NUMBER 3

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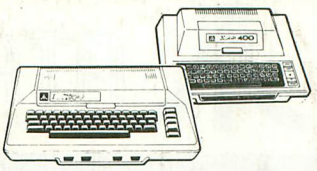
A.N.A.L.O.G. 400/800 MAGAZINE

THE MAGAZINE FOR ATARI® COMPUTER OWNERS



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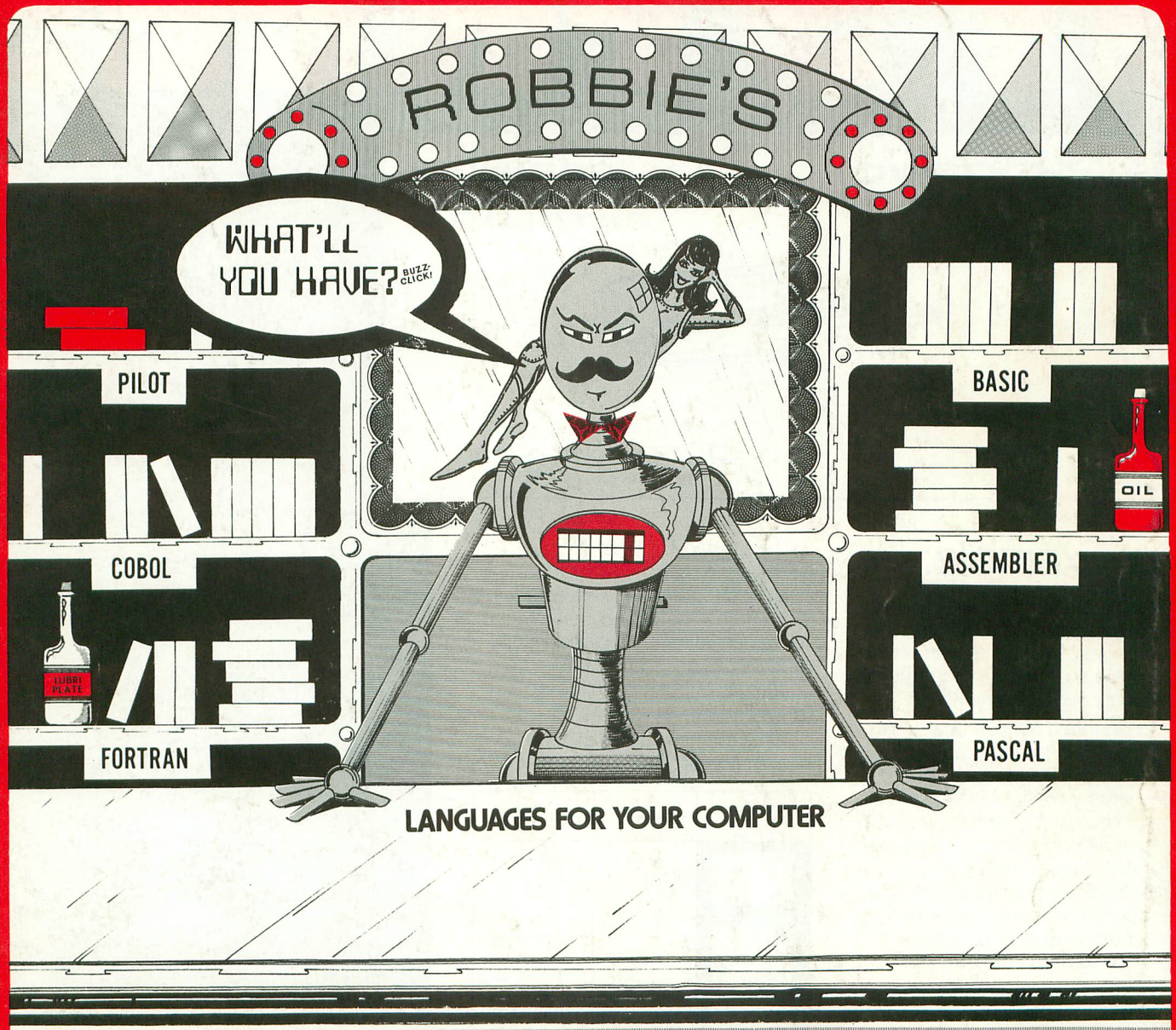

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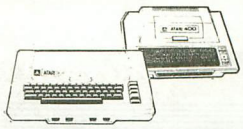

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EDITORIAL

by Lee Pappas

Everything is happening so fast in the world of home computers, even the computers themselves seem to fall behind in the rush towards the future. I would like to cover several topics this issue, the first of which is the publishing schedule of our magazine. As you probably know, A.N.A.L.O.G. is a bi-monthly magazine printed every other month. We have kept to that time frame, however the first issue went to press in mid-February of this year, and that issue was marked Jan/Feb. Starting with the next issue, we will not be "dating" the magazine. This is so not to let the issues seem dated; to seem old or obsolete. At the time I am writing this, the May/June issue is about to go to press, and it is already late June.

Why the lateness? Well for starters, we are a small company. Believe it or not, the bulk of the magazine is handled by Michael and I. We do nearly everything from getting the ads, writing a good portion of the articles, the ad copy and layout, trips to the typesetter several times a week, as well as cover design and going over all the programs in the magazine to assure their correct execution. All this, plus the effort that goes into releasing our own software. Now add to all this, that during the school year I am a full time student in electrical engineering! But we ARE slowly working towards getting back to the schedule we should be on. What all this leads to is this: we would rather be late with an issue than put out a piece of worthless junk.

I am sure a good deal of editors never really understand what goes into their publications. When you call our offices with a question, should you talk to Mike or I, we can answer anything connected with A.N.A.L.O.G., whether it be software oriented or other technical questions. We carefully review the whole content of the magazine before it goes to press.

PIRATING WARES

I really can't believe the amount of software piracy going on in the personal computer field. It seems someone gets a hold of a program and almost literally overnight it spreads at close to light speed (or as fast as the mail could travel).

I feel that trading software, even giving a copy to a close friend, is morally wrong. Because that friend may give a copy to another friend and before you know it only 200 copies of the program were sold and yet thousands have it. When someone does this they cheat the company that sold it who had to pay the author (who is also getting ripped off), and which also had to pay for advertising costs, packaging and distribution. Piracy in the world of ATARI computers seems especially high, and if it doesn't slow down, you'll see less and less quality programs available for your machine. In the long run you really hurt yourself.

NEW STUFF

Many exciting new products are just being released. The Votrax speech synthesizer, which we will cover soon, is an interesting piece of hardware/software. There is now a 48K board for the 400. And the new Epson printers, which I feel are an excellent price/quality balance. An 80 column board will soon be available which connects on the serial buss. The AXLON 256 expander unit is also a nice piece of hardware.

As far as software goes, it is coming in at a more rapid rate every day. Still, a small percentage of it is of medium to high quality. Becuase of this, we are now getting a little more critical of what we review in the magazine. We also have an outside source reviewing OUR software; someone who won't be afraid to say what is good and what is bad.

WHERE IS EVERYBODY?

I realize that many of you are new to the field of computing, but we need articles from our readers. The articles can be introductory or highly technical, but it doesn't hurt to submit anyway. I really appreciate thsoe who have contacted us thus far and helped us out. Tony Messina in Rhode Island, Bob Hartman in Penn., Charles Bachand (who now works for us), and recently, my good friends from 1300 miles away in Missoura' — Tom Hudson and new art staffer Jon Bell — plus the others who have contributed. As you may have noticed, if you aren't reading this first, we now have a contest for software used in the magazine, so let's get working now huh? □

WINNERS OF A.N.A.L.O.G.'s 1st ANNUAL READER'S SURVEY DRAWING

✪ **FIRST PRIZE:** Nick Liberski, 1350 S. Elm Grove Rd., Brookfield, WI

☆ **SECOND PRIZE:** Jack Sjolseth, 2101 Wing Point, Plano, TX

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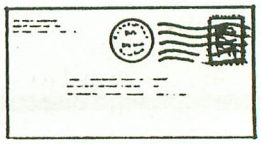

To the Editors:

Congratulations to you on your new magazine and congratulations to Charles Bachand on a superb program in your first edition. Maze Rider is a real winner. As one of those who lacks the talent to create really interesting programs, but loves to fiddle with other people's work, here are some slight changes in Maze Rider your other readers may enjoy playing with as well: After all that work threading my way through the maze, it struck me that crashing out could be just a little jazzier and could use a touch of color so I added 2005 POKE 712,15*(RND(1)*17.

