

EXPANSION NEWS on two fronts by Alternative Engineering.

1. The first bit of news has to do with the barebones keyboard. While there have been a number of inquiries for a spartan keyboard that just replaced the on board keypad, when push came to shove, the serious people, ones with cash in hand, also wanted to have expanded memory as well. They reasoned that 1900 bytes just wasn't enough to do any serious programming. So AE will produce a keyboard with RAM, 64K of it, along with the 8048 microprocessor, two RS-232 ports for printer functions, etc., the 8K Uipersoft Basic language, and a power supply - all in a cabinet. Also included is a cassette machine so that all owners will be assured of taped program compatibility.

2. The Zgrass unit will include as standard, the latest in disc technology - the 96tpi Double Side Quad Density drive now available. All other features of the system remain unchanged.

Alternative Engineering is to be commended for continuing their efforts, not visible to the rest of the world, but certainly full of frustrations in dealing with suppliers, financiers, and everyone else involved in putting together projects such as these.

PRICES for the above are \$495. for the Keyboard Expansion; and \$1495 for the Zgrass Unit. Orders with money order, cashier check, etc., are now being accepted, with units being built on a first-in, first-out basis, and delivery in a 6-8 week timeframe.

It should be noted that the Keyboard Addition is easily expanded to the Zgrass unit by plug-ins, because the motherboard, power supply, and cabinet are common to both. There will be some advertising and/or further data in the next issue.

GRAVITY You command the first fleet of interplanetary space probes. You launch them from aboard your command post on the space shuttle Enterprise. All probes are capable of hovering over any planet at 2000 feet (except Pluto) and each can escape back into space to perform gravitational tests elsewhere. The probes, however, cannot escape from the gravity and heat of the Sun. All probes that enter the solar atmosphere for tests will disintegrate, but not before sending you the data you seek. You are left, upon disintegration, with a scene of the night sky from a telescope on your space shuttle. Since you have an unlimited supply of probes, the disintegration of a few should not concern you. Begin with a probe on Earth, for reference.

Instructions: Load the program and the * array. You will see the night sky, then your exhaust, a map of the solar system with the Sun on the left, then a menu. After you choose a planet, the map reappears, and the scene shifts to the planet's surface with the probe at 2000 feet elevation. The probe will drop a weight and the adjacent clock will time its descent. Then the menu will reappear for further testing.

In actuality, this program is a segment of a larger program that will eventually explore our solar system. Readers are encouraged to develop similar 'chapters', each within the 1800 byte storage constraint, and we'll see if we can't develop a multi-loaded program, or something that could be put on a cartridge.



```

1 CLEAR ;NT=0;NM=2;NV=25;BC=0;FC=7;FOR S=0TO 120;BOX RND (160)-80,RND (80)-40,1
.1,3;NEXT S;IF A=48A=0;GOTO 20
2 P=-27;CY=30;CX=P;PRINT " GRAVITY";CY=P;PRINT " FRED RODNEY 1984";CY=0
4 A=47;NT=9;FOR N=0TO 15;MU=*(N);NEXT N;NT=70;MU=90
5 GOSUB 79;FOR N=255TO 25STEP -1;NV=N;BOX -4,3,Nc20,Nc20,3;NEXT N;GOSUB 25
20 Z=0;CY=-40;PRINT ;CX=P;PRINT "1.EARTH";CX=P;PRINT "2.THE MOON
22 CX=P;PRINT "3.MERCURY";CX=P;PRINT "4.VENUS";CX=P;PRINT "5.MARS";CX=P;PRINT "6
.JUPITER";CX=P;PRINT "7.SATURN
23 CX=P;PRINT "8.URANUS";CX=P;PRINT "9.NEPTUNE";CX=P;PRINT "0.THE SUN";BC=7;FC=2
;A=KP;IF (A<48)+(A>57)GOTO 20
25 CLEAR ;GOSUB 70;FOR L=1TO 1500;NEXT L;CLEAR ;&(9)=50;IF A=47BC=0;FC=7;GOTO 40
30 FC=8;CX=-38;CY=24;IF A=48G=2;PRINT " THE SUN=28
31 IF A=49G=22;BC=167;PRINT " EARTH=1
32 IF A=50G=57;BC=0;FC=7;PRINT "THE MOON=0.16
33 IF A=51G=43;BC=22;PRINT "MERCURY=0.28
34 IF A=52G=24;BC=71;PRINT " VENUS=0.85
35 IF A=53G=37;BC=51;PRINT " MARS=0.38
36 IF A=54G=13;BC=54;PRINT " JUPITER=2.6
37 IF A=55G=20;BC=44;PRINT " SATURN=1.2
38 IF A=56G=22;BC=19;PRINT " URANUS=1.1
39 IF A=57G=18;BC=4;PRINT " NEPTUNE=1.4
40 BOX -4,1,11.1,1;BOX -4,3,3,3,1;BOX -8,2,1,1,1;BOX 0,2,1,1,1;IF A=47GOTO 65
42 FOR L=-15TO 0STEP 15;BOX 31,L,Z,1,1;NEXT L;LINE -80,-30,4;LINE 79,-30,1;LINE
79,-40,4;LINE 0,-30,1;LINE -80,-40,1
43 CY=0;CX=37;PRINT "_2000";PRINT " SEC.",;CX=43;PRINT "FEET";GOSUB 68;NM=2
50 FOR Y=-1TO -29STEP -1;BOX -4,Y,1,1,3;FOR B=0TO 6;Z=Z+1;NV=455cG;NEXT B;CY=0;P
RINT #5,Zc60;BOX -4,Y,1,1,3;NEXT Y;GOSUB 68
60 IF A=48NT=6;FOR L=1TO 9;MU=90;MU=65;BOX -4,3,15,8,3;NEXT L;NT=0;NM=2;FOR L=
1TO 31STEP 2;NV=255cL;BOX -4,3,L,L,3;NEXT L;RUN
65 ;GOSUB 68;GOSUB 79;GOTO 20
68 NT=2;FOR N=1TO 5;MU=90;BOX -4,3,1,1,3;MU=65;NEXT N;NT=0;RETURN
70 &(9)=68;BC=87;&(0)=0;&(1)=0;&(2)=5;&(3)=5;NT=0
72 BOX -52,0,3,3,1;BOX -40,0,5,5,1;BOX -27,0,5,5,1;BOX -29,5,1,1,1
74 BOX -17,0,3,3,1;FOR L=-40TO 40STEP 8;BOX RND (4)-8,L,1,1,1;NEXT L
76 BOX 10,0,10,10,1;BOX 28,0,8,8,1;LINE 22,5,4;LINE 34,-6,3
78 BOX 46,0,6,6,1;BOX 63,0,6,6,1;BOX 75,0,1,1,1;CX=30;CY=-33;PRINT "MAP";GOTO A+
32
79 FOR L=1TO 700;NEXT L;RETURN
80 CLEAR ;Z=36;FOR L=67TO 105;&(9)=L;NEXT L;GOTO 30
81 BOX -27,0,3,3,3;RETURN
82 BOX -29,9,1,4,3;RETURN
83 BOX -52,0,1,1,3;RETURN
84 BOX -40,0,3,3,3;RETURN
85 BOX -17,0,1,1,3;RETURN
86 BOX 10,0,6,6,3;Z=14;RETURN
87 BOX 28,0,6,6,3;RETURN
88 BOX 46,0,4,4,3;RETURN
89 BOX 63,0,4,4,3;RETURN

