BEAGLE BROS

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MICRO SOFTWARE, INC.
™

· ALPHA PLOT ·

HI-RES APPLE®GRAPHICS/TEXT UTILITY
by BERT KERSEY and JACK CASSIDY

HI-RES DRAWING
Alpha Plot lets you draw and label hi-res pictures, charts and graphic displays. It also lets you manipulate, copy, compare and even combine pictures. All may be saved to disk and retrieved by your Applesoft programs.

Plot in any hi-res color or *Reverse* (background opposite). Color mixes too—lines, circles, ellipses and boxes (outlined or filled with color) may be plotted with one or two keystrokes.

HI-RES TEXT
Alpha Plot lets you type upper and lower case directly onto the hi-res screen in four sizes, from normal to giant (4-times normal size). No Htab or Vtab restrictions. Type all kinds of color titles and labels anywhere on the screen, even *sideways* if you want—an effective feature for graphs.

Alpha Plot's proportionally-spaced hi-res text gives a professional appearance to your graphic presentations. People *do* notice the difference.

TWO PAGES, TWO DRAWINGS
Work on and compare two hi-res drawings at once. The two hi-res "pages" may be instantly switched at any time.

IMAGE MANIPULATORS
Two drawings may be completely or partially superimposed, and any rectangular segment can be *moved* to any location on either hi-res screen.

MORE PIX PER DISK
Alpha Plot lets you store hi-res images in as little as *one-third* normal disk space, (depends on image's complexity).

PLUS APPLE TIP BOOK #4
Inside this manual—a nice collection of Apple tips and tricks—shape table and animation tricks, a collision graphics demo, and more—all designed to help you make the most of your Apple's amazing graphics features.

FREE PEEKS & POKES CHART
Your Apple's *Peeks, Pokes, Pointers and Calls* on a handy 11x17 poster. An indispensable Apple programming tool.

INCLUDES APPLE TIP BOOK #4
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Registration Card

Mailing this card assures you of being on our list for upcoming issues of the *Beagle Bros Bulletin* as well as any important Update Notices regarding your software. The postage is free, so fill it out now, and MAIL IT TODAY, even if you've registered before.

PRODUCT NAME
(If you received this product FROM BEAGLE BROS BY MAIL, you are already registered — no need to mail this card.)

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—optional—

What other Apple-related products would you like to see us produce?

Is lack of copy-protection a factor you consider when buying software? (Y/N):
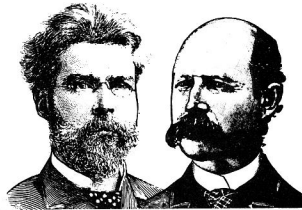
Beagle Bros will continue producing low-priced unprotected software as long as our customers support us by not giving copies of our products away. Are you with us on this? (Y/N):

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Beagle Bros presents

Apple Tip Book #4

A New Assortment of
APPLE II TIPS & TRICKS

Plus Complete Instructions for Using

Alpha Plot

Hi-Res Text/Graphics Utility

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SHAPE TABLE TALK

Let's assume you know nothing about shape tables
(you're not the only one). Here are a few little
experiments that will at least give you a taste of the
fantastic animation possibilities.

USING shape tables is easy; it's MAKING them that is
usually difficult. If you've looked in the Applesoft
Manual in the shape table chapter, you'll see why. I'm
not going to go into how to make shape tables here. I
have just written a disk called "Apple Mechanic" that
will write shape tables FOR you; all you do is draw your
shape on the screen (as in Alpha Plot) and the shape
table is automatically written by your Apple. Many good
features are included (including Apple Tip Book #5).

Here is a sample shape table containing five shapes.
You will recognize a few of the shapes from Alpha Plot.
Type FP (return) to clear memory. Now enter the monitor
by typing:
   CALL -151 (return)
You should now have an asterisk and a flashing cursor.
Enter the following shape table--

```
6000- 05 00 10 00 30 00 40 00
6008- 50 00 58 00 FF FF FF FF
6010- 2D 2D 2D 3E 3F 3F 37 2D
6018- 2D 2D 3E 3F 3F 37 2D 2D    #1 ■
6020- 2D 3E 3F 3F 37 2D 2D 2D          (FF's are
6028- 3E 3F 3F 3F 00 FF FF FF            wasted.)
6030- 08 0C D6 AA DF 63 1C 08   #2 ✕
6038- 1C 07 00 FF FF FF FF FF
6040- 12 3F 20 64 2D 15 36 1E   #3 ◯
6048- 07 00 FF FF FF FF FF FF
6050- 07 00 FF FF FF FF FF FF   #4 ·
6058- 3F 37 2D 35 37 4D C0 2C   #5 ➡
6060- 1C 3F 3F 4C E5 07 00 FF
6068- FF FF FF FF FF FF FF FF
```

In case you've never entered machine code before, just
type:
   6000: 05 00 10 00 30 00 40 00 (return)
and
   6008: 50 00 58 00 FF FF FF FF (return)
and so on. Notice the COLON (not a HYPHEN) after the
four digit number; very important! Now save the shape
table by typing:
   BSAVE SHAPES,A$6000,L$70
Any time you want these shapes back, type:
   BLOAD SHAPES
Now tell your Apple where you put the shape table by
typing:
   POKE 232,0: POKE 233,96
You could make these pokes part of a program. 232-233
is the Start of Shape Table pointer. See your Peeks &

2

Pokes Chart.

Now we can play with the Apple commands DRAW, XDRAW, ROT and SCALE (I had an uncle once with rot and scale). Try each of the following programs.

```
=============
SHAPE DISPLAY
=============
15   TEXT : HGR
16   ROT= 0: SCALE= 1: HCOLOR= 3
20   FOR SH = 1 TO 5
30   DRAW SH AT SH * 21,150
40   NEXT SH
50   HOME : VTAB 21
60   HTAB 4: PRINT "1   2   3   4   5"
```

```
========
ROT TEST
========
30   HOME : HGR : SCALE= 1: HCOLOR= 3
35   HPLOT 0,150 TO 279,150
40   FOR X = 50 TO 250 STEP 1
80 R = R + 16: IF R > 48 THEN R = 0: REM INCREASES RO
        TATION 90 DEGREES
82   VTAB 21: HTAB X / 7 - 4: PRINT  SPC( 1);"ROT:";R;
        : CALL  - 868: REM PRINTS ROT VALUE
83   VTAB 22: HTAB X / 7 - 2: PRINT  SPC( 1);"X:";X: REM
        PRINTS X POSITION
85   ROT= R: XDRAW 5 AT X,140: REM DRAWS ARROW
90   FOR I = 1 TO 99: NEXT I
95   XDRAW 5 AT X,140: REM ERASES ARROW
100   NEXT X
```

```
==========
SCALE TEST
==========
30   TEXT : HOME : HGR : ROT= 0
40   FOR S = 1 TO 10
80   SCALE= S
82    VTAB 21: HTAB 10: PRINT "SCALE:";S;: CALL - 958
85   XDRAW 1 AT 70,30: REM DRAWS BOX
90   IF S = 1 THEN  FOR I = 1 TO 500: NEXT I
95   XDRAW 1 AT 70,30: REM ERASES BOX
100   NEXT S: GOTO 40
```

Fool around with these programs and change some of the numbers. Substitute DRAW for XDRAW and see what happens (be sure you have HCOLOR set for something other than black). XDRAW draws in the OPPOSITE of whatever the background color is. That's how you can erase a drawing; just XDRAW over it in exactly the same position! Notice how SCALE, when it's bigger than 1, blows up a solid shape in a linear fashion. Too bad it won't blow up solids.

KABLOOEY!

Here's an experiment to demonstrate Hi-Res collisions, handy if you feel the urge to write a SDTFS* game. I have read two articles, each about four blocks long about how to simulate Lo-Res's SCRN function for determining the color of a Hi-Res point. Well, forget it. There's a handy peek you can do of location 234 that tells you if the last XDRAW was done over a black or non-black point. This program pretty much explains itself. Oh, BE SURE THE SHAPE TABLE FROM THE PREVIOUS ARTICLE IS IN MEMORY and the pointers are set (POKE 232,0: POKE 233,96), or this program won't work.

```
==============
COLLISION TEST
==============
20   TEXT : HOME : HGR : ROT= 0: SCALE= 1:N = 100
30   HCOLOR= 6: HPLOT 250,0 TO 250,191: HPLOT 30,0 TO
        30,191 :POKE 232,0: POKE 233,96
40   FOR X = N + 2 TO 279
50   XDRAW 3 AT X,100
60   XDRAW 3 AT X,100
70   IF  PEEK (234) = 0 THEN  NEXT X
80   FOR N = X - 1 TO 0 STEP  - 1
90   XDRAW 2 AT N,100
100   XDRAW 2 AT N,100
110   IF  PEEK (234) = 0 THEN  NEXT
120   GOTO 40
```

WARNING DEPARTMENT

Rumor has it that you should always OPEN YOUR DRIVE DOORS and/or REMOVE ALL DISKS from your drives BEFORE TURNING OFF YOUR APPLE. You risk disk damage if you don't. And while we're issuing warnings-- IF you leave your Apple on and unattended for a long time AND a temporary power failure occurs, the Autostart ROM will attempt to reboot. IF your drive door is open OR no disk is in your drive, your drive could run indefinitely (or until the next power failure, whichever comes first).

*SDTFS=SHOOT DOWN THE FLYING SAUCER
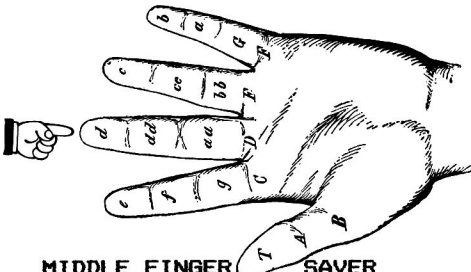
MIDDLE FINGER SAVER

Think of the time you'll save! In spite of what the DOS
Manual says, NO COMMAS or spaces are necessary when you
do a "MON I,C,O" or a "NOMON I,C,O". Another comma
recommended by the Manual is the one after the CATALOG
command and before the drive number. "CATALOGD1" gets
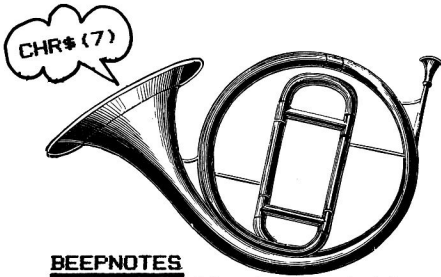the job done just fine!

REM MAKER

Here's the easiest way we know to make REM's show up:
Type "100 REM (ctrl-J) (ctrl-J) THIS IS A REMARK
(ctrl-J)". Now you have some air above and below your
REM, making it easier to find in a listing.

## DON'T EVER DO THIS:

```
]CALL -151
*C055
```
Thank you.

BEEPNOTES

First of all, to "print" a beep, you type "PRINT", then
a quote mark, then a ctrl-G (audible, but invisible),
and then another quote mark. Follow that with a
semi-colon if you don't want the screen to scroll. You
will hear the ctrl-G in the listing as well as in the
program, unless...

   To prevent your program's ctrl-G beeps silent in
your listings, LET G$ = CHR$(7) (same as ctrl-G). Now
when you want a beep, simply PRINT G$.

   And, speaking of beeps, you can use ctrl-G as a
nifty de-bugging device-- Often the reason a certain
program line doesn't work is that the program NEVER GOT
TO that line. To see if it did, simply put a "PRINT
CHR$(7)" at the beginning of the statement. RUN the
program; if it beeps, you know it encountered the
statement in question.
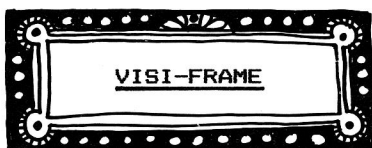
VISI-FRAME

```
20   HOME :C$ = " "
30   FOR I = 1 TO 23: VTAB I: HTAB 1: PRINT C$;: HTAB 40:
     PRINT C$;: NEXT I
50   FOR I = 1 TO 24 STEP 23: VTAB I: HTAB 1: FOR J = 1 TO
     39: PRINT C$;: NEXT J,I
60   POKE 2039, ASC (C$) + 128: REM   (PUTS C$ AT VTAB24,HT
     AB40)
70   NORMAL : VTAB 10:A$ = "VISI-FRAME": GOSUB 120: PRINT
     : PRINT :A$ = "BY WILL MUFFIN": GOSUB 120
80   VTAB 20:A$ = "(PRESS ANY KEY: )": GOSUB 120:PRINT CHR$
     (8);: CHR$ (8);: REM (2 BACK-SPACES)
90   GET C$: PRINT C$: REM    (NEW FRAME CHARACTER)
100  IF C$ >  = " " THEN 30
110  FOR I = 1 TO 26: PRINT : NEXT : END
120  HTAB 20 -  LEN (A$) / 2: PRINT A$;: RETURN : REM
     (CENTERS TITLE)
```

REM OVE

If you're removing REMs from your program to save
memory, you might want to instead REPLACE each statement
with a single colon. That way, if you have any GOTOs to
your REM lines, things will still function normally.