This of course slowed down the conclusion a bit so on line 2000 I changed FOR X=1 TO 5 to FOR X=1 TO 3.

This didn't give me as many cracks in the window as I liked so on line 2010 I changed FOR I=1 TO 4 for I=1 TO 7.

See what I mean about fiddling?

I also like to end in "daylight" so in line 2010 I added a SETCOLOR 4,,0,14 before the NEXT I: NEXT X: SOUND Z,Z,Z,Z. This makes the line too long of course so I put those latter three commands into a line 2015 but your readers should be able to figure that out.

I also prefer for the maze display to be all black so I added a SETCOLOR 2,0,0 on line 600 after the GRAPHICS 7 command. This again makes the line too long so I put the print statements on a separate line 605.

This is really a very slight modification in a marvelous program, but as I say, some of us can't help fiddling.

Now, a separate topic, for Mike Des Chenes Music Composer Column; For all neophyte music composers, I strongly recommend the John Brimhall Easy Piano music books, available in just about any music store. The Brimhall books range from Beethoven, through Scott Joplin and Jelly Roll Morton with plenty of pop material available, and because they are simplified for beginning piano students, are relatively easy to enter in the computer and sound very good indeed. For me, the MUSIC COMPOSER cartridge has two major shortcomings. First, there is no way to create sound envelopes to get different tones and the beeps get a bit dull with time. However, it's something you can live with, given the price of this fascinating piece of software. Secondly, and more significantly, the three octave range is just a bit limiting. Atari, if you're listening, just one more half octave above and one half octave below would work wonders! If you work with the Brimhall books, or other sheet music, you will probably find that your biggest problem is bass clef notes that are below the range of the program. I've found that one potential way around this is to enter the lowest phrase line of the bass clef one octave higher than it appears in the sheet music. For example, a C3Q would be entered as a C4Q and and F2Q (below the range of the program) beromes an F3Q. (I realize that only those who own the program will know what I'm talking about but I assume this column is for those who own the program.)

Enter the entire phrase one octave higher than it should be according to the sheet music. Then, when you enter the phrase in the arrange mode, transpose it DOWN one octave by entering a transpose-12. Since the bass clef notes are generally more important in terms of rhythm and harmony than they are melodically, this should sound ok. Hope at least some of this is useful to fellow MUSIC COMPOSER freaks.

Steve Steinberg
Reston, Va.

Dear Editor,

I'm writing this letter to tell you how much I enjoyed your first issue of A.N.A.L.O.G. I feel it was the right technical level for your first issue. The programs were short enough to merit entering into my system and they worked correctly.

I would like to see your magazine include articles which are more technical and explain how to perform advanced techniques. I would also like to see a breakdown of the storage locations and what they are used for (the ones that typically get "Peeked" and "Poked").

The printer which you use to create your listings does not copy well. I think you should consider using a different printer or retyping the programs in standard printing type font.

Keep up the good work.

Sincerely yours,
William Johns

As A.N.A.L.O.G. grows you'll see more advanced programming techniques explained — the problem resides in the fact that we must explain more complicated methods to those who are not of a technical background. "Peek" and "Poke" explanations will be regularly included in the magazine starting with Issue #4. As far as the program printout listings are concerned, as you may have noticed in the last issue, the listings are much more legible than in the first issue. — Ed.

Dear Sir,

I greatly enjoyed your first publication and will be looking forward to next months issue. I own an Atari 800 and have been using it daily mostly for entertainment, some for learning and some for business. I recently purchased the 850 Interface Module because I anticipate purchasing a printer in the next six months (on my income I can only buy one piece of equipment at a time!!). A friend and I are currently experimenting with different aspects of robot control and we had planned to use the expansion interface of his model I TRS-80. Since receiving the 850 we have decided it might be easier to use it instead. The problem of finding connectors locally then became apparent. I called Atari and after several trys and many busy signals I talked to a representative and he gave me the company names and part numbers for the connectors. Here they are:

AMP Corp.

25-pin parallel port part #205-208-1
shell handle for above #206-478-2
15-pin parallel port part #205-420-6-1
RS-232 9-pin male part #205-204-1 (80-14) ?

In an article by George Blank (Creative Computing) Apr. 81 gives slightly different numbers for the 15-pin and 9-pin connectors; they are:

15-pin part # AMP 205-206-1
9-pin part # AMP 17-20096-1

Cannon Corp.

15-pin (male) Part # DB 15P
9-pin (male) part # DB 9P

Amphenol Corp.

17-20090-1 (I believe this company is the same as AMP.)

I talked with Kriss Mederos of Atari however he could not give the addresses of these companies and I do not have such a directory available, could you publish the addresses of these companies also companies carrying cables with enough wire inside to support these connectors??? Any information and addresses where Atari owners could order these parts would be valuable since I'm sure many Atari owners will be wanting to interface printers, home-brew devices such as our robot or home applications. I hope you will include articles in the future showing some simple to construct projects which may be interfaced and some programs to use with them.

Keep up the great work and I'll be looking forward to next months issue.

Sincerely yours,
Douglas H. Arnold
Hanceville, AL

Atari now has the connectors available, and may be purchased through the Atari Program Exchange Catalog. Prices for these connectors range from $2.49 for the 5-Pin DIN connector to $9.95 for the 13-Pin I/O Plug with minimum orders of $10.00. For Credit Card orders call 1-800-672-1850. —Ed.

Dear A.N.A.L.O.G.,

I would like to supplement your questionnaire with the following comments:

I love my Atari. It has replaced my dogs as man's best friend; and A.N.A.L.O..G. is very good food.

I would be interested in information regarding COMPUSERVE and whatever other information sources that might be available.

Your articles about software, accessories, etc. are very useful, since there is so much out there floating around. Your comparison reviews are also a very nice idea.

As long as the folks at Atari dedicate themselves to quality and innovation, then business will grow. When it comes to hardware and software; only dependable quality products will survive the competition; and it must be backed by courteous, dependable dealers and service. Encourage readers to forward complaints about products and service to you, or Atari, so that they can be nipped in the bud.

I look forward to my future issues of A.N.A.L.O.G. Atari is very lucky to have a support magazine like yours. I wish you success!

Sincerely,
John Van Wagoner
Midway, UT

Dear Sir:

As a computer magazine in its infancy, it is important for ANALOG to receive feedback from interested ATARI 800 users. Becuase of this I have enclosed the questionnaire you included with the first issue of ANALOG, although I realize I am now past the date for your prizes.

As you can see on my questionnaire, I have enjoyed your first issue. There is a strong need for an ATARI computer magazine. I hope the growing pains you will experience are not too intense. I also hope you will always keep the consumer in mind.

I have recently seen two items advertised in national magazines and wonder if you have an evaluation of them or would provide one in the future. Item 1 is the "Apple emulator" for the ATARI by Computer Store of Gulf Breeze (Florida). Item 2 is a "War Game" program, 24K, $20, from Color Software. Based on what you said about Color Software's Star Trek game. I am worried about the quality of their material. It would be nice to see **some** war game simulations for ATARI.

Sincerely,
Douglas Peters, Ph.D.
University of North Dakota
Psychology Department
Box 7187, University Station
Grand Forks, North Dakota 58202

Dear Editor,

Thank you for your magazine!

