

EDITOR'S
EDITORIAL

HI! I'M GLAD TO BE RECALD AS YOUR NEW EDITOR! I'M SORRY THAT THIS FIRST ISSUE HAS TAKEN SO LONG TO GET TO YOU, BUT IT TOOK ME A WHILE TO GET MYSELF TOGETHER AS TO JUST WHAT I NEEDED TO DO IN THIS NEW JOB.

FIRST OF ALL, I WANT TO THANK MIKE WHITE FOR ALL OF HIS TIME AND EFFORT IN DOING THE ARTICLES IN THIS EDITION. AS YOU WILL NOTICE, THEY WERE WRITTEN UNDER THE ASSUMPTION THAT THIS WAS TO BE MAILED MONTHLY, SO WE DECIDED TO INCLUDE SEVERAL OF THE ARTICLES IN THIS ISSUE.

MY THANKS ALSO GO OUT TO GEORGE MOSES FOR HIS WORK IN GETTING THE PROGRAMS ALL LISTED FOR THIS ISSUE.

FIRST THINGS FIRST! THERE WERE SOME VERY IMPORTANT THINGS LEFT OUT OF THE OUTPOST 19 PROGRAM OF LAST ISSUE. WHEN YOU HAVE TYPED IN ALL OF THE PROGRAM AS WRITTEN, YOU MUST THEN SET THE FOLLOWING VARIABLES TO THESE VALUES:

D=16384;E=1970;F=1;N=11;R=35;U=70;Y=-10;
NT=0;SM=1

NOW, YOU SHOULD TAPE THIS. WITHOUT THESE, THE GAME WILL NOT WORK RIGHT!

ABOUT THIS ISSUE. IN THE PROGRAM BY GEORGE MOSES, "PRINTED LISTING CLEANUP UTILITY", YOU'LL NOTICE THAT LINE 101 HAS SOME PRINTED 'GLICHES' IN IT. THEY SHOULD BE LIKE THIS: [ON PAGE 55]

```
101 .....STEP F;TU=10;TU=K;PRINT #1,"("
,U,")=",%(B);U=U+1;NEXT B
```

THE DOTS MEAN TO PUT ALL OF THE LINE IN THAT IS BEFORE THE 'STEP F'.

NOW, COMES THE TRICKY PART OF PUTTING IN THIS AND OTHERS LIKE IT FOR THE BLUE RAM. IF YOU DON'T HAVE A KEYBOARD THAT HAD THE SPECIAL COMMANDS LIKE CIRCLE, DATA, SNAP, SCROLL, ETC., YOU'LL NEED TO DO SOME FANCY PROGRAMMING TO PUT IN THE RIGHT DATA INTO LINES THAT CALL FOR THESE AS MACHINE LANGUAGE. HERE ARE A COUPLE OF EXAMPLES:

```
203 PRINT "GOTO DATA PRINT ";Z=4;RETURN
```

TO DO THIS FROM THE KEYPAD, PUT ANY ONE BYTE CHARACTER IN PLACE OF THE COMMAND OF 'DATA'. NOW, LOOK IN THE TABLE BELOW FOR THE NUMBER ASSOCIATED WITH IT (120) AND TYPE IN THIS COMMAND WITHOUT A LINE #:

B. (%%(>203)+3), 0)=120

WHAT THE >203 COMMAND DOES HERE IS POINT TO THE ADDRESS OF THE 1ST BYTE AFTER THE LINE NUMBER. THE +3 POINTS TO THE PLACE THAT WE WANT OUR NUMBER TO GO. THE ,0) MEANS THAT WE WANT IT TO GO INTO THE LOWER BYTE OF THAT ADDRESS. TRY THIS AND SEE WHAT HAPPENS. YOU CAN USE THIS ANY TIME THAT YOU NEED TO INSTALL A NUMBER IN ANY LINE. JUST CHANGE THE 203 TO THE LINE # THAT YOU NEED, AND THE +3 TO THE BYTE THAT YOU NEED.

HERE IS A TABLE OF THE SPECIAL BLUE RAM COMMAND WORDS AND THE #'S THEY EQUAL:

120	DATA	D,	!7B
121	CIRCLE	CI,	!79
122	POINT	PO,	!7A
123	DEFAULT	DE,	!7B
124	SHOW	SH,	!7C
125	SNAP	SN,	!7D
126	ZERO	Z,	!7E
127	SCROLL	SC,	!7F

YOU'LL NOTICE THAT BOTH DATA AND ZERO HAVE 1 LETTER FOR THEIR ABBREVIATIONS. DATA BECAUSE IT IS THE 1ST COMMAND THAT STARTS WITH THE LETTER D, AND ZERO IS THE ONLY Z!

TO HELP SPEED UP FURTHER ISSUES OF THIS PUBLICATION, PLEASE SEND PROGRAMS AND ARTICLES TO ME, AND ADS TO ROBERT FABRIS.

SINCERELY,

KEN LILL
6608 S. CAMPBELL
CHICAGO, IL. 60629

PUBLISHER'S NOTE Ken tells me that the next issue is well under way, with the remainder of Mike White's tutorials, and a few programs. We have had a poor year (and a half) from the standpoint of getting material to you, and I'd like to make the next issue an oversize one to make up for that. So why not send in your program or tutorial and we'll put them all together to finish out the Volume. You have two months to get the material to Ken. rf

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><><  TRICKS OF THE TRADE      ><><
><><><><  A TUTORIAL BY      ><><><><
><><><><<    MIKE WHITE      ><><><><><
><><><><><  COUNTY LINE #2    ><><><><><
><><><><><  R.D.#1 BOX 373      ><><><><><
><><><><><  WAKEMAN , OHIO     ><><><><><
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GREETINGS! TO ALL THE NEW SUBSCRIBERS, AND TO ALL YOU "DIE HARDERS", **WELCOME BACK!!**

AS YOU CAN SEE, I HAVE UPGRADED MY COLUMN WRITER TO INCLUDE THE SYMBOLS $\leftrightarrow\uparrow\downarrow x$ AND $\div$ AS WELL AS ENHANCED PRINTING! LAST YEAR THIS COLUMN HAD SOME FUNNY SYMBOLS IN SOME OF THE LISTINGS, BUT NO MORE! IF YOU DON'T HAVE NIAGARA BUG BULLETIN VOL.2 GET IT!! BACK ISSUES ARE AVAILABLE THROUGH KEVIN O'NEILL.

ON PG.33 VOL.2 NIAGARA BUG BULLETIN I SAID THAT "FOR NEXT" LOOPS RUN FASTER THAN GOTO OR GOSUB. THAT IS BECAUSE THE ADDRESS FOLLOWING THE "FOR" STATEMENT IS "PUSHED" ONTO THE STACK WITH THE "TO" AND "STEP" VALUES. LOOP 1 OF MY LAST COLUMN (LAST YEAR) DEMONSTRATES THIS. LOOP 2 SHOWS THE EXACT ADDRESS. AS THE "FOR" STATEMENT IS READ BY THE COMPUTER THE "STEP" VALUE CHANGES, BUT ONLY IF TR(1) IS PULLED! HENSEFORTH, THE "FOR" STATEMENT IS ONLY READ ONCE, NORMALLY! THE STACK HOLDS EVERYTHING TILL THE "NEXT" IS ENCOUNTERED. THEN WE RETURN TO THE STORED ADDRESS, AND KEEP LOOPING. THE ADDRESS OF THE LOOPING VARIABLE IS ALSO PUSHED ONTO THE STACK. SEE QUADRA OR THESE 2 LOOPS:

LOOP A

```

10 FOR A=0TO 99
20 FOR B=0TO 99
30 NEXT A
40 NEXT B
  
```

LOOP B

```

10 FOR A=0TO 99;IF A=50GOTO 30
20 NEXT A
30 FOR B=0TO 99;IF B=50RUN
40 NEXT B
  
```

LINE 40 "BLOWS OUT" IN LOOP A, BECAUSE THE "FOR B" DATA GETS ERASED WHEN "FOR A" DATA GETS READ FROM THE BOTTOM OF THE STACK. LOOP B RUNS FOREVER! THESE "FOR" STATEMENTS ARE "RESTACKED" WHEN REINITIATED, SO THE STACK (200 BYTES IN AB) DOESN'T EXPLODE.

NOW AS PROMISED LAST YEAR, LET'S LOOK AT:

DIRECT SOUND PORT ACCESS

&(16)=MO	MO=&(16)
&(17)=TA	TA=&(17)
&(18)=TB	TB=&(18)
&(19)=TC	TC=&(19)
&(20)=VF*64+VR	VF=&(20)/64;VR=RM
&(21)=NM*16+VC	NM=&(21)/16;VC=RM
&(22)=VB*16+VA	VB=&(22)/16;VA=RM
&(23)=NV	NV=&(23)

THE CHART WAS TAKEN FROM THE PORT TO VARIABLE TRANSLATOR BY [GEORGE MOSES]. THE PROGRAM LETS YOU HEAR THE SOUNDS AS WELL AS SEE THEIR VALUES. THE TUTORIAL ON PG.62 TO 66 VOL.1 ARCADIAN EXPLAINS THE SOUND GENERATOR IN DETAIL. ONE THING ABOUT $\&(21)$, $\&(21)=255$ GIVES THE SAME SOUND AS $\&(21)=63$. GEORGE MOSES'S PORT TO VARIABLE TRANSLATOR WON'T EVEN ACCEPT A $\&(21)$ INPUT OVER 63.

ON PG.69 VOL.1 ARCADIAN YOU'LL FIND A CHART OF CONCERT NOTES TO AUDIO FREQUENCIES. AND ON PG.73 IS A CHART FROM $\&(17)$ OR TA VALUES TO AUDIO FREQUENCIES. REMEMBER THAT TB+TC OR $\&(18)+\&(19)$ ARE THE SAME (SOUND WISE) AS $\&(17)$ OR TA. THEREFORE YOU CAN MAKE THREE VOICE MUSIC FROM THESE TWO CHARTS. GEORGE MOSES SENT ME A COUPLE OF LETTERS A WHILE BACK AND HE GAVE ME THIS:

THE FORMULA FOR A NOTE ONE OCTAVE LOWER IS TO TAKE THE MO (OR TA) VALUE, ADD 1, DOUBLE IT, AND SUBTRACT 1.

THE FORMULA FOR A NOTE ONE OCTAVE HIGHER IS TO TAKE THE MO (OR TA) VALUE, SUBTRACT 1, AND DIVIDE BY 2.