TEXT OR HI-RES?

If your Apple monitor is a color tv, you can tell if the
screen text you are reading is hi-res or text by looking
for little color glitches between vertical strokes on
letters such as m's. If you see them, it's hi-res. By
the way, you won't see small (normal size) color text on
the Apple. There just aren't enough dots available to do
the job.

?ERROR?

When you encounter an error in hi-res, you get a beep,
but usually no visible error message. Just hit reset or
type TEXT to reveal the message.

```
10   REM
================
VOWEL SCRAMBLER
================
15   ERR$ =  CHR$ (7) + "?SYNTAX ERROR":YES$ =  CHR$ (7) +
     "!CORRECT"
20   W$ = "":EFLAG = 0: HTAB 1: PRINT "]";
30   GET A$:W$ = W$ + A$: IF A$ <  > CHR$ (13) THEN 70
35   IF  LEN (W$) < 2 THEN 20
40   PRINT : PRINT : IF EFLAG THEN  PRINT ERR$: GOTO 55
50   PRINT YES$:EFLAG = 0
55   FOR I = 1 TO 99: NEXT :W$ =  LEFT$ (W$, LEN (W$) - 1)
     : IF  NOT EFLAG AND W$ = "LIST" THEN  LIST
60   GOTO 20
70   L =  ASC (A$): IF A$ <  > "A" AND A$ <  > "E" AND A$ <
     > "I" AND A$ <  > "O" AND A$ <  > "U" THEN  PRINT A
     $;: GOTO 30
80   N =  INT ( RND (1) * 5):X = 65 + N * 4 + (N = 3) * 2 +
     (N = 4) * 4: PRINT  CHR$ (X);: IF X <  > L THEN EFLA
     G = 1
90   GOTO 30
```
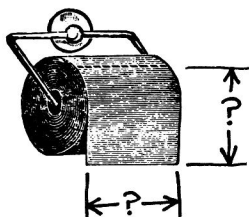
GUESSTIMATION

I have a theory: If you had a million people guess the
height and width of a dollar bill, the AVERAGE guesses
would be EXACTLY right! Well, test it for me; I only
know four people, and one is my dog. Take any
rectangular object, like a dollar bill or the dining
room table, or the Apple, and have a dozen or so people
guess its size. See how close their average guess comes
to the actual size.

```
20   HOME : INVERSE : PRINT " SIZE GUESSER ": NORMAL : PRINT
30   PRINT "GUESS DIMENSIONS": INPUT "OF WHAT ITEM? ";ITEM
     $
40   INPUT "NUMBER OF GUESSERS: ";N: DIM NAME$(N),W(N),H(N
     ): GOSUB 180
50   FOR I = 1 TO N: PRINT : PRINT "NAME OF GUESSER #";I;:
     INPUT ":    ";NAME$(I)
60   PRINT "GUESS WIDTH OF ";ITEM$;: INPUT ":   ";W(I)
70   PRINT "GUESS HEIGHT OF ";ITEM$;: INPUT ": ";H(I)
80   NEXT I: GOSUB 180
90   PRINT "ACTUAL WIDTH OF ";ITEM$;: INPUT ":   ";W(O)
100  PRINT "ACTUAL HEIGHT OF ";ITEM$;: INPUT ": ";H(O)
110  GOSUB 180
120  HOME : PRINT "NAME","WIDTH";: HTAB 29: PRINT "HEIGHT
     ": GOSUB 180
130  FOR I = 1 TO N: VTAB 2 + I: HTAB 1: PRINT NAME$(I),W
     (I);: HTAB 29: PRINT H(I): NEXT
140  FOR I = 1 TO N:W = W + W(I):H = H + H(I): NEXT :WAVG
     = W / N:HAVG = H / N
150  GOSUB 180: PRINT "AVERAGE GUESS:",WAVG;: HTAB 29: PRINT
     HAVG
160  PRINT "ACTUAL SIZE:",W(O);: HTAB 29: PRINT H(O)
170  GOSUB 180: END
180  HTAB 1: FOR I = 1 TO 20: PRINT "- ";: NEXT : RETURN
```
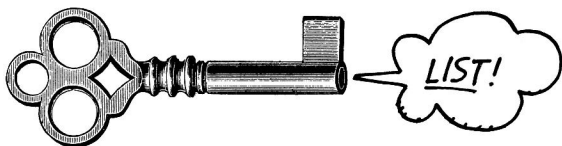

ONE-KEY COMMANDS!

Type this--
POKE 1013,76: POKE 1014,110: POKE 1015,165

Now, the command "&" (return) will <u>CATALOG</u>! Change the
numbers after the commas to 76, 165 & 214 and "&" will
<u>LIST</u>. 76, 18 & 217 will make "&" <u>RUN</u>. 76, 112 and 214
will make "&" <u>CLEAR</u> all variables to zero.
When you type "&" (that's called an "ampersand"), the
Apple jumps to location 1013 ($3F5) to see what's
happening there. The pokes discussed here tell the Apple
what to do.

POINTER CHECKER

This is really fun if you're into snooping around Apple's memory. When you run this program, it will print 88 addresses and their peeked values on the screen. What you do now is change something like a COLOR value or ROT, and run the program again. The most interesting changes take place on Page Zero (addresses 0-255), so let Line 30's START=0 or 100 or 200.

Example: In Line 30, LET START=0. Now RUN, and wait for the cursor to come back. Now, type "COLOR=0:RUN" (both commands on the same line to prevent scrolling). Most of the inverse arrows will disappear. The ones that DON'T DISAPPEAR are addresses whose values have CHANGED since the first time you ran the program. Now type "COLOR=2:RUN", and watch location 48. It should change from a 0 to a 34 (the current lo-res COLOR*17). Two locations that almost ALWAYS change are 78 and 79, the random number field. Compare your results with your Peeks & Pokes Chart.

```
20   DIM A(23): FOR I = 0 TO 23: READ A:A(I) = A: NEXT
30   START = 0
40   IF START < 0 THEN START = START + 65536
50   VTAB 1: HTAB 1: FOR X = START TO 65535
70   PRINT "*"; CHR$ (8); SPC( (X < 10000) + (X < 1000) + (
     X < 100) + (X < 10));X;:P =  PEEK (X): PRINT ":";
80 P1 = A( PEEK (37)) +  PEEK (36):A1 =  PEEK (P1):A2 =PEEK
     (P1 + 1):A3 =  PEEK (P1 + 2)
100  PRINT P;: IF P < 10 THEN  PRINT  CHR$ (95);
110  IF P < 100 THEN  PRINT  CHR$ (95);
120  B1 =  PEEK (P1):B2 =  PEEK (P1 + 1):B3 =  PEEK (P1 + 2
     ): IF A1 <  > B1 OR A2 <  > B2 OR A3 <  > B3 THEN
     INVERSE : PRINT "<";: NORMAL : GOTO 150
130  PRINT  SPC( 1);
150  IF  PEEK (37) < 22 THEN  NEXT
170  VTAB 22: DATA 1024,1152,1280,1408,1536,1664,1792,1920
     ,1064,1192,1320,1448,1576,1704,1832,1960,1104,1232,13
     60,1488,1616,1744,1872,2000
```

SLOT SEARCH

WE NEED YOUR HELP! Here's a program that reads your Apple's slots to see what's in them. We know that if a disk controller card is in a slot, the value for that slot is 162. The three printers we have checked out have returned a 24. A Novation Super-Cat Modem is a 255. Please let us know your results when you run this program with your equipment. Apparently, if a slot is empty, the value keeps changing, so look for a slot with an unchanging number.

```
10   HOME : FOR X = 1 TO 20
20   FOR I = 1 TO 7:N = 49152 + 256 * I:PN =  PEEK (N)
30   VTAB 4 + 2 * I: HTAB 1: PRINT "SLOT ";I;": PEEK(";N;"
     )=";PN; SPC( 2)
40   VTAB 4 + 2 * I: HTAB 26
50   B(I) = A(I):A(I) = PN: IF A(I) <  > B(I) THEN  CALL  -
     868: PRINT "(EMPTY)": GOTO 500
60   INVERSE
100  IF PN = 162 THEN  PRINT "DISK DRIVE"
110  IF PN = 24 THEN  PRINT "PRINTER"
500  NORMAL : NEXT I,X: VTAB 22
```

```
1 GOTO 2 AND POS COLOR=OR
  TO AND AT COLOR=-INT
  COLOR=INT USR AT RESTORE
  PLOT-COLOR= ^ -FRE AT
  COLOR=OR AT TO SGN COLOR=
  ABS+AT COLOR=SQR>>RESTORE
  PLOT PLOT SCRN(+>COLOR=
  TO SGN AT COLOR=POS>USR
  NEW PLOT
2 HOME: FOR L=2055 TO 2105:
  PRINT CHR$(PEEK(L));:NEXT
```
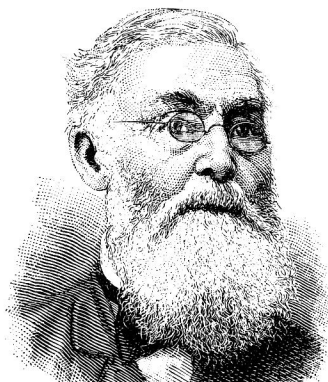
UL APPROVED
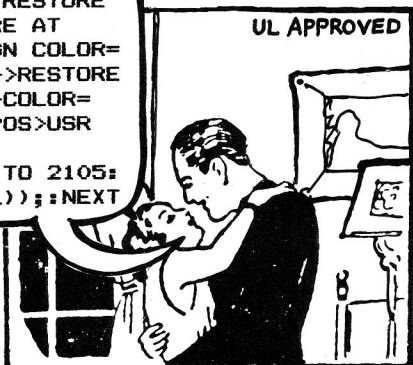
A _{PERPETUAL} Contest!

Uncle Louie's Apple is an old one with only 0.6K, so he really has a problem with some of the software on the market today. He was pretty excited about his upgrade last Christmas-- we got him a 40-column board and a paddle. But he's still lacking in memory (in more ways than one), and needs some Two-Liners to play with.

GIVE UNCLE LOUIE A HAND!

RULES:
Your program must be written in Applesoft or Integer BASIC and be no longer than two program lines, typable without a ?TOO LONG ERROR message. Decision of Uncle Louie is final. All programs will be judged on...
(a) how impressive the program is when run.

PRIZES:
1st Prize: Any Beagle Bros disk
2nd Prize: Any Beagle Bros disk
3rd Prize: Any Beagle Bros disk
4th-9th Prizes: Haven't decided yet
10th Prize: Uncle Louie

The best 2-Liners will be printed in the next Tip Book and possibly make our TipDisk. Lookit-- It's really a GOOD way to get some _free_ software. Send your Two-Liners in today!

CHECK OUT SOME OF OUR WINNERS — NEXT PAGE.