I was recently asked to write a program for the Atari 800 computer. I went to the store and bought the Atari "BASIC" manual and the Jan/Feb 1981 issue of your A.N.A.L.O.G. Unfortunately, the manual was a waste of money. I already know BASIC, and it had only one scant chapter touching on graphics.

Your magazine, however, was a great help. I appreciated Russ Walter's articles, "Graphically Speaking" and "Basic Sounds", and the two worksheets for graphics. They were exactly what I needed to learn how to use the graphics and sound on the Atari.

I also enjoyed your article, "Listen". I am a piano teacher so I know

about music. Your article was an excellent overview of basic music to help a computer programmer.

As soon as I acquired the Atari computer, I keyed in the three graphics demos, "Triangle", "Pretty", and "Swirl" and by following the code could see what the Atari was capable of doing.

Please consider your premiere issue a success for at least one user (plus my family when I give them a chance to share this issue), and may you have continued success in the future.

Sincerely,
Cheryl Whitelaw
120 South 350 East
North Salt Lake, Utah 84054

P.S. The "editing lock up" did happen on me (boy, was I angry!) I followed your instructions to prevent it from happening again.

Dear Editors,

I recently received my premiere issue of A.N.A.L.O.G. Magazine and enjoyed reading the article regarding the Kurta Tablet.

I do feel that some confusions about the Tablet should be corrected.

The Kurta Tablet retails at $595. For an additional $100, the user receives the power supply, interface cable set and software demo disk. The $100 charge is not for only the software programs.

The Kurta Graphic Tablet is the lowest priced electronic digitizer available for the Atari Computers.

I wish to thank you for the other observations and as Kurta progesses, changes are being made in the areas of hardware improvement.

Respectfully,
Russell B. Temple
Director of Operations
Kurta Corporation
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Word Scramble (C)	15.00	12.00
Spellbound (C)	15.00	12.00
SB Data Tapes 1 thru 10 each tape	5.00	4.00
All 10	50.00	36.00
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Mind Bogglers I (C)	15.95	12.75
Mind Bogglers II (D)	19.95	15.95

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ATARI NEWS....

Many new recently announced products will be available in the near future to increase the power of your 400 or 800.

A 'Personal Financial Management System'(tm) designed to help an individual plan and figure their personal budget. The regular chores of checkbook balancing and personal budgeting will be supported by this package along with the ability to keep financial records on diskette for later recall.

Several parts of the package perform different functions. Budget categories allow the user up to 255 separate indentification categories with the ability to label these under their control. A budget manager allows the user to set up a personal budget plan, analyze a breakdown of expenses, and make projections as to future expenditures. The program requires 32K, an 810 Disk Drive, and will retail for $74.95. Release date to be announced.

Currently available is the Dow Jones Investment Evaluator(tm), which when connected to the Dow Jones Information Service, provides the user with the ability to evaluate portfolios and retrieve financial and business information from the Dow Jones database. Daily quotes from the stock market are readily available through this system along with current financial and business news. Requires 48K, an 810 Disk Drive, 850 Interface Module, modem, and is priced at $99.95.

The official announcement of Microsoft BASIC for the ATARI computers was made at the Summer CES show in Chicago. This version of Microsoft includes easy access to the player/missile graphics and superb sound capabilities only the ATARI computers provide. Microsoft BASIC is faster than the BASIC now used in the system and has the ability to provide greater floating point precision. Available later this year at $89.95 for disk or cassette based systems with at least 32K.

A SORCIM Macro Assembler for advanced programmers will be available sometime in the next year permitting a user to define code words representing multi-assembly routines and with greater power to relocate chunks of memory. Files may be created using ATARI BASIC, Microsoft BASIC, or the new Program Text Editor (see below).

The Program Text Editor is a powerful screen editor to be used in program development to edit files in source code with use of any of the ATARI programming languages. This can also be used to modify and create files, as well as maintain back-up copies of files to prevent accidental loss. This is to be available with the Macro Assembler or separately. Prices of this and the Macro Assembler to be announced. □

CALIFORNIA RUMORS

Here is another new column for you with something that we all enjoy hearing about...rumors! Since I work just a block away from Atari and also know several programmers that work there, I was drafted to attempt this monthly feature. As you realize, A.N.A.L.O.G. is published bi-monthly, so if you want this news to be more current you will just have to buy so many copies that they are forced to go monthly!

Now the news: Tried to buy disk drives lately? The word is that the entire production line was shut down to allow several upgrades to be incorporated. The most major change is new electronics that will allow the drives much more tolerance in reading programs from other drives that might not run at the same speed as yours. I don't know about the rest of you, but our local group has cut a small hole in our drives to allow the speed to be adjusted while running. I'm not sure yet if the drives are going to have the new ROM that allows you to do fast formatting of your disks. Those of you who have listened to how quickly the Atari brand disks work know how much time can be saved (30 to 40%). Maybe if we all write...

Light Pens: Forget about them for a while. First last year they were supposed to be released, but a minor software problem held them back (they didn't work on 400's). Now, after a few hundred were shipped they discovered quality control problems. I'm told to hope for next year as Atari has higher priorities.

Atari's Eat Apples Dept.: Now you can tell your Apple owning friends that the Atari can be run with up to 1,036,000 bytes of memory! I've seen Axlon's new system that allows up to eight cards to be added to an expander chasis. The cards come in 32, 64, or 128K sizes and will be expensive (they est. $600 to $800). What this means is that with even one of these cards and their special operating system you can add 128K to your machine. Supposedly visicalc and others are looking at applications for so much memory. Can you imagine a 128K Atari 400.

Printer Dies: Centronics has dropped the 737 and replaced it with the 739. This new printer will allow screen dump type high resolution graphics as well as a few other improvements. Since the 737 was the printer that Atari bought to relabel as the 825, we will have to see what they do to replace it. Atari does have an in-house project called the 825G (Graphics). Maybe they will look around at the Epson Printers and lower their prices!

Supposedly there is an even better video chip inside Atari that the GTIA that the Hardware Manual mentions. I've seen the GTIA work and it's great, so maybe if we all write...Bye! □

NEW PRODUCTS.....

TEMPLE OF APSHAI AVAILABLE FOR ATARI

Automated Simulations
P.O. Box 4247
Mountain View, CA 94040

Mountain View, CA — Temple of Apshai, the best-selling game in the Automated Simulations, Inc. EPYX line of computer games, is now available for the ATARI 800.

Previously available only to TRS-80, APPLE and PET owners, Temple of Apshai allows the player to experience life in a world of ancient legends, fearsome monsters, and spectacular treasures, as he becomes a hero in search of fame and fortune.

He can take the part of more than fifteen million characters the computer can generate, or alternatively, a veteran of previous adventures. If the player wishes, the same character can return to the dungeon again and again, growing in power and experience, as long as he continues to survive.

In addition to selling the player the necessary equipment (swords, armor and the like) and then keeping track of it, the computer draws a map of the appropriate section of the dungeon, handles the rules, and allows the player 18 options to choose from during the course of an adventure. These range from fighting or running to eavesdropping or searching for traps.

The display keeps the player up to date on the outcome of his encounters with the 30 types of monsters that roam freely through more than 200 rooms on four levels of the ruins.

The game includes a fully illustrated 48-page Book of Lore and command summary card.

