too much to plot on the HiRes screen. But with a downloadable character set, I could make 16 horses run as quickly as just one by downloading the characters. So I got these nice bit maps that Charley Kelner had digitized, for a program on the Apple // called Animatrix. I just converted them into a character set format and read the appropriate software to download them. What people don't know is that while "Running Horses" is the most famous, there's another, a sort of spin-off of that program: a turkey vulture! There was also an animation of that, but it's not as commonly known.

Where did the Apple /// fit in Apple's product line?

In the time frame that it was designed, the Apple /// was the high end of the Apple line. It was conceived as being the "big brother" of the Apple //, more suitable to business applications. The way things evolved, it sort of got displaced by other products. Essentially, the IBM PC beat the pants off it and so it never really caught on and eventually fell into obsolescence.

What are some of the things that were developed on the /// that found their way into other Apple machines?

The most obvious was ProDOS. The ProDOS file system lives on today as the mainstream that everyone uses on the Apple //. A lot of the other techniques developed for the Apple /// worked very well. I did the Macintosh operating system and I was very familiar with the Apple /// and especially in the I/O system of the Macintosh I was influenced by the Apple /// operating system.

David Ottalini is also the author of Three Works, a compilation of everything ever created for, written about and available for the Apple ///.

You can help support David in his continuing efforts on behalf of the Apple /// community by purchasing a copy of Three Works from ON THREE, TAU, or directly from Washington Apple Pi.

Disk Drives For All Of Your Apple /// Storage Needs

Are you tired of swapping floppies? Tired of the few minutes it takes to boot your system each morning? Sick of not being able to save your files on those tiny 140K disks? Well, have we got a deal for you! No matter what your need we have a disk drive that fits the bill.

You can get a 20 or 40 Megabyte hard disk drive or a 3.5 inch 800K drive from ON THREE. A 20 megabyte hard disk is the equivalent of over 140 floppy disks, all in one convienient and easy to use place.

With the Sider brand of hard disks or even the 800K micro-floppy disks, you can eliminate the floppy disk shuffle forever. Store all of your files on the Sider or 800K drives and get to them so much faster. The Siders are over 10 times faster than a regular floppy disk and far more reliable. Never again will you need worry about losing or damaging a diskette.

ProFile Upgrade Program

How long have you had your 5 megabyte Apple ProFile hard disk? Two years, three, four? Have you ever wondered what it would be like to use the latest technology Sider hard disks & enjoy the much greater speed & reliability? Do you ever get worried about you old ProFile breaking down?

If you have any of these questions, we have the answer - **Upgrade Today!** Our new ProFile upgrade program is designed for every Apple /// user that has a ProFile hard disk. Simply order our Sider 20 or Sider 40 hard disk drives and we will give you a $150 rebate on your old ProFile! If you have two ProFile's we'll give you up to **$300 off** the price of a Sider. Now you can get the best hard disks for as little as $599!

* After ordering a Sider, return your old ProFile with interface card, cabling and power cord within 60 days to obtain the $150 rebate for each ProFile (limit 2 rebates per Sider order). Your ProFile must be in good working order as we will not accept non or barely-working drives.

Sider 40 T Hard Disk

The latest in a line of inexpensive yet very fast hard disk drives for the ///, the Sider 40 T (Turbo) 42 megabytes* of storage for your Apple ///.

The Sider's are by far the fastest hard disk drives available for the Apple /// and are the most reliable. With an average access time of 3 times faster than a ProFile, the Sider 20 is very fast, but the Sider 40T is an incredible 7 times faster!

Attractively styled to fit next to your Apple ///, the Sider 40T is now priced at **ONLY $1299** + $35 s/h.

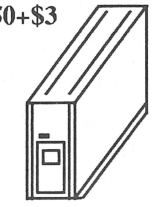
* Because the Apple /// can only handle disks of up to 16 megabytes in size, the Sider 40 T is partitioned into 3 volumes. Two are 16 megabytes in size and the third holds the remaining 10 megabytes. The Sider 40 T will not work in Titan ///+//e emulation mode, you should use the Sider 20 for that.