9
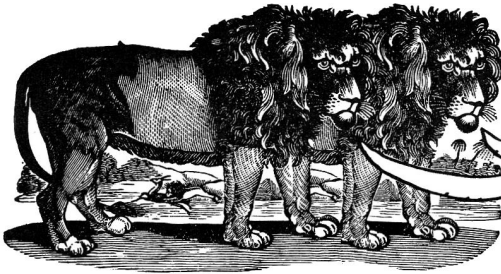
Here are some of the winning entries in Uncle Louie's semi-perpetual Two-Liner contest. Give them a try!

```
=========
APPLESOFT
2-LINERS
=========
0   REM DAVID LINKER-- SEATTLE,WA
1   GR : HOME : COLOR= 15:T = 39: FOR I = 0 TO 1: VLIN
    0,T AT I * T: HLIN 0,T AT I * T: NEXT :X = 5:Y =
    5:S = 0:T = 38: COLOR= 1: PLOT X,Y: FOR C = 1 TO
    14:A =  RND (1) * T + 1:B =  RND (1) * T + 1: COLOR=
    C + 1: PLOT A,B: COLOR= C: VTAB 23: PRINT "YOUR
    SCORE=";S: FOR I = 1 TO 50: IF (N = 15) OR (N <
    = C AND N > 0) THEN  END
2   N =  PEEK ( - 16368):N =  PEEK ( - 16384):G = (N =
    21) - (N = 8):D = (N = 90) - (N = 65): ON  ABS (
    G + D) + 1 GOTO 2:X = X + G:Y = Y + D:N =  SCRN(
    X,Y):S = S + 200 * (N = C + 1):Z =  PEEK ( - 163
    36): PLOT X,Y: NEXT :S = S + 100: COLOR= 0: PLOT
    A,B: NEXT : VTAB 23: HTAB 12: PRINT S;" YOU WIN!
    ": FOR I = 1 TO 9: CALL  - 1052: NEXT
3   REM USING THE A, Z & ARROW KEYS, TRY TO GET THE DOT
    WITHOUT RUNNING INTO YOUR OWN TRAIL.
```

```
0   REM DAVID GERSHON-- SEAL BEACH, CA
1   HGR : HOME : FOR C = 1 TO 7:RT = 15: HCOLOR= C: FOR
    R = 5 TO 150 STEP 10: HPLOT 0,R TO RT,155 TO 270
    ,155 - R TO 270 - RT,0 TO 0,R:RT = RT + 15: NEXT
2   FOR R = 10 TO 60 STEP 10: HPLOT 140,10 + R TO 140 +
    R,75 TO 140,150 - R TO 140 - R,75 TO 140,10 + R:
    NEXT R: NEXT C: GOTO 1
```

```
0   REM  MARK BACHMAN-- AUSTIN, TX
1   TEXT : HOME : PRINT  TAB( 13);"KEYBOARD ORGAN": FOR
    X = 24576 TO 24591: READ Y: POKE X,Y: NEXT X: DATA
    172,0,192,173,48,192,234,234,234,234,136,208,24
    9,76,0,96
2   CALL 24576
```

```
0   REM  I.O.SOCKET-- SAN DIEGO, CA
1   NORMAL : VTAB 1: HTAB 1: INPUT "WHAT'S YOUR NAME?
    ";N$: SPEED= 234:SP$ = "": ONERR  GOTO 1
2   SP$ = SP$ + ".": INVERSE : PRINT " ";N$;" ";: NORMAL
    : PRINT SP$;: GOTO 2
```

```
============
INTEGER BASIC
2-LINERS
============
```

```
0 REM   DAVE MADDEN-- LISLE, IL
1 CALL -936: TAB 10: PRINT "U.F.O. TAKEOFF EFFECT"
  : TAB 13: PRINT " BY DAVE MADDEN"
2 POKE 766,1: POKE 765,16: FOR A=1 TO 255: FOR B=
  1 TO 75: FOR I=B TO 1 STEP -A: POKE 767,I: CALL
  -10473: NEXT I,B,A: GOTO 2
3 REM REQUIRES PROGRAMMER'S AID CHIP
```

```
0 REM   DAVE MADDEN AGAIN
1 CALL -936: TAB 11: PRINT " HYPERDRIVE EFFECT": TAB
  13: PRINT "BY DAVE MADDEN":A=100
2 POKE 766,1: POKE 765,2: FOR I=1 TO A: POKE 767,
  I: CALL -10473: NEXT I:A=A-1: IF A<=-30 THEN A=
  100: GOTO 2
3 REM REQUIRES PROGRAMMER'S AID CHIP
```

```
0 REM   DARRYL FIELDS-- PHOENIX, AZ
1 FOR P=0 TO 3000: NEXT P: GR : PRINT : PRINT : COLOR=
  RND (16): FOR Q=0 TO 39: HLIN 0,39 AT Q: NEXT
  Q:N=0:D= RND (25)
2 COLOR= RND (15):B= RND (15)+24:A= RND (B):Y= RND
  (15)+24:X= RND (Y): FOR Z=A TO B STEP 2: HLIN X,
  Y AT Z: NEXT Z:N=N+1: IF N<D THEN 2: GOTO 1
```

```
====================
APPLESOFT AND INTEGER
2-LINER
====================
```

```
0  REM MARC RINGUETTE-- TERRACE, B.C., CANADA
1  PRINT "OPENX": PRINT "WRITEX": PRINT "CALL-151": PRINT
   "2:AD 30 C0 88 D0 04 C6 01 F0 08 CA D0 F6 A6 00
   4C 02 00 60 40 00": PRINT "INT": PRINT "9POKE0,A
   :POKE1,B*42:CALL2:RETURN": PRINT "3A=66:B=4:GOSU
   B9:A=56:B=3:GOSUB9:B=1:GOSUB9:A=83:B=6:GOSUB9:A=
   74:B=2:GOSUB9:A=66:GOSUB9"
2  PRINT "5A=63:GOSUB9:A=56:GOSUB9:A=49:GOSUB9:A=74:B
   =6:GOSUB9:FORJ=1TO60:NEXTJ:A=66:B=4:GOSUB9:A=59:
   B=3:GOSUB9:B=1:GOSUB9": PRINT "7A=56:B=6:GOSUB9:
   A=49:B=2:GOSUB9:A=43:GOSUB9:GOSUB9:A=56:B=6:GOSU
   B9:END": PRINT "RUN": PRINT "CLOSEX": PRINT "EXE
   CX"
3  REM   TO ENTER THIS PROGRAM IN ONLY 2 LINES, YOU MU
       ST TYPE IT WITH NO SPACES AND SUBSTITUTE A "?"
       FOR EACH "PRINT". ALSO, ADD A CTRL-D JUST AFTER
       THE FIRST QUOTE MARK ON "OPENX", "WRITEX" &
       "CLOSEX".
4  REM YOU MUST HAVE BOTH APPLESOFT AND INTEGER IN YOUR
       APPLE TO RUN THIS PROGRAM. IMPORTANT: SAVE
       BEFORE YOU RUN!
```
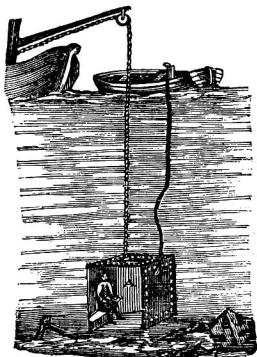
```
10  REM
    ==============
    TREASURE HUNT (requires paddles)
    ==============
```

Don't get all excited; this "game"
will NEVER make the Top Thirty, but it
WILL teach you a few things you may
not already know. Line 15 sets up a
shape table of a single dot (the
number 5 at 24580) that can be
stretched by the SCALE command. The
rems pretty much explain the rest.

```
15  POKE 24576,1: POKE 24577,0: POKE 24578,4: POKE 24579,
       0: POKE 24580,5: POKE 24581,0: REM SHAPE TABLE FOR
    LINE
20  POKE 232,0: POKE 233,96: REM POINTERS TO START OF SHAPE
       TABLE
30  PX = 279 / 255:PY = 191 / 255: REM PADDLE LIMITS
40  HGR : REM CLEAR & SET HI-RES SCREEN
50  HOME : VTAB 21: HTAB 4: REM CLEAR TEXT & PUT CURSOR
    IN VIEW
60  PRINT "CAN YOU FIND THE HIDDEN TREASURE?": VTAB 24: HTAB
       16: PRINT "(HINT: USE THE PADDLES.)";: REM SEMI-COLON
       PREVENTS VTAB 24 SCROLL-UP
70  XXX = 100:YYY = 50: HCOLOR= 3: HPLOT XXX - 10,YYY - 10
       TO XXX + 10,YYY + 10: HPLOT XXX - 10,YYY + 10 TO XX
    X + 10,YYY - 10: REM DRAW AN X
80  X = PX *  PDL (0):Y = PY *  PDL (1): REM READ PADDLES
90  SCALE= 255: ROT= 0: XDRAW 1 AT 0 + 24 * (X > 140),Y: REM
    DRAW HORIZONTAL LINE
100 SCALE= 191: ROT= 16: XDRAW 1 AT X,0: REM DRAW VERTICAL
    LINE
110 IF (X < XXX + 2 AND X > XXX - 2) AND (Y < YYY + 2 AND
    Y > YYY - 2) THEN  VTAB 22: HTAB 13: INVERSE : PRINT
    " YOU FOUND IT! ": FOR I = 1 TO 500: NEXT : NORMAL :
    VTAB 22: HTAB 13: PRINT  SPC( 15)
120 VTAB 24: HTAB 1: PRINT "X="; INT (X);"  Y="; INT (Y)
    ; SPC( 3): REM SPC(3) CLEARS EXTRA CHARACTERS
130 SCALE= 255: ROT= 0: XDRAW 1 AT 0 + 24 * (X > 140),Y:
    SCALE= 191: ROT= 16: XDRAW 1 AT X,0: REM ERASE BOTH
    LINES
140 IF  PEEK ( - 16384) > 127 THEN 160: REM CHECK FOR KEY
    PRESS
150 GOTO 80: REM GO BACK
160 POKE  - 16368,0: REM PREVENT KEYPRESS FROM PRINTING
    ON SCREEN
170 HOME : VTAB 22: PRINT "SO LONG!"
```


IF I WERE YOU,
I'D PHONE IN SICK
TOMORROW, AND
PLAY WITH MY
COMPUTER.
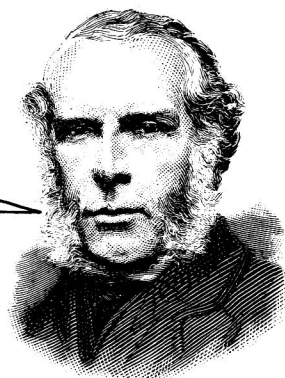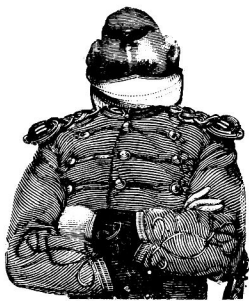
WEIRDNESS DEPARTMENT

1. Try this--

   BSAVE LONG PROGRAM,A$9000,L$7FFF

   This bsave will zap your text screen into lo-res and
   make little "vibration" marks on some of the lo-res
   color plots and even click the speaker (sometimes?).
   A Hopefully-Not-Too-Late Warning: Don't hit reset during
   disk access; you could foul up your disk. A good rule is
   to never hit reset while the "In Use" light is on. Open
   the drive door (gasp!) first if you must.
2. Long Applesoft token words like "INVERSE" and
   "NORMAL" fail to produce a carriage return when they
   appear near the right margin of listings; a real pain
   when you're printing listings.
3. If you DRAW or XDRAW without an HGR, HGR2 or similar
   command first, you will produce screen garbage.
4. RESET resets almost everything, but it won't reset
   SPEED to its normal 255 value.
5. Every OTHER time you CALL 64871 you get a ?SYNTAX
   ERROR.

(end of Weirdness Department)
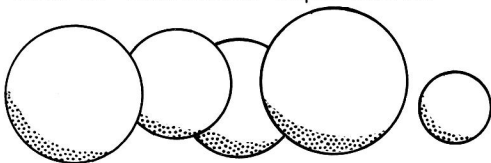
HI-RES CIRCLES

One of the most frequently-asked questions around here
(next to "Who zapped my disk?") is "How do you draw a
hi-res circle?" Well, here's one way--

```
20  HGR : HCOLOR= 3:ST = .1
30  POKE  - 16301,0: HOME : VTAB 22: HTAB 1: INPUT "ENTER
       X CENTER, Y CENTER, RADIUS:";XCTR,YCTR,RAD:FLAG = 0
       :ST = .1: POKE  - 16302,0
40  FOR I = 0 TO 6.3 STEP ST
50  X = RAD *  COS (I) + XCTR
60  Y = (RAD / 4) *  SIN (I) / .3 + YCTR
70  IF X > 279 OR X < 0 OR Y > 191 OR Y < 0 THEN FLAG = 0
       : GOTO 100
80  IF  NOT FLAG THEN  HPLOT X,Y:FLAG = 1
90  HPLOT  TO X,Y
100  NEXT : GOTO 30
```

Note the variable ST in Line 30. It determines how many
"sides" the circle will have. Change it and see.