```

Fred Rodney
1190 Albany Ave
Brooklyn, NY 11203

- * (0) = 108 * (3) = 77 * (6) = 108 * (9) = 73 * (12) = 108 * (15) = 85
- * (1) = 71 * (4) = 83 * (7) = 79 * (10) = 75 * (13) = 108
- * (2) = 108 * (5) = 108 * (8) = 77 * (11) = 85 * (14) = 108

THE GAME PLAYER

...jumps over pits
& climbs vines in . . .

- 1) Adventure, &
Night Bombers
ASTROGAMES Tape A2

The second release from the new Canadian software company Astrogames is a pleasant departure from the usual game fare.

ADVENTURE, which is actually a multi-adventure game, is similar in concept to PITFALL, a popular game by Activision for the Atari unit. The second game on tape A2, NIGHT BOMBERS, is a more traditional "shoot-em-down" type of game. Both games are for one player only.

The object in ADVENTURE is to maneuver your man from the left side of the screen to the right. The first part of the game is called "The Forest", and each screen presents a new and different set of obstacles to hurdle. The joystick is used to move left and right, climb and jump. There are no "creatures" to avoid or beware of, however, your man must jump over crevasses, climb hanging vines, jump from stone to stone, and land on an occasional moving stone which will then transport him to the other side.

The player is allotted 1000 seconds to play in "The Forest", during which there is no limit to the number of new screens he can challenge. The quicker the player is at completing each screen, the more points he will have at the close of the 1000 second "Forest" sequence. Sometimes bonus point treasures will appear hanging from the vines.

After completing "The Forest", the player will begin a new adventure, called "Maze A-Changing Walls".

In this adventure, you will be faced with maneuvering your man from one side of the maze to the other, with the added element of a constantly changing formation, or position, of the maze walls. Most of the time you are simply walled in, unable to move. Fortunately, you are permitted seven "eats". That is, by pulling the trigger, the wall to your man's right will open. Points are awarded based on the amount of time used to complete the maze.

Upon finishing a couple of these mazes, the third and final adventure begins. This one is called "Maze B-Invisible". This maze game is like the other one, except that you cannot see the walls.

Overall, our players enjoyed ADVENTURE. It is challenging, though not really too difficult. Most felt it was relatively easy to play. We all felt that the graphics in the "Forest" segment were somewhat ordinary, and that an attempt should have been made to animate the "man". On the positive side, the sound effects were nicely done, and the music during the first tape load was excellent.

Astrogames used the multi-load method for ADVENTURE. In other words, the tape is loaded at three different times into memory. However, you only need to :INPUT; RUN GO once, at the beginning. The computer will print out commands at the appropriate time when you must push PLAY on your recorder. Using the multi-load method does require one to rewind the tape and start over for a replay of the game.

NIGHT BOMBERS is the other game on tape A2, and comes in an easy and hard version. "Easy" gives the player five lives, while "Hard" gives you only three lives, plus faster game action.

This is a fairly routine sci-fi game, in which bomber planes fly overhead, and periodically drop a bomb on your city. You, the player, control a missile launcher, and try to intercept the falling bombs.

