ARCADIAN

Aug. 6,1982 Volume 4 Number 10

PROBLEMS WITH THE PRINTER require a couple of old fashioned typewritten words to fill in.
ADDITION to the Blue Ram ad:- Hardware is now being shipped from stock -- and they also have a 32K version, in the same box, for an additional $120.
ARCADIAN IMPROVEMENTS are slowly taking place - the latest really important news is the coming on board of Don Gladden, who will be Editing the Tutorials. He will locate and contact those authors, and set up a regular schedule for publication at various levels of expertise.
GAMES ready for release to be manufactured by the time you read this are: COSMIC RAIDER and SOLAR CONQUEROR.

STAR SIEGE (2) This completes the cycle on the Star Siege program fiasco I started on page 58. You will find the instructions there and the listing on page 101.

USER GROUP FORMING IN ALBUQUERQUE under theguidance of Jim Fauci, 1200 Sapphire, SW., 87105. Looks like he has also lined up a local dealer, Hewitt's TV at 2821 Girard, NE. 87107, 505-883-0984. Contact Jim for information as to location & times of meetings.
ANOTHER GROUP MEETING is being held this weekend at Home Arcade Electronics, hosted by Mark Krivulka at 3742 Maxson Rd, El Monte, CA 213 443 4189

INCENTIVE SCHEME mentioned before is now in place, and we can report the following. If you will send us the name and address of your local Astrovision dealer (preferably with business card or at least an individuals's name), we will offer to him a package of literature containing material from our advertisers, the ARCADIAN, and a demonstration tape. This tape is written in Astro Basic and demonstrates some of the capabilities of the Basic Videocade. It gives the retailer another tool to sell the Arcade. Samples of graphic displays, the color pallette, sounds/music, and finally winding up with a game that can be played against the machine. When we recive the retailer's order for this package, we wil send you a buck for your trouble. Obviously we can only give out one buck per reference to a specific retailer, so its first come first served.

ASSEMBLER IN DESIGN Based on the plaintive cries in the ARCADIAN, an assembler program is now being put together, and should be ready 1 Sep. The multi-program system with text editor will be supplied with a keypad overlay. It will have a segmented input so that the object program can be of any size (working on it in portions), but it will require at least 4K of extended memory starting at %(24576). The program will be on tape, and be available from General Video, 556 Langfield, Northville, MI 48167. Please contact them directly regarding cost or further details.

"FROG" IN ASTROBASIC We published FROG on page 68. It works in Bally Basic only, as written. Ron Mrozinski has found out that by keeping the line length down to no more than 46 bytes, the program will also run in Astro Basic. Al Rathmell checked into this, and reports that machine language routines are usually stored in the upper part of the text input line buffer (which extends from locations 20154 to 20257). FROG starts at location 20200 (the value of C in line 500 of the program.) The space in the buffer below 20200 (down to 20154) is therefore empty (and comprises 20200 - 20154 = 46 bytes). Now Astro Basic, in order to speed up operations, transfers each line to be executed into the line buffer first. Obviously, if the line is over 46 bytes, it will destroy anything that it overlaps in the space above 20200. So the solution is to convert FROG lines that are too long into short ones. To have FROG play in Astro Basic do not type in lines 40, 50, 55, and 770. Instead, type these which are identical, but broken into short segments:

```
40 &(22)=96;BOX-44,-22,3,5,3; Z=KN(1)c8+28
41 LINE X+Z,Y+Z,3;IF PX(X+Z,Y+Z) GOTO 55
50 S=S+6;LINE X+Z-7,Y+Z-7,3;BOX X+Z,Y+Z,13,13,2
51 BOX X+Z-7,Y+Z-7,1,1,3
55 S=S-1; CX=1;PRINT S,;&(22)=3
56 LINE X,Y,3;BOX-44,-22,3,5,3;GOTO 10
770 CY=32;CX=-50;BOX 0,32,120,16,3;BOX 0, 32,118,14,3
771 PRINT"SCORE",; I=CX
```

EXTENDED BASIC PROGRAM Included this month is a program written by the Alternative Engineering personnel to show off some of the features and capabilities of the Extended Basic language. Remember, this language requires at least 4K of additional memory, supplied by either the Blue Ram or the Viper systems. This program will work with either system, as far as I can tell. It approximates the early version of COLORING BOOK as shown at the July '81 CES, and allows you to draw pictures, move them about, reproduce them, save them, etc. It uses a menu system, where all the commands are shown on the screen, and you have only to point at them with your cursor. we hope that those of you with the added memory systems will find this of interest - and hopefully it will trigger some of you to submit other programs in Extended Basic.

HORIZONTAL SCROLLING This is a technique for the advanced Bally Basic programmer that will give him an added dimension in screen displays - moving all or part of the screen sideways! This machine routine uses the system ROM subroutine for moving blocks of data (38). Now one of you whiz kids should take off from this routine and figure out how to move only the screen data, leaving the program bytes unchanged, which will eliminate the wipe-out problem. And figure out how to do this in Astro Basic.