CHR$(77); CHR$(69);
CHR$(79); CHR$(87);
CHR$(33); CHR$(33)

STRIPE-CAT
Another in a long series of good-for-nothing (but
worthless) Beagle Bros programs. What this one does is
write a text file called "C". To use it, type EXEC C.
What you will get is an entirely different type of
catalog. Oh, go AHEAD. Type it in.

```
40   PRINT   CHR$ (4);"OPEN C"
50   PRINT   CHR$ (4);"WRITE C"
60   PRINT "POKE 44452,12"
70   PRINT "POKE 44605,11"
80   PRINT "POKE 33,37"
90   PRINT "POKE 50,63"
100  PRINT "CATALOG"
110  PRINT "TEXT:VTAB22:NORMAL:POKE44452,24:POKE44605,23"
120  PRINT   CHR$ (4);"CLOSE"
```

```
10   REM
     ========
```
DOWNSCROLL
```
     ========
20   GOSUB 30: FOR N = A TO B STEP  - C: FOR I = N TO D STEP
      - E: FOR J = I TO I + F: POKE J, PEEK (J - E): NEXT
     : NEXT : FOR I = N - G TO N - H: POKE I, PEEK (I + K
     ): NEXT : NEXT : VTAB 1: HTAB 1: CALL  - 868: GOTO 2
     0
30   A = 2000:B = 1920:C = 40:D = 1132:E = 128:F = 39:G = 8
     96:H = 857:K = 856: RETURN
```
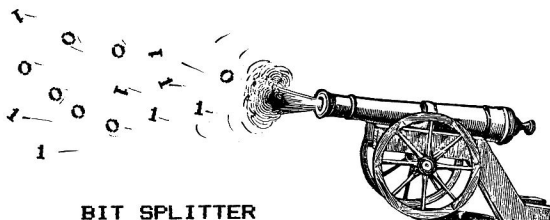

BIT SPLITTER
If you are having a tough time figuring out binary
numbers, here's a little demo that will help.

```
20   HOME : VTAB 8: HTAB 9
30   PRINT "128 64 32 16  8  4  2  1": HTAB 9
40   PRINT "--- -- -- -- -- -  -  -  -"
50   FOR J = 0 TO 255
60   FOR I = 1 TO 8:BIT(I) =  INT (J / 2 ^ (I - 1)):BIT(I)
     = BIT(I) - 2 *  INT (BIT(I) / 2): NEXT
70   VTAB 10: HTAB 4: PRINT  SPC( J < 100); SPC( J < 10);:
     INVERSE : PRINT J;: NORMAL : PRINT ":    ";
80   FOR I = 8 TO 1 STEP  - 1:B = BIT(I)
90   NORMAL : IF B = 1 THEN  INVERSE
100  PRINT B;: NORMAL : PRINT  SPC( 2);: NEXT
110  PRINT : NEXT
```
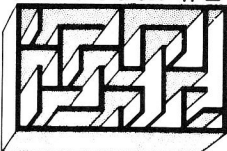
14

WEATHER CHART

Everybody's got to have weather, so why not use your Apple to keep a hi-res diary of what's up (and down) in your part of the country. This chart will help you keep track of four months' worth of high and low temperatures as well as daily rainfall. Check the newspaper or collect your data first hand.

Here's what you do; Step 1 is the hardest:

1. Type in both programs and SAVE them.
2. RUN the smaller program. It will ask for which month you want to start the four-month chart.
3. Let your disk drive write a text file for you called WEATHER DATES.
4. LOAD the larger program.
5. EXEC WEATHER DATES. About six pounds of program lines will be automatically added to your program (be glad you didn't have to type them).

LIST 100-, and take a look. Each line of DATA represents a different day. Line 101 would be January 1, Line 1103 would be November 3, etc. Add a Line 229 if this is a leap year. You will update these lines via the main menu each day. The program will halt if it encounters a day with three zeros, so if you want to skip a day, enter three S's as described on the screen. Let us know how everything goes.

========================
4-MONTH WEATHER CHART
========================

```
5   HOME : TEXT : RESTORE :G$ =  CHR$ (7):Q$ =  CHR$ (
    34): PRINT : VTAB 7: PRINT "WEATHER FOR CITYVILLE": GOSUB
    90: PRINT "JANUARY 1, 1985 - APRIL 30, 1985": GOSUB
    90
7   PRINT "<A> = ADD DATA": PRINT "<D> = DISPLAY DATA"
    : PRINT "<Q> = QUIT"
10  PRINT : PRINT "SELECT: ";: GET A$: PRINT A$: IF A
    $ = "D" THEN 60
15  IF A$ = "Q" THEN  PRINT : PRINT "JSAVE WEATHER CH
    ART": PRINT " IF NECESSARY.": VTAB  PEEK (37) -
    2: END
20  IF A$ < > "A" THEN 5
24  REM ===GET DATA===
25  HOME : PRINT "EXAMPLE:": PRINT "-----------------
    ---": PRINT " DATE: NOVEMBER 3": PRINT " HIGH
    TEMP: 77": PRINT " LOW TEMP:  58": PRINT " RAI
    NFALL: .36";Q$: PRINT
```

```
30    INVERSE : PRINT " ENTER WEATHER DATA AS FOLLOWS:
      ": NORMAL : PRINT : PRINT "1103 DATA 77, 58, 0.3
      6: REM 11/3"
37    PRINT : INVERSE : PRINT " OR, TO SKIP A DAY, ENTE
      R: ": NORMAL : HTAB 9: PRINT "----": PRINT "1103
      DATA S, S, S: REM 11/3": GOSUB 90
40    FOR I = 1 TO 365: READ H$,L$,R$: IF H$ = "00" AND
      L$ = "00" THEN LINE = PEEK (123) + PEEK (124) *
      256: GOTO 55
45    NEXT
55    PRINT : INVERSE :A$ = "ENTER WEATHER DATA BELOW,
      RUN AND SAVE.": SPEED= 180: PRINT A$;: NORMAL : HTAB
      1: SPEED= 255: PRINT A$
56 M =  INT (LINE / 100): IF M > 12 THEN M = M - 12
57    PRINT : PRINT "] ";LINE;" DATA 00, 00, 0.00: REM
      ";M;"/";LINE -  INT (LINE / 100) * 100: PRINT : PRINT
      "] SAVE WEATHER CHART": PRINT : PRINT "] RUN": VTAB
      PEEK (37) - 5: PRINT G$;: END
59    REM ===CHART===
60    HGR2 : FOR Y = 0 TO 190 STEP 10: HCOLOR= 2: IF Y -
      20 -  INT ((Y - 20) / 50) * 50 = 0 THEN  HCOLOR= 3
61    HPLOT 0,Y TO 279,Y: NEXT : HCOLOR= 0: FOR X = 14 TO
      279 STEP 60: HPLOT X + 1,0 TO X + 1,191: HPLOT X
      ,0 TO X,191: NEXT
65    X = 15: FOR DA = 1 TO 365: READ H$,L$,R$: IF H$ =
      "00" AND L$ = "00" THEN  GET A$: PRINT A$: GOTO 5
70    IF H$ > "@" THEN X = X + 2: GOTO 85
75    H =  VAL (H$):L =  VAL (L$):R =  VAL (R$): IF H =
      0 AND L = 0 AND R = 0 THEN 85
77    IF H > 120 THEN H = 120
78    IF L <  - 70 THEN L =  - 70
79    REM ===PLOT===
80    H = 120 - H:L = 120 - L:M = L + (H - L) / 2:R = R *
      20: HCOLOR= 5: HPLOT X,H TO X,M - 1: HCOLOR= 1: HPLOT
      X,M + 1 TO X,L:X = X + 2
82    IF R THEN  HCOLOR= 6: HPLOT X - 1,190 - R TO X - 1,190
85    NEXT DA
90    FOR I = 1 TO 40: PRINT "-";: NEXT : RETURN
100   REM ===DATA===
101   REM "EXEC WEATHER DATES" TO CREATE DATA LINES.


===================
WEATHER DATES WRITER
===================
15    D$ =  CHR$ (4): PRINT D$;"MONICO"
20    HOME : INPUT "STARTING MONTH (1-12): ";ST: IF ST >
      12 OR ST < 1 THEN 20
30    IF ST > 1 THEN  FOR I = 1 TO ST - 1: READ A: NEXT
40    PRINT D$;"OPEN WEATHER DATES": PRINT D$;"DELETE W
      EATHER DATES": PRINT D$;"OPEN WEATHER DATES": PRINT
      D$;"WRITE WEATHER DATES"
50    FOR M = ST TO ST + 3
60    MO = M: IF MO > 12 THEN MO = MO - 12
70    READ L: FOR DAY = 1 TO L
80    PRINT 100 * M + DAY;" DATA00,00,0.00:REM";MO;"/";DAY
90    NEXT : NEXT
100   PRINT D$;"CLOSE"
110   DATA 31,28,31,30,31,30,31,31,30,31,30,31,31,28,31
```

TWIRLERS

Why bore your audience with an old soggy flashing cursor when you can easily program in something a little bit different!?

```
10   REM
============
BATON GETTER
============
20   CURS$ = "!/-\":C = 1:Q$ =   CHR$ (34):L =   LEN (CURS$):
     SPEED= 177
30   HOME : VTAB 10: PRINT "! PRESS ANY KEY WHEN READY."
40   VTAB 10: PRINT  MID$ (CURS$,C,1)
50   KEY =   PEEK ( - 16384): IF KEY < 128 THEN C = C + 1 -
     L * (C = L): GOTO 40
60   POKE   - 16368,0: VTAB 10: HTAB 3: PRINT "THANK YOU FO
     R PRESSING THE ";Q$;( CHR$ (KEY));Q$;" KEY.": VTAB 9
     : SPEED= 255
```

```
10   REM
============
BATON ROLLER
============
20   CURSR$ = "!/-\":H = 1:C = H:M = H:Q$ =   CHR$ (34)
30   HOME : VTAB 11: PRINT " :::::::: HIT ANY KEY WHEN READ
     Y.::::::::"
40   VTAB 10: HTAB H: PRINT " "; MID$ (CURSR$,C,1);" ";: FOR
     I = 1 TO 33: NEXT
50   KEY =   PEEK ( - 16384): IF KEY > 127 THEN 80
60   IF M = 1 THEN C = C + 1 - 4 * (C = 4):H = H + 1: IF H
     > 39 THEN M =   - 1
70   IF M =   - 1 THEN C = C - 1 + 4 * (C = 1):H = H - 1: IF
     H < 2 THEN M = 1
75   GOTO 40
80   POKE   - 16368,0: HOME : VTAB 11: PRINT "THANK YOU FOR
     PRESSING THE ";Q$;( CHR$ (KEY));Q$;" KEY."
```


IGNORE THE FOLLOWING PROGRAM, AND TURN THE PAGE.
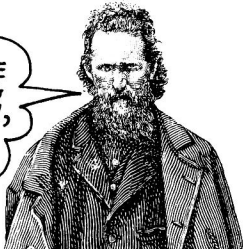
HEXABET?

I was noticing how some four-letter hex addresses can look like words; like $BEEF, and $FACE and $1DEA. So, I wrote this program to find them all. I took a little artistic license, and let zero be a letter O, and one be an I. You could adapt this program to print every possible four-letter word using the entire alphabet, by changing A$ in Line 30 to "ABCDEFGHIJKLMNOPQRSTUVWXYZ", and by changing the 8's in Line 40 to 26's. It will take quite a while to run however. You COULD speed it up by rejecting all words with three or four vowels or consonants in a row.

```
20   PRINT "HEX DICTIONARY:": PRINT "----------------"
30   A$ = "ABCDEF10"
40   FOR A = 1 TO 8: FOR B = 1 TO 8: FOR C = 1 TO 8: FOR D
     = 1 TO 8: PRINT  MID$ (A$,A,1); MID$ (A$,B,1); MID$
     (A$,C,1); MID$ (A$,D,1);" ";
50   NEXT : NEXT : PRINT : NEXT : PRINT : NEXT
```

PLEASE PARS THE VARIABLES

Applesoft can do some weird things with variables. For instance, the statement,

IF X = T AND Y = O THEN PRINT

will be respaced or "parsed" to read,

IF X = TAN DY = O THEN PRINT

and cause a ?SYNTAX ERROR, because TAN is a reserved word meaning tangent. To prevent this, rename the variable or put it in parentheses:

IF X = (T) AND Y = O THEN PRINT

More details on parsing are somewhere in your Applesoft Manual. I don't have time right now to check the page number.