We cannot, in all honesty, describe NIGHT BOMBERS as a terribly exciting game to play. Young players, age 10 and under, would probably be most satisfied playing the game. Sound effects are minimal, but fair in quality.

Five hits on the city and the game ends. The knob controls the angle at which your missile is fired, and the joystick guides it.

The hard version is extremely difficult to play. We do not like the fact that the missile is so tiny you lose track (sight) of it as it rises. It needs to be much larger.

Tape A2 is selling for \$9.00, and is an appropriate price. Most players will find ADVENTURE an interesting game, and the more enjoyable of the two. There is a lot that could be done to enhance ADVENTURE if it could be released in an Extended Basic version, or better yet, a cartridge! It's a pretty neat game, and we think most of you will like it, too.

MAIL BAG: Craig Conner writes to say that he thinks "the column (Game Player) is great and enjoys reading it. It helps in making future choices." Craig's favorite tape is "Look out for the Bull"...Herb Matthews writes to say "thanks for the consistent high quality and informative nature of your monthly reviews. It has definitely influenced my software purchases..." Herb loves Super Slope and feels it would be terrific as a cartridge. Joe Adams reports that there might be a program flaw in Cosmic Raiders. Upon reaching the 50,000 point level, the score will start back at 0. Does Joe have a defective cartridge? If you know the answer, please drop us a line.

Well, I think I've taken up enough of the space in this month's Arcadian. Will save some letters for next month. Bye.

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ASTROCADE/UNDERGROUND

So many people responded to our sale last month that we decided to run a similar sale again this month. We still do have a few Galactic Invasion cartridges left(#2011). We are selling this popular game for the amazingly low price of \$1.95 a savings of 28.00. We are offering similar savings on the Bally dealer demo. We are offering this limited edition cartridge for the same price of \$1.95. All that we ask is that you place a \$10.00 order.

We are continuing with the sale on L&M software. This month save on these great cassettes:

Tape #3 Bombardier/Meteoroid	\$5.00
Tape #4 Target/Mind Bender	\$5.00
Tape #16 Exiton's Revenge	\$7.50

Again all of these games are available in the AstroBASIC format only.

Speaking of cassette games, we are currently offering C-10 Cassette Tapes at a very good price - ten for \$7.00 a savings of \$3.00.

We are also continuing the sale on Space Fortress and Football. You may order either or both of these classic games for the low price of \$12.95 each. That's a possible savings of \$34.00.

We still have several Astrocade units in stock. We are offering them for \$99.95 with the following cartridges: AstroBASIC, Galactic Invasion, Football, Pinball, and Dogpatch. That's \$179.95 worth of cartridges for no charge when you buy an Astrocade from us.

We appreciate the great response from our recent sales and we hope to continue to serve your Astrocade needs. Just write us or give us a call(any day except for Wednesday). We have all of the newest cartridges in stock. Some of the new games are some of the best games available for the Astrocade. Make sure that you try Ms. Candyman, Sneaky Snake, Muncher, Solar Conqueror, Cosmic Raiders, and Sea Devil. We currently have all of these fine games in stock. Be sure to order your favorites today.

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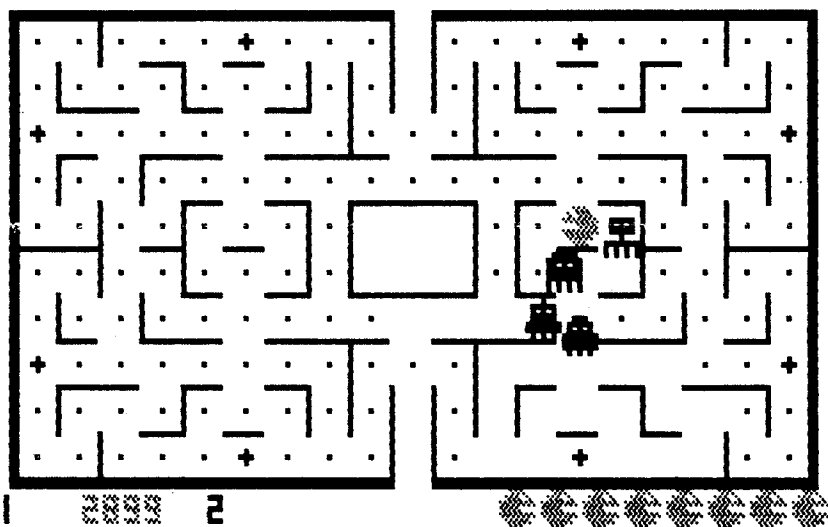
MAZEMAN IS HERE!!!!

AN ALL NEW MAZE CHASE ADVENTURE!!!

MAZEMAN is unlike any "gobble game" you have ever seen! Each time you clear a screen, you find yourself beginning a different maze. There are 12 completely different mazes, each requiring changes in tactics.

Here's a game that will not offend the non-gamers in the family. It is completely quiet. That's right, quiet! The program is so tightly packed with great graphics, smooth animation, great colors, the most precise control you've ever seen, and exciting action, that there's no room for even a simple sound routine. The game play gets so intense that you won't even notice a lack of sound after a couple of screens. If you really want to, you can always turn on the radio or play your favorite records or tapes. It might even convert some of those non-gamers!!!