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GRAPHIX TABLET SIMULATOR

This program enables the user to create, animate, modify, and save programs so constructed. The entire program is menu driven, meaning that all you have to do is move the cursor with the joystick over to the desired selection and press the trigger to make the selection. The system is largely self-instructive. It begins by asking you to number your drawing - which you do by entering a number from 1 to 10 on the keypad (don't forget <GO>) When you make menu selections with the joystick, the computer will ask you questions. Answer these by means of the VIPER keyboard or the keypad.

FEATURES:

To erase while drawing, turn the knob counterclockwise. To continue drawing, turn it clockwise.

To change colors, just move the cursor over one of the three color bars at the top of the screen. The cursor will then draw in that color.

To change the colors in the bars,move the cursor to the <NUCOLOR> selection and press the trigger.

To store your drawing in the computer's memory, first select <GRID>, and measure your drawing - follow directions/questions. Make sure that you add '2' or '3' to your height and width to assure a border around your picture. Then select <SNAP> for the actual storage command.

To bring the picture back, select <SHOW>. The picture can be moved around the screen by selecting <JOYSTICK>.

To escape from the ANIMATE mode, press the <GO> key on the keypad.

†Note To save the picture on tape, enter the following direct command -

PUT @(F b 1000),500 after having started the recorder in the RECORD mode.

To return the picture from tape, enter the following direct command -

GET @(F b 1000) and place the recorder in the PLAY mode.

The picture "frames" are made up of memory cells, and the number of pictures you can draw depends on the amount of memory that you have. This program is set to have 10 frames, each having 1000 string locations If your picture becomes larger than 1000, then the program will spill over into the next frame. No loss unless there was something in there. You may want to skip every other frame if you think you will have big pictures. With this program and the Extended Basic loaded into the VIPER, you will have about 4K of free memory for pictures, which is about equal to the size of the tv screen display.

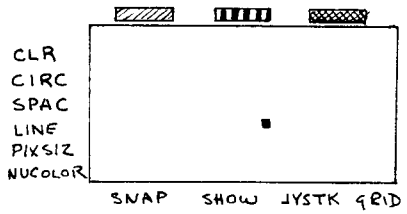
To link pictures frames together, add this statement to the begining of Line 25000

```
FOR F = 1000 TO 10000 STEP 1000;
```

Also add this new Line

```
258018  NEXT F
```

```
 1 DE.;CLEAR ;CF=LARGE;PRINT "  GRAFIX TABLET SIMULATER   ***                    **
*";CF=SM.
 2 CC=6;INPUT "YOU MUST FIRST ENTER A FRAME NO. FOR THE DRAWING, THIS MUST BE A
NUMBER BETWEEN  1 AND 10.  F"F
 3 CC=3;F=Fb 200;PRINT ;PRINT ;PRINT "     DO YOU WISH TO ANIMATE,
                    MODIFY,                    OR DRAW ON FRAME NO......";CX=14;CY
=-16;PRINT Fc 200
 4 PRINT ;PRINT "PLEASE ENTER    A,      M,    OR    D";Z=KP;GOTO28000
 5 P=1;D=3;DE.;FC=13;Z=6;C=6;CC=7;S=4;&(10)=4
 6 BOX -35,38,44,4,2;BOX 10,38,44,4,1;BOX 55,38,44,4,3;BC=0
 7 X=10;Y=37;CX=-77;CY=-45;PRINT "CLR.";CX=-56;CY=-46;PRINT "CIRC.";CX=-29;CY=-4
6;PRINT "SPAC.";CX=-5;CY=-46;PRINT "LINE";CX=18;CY=-46;PRINT "PIXSIZ";CX=52;CY=-
46;PRINT "NUCOLOR
 8 CX=-80;CY=20;PRINT "SNAP";CX=-80;CY=0;PRINT "SHOW";CX=-80;CY=-20;PRINT "JYSTK
";CX=-80;CY=36;PRINT "GRID
 9 LINE-57,37,4;LINE -57,-40,1;LINE 80,-40,1;LINE -59,33,0;&(10)=204
10 PRINT ;PRINT ;CB=41
13 X=X+JX(1)bS;Y=Y+JY(1)bS;IF TR(1)=1GOTO25
14 IFY>=36GOSUB 10000
15 IF X>79X=79
16 IF Y<=-47Y=-47
17 IFY>40Y=40
18 IF X<-75X=-75
19 E=C
20 BOX X,Y,D,D,C;BOX X,Y,D,D,C;GOTO 13
25 IFKN(1)>0C=0
26 IF KN(1)<=0C=E
28 IF X<=-56C=-4
29 IFY<=-39C=-4
30 BOX X,Y,D,D,C+4
35 C=E
40 IFY<-43GOSUB 2000
50 IFX<-63GOSUB3000
60 C=E;GOTO13
2000 IF X<-60GOSUB 2100
2005 IF X>-60IF X<-36GOSUB 2510
2010 IFX>=-36IFX<-14GOSUB 2200
2015 IF X>-14IF Y<14GOSUB 2250
```