INSIGNIFICA

> You can't boot from Drive #2.
> Escape-@ clears the text screen and leaves you with a cursor, but NO PROMPT.
> You can use a GOSUB as a direct keyboard command; good for testing a subroutine.
> "PR36" won't boot a disk.
> "NEXT:NEXT" uses less memory than "NEXT X,Y" and might even be faster (check it and let us know).
> Everything in a program line after an ONERR statement is ignored by Applesoft.
> Everything in a program line after a REM statement is ignored by Applesoft.
> Everything in a program line after a GOTO statement is ignored by Applesoft.
> A language card has to go in Slot #0, but other cards may go anywhere. Traditionally, printers are connected to Slot #1 and disk drives are connected to Slot #6 and Slot #5.

PRE-BOOT NEWS

You can turn your Apple on or do a PR#6 BEFORE inserting a disk. It's reasonably safe to insert a disk into a drive that is running...

...I think.   **19**

TO JUSTIFY OR NOT TO JUSTIFY

Computerers with printers get all excited about justified type. I don't, as you can see by the text format in this Tip Book (printed on my Epson MX-80, by the way). Justified type is attractive if the extra spacing necessary is done evenly and in very small increments, but lower-cost printers add space only between words, usually all on the left side of the paragraph, and don't really produce super attractive results. These two paragraphs make a fair comparison. What do you think?

TO JUSTIFY OR NOT TO JUSTIFY

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INVERSE INIT

You can INIT a disk with an inverse greeting program name, but you can't Master Create it without changing the name to normal text.
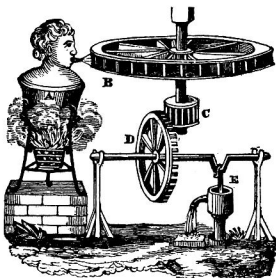
WORKING(?)

Many programs use a flashing "WORKING" note to tell you to stand by while the computer does some task of indeterminate length (sorting, for example). The problem is that for all you know, the program is frozen and will NEVER finish. A better "working" symbol would be one that slows down or stops when the program slows down or stops; something like:

```
999  HOME
1000 W = W + 1: VTAB 10: HTAB 1 + (W - INT (W / 2) * 2 =
     0): PRINT  SPC( 1);"WORKING"; SPC( 1)
1010  REM (working subroutine here)
1020  FOR I = 1 TO 250: NEXT
1030  IF W < 15 THEN 1000
1040  VTAB 10: HTAB 1: PRINT "DONE";: CALL   - 958: VTAB 20
```

The "working" routine of your program should encounter line 1000 repeatedly. Line 1020 is for demo purposes only.

THE MYSTERIOUS COLOR BIT

You may have wondered if there is a difference between the colors BLACK #0 & BLACK #4 and WHITE #3 & WHITE #7. Well, here's an experiment that proves these different colors really do exist:

First, get Alpha Plot running and CLEAR THE SCREEN in a color OTHER THAN WHITE OR BLACK. Now, switch pages with Option 6-S and CLEAR THE SCREEN IN COLOR #0, BLACK. You now have a solid color on Page 2 and a black screen on Page 1.

Now, SET THE COLOR TO 4 (the other black). At various places on the screen, draw some filled boxes and ellipses. Since you are drawing black on black, they won't look like much, but trust me...

Here's the fun part-- Select Option 6-M for Merge. Select Merge Option #2, Xdraw Page 1 onto 2. Now look at Page 2. Your invisible figures have APPEARED! If you pick the same merge option again, they will disappear before your very eyes!

Now try this-- Go back to Drawing Mode on Page 1. Use the Rubber Band Cursor, and line it up vertically over some of your invisible figures. Wherever the Rubber Band intersects your shapes, it will take a little sideways step and change colors. Once again, you can see the reality of the invisible color bit!

Beagle Bros TipDisk

Hey out there! Don't type in all of those programs from the Beagle Bros Tip Books! Here they are--typed, tested and ready to run--ALL OF THE PROGRAM LISTINGS FROM TIP BOOKS 1, 2, 3 AND 4! Many are useful; some are useless; ALL are interesting, listable and copyable. And each program teaches another elusive fact about making your Apple do its thing. No one around here has had time to count them all, but you can figure around four times as many programs as you have here in this Tip Book. The Two-Liners too, from all over the world (and elsewhere). Order now, and you'll have your disk in a few days!

PEEK (222)

Beagle Bros™ MICRO SOFTWARE

ONERR TELL ME

ONERR GOSUB and ONERR GOTO are great for keeping a
program on it's feet and running when an error is
encountered. But you want to CATCH those errors if you
are programming. You should either take the ONERR
statement temporarily out of your programs or put Line
1000 (below) in. Actually, this line could be put into
ALL of your programs.

```
10    G$=CHR$(7): ONERR GOTO 1000
20    X=X+1: NORMAL: PRINT X,
30    IF X = 19 THEN PRITN "NINETEEN": REM
      INTENTIONAL ERROR
40    IF X = 30 THEN GOTO 99: REM
      INTENTIONAL ERROR
50    IF X<35 THEN 20
60    END
1000  INVERSE: PRINT G$;" ERROR #";PEEK(222);" ON
      LINE ";PEEK(218)+PEEK(219)*256;".": GOTO 20
```

Run the program and compare the error numbers with the
ONERR codes in your Applesoft Manual.

APPLE II COMMANDS
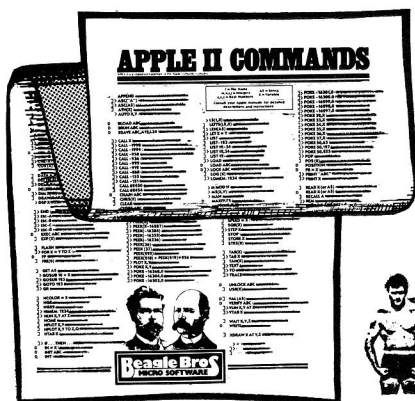
SINCE I GOT MY
BEAGLE BROS. COMMAND
CHART, I'VE ACQUIRED
NEW VIM AND VIGOR!

*An unsolicited endorsement

A $2.50 FREEBEE

We've retired the old Apple Command Chart as the head
Beagle Bros freebee, and replaced it with our Peeks &
Pokes Chart. We've still got plenty of Command Charts in
the attic though, really nice too-- a handy alphabetical
list of 190 Applesoft, Integer and DOS commands. If you
want one, send us $2.50 + 75 cents postage & handling
(don't you hate it when mail order places do that?), and
we'll send you a Command Chart right away.
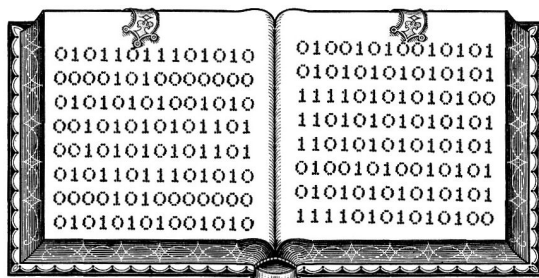
HI-RES PAGE THREE!

I don't know if Apple calls it Page Three, but I do. I discovered by accident that you can store a full-screen Hi-Res image above Page Two, and move it to one of the viewing pages (Page One or Page Two) anytime you want. There's a pointer at location 230 ($E6) that tells you what page you are DRAWING on. Use the following pokes to change the drawing page:

POKE 230,32 (Draw on Page One)
POKE 230,64 (Draw on Page Two)
POKE 230,96 (Draw on Page Three)

The page you are LOOKING at, One or Two, is determined by HGR or HGR2, whichever is more recent, or by the display switches at -16299 and -16300:

POKE -16300,0 (Look at Page One)
POKE -16299,0 (Look at Page Two)

Now, let's try a test. Type in the following program:

```
10  HGR2: HGR: HCOLOR=3: POKE 230,96:
    REM SET-UP DRAW ON PAGE 3
20  HPLOT 0,0 TO 279,191: HPLOT 0,191 TO 279,0:
    REM DRAW AN X (WON'T SHOW)
30  VTAB 21:END
```

You just drew a big X on Page Three, and you're looking at a blank Page One. Page Two is blank as well. To move the X to Page One so we can see it, enter the monitor and move the picture in memory, like so:

CALL-151 (return)
2000<6000.7FFFM (return)

Page One resides in memory locations $2000 to $3FFF (8192 to 16383). Page Two is $4000 to $5FFF (16384 to 24575). Page Three is $6000 to $7FFF (24576 to 32766). Knowing this, you can move an image from one page to another by altering the numbers in the above move command. Remember, however, that to LOOK at a certain page, you have to throw the -16300 or -16299 switch, and you can't look at Page Three.

I guess I should mention... "Page Zero" in Hi-Res terminology would encompass memory locations $0 through $1FFF", which includes the real Page Zero ($00-$FF). "Drawing" on this page can be disastrous. This is exactly what happens if you turn on your Apple and start hplotting without doing an HGR or POKE 230,32. Because the value at location 230 is zero, you overwrite Page Zero and really make a mess. Likewise, "Page Four" is unusable, because that's where DOS is. Don't draw on DOS!

TELETYPER

Instead of having type just appear on the screen, why
not give it some importance with a fancy printing
cursor and a little noise. It seems like computers are
SUPPOSED to do this! Insert your own copy in Line 50.

```
20 CURSR$ = "+>": SPEED= 210
30  FOR I = 1 TO  LEN (CURSR$):CURSR$ = CURSR$ +  CHR$ (8
    ): NEXT
40  HOME : VTAB 7: GOSUB 100
50 A$ = "ONE DAY, IN THE MIDDLE OF THE NIGHT, TWODEAD BOY
    S GOT UP TO FIGHT. BACK TO BACK,THEY FACED EACH OTHE
    R: DREW THEIR SWORDSAND SHOT EACH OTHER.  A DEAF POL
    ICEMAN  HEARD THE NOISE, AND CAME AND KILLED     THOS
    E TWO DEAD BOYS.": GOSUB 70
60  PRINT : GOSUB 100: SPEED= 255: VTAB 22: END
70  FOR I = 1 TO  LEN (A$): INVERSE : PRINT CURSR$;: NORMAL
    :M$ =  MID$ (A$,I,1): PRINT M$;: IF M$ = " " OR M$ =
    "." THEN  FOR J = 1 TO 25 + 150 * (M$ = "."): NEXT
80  IF M$ <  > " " THEN  FOR J = 1 TO 2:S =  PEEK ( - 163
    36): NEXT
90  NEXT : CALL  - 868: PRINT : RETURN
100 A$ = "": FOR I = 1 TO 40:A$ = A$ + "-": NEXT : GOSUB
    70: RETURN
```

GET PROMPT

PRINT PEEK(51). Better yet, PRINT CHR$(PEEK(51)) if
you're using Applesoft. This little excercise will show
you what language you are using (in case you didn't
know!) by printing its prompt character. Integer's ">"
is represented at location 51 im memory by a value of
190. Applesoft's "]" is a 221. Try to POKE in a
different number... Forget it; you can't. Another
location that tells your language is 43702 in DOS (27318
if you've got 32K). PRINT PEEK(43702). If you're in
Integer, you'll get a zero. Applesoft ROM gives you a
64; Applesoft RAM a 128.
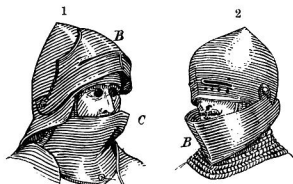
PLAY IT SAFE

SAVE each program you type before you RUN it. Sometimes
a bug or typo will cause a program to self-destruct
when it's run.