This newest cartridge game for the Astrocade system allows 1 to 4 players with only one joystick. You may program the number of Mazemen from 1 to 9. You set up each player's difficulty level from one to nine as well. The four bad guys get slightly faster and a bit more aggressive with each new maze. The mazes cycle after 12 but the increase in difficulty goes on and on. From level one through nine there are eight "Jekyll to Hyde" transformers per maze. After L.9 there are only four. Mazeman has challenge enough for the serious gamer, but will provide hours of satisfaction for the beginner.



Actual Screen Print-out
Player No. 1, Maze No. 2

MAZEMAN is not Pac-Man or Muncher redone. Although the "eat the dots, avoid the enemies" scenario is similar, the game stands alone on it's own merit.

Treat yourself and your family to a very pleasant gaming experience. Send \$30.00 (U.S.) in check or MO (MO is faster) for your MAZEMAN cartridge.

I also do custom screen to printer dumps of any screen the astrocade unit can produce. For advertising or just as conversation pieces, send your specific wants with a S.A.S.E. for details.

DEALER INQUIRIES WELCOME

I'm considering setting up "micro-system software", but for now order from:

David Carson, P.O. Box 39, Kipton, Ohio 44049

MAZEMAN (c) 1984 DAVID CARSON

BY KEN LILL

A SERIES OF ARTICLES DESIGNED AS AN AID TO "BLUE RAM" EXPANSION UNIT OWNERS. ALTHOUGH MOST PORTIONS OF THIS COLUMN CAN BE APPLIED TO "UIPERSOFT BASIC", SOME MAY HAVE INFORMATION PERTAINING ONLY TO THE "BLUE RAM EXTENDED BASIC"

USING THE 'OP' COMMAND

FINALLY, WITH THE HELP OF THE 'GREAT' GUYS AT R & L, DALE SMITH AND RUSTY BLOMMAERT, I HAVE LEARNED THE SECRET BEHIND JOHN PERKINS' ELUSIVE 'OP' COMMAND!

TO DESCRIBE HOW ALL OF US PROGRAMMERS WERE INFORMED OF IT'S USAGE, I'LL TELL YOU. "IT IS A 'USER DEFINED' OPTION MADE TO ADD EXTRA COMMANDS TO THE BASIC. YOU MUST USE MACHINE LANGUAGE FOR THIS COMMAND!" BELIEVE ME, THIS SURE DIDN'T MAKE THINGS VERY EASY FOR US TO USE IT!

THIS IS WHAT YOU HAVE TO DO:

1. SET THE ADDRESS %(!6DCC) [28108 FOR YOU DECIMAL TYPES OUT THERE] TO !C3 [195]
2. SET %(!6DCD) AND %(!6DCE) [28109 & 28110] TO THE ADDRESS THAT IS THE VERY FIRST BYTE OF YOUR MACHINE LANGUAGE PROGRAM (REMEMBER TO INVERT ANY NUMBERS THAT ARE NOT OPERATIONAL CODES!!!)
3. ENTER YOUR MACHINE LANGUAGE PROGRAM AT THE ADDRESS YOU HAVE SELECTED
4. FINISH OFF THE PROGRAM WITH A 'JUMP TO !2460 [9312]

THIS COMPLETES THE 'INSERTION' OF THE NECESSARY MACHINE LANGUAGE. NOW ALL YOU HAVE TO DO TO GET YOUR ROUTINE TO WORK IS TO TYPE IN THE 2 LETTER COMMAND 'OP'. YOU DON'T NEED TO FOLLOW IT WITH A PERIOD OR A SPACE.

NOW TO EXPLAIN JUST WHAT YOU DID, THE FIRST COMMAND (!C3) IS JUST A JUMP, FOLLOWED BY THE ADDRESS TO JUMP TO. AT THE END OF THE PROGRAM, YOU NEED TO JUMP TO THE 'ON-BOARD' SUBROUTINE THAT EVALUATES THE NEXT BYTE IN YOUR 'BASIC' PROGRAM TO FIND OUT IF IT A SEMICOLON OR A 'GO'. IF IT IS NEITHER, IT WILL GIVE YOU AN ERROR MESSAGE.

***** REMEMBER *****

YOU MUST PUSH THE 'DE' REGISTER PAIR AS YOUR FIRST COMMAND TO SAVE THE ADDRESS THAT YOU ARE GOING TO RETURN TO IN YOUR 'BASIC' PROGRAM. THE LAST COMMAND PRIOR TO YOUR 'JP 2460' MUST BE A 'POP DE' COMMAND, SO THAT THE !2460 ROUTINE DOESN'T GET 'LOST'.