†Note: BLUE RAM owners use :PRINT instead of PUT and :INPUT instead of GET

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```
2020 IF X<40GOSUB 2300
2030 IFX>40GOSUB 2400
2100 BOX 11,-2,136,76,4;GOTO10
2200 INPUT "ENTER PIXEL SPACING" S;GOTO10
2210 GOTO10
2250 PRINT "TURN KN(1) ALL THE WAY COUNTERCLOCKWISE,THEN PRESS TR(1)
2255 IFTR(1)=1GOTO2257
2256 GOTO2255
2257 X=-10;Y=10;IFTR(1)=1LINEX,Y,0
2258 M=0
2259 PRINT "PRESS TR(1),MOVE TO THE NEXT POINT IN YOUR DRAWING,PRESS TR(1) TO CO
NNECT THEM
2260 U=0
2266 X=X+JX(1)b2;Y=Y+JY(1)b2;BOX X,Y,1,1,1;BOX X,Y,1,1,1;M=M+TR(1);IF M<1LINEX,Y
,0
2268 IF TR(1)=1LINEX,Y,C+4
2270 IF KN(1)>0GOTO10
2274 U=U+5;IF U=300PRINT "TURN KN(1) CLOCKWISE TO ESCAPE FROM LINE MODE
2280 GOTO2266
2290 GOTO2260
2300 INPUT "ENTER PIXEL SIZE,"D;GOTO10
2310 GOTO10
2400 PRINT "CHANGE COLOR  1 `     2 `    3 `    4 ^
2405 INPUT N
2410 PRINT "NOW ENTER YOUR NEW COLOR VALUE, 0-255";INPUT V
2420 IF N=1FB=V
2430 IF N=2FA=V
2440 IF N=3FC=V
2450 IF N=4BC=V
2460 GOTO10
2510 PRINT "MOVE THE CURSOR TO THE CENTER OF YOUR    CIRCLE       PRESS TR(1)
2520 X=X+JX(1)bS;Y=Y+JY(1)bS;BOX X,Y,D,D,C;BOX X,Y,D,D,C;IF TR(1)=1GOTO2530
2525 GOTO2520
2530 INPUT "    ENTER THE RADIUS,      AND THE MODE       ",R        ,     M;CI.
X,Y,R,M;GOTO10
3000 IFY>17GOTO3100
3010 IF Y<17IF Y>-3GOTO3200
3020 IF Y<-3IF Y>-23GOTO3300
3030 IF Y>=-43IF Y<=-23GOTO3400
3100 PRINT "THIS 5b5 PIX GRID IS TO HELP YOU TO ACCURATELY MEASURE YOUR IMAGE
3110 GOSUB 5000;INPUT "ENTER WIDTH IN PIXELS"W;INPUT "ENTER HEIGHT IN PIXELS"H;G
OSUB 5000
3120 GOTO10
3200 PRINT "TO PROPERLY SNAP YOUR IMAGE MOVE THE       CURSOR TO THE CENTER OF Y
OUR DRAWING";GOTO5500
3300 PRINT "PRESS TR(1) TO SHOW SNAPPED IMAGE";BOX 11,-2,136,76,4
3305 IF TR(1)=1GOSUB 5800
3310 GOTO3305
3400 X=0;Y=0;CLEAR ;PRINT "IMAGE IS NOW CONTROLLED BY JOYSTICK";YT=40;YB=-40;XL=
-70;XR=70;GOTO25000
5000 FOR X=-56TO 79STEP5;FOR Y=-39TO 36STEP 5;BOX X,Y,1,1,2;NEXT Y;NEXT X;X=-72;
Y=20;RETURN
5500 X=X+JX(1);Y=Y+JY(1);BOX X,Y,5,1,1;BOX X,Y,5,1,1;BOX X,Y,1,5,1;BOX X,Y,1,5,1
;IF TR(1)=1GOTO5600
5510 GOTO5500
5600 SNAP X,Y,W,H,@(F);GOTO10
5800 SHOW 10,-10,2,@(F);GOTO10
10000 IFX<=-12C=2;RETURN
10010 IFX>=-13IFX<=33C=1;RETURN
10020 IFX>33C=3;RETURN
24000 X=0;Y=0;CLEAR
25000 X=X+JX(1)bP;Y=Y+JY(1)bP;SHOW X,Y,1,@(F);SHOW X,Y,V,@(F)
25010 IFTR(1)=1V=1;GOTO25015
25012 V=4
25015 IF&(23)=1GOTO26000
25020 GOTO25000
26000 CLEAR ;DE.;PRINT ;PRINT ;PRINT ;PRINT ;GOTO2
28000 IF Z=65GOTO24000
28010 IF Z=77CLEAR ;SHOW 0,0,2,@(F);GOTO5
28020 IF Z=68CLEAR ;GOTO5
28030 GOTO3
```

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H O R I Z O N T A L S C R O L L I N G T U T O R I A L

BEFORE BEGINNING, I SHOULD CAUTION YOU THAT THE FOLLOWING TECHNIQUE MAY ERASE PART OF YOUR PROGRAM AND IT SHOULD BE USED WITH CAUTION. THIS ROUTINE WILL SHOW YOU HOW TO SET UP A "CALL" THAT WILL SCROLL A PART OF THE SCREEN TO THE LEFT. YOU NEED TO KNOW THE FOLLOWING THINGS:

A= THE NUMBER OF THE FIRST LINE THAT SHOULD BE SCROLLED.
COUNT FROM THE VERY TOP OF THE SCREEN DOWN. START WITH ZERO.
B= THE TOTAL NUMBER OF LINES THAT SHOULD BE SCROLLED.

EACH TIME THAT THIS ROUTINE IS CALLED, THE DESCRIBED AREA WILL SHIFT FOUR PIXELS (ONE BYTE) LEFT.

AS I NOTED BEFORE, THE BAND OF MEMORY THAT IS SCROLLED CANNOT CONTAIN PROGRAM MATERIAL THAT WILL BE EXECUTED AFTER THE CALL OCCURS. WE KNOW HOW TO COUNT PROGRAM BYTES. EACH LINE ON THE SCREEN CAN CONTAIN TWENTY PROGRAM BYTES. SO, IF THE MAIN LOOP OF YOUR PROGRAM HAS 165 BYTES, YOU SHOULD NOT SCROLL THE TOP NINE LINES.

THE PROGRAM BELOW SHOWS HOW TO POKE IN THE MACHINE LANGUAGE ROUTINE. THIS ROUTINE WILL SCROLL THE AREA STARTING WITH THE A-TH LINE FROM THE TOP AND ENDING WITH THE A+B-TH LINE.