UniDisk ///.5 800K Drive

The UniDisk ///.5 is a regular Apple 800K 3.5 inch disk drive for your Apple ///. If you have a hard disk but hate making back-ups, the UniDisk is for you! Back up an entire ProFile with just seven micro-floppies! No hard disk? Then this is a great way to say goodbye to your floppies! With Selector or Catalyst you can store all of your programs on the UniDisk and switch between them in seconds. The new 3.5 disks are so small they can easily fit into your shirt pocket but they're a lot tougher than regular 5.25 inch floppies. Complete with 800K drive, interface card, cabling, driver disk and complete instructions. All for **ONLY $499+$10!**

We also offer just the Apple /// driver and documentation for those who want to get the UniDisk elsewhere. **$50+$3**

The Sider 20 Hard Disk Drive

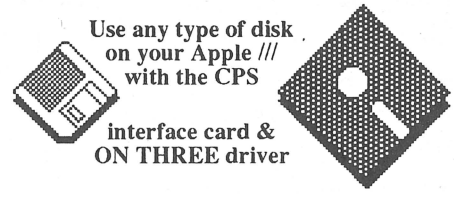


If you have a Titan ///+IIe board your choices have been very limited if you want a hard disk that worked in ///+IIe emulation mode. The Sider 20 expands your options by working in the native Apple /// mode, the Apple II & Titan ///+IIe emulation modes.

You can store your files on the hard disk in the regular Apple /// mode, then switch to the emulation mode and access those same files with all of your Apple II programs.

The Sider 20 comes complete with interface card, Apple /// driver disk, documentation and cabling. The Sider 20 even supports Apple II DOS, Pascal and Apple II CP/M partitions through it's powerful installation utility. The Sider 20 is a truly great hard disk. **Now only $799+$35**

CPS 800/400/140K Drives



While many of you select the UniDisk for your expanded storage needs, many /// owners have told us they wanted a low cost alternative to the the 800K Apple UniDisk 3.5 drive, for main storage or for backups.

With our new Universal CPS Driver, you've got it! The CPS interface card allows you to attach an Apple 3.5 drive and a 5 1/4 inch drive, or a Apple 3.5 and a CPS 800K drive, or a CPS 800K drive and a Mac 400K drive or any Apple II 51/4 inch drive.

Any combination will automatically be recognized by our new Universal CPS Driver. No need to re-configure your driver files, it's all automatic! Includes the driver disk and instructions for installing the CPS interface card and all disk drives. We even carry the CPS interface card, 800K, 400K and 140K floppy disk drives with some of the lowest prices around!

Universal CPS Driver: $50+$3
Universal CPS Driver & Universal CPS Interface Card: $149+$5

CPS 800K Drive: Now only $249
CPS 400K Drive: $149
CPS 5 1/4 inch 140K Drive: $139
Add $6 s/h per drive ordered

NEW Product:

The Sider D7T

The Sider D7T (Turbo) is the latest in the line of low cost, high performance Apple /// disk drives from ON THREE. The largest drive ever offered for Apple /// users, the D7T can holds about 62 megabytes of programs and data. Best yet it has an average access of only 28 milliseconds, making it the fastest hard disk available for the Apple ///. And to top it off, the Sider D7T is a SCSI hard disk which means you can also use it on your Macintosh or any other computer with a SCSI port.

Because of limitations within the Apple ///'s operating system, the Sider D7T is partitioned into four volumes. The first three volumes hold 16 megabytes each and the last volume holds 14 megabytes of data for a total of 126,874 blocks. The Sider D7T costs only $1599 plus $35 for shipping & handling and is available for immediate delivery.

Incredible new prices on our entire line of Sider hard disk drives

For a limited time, due to lowered costs on our Sider brand of hard disk drives, we're able to pass these savings on to you.

The Sider 20 hard disk is now **only $799**. The Sider 40T is now **only $1299**, that's down $200 from the regular list price. With our newest Sider, the D7T which is prices at **only $1599**, we now offer a complete line of hard disks for all of your needs.

From the budget conscious to the power user who demands performance and a great price, we have your hard disk needs covered.

Remember, all Sider's carry a full one year warranty on parts and labor and are the performance leaders.

Draw ON /// - The Apple /// Graphics Tool

Have you ever wanted to simply draw, sketch out floorplans or put together some artwork on your Apple ///? If so you need **Draw ON /// - The Best Graphics Program For The Apple ///**. You can draw circles, boxes, lines - enter text in a variety of sizes and styles, pickup, move and copy objects from libraries of screen images, shrink, expand, rotate, invert and texture images on the screen - **In Black/White AND Color!** You can zoom in on a particular portion of the screen to do very finely detailed work. And with our *Brush* capability, you can use any object on the screen as a drawing tool.