ANOTHER LITTLE HINT, 'REGISTER PAIRS' AF, BC AND HL MEAN 'NOTHING' TO YOUR 'BASIC' PROGRAM, SO THERE IS NO REAL NEED TO 'PUSH' THEM ONTO THE STACK IF YOU PLAN TO GO BACK INTO YOUR 'BASIC' PROGRAM. IF YOU THINK THAT IS PRETTY NIFTY, LET'S EXPAND THE USE OF THIS COMMAND BY 'LABELING' IT TO DO MORE

THAN ONE MACHINE LANGUAGE ROUTINE. THE WAY YOUR 'BASIC' COMMANDS MAY LOOK WILL BE ENTIRELY UP TO YOU AND YOUR PROGRAM. THE THING TO REMEMBER IS THAT EACH 'LABEL' MUST BE A 'VALID' NUMBER OR ARITHMATIC EQUATION. ANY NUMBER OR EQUATION THAT CAN BE PLACED BETWEEN THE COMMAS IN A BOX ,LINE ,POINT , CIRCLE OR DATA COMMAND, PROVIDING THE ANSWER IS NOT LONGER THAN !FF [255], WILL WORK AS A LABEL, LIKE OP A+B-C. IF YOU USE A NUMBER FIRST, YOU DON'T EVEN NEED THE SPACE [OP1]. LET'S SET UP A SAMPLE SET OF MACHINE CODE PROGRAMS, AND THEN WE'LL LABEL EACH OF THEM.

ADDRESS	HEX	DESCRIPTION
!7006	00	NOP-DO NOTHING
!7007	FF	SYSGEN
!7008	48	FIZBOK
!7009	D1	POP DE
!700A	C3	JP NN
!700B	60	
!700C	24	2460H
!700D	00	NOP
!700E	06	LD B,N
!700F	F0	FOH
!7010	FF	SYSGEN
!7011	50	PAWS
!7012	D1	POP DE
!7013	C3	JP NN
!7014	60	
!7015	24	2460H
!7016	00	NOP
!7017	06	LD B,N
!7018	28	28H
!7019	B5	PUSH BC
!701A	FF	SYSGEN
!701B	50	PAWS
!701C	B1	POP BC
!701D	10	DJNZ
!701E	F9	F9H
!701F	D1	POP DE
!7020	C3	JP NN
!7021	60	
!7022	24	2460H
!7023	00	NOP
!7024	CD	CALL NN
!7025	CE	
!7026	3C	3CCEH
!7027	D5	PUSH DE
!7028	7D	LD A,L
!7029	87	ADD A,A
!702A	21	LD HL,NN
!702B	00	
!702C	70	7000H
!702D	6F	LD L,A
!702E	5E	LD E,(HL)
!702F	23	INC HL
!7030	56	LD D,(HL)
!7031	EB	EX DE,HL
!7032	E9	JP (HL)

NOW WE HAVE TO TELL THE COMPUTER WHERE EACH OP IS LOCATED. TYPE IN THIS INFORMATION.

NOW TYPE IN WITHOUT A LINE #:

```
FOR A=0 TO 6STEP 2:PRINT #0," %(",A+!7000);
INPUT ")="%(A+!7000):NEXT A
```

WHEN ASKED, TYPE IN THESE NUMBERS:

!7007
!700E
!7017

THIS IS WHAT IS HAPPENING:

LET'S ASSUME THAT YOU HAVE SELECTED 'OP 2'. THE FIRST THING IS THAT THE 'BASIC' ENCOUNTERS IT AND THEN IT DOES THE INSTRUCTION LOCATED AT THE ADDRESSES !60CC-!6DCE. THAT IS TELLING IT TO JUMP TO [GOTO] %(!7023). THEN IT CALLS UP THE ROUTINE LOCATED AT %(!30CE) INSIDE OF THE BLUE RAM BASIC. THIS ROUTINE 'EVALUATES THE EXPRESSION' THAT FOLLOWS THE COMMAND. THIS ROUTINE IS USED BY BOX ,LINE ,ETC. TO FIND OUT THE EXACT NUMBER OF THE EXPRESSIONS LIKE: A+B , A+B+100-RND(10) ETC. THIS WILL SKIP AUTOMATICALLY OVER ANY SPACES THAT YOU MIGHT HAVE PUT INTO THE EXPRESSION. IF YOU JUST HAVE 1 NUMBER, THAT IS YOUR ANSWER. THE 3 THINGS THAT WILL END AN EXPRESSION ARE (1) A 'GO', (2) A SEMICOLON AND (3) A COMMA. WHATEVER YOU DO, DON'T USE A COMMA IN THESE OPS! IF YOU DO, WHEN THE PROGRAM HITS IT, IT WILL BE EXPECTING ANOTHER MACHINE LANGUAGE PROGRAM THAT IS MEANT TO 'EVALUATE' THE COMMA AND IT'S COMMAND. THIS IS NOT IN OUR MACHINE LANGUAGE PROGRAMS GIVEN HERE. AFTER THE EXPRESSION EVALUATION, I PUSH THE DE REGISTER PAIR. THE REASON BEING THAT THE DE PAIR NOW CONTAINS THE ADDRESS OF THE LAST BYTE IN OUR EXPRESSION. WE WANT TO SAVE THIS SO THAT WE CAN GO BACK TO THAT EXACT SPOT WHEN WE RETURN TO OUR 'BASIC' PROGRAM. THE HL PAIR CONTAINS THE ANSWER OF THE MATH. NOW WE WANT THE LOWER BYTE OF THE ANSWER, BECAUSE WE ARE ONLY USING NUMBERS IN THIS PROGRAM THAT ARE LOWER THAN !FF AS 'LABELS'. WE THEN LOAD THAT BYTE INTO 'A' OF THE 280. NEXT WE DOUBLE IT BECAUSE IT TAKES 2 BYTES TO STORE OUR ADDRESS VECTORS! NOW WE PUT OUR LOWEST ADDRESS OF OUR 3 VECTORS INTO HL. THEN WE CAN DIRECTLY LOAD L WITH A TO 'ADD' OUR ANSWER. IF YOU START WITH AN ADDRESS THAT DOESN'T HAVE 2 0'S AT THE END, YOU'LL HAVE TO 'ADD A,L' HERE AND MOVE EVERYTHING DOWN ONE BYTE. DOING THIS WILL NOT EFFECT ANY OF THE JUMPS IN THESE PROGRAMS. NOW WE LOAD E WITH THE NUMBER IN THE ADDRESS POINTED TO BY HL. WE ADD 1 TO HL AND THEN WE TAKE AND LOAD D WITH THE NEXT BYTE OF THE ADDRESS. NOW WE 'SWAP' OR EXCHANGE DE WITH HL, SO THAT WE CAN JUMP TO THAT ADDRESS. IN OUR CASE, WE ARE NOW AT %(!7007). IN THIS ROUTINE, I CALL UP PIZBRK, WHICH IS A ROUTINE THAT CLEARS THE SCREEN, WAITS FOR A SWITCH, AND THEN RETURNS TO THE POINT WE CAME FROM. IT THEN EXECUTES THE NEXT COMMAND. THIS IS TO POP DE. THEN WE GO BACK TO 'BASIC'.