```
100 . SAMPLE SCROLL ROUTINE SETUP
110 A = 35 : B = 49                          (FOR EXAMPLE)
800 D = 20200 : E = D : F = 900
810 G = 40 * A + 16384                       (COMPUTE START ADDRESS)
820 H = -43 : GOSUB F                        (PUSH DE AND RST FF)
830 J = G / 256
835 IF RM < 128 K = RM * 256 + 39
837 IF RM > 127 K = (RM - 128) * 256 - 32729
840 H = K : GOSUB F                          (SR#38 + LO START ADDR)
850 H = J + 10240 : GOSUB F                  (HI START ADDR + # OF BYTES)
860 H = B  : GOSUB F                         (#LINES)
870 H = G + 1 : GOSUB F                      (START ADDRESS + 1)
880 H = -13871 : GOSUB F                     (POP  DE AND RET)
890 . GO SOMEWHERE
900 % (E) = H : E = E + 2 : RETURN
```

WHENEVER YOU "CALLD" THE AREA WILL SCROLL LEFTWARDS BY 4 PIXELS. THE LINES OF CODE ABOVE CAN APPEAR AT THE END OF YOUR PROGRAM. THEY NEED TO BE EXECUTED ONE TIME, AND IF THE SCROLL WIPES THEM OUT AFTERWARDS, NO DAMAGE WILL BE DONE.

THIS ROUTINE MOVES EVERYTHING IN THE AFFECTED AREA. IT EXECUTES QUICKLY AND SMOOTHLY. IT IS A SUPERB GRAPHICS TOOL THAT WILL ADD A NEW DIMENSION TO YOUR ANIMATION.

BOB WISEMAN 118 ST ANDREWS DR CINCINNATI OHIO 45245

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2-LETTER MUSIC MAKER is another demonstration-type program. This one illustrates the various functions of the music/noise generation system that can be controlled using the two-letter controls of Astro Basic. This program is only AB, of course.

2-LETTER MUSIC-MAKER