Temple of Apshai, one of five EPYX games for the ATARI, comes in a reusable protective box and is available on cassetts for the ATARI 800 (32K) from Automated Simulations, Inc., P.O. Box 4247, Mountain View, CA, 94040. The suggested retail price is $39.95. □

NEW EPYX GAME LETS PLAYER ASSUME ROLE OF MONSTER

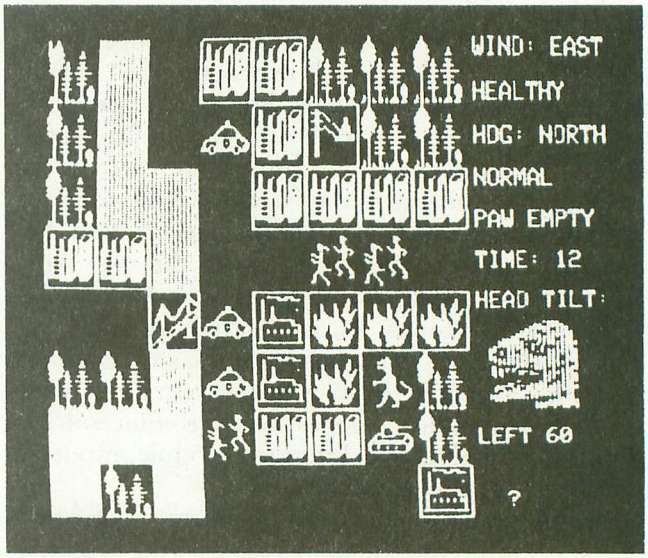
Automated Simulations
P.O. Box 4247
Mountain View, CA 94040

Mountain View, CA — The best of the monster movies can now be recreated with Crush, Crumble and Chomp, a new EPYX role-playing game by Automated Simulations, Inc.

Crush, Crumble and Chomp lets the player assume the role of his favorite monster in more than 100 possible scenarios.

As any of six man-eating beasts, the player must satisfy his enormous appetite by eating his opponents. But the hungry monster must battle National Guard tanks, infantry and helicopters, even a team of mad scientists, to stay alive.

Each monster has a unique set of abilities. As Goshilla, a giant and deadly amphibian, the player can easily destroy San Francisco's Golden Gate Bridge, or bring down the Empire State Building. Or he can take on all of Washington, D.C. as the flaming Glob and destroy Tokyo as Arachnis, the monsterous spider.



The player can choose from five game objectives. In one, he gets points for destroying as many buildings as possible. In another, the player must spare civilians in favor of combat units only.

A third objective is simply to survive for as long as he can, while a fourth lets the player concentrate on eating. For the player with no will power, a fifth objective gives him points for destroying everything in his path.

Crush, Crumble and Chomp, another EPYX game, comes on cassette for the ATARI (32K) for $29.95. Crush, Crumble and Chomp is available from Automated Simulations, P.O. Box 4247, Mountain View, CA 94040.

Electronic Specialists, Inc.
171 South Main Street
Natick, MA 01760

Electrical pollution drives MicroProcessors bananas! Power line electrical noise, hash and spikes often cause erratic computer operation. In addition, severe spikes from lightning or heavy machinery may

damage expensive hardware.

Many systems create their own pollution! Disks and printers often create enough electrical interference to disrupt the entire program.

ELECTRONIC SPECIALISTS' recently announced super isolator is designed to control electrical pollution. Incorporating heavy duty spike/surge suppression, the SUPER ISOLATOR features 3 individually dual-Pi filtered AC sockets. Equipment interactions are eliminated and disruptive/damaging power line pollution is controlled. The SUPER ISOLATOR will control pollution for an 1875 watt load. Each socket can handle a 1000 watt load.

Severe AC Power Line pollution can be controlled with the MODEL ISO-3 SUPER ISOLATOR for $94.95. □

SIX GAME PACKAGES FOR ATARI PERSONAL COMPUTERS ANNOUNCED BY SENSATIONAL SOFTWARE

Morris Plains, NJ: Sensational Software today announced the availability of six new game playing packages for Atari personal computers.

Pub Games consists of two games including "Tilt," a two player game in which each player must move three balls into any of five pockets in a maze. "Dominoes" is a one player game with two versions and four skill levels. It has fast action and outstanding high resolution graphics.

Cribbage is a fast moving, one player game of cribbage. The computer is programmed to play an excellent strategy which provides a challenge to any player.

Both **Pub Games** and **Cribbage** were developed by Thorn EMI Programmes Ltd. in England and are manufactured and distributed in the United States by Sensational Software.

Math Games consists of four games including "Darts" in which the player competes against the clock to solve addition problems to score points on a dart board. Three skill levels are available. In "Bomber", dynamic graphics help the player to learn fractions. Correct answers put the player in an explosive situation! In "Snoopy" the user must solve math problems with negative and positive numbers before the Red Baron shoots him down. "Easy Math" challenges the user to keep the computer smiling as he learns arithmetic. **Math Games** is written for players from five to thirteen years of age. □

Chase Games consists of four games including "Obstacle Course" in which you test your reactions and compete against the clock as you move and capture pieces through and around obstacles. In "Chase", you must elude your pursuer. Two players take turns chasing each other through a field of obstacles and get points for the time it takes to catch the pursued in each of several rounds. In "Snake," each of two players must keep his snake away from the head of his opponent's snake and also prevent it from crashing into the walls. Fast action, great graphics and sound. Another two player game, "Tank," has several game variations including tunnels, mines, trees and walls. In it you must pursue and zap your opponent with your laser cannon.

All of these game packages are available on cassette for $11.95 each or in combination on disks for $24.95 each. For more information contact Sensational Software, 39 East Hanover Ave., Morris Plains, NJ 07950. □

Optimized Systems Software (OSS)
10379 Landsdale Ave.
Cupertino, CA 95014

Optimized Systems Software (OSS) is pleased to announce the immediate availability of the new ACCESS PLUS software for the Atari 800 computer. BASIC A+ and OS/A+ are the premier products in a series designed to promote total access to the capabilities of this extraordinary machine.

BASIC A+ maintains compatibility with Atari Basic while adding simple but powerful access to the uniquely Atari system of Player/Missile Graphics. The serious programmer will appreciate capabilities of BASIC A+ which are unmatched on most micros: Business oriented features such as PRINT USING, RECORD I/O, and BINARY I/O; structured programming through IF..ELSE..ENDINF and WHILE..ENDWILE; improved string handling; and much more.

Accessibility is also the goal of OS/A+, a system command processor which allows both batch and interactive commands of virtually any complexity. OS/A+ includes a selection of disk file utilities. And, for fullest access and control, OS/A+ is delivered complete with an Editor/Assembler/Debug program which, in itself, is a total assembly language development system.

OSS was founded by the authors of some of the microcomputer world's most popular software, including Atari Basic, Apple DOS, Cromemco, Structured Basic, and more. OSS is dedicated to "products which fill the gap" for Atari and other micro-computers. □

Purser's Magazine
Post Box 466
El Dorado, CA 95623

The first edition of Purser's Atari Magazine is now available. This special issue is a useful reference for any Atari owner or for anyone considering buying an Atari. The magazine features reviews of over 40 programs and an Atari software directory.

Look for Purser's Atari Magazine at your local Atari dealer. It is 48 pages and costs only $1. If copies are not available in your area, ask your dealer to write Robert Purser, P.O. Box 466, El Dorado, CA 95623. □

