CES IS OVER and I had an enjoyable but tiring four+ days. Also attending were: Andy Guevara of The Bit Fiddlers; Dick Houser of The Source Book; George Moses of George Moses Co.; John Perkins of Perkins Engineering; and Mike Toth & Marion Nalepa of Spectre Systems.

We all worked to help the AstroVision personnel show off the Arcade, the new game cartridges, and point out the features of the new Basic. We also met a number of subscribers and a few old acquaintances.

AstroVision had a good-sized booth, with 9 machines mounted on pedestals, each having a tv mounted above for good visibility, plus a giant tv console for really showing up the details of the game cartridges, and then two more tv's dedicated to the Add-Under. These were staffed by ZsuZsa Molnar and Frank Dietrich. Various AstroVision personnel and the distributors spent their time selling the product. For those visitors showing technical interest, we showed the Blue Ram, the Viper System 1 memory board, and the Bit Fiddler cartridge. We also had the Roger Saunders Edge Labels for display.

GAME STATUS will be indicated here, a more descriptive article will be presented next time.

Now available: Grand Prix, Galactic Invasion, Space Fortress, and Biorythm. Coming up soon will be Pirate's Chase, MusicMaker, and The Wizard. After these will be Cosmic Raider and Coloring Book. There is a candidate for PacMan and it will be ready when some non-technical problems are ironed out.

Samples of everything except PacMan and Biorythm were shown. Two future candidates are Quest for the Orb, and SolarQuest.

THE ADD-UNDER units were very popular. While a number of programs were "canned", that is, they were on disc, both ZsuZsa and Frank made up little displays on the spot, and showed how the machine's ZGrass language could access the "macros" (large scale sub-routines) and show parts of pictures, reverse pictures, and rotated pictures. The most interesting item was a facial figure, made up of three subroutines - one for each eye and one for the mouth - each of which had a motion routine (each eye could be open, closed, look left, straight, or right, for example.) By some simple commands, the eye would then wink or look around. This was coupled to the Votrax sound synthesizer, so that the mouth movements followed the preprogrammed vocal phrases. While these units had two disc drives associated with each of them, the production units will not. The internals will be compatible with the addition of a disc operating system, which will be an optional accessory.

The current status of the Add-Under places it in the hands of the FCC next month for approval. Then production can get under way and deliveries should be in the 90-120 day region. If you are interested in the Add-Under, whose price is currently holding at the $600 level, let me know. There is a good possibility that we may have one of the samples on display at the West Coast Computer Faire, here in San Francisco, this March. More on that next time.

THIRD-PARTY SOFTWARE, that is, material developed by parties outside the AstroVision design and development organization, is in demand by everyone. If you are interested in writing software for the Arcade, of marketable quality, please contact me for details. Those who advertise in the ARCADIAN will be receiving a separate letter from me about this.

CONTEST ENTRIES THIS ISSUE are the programs* Cube, Pro-Bowl, and Alien.

BIT FIDDLER REVIEW - 2. In this issue we provide another review of
the new cartridge by the Bit Fiddler, this time by Tom Wood.

Machine Language Monitor program

Ever wished for really fast graphics or control of the screen for full use of
the 256 color capability? As I'm sure you guessed, these feats require the use
of machine language (or perhaps the add-under when....) and machine language
and BASIC just don't make a good couple. The Bally Arcade has long needed a
well thought out monitor program; one that would permit a decent range of
memory manipulation, cassette tape input/output, memory dump and program break-
point facilities. This monitor would, preferably, be relatively inexpensive,
utilize the game cassette connector and the built-in keypad. This would mean
displacing BASIC, but since we have already committed to machine language,
BASIC is of no further use.

Prayers are answered
The Bit Fiddlers have been listening and have recently introduced a very pro-
fessional package which does all this and more. The Machine Language Monitor
(MLM) is provided in its very own game-type cassette, complete with new keypad
overlay and manual consisting of approximately 96 pages. Very unusual about
this package is that 28 pages of this manual are the assembly listing for MLM
itself. This listing is provided so that users may use any of the MLM routines
instead of re-inventing the wheel.

Although I was able to use MLM for only a few hours, I was able to confirm that
it performs to the manufacturers claims. It is also evident that it opens up a
whole new set of sophisticated possibilities from other ARCADIANS who have
already proven themselves to be an extremely resourceful lot. Using MLM, all
of the Arcade facilities are available to your program including light-pen and
screen interrupts, all 256 colors, direct control of the MAGIC register, full
use of the 3-voice sound generator, the expansion port, game connectors etc.