```
 1 CLEAR;NT=0;FC=RND (32)x8;BC=RND (32)x8-4;FOR A=0TO 11;*(A)=0;NEXT A;GOTO 10
 2 CX=CX+60;RETURN
 3 CY=CY-8
 4 CY=CY-6;RETURN
 5 BOX D,C,8,8,3;RETURN
 6 MD=*(1);VF=*(2);VR=*(3);NV=*(4);NM=*(5);VC=*(6);TC=*(7);VB=*(8);TB=*(9);VA=*(10);TA=*(11);GOTO 50
 7 E=1-E
 8 IF PX(D,C-4)GOTO 5
 9 RETURN
10 PRINT " TA",:GOSUB 2;PRINT "VA";GOSUB 4;PRINT " TB",;GOSUB 2;PRINT "VB";GOSUB 4;PRINT " TC",;GOSUB 2;PRINT "VC
20 GOSUB 4;PRINT " NM",;GOSUB 2;PRINT "NV";GOSUB 4;PRINT " VR",;GOSUB 2;PRINT "VF";GOSUB 4;PRINT " MD",;GOSUB 2;PRINT " ↓
30 CY=44;FOR A=0TO 5;CX=-56;PRINT "= ",;GOSUB 2;PRINT "=";GOSUB 4;NEXT A
40 FOR A=0TO 5;CX=-16;PRINT "←→",;GOSUB 3;NEXT A;GOSUB 200;C=40
50 D=-(E+1)x8-2;GOSUB 5;IF JY(1)GOSUB 8
60 C=C+(JY(1)x14);IF C>40C=-30;GOSUB 7
70 IF C(-30C=40;GOSUB 7
80 F=(C+30)÷7+E;*(F)=*(F)+JX(1);IF TR(1)*(F)=KN(1)+128
90 GOSUB 210;IF FGOTO 120
100 IF TR(1)=0GOTO 6
110 ↓;FOR A=0TO 11;*(A)=0;NEXT A;GOSUB 200
120 IF (F=6)+(F=8)+(F=10)IF *(F)>14*(F)=15
130 IF *(3)>62*(3)=63
140 IF (F=2)+(F=5)IF *(F)>2*(F)=3
150 IF *(F)<1*(F)=0
160 IF *(F)>254*(F)=255
170 CY=C;CX=26-(Ex72);PRINT #0,*(F),
180 IF *(F)<100PRINT " ",;IF *(F)<10PRINT " "
190 GOTO 6
200 BOX 34,4,26,80,2;BOX -38,4,26,80,2;CY=44;FOR A=0TO 5;CX=-46;PRINT "0 ",;GOSUB 2;PRINT "0";GOSUB 4;NEXT A
210 BOX 26,-30,30,10,2;RETURN
300 IF KP:PRINT ;IF KP:LIST
```

KEN LILL
5039 S. ELIZABETH
CHICAGO, ILLINOIS 60609

To move the "blinking" box, just move the joystick backwards and forwards[JY(1)]. To select your "notes", use your knob ALONG WITH your trigger [KN(1) & TR(1)] for "course" tuning and let go of the trigger and move your joystick left or right [JX(1)] for "fine" tuning. One thing to remember is that the quantity "-1" is the same as 255 to the Bally. Typing in "TA=255" uses one byte MORE than typing in "TA=-1"!! To turn off ALL notes and set ALL 2-letter music variables to ZERO, just move the "blinking" box to the "DOWN-ARROW" and squeeze the trigger. This is the same as typing in the "DOWN-ARROW" in your program. One note: the variables in this program are set to only go to the maximum that is used by the 2-letter system.

Line)300 is in the program only as a convenience. It is not necessary to type this line in!!

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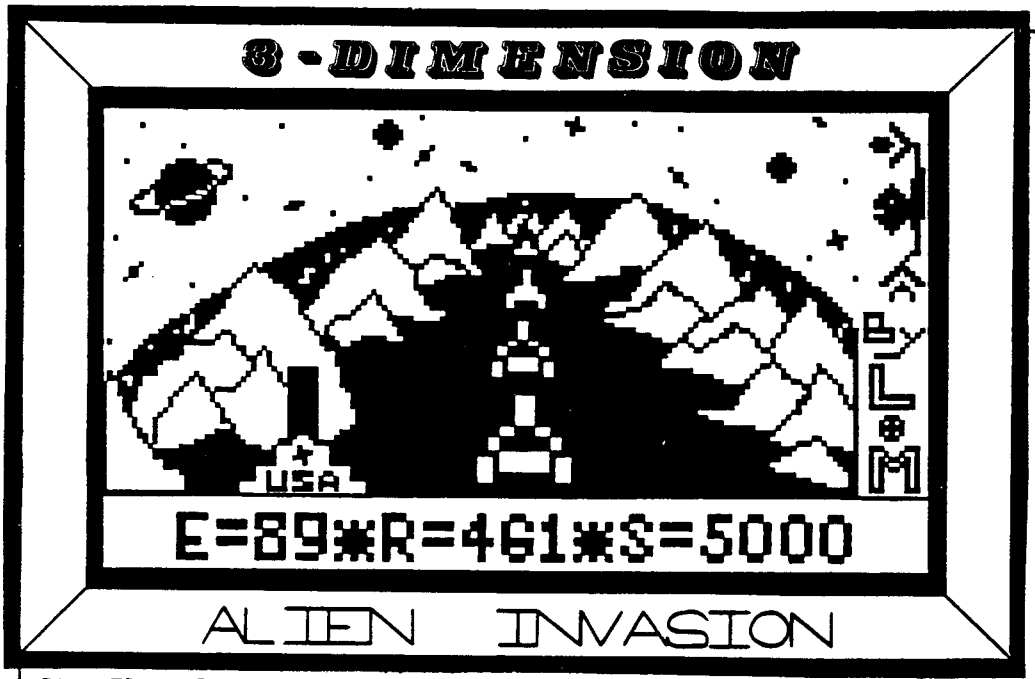

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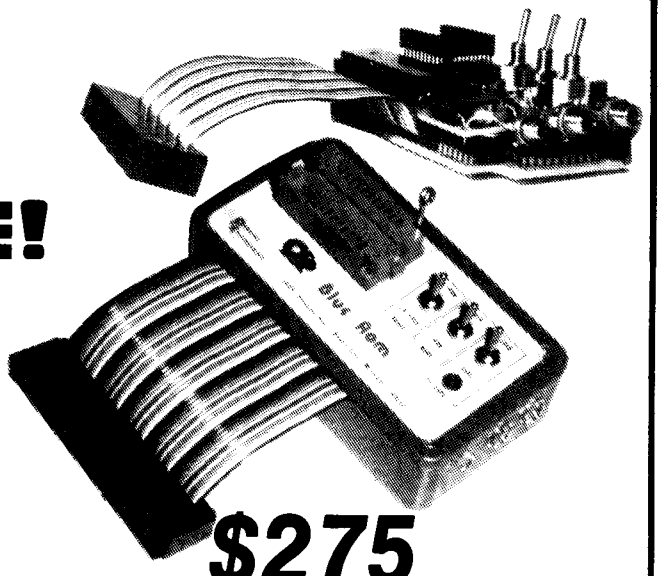