UTILITY CITY is a huge collection of Applesoft utilities that will keep you off of the streets for a LONG time. My favorite is XLISTER, a listing printout routine, demonstrated at the left. Everything is properly spaced; Each program statement appears on a new line; If-thens are called out, and. Loops are indented. Here's the entire list of U-City programs, in no particular order:

FILENAME ZAP:
Invisible, inverse & trick file names
MULTI-CAT:
Multi-column catalogs to any-width printer
SCREENWRITER:
Layout & format text directly on the screen.
XLISTER:
A properly-spaced lister. See above.
COMMAND ZAP:
Puts invisible commands in your programs.
DOUBLE LOADER:
Run a file while another stays intact.
HEX, DEC & DEX:
Hex conversions while your program stays intact.
INT CONVERTER:
Convert Integer BASIC to Applesoft.
KEY-CAT:
1-key program selection (also on Dos Boss).
LINE SEARCH:
Locates program lines for "illegal" alteration.
BIGLINER:
Renumber to 65535 for program protection.
CONNECT:
Append two Applesoft programs to make one.
KILL-CAT:
Allows a ctrl-C clean escape from long catalogs.
RUN/DATE COUNTER:
Posts an updated run number or date when run.
TEXT DUMP:
Send your text screen to any printer.
ADDRESS CHECKER:
Learn while you snoop through memory.
BFIND:
Finds binary program start address and length.
SORTFILE:
Sort, store and manipulate data on disk.
CHR$ POKER:
Finds text screen locations.
REM ZAP:
Puts invisible rem statements in your listings
REM FIND:
Converts zapped rems to temporary INVERSE

NORMAL LISTING:

```
530  SCALE= J: ROT= 32 : (X2 > XN
     ): XDRAW 4 AT XN,YN: XDRAW 4
     AT XN,Y2: SCALE= ABS (YN -
     Y2) - 1 + 2 : (YN = Y2): ROT=
     16 + 32 : (Y2 > YN): XDRAW 4
     AT XN,YN + 1 - 2 : (YN > Y2
     ): XDRAW 4 AT X2,YN + 1 - 2 :
     (YN > Y2): ROT= R: SCALE= 1
535  IF ABS (XN - X2) > 255 THEN
        SCALE= ABS (XN - X2) - 254
     : ROT= 0 + 32 : (XN > X2): XDRAW
     4 AT X2,YN: XDRAW 4 AT X2,Y2
560  HPLOT X2,YN TO XN,YN TO XN,Y
     2 TO X2,Y2 TO X2,YN: IF C =
     4 OR C = 7 THEN J = X2 + 1 -
     (X2 = 279): HPLOT J,YN TO J,
     Y2:J = XN + 1 - (XN = 279): HPLOT
     J,YN TO J,Y2
```

RE-FORMATTED LISTING:

```
---------------------
530  SCALE= J
   : ROT= 32 : (X2 > XN)
   : XDRAW 4 AT XN,YN
   : XDRAW 4 AT XN,Y2
   : SCALE= ABS (YN - Y2) - 1 + 2 :
     (YN = Y2)
   : ROT= 16 + 32 : (Y2 > YN)
   : XDRAW 4 AT XN,YN + 1 - 2 : (YN > Y2)
   : XDRAW 4 AT X2,YN + 1 - 2 : (YN > Y2)
   : ROT= R
   : SCALE= 1
---------------------
535  IF ABS (XN - X2) > 255 THEN
        SCALE= ABS (XN - X2) - 254
 : : ROT= 0 + 32 : (XN > X2)
 : : XDRAW 4 AT X2,YN
 : : XDRAW 4 AT X2,Y2
---------------------
560  HPLOT X2,YN TO XN,YN TO XN,Y2 TO
        X2,Y2 TO X2,YN
   : IF C = 4 OR C = 7 THEN J = X2 +
     1 - (X2 = 279)
 : : HPLOT J,YN TO J,Y2
 : : J = XN + 1 - (XN = 279)
 : : HPLOT J,YN TO J,Y2
---------------------
```

Alpha Plot Instructions

General Information

Alpha Plot is a sophisticated Hi-Res graphics program
that will let you flex your Apple's Hi-Res capabilities
to create colorful drawings and detailed charts and
graphs. These instructions will do their best job if you
run Alpha Plot and experiment while you read. Most of
the details not in the instructions are printed on the
screen.

ALPHA INFO

Any changes or suggestions that we have come up with
since this book was printed appear on the Alpha Plot
disk. Run the "Alpha Info" program.

KEYBOARD CHART
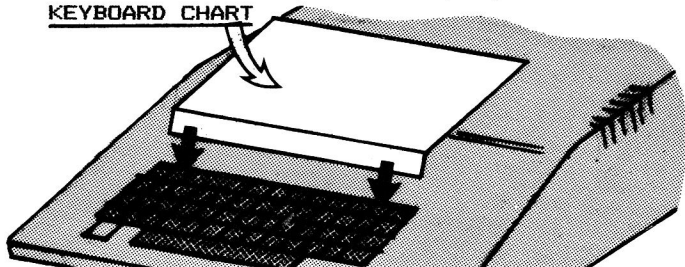
Insert the keyboard chart that came with the disk behind
the top row of keys on your Apple. The chart keeps all
Alpha Plot commands in front of you and prevents the
need for remembering the many key codes. All but a few
Alpha Plot functions are initiated by pressing a top-row
key.

ALPHA PLOT'S TWO MODES

Alpha Plot features a Drawing Mode and a Typing Mode. To
enter either mode, select Key Chart Option 4, then D or
T, OR type ctrl-D or ctrl-T while typing or drawing. In
the Drawing Mode, you can do everything EXCEPT type.
Typing Mode lets you type and access Options 1-6.

TWO IMAGE PAGES

The Apple has two Hi-Resolution screens or "Pages",
called Page 1 and Page 2. With Alpha Plot, you can store
two images in memory at the same time and view either
one. Alpha Plot lets you draw or type only on Page 1,
but you may easily move images from Page 1 to Page 2 and
back, and from memory to disk and back from or to either
page. You may, of course, store as many images as you
want on disk.

APPLE'S SCREEN LAYOUT

Apple's Hi-Res screens measure 280 plots wide (0-279) by
192 plots high (0-191). Four colors (1,2,5,6), two
blacks (0,4) and two whites (3,7) are available for
Hi-Res plotting. See "<1> Color Selection" and your
Applesoft Manual and for more information.

CURSOR MOVES
Cursor moves from the Drawing and Typing Modes are
similar. From the Typing Mode, you must press the CTRL
key WHILE you press the appropriate cursor-move key.
Otherwise, you would type the letter on the screen.

Space Bar
= Draw/No Draw Key

KEY	DIRECTION	AMOUNT
L.Arrow	Left	1 unit
(ctrl)-K	Left	1 plot
R.Arrow	Right	1 unit
(ctrl)-L	Right	1 plot
(ctrl)-A	Up	1 unit
(ctrl)-S	Up	1 plot
(ctrl)-Z	Down	1 unit
(ctrl)-X	Down	1 plot
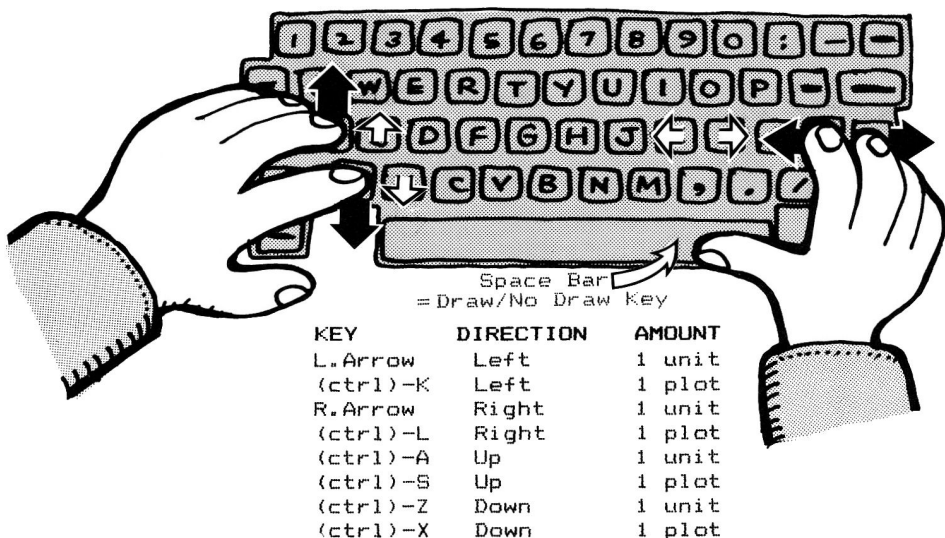
See more about units, plots, and other cursor-move
features in the Typing Mode and Drawing Mode sections.
The Alpha Plot key layout works well for comfortable
two-hand operation. Notice that the plot-move keys are
adjacent to the unit-move keys.

<RETURN>
If you find yourself in a part of Alpha Plot you don't
want to be in (for example, you might accidentally press
a 5 and be in the "Erase the Screen" mode), pressing the
<RETURN> key as an answer to a question will usually get
you back to the Drawing or Typing mode.

COMPATIBILITY WITH NORMAL DISKS
Images created with Alpha Plot are completely compatible
with your normal programs and disks. Therefore, you may
use pictures made with Alpha Plot in your own programs.
Run and list the program on the Alpha Plot disk called
"PICTURE BLOAD DEMO" if you are unfamiliar with loading
and viewing hi-res pictures under program control.

SAVE TO BE SAFE
Making a drawing on your Apple is quite a bit like
programming. The more you plan, the better things turn
out. The more you practice, the more efficient you will
be. As with programming, SAVE YOUR WORK from time to
time in case you want to continue drawing from where you
were ten minutes ago (or in case the dog pulls the
plug).

Starting Out

Boot the Alpha Plot disk, and choose the "Run Alpha Plot" option. Answer Y to "Clear the Hi-Res screen?" (or answer N if you have pictures in memory that you want to keep). After the usual amount of disk-whirring, you will be presented with Hi-Res Page 1, with text at the bottom of the screen offering you the choices D, T, L and S for Draw, Type, Load and Save. You will re-encounter this portion of the program each time you press the 4 key. More later about that.

Drawing Mode

From this mode you can do anything except type-- plot lines, dots, ellipses and boxes, and perform page and image manipulations.

MOVING THE CURSOR
When you first run Alpha Plot, you will see a flickering squarish dot on the screen. This is the XO CURSOR, actually four cursors in one. Press the A, Z and Arrow keys a few times to separate the four cursors and to get a feel for cursor movement. Try the K, L, S and X keys too for one-plot movement. Notice how the O part of the cursor is controlled by you while The X stays in one position, and the two dots go along for the ride.

CURSOR JUMPS
How far your cursor goes with each keypress is determined by the SPEED (9 key). However, you may JUMP the cursor 50 PLOTS without changing the speed. Simply press <ESC>, then A, Z or an Arrow. To jump 150 plots down from the top of the screen, for example, type <ESC>-Z-<ESC>-Z-<ESC>-Z.

CURSOR COORDINATES and OFFSET
At the bottom left of the screen is information regarding the current position of the cursor. The H and V values after the word "CURSOR" represent the horizontal and vertical coordinates of the O part of the cursor. The "OFFSET" values represent the horizontal and vertical distances BETWEEN the X and the O. Notice that coordinates H=0 and V=0 place the cursor at the upper left of the screen and coordinates H=279 and V=191 place it at the lower right.

> **NOTE: To exit the Drawing Mode, type "4" or ctrl-T.**

THE KEYS
Except for cursor moves, **most** Alpha Plot features are controlled by the top row of keys as indicated on your Keyboard Chart. Here is a discussion of each key and what it does.

(Space Bar) Draw/Move Selection

Press the space bar and you will see the flashing word, "DRAW", on the top left text line. Now move your cursor and it will indeed draw. Press the space bar again and "DRAW" will change to "MOVE", meaning you can move the cursor without drawing. The space bar is used because it

is easily reachable with your thumb while you are
manipulating the cursor. To plot a single dot, press the
space bar twice and move the cursor away.

(Return) Zero Offset

Pressing the <Return> key while you are in the Drawing
Mode will set the offset to zero and place all four
corners of the XO Cursor on top of the O. This same
feature is accomplished by pressing 8 and Z. See "<8>
Modify Cursor".

(1) Color

Press the 1 key and you can select your Drawing or
Typing (size>1) color. If Alpha Plot isn't drawing or
typing when you think it should be, maybe you have the
drawing color set the same as your background. To select
a new color quickly, simply type 1-3 or 1-6 or
1-whatever, depending on the color you want.

COLOR BUGS

1. The Apple won't let you draw certain colors in
certain vertical columns. You can only draw in Colors
1 and 5 in ODD-NUMBERED columns. Colors 2 and 6 only
appear in EVEN-NUMBERED columns. Alpha Plot corrects
this by moving the cursor one plot over when
necessary.
2. A WHITE VERTICAL line will appear in color unless
you plot another line directly next to it. Alpha Plot
does this for you for Colors 4 (Black) and 7 (White),
but NOT for Colors 0 (Black) and 3 (White). That way
you have a choice when drawing vertical lines.