About the only restriction I see is that the basic Arcade just doesn't contain
much memory. MLM permits maximum use of the space that is available, allowing
you to trade off viewable screen area for more program area. This feature
provides 140 Hex (320 decimal) bytes and use of most of the screen, or more
program bytes as you decrease viewable screen area. This space and use of MLM
routines will permit reasonably sophisticated programs to be run, but as your
desires and expertise increase, your need for additional memory will also
increase. Luckily, MLM is compatible with any of the expansion facilities
currently available.

The   facilities   provided by MLM are   requested
via the   keypad   layout   illustrated here.   In
general,   hex numbers are   entered   first followed
by a   key informing MLM what the hex data is   to
mean.   Thus to enter address 123E hex, simply key
in 1, 2, 3, E, ADDR.   Since no more than 4
digits are being entered at once, MLM provides no
backspacing or correction capabilities as such.

D	E	F	CALL
A	B	C	REG
7	8	9	LIST
4	5	6	INS
1	2	3	READ
*	0	WRITE	ADDR.

Instead, just keep entering data until the last 4 (or 2) digits entered are
correct. Complicated to explain, easy to use.

This monitor includes a feature that is both useful and dangerous, that of the INS key. With it data in memory is moved up to make room for new data (or, using *INS, moved down to delete extra data) thus saving a lot of keystrokes when inserting forgotten opcodes. One must remember, however, that internal program addresses will also change. This is no problem for relative jumps, but absolute jumps and calls can become disasters for the unwary.

The asterisk (*) key serves as a "shift" key for certain command keys. Thus, *WRITE means output to tape, *READ is tape input, *INS is delete, *LIST is print and *REG is tape list without load.

I wish I had the room to go into further details about MLM, but that isn't possible here. If your appetite is whetted it is justified. Any "hacker" needs MLM. It is worth the investment and will permit you to enjoy the programs written using it in the future. Now, anyone working on an assembler???

        A final word on this package. We will be supporting the use of machine laguage programs in the ARCADIAN, and solicit your inputs. Here is another way to increase your knowledge of computers in general and the Arcade specifically.

ASTRO- is now the official name for the various items - all new production hardware will have "Astro-" instead of the prior "Bally-" title.
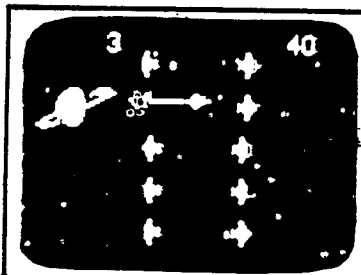
TWO NEW GAMES IN BALLY BASIC
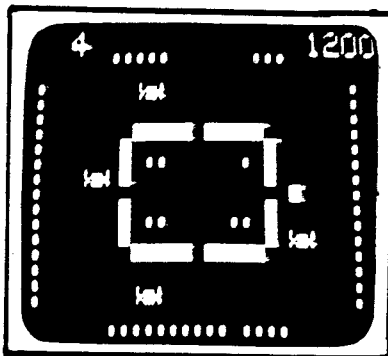
Quadron
●●●●●●●●●●●●●●●●●●
Prevent
waves of
monsters
from break-
ing through
your energy
fortress.

Pilot your
ship through
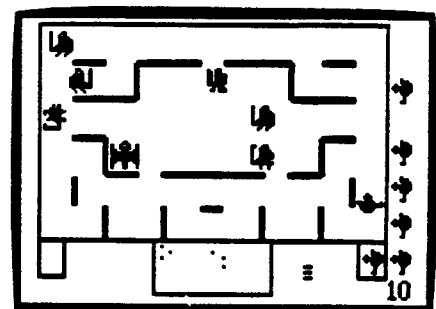two columns
of missile-
firing aliens

. SPACE .

GAUNTLET

Both games on one cassette..$9.50

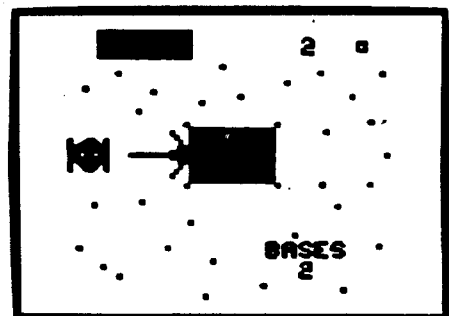Order Tape #100

Please specify
Bally or Astro.
Basic

The tiny arcade
P.O. Box 1043
Cuyahoga Falls,CH.
44223

These sketches illustrate the screens of two of the new AstroVision games.

THE WIZARD

SPACE FORTRESS

ASTRO-BASIC MANUAL CORRECTION   There is a direct typo in the progam "Artillery Duel" on page 95.   In line 430, where BC is controlled, the printer dropped the initial "R" in the Random command, so change the printed portion to read   BC=RND(3) x 13+86   Then in line 190, when entering this line, be certain to leave a space after the IF statement. The printed line overflow to the next line has caused some confusion. This portion of the line should look like this:

          IF W TV=95+(W>0)×2

SOME INTERESTING INFORMATION gleaned from the news releases presented by AstroVision management at the CES.