Star Fleet Command has put you at the controls of a pulse-pounding photon cannon. Your orders are to stop the invasion of aliens war machines. It takes a cool head and a steady hand. Only you stand in their way. Can Earth be saved or will the aliens destroy your cannon and invade Earth?

Normally, a picture this detailed in 3-dimension would require more memory than is available in the Arcade program section. We have utilized a special Arcade feature called mass screen memory. There is almost 4K of memory available in this way. The game operation is contained in the 1.8K program memory section. By using both in a unique way this game, with expanded graphics, is possible. It is equivalent to about 5K of memory.

This is probably the best use of the Arcade graphics to date and the largest most detailed play field yet developed for Basic.

16384 BYTES OF RAM FOR YOUR ARCADE!



The Blue Ram by Perkins Engineering has already opened to door to hundreds of creative programmers who love the powerful graphics and sound capabilities in the Astrocade, but were stymied by its lack of random access memory (RAM). No more! Now, instantly, you can have 16384 bytes of additional memory.

You can use the Blue Ram to copy a game cartridge on regular cassette tape using the machine language routines included in the Blue Ram Utility program. Learn Z-80 machine code and modify an existing game cartridge! Write your own cartridge! And, with the 24 port socket on the Blue Ram you can adapt your computer to drive a modem, a printer, a keyboard and many other applications! Regular price is $249.95.

Blue Ram Extended Basic Cartridge

Written by Jay Fenton and John Perkins to take advantage of the Blue Ram's exclusive input and output ports, hardware and software switching mechanisms, and the Astrocade's outstanding game and graphics design capabilities. Gives up to 15,500 bytes of programming space with special POINT, CIRCLE and SNAP commands, 4 colors, built-in math routines, keyboard and printer-driving logic, 300 baud or 2000 baud data output and much more! Will not operate without a Blue Ram or other extended memory. Regular price is $49.95.

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300 baud Bally Basic or 2000 baud Astrocade Basic

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STAR SIEGE, again