TO CREATE STRANGE SOUNDS REQUIRES A "FOR NEXT" LOOP. HERE IS "THE RAZZ"!! SLOBBER AND ALL:

```
10 NT=-1;&(18)=-1;&(19)=100;&(21)=36;&(22)=-1
20 FOR A=50 TO 0 STEP -1;&(20)=A
30 NEXT A;NT=0
```

IF YOU USE THE VARIABLES INSTEAD OF THE PORTS, YOU MAY USE THEM TO STEP THE LOOP. (SUCH AS "FOR VR=50 TO 1 STEP -1"). BUT NOT ALL IS SWEET!! TRY THIS:

```
11 NT=10
12 PRINT "135x1 5x100
13 CLEAR
60 FOR N=1 TO 1000;NEXT N
333 NT=0
343 TB=-1;TC=100;NM=2;VC=4;VA=-1;VB=-1
344 FOR VR=50 TO 1 STEP -1
345 FOR XY=1 TO 2;NEXT XY;NEXT VR;↓
511 NT=15
512 PRINT "100101100+20220110-11000
```

THE VARIABLES RUN SLIGHTLY FASTER THAN THE PORT LOOPS. THE REASON IS, THERE ARE LESS BYTES. SO A SHORT DELAY IS ADDED TO LINE 345. BUT "WHERE IS THE RAZZ"? IF YOU ADD THE ABOVE PROGRAM TO ANTI-AIRCRAFT GUN BY [BOB OGDEN], PG.73 ASTRO BASIC HANDBOOK, (EXCEPT LINE 60) YOU WILL GET "THE RAZZ" IF THE AIRPLANE REACHES THE RIGHT EDGE OF THE SCREEN. BUT ONLY IF YOU MISS AT LEAST ONCE FROM THE GROUND. OTHERWISE, YOU HEAR A NASTY SCREECH. NEXT MONTH I'LL TELL YOU WHY! ALSO, DID YOU TAKE THE " $\&(16)=71$ " OUT OF LINE 20 OF SPACE MISSION (PART 2)? IF ANYONE CAN TELL ME WHERE THE MO SHIFT OCCURS BEFORE THE MARCH "TRICKS" COLUMN COMES OUT, I'LL GIVE THAT PERSON A FREE QUADRA! (HINT) ANTI-AIRCRAFT GUN MODS ALSO SUFFER FROM MO SHIFT! CLUES NEXT MONTH! KEEP BUGGIN'

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LAST YEAR I SAID THAT "YOU MAY CONSIDER PURCHASING THE PORT TO VARIABLE TRANSLATOR BY [GEORGE MOSES]". IN TRUTH THIS PROGRAM IS A "FREEBEE", AND APPEARS ON PG.58 VOL.5 ARCADIAN. I GOT MINE FROM GEORGE, ON A TAPE WITH ASTRO ZAP AND BACH MUSIC. I FORGOT ABOUT PG.58 VOL.5. SORRY ABOUT THAT! I STRONGLY SUGGEST THAT YOU KEY THIS IN. BE SURE TO READ THE TUTORIAL WITH IT!

OTHER THAN THE SOUND VARIABLES, AND PORT COMMANDS, THERE ARE THREE OTHER WAYS OF ACCESSING SOUND IN THE BALLY, "MU=", "TV=", AND "PRINT ". THESE ARE UNDER THE HEADING OF:

INDIRECT SOUND PORT ACCESS

ON PG.71 TO 73 OF VOL.1 ARCADIAN IS THE TUTORIAL ON INDIRECT SOUND PORT ACCESS. THE CHART ON PG.73 HOLDS TRUE FOR BOTH BB AND EB. AB USES A DIFFERENT KEYBOARD CODE. THAT IS, THE "A" (TV=65) FOR EXAMPLE, GIVES A &(17) VALUE OF 27 IN BB OR EB. IN AB IT'S 43. LISTEN TO SOME KEYBOARD SOUNDS BETWEEN AB, BB, AND EB, IF YOU HAVE ACCESS TO THESE BASICS, AND YOU'LL UNDERSTAND WHAT I'M SAYING. GEORGE MOSES SENT ME A COUPLE OF LETTERS (MENTIONED LAST MONTH) CONTAINING THESE TWO SHORT PROGRAMS:

```

1 .MO AND TA SHIFT ROUTINE
5 CLEAR
6 PRINT " NOTE      MO      TA
10 FOR A=48TO 55;NT=10
20 PRINT " -",;TV=A;NT=0;GOSUB 100;NEXT A
90 NT=0;STOP
100 NT=0;PRINT MO,TA;RETURN
  
```

```

1 .MO AND TA PRINTOUT ROUTINE
10 CLEAR ;GOTO 20
15 BOX 0,8,160,8,2
20 NT=3;PRINT " INPUT NOTE ",;FOR B=1TO 2;@(B)=KP;TV=@(B);IF @(B)
) #13NEXT B
30 NT=0;PRINT ;CY=-8;PRINT " NOTE      MO      TA
40 NT=20;CX=-71;FOR A=1TO B-1;TV=@(A);NEXT A;NT=0;PRINT MO,TA;GO
TO 15
  
```

SUBSTITUTE A "+", "x", "÷", OR A SPACE, FOR THE PRINTED "-" IN LINE 20 OF THE FIRST PROGRAM TO SEE ALL THE SHIFT VALUES. THE SECOND PROGRAM GENERATED THE DATA FOR THE CHART THAT FOLLOWS. (ALSO IN GEORGE'S LETTER BY THE WAY):

AB KEYPAD "KARACTER" FREQUENCIES

CHAR	MO	TA	CHAR	MO	TA	CHAR	MO	TA	CHAR	MO	TA	CHAR	MO	TA
-1	71	100	&	71	70	-8	71	52	C	71	41	S	71	25
1	71	94	'	71	69	8	71	52	D	71	40	T	71	24
+1	71	89	(	71	68	+8	71	52	E	71	39	U	71	23
-2	71	89	)	71	67	-9	71	51	F	71	38	V	71	22
2	71	84	*	71	66	9	71	51	G	71	37	W	71	21
+2	71	79	+4	71	66	+9	71	51	H	71	36	X	71	20
-3	71	79	-5	71	66	:	71	50	I	71	35	Y	71	19
!	71	75	,	71	64	;	71	49	J	71	34	Z	71	18
3	71	74	.	71	62	7	71	49	K	71	33	[	71	17
-4	71	74	5	71	62	<	71	48	L	71	32	\	71	16
"	71	74	/	71	61	>	71	46	M	71	31	]	71	15
#	71	73	+5	71	59	+7	71	46	N	71	30	↑	71	14
\$	71	72	-6	71	59	?	71	45	O	71	29	←	71	13
%	71	71	6	71	55	@	71	44	P	71	28	↓	71	12
+3	71	70	+6	71	52	A	71	43	Q	71	27	→	71	11
4	71	70	-7	71	52	B	71	43	R	71	26	0	71	0

IF YOU RUN THE SHIFT ROUTINE FURTHER YOU'LL FIND THAT TA CAN ONLY SHIFT IF A NUMBER FROM 1 TO 7 GETS PRINTED. THE "+" AND "-" SIGNS HAVE NO EFFECT IF FOLLOWED BY AN ALPHABETIC CHARACTER OR A SYMBOL. EXAMPLE: PRINTING "+T" OR "-T" GIVES "T" SOUND.

TA IS ALWAYS RESET TO ZERO AFTER A NOTE PLAYS. VA IS ALSO RESET TO ZERO. THIS CAN BE USED TO ADVANTAGE. HERE ARE TWO LINES FROM U.F.O. ATTACK (AVAILABLE AS PART OF QUADRA):

```
14 C=X;I=0;VA=15;FOR D=Y-HTO -40STEP -B;GOSUB 6;C=C+J;LINE C,D,I
;IF V>0TA=40-D;BOX C+E+8,D+3,1,1,I
```

```
18 MU=RND (9)+32;IF H>0GOSUB 3;P=P+1
```

THERE ARE NO OTHER SOUND COMMANDS IN LINES 15, 16, OR 17, OR IN SUBROUTINE 6. V>0 WHEN A FLYING SAUCER GETS HIT. SO THE LOOP GIVES A FALLING SOUND USING TA + VA. WHEN THE CRASH SOUND PLAYS, (LINE 18), TA + VA RESET TO ZERO TURNING OFF ALL SOUND.

UNLIKE MO! ON PG.71 VOL.1 ARCADIAN ONE FALSE STATEMENT WAS MADE. "AS SOON AS THE NOTE IS FINISHED, &(16) WILL AGAIN RETURN TO 71 UNLESS THE NEXT NOTE IS ALSO PRECEDED BY A ÷ (OR x)". NOT SO!! MO SHIFTS TO ONE OF FOUR NUMBERS (71, 35, 143, OR 0), AND STAYS RIGHT THERE! UNTIL ANOTHER SHIFT OCCURS, OR A &(16) OR "↓" COMMAND IS ENCOUNTERED. A "MO=" COMMAND MAY NOT ALWAYS WORK. IN SPACE MISSION FOR EXAMPLE, HALTING PART 2, AND KEYING IN "NT=0; MO=71" DOES NOTHING! AND, IF YOU KEY IN "PRINT MO", YOU'LL FIND MO ALREADY IS 71!! CONFUSED? HERE ARE YOUR CLUES: MO INPUTS FROM THE TAPE AND &(16) DOESN'T, BUT IF YOU STARTED LOOKING IN PART 1 YOU'RE ONLY HALF RIGHT. ALSO, BY CAREFUL LISTENING YOU WILL FIND THAT &(16)=0! IN ANTI-AIRCRAFT GUN MODS (LAST MONTH), THE SHIFT IS IN LINE 12. ALL FURTHER ANSWERS NEXT MONTH! KEEP BUGGIN'!

MATH QUIZ

BY BOB WEBER

INSTRUCTIONS FOR MATH QUIZ

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERScores
= SPACES. 765 CHARACTERS

ENTRIES ARE MADE VIA THE KEYPAD WITH
OVERLAY. KEY IN THE ANSWER. USE THE
MINUS SIGN WHEN APPLICABLE. PUSH GO.
COMPUTER WILL GIVE 10 PROBLEMS

DEPENDING ON YOUR ANSWERS THE COMPUTEER
WILL ADJUST TO YOUR ABILITY LEVEL. IT
GETS MORE DIFFICULT AS YOU DO BETTER
AND IT GETS EASIER AS YOU DO DUMBER.