OP 1 GIVES US A PAUSE OF 140/60THS OF A SECOND. THIS IS 2 1/3 SECONDS. WE THEN POP DE AND RETURN TO BASIC. IN OP 2, PAWS IS CALLED UP AGAIN, BUT THIS TIME IT'S ONLY FOR 40/60THS. BECAUSE BC IS PUSHED, WE CAN NOW POP IT. DO A DJNZ [DISPLACEMENT JUMP, NOT ZERO]. WHAT THIS DOES IS DECREMENT BC AND CHECK TO SEE IF IT IS ZERO. IF NOT, JUMP TO THE POINT IN THE PROGRAM DESIGNATED BY THE

NEXT BYTE. BECAUSE THIS IS A DISPLACEMENT JUMP, THE JUMP WILL START FROM THE BYTE THAT GIVES YOU THE NUMBER OF BYTES, AND NOT FROM THE JUMP BYTE. WE THEN JUMP BACK TO THE PUSH BC COMMAND AND DO THIS ALL OVER AGAIN UNTIL BC=0. AFTER THAT, WE POP DE AND GO BACK TO OUR BASIC PROGRAM.

I HOPE YOU HAVE THE MAIN IDEA ON HOW TO USE THE 'OP' COMMAND WITH AND WITHOUT USING LABELS. UNTIL NEXT TIME:

HAPPY PROGRAMMING!!

KEN LILL

6608 S. CAMPBELL
CHICAGO, ILLINOIS 60629

(CONTINUED FROM P.49)

TO AVOID CONFUSION, A MENTION SHOULD BE MADE CONCERNING THE INDUSTRY-WIDE USE OF A "K" NUMBER IN THE NAME OF A PRODUCT. THE BARE ARCADE IS CONSIDERED TO HAVE 4K RAM. ONLY ABOUT 1.8K IS ACTUALLY AVAILABLE TO THE BASIC USER (MORE IN MACHINE LEVEL). A 16K BLUE RAM ALLOWS APP. 15.5K TO BASIC (AGAIN MORE IN MC). THE 48K ATARI 800, 38K. THE COMMODORE 64, 39K. BOTH THE LATTER ARE TRUE 64K MACHINES. THIS IS CONFUSING UNLESS YOU REALIZE THAT OPERATING SYSTEMS MUST HAVE RAM TO FUNCTION. IN THE CASE OF THE R&L 64K RAM BOARD, APP. 45K OF RAM MAY BE USED BY BASIC. ANOTHER 4K MAY BE USED FOR "SNAPS" IF PART OF THE ON-BOARD GAMES ARE DISPLACED. AN ADDITIONAL 4K CAN BE USED IF YOU HAVE A BETTER OPERAT. SYS. (EXPERTS ONLY!). FINALLY, IT IS POSSIBLE TO USE THE 8K CARTRIDGE AREA IF YOU HAVE A SPECIFIC USE (MIKE AND I HAVE BEEN USING THIS AREA WITH SCREEN DUMPS). ALL THIS EXTRA SPACE IS POSSIBLE BECAUSE OF THE WAY THE BOARD ACCEPTS THE RAM CHIPS. IN 2K INCREMENTS, THE ENTIRE MEMORY STRUCTURE OF THE ARCADE IS REPRESENTED BY CHIP SOCKETS AND ON-OFF SWITCHES. JUST INSERT RAM WHERE YOU WANT IT AND GO TO WORK (THE EXTENDED BASICS REQUIRE RAM TO BE PRESENT IN CERTAIN AREAS NOTED IN THE DOCUMENTATION THAT COMES WITH THE BOARD).