        We have all complained about the lack of product, and the lack of advertising. These shortcomings are about to disappear - - -
    Production capability is planned to triple this year. In addition to the existing facility in Garner, IA, the new plant in Sacramento, CA is expected to be on-line in February, and negotiations are underway for a third location in the Lancaster,PA area. With these plants up and running, plus other sub-contract locations, the capacity would be in excess of one-half million Arcades, 5 million cartridges, and 5o,ooo ZGrass units per year.
        The Las Vegas area was saturated with a tv commercial during the 5 days of the show. Astrovision's advertising agency had made up a 30 second commercial showing some of the new cartridges, and this was shown 121 times - a full hour of time. This was the kickoff of the 1982 campaign, which will see an expenditure of $10 million dollars in tv advertising. This same commercial will now be sent to 50 major market areas, so keep an eye out for it.

        GAME INSTRUCTIONS

The Cube: The diagram on the screen shows the cube 'unwrapped', with the front to the left. You must mix the puzzle up yourself - the computer acts only as a recorder of your moves. Moves are always made clockwise. Use the keypad to enter the moves. To rotate section 1 by one turn clockwise, you would input 11. The computer will then rearrange the cube to match your directions.

Cryptologic: This is a two-player game that can also be played by teams, rotating turns at guessing.   When the screen asks, enter the number of letters in your word(s). (From 6 to 20) Spaces count as letters. While your opponents face the other way, enter your word(s) using the keypad. If you make an error, you must restart the game (press HALT, then WORDS RUN GO).   After checking for errors, press GO. The entry will be erased, and then scrambled, using a random scrambling technique. The 'other side' must rearrange the letters/spaces into the proper relationship using a minimum number of moves.

Alien: The computer gives you 100 seconds of time to get a high score.   The game stops at that time, or if you run out of bullets earlier. Hitting the Alien nets you 5 points, hitting the wall at the top of the screen yields 3 points. Once in a while there is a 'bonus' period when hitting the alien will increase your score by the bonus amount. When the screen buzzes, the Alien's spy satellite is whizzing by. A hit on it is worth 100 points, but it is very difficult. Use the joystick knob to move your gun laterally across the bottom of the screen, and the trigger to fire directly upward.