DON'T WORRY. WE WON'T TELL OTHERS HOW
YOU SCORED.

```

2 .
3 .
4 .
5 .MATH QUIZ
8 W=5
10 clear
12 BC=rnd (256);FC=BC+11
15 Q=0;I=0
30 A=rnd (W)+5
35 if Q=10 goto 2000
40 B=rnd (W)+5
50 S=rnd (4)
52 Q=Q+1
55 N=0
60 if S=1 goto 200
70 if S=2 goto 300
80 if S=3 goto 400
90 print A,#1,"+",B,"=",
100 input "?C"
110 if C=A+B if N=0 T=T+1;print "RIGHT!";goto
30
115 if C=A+B goto 3000
120 N=N+1
130 if N<3 goto 90
140 Y=A+B;gosub 1000
150 goto 30
200 print A,#1,"-",B,"=",
210 input "?C"
220 if C=A-B if N=0 T=T+1;print "CORRECT!";got
o 30
225 if C=A-B goto 3000
230 N=N+1
240 if N<3 goto 200
250 Y=A-B;gosub 1000
260 goto 30
300 print A,#1,"x",B,"=",
310 input "?C"
320 if C=AxB if N=0 T=T+1;print "GOOD!";goto 3
0

```

```

325 if C=AxB goto 3000
330 N=N+1
340 if N<3 goto 300
350 Y=AxB;gosub 1000
360 goto 30
400 print AxB,#1,"*",A,"=",
410 input "?C"
420 if C=B if N=0 T=T+1;print "TERRIFIC!";goto
30
425 if C=B goto 3000
430 N=N+1
440 if N<3 goto 400
450 Y=B;gosub 1000
460 goto 30
1000 print "THE_CORRECT_ANSWER_IS_",#1,Y
1010 return
2000 print "TOTAL_NUMBER_CORRECT_OUT__OF_10_
=",#3,T
2010 for I=1 to 1000
2020 next I
2030 if T>7 W=W+1
2040 if T<5 W=W-1
2050 if W<1 W=1
2060 goto 10
3000 print "YOU_GOT_IT!"
3010 goto 30

```

SPACE CHASE
BY BOB WEBER

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERSCORES
= SPACES. 1231 CHARACTERS

```

5  O=0;E=0
10  &(23)=255
20  clear
30  BC=0;FC=26
40  NT=0
50  for Z=1to 50
60  box rnd (160)-80,rnd (88)-44,1,1,1
70  next Z
80  F=50;G=50
90  A=-45;B=15
100  X=40;Y=-10
110  gosub 1000
130  CY=44
140  print #B,F,#10,G
150  gosub 4000
160  if F>0if JX(1)#0F=F-1;A=A+JX(1)*10;&(21)
=255
170  if F>0if JY(1)#0F=F-1;B=B+JY(1)*10;&(21)
=255
180  gosub 4000
190  if F>3if TR(1)=1F=F-3;gosub 1200
200  if F>10if KN(1)>0F=F-2
210  gosub 5000
220  if G>0if JX(2)#0G=G-1;X=X+JX(2)*10;&(21)
=255
230  if G>0if JY(2)#0G=G-1;Y=Y+JY(2)*10;&(21)
=255
240  gosub 5000
245  if F<1if G<1goto 10
250  if G>3if TR(2)=1G=G-3;gosub 1300
260  if G>10if KN(2)>0G=G-2
270  if JX(1)=0if JY(1)=0goto 290
280  goto 130
290  if JX(2)=0if JY(2)=0&(21)=0
300  goto 130
310  if L=0if M=0&(21)=0
320  goto 130
1000  C=X;D=Y
1010  for Z=1to 2
1040  box X,Y,3,1,3
1050  box X+2,Y,1,5,3
1060  box X-2,Y,1,5,3
1070  X=A;Y=B
1080  next Z
1090  X=C;Y=D
1100  return
1200  T=20
1210  if A>X_T=-20
1215  NT=3
1220  for Z=1to 10
1230  box A+T,B,40,1,3
1235  MU="V"
1240  next Z
1245  NT=0
1250  if X>A-40if X<A+40goto 1270
1260  return
1270  if Y>B-6if Y<B+6goto 1290
1280  return
1290  goto 1400

```

INSTRUCTIONS FOR
SPACE CHASE

USES HAND CONTROLLER. JOYSTICK CONTROLS
MOVEMENT OF SHIP. KNOB ALL THE WAY TO
THE RIGHT FOR SHIELDS UP, ALL THE WAY
TO THE LEFT FOR SHIELDS DOWN. PULL THE
TRIGGER AND HOLD TO FIRE LASER. GAME IS
A LITTLE SLOW BECAUSE IT'S IN BASIC BUT
IT'S AS FAST AS IT CAN BE.

INPUT (0) FROM THE KEYPAD (USING OVER-
LAY) TO PLAY AGAIN. 2 PLAYERS.

```

1300  T=20
1310  if X>A_T=-20
1315  NT=3
1320  for Z=1to 10
1330  box X+T,Y,40,1,3
1335  MU="W"
1340  next Z
1345  NT=0
1350  if A>X-40if A<X+40goto 1370
1360  return
1370  if B>Y-6if B<Y+6goto 1390
1380  return
1390  goto 1500
1400  box X,Y,15,15,3
1401  if G>10if KN(2)>0G=G-10;box X,Y,15,15,3
;return
1405  box X,Y,15,15,2
1406  G=0+1
1410  &(21)=0
1415  CV=0;print "DRK",#3,0,"___ELK",#3,E
1420  if &(22)=16goto 10
1430  goto 1420
1500  box A,B,15,15,3
1505  if F>10if KN(1)>0F=F-10;box A,B,15,15,3
;return
1510  box A,B,15,15,2
1515  E=E+1
1520  goto 1410
4000  box A,B,3,1,3
4030  box A+2,B,1,5,3
4040  box A-2,B,1,5,3
4050  return
5000  box X,Y,3,1,3
5030  box X+2,Y,1,5,3
5040  box X-2,Y,1,5,3
5050  return

```

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THIS MONTH WE'LL BE LOOKING AT THE MOST MISUNDERSTOOD AND THE LEAST UNDERSTOOD QUIRK THIS LITTLE MACHINE OF OURS HAS. IN FACT, EVERYONE EXCEPT THE TOP EXPERTS IS STILL STUMPED WHEN HE ENCOUNTERS THE BIGGEST MESS WE'VE GOT;

MO SHIFT

MO IS NORMALLY SET TO 71 IN BASIC AND IF YOU HIT THE [RESET] BUTTON THIS IS WHAT YOU GET. BUT, IN CARTRIDGES IT'S DIFFERENT! THERE IS AN ON BOARD SUBROUTINE THAT RESETS ALL THE SOUND PORTS TO ZERO. IT CAN BE REACHED FROM BASIC IN FOUR WAYS. BY "NEW" IN VIPER SOFT, OR "CALL" AND THIS SHORT MACH CODE ROUTINE;

```

SNDOFF.PUSH.DE    ;SAVE BASIC POINTER
.RST.38H          ;CALL SUBROUTINE
.DB.20            ;SUBROUTINE NUMBER
.POP.DE           ;RESTORE BASIC POINTER
.RET.             ;RETURN TO BASIC
  
```

(USE "A=20260;%(A)=-43;%(A+2)=-12012;%(A+4)=201" TO POKE AND "CALLA" TO USE IT). THE "PLAY" COMMAND (BRB ONLY) REACHES THIS ROUTINE ONLY IF NO ARGUMENTS FOLLOW THE BASIC COMMAND, AND THE OTHER WAY TO REACH THIS ROUTINE IS IN SPACE MISSION. LINE 730 OF PART 1 RUNS SUBROUTINE 250 JUST BEFORE LOADING PART 2. WITH THIS YOU CAN [HALT] THE PROGRAM THE VERY INSTANT "START TAPE" APPEARS ON THE SCREEN. THEN TURN ON THE PAROLE JET SOUND THIS WAY:

```
ENTER>&(23)=60;&(21)=-1
```

THE SOUND SHOULD BE NORMAL. NOW ENTER ":INPUT ", PRESS [GO], [HALT], AND REENTER THE PAROLE JET SOUND. &(16)=0! THE ON BOARD SUBROUTINE IS REACHED FOR ":INPUT " IN AB, BUT AT NT<0 ONLY! SO, THE ANSWER TO THE CONTEST WAS THAT PART 2 IS TAPED WRONG. TO CORRECT, RELOAD PART 2 AND CHANGE LINE 20 TO READ:

```
20 A=(B-151)/8;NT=-1;&(23)=60;IF A=1N=5
```

CHANGE NT TO ZERO, THEN REENTER THE FINAL TAPING COMMAND AND TAPE OVER THE OLD PART 2. THIS IS A LOT EASIER THAN CHANGING LINE 730 OF PART 1 (YOUR OTHER OPTION) TO READ:

```
730 GOSUB 250;:INPUT ;NT=-1;RUN
```

RULE 1 IS NEVER TAPE AN AB PROGRAM AT NT<0 IF YOU WANT &(16) NOT TO BE ZERO. RULE 2 IS IF YOU USE "PL." TO TURN OFF SOUND (IN BRB ONLY) &(16) WILL BE ZEROED OUT. RULE 3 IS WHEN YOU SHIFT MO WITH THE "x" OR "÷" SIGNS (NT>0) THEN USE THE DIRECT SOUND PORT ACCESS COMMANDS, MO WILL BE SHIFTED TO 35 FOR "x" AND 143 FOR "÷". ANTI-AIRCRAFT GUN MODS HAD THIS PROBLEM. TO CORRECT, EITHER ADD A SPACE TO THE END OF LINE 12, OR CHANGE LINE 12 TO:

```
12 PRINT "135+7 5+700
```

RULE 4 IS THE "FLAG RULE". WHEN A "x" OR "÷" GOES TO THE SCREEN (REGARDLESS OF NT) A FLAG IS SET, SO THAT THE NEXT QUOTE, "TV=", OR "MU=", SHIFTS MO, (NT>0). ONLY PRINTING A NUMBER OR A VARIABLE DIRECTLY (EXAMPLES "PRINT 8;PRINT A") DOESN'T SHIFT MO.