Features such as rubber-banding of lines, user adjustable grids and easy to follow menus make Draw ON the only graphics package for the Apple /// that is both powerful and easy to use. Draw ON gives an individual tremendous power. You can use it in creating charts, preparation of slides and tables for presentations, and letterhead design. You can make changes to the dull graphcs that your other programs create by adding borders, textures and different typefaces. Even CAD applications, drafting and flowcharting are now possible on your Apple /// with Draw ON ///. Combined with an excellent instruction manual, you can be doing useful work inless than an hour.

So you know the product. It's the most popular graphics program on the market for the Apple ///. Draw ON /// is the standard for drawing, painting and creating images on the Apple ///. Draw ON /// works with the joystick, mouse, graphics tablet ($20 extra) and the new TrackBall /// to provide page after page of great looking charts, graphs or other drawings. Why don't you have it? Don't you want a graphics program, or is pencil and pen good enough? If you've been waiting for the price to drop, wait no longer. For a limited time, order Draw ON /// for **$100 OFF** its regular price of $179. For **ONLY $79** plus $5 for shipping and handling order the best graphics program for the Apple ///.

When ordering please specify the printer & interface card you are using. We support almost every printer connected to the PKASO and PKASO/U interface cards and the Apple DMP, ImageWriter and Epson (MX, FX and RX) line of printers via any interface card or connected to the RS-232 port on the back of the Apple ///. Draw ON /// requires a 256K or 512K Apple ///. Works perfectly with Selector /// & Catalyst and may be installed on your hard disk for quick access.

Desk Accessories (Available From All Programs)

The Desktop Manager

The Desktop Manager (TDM) is a utility that allows you to use desk accessories like those on the MacIntosh™. They are utility programs that you use within other programs. You can be using /// E-Z Pieces or any other Apple /// program and a simple keystroke will freeze your program and display the TDM menu. Simply highlight the accessory you want, press RETURN and in a moment it will be up and running. When you're finished, press escape and you'll be right back in your program.

With TDM you can throw away your paper, pen, calculator, appointment book and more! We've included a number of standard features to enhance your productivity. TDM is also expandable. You can design the system that best suits your own needs. TDM has a built in: Note Pad, Appointment Calendar, Calculator, Pickup & Paste, Built-in self help screens and more.

Add new accessories such as macros, disk utilities, acommunications program, games and more at any time.

The Desktop Manager requires an external disk drive of any capacity and a 256K or 512K Apple ///. TDM uses about 32K of memory. A hard disk or large capacity floppy disk drive is highly recommended. Works with Selector, Catalyst and **ALL** other Apple /// programs. Only **$69+$6.**

ASCII Chart

This Desktop Manager add-on lists the decimal, hexidecimal and corresponding character values of all ASCII keyboard characters. A second screen shows the decimal and hexidecimal equivalents of keypresses which include the control key. Keypress table can be invaluable when you need to know printer commands to enable different printer modes. Only **$9.95+$3.**

The Communications Manager

The Communications Manager (TCM) is a powerful tool that allows your Apple /// to communicate or talk to other computers or services such as Dow Jones™, CompuServe™, The Source™ and others. Complete VT-52 terminal emulation makes this program really powerful.

You can record incoming text to a printer or disk file for later viewing and transmit standard ASCII and Pascal Textfiles automatically. TCM has every feature of the other Apple /// comm. programs plus error free transmission of files via the popular XModem & Binary II transfer protocols.

TCM also supports Turbo Downloading for ultra fast file XModem downloads. Turbo downloading gives 2400 baud performance on 1200 baud modems!

TCM Continued...

Included with this package is a version of TCM that runs as a stand- alone program and a version that can be run as an accessory under The Desktop Manager. If you have The Desktop Manager you have the best of both worlds! You can be inside /// E-Z Pieces or VisaCalc and send a spreadsheet or data base file directly. Only **$29.95+$3.**

Disk Manager

This TDM add-on allows you to list, copy, delete, rename, lock/unlock files and list the devices, copy, format, rename and verify disks. Virtually all the features of the System Utilities available in an instant. If you've ever typed in info. and then found that you didn't have a blank disk to save it on, the Disk Manager can be a lifesaver.

Are you sick of not being able to remember the names of certain files? Worry no more - It's Disk Manager to the rescue! You can even copy files to the printer! Instead of the few minutes that it takes to boot the System Utilities, Disk Manager is ready in a few seconds and it takes no additional memory away from your programs! **$24.95+$3**

The Graphics Manager

The Apple // version is being acclaimed as the best graphics printing program *EVER*! The Apple /// version is even better! The Graphics Manager (TGM) allows you to take any Apple /// black/white or color and any Apple // black/white hi-res, color or double hi-res. color or Print Shop image and print it the way you want it!