THE CUBE

```
   1 CLEAR ;BC=RND (32)b8;FC=BC+4+RND (32)b8;GOTO 20
   2 CX=X;CY=Y;PRINT #1,@(A),,;A=A+1;Y=Y+B;RETURN
   3 FOR C=1TO B;M=@(P);@(P)=@(P+6);@(P+6)=@(P+8);@(P+8)=@(P+2);@(P+2)=M;M=@(P+1
);@(P+1)=@(P+3);@(P+3)=@(P+7)
   4 @(P+7)=@(P+5);@(P+5)=M;NEXT C;RETURN
   5 FOR C=1TO B;D=P;FOR Z=33+DTO 27+DSTEP -3;M=@(D);@(D)=@(Z);@(Z)=@(Z+18);@(Z+
18)=@(D+18);@(D+18)=M;D=D+3;NEXT Z;NEXT C;RETURN
   6 FOR C=1TO B;D=20;FOR Z=PTO P+2;M=@(Z);@(Z)=@(Z+9);@(Z+9)=@(Z+D+9);@(Z+D+9)=
@(Z+D);@(Z+D)=M;D=D-2;NEXT Z;NEXT C;RETURN
   8 FOR C=1TO B;D=16+Pc3;E=47+P;F=37+Pc3;FOR Z=PTO P+2;M=@(Z);@(Z)=@(D);@(D)=@(
E);@(E)=@(F);@(F)=M
   9 D=D-3;E=E-1;F=F+3;NEXT Z;NEXT C;RETURN
  20 Y=0;A=-7;FOR X=-78TO 65STEP 13;BOX X,Y,1,42,1;Y=Y+A;IF (Y=-21)+(Y=21)A=Ab(-
1)
  30 NEXT X;LINE -78,21,0;LINE -39,42,1;LINE 0,21,1;LINE -52,35,0;LINE -13,14,1;
LINE -65,28,0;LINE -26,7,1;LINE -78,21,0;LINE -39,0,1;LINE 39,42,1
  40 LINE 78,21,1;LINE -78,7,0;LINE -39,-14,1;LINE 39,28,1;LINE 78,7,1;LINE -78,
-7,0;LINE -39,-28,1;LINE 39,14,1;LINE 78,-7,1;LINE -78,-21,0
  50 LINE -39,-42,1;LINE 39,0,1;LINE 78,-21,1;LINE -65,14,0;LINE -26,35,1;LINE -
52,7,0;LINE -13,28,1;LINE 13,-28,0;LINE 52,-7,1;LINE 26,-35,0
  60 LINE 65,-14,1;LINE 13,-14,0;LINE 52,-35,1;LINE 26,-7,0;LINE 65,-28,1;LINE 7
8,-21,0;LINE 39,-42,1;LINE 0,-21,1
  70 A=1;FOR Z=0TO 5;FOR B=Zb9+1TO Zb9+9;@(B)=A;NEXT B;A=A+1;NEXT Z
  80 A=1;Y=21;B=7;FOR X=-64TO -38STEP 13;GOSUB 2;NEXT X;Y=14;FOR X=-51TO -25STEP
 13;GOSUB 2
  90 NEXT X;Y=7;FOR X=-38TO -12STEP 13;GOSUB 2;NEXT X;Y=11;B=-7;FOR X=-71TO -45S
TEP 13;GOSUB 2
 100 NEXT X;Y=-3;FOR X=-71TO -45STEP 13;GOSUB 2;NEXT X;Y=-17;FOR X=-71TO -45STEP
 13
 110 GOSUB 2;NEXT X;Y=-3;B=7;FOR X=-32TO -5STEP 13;GOSUB 2;NEXT X;Y=-17
 120 FOR X=-32TO -5STEP 13;GOSUB 2;NEXT X;Y=-31;FOR X=-32TO -5STEP 13;GOSUB 2;NE
XT X
 130 Y=18;FOR X=8TO 34STEP 13;GOSUB 2;NEXT X;Y=5;FOR X=8TO 34STEP 13;GOSUB 2;NEX
T X
 140 Y=-8;FOR X=8TO 34STEP 13;GOSUB 2;NEXT X;Y=32;B=-7;FOR X=46TO 72STEP 13;GOSU
B 2;NEXT X
 150 Y=18;FOR X=46TO 72STEP 13;GOSUB 2;NEXT X;Y=4;FOR X=46TO 72STEP 13;GOSUB 2;N
EXT X
 160 Y=-21;B=7;FOR X=14TO 40STEP 13;GOSUB 2;NEXT X;Y=-28;FOR X=27TO 53STEP 13;GO
SUB 2;NEXT X;Y=-35;FOR X=40TO 66STEP 13;GOSUB 2;NEXT X
 170 CX=-5;CY=40;A=KP-48;TV=A+48;B=KP-48;TV=B+48;GOSUB Ab1000;GOTO 80
1000 P=10;GOSUB 3;P=1;GOSUB 5;RETURN
2000 P=2;GOSUB 5;RETURN
3000 P=37;GOSUB 3;P=3;GOSUB 5;RETURN
4000 P=19;GOSUB 3;P=7;GOSUB 8;RETURN
5000 P=4;GOSUB 8;RETURN
6000 P=28;GOSUB 3;P=1;GOSUB 8;RETURN
7000 P=1;GOSUB 3;P=10;GOSUB 6;RETURN
8000 P=13;GOSUB 6;RETURN
9000 P=46;GOSUB 3;P=16;GOSUB 6;RETURN
```