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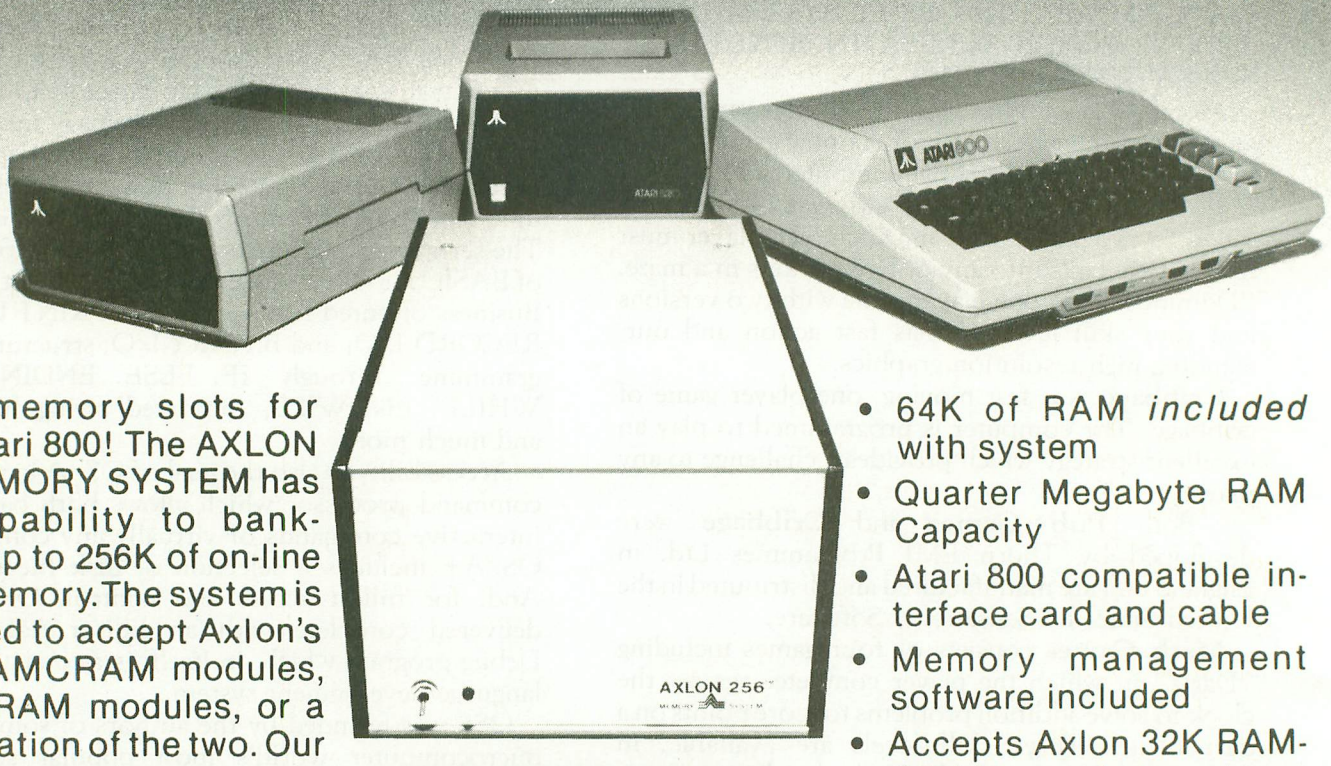

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AXLON

*Indicates trademarks of Atari, Inc.

SYS/STAT PROGRAM...

Requires 8K

by Robert Hartman

System Status is a Basic program that allows the user to look at a formatted listing of all the devices accessible to him/her. It also has the capability to display 64 files on drives one through four. Its main purpose however, is not to be a menu, but to supply the user with information regarding the accessibility of the four RS-232 ports.

NOTE: If a drive is started up after the program has been run, it is necessary to re-run the program in order to get a menu on that particular drive. □

```
10 REM Analog System Status
20 REM Version 1.1
30 REM Copyright (C) April, 1981
40 REM by Robert W. Hartman
50 DIM A$(20),B$(6),F$(5),A(5):GRAPHIC
S 0:POKE 752,1:POKE 559,0:POKE 82,1:PO
KE 83,39:FR=FRE(0)+3682:LSCH=764:CON=5
3279
60 POKE 65,0:REM Noisy I/O off
70 REM SET UP SCREEN
80 FOR I=19 TO 22:POSITION 18,I:? "|":
NEXT I
90 POSITION 12,1:? "analog  systat":FO
R I=12 TO 25:POSITION I,0:? "▬":POSITI
ON I,2:? "▬":POKE CON,0:NEXT I
100 FOR I=0 TO 38:POSITION I,3:? "▬":P
OSITION I,19:? "▬":NEXT I
110 REM CHEAT (just a little)
120 POSITION 12,5:? "Devices Present":
FOR I=12 TO 26:POSITION I,6:? "▬":NEXT
 I:POSITION 1,7:? "K -Keyboard"
130 POSITION 1,9:? "S -Screen":POSITIO
N 1,11:? "E -Editor":POSITION 1,13:? "
C -Cassette":C=7:R=26
140 REM SYSTAT
150 TRAP 190:OPEN #1,6,0,"D1:*.*":POSI
TION R,C:? "D1 -Drive #1":GOSUB 260:D1
=1
160 OPEN #2,6,0,"D2:*.*":POSITION R,C:
? "D2 -Drive #2":GOSUB 260:D2=1
170 OPEN #3,6,0,"D3:*.*":POSITION R,C:
? "D3 -Drive #3":GOSUB 260:D3=1
180 OPEN #4,6,0,"D4:*.*":POSITION R,C:
? "D4 -Drive #4":GOSUB 260:D4=1
190 TRAP 200:OPEN #5,8,0,"R:":GOSUB 27
0
200 CLOSE #5:TRAP 210:OPEN #5,8,0,"P:"
:POSITION 14,14:? "P -Printer"
210 REM MEMORY
220 POSITION 1,19:? "Amount of Memory"
:POSITION 1,20:? FR:FOR I=1 TO 5:POSIT
ION I,20:GET #6,A:A(I)=A:NEXT I
230 FOR I=1 TO 5:F$(I,I)=CHR$(A(I)+128
):NEXT I:POSITION 1,20:? ,:POSITION 2,
21:? F$;" bytes"
240 GOTO 280
250 FOR I=1 TO 7:CLOSE #I:NEXT I:RETUR
N
260 C=C+2:RETURN
270 POSITION 12,16:FOR I=1 TO 4:? "R";
CHR$(I+48+128);", ";:NEXT I:? "◀◀":POS
ITION 12,17:? "RS232-C ports":RETURN
280 TRAP 40000:POSITION 23,19:? "Comma
nds":POSITION 24,20:? "M-Menu(s)"
290 POSITION 24,21:? "R-Run again     "
:POSITION 24,22:? "E-EXIT":POKE 559,34
:SETCOLOR 2,4,4:POKE LSCH,255
300 CLOSE #5:OPEN #5,4,0,"K:":GET #5,A
305 IF A<>69 AND A<>77 AND A<>82 THEN
300
310 IF A=69 THEN GRAPHICS 0:POKE 65,1:
GOSUB 250:NEW
320 IF A=82 THEN RUN
330 REM MENU(S)
340 POSITION 23,19:? "▬▬▬▬▬":POKE 2
01,14:FOR I=20 TO 22:POSITION 24,I:? ,
:NEXT I:POSITION 24,21:? "Enter Drive"
350 TRAP 280:POSITION 37,21:INPUT DR
360 IF DR<1 OR DR>4 THEN 280
370 IF DR=1 AND D1=1 THEN DRV=1:GOTO 4
20
380 IF DR=2 AND D2=1 THEN DRV=2:GOTO 4
20
390 IF DR=3 AND D3=1 THEN DRV=3:GOTO 4
20
400 IF DR=4 AND D4=1 THEN DRV=4:GOTO 4
20
410 GOTO 280
420 ? " ":POSITION 2,1:? "Menu for Dri
ve #";DRV:? :? :GOSUB 250:B$="D :*.*":
B$(2,2)=STR$(DRV)
430 OPEN #1,6,0,B$:OPEN #2,4,0,"K:"
440 TRAP 480:INPUT #1,A$:N=N+1
450 ? A$(2,LEN(A$)):IF PEEK(90)=21 THE
N POKE 82,PEEK(82)+20:POSITION PEEK(82
),4
460 IF N=35 THEN GOTO 520
470 GOTO 440
480 ? CHR$(28);"                    ":? :I
F LEN(A$)>15 THEN IF A$(10,11)="SE" TH
EN GOTO 500
490 A$(LEN(A$)+1)=" FREE SECTORS"
500 FOR I=1 TO LEN(A$):A$(I,I)=CHR$(AS
C(A$(I,I))+128):NEXT I:? A$
510 POKE LSCH,255:GET #2,A:CLOSE #2:RU
N
520 REM Get rest of Menu After Char
530 POKE LSCH,255:GET #2,A:POKE 82,2:?
 " ":POSITION 2,3
540 TRAP 570:INPUT #1,A$:? A$(2,LEN(A$
))
550 IF PEEK(90)=22 THEN POKE 82,PEEK(8
2)+20:POSITION PEEK(82),4
560 GOTO 540
570 TRAP 40000:GOTO 480
```

BASENOTES IN BASIC....