HAVE YOU SEEN THE "KEYS" IN MUNCHER? THEY EXIST, STARTING WITH THE 13TH SCREEN! IF YOU WANT TO CHEAT AND SEE THEM ALONG WITH THE INSANE SPEED AND SINGLE FLASH OF THE GHOSTS AFTER EATING THE POWER PILL, CHANGE THE NUMBER OF "MEN" FROM 3 TO HOW MANY YOU WANT (UP TO 255). LOAD TO EXTERNAL MEMORY AND CHANGE ADDRESS !607D (IF LOADED TO !6000 AREA, !807D IF LOADED TO !8000) FROM !03 TO ANY HEX NUMBER UP TO FF(255) AND PLAY THE GAME FOREVER!

LOOK FOR MY MAZEMAN CARTRIDGE AD THIS ISSUE. IT'S A REAL GOOD GAME (I DIDN'T WRITE IT, I'M SELLING IT).

ALL LETTERS INCLUDING A S.A.S.E. WILL BE ANSWERED.

SEND ITEMS FOR REVIEW TO:

DAVE CARSON
P.O. BOX 39 (FOR UPS-309 STATE ST.)
KIPTON, OHIO
44049

EXTENDED MEMORY PRODUCTS REVIEW

BY DAVE CARSON

FIRST OF ALL, THE NEW FORMAT THIS MONTH IS DUE THE FACT THAT I HAVE CHANGED WORD PROCESSING MACHINES. UNTIL NOW I HAVE BEEN USING MY ATARI 800 FOR THE COLUMN BECAUSE THE PROCESSOR FOR THE ARCADE WASN'T ALL THAT EFFICIENT. THANKS TO THE EFFORTS OF DON GLADDEN AND KEN LILL, ALL THAT HAS CHANGED. KEN SENT ME THIS ONE AND ALTHOUGH I'M NOT YET FULLY AQUAINTED WITH IT'S FEATURES, I AM FINALLY EQUIPPED TO DO MY COLUMN ON THE MACHINE THAT I AM WRITING ABOUT! I DON'T KNOW FOR SURE IF IT'S AN AVAILABLE PRODUCT. WHEN I FIND OUT I'LL PASS ON THE INFORMATION.

THE WORD PROCESSOR WASN'T THE ONLY ITEM THAT WAS IN THE PACKAGE FROM KEN. HE ALSO SENT 'ARCADE GOLF' FROM GAMBITS SOFTWARE. KEN WROTE THE PROGRAM IN BLUE RAM EXTENDED BASIC 1.1 AND IT REQUIRES A SYSTEM LARGER THAN A 4K BLUE RAM TO OPERATE.

GOLF WAS FIRST MADE AVAILABLE TO THE ARCADE IN VOL.3, PAGE 46 OF THE ARCADIAN IN ASTRO-BASIC. THAT PROGRAM REMAINS ONE OF THE ALL TIME CLASSICS. IN VOL.5 I DID A SIMPLE CONVERSION TO E.B. ALL I DID WAS USE THE EXTRA MEMORY TO TIE UP LOOSE ENDS AND ADD A FEW FEATURES. KEN USED THE IDEA AND THE BASIC MECHANICS TO CREATE A FINISHED PRODUCT THAT HAS EVERYTHING. THE GAME PLAY MECHANICS AND THE GAME BOARD ARE SIMILAR, FROM THERE IT'S A WHOLE NEW BALL GAME.

THERE ISN'T MUCH YOU CAN CHANGE IN A COMPUTER GOLF SIMULATION AS FAR AS HOW YOU PLAY IT. YOU GET THE BALL FROM THE TEE TO THE HOLE IN AS FEW STROKES AS POSSIBLE. THE AREA OPEN FOR IMPROVEMENTS IS REALISM. THIS IS WHERE KEN REALLY WENT TO WORK!

THE GAME ACCOMMODATES 1 TO 4 PLAYERS USING ONE CONTROLLER AND PASSING IT, OR EACH PLAYER USING A CONTROLLER. YOU MAY CHOOSE TO PLAY 9 OR 18 HOLES. EACH HOLE IS DIFFERENT AND EACH 'COURSE' IS DIFFERENT AS WELL. THE FAIRWAY IS ON THE RIGHT SIDE OF THE SCREEN AND THE SCORE CARD AND DIRECTION 'CLOCK' IS ON THE LEFT. THE 'CLOCK' IS PRETTY MUCH THE SAME WITH JX CONTROLLING THE DIRECTION AND JY CHOOSING THE CLUB. THE STATUS INFO IS BETTER BECAUSE IT KEEPS TRACK OF EVERYTHING WITHOUT HAVING TO DISPLAY PLAYER SCORES BETWEEN HOLES. THE PLAY SIDE IS WHERE THE MAJOR IMPROVEMENTS LIE. THE SCREEN HAS MORE COLORS TO DISTINGUISH BETWEEN THE LAKE, TREES, SAND BUNKERS, AND THE GREEN ITSELF. YOU NOW HAVE A LITTLE GOLFER STANDING AT THE TEE, CLUB IN HAND, READY TO GO. WHEN YOU SHOOT, THE BALL DOESN'T ROLL ALONG LEAVING A TRAIL AS BEFORE. IT NOW FLIES. EVEN OVER THE HAZARDS IF YOU ARE CLOSE ENOUGH WHEN YOU HIT THE BALL.