SPECIAL COLORS: 8 & 9

COLOR #8 (REVERSE) lets you draw lines or boxes (not
ellipses) in the OPPOSITE of the background color.
These lines and boxes may be erased by re-drawing over
them in Reverse. Experiment and see.
COLOR #9 (MIX) lets you select TWO COLORS (not
Reverse) for drawing filled boxes and ellipses. Every
other horizontal line will appear in each color. You
can create many different shades and hues by mixing
colors (and by adjusting a few of the knobs on your tv
set!). Load the "Color Chart" picture from the Alpha
Plot disk to see the range of color possibilities. If
your color is #9 (mix), your drawing color for lines
will be the FIRST COLOR of the mix.

(2) Notes

The notes at the bottom of the screen may be turned off
to reveal whatever image may be behind the notes. Press
2 for full-screen graphics or to turn the notes back on
again.

(3) Grid

Press 3 to draw a Hi-Res grid over your picture. Press 3
again and the grid will be erased (that's Color #8
again!). There are dots at every ten plots in both
directions. The grid lines are 100 plots apart. It is
best NOT to draw or type with the grid on the screen

unless you want the grid as a permanent part of your picture. When the grid erases, it will draw little dots and stripes on any NEW parts of your drawing. Another way to access the grid is to draw it on Page 1 and store it on Page 2 (see Option 6).

(4) Draw, Type, Load & Save

Running Alpha Plot or selecting Key Chart Option 4 will get you into the "Draw, Type, Load, Save" mode with its animated text arrow. The Drawing Mode and Typing Modes (described earlier) may be entered from this option by selecting "D" or "T".

"Load" and "Save", selectable by pressing the L or S keys, let you load and save (actually BLOAD and BSAVE) hi-res pictures to and from disk. Hi-res pictures will usually appear as 34 sector binary (B) files in your catalogs. Scrunched picture files (see page 38) will be smaller.

You may catalog whatever disk is in your drive by first selecting L or S and then typing "CAT" (return) when a file name is requested. You cannot perform other DOS functions such as Lock and Unlock while using Alpha Plot. To resave a picture that is locked, save it with a different name OR save it onto another disk. If you want, you can even quit Alpha Plot and load and save hi-res images "by hand" by typing:

```
BLOAD PICTURE,A$2000          (page 1)
BLOAD PICTURE,A$4000          (page 2)
BSAVE PICTURE,A$2000,L$2000   (page 1)
BSAVE PICTURE,A$4000,L$2000   (page 2)
```

The "PICTURE BLOAD DEMO" program demonstrates more regarding handling of hi-res pictures.

ERRORS
If the disk is full or some other error occurs during a Load or Save, you will see an error message number on the screen and the program will continue. The error number represents the TYPE of error that has occured. Here are the most likely numbers: 4=WRITE PROTECTED, 6=FILE NOT FOUND, 8=I/O ERROR, 9=DISK FULL, 10=FILE LOCKED, 13=FILE TYPE MISMATCH. See your Applesoft Manual for the complete list. If you are attempting to save an image and get a DOS error, such as "File Type Mismatch" or "Disk Full", your picture will NOT BE SAVED completely. You will need to exit Alpha Plot, correct the problem, Run Alpha Plot, and save your image again.

(5) Clear the Screen

Press 5 and select the color you want to clear the screen. Your picture will be permanently erased unless you pick "Color" #8 which will give you a NEGATIVE IMAGE of the screen. "Erase" again with Color #8 and you'll get your positive image back!

(6) Image Options

Pressing 6 gives you four powerful options:

(6-P) SEE PAGE 2:
Press P, and you will see your Page 2 image (if there is one). Now press any key, and the screen will flicker between Pages 1 and 2 so you may compare them. Press any key again, and you are back to Page 1.

(6-S) SWITCH IMAGES:
Press S and your two pages will be switched. Now you can draw or type on your (former) Page 2 image.

(6-R) RELOCATE:
Any rectangular section of Page 1 may be duplicated on either page within the limits of the screen. BEFORE YOU SELECT OPTION 6-R, define the area to be moved with the four points of the XO cursor. Now press 6 and R, select 1 or 2 for the page you want the move made to and move the flashing rectangle to the desired new location. The 2 key will function here if you want to temporarily remove the screen notes. PRESS M TO MAKE THE TRANSFER or <Return> to escape. After the transfer has been made, you may delete the original section image by drawing a solid box over it.

(6-M) MERGE PAGES:
Alpha Plot lets you merge pictures four different ways. If you're into the terminology ("A OR B", etc.), here it is. If you're not, ignore this:

1. A OR B (Opaque Non-Black Page 1 onto Page 2)
2. A EOR B (Xdraw Page 1 onto Page 2)
3. A AND B (Opaque Black Page 1 onto Page 2)
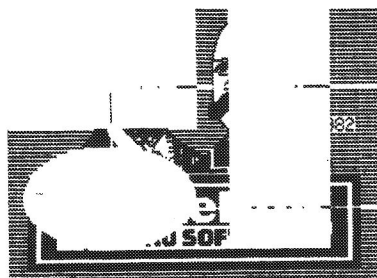4. A=B   (Compare/Combine)

You will want to experiment with each option. If your Page 2 picture is valuable, SAVE IT on disk BEFORE MERGING. Here are two sample images. The four possible merges appear on the next page.

PAGE 1 BEFORE MERGE
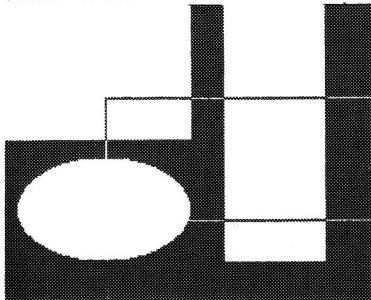
PAGE 2 BEFORE MERGE

PG.2 AFTER MERGE **OPTION 1**   PG.2 AFTER MERGE **OPTION 2**

PG.2 AFTER MERGE **OPTION 3**   PG.2 AFTER MERGE **OPTION 4**

(7) Keyboard/Paddle Switch

The 7 key will switch cursor control from paddles to
keyboard and back with a "KEY" or "PDL" appearing on the
top line of the screen notes. If you don't have paddles,
you don't need paddles; keyboard control is far more
accurate. Paddle-0 will move the drawing cursor
horizontally and Paddle-1 will move it vertically.
Paddles have no effect in the Typing Mode. All keys
except the cursor-move keys have their normal effect
with paddles in control.

(8) Modify Cursor

The 8 key lets you select or re-arrange the cursor. The
current cursor's symbol; "XO", "RB" or "--" will appear
in the screen notes.

(8-X) XO CURSOR

This is the Drawing cursor you will probably use most,
since it is the most versatile of the three available.
The XO cursor consists of four points. The O is the
drawing point, the X is a stationary reference point,
and the other two points assist in the drawing of
ellipses, boxes and lines. Pressing <Return> (or
Option 8-Z) or drawing a line (Option "-") will put
all four points on top of the O.

(8-B) RUBBER BAND CURSOR

The Rubber Band cursor works similarly to the XO
cursor, but shows you a stretchable projected line
between a stationary point and any other point you
select. Using this cursor, you can actually see a line
plot before you draw it. Pressing <Return> (or Option
8-Z) or drawing a line (Option "-") will give the

32

Rubber Band a length of zero.

(8-N) NO CURSOR
The no-cursor mode is used when you want to draw with
no distractions on the screen. With no cursor you can
do everything you can with either of the two visible
cursors.

(8-Z) ZERO OFFSET
Z will put all four XO Cursor points on top of the
current O position, or make the length of the Rubber
Band Cursor zero. Select Z when you want to move the
usually stationary X position. Pressing <Return> from
the Drawing Mode is the same as selecting 8-Z.

(8-R) ROTATE LEFT
R rotates the XO Cursor points or the Rubber Band 90
degrees counter-clockwise (unpredictable in PDL mode).

(9) Speed
Speed determines the NUMBER OF PLOTS the cursor will
plot or move for each A, Z or Arrow keypress. You may
select speeds 1-9 by pressing the appropriate number.
Pressing a zero will select a speed of 10. "*" is 20 and
"-" is 40. S, X, K and L will move the cursor ONE PLOT
regardless of the speed. <ESC> plus A, Z, or an Arrow
key will move the cursor 50 PLOTS regardless of the
speed. To quickly select a new speed, simply type 9-5 or
9-* or 9-whatever.

(0) Ellipse
Pressing the Zero key will draw an ellipse that would
touch each of the four sides of an imaginary box
connecting the four XO cursor points. Another Zero will
fill the ellipse. You do not have to wait for the circle
to be drawn to fill it (simply type two Zeros). You may
halt an ellipse while it is being drawn by pressing
<Return>. An ellipse may be any color or color mix, but
not Reverse. Theoretically, to draw a CIRCLE, the H and
V Offset values at the bottom of your screen should be
about EQUAL. This depends partly on the amount of
distortion on your monitor. Try a test.

(:) Box
Pressing a Colon will draw a linear box connecting the
four points of the XO cursor. Colors 4 and 7 black or
white boxes have fatter vertical sides. Colors 0 and 3
do not (see "Color Bugs"). A second Colon will fill the
box in the selected color or Reverse. You may use mixed
colors for drawing boxes (see more under Color
Selection).

(-) Line
Pressing a Minus-sign key will connect the X and O ends
of your XO cursor with a line or make an imprint of the
Rubber Band Cursor on the screen in the appropriate
color. The offset will be set to zero at the O end of
the cursor. To erase a Reverse line, simply draw over it
in Color #8.

(Reset) Quit

Hitting Reset OR CTRL-@ will give you the option of
exiting Alpha Plot. Note: With a reset exit, you risk
imprinting the cursor on your picture; no problem if you
have already saved your picture. Alpha Plot erases
itself when you quit. To list it, LOAD it, then LIST.

Typing Mode

Alpha Plot lets you type directly onto Page 1 using the
normal set of ASCII characters. There are a few
characteristics you will notice that make Alpha Plot's
type different from the type you are used to seeing on
your Apple screen--

LOWER CASE:

Whether or not you have lower-case hardware installed in
your Apple, you can type in upper and lower case with
Alpha Plot. The ESC key controls upper and lower case.

SAME-LINE WRAPAROUND:

When you reach the edge of the screen while typing in
any direction, the type will jump to the opposite
margin, but stay on the SAME LINE. Use the carriage
return when you reach the edge of the page (as you would
on a typewriter) if you don't want this to happen.

SCREEN POSITION:

Any character may appear at any vertical or horizontal
screen position. There is no connection between Alpha
Plot's type and Apple's HTABS and VTABS. Therefore, you
may adjust the distances between lines and characters,
and make vertical adjustments for subscripts,
superscripts and so on.

PROPORTIONAL SPACING:

With Alpha Plot text, each letter only takes up as much
horizontal space as is necessary. Most characters are
the normal five plots wide. Some characters, like I's
l's and f's, are narrower. Some, like W'S and M's, are
wider. Proportional type is attractive and easy to read,
and you can fit more characters per line on the screen
than with normal type. The only disadvantage comes in
backspacing, and vertical character alignment; a couple
of extra keystrokes are sometimes necessary to align
cursors and characters. Which brings us to--

CURSOR MOVEMENT

To move the cursor in the typing mode, you must HOLD
DOWN THE CTRL KEY while you press the cursor-move keys.
CTRL-A and CTRL-Z move the cursor up and down one the
height of one line of type (plus leading). The left and
right arrows (ctrl-optional) move the cursor left and
right the width of a normal character (7 plots at normal
type size and kerning). CTRL-S, CTRL-X, CTRL-K and
CTRL-L move ONE PLOT up, down, left and right, allowing
you to move to any precise spot on the screen.

```
┌─────────────────────────────────────────────────────┐
│ NOTE: To EXIT the Typing Mode, hit ctrl-D to draw,   │
│       or hit ctrl-O and "4" to draw, load or save.   │
└─────────────────────────────────────────────────────┘
```

CTRL-J: ERASE A SEGMENT

Ctrl-J will erase a letter segment one-plot wide and one-character high. You must follow each ctrl-J with a ctrl-K or ctrl-L to advance the cursor left or right.