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PRO BOWL

```
  1 CLEAR
  4 BC=147;GOTO 11
  5 CX=-45;CY=-30;W=RND (5);RETURN
  6 CX=-65;CY=-5;RETURN
  7 W=RND (3);RETURN
  8 W=RND (2);RETURN
  9 G=0;Y=0;RETURN
 11 A=0;N=0;Y=0;Q=1;M=15;S=0;F=1;G=1;H=10;X=-30
 20 BOX 0,-30,120,20,1;BOX 0,-30,100,18,2
 21 D=-40;FOR E=1TO 9;BOX D,-38,1,3,1;D=D+10;NEXT E;GOSUB 40;GOSUB 60;GOTO 100
 30 G=G+1;IF G=5IF H-Y>0G=1;F=3-F;H=10
 31 H=H-Y;IF (H<1)+(G=1)H=10;G=1
 32 S=S-(RND (20)+10);IF S<10M=M-1;S=60-RND (10);IF M<2IF (Q=2)+(Q=4)BC=106
 33 IF M<0Q=Q+1;M=15;S=0;IF Q=3X=30;Y=0;F=2;G=1;H=10;BC=147;GOSUB 60
 34 IF Q=5Q=4;M=0;S=0;GOSUB 40;STOP
 40 CY=40;CX=-77;PRINT " AFC        TIME        NFC
 45 PRINT #3,A,#9,M,":",#0,S,#9,N
 47 PRINT ;PRINT "DOWN",#2,G,"        QUARTER",#2,Q
 48 IF G=1IF F=1IF X>39GOTO 51
 49 IF G=1IF F=2IF X<-39GOTO 51
 50 GOTO 54
 51 H=50-ABS(X)
 54 PRINT "YDS TO GO",#4,H
 55 CX=0;CY=-15;IF F=1PRINT "a";GOTO 57
 56 PRINT "_
 57 RETURN
 60 BOX 0,-30,100,10,2;IF F=1X=X+Y;IF X>49X=50
 61 IF F=1GOTO 63
 62 X=X-(Y);IF X<-49X=-51
 63 BOX X,-30,1,1,1
 70 IF F=1IF X>49A=A+7;X=30;GOSUB 9;F=2;GOSUB 80
 71 IF F=1IF X<-49N=N+2;X=0;GOSUB 9;F=2;GOSUB 85
 72 IF F=2IF X<-49N=N+7;X=-30;GOSUB 9;F=1;GOSUB 80
 73 IF F=2IF X>49A=A+2;X=0;GOSUB 9;F=1;GOSUB 85
 74 BOX X,-30,1,1,1;RETURN
 80 GOSUB 5;PRINT "TOUCHDOWN";GOTO 89
 85 GOSUB 5;PRINT "SAFETY
 89 BOX 0,-30,100,10,2;RETURN
100 GOSUB 6;PRINT "INPUT OFF.
105 O=0
110 IF JY(1)=10O=1
120 IF JY(1)=-10O=2
130 IF JX(1)=10O=3
140 IF JX(1)=-10O=4
150 IF TR(1)O=5
160 IF O>0GOTO 200
170 GOTO 100
200 GOSUB 6;INPUT "INPUT DEF."P
210 IF (O=1)+(O=2)GOTO 700
215 IF RND (20)=17GOSUB 5;PRINT "FUMBLE";GOSUB 355;GOTO 690
220 GOSUB 5;GOSUB 10b0+300;GOTO 690
310 Y=RND (5);IF P=1Y=Y-RND (3)
311 IF P=5IF W=3Y=0
312 IF P=5IF W#3Y=Y+3
313 RETURN
```

Mario DeLaura
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Hamlin, NY   14464

```
320 Y=RND (7);IF P=2Y=Y-RND (5)
321 IF P=5IF W=3Y=-2
322 IF P=5IF W#3Y=Y+5
323 RETURN
330 GOSUB 7;IF W=1GOTO 750
331 IF P=3GOSUB 8;IF W=1GOTO 750
332 Y=RND (9);GOTO 800
333 GOSUB 5;IF P=5IF W=3GOTO 900
334 IF P=5IF W#3Y=Y+5
335 RETURN
340 GOSUB 7;IF W=1GOTO 750
341 IF P=4GOSUB 8;IF W=1GOTO 750
342 Y=RND (15)+5;GOTO 800
343 GOSUB 5;IF P=5IF W=3GOTO 900
344 IF P=5IF W#3Y=Y+9
345 RETURN
350 Y=RND (20)+30;IF P=5IF RND (10)=2GOTO 730
351 IF F=1IF X+Y>49GOSUB 760;A=A+3;X=30;GOTO 355
352 IF F=2IF X-(Y)<-49GOSUB 760;N=N+3;X=-30;GOTO 355
353 IF F=1X=X+Y;GOTO 355
354 X=X-(Y)
355 GOSUB 9;F=3-F
356 RETURN
690 GOSUB 60;GOSUB 30;GOTO 100
700 IF RND (20)=15Y=RND (30)+10;GOSUB 5;PRINT "BREAKAWAY";GOTO 690
710 GOTO 220
730 GOSUB 5;PRINT "BLOCKED";GOTO 355
750 GOSUB 5;PRINT "INCOMPLETE";Y=0;RETURN
760 GOSUB 5;PRINT "FG";RETURN
800 W=RND (10);IF W=7CX=-45;CY=-30;PRINT "INTERCEPTED
810 IF W=7G=0;F=3-F;RETURN
830 IF O=3GOTO 333
840 GOTO 343
900 GOSUB 5;PRINT "Q-TRAP";Y=-RND (15)
910 RETURN
```

Pro-Bowl: Use the chart below to enter your plays - the Offense uses Joystick (1) for its inputs (see the sketch), while the Defense uses the keypad.   The arrow on he screen indicates ball direction. The game includes fumbles, touchdowns, field goals, safeties, and a two minute warning.   Breakaways are possible on running plays, and incompletes and interceptions possible on passing plays.