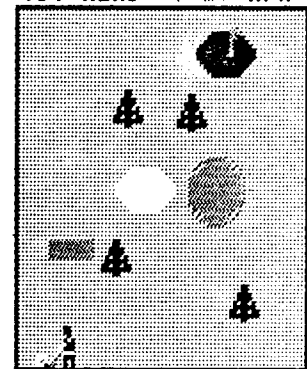
THE WIND ACTION IS MUCH MORE REALISTIC NOW. IT DOESN'T JUST PUT A SINGLE, PREDICTABLE, BEND IN THE BALL'S TRAVEL. IT CAUSES THE BALL TO CURVE, STOP SHORT, OR EVEN COME BACK AT YOU. THIS MAKES THE PLAY MUCH HARDER TO MASTER, PROVIDING A MORE COMPETITIVE GAME OF GOLF. THE 'SUNK' ROU-

TINE IS SOMETHING THAT MUST BE SEEN! I WON'T GIVE IT AWAY HERE. THE LITTLE GOLFER, BY THE WAY, MUST BE WALKED FROM THE TEE TO THE LIE POSITION OF THE BALL TO BE READY FOR THE NEXT SHOT.

KEN HAS LITERALLY LOADED THIS GAME WITH DETAIL, SOUND, COLOR, 'PLAYABILITY', REALISM, AND ENOUGH CHALLENGE FOR ANYONE. GOLF HAS ALWAYS BEEN ONE OF MY FAVORITE BASIC GAMES AND I THINK THIS ONE IS TOPS! YOU HAVE MY HIGHEST RECOMMENDATION TO BUY IT. THE PRICE HAS BEEN LOWERED FROM \$17.95 TO \$7.95. THIS IS A REAL VALUE FOR ANY ASTROCADE E.B. GAMER. ORDER FROM: KEN LILL, 6608 S. CAMPBELL CHICAGO, ILL., 60629

HOLE #2 PAR 4 220 YD. WIND: 1 20 MPH

PLAYER'S SCORES	
PAR=4	OVER
1 - 3	-1
2 - 3	-1
3 - 4	0
4 - 4	0



CLUB: 1 WOOD

THIS SCENE SHOWS GOLFER #1 READY TO TEE OFF ON HOLE TWO. THIS PARTICULAR FAIRWAY HAS FOUR TREES, TWO SAND TRAPS (1 LARGE AND 1 SMALL), A LAKE, AND THE GREEN WITH FLAG.

IN EXPERIMENTING WITH R&L'S 64K RAM BOARD, MIKE AND I HAVE BEEN LEARNING QUITE A BIT. IN FACT, I'M NOW READY TO MAKE THE FIRST CONCRETE RECOMMENDATION. IF YOU ARE AN ADVANCED ARCADE USER WITH A BLUE RAM ALREADY, AND IF YOU ARE INTO OR THINKING OF GETTING INTO CARTRIDGE WRITING, THIS UNIT WOULD BE A VALUABLE PLUS. WITH THE PERKINS UTILITY IN THE !6000 TO !7FFF AREA, AND AN 8K CART TYPE PROGRAM IN THE !8000 TO !9FFF AREA, IT IS POSSIBLE TO 'TEST' THE GAME WITH NO HARM BEING DONE TO THE UTILITY. THIS ALONE SAVES AN UNTOLD AMOUNT OF TIME IN TAPE SHUFFLING. PARTLY BECAUSE OF WHAT WE HAVE LEARNED HERE, AND PARTLY DUE TO PRIOR KNOWLEDGE OF THE PRODUCT, KEN LILL HAS ALREADY PURCHASED, AND IS USING ONE. LOOK FOR SOME EXCITING NEW SOFTWARE FROM 'GAMBITS' IN THE FUTURE!

I FEEL THAT THE R&L BOARD IS A MUST FOR ADVANCED USERS. IN STATING THIS, I DON'T WANT TO DISCOURAGE OTHERS. AT THIS POINT, WE FEEL THAT THE PRODUCT CAN BE USEFUL TO ANYONE DESIRING EXTERNAL MEMORY ON THE ASTROCADE SYSTEM. WE HAVE DETERMINED THAT BLUE RAM BASIC 1.1 EXECUTES WELL WITH THE BOARD AND THAT TAPE ACCESS WITH THE 300 BAUD INTERFACE IS FLAWLESS BUT SOMEWHAT SLOW AS WOULD BE EXPECTED.

WE NOW HAVE THE BOARD LOADED WITH THE FULL COMPLIMENT OF 64K RAM. MIKE HAS BEEN VERY BUSY WITH IT AND THERE SHOULD BE QUITE A BIT MORE TO TELL AS TIME GOES ON.

CONT. P. 48

For Sale: Astrocade w/ 6 controllers, ABasic, Cosmic Raiders, Ms. Candyman, BlastDroids, Muncher, Wizard, Artillery Duel, 17 other carts, 8 cassettes incl. Gate Escape, L.T., Skiing, and Exitor. Vol 5&6 Arcadian. Best Offer . (201)-993-4843
M. Kronenberg Victory Hill East D-15 Dover, NJ 07801

WANTED: VIPER OR BLUE RAM EXPANSION WITH KEYBOARD AND MANUALS. Send discription and photo to Allen Sko99s. 9421 Sunset Dr., Tampa, Fla. 33610. or call me @ (813-626-7345) 5 P.M. to 10PM is best. No Afro-engineering please.

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