BY JERRY WHITE

Requires 8K

Those of you who have written music using Atari Basic may have noticed that even the lowest note available in distortion level 10 is not really a low bass note.

The secret to getting a deep, rich bass note is to use distortion level 12. The Basic program called BASSNOTE will display the notes and pitch numbers for two octaves of low bass notes. This information is not in your manual so save it for future reference.

The program will also play the deep bass introduction to the theme from Barney Miller. While doing this, the sound commands used will be displayed on your screen. □

```
0 REM BASSNOTE TUTORIAL BY JERRY WHITE
20 GOSUB 600:GOSUB 250:GOTO 105
40 SOUND 0,0,0,0:READ PITCH:D=12:V=14:
SETCOLOR 2,PITCH,0:SOUND 0,PITCH,D,V
42 POSITION 10,20:? "  SOUND 0,";PITCH
;",";D;",";V;"     ":RETURN
50 FOR HOLD=1 TO 200:NEXT HOLD:SOUND 0
,0,0,0:PITCH=0:D=0:V=0:GOSUB 42:RETURN

70 FOR HOLD=1 TO 50:NEXT HOLD:RETURN
80 FOR HOLD=1 TO 25:NEXT HOLD:SOUND 0,
0,0,0:RETURN
100 DATA 102,90,85,82,75,72,67,67,60,5
7,60,67,75,67,51,60,75,90
105 FOR TIME=1 TO 2:GOSUB 40:GOSUB 50:
GOSUB 50
110 GOSUB 40:GOSUB 70:GOSUB 40:GOSUB 7
0
120 GOSUB 40:GOSUB 50:GOSUB 50
130 GOSUB 40:GOSUB 70:GOSUB 40:GOSUB 7
0
140 GOSUB 40:GOSUB 50:GOSUB 50
150 FOR QUARTERNOTE=1 TO 8:GOSUB 40:GO
SUB 70:NEXT QUARTERNOTE
190 GOSUB 40:GOSUB 80:GOSUB 40:GOSUB 8
0
200 GOSUB 40:GOSUB 80:RESTORE :NEXT TI
ME
220 RESTORE :GOSUB 40:GOSUB 50:POKE 75
2,0:END
250 ? :? ," PITCH = NOTE":GOSUB 700
300 ? :? "25=E","27=D#","28=D ","30=C#
"
310 ? "31=C ","33=B ","36=A#","37=A "
320 ? "40=G#","42=G ","45=F#","48=F "
330 ? "51=E ","55=D#","57=D ","60=C#"
340 ? "63=C ","67=B ","72=A#","75=A "
350 ? "82=G#","85=G ","90=F#","97=F "
360 ? "102=E":GOSUB 700
380 ? :? "  THE ATARI BASIC SOUND COMM
AND:"
400 ? :? "SOUND VOICE,PITCH,DISTORTION
,VOLUME":GOSUB 700:RETURN
600 GRAPHICS 0:POKE 752,1:GOSUB 700:?
"      THE THEME FROM BARNEY MILLER"
620 ? :? "BASSNOTES USING SOUND DISTOR
TION 12":GOSUB 700:RETURN
700 FOR CTRLR=2 TO 36:? "-";:NEXT CTRL
R:RETURN
790 REM ********************************
800 REM * D=DISTORTION V=VOLUME      *
810 REM * GOSUB 50 FOR WHOLE NOTE    *
820 REM * GOSUB 70 FOR QUARTER NOTE  *
830 REM * GOSUB 80 FOR EIGHTH NOTE   *
840 REM * GOSUB 700 TO DRAW A LINE   *
850 REM ********************************
```


AVATAR SOFTWARE

AVATAR SOFTWARE is a new, innovative software company dedicated to producing top quality software and hardware items solely for the ATARI computers. Here is just one of the programs currently available.

PERSONAL QUICK EDITOR

Our **Personal Quick Editor** is the closest package to a true word processing system without the high price! The program allows you to create, edit, delete & move text. Vertical scrolling, elongated text, special text formatting abilities, centering and elongated text centering, etc., all combined into an easy to learn and use form makes the **Personal Quick Editor a real buy at only $24.95.** (32K RAM & Disk)

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Software for the Atari†

SPELLBOUND

An extremely versatile, user oriented program for any grade level. Can be used with existing data base, user created data, or additional data cassettes. It features:

- Learning level – holds a word on the screen for you to study.
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- Comes with a data base of the most frequently misspelled words.
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SPELLBOUND DATA TAPES follow a phonetic sequence. Tape #1 begins with short vowel, three letter words and progresses to long vowel four letter words. The words on each cassette continue this sequence. All words in this series are grouped phonetically and by grade level whenever possible. All DATA cassettes contain 300 words.

SPELLBOUND $15.00
(master program with most frequently misspelled words) BASIC 24K

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(blends/hard s/soft c)

SB DATA TAPE #4 (grades 2-4) $5.00
(diphthongs/homonyms)

SB DATA TAPE #5 (grades 3-5) $5.00
(silent letters/endings/compound words)

SB DATA TAPE #6 (grades 3-5) $5.00
(more diphthongs/double consonants)

SB DATA TAPE #7 (grades 4-6) $5.00
(compound words/endings)

SB DATA TAPE #8 (grades 4-6) $5.00
(words not covered in previous units)

ALL DATA TAPES REQUIRE
THE SPELLBOUND MASTER PROGRAM.

MATH FACTS

A series of self-paced instructional programs for elementary school children. The programs in this series automatically advance to the next unit when the child has mastered 80% of the work generated by the computer. The previous unit will be reviewed if the child cannot master 50% of the work in a particular unit. Each unit builds on the skills developed in the previous unit.

MATH FACTS – LEVEL I $15.00
(16K BASIC, grades K-2) Concepts covered in this level are: numbers, number placement, number words (1-20), addition and subtraction (visual and abstract).

MATH FACTS – LEVEL II $15.00
(16K BASIC, grades 1-3) The child is guided graphically throughout this level. In the addition and subtraction units, the column on the right MUST be added or subtracted before the column on the left. This level includes: Number sequences to 100, greater than/less than (1-100), addition and subtraction (2 and 3 columns).

MATH FACTS – LEVEL III $15.00
(24K BASIC, grades 2-4) High resolution graphics aid the child in learning how to carry and borrow. Units in this level include: addition (3 number in one, two or three columns), addition (with carry) and subtraction (with borrow).

CON*PUTATION/TONAL ENCOUNTER ... $15.00
Two memory building programs on one cassette. CON*PUTATION is a 'concentration' game for two players. Match the equation behind one of the boxes with the answer or an equal equation. Each of the eight levels of play helps develop the child's addition, subtraction, multiplication or division skills. TONAL ENCOUNTER – play back the melody that the computer composes. Contains five different skill levels and an auto mode.

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ASSEMBLER/EDITOR

NON-TUTORIAL: PART II ...

By Charles Bachand

This column is about the ATARI Editor/Assembler cartridge, which is of course available from ATARI. In the last issue, I talked about the new editing features of the cartridge, some tricks of the trade, and losing my Sci-Fi video tape privileges. But there is some good news, folks! I have just acquired a 32K memory board and have transplanted it into my ATARI 400. That's right, the big kid has a little 400!

The Assembler half of the Editor/Assembler has one fault that everyone who has used it is aware of. It is very, very slow ! If your assembly program is over several hundred lines long, you might as well start reading "War and Peace" because it is going to take forever before it is finished. Assembly speed seems to be about two hundred lines a minute, which I consider to be terribly slow. Maybe ATARI will speed things up in their Macro Assembler that is rumored to be on the way. We will just have to wait!

This Assembler has a lot of plus features going for it, the nicest being the use of pseudo operations, also known as directives. These wonderful non-instructions (after all, this is a non-tutorial) enable special features in the Assembler. The most general case non-instruction is the .OPT directive. With it, you can set or reset a number of switches in the Assembler. It can be used to suppress the program listing, the generation of object code, the flagging of errors, and the page ejects that are normally inserted in an assembly listing every 56 lines. Whew, what a mouthful! Broken down, here is what the options look like.