PLAYS

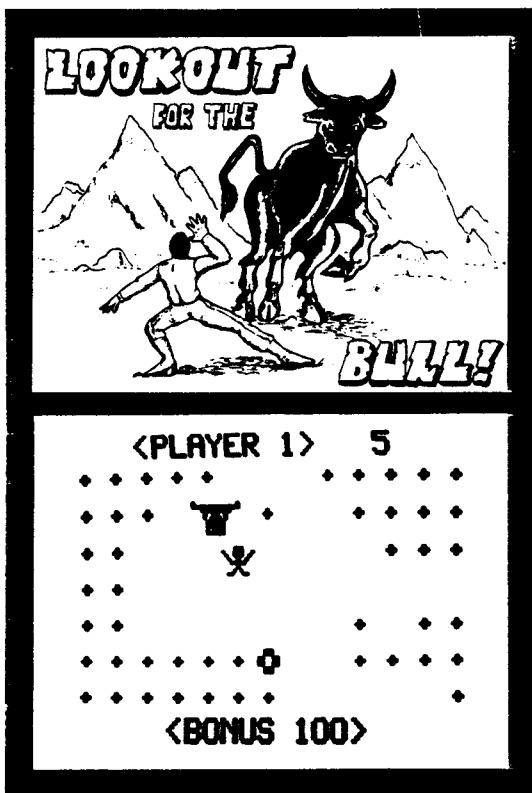| OFFENSIVE	choice	DEFENSIVE
OFF TACKLE	- 1 -	OFF TACKLE
END RUN	- 2 -	END RUN
SHORT PASS	- 3 -	SHORT PASS
LONG PASS	- 4 -	LONG PASS
KICK	- 5 -	BLITZ

#1
#4 ← (1) → #3
#2
TR = #5
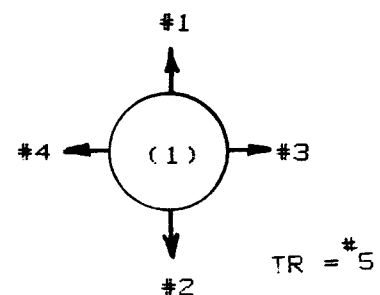
ALIEN

```
    1 &(9)=165;&(0)=0;&(1)=0;&(2)=99;&(3)=99;I=20;L=510
    2 Q=0;T=101;&(I)=0;X=RND (35);CLEAR ;FOR A=-78TO -28STEP 2;BOX A,-42,1,4,1;N
XT A;B=-80
    3 K=0;U=0;S=-55
    4 BOX 27,40,106,3,1
   10 CY=39;PRINT " SCORE `";PRINT Q;CY=11;PRINT " SECONDS";CY=-37;PRINT " BULLET
S
   20 X=RND (99)-I;Y=RND (I);FC=10
   30 BC=7;BOX 27,-2,106,84,2;GOSUB 350;IF (T=20)+(T<11)NT=1;MU="Q";NT=0;IF T=0GO
TO 400
   40 X=X+RND (10)-5;IF X>76X=76
   50 Y=Y+RND (7)-3;IF Y<-32Y=9
   51 IF UGOSUB 600
   60 IF Y>34Y=34
   70 IF X<-20X=0
   80 CX=X-1;CY=Y;TV=102;K=KN(1)c3+22;BOX K,-39,3,10,1;BOX K,-42,7,4,3;IF TR(1)=0
GOTO 30
   90 IF UIF K=SGOTO 700
  100 B=B+2;N=1;R=76;O=0;BOX B,-42,1,4,2;IF K>X-5IF K<X+4N=12;GOSUB 300
  180 BOX K,O,1,R,3;NT=1;FOR A=1TO N;MU=I;BC=AbK;NEXT A;BC=7;IF B=-28GOTO 400
  181 IF @(6)=1GOTO 190
  182 IF PX(K,40)BOX K,40,3,6,2;Q=Q+3;CX=-90;CY=31;NT=0;PRINT Q
  190 @(6)=0;GOTO I+(RND (I)>1)b10
  300 O=(Y-40)c2;R=Y+40;Q=Q+W+5;CY=31;CX=-90;NT=0;@(6)=1;PRINT Q;RETURN
  350 CX=-90;CY=3;T=T-1;NT=0;PRINT T;W=0;IF RND (9)=9W=RND (5)b10;NT=1
  355 IF U=0IF RND (50)=5U=1;NT=1;FOR A=1TO I;MU="B";NEXT A;NT=0
  360 IF W CY=-9;CX=-66;PRINT " BONUSa",W
  370 RETURN
  400 H=0;CLEAR ;IF Q>ZGOSUB 550
  401 CY=39;PRINT " -GAME OVER-",;IF T=0PRINT "(TIME EXP.)";GOTO 405
  402 PRINT "(AMMO GONE)
  405 &(I)=99;M=M+Q;P=P+1;IF M>30000M=0;P=0
  410 PRINT " AVG. SCORE TODAYa",#1,McP;NT=9;PRINT " YOUR POINTSa",Q;GOTO 500+Hb1
0
  500 IF Q>C V=J;J=G;G=C;C=Q;GOTO L
  502 IF Q>G V=J;J=G;G=Q;GOTO L
  503 IF Q>J V=J;J=Q;GOTO L
  504 IF Q>V V=Q
  510 NT=1;PRINT ' "TOP 5" SCORES OF TODAY' ;CY=CY-4
  511 PRINT " #1 ",;FOR D=1TO F;TV=@(D);NEXT D;PRINT Z
  512 BOX -8,3,144,9,3;CY=CY-4;PRINT " SECOND",C
  515 PRINT " THIRD ",G;PRINT " FOURTH",J;PRINT " FIFTH ",V
  520 IF TR(1)GOTO 2
  525 NT=1;MU=Q
  530 GOTO 520
  550 V=J;J=G;G=C;C=Z;Z=Q;CY=30;PRINT " BEST SCORE! ENTER UP TO   5 SYMBOLS (FOR
I.D.)
  560 INPUT " # OF LETTERS?"F;IF F>5GOTO 560
  580 FOR D=1TO F;E=KP;TV=E;@(D)=E;NEXT D;CLEAR ;H=1;GOTO 401
  600 S=S+4;IF S>80S=-55;U=0
  610 BOX S,0,1,1,1;RETURN
  700 W=0;Q=Q+95;GOSUB 300;S=-55;U=0;BOX K,-20,1,40,3;NT=1;FOR A=1TO I;MU=A;BC=Ab
8;NEXT A;NT=0;GOTO 30
```