THE MO AND TA SHIFT ROUTINE PRINTED LAST MONTH DIDN'T GIVE THE CORRECT MO SHIFT NUMBERS BECAUSE OF RULE 5. &(16) IS SHIFTED WHEN THE NOTE STARTS TO PLAY AND MO IS SHIFTED WHEN IT FINISHES. TO CORRECT THIS, REMOVE THE QUOTED SPACE JUST AHEAD OF THE SHIFT SIGN IN LINE 20. YOU WERE READING THE SPACE AND GETTING 71 IN ALL BUT THE "1", WHICH IS BECAUSE THE "0" DOESN'T USE THE FLAG. THE "0" WON'T SHIFT MO BY FOLLOWING "x" OR "÷" EITHER. A SPACE DOES, AND TWO SPACES CAN KILL A SET FLAG. (SHIFT, THEN RESET)

RULE 6 IS THAT ALL NT VALUE OR INDIRECT SOUND CHANGES TAKE PLACE DURING THE SCREEN INTERRUPT. IF YOU WERE TRYING:

```
ENTER>NT=0;MO=71;NT=-1;GOTO 30
```

ON SPACE MISSION (PART 2), YOU DID NOT GET A CHANGE IN MO. BUT IF YOU KEYED IT IN ONE INSTRUCTION AT A TIME YOU DID. IN ONE LINE, IT EXECUTES TOO FAST FOR THE SCREEN INTERRUPT TO CATCH, (SOMETIMES ANYWAY). NT HAS A COUPLE OTHER QUIRKS ALSO. TRY:

```
10 NT=50;PRINT "10000
20 GOSUB 40;PRINT "100000
30 GOSUB 40;NT=2;STOP
40 FOR A=0 TO 3000;NEXT A;RETURN
```

SEE PG.71+72 OF VOL.1 ARCADIAN FOR THE EXPLANATION, OR NEXT MONTHS COLUMN WHEN WE DISCUSS "NT SHIFT" (WOULD YOU BELIEVE)! IN AB, NT CONTROLS MORE THAN INDIRECT SOUND ACCESS TIMING, IT ALSO FREES US FROM THE SOUND VARIABLES. BUT BE CAREFULL! IF YOU WERE USING THE SOUND VARIABLES, AND TURNED SOUND OFF BY "VA=0;VB=0;VC=0;NV=0" THEN SAID "NT=-1" YOU MAY FIND THAT THE SOUND COMES BACK ON. THE CHOICE WAY TO KILL SOUND IS A SUBROUTINE, SUCH AS:

```
90NT=0;↓                27 NT=0;PL.;&(16)=71
```

THESE ARE FROM THE LASER,&SLIDE PART OF QUADRA, AB+BRB 4K VERSIONS RESPECTIVELY. A SHORT DELAY IN THE FOLLOWING LINE (OF BOTH VERS.) PRECEDES "RETURN". TILL NEXT MONTH, KEEP BUGGIN'!!

MARCH 21, 1986

ARCADIAN

Vol 7 No 3

ALIEN PATROL BY BOB WEBER

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERScores
= SPACES. 1673 CHARACTERS

```

20  BC=5;FC=33;F=1006;T=5;S=0;Q=1
70  for Z=0 to 60:@(Z)=0;next Z
100 for Z=1 to rnd (30)
110  A=rnd (3)
120  B=rnd (60)
130  if @(B)>0 goto 120
140  @(B)=A;next Z
160  clear ;A=1
170  gosub 300
180  gosub 5000
190  goto 6000
200  box 0,-14,160,52.2;return
300  P=rnd (3)-2;M=0;C=rnd (80)+9
310  for Z=1 to 60;if @(Z)=3M=M+1
320  next Z
340  if M=0 print "ALL_ALIENS_DESTROYED!";prin
t "RETURN_TO_BASE!";A=2
360  return
1000 Q=Q*(-1);S=S+Q
1030 if S>60S=60;D=0
1040 if S<0S=0
1050 F=F-10;if F<0 goto 5000
1070 gosub 5000
1080 if S=0D=0;goto 1110
1090 if D=1 goto 2000
1100 goto 6000
1110 if F>0;if M=0 print "YOU_WON!";goto 20
1120 goto 6000
2000 F=F-5
2020 if @(S)=0 goto 2500
2025 NT=3
2030 if @(S)=1 goto 2600
2040 if @(S)=2 goto 2700
2050 print "ALIEN_SHIP_IN_SECTOR!"
2060 if T>0 print "SUB-SECTOR",#9,C
2070 X=rnd (2);if X=2 goto 2120
2080 if X=1 print "ALIEN_HAS_FIRED_MISSILE!"
2090 X=rnd (3);if X=1 print "YOU_HAVE_BEEN_HI
T!";F=F-100
2110 if A=1 if X=1 goto 2610
2115 if X=1 if A=2 goto 9000
2117 print "HE_MISSED!"
2120 if T<1 goto 2530
2130 if D=1D=0;goto 3003
2140 goto 3000
2500 print "SECTOR_EMPTY!"
2530 if D=1S=S+Q;goto 1030
2540 goto 180
2600 print "METEOR_STORM!"
2610 E=rnd (2);if E=1 print "HEAVY",;F=F-50
2630 if E=2 print "LIGHT",;F=F-10
2660 print "DAMAGE!";gosub 5000
2665 if X=1D=0;Y=0
2670 goto 2530
2700 print "FUEL_STATION!";if T=0T=5;D=0;got
o 2750
2705 if M=0 goto 2750
2710 if F>499 goto 2530
2750 F=F+500

```

INSTRUCTIONS FOR ALIEN PATROL

ENTRIES ARE MADE VIA KEYPAD WITH OVERLAY. COMPUTER ASKS YOU TO SELECT 1 OF 3 OPTIONS. #3, REFUELING, ONLY APPEARS IN SECTOR 0 (HOME BASE); IT IS USED WHEN YOU DO NOT FIND ANOTHER FUEL STATION AND NEED ONE. YOU MAY REVERSE AND RETURN TO SECTOR 0.

WHEN COMPUTER REACHES A FUEL STATION IT WILL AUTOMATICALLY REFUEL IF YOU ARE BELOW 500 UNITS OF FUEL, OR OUT OF MISSILES.

WHEN UNDER COMPUTER CONTROL THE COMPUTER WILL STOP TO FIGHT ALIENS. REFUEL IF NEEDED AT SECTOR 0, AND AT SECTOR 60 (OUTER LIMITS) WHENEVER IT STOPS, YOU CAN EXERCISE YOUR OPTIONS. IF YOU RUN OUT OF MISSILES WHEN FIGHTING AN ALIEN, YOU MAY LEAVE TO FIND A FUEL STATION AND RETURN TO COMPLETE THE BATTLE. THIS IS A ONE PLAYER GAME.

```

2760 if F>1006F=1006
2775 @(S)=0;if D=1 goto 2530
2780 goto 180
3000 input "input SUB-SECTOR"L;goto 3005
3003 L=C;print "FIRE_MISSILE!";gosub 310
3005 CY=0;T=T-1;C=C+P
3010 gosub 200
3020 if L=C print "ALIEN_DESTROYED!";@(S)=0;g
oto 170
3030 print "MISSED!";gosub 5020
3050 goto 2060
5000 NT=0
5020 CY=44;F=F-1;if A=1F=F-5
5030 if F<1004=0
5040 print "LOCATION:SECTOR",#4,S
5050 print "SHIELDS_",
5060 if A=1 print "UP"
5070 if A=2 print "DOWN"
5080 if M=0 print "MISSILES:",#10,T
5083 if M=0 print "FUEL_NEEDED:",#7,S*16
5085 if F<0F=0
5090 print "FUEL:",#14,F
5095 gosub 200
5100 if F<1 goto 9000
5103 if M>0 if A=2 print "DANGER!"
5105 if T=0 print "FIND_FUEL_STATION!"
5110 if F<200 print "FUEL_LOW!"
5130 return
6000 gosub 200
6003 if S=60 print "OUTER_LIMITS";goto 6010
6005 print
6010 print "1-COMPUTER_CONTROL"
6020 print "2-REVERSE"
6030 if S=0 print "3-REFUEL"
6040 if T>0 if @(S)=3 print "4-FIRE_MISSILE"
6050 if &(23)=8D=1;goto 2530
6060 if &(22)=8D=1;goto 1000
6070 if &(21)=8 if S=0 goto 2750
6080 if &(23)=4 goto 3000
6100 goto 6050
9000 NT=9;print "LIFE_SUPPORTS_FAILING!";pri
nt "ALIENS_HAVE_WON!";goto 20

```

ARCADIAN

SUB SEARCH
BY BOB WEBER

MARCH 21, 1986
Vol 7 No 3

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERSCORES
= SPACES. 1578 CHARACTERS

```

10 clear :NT=0
15 BC=25:FC=36
20 P=-1:T=21:V=0
30 gosub 4000
40 S=5
45 goto 50
50 X=rnd (160)-80
60 Y=rnd (20)+20
70 P=P+2
80 @(P)=X
90 @(P+1)=Y
100 T=T-1
110 if T>0print "YOU_HAVE".#3,T,"_TORPEDOES_
LEFT"
112 if T=0print "ONLY_1_TORPEDO_LEFT!!!"
115 if T<0print "RED_ALERT!":goto 1000
120 if T=0print "ALL_TORPEDOES_GONE!":goto 1
000
125 if T<20if T>0print "LAST_'X'_COORDINATE_
=".#3,E
126 if T<20if T>0print "LAST_'Y'_COORDINATE_
=".#3,D
130 C=C+Y
131 print "'X'_COORDINATE?".
132 CY=0:CX=48
133 S=K(N(1))+3
134 print #1,G
135 if TR(1)goto 139
136 goto 132
139 if TR(1)goto 139
140 CX=0:print "'Y'_COORDINATE?".
142 CY=0:CX=48
143 D=K(N(1))+3
144 print #1,D
145 if TR(1)goto 180
146 goto 142
180 E=0:B=X-6:C=Y-0:B=B+B+CXC:H=A:A=0
185 A=A+1
190 J=B-AxA
200 if J>0goto 185
210 A=(A-1)x100
211 clear
215 if T<20if H<5000print "LAST_SHOT".#5,H,"
_METERS_AWAY"
217 if T<20if H>5000print "LAST_SHOT_OUT_OF_
_RANGE!"
310 if A>5000print "SUB_IS_OUT_OF_RANGE":got
o 1000
320 print "THIS_SHOT_WAS".#5,A,"_AWAY!"
330 if A>1000goto 1000
340 if A>500goto 2000
350 if A>100goto 3000
360 if A<101print "THE_SUB_HAS_BEEN_SUNK"
370 for Z=1to 500
380 next Z
390 goto 5000
1000 if V>0V=0
1100 goto 70
1110 print "YOU_HAVE_BEEN_SUNK"
1120 goto 370
2000 print "SUB_HAS_VEERED_45"

```

SUB SEARCH
BY BOB WEBER
in Astro-Basic

DIRECTIONS:

Uses hand controller. The screen is divided into X and Y coordinates. X coordinate is a horizontal line from left to right ranging from -80 to +80.