Sophistcated image analysis lets you take your entire picture, or any portion of it, and expand it to fill an entire page or shrink it down to a small section. Rotate, invert or flip the image to suit your needs. TGM is the *ultimate graphics printing utility!*

Included with this package is a version of TGM that runs as a stand- alone program and a version that can be run as an accessory under The Desktop Manager. Learn what people in the Apple // world are all talking about! Get the original! Get The Graphics Manager /// today! **$29.95+$3**

Macro Manager

One of the most popular add-on accessories for TDM. It's a keyboard macro program that can redefine any keystroke to be a series of keys. Thousands of keystrokes may be assigned to a single key.

You can set a certain key to contain the name of a city, state, zip code or any other commonly typed item. Phone numbers, salutations or *anything that you type* can be setup to as a macro and played back at a moments notice - via a single keypress!

Macro Manager Continued...

Our innovative Macro Recording lets you type in the information as you usually do and will automatically assign you a key. You can use up to 50 different macro keys at once and switch between sets of macros (MacroMaps™) in just a few seconds.

The Macro Manager eliminates repetitive typing and improves your personal productivity by making the /// faster and easier to use than ever before. Like all the other TDM aaccessories Macro Manager uses no additional memory. Only **$24.95+$3.**

Super Accessories Disk #1

Contains the following TDM accessories: Printer Setup lets you send complex controls to your printer via menus, TypeWriter, Labeler, New Desktop Setup allows better control over the ClipBoard, Make Subdirectory, Menu Manager which provides submenus so you'll have an infinite number of accessories on your Apple ///.

Best of all, each accessory has built-in self help screens and the standard ON THREE power and ease of use. Only **$29.95+$3.**

Super Accessories Disk #2

Contains the following TDM accessories: File View lets you view another file within a file: Change Font: Show Time (no need to go back to Systems Utilities to change the date or time) plus there's an elapsed timer in this module: Change File Type; File Print, Print Screen better than screen dump, you can opt to Print Screen, Form Feed Printer or Line Feed Printer: Reload and Exit: PKASO U commands and The Warning Module. Only **$19.95+$3.**

Super Accessories Disk #3

Contains the following TDM accessories: Accessory Manager lets you customize your TDM menus, rename accessories & more. Character rulers displays rulers on the screen to help you align text. Hex View/Hex Print lets you view or print any file in hexadecimal form. Info Help lets you enter any type of info into a TDM window for instant recall. SOS Errors is an Info Help accessory that lists all SOS errors. Block View/Edit is a powerful disk block editor. Included are both a stand-alone and TDM version. A great value at only **$24.95+$3.**

Extra-Special Sale

For a limited time, in addition to the fantastic sale prices of The Desktop Manager and its add-on accessories (already 25-50% off), you can get the main accessories along with ANY two add-on accessories for **ONLY $99** + $9 s/h. At these low prices we may have trouble keeping them on the shelf so hurry and order your copy today!

MOVING?

If you are in the process of moving, please give us a ***minimum*** of one months notice. Because the magazine must be printed and mailed prior to the date on the cover and because it takes us a short while to update our records, tell us before you are moving. Doing so will assure that your copy of ON THREE won't be lost in the mail or get to you late.

DeClassifieds

FOR SALE: We have five CPS 800K drives for the Apple ///, complete with interface card, driver software and documentation left on the shelf and want to move them out so we're having a sale!

Normally priced at over $400, you can get yours today for only $299 plus $10 for shipping and handling. This sale is limited to product on hand so call and order yours today! Call ON THREE at (206) 659-6245 to place your order!

If you have something to sell, or are looking for a hard to find item, try our DeClassified section - it's worked for hundreds of people just like you!

DeClassifieds Work!

Been searching for hard to find hardware or software? Need to sell some excess equipment? Try an inexpensive DeClassified ad! Our readers tell us that they really get results! Place your ad by phone or mail. All copy must reach us 30 days prior to publication date, e.g. April 1 for theMay/June issue.

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Uncopyprotect Driver

The Uncopyprotect Driver allows you to make backup copies of AppleWriter ///, VisiCalc /// and Advanced Visicalc. It also allows you to install those programs on hard disks and eliminate the need for key disks.

Protect your original copies of these valuable copy-protected programs and order your Uncopyprotect Driver today. Priced at only $29.95 plus $3 shipping and handling - **This is the one of the few programs you must have!**

How Would You Like A Fast, Reliable And Easy To Use Hard Disk Backup?