.OPT NOLIST ..... turns listing off
.OPT LIST ..... turns listing on (default)
.OPT NOOBJ ..... turns code generation off
.OPT OBJ .....turns code generation on (default)
.OPT NOERR ..... turns error messages off
.OPT ERR .....turns error messages on (default)
.OPT NOEJECT ..... turns page ejects off
.OPT EJECT ..... turns page ejects on (default)

Multiple options may be enabled or disabled by inserting them on the same line, separated by commas.

.OPT NOEJECT, NOOBJ .... two options in one

I am not going to go into too much detail here about the use of .OPT because when you buy the cartridge, you also receive an excellent eighty-page user's manual which goes into much more detail than I possibly could. Please read the manual!

Another interesting feature is that you can also title the pages of the assembly listings. This makes for a more professional appearance. People will actually think that you know what you are doing. To title each page of the listing, just insert the directive .TITLE followed by a string in quotes. For example, .TITLE "STAR RAIDERS BY C.BACHAND" (just kidding folks!) would put the string that is in quotes at the top of every page in the listing. You can even put a subtitle on each page to identify the routines there. This will not change the main title, but it will force a page eject. Subtitles use the directive .PAGE instead of .TITLE.

I hope that everyone realizes that when you enter a directive, or any program line for that matter, into the computer, it must be preceeded by a line number. This point of interest might have slipped my mind earlier, so I am including it now. After all, I would not want people walking around with their heads cut off saying "The dang thing don't work!"

This non-tutorial seems to have turned into a description of the unusual directives used by the Editor/Assembler cartridge. And so, not wanting to break with tradition, and since there seems to be only one other highly unusual non-instruction, I will now tell you the tale of the immortal .IF directive. This instruction to the Assembler allows you to selectively assemble blocks of code, depending on the value of a numeric expression. If the expression is equal to zero, then the code will be assembled. The format is shown below. First, the directive .IF, followed by a numeric expression, an at sign "@", and last the label to jump to if the expression does not equal zero.

```
100 .IF SWITCH@NOASM
110 ;CODE TO ASSEMBLE
120 NOASM
```

You might be asking, "What use could this be to me?" Well, let us suppose that you are writing this great game program, all in assembly language. And you want it to handle either a joystick or a light pen. You do not need both devices in your program, but you do want to have two different versions of the game. This is where the .IF directive comes in very handy.

```
100 ;JUMP HERE FOR ALL GAME INPUTS
    WITH THE
110 ;LABEL JOYSTICK=0 FOR JOYSTICK
    INPUT OR
120 ;JOYSTICK=1 FOR LIGHT PEN INPUT.
130 .IF JOYSTICK@NOJOYSTICK
140 ;JOYSTICK CODE GOES HERE.
150 NOJOYSTICK
160 .IF JOYSTICK-1@NOLIGHTPEN
170 ;LIGHT PEN CODE GOES HERE.
180 NOLIGHTPEN
190 ;END OF GAME INPUTS
```

Well, it is now about 2 o'clock in the morning and I am beginning to fall asleep in front of the typewriter. Only a few hours ago I received another phone call from our fearless leader and editor, (Count Drax to the uninformed) asking me for the umpteenth time "Where is the article?" I told him flat out that I have more important things to do with my time than to type away for him all day long. For example, I have to wash my car. I also have to catch a very important episode of "Gilligan's Island" (this week, Gilligan volunteers to test the Professor's home made thermo-nuclear device). □

SOFTWARE REVIEW: QUALITY SOFTWARE ASSEMBLER

QUALITY SOFTWARE
6660 Reseda Blvd.
Suite 105
Reseda, CA 91335

Cassette, $24.95 (requires 16K)

Quality Software's Assembler program, written by Gary Shannon, is a surprising piece of workmanship. With this 8K machine language program, which requires 16K of RAM to run, you can get an inexpensive start into the world of Assembly language. This cassette based program (no Disk files allowed, yet!) will allow you to compose, edit, assemble, and save Assembler source files, as well as load, modify, and save the object code.

QS's assembler, like any other program, has it's good and bad points. The one good point that seems to outweigh everything else is that it is fast! Boy, is it fast! Compared to Atari's Assembler/Editor, Quality Software's Assembler is at least twice as fast, and it also produces a helpful symbols table.

Another, much needed feature, is the ability to abbreviate the commands used by the assembler. Having used Atari's BASIC for much of my programming, I tend to type "L." instead of "LIST". This will produce an error condition in Atari's Assembler/Editor. Quality Software has thought enough of their customers to put convience back into programming. To list a program, you can still type "LIST" or you can type a letter "L". All the commands can be shortened to one or two letters. Thank-you Gary Shannon!

On the So-So side, all the source code that you enter for your program must go through the Editor. You can no longer simply type in a line number followed by a line of source to enter a line, or just type the line number to delete a line. Everything has to be processed by the Editor! The Editor in question really isn't that bad. Commands are available to insert, delete, edit, list, and add lines to the end of the file. The Editor even types in the line numbers for you and continuously renumbers the lines!

The only drawback to the assembler, besides the lack of disk files, is the lack of I/O devices available. Output can either be to the screen or to the Printer. Unfortunately, my present hardcopy device is an old serial terminal connected through the RS-232 ports of an 850 Interface Module. Oh, well.

The 24 page instruction book supplied with the cassette tape goes into more detail than is possible here. It even describes several methods of interfacing machine language routines with a BASIC program and shows how to boot up the program from disk (this is used to bring up the Assembler, everything else must still be saved and loaded on cassette).

Quality Software's Assembler is a cassette bootable machine language program. To load it, the START button must be held down while power to your Atari is being applied. This is the same method used to load the "Space Invaders" game program.

If you are presently cassette bound, and want to get your feet wet, Quality Software's Assembler package is one of the best ways to go. And for it's price of $24.95 it is one of the least expensive.

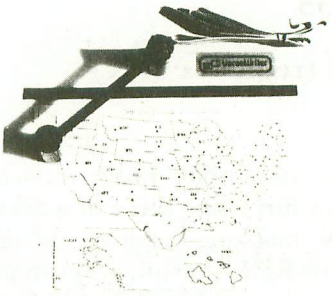
Drawing Tablet

VersaWriter operates on a simple principle, but produces graphics which match or exceed those of other digitizers. Its rugged yet precision construction makes it easy to use and trouble free. Operation is mastered in minutes. It plugs directly into your ATARI personal computer.

VersaWriter

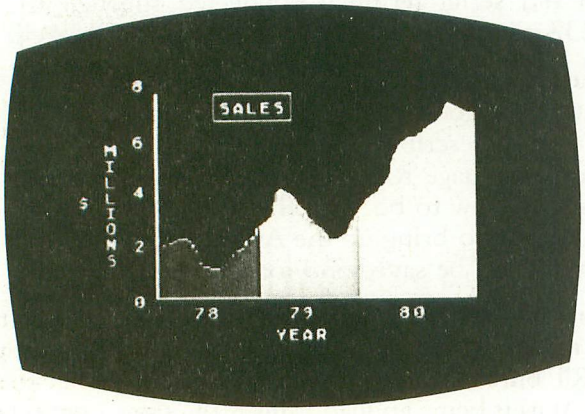
FOR ATARI PERSONAL COMPUTERS

SUGGESTED PRICE..... $299



Graphics Software

Easily the most capable, complete, and usable graphics software for ATARI personal computers available. Designed for hobbyists, but engineers, artists, doctors, and educators are also finding exciting ways to expand their computer's value with VersaWriter.



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Send us YOUR disk and $1. We will promptly return the disk with a slide package of 10 color pictures drawn with VersaWriter.

☐ Enclosed is $1 and my disk.
Send me the slide package.

☐ ATARI ☐ APPLE II

☐ Send more information including VersaWriter dealers in my area.