Y coordinate is a vertical line from top to bottom ranging from +40 to -40.

Your submarine is always at X=0, Y=-40. The enemy sub starts somewhere above Y=20. and moves toward your ship. Turn your knob for a number. Pull trigger to shoot. This is a one-player game.

```

2010 if S>20print "SUB_HAS_REDUCED_SPEED!"
2020 S=S-1
2030 if S<2S=2
2040 V=V+1
2050 if V=5print "SUB_HAS_MOVED_TO_A_NEW____
LOCATION":goto 45
2060 if X<H_X=X-S
2070 if X>H_X=X+S
2080 goto 1040
3000 Y=Y+5
3010 print "SUB_HAS_BEEN_DAMAGED._AND_HAS_TU
RNED_180"
3020 goto 2060
4000 box 0,0,160,1,1
4010 box 0,0,1,88,1
4020 CX=-50:CY=20
4030 print "-X,Y"
4040 CX=30:CY=20
4050 print "X,Y"
4060 CX=-50:CY=-20
4070 print "-X,-Y"
4080 CX=30:CY=-20
4090 print "X,-Y"
4096 print "SUB_STARTS_SOMEWHERE_ABOVE_'Y'=_
20"
4098 print "'X'=_-80_TO_80"
4100 for Z=1to 3000
4110 next Z
4120 clear
4130 return
5000 clear
5010 line @(1),@(2),2
5020 for Z=3to P+1step 2
5030 line @(Z),@(Z+1),1
5040 next Z
5050 box @(Z-2),@(Z-1),3,3,3
5060 box 0,0,1,80,1
5070 box 0,-43,160,1,1
5080 if TR(1)goto 10
5090 goto 5080

```

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```

1 .
2 .
3 .RND PIXEL DESIGN
4 .   BY
5 .DIETER HEINERMANN
6 .
7 .
8 .AB. BB. EX.B.
9 .
10 CLEAR
20 X=0:Y=0
21 Z=RND (3):.   FOR EX.B. CHANGE 3 TO 8
40 FOR A=1TO 80
60 X=X+RND (15)-7
70 Y=Y+RND (15)-7
80 IF (X>50)GOTO 20:IF X<-50GOTO 20
85 IF Y>40GOTO 20:IF Y<-40GOTO 20
90 BOX X,Y,1,1,Z
100 BOX -X,-Y,1,1,Z
110 BOX -X,Y,1,1,Z
120 BOX X,-Y,1,1,Z
170 NEXT A
180 GOTO 20

```

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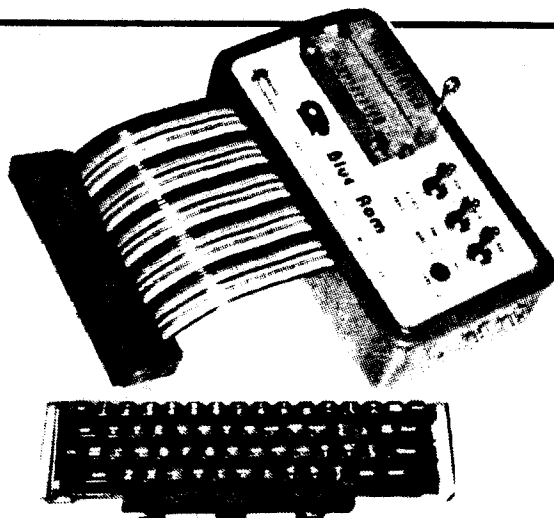
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NT SHIFT

LAST MONTH I SHOWED YOU THE PROGRAM THAT DEMONSTRATES THE LIMIT OF "NT SHIFT". ADDING ZERO'S TO A PRINTED QUOTE OR 48'S TO "MU'S" ONLY ADDS NT VALUE TO THE TIMER. THE TIMER DOESN'T START OVER, OR RUN FOREVER. THE TIMER APPEARS TO BE AT $\%(20094)$ IN AB. IF YOU LOWER $\<(10)$, AND START A LONG NOTE PLAYING, THIS ADDRESS GETS VERY BUSY. NT HOWEVER, IS AT $\%(20058)$, AND IS TWO BYTES, NOT TO BE CONFUSED WITH THE TIMER WHICH IS ONLY ONE! ADDING "0'S TILL A NT GREATER THAN 255 IS REACHED, ONLY RESULTS IN THE UPPER BYTE BEING IGNORED. THE SECOND NOTE IN LAST MONTH'S DEMONSTRATER YIELDS A NT VALUE OF 44 ($50 \times 6 - 256 = 44$). LASTLY, TRY THESE:

```

10 NT=250;MU=66;GOSUB 40      10 NT=250
20 NT=300;MU=77;GOSUB 40      20 &(23)=-1
30 NT=0;STOP                  30 &(21)=-1
40 FOR A=1 TO 1000;NEXT A;RETURN  40 IF KP NT=0
  
```

THE FIRST PROGRAM GIVES A LONGER NOTE THE FIRST TIME IN ALL BUT AB. IN AB, THE 8TH BIT TURNS OFF THE SOUND VARIABLES, AND KILLS INDIRECT SOUND PORT ACCESS, AS THE SECOND PROGRAM SHOWS. ALSO, IF YOU WISH A NOTE TO PLAY LONGER THAN 4.3 SECONDS (EQUAL TO $NT=255$) USE DIRECT SOUND PORT ACCESS. THE CHARTS GIVEN IN THIS COLUMN THIS YEAR (AND IN THE ARCADIAN VOL.1) WILL HELP YOU.

HIDE AND SURPRISE

THIS IS THE ART OF VIDEO MAGIC! TO BRING GRAPHICS TO THE SCREEN IN AN UNNATURAL OR UNUSUAL MANOR. IN AB + BB WE HAVE THE LINE AND BOX COMMANDS AS WELL AS THE "ON BOARD" CHARACTERS THAT WE CAN GET TO WITH THE PRINT COMMAND OR "TV=?". THESE LAST TWO METHODS HAVE THE PLEASANT FEATURE OF DISPLAYING A FAIRLY COMPLEX CHARACTER, INSTANTLY! THE LIMIT OF COURSE IS TO THE "ON BOARD" CHARACTER SET. "UNCONVENTIONAL" CHARACTORS ARE USUALLY BUILT ONE LINE OR BOX AT A TIME, WITH THE BUILDING BEING SHOWN. IN SOME CASES THAT'S DESIRABLE, BUT IN MOST IT ISN'T. FOR INSTANCE, WE HAVE A PROGRAM THAT LAUNCHES SKYROCKETS. EACH ROCKET DISSAPPEARS FOR A SECOND, AND THEN AN EXPLOSION IS SEEN. THE EXPLOSION MUST BE BUILT WITH RANDOM LINE COMMANDS, BUT NEEDS TO APPEAR ALL AT ONCE! IF YOU'VE SEEN FIREWORKS (BY ME) YOU KNOW WHAT I'M TALKING ABOUT. IF YOU HAVEN'T, SIMPLY ASK KEVIN O'NEILL OR MYSELF ABOUT NIAGARA BUGS CLUB TAPE! YOU WON'T BE SORRY!!

THE SECRET IN FIREWORKS IS THAT THE EXPLOSION GETS HIDDEN WHILE IT'S BEING BUILT! THE COLOR PORTS COME IN HANDY FOR THIS. BC=0 IN LINE #50 AND FC=0 AT THE START OF OUR DRAWING ROUTINE IN LINE #90. THE EXPLOSION BECOMES VISIBLE IN LINE #120. &(10) WILL DO THE TRICK ALSO, BUT TAKES A FEW MORE BYTES. IF THE BOTTOM OF THE SCREEN ONLY, NEEDS HIDDEN, YOU CAN'T DO BETTER. COUPLE ALL THAT WITH HIDING STUFF BEHIND &(9), EITHER BY FC=BC OR SETTING PORTS 0-3 ALL THE SAME, AND YOU HAVE THE TITLE CARTOON TO QUADRA (AFTER THE TAPE GETS STOPPED - 16K VERSION ONLY). THE TITLE DOES NOT GET REDRAWN, AS YOU MAY THINK! THE COLOR PORTS CAN ALSO DO "FADING". CHECK THIS OUT! (FROM STARBASE I):

```
7 &(21)=0;FOR A=7TO 0STEP -1;FC=A;FOR B=1TO 15;NEXT B;NEXT A;
RETURN
8 FOR A=0TO 7;FC=A;FOR B=1TO 15;NEXT B;NEXT A;FC=F;RETURN
```

THESE ARE THE TWO "MAGICAL" SUBROUTINES THAT CAUSE ONE SCENE TO FADE OUT, AND THE NEXT ONE TO FADE IN. CAN YOU REWRITE THESE SUBROUTINES TO BE MORE EFFICIENT? YOU SHOULD BE ABLE TO. SEE PAST ISSUES OF THIS COLUMN. ALSO, CAN YOU SEE A WAY OF FADING ONLY THE LEFT OR RIGHT HALF OF THE SCREEN? OR OF FADING TO WHITE?

THE "Q" CARTOON, (16K QUADRA) THAT RUNS AS THE TAPE IS STILL MOVING, CONTAINS THIS:

```
260 GOSUB M;GOSUB B;FOR F=0TO 7;FOR G=31TO 0STEP -1;FA=G*8+F;
NEXT G;NEXT F;DATA CX,-9,8,5;TV=85;CX=3;TV=68;FOR F=7TO 0STEP -1
;FOR G=1TO 32;FA=G*8+F;NEXT G;NEXT F;GOSUB 2
```

THE FA COLOR IS FADED "SIDeways" TO WHITE THROUGH ALL 256 COLORS. THE SPELLING GETS CORRECTED WHILE FA IS HIDDEN, (TV=85; TV=68 GIVES "UD"), THEN FA IS FADED "SIDeways" IN TO BLACK. THIS ONLY LOOKS HARDER THAN THE SIMPLE FADE THAT GREG MIEJSKI DID IN STARBASE I, (AVAILABLE ON ASTRO BUGS CLUB TAPE #2 BY THE WAY). THE ONLY REAL DIFFERENCE WAS IN THE USE OF A 4 COLOR SCREEN (EB) AND THE "SIDeways" LOOP THROUGH ALL 256 COLORS.

MOSTLY THOUGH, WHEN THE "Q" CARTOON GETS DEMONSTRATED, I AM ASKED ABOUT THE "SHRINKING" "Q". AN 8x SIZE "Q" DECENDS TO THE CENTER OF THE SCREEN, WHERE IT IS LITERALLY BURIED IN CIRCLES OF 4 RANDOM COLORS. THE CIRCLES DISSAPPEAR, LEAVING A "Q" 4x SIZE!! A TEMPORARY BURIAL BY BOXES IN SIMILAR FASHION RESULTS IN A "Q" 2x SIZE. THEN, RANDOM LINES IN AN EXPLOSION LIKE PATTERN, REPEAT THE "SHRINKING" PROCESS AND A NORMAL SIZE "Q" IS THE END RESULT.

HOW? YOU MAY ASK? THE SECRET IS IN THE CIRCLES, BOXES, AND LINES, NOT WITH THE "SHRINKING" "Q". NEXT MONTH I'LL EXPLAIN IT. UNTILL THEN, REREAD PG.42 VOL.2 NIAGARA BUG BULLETIN!

ANOTHER THING I'M CONSTANTLY ASKED ABOUT IS THE "FLASHLIGHT EFFECT" IN SAFE CRACKER (16K QUADRA ONLY)! THE ROOM IS TOTALLY DARK EXCEPT FOR THE "FUSE TIMER" AND A FLASHLIGHT SPOT WHICH YOU MOVE AROUND WITH JOYSTICK + KNOB. IT REVEALS THE OBJECTS IN THE ROOM AS IT STRIKES THEM. HOW? NEXT MONTH ALSO! KEEP BUGGIN'!!!

MARCH 21, 1986

ARCADIAN

Vol 7 No 3

```

1 .
2 . AB. BB. EX.B.
3 .
4 . BOUNCING BALL SIMULATION
5 . AND BOUNCING BALL ART
6 . BY
7 . DIETER HEINERMANN
8 .
9 .SET TIMERS TO 0 SET J TO 1 FOR INITIAL SPEED
10 E=0;F=0;G=0;H=0;I=0;J=1
15 .FRONT & BACK COLLOR
20 FC=9;BC=127
30 CLEAR
35 .PICK RND STARTING POINT
40 X=RND (140)-71
50 Y=RND (80)-43
55 .MAKE BORDER
60 BOX 0,0,154,88,3
70 BOX 0,0,152,86,3
80 A=1;B=1
85 .MOVE INVISIBLE LINE TO STARTING POINT
90 LINE X,Y,4
95 .MAIN LOGIC & BOUNDARY CHECK
100 C=X+(AbJ);IF (C<-74)+(C>74)A=-A
110 D=Y+(BbJ);IF (D<-41)+(D>41)B=-B
120 X=C;Y=D
125 .E=TIMER FOR POINT ROUTINE
130 E=E+1
140 IF E=500CLEAR
150 IF E>499GOTO 200
155 .USE LINE TO MAKE POINT
160 LINE X,Y,3
170 GOTO 100
195 .F=TIMER FOR LINE FILL ROUTINE
200 F=F+1
210 IF F=800CLEAR
220 IF F>799GOTO 300
225 .XY=X FOR START OF LINES
230 XY=X
235 .1ST LINE
240 LINE X,Y,3;. FOR EXT. BASIC CHANGE 3 TO 2
245 .XY=-X FOR START OF LINES
250 XY=-X
255 .2ND LINE
260 LINE -X,-Y,3;. FOR EXT. BASIC CHANGE 3 TO 1
270 GOTO 100
295 .G=TIMER FOR 2ND LINE ROUTINE
300 G=G+1
310 IF G=400CLEAR
320 IF G>399GOTO 400
325 .XY=Y START OF LINES
330 XY=Y
335 .1ST LINE
340 LINE X,Y,3;. FOR EXT. BASIC CHANGE 3 TO 1
345 .XY=-Y START OF LINES
350 XY=-Y
355 .2ND LINE
360 LINE -X,-Y,3;. FOR EXT. BASIC CHANGE 3 TO 2
370 GOTO 100
395 .H=TIMER FOR 3RD LINE ROUTINE
400 H=H+1
410 IF H=200CLEAR
420 IF H>199GOTO 500
430 LINE -X,Y,3;. FOR EXT. BASIC CHANGE 3 TO 1
440 LINE -X,-Y,3;. FOR EXT. BASIC CHANGE 3 TO 2
450 LINE X,Y,3;. FOR EXT. BASIC CHANGE 3 TO 1
460 LINE X,-Y,3;. FOR EXT. BASIC CHANGE 3 TO 2
470 GOTO 100
495 .I=TIMER FOR BOX ROUTINE
500 I=I+1
510 IF I=600CLEAR
520 IF I>599GOTO 550
530 BOX 0,0,1+ABS(Xb2),1+ABS(Yb2),3
540 GOTO 100
550 E=0;F=0;G=0;H=0;I=0
555 .J=INCREMENT FOR MAIN LOGIC TO INCREASE SPEED
560 J=J+1
570 IF J>3J=1
580 GOTO 40

```

CONCENTRATION BY BOB WEBER

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERScores
= SPACES. 1602 CHARACTERS

```

9  NT=0
10  clear :BC=rnd (256):FC=BC+11:A=0:B=0:C=0:
W=0:T=0:L=0:for Z=0to 39:@(Z)=0:next Z
20  for Z=1to 20:C=rnd (26)+64:gosub 180:gosu
b 180:next Z
41  CY=0:V=KN(1)+85+3:print "#_OF_PLAYERS?":#
2.V:if TR(1)goto 45
44  goto 41
45  if TR(1)goto 45
50  clear :X=-64:Y=28:for Z=0to 3:CX=X:CY=Y:p
rint #1.Z:Y=Y-12:next Z
60  X=-54:Y=28:C=0:for Z=1to 40:box X,Y,11,11
,1:X=X+12:if X>54X=-54:Y=Y-12
100 next Z
101 X=-53:Y=-20:for Z=0to 9:CX=X:CY=Y:print
#1.Z:X=X+12:next Z
105 box 0,10,123,51,3
106 box 0,10,121,49,3
110 T=T+1:if T=V+1T=1
130 CY=-30:print "PLAYER_#".#2.T
131 CY=-30:CX=10:print "MOVE_#1":O=2:E=0:F=0
:G=0
132 if TR(T)goto 132
133 if JY(T)=1E=KN(T)+64+2:goto 135
134 F=KN(T)+24+5:if F>9F=9
135 CY=-30:CX=60
136 print #1,E,F
137 if TR(T)E=E+10+F:goto 210
138 goto 133
140 CY=-30:CX=10:print "MOVE_#2
141 if JY(T)=1F=KN(T)+64+2:goto 143
142 G=KN(T)+24+5:if G>9G=9
143 CY=-30:CX=60
144 print #1,F,G
145 if TR(T)F=F+10+G:goto 147
146 goto 141
147 if TR(T)goto 147
148 if E=F_F=0:goto 141
149 goto 240
150 CY=40:print "#1=",#1,A,"__#2=".B."____#3
="_.C."__#4="_.W
160 if L=2goto 900
165 if U=1goto 130
170 goto 110
180 D=rnd (40)-1
190 if @(D)>0goto 180
200 @(D)=C:@(D+40)=C:return
210 if TR(T)goto 210
212 G=E:if @(G)=0goto 130
215 O=0:F=0
220 P=11:Q=2:gosub 500
230 goto 140
240 G=F:if @(G)=0F=0:goto 140
245 O=0
250 gosub 500
255 box 0,-30,160,14,2
260 if @(E)=@(F)goto 320
270 CX=-80:CY=-30:print "NO_MATCH!"
271 for Z=1to 500:next Z

```

CONCENTRATION BY BOB WEBER in Astro-Basic

DIRECTIONS:

Uses hand controller. The object is to match letters to score points. With your joystick forward or back, turn knob to select tens digit. With joystick in the normal position, turn knob to select units digit. Pull the trigger to uncover the square. This is a 2 to 4 player game.

```

274 U=0
275 O=1
280 G=E:P=11:Q=1
290 gosub 500
300 G=F:gosub 500
310 goto 110
320 O=0:CX=-80:CY=-30:print "CORRECT!"
321 NT=10
322 MU=49:MU=51:MU=53:MU="X":MU=49:MU=48:MU=
53:MU="X":MU=49:MU=48:MU=48:MU=48:MU=48
323 NT=0
329 U=1
330 @(E)=0:@(F)=0
335 O=1
340 G=E:P=11:Q=1
350 gosub 500
360 G=F:gosub 500
370 if T=1A=A+1
375 if T=3C=C+1
376 if T=4W=W+1
380 if T=2B=B+1
390 R=0
400 for Z=0to 39
410 if @(Z)>0R=R+1
420 next Z:if R=0L=2
430 goto 150
450 X=-54:Y=28
510 M=G+10:N=G-Mx10:X=X+Nx12:Y=Y-Mx12
520 if O=1box X,Y,P,P,Q
525 if O=00=2:box X,Y,P,P,Q
530 if O=2CX=X:CY=Y:TV=@(G)
535 if O=1if U=1box X,Y,9,9,2
540 return
900 for Z=0to 39:@(Z)=@(Z+40):next Z
910 for G=0to 39:O=0:P=11:Q=2:gosub 500:next
G
1000 if TR(1)goto 10
1010 goto 1000

```

```

><><  TRICKS OF THE TRADE  ><><
><><><><  A TUTORIAL BY  ><><><><
><><><><<    MIKE WHITE  ><><><><><
><><><><><  COUNTY LINE #2 ><><><><><
><><><><><  R.D.#1 BOX 373  ><><><><><
><><><><><  WAKEMAN , OHIO ><><><><><
><><><><><    44889        ><><><><><
  
```