```
  5 NT=0
  9 S=0;T=50;K=0;F=7;CLEAR ;BC=0;FC=179;GOSUB 560;GOSUB 570;BOX 0,-43,160,1,1
 40 BOX 0,34,160,1,1;U=0;V=20;FOR U=-64TO 0STEP 8;GOSUB 500;NEXT U
 60 IF K=48K=40
 62 H=12-K
 70 A=6;I=H-8;M=1;U=0;BOX J,-40,5,4,2;BOX 0,P,3,5,2;P=I;IF H>-12F=F-1
 71 IF S>0BOX U,V,30,10,2
 72 V=H+8;IF S>0FC=RND (31)b8+3;GOSUB 500
 74 NT=16;FOR X=-40TO 40STEP 16;MU=58+RND (9);BOX X,H,7,4,1;BOX X,H-1,5,2,2;BOX
X,H+1,13,1,1
 75 FOR Z=-1TO 1STEP 2;BOX X+7bZ,H,1,1,1;BOX X+4bZ,H-3,1,1,1;BOX X+1bZ,H+2,1,2,
3;NEXT Z;NEXT X;NT=2
100 FOR X=-40TO 40STEP 16;@(M)=X;BOX X,I,7,1,1;BOX X,I,1,5,1;M=M+1;NEXT X
115 G=K+12;IF A=0GOTO 250
120 R=RND (6);Q=@(R);IF PX(Q,I)GOTO 140
130 GOTO 120
140 BOX Q,I,7,5,2;FOR Y=I-4TO -44STEP -4;BOX Q,Y,7,1,1;BOX Q,Y,1,5,1;IF Y=-44GO
TO 600
158 &(22)=95;G=G+1;&(17)=G;IF L=1GOTO 162
160 L=RND (F);IF L>1GOTO 164
162 BOX 0,P,3,5,1;IF P<-40GOSUB 290
164 J=KN(1)b2c5;BOX J,-40,5,4,1;FOR Z=1TO 25;NEXT Z
180 IF TR(1)=0GOTO 260
185 &(17)=0;E=Y;IF ABS(J)<5E=P
190 LINE J,-37,0;LINE J,E,1;&(23)=29;&(19)=5;&(21)=25;FOR Z=28TO 16STEP -1;&(21
)=Z
191 FOR W=1TO 3;NEXT W;NEXT Z;&(19)=0;&(21)=0;LINE J,-37,2
200 IF ABS(J-Q)<4BOX Q,Y,7,5,2;&(18)=0;BOX Q,H,15,6,2;GOTO 520
225 IF ABS(J)<2IF L=1BOX 0,P,3,5,2;GOSUB 310
250 IF A=0IF H=-20K=K+8;S=S+50;F=6-(Kc8);GOSUB 570;GOTO 60
255 IF A=0H=H-8;GOTO 70
260 BOX Q,Y,7,5,2;BOX 0,P,3,5,2;BOX J,-40,5,4,2
262 IF L=1P=P-8
272 NEXT Y
290 IF T=0GOTO 600
300 FOR Z=1TO 6;MU=68;MU=33;NEXT Z;T=T-10;P=I;L=2;GOSUB 560;RETURN
310 MU=68;MU=73;MU=77;MU=75;MU=83;S=S+5;GOSUB 570;P=I;L=2;RETURN
500 &(20)=67;&(22)=95;&(17)=22;&(18)=98
502 BOX U,V,30,2,1;BOX U,V+1,28,2,1;BOX U,V+2,26,2,1;BOX U,V+3,22,2,1;BOX U,V+4
,16,2,1
503 BOX U,V-1,24,2,1;BOX U,V-2,8,2,1;BOX U+9,V-2,4,2,1;BOX U-9,V-2,4,2,1
504 FOR X=U-9TO U+9STEP 3;BOX X,V,1,2,2;NEXT X
505 IF U=0&(17)=0;&(18)=0;RETURN
506 BOX U,V,30,10,2;RETURN
520 &(21)=95;&(23)=29;FOR Z=8TO 48STEP 8;&(19)=Z;NEXT Z;FOR Z=8TO 0STEP -2;&(21
)=0;&(21)=Z;FOR W=1TO 9;NEXT W;NEXT Z
540 S=S+2;&(19)=0;A=A-1;GOSUB 570;BOX J,-40,5,4,2;GOTO 115
560 NT=0;CX=-71;CY=40;PRINT "SHIELDS:",#1,T;NT=2;RETURN
570 NT=0;CX=12;CY=40;PRINT "SCORE:",#1,S,#1,"0";NT=2;RETURN
600 &(22)=0;&(16)=0;&(23)=10;&(21)=95;&(19)=99;FOR Z=1TO 99;BC=(RND (2)-1)b7;NE
XT Z;&(21)=0;&(16)=72;&(23)=0
605 NT=0;IF S>N N=S
630 GOSUB 506;V=-39;GOSUB 500;CX=-47;CY=0;PRINT "HIGH SCORE",#5,N,#1,"0";PRINT
;CX=-59;PRINT "PRESS KEY FOR REPLAY
650 &(19)=0;IF KPGOTO 9
```

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ARCADIAN

8/6/82