<ESC> UPPER/LOWER CASE

The ESC key will set the upper & lower case switch in three different positions; 1:Lower Case Only, 2:First Character Upper Case and 3:Upper Case Only. Position 2 will produce a capital letter on the next keystroke and then switch to lower case operation. The height of the flashing cursor and the notes at the bottom of the screen will tell you whether the next character typed will be upper or lower case.

<CTRL-O> OPTIONS

Ctrl-O (letter O) will let you select typing options or exit the Typing Mode.

(Ctrl-O,1-6)

Drawing Options 1-6 (on your Keyboard Chart) are available from the Typing Mode AFTER TYPING CTRL-O.

(Ctrl-O,B) BIG COLOR (same as Option 1)

You may select the color for type larger than size 1. Due to the color dot layout of Apple's graphics system, normal-sized type in color is not readable, so it's not available on Alpha Plot.

(Ctrl-O,M) MODE

M changes the type output mode from Inverse to Normal to Xtype and back. Each Inverse and Normal character clears a path for itself, so you will always have white or black type on the opposite color. XTYPE will let you type over your drawings with the type changing color according to the background. Color type of size #1 is illegible, so don't use Xtype over a color background in size 1. Xtype is also sometimes hard to read when used over complicated backgrounds.

(Ctrl-O,R) ROTATE TYPING CURSOR

R allows you to type sideways (good for labeling graphs, etc.) and upside down (good for people who are upside down). The cursor points the direction of the type. Carriage returns and cursor move characteristics are rotated with the cursor.

(Ctrl-O,S) TYPE SIZE

You may type in four type sizes. Every time you press S, the type size will increase up to type-size #4. Then it will go back to #1 or normal-size type. You will need to type a bit slower with type larger than size 1.

(Ctrl-O,L) LEAD

L controls the vertical distance the cursor is moved for each carriage return, and thus determines the leading or space between type lines. Normal leading on the Apple is 1 (and somewhat hard to read). Because of Alpha Plot's lower case descenders (parts of letters like g's and y's that go beneath the base line), an extra space of leading is preferable, so 2 is standard.

(Ctrl-O,K) KERN

K lets you adjust the kerning or space between characters on the screen. Normal is 2, but adjust it to suit your preference, to squeeze more type into a small space or to stretch a line out to make a title or whatever. On a color monitor, type kerned one unit could be difficult to read.

Possible Problems

NO CURSOR

The Drawing or Typing cursor can get hidden behind the screen notes. Try moving the cursor up, or select Option 2 (or ctrl-O,2) to remove the notes. You will also have no cursor if you are in one of the Option modes (top row of keys). Try hitting <Return>.

THICK VERTICAL LINES

Use black or white colors 0 or 4 instead of #3 or #7.

NO PLOT OR TYPE

Check your plotting color. It could be the same as the background.

STUCK IN TYPING MODE

Press CTRL-O (Options) and select Option 4.

WHICH PAGE AM I LOOKING AT?

Usually Page 1. The only time you see Page 2 is through Option 6-P or M. If the screen notes are visible or if you have a cursor, you are looking at Page 1.

HOW DO I MAKE A PRINTOUT OF MY PICTURE?

You need two things-- a printer capable of printing hi-res AND hi-res "dump" software. Ask your Apple dealer.

CAN I USE DIFFERENT TYPEFACES WITH ALPHA PLOT?

No. You can, however, add different type styles to your Alpha Plot pictures using other software (Beagle Bros' APPLE MECHANIC disk, for example).

Also on the Alpha Plot Disk

ALPHA BOOT
This is the program that runs when you boot. It simply
BLOADs Alpha Code, Alpha Plot's machine language
programs, sets the Start of Program pointers to location
24577 ($6001), then RUNs Alpha Plot. If you run Alpha
Plot and Alpha Boot hasn't been run, Alpha Plot will run
Alpha Boot for you.

ALPHA CODE
This is the machine language section of Alpha Plot that
does Page switches, superimposing, and so on. It is
BLOADed by Alpha Boot.

ALPHA INFO
Run this program to see the latest changes (if any)
since these instructions were printed.

HI-LO PLOT
This program is fun if you like fooling around with
graphics. The program actually moves Hi-Res image values
from Page 1 ($2000) or Page 2 ($4000) down to LO-RES
Page 1 ($400). What you get is an abstract image of your
Hi-Res picture in Lo-Res. Since the Hi-Res screen is
much bigger than the Lo-Res screen, several versions of
the picture are available. Follow the screen
instructions. But first, do this--
1. Run Hi-Lo Plot.
2. Quit by pressing Q.
3. Load a Hi-Res picture onto Page 1 by typing "HGR" and
   "BLOAD FILENAME,A$2000". A good one to use is the
   "BBROS LOGO" on the Alpha Plot disk. Load a second
   picture onto Page 2 if you want by typing "HGR2" and
   "BLOAD FILENAME,A$4000".
4. Type "RUN", and select Option H. Follow the
   instructions and let things happen.
5. When you get a picture you like, exit the program
   with a Q, and type "BSAVE LO-RES,A$400,L$400".

Now let's convert the picture BACK TO HI-RES. This will
be an abstract of an abstract, not a real conversion.
6. Load the Lo-Res picture you just made onto LO-RES
   PAGE 2 by typing "BLOAD LO-RES,A$800". We have to use
   Page 2 because Apple's Text shares Page 1 with
   Lo-Res.
7. Type "RUN" again.
8. Select Option L. There's your abstract of an
   abstract! To save this picture, type "BSAVE
   HI-RES,A$2000,L$2000".
   Keep experimenting. Sooner or later, you'll come up
with some award-winners. The actual Hi-Lo Plot program
is named "^". The program you see in the catalog simply
changes some pointers to and runs "^" for you. Don't
tell anyone, o.k.?

SCRUNCH

Scrunch is a handy machine language program that lets you store hi-res pictures in much less than the normal 34 sectors of disk space, thus postponing DISK FULL error messages. Scrunch is easy to use, especially if you follow these directions carefully--

TO SCRUNCH (COMPRESS) A PICTURE--
1. Exit Alpha Plot if necessary. Scrunch has nothing to do with Alpha Plot.
2. Type "BLOAD SCRUNCH" (return).
3. Load a normal 34 sector hi-res picture onto PAGE ONE by typing "BLOAD PICTURE,A$2000" (return).
4. Type "**CALL 25000**" (return). This will put a compressed version of your picture onto Page Two. It won't be legible until you unscrunch it (see below).
5. Notice the "BSAVE" message on the screen. Store the scrunched version of your picture (now hiding on Page Two) by typing "BSAVE SCRUNCHPIC,A$4000,L$____" (return). Use any file name you want and the numbers you see on the screen.
6. Your picture is now compressed and stored on disk. Catalog and notice its new size. You may delete the original 34 sector version of the picture AFTER you are sure the compressed version will unscrunch.

TO UNSCRUNCH A PICTURE--
1. Type "BLOAD SCRUNCH" (return).
2. Load a scrunched picture onto PAGE TWO by typing "BLOAD SCRUNCHPIC,A$4000" (return).
3. Clear and view Page One by typing "HGR" (return). This step is optional.
4. Type "**CALL 25003**" (return).

Scrunch and unscrunch commands may be typed directly from the keyboard or executed from your Applesoft programs. You will only need to bload the Scrunch program once (NOT every time you manipulate a picture). Remember, to use DOS commands like BLOAD and BSAVE under program control they must be preceded by a ctrl-D. Consult your DOS Manual.

The Scrunch program is not relocatable.

The amount of scrunching that takes place on a given image depends mostly on the complexity of that image. Scrunched simple images occupy the least space.

Beagle Bros™
MICRO SOFTWARE

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Or phone:
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EXPIRATION DATE _____

TELEPHONE _____

SIGNATURE _____

Other Beagle Bros Apple Software

(WHAT'S NEW? CHECK OUR APPLE MAGAZINE ADS TO SEE.)

■ *GRAPHICS* ■

☐ **ALPHA PLOT** (II+, IIe, IIc)† $39.50
Normal hi-res (6 colors, 280x192 pixels) drawing and typing on both hi-res pages. Compress pictures to 1/3 disk space.

☐ **APPLE MECHANIC** (II+, IIe, IIc)† 29.50
Create hi-res shapes for animation with Applesoft's DRAW & XDRAW commands. Put fancy hi-res type in your programs. List & learn demo programs teach you hi-res programming.

☐ **APPLE MECHANIC TYPEFACES**† 20.00
26 new editable fonts to be used with Apple Mechanic.

☐ **BEAGLE GRAPHICS** (IIc or 128K IIe)★ 59.95
Double hi-res drawing (16 colors, 560x192 pixels) and typing in many typestyles (all editable). Color fill, cut & paste, 200+ color mixes. 33 new commands for using double-res in your programs. Convert normal hi-res pictures and programs to double hi-res, compress pix to 1/3 disk space...

☐ **FLEX TYPE** (II+, IIe, IIc)† 29.50
Variable-width text (wide, normal, condensed) controllable with normal Applesoft commands. No 80-column card reqd.

☐ **FRAME-UP** (II+, IIe, IIc)† 29.50
Make Apple "slide shows". Keyboard controlled or unattended, using your existing hi-res, lo-res and text screens.

☐ **TRIPLE-DUMP** (II+, IIe, IIc)★ 39.95
Transfer any image, including double hi-res, to your dot matrix printer. Make Giant (8" high characters) Banners too.

■ *ALL-PURPOSE* ■

☐ **DISKQUIK** (IIc or 128K IIe)† $29.50
Acts like half a disk drive in slot 3. Silent and fast as a hard disk. Load/save files in memory with normal commands.

☐ **FATCAT** (II+, IIe, IIc)★ 34.95
Reads all of your DOS 3.3 and ProDOS file names into one or more Master Catalogs for sorting, searching and printing. Alphabetize file names on disks. Compare any two files.

☐ **PRONTO-DOS** (II+, IIe, IIc)† 29.50
Triples the speed of loading and saving. New TYPE command displays text file contents. Move DOS for extra 10K.

■ *PROGRAMMING* ■

☐ **BEAGLE BASIC** (IIe, 64K II+)† $34.95
Puts Applesoft in RAM so you can change it and add enhancements—new commands like if-then-ELSE, SWAP variables, GOTO/GOSUB-a-variable, TONE, HSCRN, etc.

☐ **D CODE** (II+, IIe, IIc)★ 39.95
Compact Applesoft programs and reveal unused code. Auto-proofread Applesoft programs, even as you type. Trace any number of program statements *after* stopping a program...

☐ **DOS BOSS** (II+, IIe, IIc)† 24.00
Reword DOS 3.3 commands. Change "Catalog" to "Cat", "Syntax Error" to "Oops" or *anything*. Includes many meaty tips for altering DOS, including program "save-protection".

☐ **DOUBLE-TAKE** (II+, IIe, IIc)★ 34.95
2-way scroll for Listings & Catalogs. Better List-format, fast variable+line number display, better renumber/append, auto line-numbering, instant hex/dec converter and more.

☐ **GPLE** (II+, IIe, IIc)★ 49.95
Edit Applesoft without cursor-tracing. Features insert & delete and fast search & replace. Make all keys be "function keys" to type anything you like (ESC-1 catalogs disk, etc.). Move DOS 3.3 out of main memory to add 10K of space.

☐ **SILICON SALAD** (II+, IIe, IIc)† 24.95
Over 100 utilities and tricks— hi-res program splitter, DOS killer, disk scanner, hi-res text imprinter, 2-track catalog...

☐ **TIP DISK #1** (II+, IIe, IIc)† 20.00
100 tips on disk from Tip Books 1-4. Fascinating Apple programming techniques. Includes Apple Command Chart.

☐ **UTILITY CITY** (II+, IIe, IIc)† 29.50
21 utilities— List-formatter puts each statement on a new line, multi-column catalogs, invisible/trick file names, etc.

■ *GAMES* ■

☐ **BEAGLE BAG** (II+, IIe, IIc)† $29.50
12 games on one disk. Voted to 1983's MOST POPULAR list in *Softalk* poll. The best Apple game bargain on the market.

☐ **I. O. SILVER** (II+, IIe, IIc)† $29.95
Two games in one—a great strategy game and a fast action arcade game. Superb unlocked machine language graphics.

† Supports DOS 3.3 only
★ Supports DOS 3.3 *and* ProDOS™

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