```

670 &(19)=80;&(0)=7;&(1)=7;&(2)=7;&(3)=7;&(9)=30;FOR FA=7TO 1
STEP -1;GOSUB 98;NEXT FA;G=1;GOSUB 63,NT,2,-32,8,5;FOR FA=262TO
8STEP -5;GOSUB 98;NEXT FA
680 &(10)=96;&(9)=63;&(19)=70;FOR FB=7TO 1STEP -1;GOSUB 98;NEXT
FB;G=2;GOSUB 63,CX,-32,8,6;FOR FB=262TO 8STEP -5;GOSUB 98;NEXT
FB
690 &(19)=60;&(9)=10;&(10)=176;FOR X=7TO 0STEP -1;&(1)=X;GOSUB
98;NEXT X;G=4;GOSUB 63,CX,-32,8,5;FOR X=262TO 7STEP -5;&(1)=X;
GOSUB 98;NEXT X
700 &(9)=63;BOX 0,50,148,3,3;BOX -1,28,13,13,3;BOX 0,38,100,5,3;
&(19)=50;FOR FB=7TO 1STEP -1;GOSUB 98;NEXT FB;G=3;GOSUB 63,CX,
-32,8,6;FOR FB=262TO 8STEP -5;GOSUB 98;NEXT FB
710 BOX 0,50,148,3,3;BOX -1,28,13,13,3;BOX 0,38,100,5,3;BOX 0,8,
74,8,4;BOX 0,8,44,13,7;BOX 0,8,40,9,4;DATA NT,0,-15,8,7;PRINT
"QUADRA",
  
```

THE ABOVE IS FROM THE 16K QUADRA. THE TITLE IS DRAWN, THEN THE SCREEN IS FADED TO ALL WHITE. LINES 670 THROUGH 700 REVEAL ONE QUADRANT AT A TIME. SUBROUTINE #98 IS A SHORT TIME DELAY AND #63 PRINTS TITLES OUT DEPENDING ON VARIABLE "G". "FA" AND "FB" ARE THE OTHER TWO COLORS IN EB (FOR YOU AB + BB USERS), AND THE WORD "DATA" OR "GOSUB A,B,C,D,E,(ETC.)" IS A FAST WAY TO LOAD A STRING OF VARIABLES. IN "GOSUB" THE FIRST NUMBER IS THE NUMBER OF THE SUBROUTINE. THE SECOND IS THE VARIABLE TO START LOADING AT. THE REST IS DATA TO LOAD. THE SEQUENCE IS, "NT,CX,CY,CC". WE KNOW ABOUT NT,CX, AND CY FROM AB. CC IS "CHARACTER COLOR" AND IT CONTROLS WHICH COLOR WE "PRINT" IN (5=FA, 6=FB, 7=FC). NOW, LET US STUDY THIS! THE LEFT SIDE OF THE SCREEN ONLY IS FADED IN, AND TITLE "G" IS PRINTED, THEN "FOR FA=262TO 8STEP -5" FADES FA BACK TO WHITE (THE LOOP STOPS AT 7, SEE NIAGARA BUG BULLETIN VOL.2 PG.27+33). &(10) IS MOVED UP, AND THE TOP OF THE SCREEN IS FADED THE SAME AS BEFORE (USING FB). &(9) IS SET, AND THE RIGHT SIDE OF THE SCREEN IS SHOWN BY TYING &(1) TO A VARIABLE (&(1) IS FA RIGHT OF &(9)). THEN 3 BOXES "MASK OUT" THE TOP BY USING "XOR", AND THE BOTTOM IS VIEWED THE SAME AS THE OTHER PARTS. THE BOXES ARE "XOR FC". IF THEY OVERLAY FB IT BECOMES FA. FC BECOMES BC, AND BC BECOMES FC. NO FA PIXELS ARE HIT, SO AN FB FADE WILL ONLY SHOW THE BOTTOM OF THE SCREEN. LINE 710 HEALS THE TOP AND CENTER OF THE PICTURE (A LOT FASTER THAN REDRAWING IT).

THIS PART, BEING IN THE 16K VERSION ONLY, IS NOT CRAMPED FOR SPACE. LINE #670 WOULD HAVE USED "FOR X=0TO 3;&(X)=7;NEXT X", IN PLACE OF THE 4 PORT COMMANDS (SAVING 11 BYTES) IF IT HAD BEEN.

WE MUST ALWAYS LOOK FOR NEW WAYS TO IMPROVE OUR PROGRAMS, OR EVEN SOMEONE ELSE'S! THIS IS HOW I GOT STARTED. LAST MONTH I LET YOU SEE TWO SUBROUTINES FROM STARBASE I BY GREG MIEJSKI. THEN I CHALLENGED YOU TO REWRITE THEM FOR EFFICIENCY. DID YOU GET THIS?

```
7 &(21)=0;FOR FC=7TO 1STEP -1;FOR A=1TO 20;NEXT A;NEXT FC;RETURN
8 FOR FC=0TO 6;FOR A=1TO 20;NEXT A;NEXT FC;FC=91;RETURN
```

ONLY THE "91" IS MY FAULT. I DIDN'T SAY WHAT THE VALUE OF "F" WAS LAST MONTH. THIS SETS FC TO A DULL RED.

ALSO, LAST MONTH I PROMISED TO EXPLAIN THE "SHRINKING" "Q" AND THE "FLASHLIGHT EFFECT", FOUND IN THE 16K QUADRA. THE SECRET IS IN THE USE OF XOR! THIS LINE DOES THE "FLASHLIGHT EFFECT":

```
2000 &(23)=-1;FOR X=1TO 20;&(21)=RND (X*10);GOSUB 6;NEXT X;
&(10)=0;GOSUB 9,BC,0,103,0,204;&(9)=63;DATA NT,0,-17,48,5;PRINT
"0H N0!!
```

NOTICE THE "GOSUB 9,BC,0,103,0,204". THE COLOR VARIABLES ARE LOADED IN ORDER (BC,FA,FB,FC). THE SCREEN IS DRAWN IN FB. THE FLASHLIGHT SPOT IS DRAWN IN FA AND SNAPPED TO LINE #6000. THEN THE SPOT IS SHOWN USING XOR! THE BC AND FB COLORS ARE THE SAME, MEANING THAT THE SCREEN REMAINS HIDDEN UNTILL THE SPOT HITS AN OBJECT. THEN BC BECOMES FA, AND FB BECOMES FC (DARK BLUE). THIS MEANS THAT THE SPOT IS YELLOW "103", THE SCREEN IS BLACK "0", AND THE PART OF AN OBJECT HIT BY THE SPOT GETS CHANGED TO A DARK BLUE "204", BY XORING THE SPOT WITH THE SCREEN! XOR IS ALSO THE SECRET BEHIND THE "SHRINKING" "Q"! ON PG.42 VOL.2 NIAGARA BUG BULLETIN I SAID "IF WE DRAW AND REDRAW THE SAME REVERSE (XOR) LINE WE WIND UP WITH THE ORIGINAL PICTURE REGARDLESS OF WHAT IT MAY HAVE BEEN." BUT, IF WE ERASE THE ORIGINAL PICTURE USING XOR WE WIND UP WITH THE LINE! COMPLETE AND SOLID! SO THE "Q" SIMPLY XORED OFF, AND THEN BACK ON AGAIN, ONLY SMALLER. THIS PRINCIPLE ALSO WORKS IN REVERSE! SO WHEN THE CIRCLES, BOXES, AND LINES ARE XORED FROM THE SCREEN, THE "SHRINKING" "Q" IS FINE.

```
6 BC=RND (256)
7 DATA FA,BC+68,BC+196,BC+132;RETURN
9 NT=0;PL.;&(16)=71;RETURN
```

THESE ARE THE SUBROUTINES #6 AND #9 REFERED TO IN LINE #2000 SHOWN ABOVE, "COLOR RANDOM" AND "SOUND OFF".

SORRY I LEFT YOU AB + BB PEOPLE SOMEWHAT OUT THIS MONTH, BUT I WANTED TO SHOW THE ADVANTAGE OF THE 4 COLOR SCREEN IN EB. NEXT MONTH I'LL TALK ABOUT THE MAZE FROM SAFECRACKER, AND THE MARTIAN FROM QUADRA 16K VERSION AGAIN. ONLY BOTH "TRICKS" CAN BE DONE IN AB! WITH THE MAZE, THE SCREEN IS CLEARED AND "FUSE TIMER" ALONG WITH THE REMAINING TIME IS PRINTED NEAR THE SCREENS CENTER. THEN THE MAZE APPEARS, INSTANTLY! HOW? SINCE &(10) COULDN'T HAVE BEEN USED? SEE QUADRA AB. TILL NEXT MONTH, KEEP BUGGIN'!!!!

MARCH 21 1986

ARCADIAN

Vol 7 No 3

```
1 .
2 .
3 .MAIN PROGRAM LOGIC
4 .    BY
5 .DIETER HEINERMANN
6 .
7 .
8 .ALL BASIC'S
9 .
10 J=1:I=0
20 FC=9:BC=127
30 CLEAR
40 X=RND (140)-71
50 Y=RND (80)-43
80 A=1:B=1
90 LINE X,Y,4
100 C=X+(A*B):IF (C<-74)+(C>74)A=-A
110 D=Y+(B*B):IF (D<-41)+(D>41)B=-B
120 X=C:Y=D
130 I=I+1
140 IF I>499GOTO 310
150 .START ROUTINE      IF YOU PUT TO MANY LETTERS IN THE PRINT STATEMENTS SOME OF THEM WILL
290 .END ROUTINE        APPEAR ON THE OPPOSITE SIDE OF THE SCREEN
300 GOTO 100            ALSO SOMETIMES THE SCREEN WILL SCROLL
310 J=J+1
320 IF J>3J=1
330 CLEAR :I=0
340 GOTO 40

AFTER RUNNING THE PROGRAM A FEW TIMES YOU WILL NOTICE THE ANGLE OF
REFLECTION IS ALLWAYS 90 DEG. TO REMEDY THAT SITUATION
CHANGE LINE 80 TO READ 80 A=RND (3):B=RND (3) THIS LINE ALSO WORKS
IN THE BOUNCING BALL SIMULATION AND BOUNCING BALL ART PROGRAM
```

ALL PROGRAMS RUN FASTEST,HAVE THE BEST DISPLAY IN EX.BASIC

INSERT ROUTINE OF CHOICE INTO ABOVE PROGRAM