```
  2 CLEAR ;GOSUB 71
  3 CLEAR ;INPUT "  1 OR 2 PLAYERS"P
  4 IF P>2GOTO 3
  5 INPUT "  GAME POINT a"G
  6 Z=1;M=0;N=0;K=0;L=0
  7 BC=9
  8 IF Z=1FC=127
  9 IF Z=2FC=199
 10 D=0;FOR A=1TO 3;CLEAR ;NT=0
 11 GOSUB 55
 12 CY=-7;PRINT "GAME TO ",#0,G
 13 CY=-16;PRINT " PLAYER
 14 PRINT " # 1";PRINT " # 2
 15 CY=-24;CX=-47;PRINT " a ",#0,M
 16 IF P=1GOTO 18
 17 CX=-47;PRINT " a ",#0,N
 18 BOX -45,-24,70,26,3
 19 IF (M>G-1)+(N>G-1)GOTO 63
 20 BOX -75,20,1,27,1;BOX -74,20,1,23,1;BOX -73,20,1,15,1;BOX -72,20,1,9,1;BOX
-71,20,1,1,1
 21 IF Z=1CY=-24
 22 IF Z=2CY=-32
 23 CX=0;PRINT "  UP
 24 Q=KN(Z);Q=Qc9+22;NT=0
 25 CY=Q;CX=65;PRINT "--
 26 BOX 65,Q,16,10,2
 27 IF TR(Z)NT=1;D=D+1;GOSUB 58;GOTO 29
 28 GOTO 24
 29 FOR B=65TO -65STEP -5
 30 Q=Q+RND (3)-2
 31 CY=Q;CX=B
 32 BOX B-6,Q,6,1,1;PRINT "=<
 33 BOX B+23,Q,25,14,2;NEXT B
 34 IF Z=1K=K+1
 35 IF Z=2L=L+1
 36 IF Q=20Y=RND (100);X=25;IF Y>75X=50;GOTO 45
 37 IF (Q=7)+(Q=8)+(Q=32)+(Q=33)X=RND (5)+15;GOTO 45
 38 IF (Q>8)+(Q<13)=2X=RND (5)+5
 39 IF (Q>27)+(Q<32)=2X=RND (5)+5
 40 IF (Q>12)+(Q<16)=2X=RND (5)+10
 41 IF (Q>24)+(Q<28)=2X=RND (5)+10
 42 IF (Q>15)+(Q<20)=2X=RND (5)
 43 IF (Q>20)+(Q<25)=2X=RND (5)
 44 IF (Q>33)+(Q<7)X=0
 45 IF Z=1M=M+X
 46 IF Z=2N=N+X
 47 CY=32;CX=-17;PRINT "POINTS
 48 CX=-4;PRINT #0,X
 49 IF TR(Z)GOTO 51
 50 GOTO 49
 51 NEXT A
 52 Z=Z+1;IF P=1Z=1
 53 IF Z>2Z=1
 54 GOTO 7
 55 CY=-8;CX=0;PRINT "-=< -=< -=<
 56 IF DGOTO 58
 57 RETURN
 58 CY=-8;CX=0
 59 IF D=1PRINT "    "
 60 IF D=2PRINT "        "
 61 IF D=3PRINT "            "
 62 RETURN
 63 BC=RND (32)b8;FC=RND (32)b8-2
 64 CY=30;CX=-30;PRINT "THE WINNER";
    CX=-6;PRINT "PLAYER # ",
 65 IF M>G-1PRINT "1";CX=-10;PRINT "WITH ",#0,K,
 66 IF N>G-1PRINT "2";CX=-10;PRINT "WITH ",#0,L,
 67 IF M>NPRINT " DART",;IF K>1PRINT "S
 68 IF N>MPRINT " DART",;IF L>1PRINT "S
 69 IF TR(Z)RUN
 70 GOTO 69
 71 CY=0;CX=-12;PRINT "DARTS
 72 FOR H=1TO 500;NEXT H
 73 FOR I=10TO 80STEP 4;BOX 0,0,I+22,I,3;NEXT I
 74 FOR H=1TO 1000;NEXT H;RETURN
```

DARTS - AB or BB When the machine asks for GAME POINT? enter the score you wish to play to. First person to achieve that score will be declared winner. Use TR to launch dart, the KN with TR to put some "English" on the pitch.

Al Roginsky
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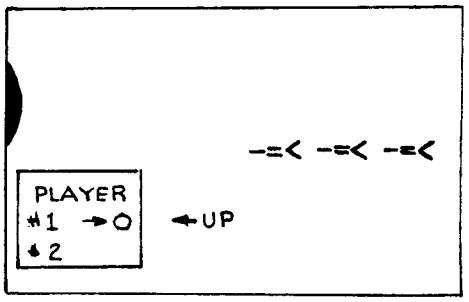

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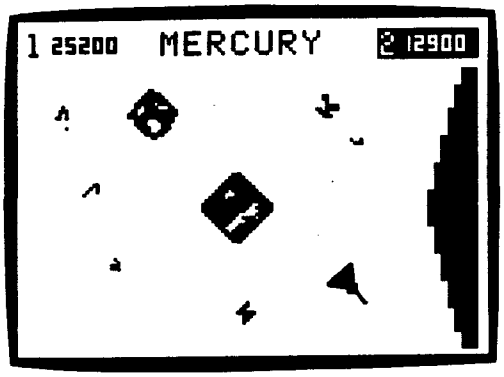
LINE NUMBERS - 2: Normally, the machine will process statements or commands that have been given line numbers, in numerical order. There are a couple of exceptions, naturally.

1. The first exception to orderliness is the inclusion of either the GOTO or GOSUB statement in a line. Should the computer run across either of these, it will immediately "jump" to the indicated line number, whereever it is, and continue operations from that point onward. ((Actually, the computer goes back to the beginning and searches for the new line number. This means that the new number should be near the begining of the program to save time.))
2. The second exception covers notes. If you place a period (.) immediately after a line number, or after a semi-colon (;), the computer will disregard anything that follows. This enables you to write short notes to yourself, as reminders, so that when you come back to the program next year, you can better understand it. In other versions of Basic, they use the statement REM instead of the period.



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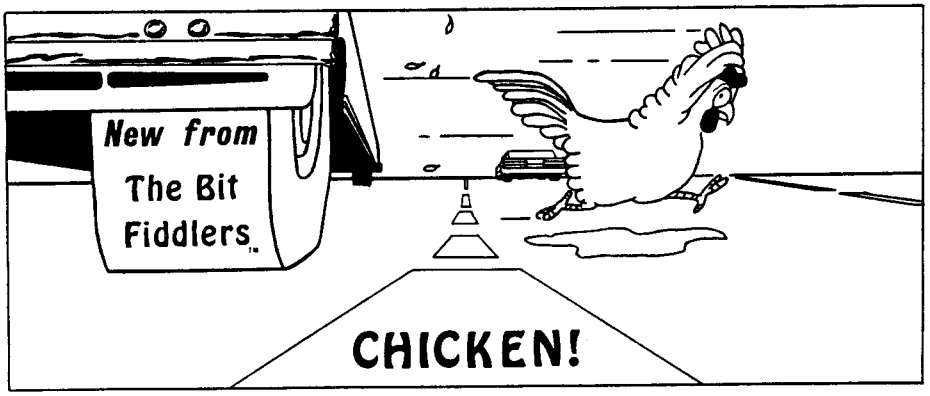

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