After years of complaints about Backup /// being too slow and in many cases losing people's important information we've decided to do something about it. We know that many people *never* backup their hard disk because Backup /// is soooo slow or because they've had a problem with it losing information.

A while back we started work on a product we call Go Back. If you're sick and tired of the time it takes to backup your hard disk with Backup /// or the System Utilities, Go Back is what you need.

Go Back is written entirely in assembly language for speed, is four to five times faster than Backup /// and much more reliable. We guarantee it!

We were about half-way finished with the project when we stepped back, took a look at the potential market and asked ourselves, "Will there be enough sales to warrant finishing Go Back?"

If there's enough interest in Go Back we will complete it. Now we **don't** want you to send in your money, or give us a credit card number. All we want is your assurance that you will buy Go Back if we spend the effort to finish it. Actually, we want the assurance of at least two hundred people.

If you want a reliable, very quick and inexpensive (around $50) program for backing up your hard disk, drop us a note or give us a call at (206) 659-6245. Just leave your name and address so we can notify you if and when the project is finished.

Lazarus ///

Lazarus /// allows you to restore or undelete almost any file which you've accidentally deleted. Completely menu driven, it's incredibly easy to ressurect your deleted files. One wrong keypress can send a months worth of work into limbo. The right keypress with Lazarus /// will recover it in a few short seconds. Lazarus /// is normall priced at only $49.95. For a limited time you can get a copy for only $39.95 + $2 s/h.

Next Time In ON THREE:

Boggy Marsh
Finding Parts For The Apple ///
Gary Ricker's SS Problems Are Solved

Fantastic Products For Your Apple ///

/// E-Z Pieces

/// E-Z Pieces is a fully integrated spreadsheet, word processor and data base manager rolled into one program. /// E-Z Pieces combines the power of the three most commonly used programs with the ability to quickly and easily transfer data among them. This program was written by the author of the Apple II program AppleWorks - the best selling software package on any computer!

AppleWorks & /// E-Z Pieces look and function exactly the same, even the data files can be swapped between II and the Apple ///. It utilizes the full memory available in your Apple ///, 180K on a 256K Apple ///, 414K+ on a 512K machine! This best seller was originally $245. You can get your copy for only **$135+$3.50 s/h.**

Modems For The Apple ///

If you want to enter the wonderful world of communications, an ON THREE modem is all you need. For a limited time, both our 1200 baud and the faster 2400 baud modems come with the Communications Manager. With it you can talk with other Apple /// users on CompuServe™, the Source™, Dow Jones™ and other information services. Even connect directly with another PC!

Fully Hayes compatible our modems are an exceptional value as they include both communications software and all necessary cabling. 1200 BAUD modem is **ONLY $129.95** and our **2400 BAUD** modem is **ONLY $249.95**. $10 for s/h on either modem.

StemSpeller - /// E-Z Pieces Spelling Checker

Compatible with standard ASCII files, Pascal Text, StemWriter and /// **E-Z Pieces word processing files**, StemSpeller /// is fast and very easy to use. It has a 50,000+ word main dictionary and the ability to create auxiliary dictionaries of words you commonly use. Written in 100% assembly language for speed and comes as a standard interpreter that can be run by itself or loaded and run under Selector or Catalyst. In stock and available today. Originally priced at **$69.95**, StemSpeller /// is available for a limited time at **only $49.95 + $5 s/h.**

StemWriter ///

This new word processor from Australia lets you view two files simultaneously and combines all of the features you wanted most into a powerful document processing system! Now you can design your own templates, make headlines, adjust column width, utilize on-screen over strike & underlining, date stamp documents, count words, label and personalize form letters. StemWriter has four levels of subscripts and superscripts, utilizes a desktop like /// E-Z Pieces and the four arrow keys to "see and point". It also uses the full memory available in your Apple ///. Has redefined numerical keypad, and file managing on built-in utilities program. Many more state of the art features! Originally $99, for a limited time you can get StemWriter for **only $79.95!**

Do You Use Draw ON Or The Graphics Manager?

If so you should have an Apple Mouse or the new Trackball ///. With the mouse or trackball, using Draw ON will be that much easier. ON THREE has a good supply of both the Apple //e mouse which works in either the Apple //e or /// and the TrackBall ///.

You can order an Apple Mouse or Trackball from ON THREE today and start using Draw ON as it was intended. The Apple Mouse is **only $160** + $5 s/h and the TrackBall /// is **only $89.95** + $6 s/h. Order yours today!

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