```
150 .POINT ROUTINE
160 LINE X,Y,3
```

```
150 .LINE FILL ROUTINE
160 XY=X
170 LINE X,Y,3: .EX.BASIC CHANGE 3 TO 2
180 XY=-X
190 LINE -X,-Y,3: .EX.BASIC CHANGE 3 TO 1
```

```
150 .2ND LINE ROUTINE
160 XY=Y
170 LINE X,Y,3: .EX.BASIC CHANGE 3 TO 2
180 XY=-Y
190 LINE -X,-Y,3: .EX.BASIC CHANGE 3 TO 1
```

```
150 .3RD LINE ROUTINE
160 LINE -X,Y,3: .EX.BASIC CHANGE 3 TO 1
170 LINE -X,-Y,3: .EX.BASIC CHANGE 3 TO 2
180 LINE X,Y,3: .EX.BASIC CHANGE 3 TO 1
190 LINE X,-Y,3: .EX.BASIC CHANGE 3 TO 2
```

```
150 .BOX ROUTINE
160 BOX 0,0,1+ABS(Xb2),1+ABS(Yb2),3
```

```
150 .3D EFFECT
160 CX=X:CY=Y:PRINT "SOME LETTERS NUMBERS OR YOUR NAME
170 CX=-X:CY=-Y:PRINT "SAME AS LINE 160
```

LOWERCASE = 1-BYTE KEYPAD WORDS. UNDERSCORES
= SPACES. 3094 CHARACTERS

```

1 .LISTING_FORMATTER,_CARRIAGE_return
2 .(C)_GEORGE_MOSES_34
3 &(10)=200;zero;CC=7;NT=0;CF=SM.
4 clear;print;print "_IS_THE_PROGRAM_to
print STORED_IN:";print "_1._300_BAUD";print
"_2._2000_BAUD_EB";input "_3._2000_BAUD_AB_"
T;gosub 300
6 :input %(!8000);goto 9
8 return
9 gosub 2000
10 TV=10;print #1,%(!9000).;I=7;gosub 3000
;for A=!8002to E-1
12 I=I+1;if I>80I=I-80
13 C=%(A)^255
14 if (C>127)+%(A-1)^255=13)TV=10;print #
1,%(A);I=7;gosub 3000;A=A+1;next A
16 if C=32TV=95;next A
17 if C>99if C<104next A
18 if C>94if C<100gosub 3000;gosub 96+C;ne
xt A
20 if C>99if C<128Z=0;gosub 96+C;I=I+Z;nex
t A
100 TV=%(A);next A
101 if W="Y"TV=10;TV=10;TV=14;TV=K;print "(
)_ARRAYS";TV=10;for B=U+L+(S
x2)step F;
:
105 goto 180
150 Z=0;TV=10;I=0;X=B-!8002;gosub 2000;TV=1
0;for A=!8002to B
152 I=I+1;if I>80I=I-80
153 C=%(A)^255
156 Z=0;if C>94if C<128gosub 96+C;I=I+Z;nex
t A
160 if C=32TV=95;next A
165 if C=13TV=10;I=0;next A
170 TV=%(A);if A<Bnext A
180 TV=10;print;print;TV=26;TV=20;NT=0;r
eturn;STOP
191 TV=60;gosub 3000;TV=45;return
192 TV=118;gosub 3000;TV=124;return
193 TV=62;gosub 3000;TV=45;return
194 TV=120;return
195 TV=58;gosub 3000;TV=45;return
200 print "line clear input print _";Z=4;r
eturn
201 print " +line >for _";Z=5;return
202 print "for step goto _";Z=3;return
203 print "goto data print _";Z=4;return
204 print "line clear goto _";Z=4;return
205 print "clear _";TV=102;print "_";Z=2;r
eturn
206 TV=103;print "gosub print gosub _";Z=4
;return
207 TV=103;print "gosub input step x_";Z=
5;return
208 print "for print step for goto _";Z=6;
return
209 print " xgosub data _";Z=3;return
210 TV=102;print "gosub for _";Z=3;return
211 print "clear goto return step print _",
;Z=5;return
212 print "return for clear goto print _";
Z=5;return

```

[see page 35 for remainder]

INSTRUCTIONS FOR THE PRINTED LISTING CLEANUP UTILITY

BY GEORGE MOSES

THIS PROGRAM REQUIRES A BLUE RAM WITH
AT LEAST 16 K OF MEMORY, BLUE RAM BASI
AND A PRINTER.

SET UP YOUR PRINTER SO THAT IT DOESN'T
ADD ITS OWN LINE FEED WHEN IT RECEIVES
A CARRIAGE RETURN FROM YOUR ARCADE. THE
PROGRAM WILL SEND THE LINEFEEDS FOR
YOU AFTER EACH CARRIAGE RETURN (TV=13
WILL BE FOLLOWED BY A TV=10). IF YOU
CAN'T SETUP YOUR PRINTER THIS WAY JUST
FIND ANY "TV=10" IN THIS PROGRAM AND
DELETE IT FROM THE LISTING.

OTHER THAN THAT ALL THE INSTRUCTIONS ARE
ALREADY IN THIS PROGRAM AND WILL BE
DISPLAYED ON THE SCREEN AT THE TIME YOU
WILL NEED THE PROMPTS.

WHAT THIS PROGRAM WILL DO IS TO MAKE
YOUR PRINTER CREATE ACTUAL MULTIPLY AND
DIVIDE SIGNS, LEFT, RIGHT, UP AND DOWN
ARROWS, ETC., INSTEAD OF THOSE AWFUL
LOWER CASE LETTERS AND SYMBOLS THAT ARE
USUALLY CREATED WHEN CERTAIN BALLY BAS-
IC CHARACTERS ARE TRANSLATED BY YOUR
PRINTER.

HAPPY PRINTING!

```

213 print "input print return _";Z=4;retur
n
214 print "for goto _";Z=3;return
215 print "print gosub _";Z=2;return
216 print " >print >_";Z=4;return
217 print " +clear for +line _";Z=6;return

218 print "return gosub clear goto print _"
;Z=5;return
219 print ""TV=102;print " >step line p
rint _";Z=7;return
220 print "input list gosub to _";Z=4;retu
rn
221 print "input goto >return _";Z=4;retu
rn
222 print "point for gosub _";Z=4;return
223 print "input >for gosub line line _";
Z=6;return
300 if (T>3)+(T<0)run
301 if T=2L=2;K="e";F=2;gosub 400;return
309 if T=3L=4;gosub 500;return
310 if T=1clear;print;print "_IS_BASIC";p
rint "_1._BALLY_BASIC";input "_2._BLUE_RAM_BA
SIC_"T;gosub 410;input 300;A=!8002

```

```

330  for B=Ato !A000;%(B)=KP;if %(B-1)^255#2
55if %(B-1)#15885if %(B-1)#3434next B
340  :return ;goto 150
400  clear ;print "_HOW_LONG_IS_PROGRAM_to_1
ist ?";print ;input "(if UNKNOWN_input zero
)"_X
401  if X=0E=!DFFC;print ;print "_PRINTER_WO
N'T_STOP_AT_list END";goto 410
403  print ;E=!8000+X;S=0;print "_print THE_
ARRAYS?";print ;print "_Y/_N_";W=KP;if W="N
"goto 410
404  A=1;K="@";if L=4L=2;clear ;CY=0;print "
_(1)_@()_ARRAYS?";print "(2)_STAR_*()_ARRAYS
?";input "_A;if A=1K="@";F=2;goto 407
405  if A=2K="*";F=-2;goto 407
406  if A#1if A#2goto 404
407  print ;print "_input START_&_END_ARRAY_
ADDRESSES";print ;CC=6;print "_START_";TV=K;
input "()"_S;print ;print "_END_";TV=K;input
"()"_D;CC=7
408  V=S;U=E;if K="*"L=4;U=!8000+1800-(2 xS)
;S=-S;D=-D
410  print ;input "_IS_PRINTER_[1]_SERIAL_OR
_[2]_PARALLEL_"P;if P>2goto 410
420  CC=6;NT=1;print ;print "_LOAD_PROGRAM_t
o_list";print ;print "_PRESS_A_KEY_WHEN_TAPE
_IS_RUNNING";print "_for 300_BAUD_USE_INTERFA
CE_to_input ____WITH_PRINTER_OFF_line ";A=KP;
CC=7;NT=0;print ;print ;return
500  clear ;print "_THIS_BASIC_WON'T_print_I
N_PRESENT_FORM.";print ;print "_PRESS_A_KEY_F
OR_INSTRUCTIONS";if KP

```

```

520  clear ;print ;print "__1._RESET";print
 "__2._INSERT_ASTROBASIC";print "__3._LOAD_SO
UCE_PROGRAM";print "__4._SAVE_to_TAPE_THIS_WA
Y:
530  CC=6;print "__:print %(-24576),904";pri
nt ;CC=7;print "__THIS_GIVES_YOU_PURE_TEXT_ON
_TAPE_THAT____WILL_WORK_WITH_THIS_UTILITY
540  print ;print "__next_INSERT_BLUE_RAM_BA
SIC_CARTRIDGE,____RELOAD_THIS_UTILITY_&_SELECT
";CC=6;print "__3._2000_BAUD_ASTROBASIC_";CC
=7;print "OPTION_FROM____THE_MENU
550  NT=0;print ;print "__HAVE_YOU_ALREADY_D
ONE_THIS?";CC=6;print "_Y/_N_";A=KP;CC=7;i
f A="N"print ;NT=5;print ;print "__DO_IT_NOW!
";STOP
560  if A="Y"L=4;goto 400
570  goto 550
2000  clear ;CX=-65;CY=0;print "ON_line ?_PRE
SS_A_KEY";if KPclear ;CY=0;CX=-14;print "PRIN
TING";if P=1;print 300
2010  NT=!1A00;TV=18;TV=27;TV=117;TV=1;TV=10;
print "_LOWERCASE_=_1-BYTE_KEYPAD_WORDS._UNDE
RSCORES_=_SPACES._",
2020  if (T=1)+(T=3)H=1800
2030  if T=2H=3100
2040  if X=0print #1,H,
2050  if Xprint X,
2060  print "_CHARACTERS";return
3000  TV=13;if I>0for Q=1to I-1;TV=32;next Q;
return
3010  return

```

The ARCADIAN

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FIRST CLASS