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```
   1 .<CRYPT-O-GRAMS>
   2 .ADAPTED FOR THE
   3 .BALLY ARCADE BY
   4 .KEN SPRINGSTEEN
   5 CLEAR ;&(10)=180;M=RND (2)
   9 BC=135;FC=40
  10 BOX 0,0,94,10,1;CY=0;CX=-42;PRINT "<CRYPT-O-GRAMS>",
  15 FOR Q=1TO 950;NEXT Q
  45 NT=1
  60 CLEAR ;Z=0;V=0;A=0;B=0;D=0;E=0;W=0
  75 CY=0;PRINT " NUMBER OF LETTERS?          (INCLUDING SPACES)
  90 INPUT " FROM 6 TO 20 LETTERS ONLY"K;CLEAR ;CX=-60
  95 IF (K<6)+(K>20)CLEAR ;GOTO 75
 100 CY=35;CX=-42;PRINT "<CRYPT-O-GRAMS>";CX=-60
 105 CY=0;Z=Z+1;TV="-";IF Z=KGOTO 135
 120 GOTO 105
 130 NT=3
 135 CY=0;CX=-60;FOR A=1TO K;@(A)=KP;IF &(23)=16MU="Q"
 140 TV=@(A);NEXT A
 150 PRINT ;PRINT ;CX=-60
 155 NT=0;CY=-20;CX=-60;PRINT 'PRESS "GO" TO SCRAMBLE';IF &(23)#1GOTO 155
 157 CY=-20;CX=-60;PRINT "←        22 spaces      →"
 165 CY=0;NT=10;PRINT "←          23 spaces          →";NT=1
 180 CX=-60
 200 IF M=2GOSUB 375
 210 IF M=1GOSUB 435
 285 NT=5;A=B-K;@(B)=KP;IF &(23)=16MU="Q"
 295 TV=@(B);IF @(B)#@(A)GOTO 330
 300 IF B=Kb2GOTO 345
 315 NEXT B;GOTO 285
 330 NT=0;D=CX;E=CY;CY=18;CX=-15;PRINT "WRONG!";NT=20;&(20)=100;MU="?";MU=";";FO
R W=1TO 700;NEXT W
 331 CY=18;CX=-15;NT=0;&(20)=0;PRINT "        ";CX=D-6;CY=E;PRINT " ",
 332 CX=D-6;CY=E;V=V+1;NT=3;GOTO 285
 345 NT=2;CX=-60;CY=20;PRINT "YOU GUESSED IT WITH";CX=-60;CY=11;PRINT #0,V," EXT
RA GUESSES!"
 349 FOR A=256TO 125STEP -2;&(16)=100;&(17)=A-2;&(18)=A+2;&(19)=250;&(22)=255;NE
XT A
 350 &(16)=0;&(17)=0;&(18)=0;&(19)=0;&(22)=0
 355 CY=-31;NT=5;&(10)=142;PRINT "205060706050607000500050000";FOR W=1TO 500;NEX
T W;NT=3
 365 RUN
 375 FOR A=5TO KSTEP 5;TV=@(A);NEXT A
 385 FOR A=2TO KSTEP 5;TV=@(A);NEXT A
 395 FOR A=4TO KSTEP 5;TV=@(A);NEXT A
 405 FOR A=3TO KSTEP 5;TV=@(A);NEXT A
 415 FOR A=1TO KSTEP 5;TV=@(A);NEXT A
 425 RETURN
 435 FOR A=3TO KSTEP 5;TV=@(A);NEXT A
 445 FOR A=4TO KSTEP 5;TV=@(A);NEXT A
 455 FOR A=1TO KSTEP 5;TV=@(A);NEXT A
 465 FOR A=5TO KSTEP 5;TV=@(A);NEXT A
 475 FOR A=2TO KSTEP 5;TV=@(A);NEXT A
 485 RETURN
 500 :PRINT ;NT=1;PRINT "CY=39";CY=39
 510 :PRINT ;LIST 1,13;GOSUB 550;LIST 100,13;GOSUB 550;LIST 285,8;GOSUB 550;LIST
 349,9;GOSUB 550;LIST 425,7;PRINT "CLEAR ;RUN
 540 GOTO 540
 550 PRINT "CY=39";CY=39;RETURN
```
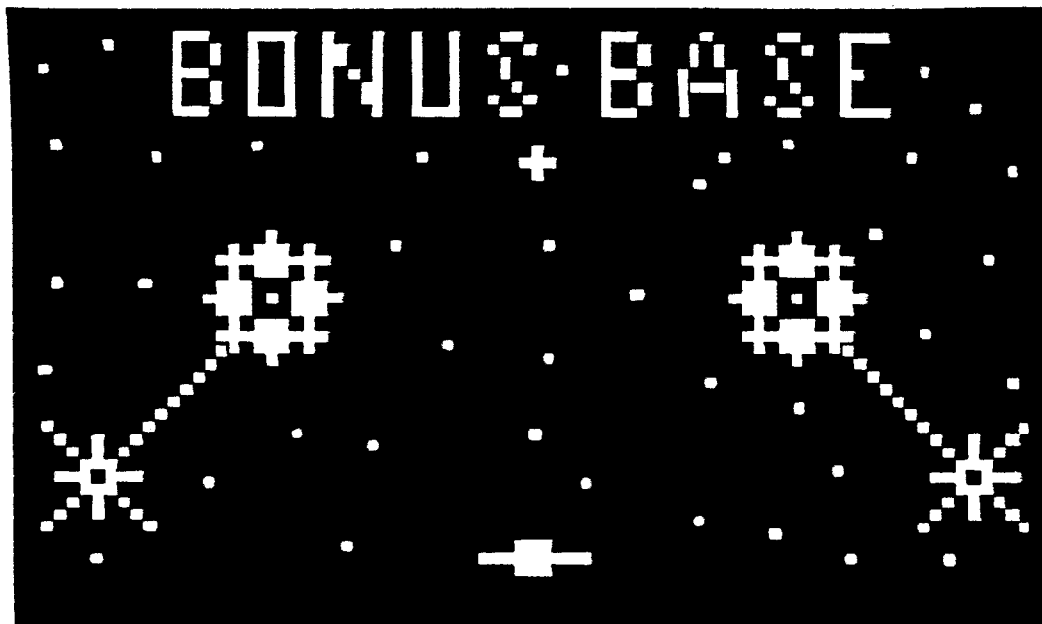
Ken Springsteen
1935 Winding Hill Rd. #1008
Davenport, IA 52807

ALTERNATIVE ENGINEERING REPORTS that all Viper 1 units which have been paid
for have been shipped. It has taken a while, but they are now 'ahead of the
game', and they can deliver from stock. The keyboard will be ready soon - I
have an evaluation unit here, and can say that the quality of this unit is
equal to the Viper itself. An eight-foot retractile cord connects it to
the Viper 1, making it quite convenient to place in your lap while
operating. More later on it. If you have questions or would like a copy
of their brochure, call or write Alternative Engineering Inc., P O Box 128,
Gardiner, ME 04345 (207) 582-6327

(In this photo, the arcade unit is sitting on top of the new Viper 1 box,
while the keyboard is in front. The Viper box is resting on some unseen
supports - the keyboard is only 9" deep.)

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    of your cancelled check to receive a refund. Address all correspondence to
    Rich Tietjens, PSC Box 542, APO Miami 34004. Mail for R&D Enterprises will
    not be delivered by the post office.

USER GROUP INTEREST?   in the San Antonio area, Contact W. Fidone, 8288
Eckert   #5, San Antonio 78248. In the Quad Cities Iowa area, contact Ken
Springsteen, 1935 Winding Hill Rd., #1008, Davenport, 52807

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