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CITY STATE ZIP

Versa Computing, Inc. • 887 Conestoga Circle • Newbury Park, CA 91320 • (805) 498-1956

SOFTWARE REVIEW
LETTER PERFECT

LJK Enterprises
Box 10827
St. Louis, Mo.
Application: Word Processing
$149.95

REVIEW BY TONY MESSINA

Many of you probably saw the advertisement for the LJK Word Processor in issue number 2 and said "GEE, sounds great, I wonder how it **really** is". Having purchased and used the package for several weeks now, I can say that it is not as great as it sounds . . . IT'S MUCH BETTER!!! Compared to the price of many other word processors, this package is a steal. It does everything the advertisement claims and more. On top of all this the software is very easy to use.

Being a software engineer myself, I am very critical of software. I examine everything from documentation to actual program execution and function. Several questions come to my mind during this evaluation:

1. Does the software follow the documentation?
2. Is the documentation confusing?
3. Is the software user-proof?
4. Are all the capabilities of the machine used to their fullest (if applicable)?
   (And most importantly, at least to me)
5. Am I satisfied with the product and did I get my money's worth?

With these factors in mind let's take a look at the LJK Word Processor.

DOCUMENTATION

The documentation supplied with the package is excellent. Sure there are a couple of typo's, but I consider this insignificant compared to the rest of the manual. The manual itself is an excellent example of what the word processor can do. The entire document was produced using the LETTER PERFECT package. **WARNING!!!** Read the manual before you start using the word processor. The documentation is easy to read and should only take you about an hour or so. It is packed with all the details necessary to use the package to its greatest potential. I, unfortunately, can say this as an afterthought. I was so excited about the package I could not wait to try it. Consequently, I just scanned the manual, said "OH. This is easy!", and booted in the software. I then took the command card (included for convenience) put it on top of my ATARI 800 and commenced typing. Everything seemed great. When I asked for a hardcopy everything was nice and neat. Unfortunately, this was not the way I wanted it. In short, do the program justice and read the documentation. You'll find it to be easy to read and it will save you undue heartburn. The LJK package has two main structures. The EDIT structure and the COMMAND structure.

COMMAND STRUCTURE

This program runs without the BASIC cartridge allowing you to use the most of the RAM available in your system. Upon booting in the program, the user is presented with a command menu. The list is very simple to use. By utilizing the < and > keys you can move an arrow to the desired function. Hitting RETURN will execute the command. The commands presented and a brief explanation of what they do follow:

EDITOR

This gets you to, you guessed it, the EDITOR. This is where you process all of your text. A detailed explanation is given later in this review.

CHANGE DRIVE

This is useful if you have more than one drive. It is used when the word processor is in drive 1 and the text file are in drive 2 or any other drive. You must specify the drive when loading or saving files or else the program will use the default of 1.

LOAD

This command is used to load files that have been saved to disk. When this command is selected the disk is accessed and all the files are printed on the screen for you to examine. The prompt FILENAME then appears at the top of the screen and you select the file you want. The program will then load that file.

SAVE

. This command saves a text file that you have created. Upon selecting this option, the computer will ask for a filename. Any name up to eight characters may be selected. Upon hitting RETURN, the file will be saved. If you do not type in a name and hit RETURN, the operation will abort. Nice safety feature.

MERGE

This command lets you merge on your disk with files already in memory. You can merge files all day if you have enough memory.

SCREEN FORMAT

This selection allows you to view the document on the screen in the same format that it will appear when it is printed on the printer. This is a handy feature and saves a lot of paper.

PRINTER

Selecting this command will allow you to print your document. Upon hitting RETURN, a prompt will appear asking you how many copies you want. Any number up to 255 may be entered. Pressing RETURN without specifying the number of copies will automatically give you one copy. Another prompt will appear just prior to the printing process. If you decide to abort the operation, just hit the esc key and you will be returned to the command menu.

LOCK

This feature allows you to lock files on the disk. This prevents overwriting important files.

UNLOCK

This is the exact opposite of the lock feature. It allows you to unlock locked files.

DELETE

Selecting this command allows you to delete unwanted files on the disk.

FORMAT DISK

This command formats blank diskettes for use with the LETTER PERFECT package. This formatting is not compatible with the formats provided by ATARI DOS I and II. In a way, this is a nice feature. If ATARI decides to change the formats of their DOS systems, it will not effect any of the files created with LETTER PERFECT.

DATA BASE MERGE

This command is used with LETTER PERFECT'S sister program DATA BASE MANAGER. More on that later.

QUIT

Selecting this feature allows you to boot in DOS or whatever you want. It is important to remember to save your file prior to executing this command or else they will be lost.

These are all of the commands available and their functions. The other structure we will now discuss is the editing mode.

EDITING FUNCTION

The editor is the meat of this entire program. This sub-function is the actual area where your documents are created, formats are specified and text is manipulated. Creating a document is really easy, just start typing. The software will take care of everything else. The parsing of words, taking a word that is too long for the video screen line and placing it on the next line, is done automatically. If your text is one continuous piece you will never have to hit RETURN. Hitting RETURN allows you to start new paragraphs and simply tells the printer to skip one line. Editing of letters and words is done through the use of control insert or delete function, same as editing a basic program. This also applies for inserting or deleting lines of text. Use the shift insert-delete keys and lines will be inserted or deleted. Movement of the cursor is done using the control arrow keys. **IMPORTANT NOTE:** If you insert or delete words or letters, DO NOT hit the RETURN key. If you happen to hit RETURN the remainder of the line will be lost. This takes a little getting used to but should not be a major problem.

The editor does have many more powerful features. These are executed through the use of control letter combinations. These are listed in FIGURE I. Some of these features are used to control the rapid movement of the cursor to various portions of your text. Others allow the direct control over the output format of your document. For example: deleting, inserting or merging blocks of text insert a delimiter (cntrl D) at the end of the block of text you want deleted. Move your cursor to the beginning of the block you want deleted and press control N. TADAAA!! GONE!! If you forget the delimiter, a nice message appears "Delimiter not found" and the operation aborts, leaving the text intact and preventing major damage to your heart and vocal chords. This is but one of the many messages that appear if you goof. You cannot accidentally kill your text, except by hitting RETURN after you edit a word or letter in a particular line (see important note above). You may have noticed the buffer commands on the card in FIGURE I. These are very useful. Let's say you have a sentence or a paragraph that would look better in another portion of your document. Simply move that text into the buffer, and then insert it from the buffer into the appropriate location. The buffer can hold approximately two screens full of data. Justifying of text is also easy. The program has justification built in as a default value. In other words, all text will be justified and blocked unless you tell the program otherwise. otherwise.

The only tricky part of the processor is the formatting of text for a specific output in the middle of a document. By tricky, I mean at first it appears to be difficult, but upon reading the manual and playing around with the formatting examples it becomes almost second nature. Changing line spacing, margins and all the values specified under format representations in FIGURE I, is simple once you become accustomed to the procedure. Again, read the manual.

Headers and footers can be added to all text by typing them once in the beginning of your document and specifying them (through the use of the format command) as such. Automatic page numbering can also be included as part of the header or footer. Other nice features are the bold face and center commands. The bold face command changes the text following it to expanded print on the ATARI 825 printer. The center command allows you to center any text automatically. I've created some nice letterheads and paragraph titles with these two features. All of the editor special functions are accomplished through the use of control letter designators with no lengthy commands to type. Exiting the editor requires hitting the esc key which brings you back to the command menu.

SPECIAL FEATURES

Some of the special things LETTER PERFECT can do are subscripting and superscripting, using the appropriate control characters prior to executing whatever function you like. Continuous scrolling of the text on the screen is another nice feature. The scroll speed can be adjusted so that you are not trying to read text flying by a mile a minute. It allows you to watch your work printed character by character and proofread it. Stopping and continuing

the scroll is as simple as hitting the space bar to stop and hitting it again to continue. Tabs can be set and cleared very easily. To set a tab, move the cursor to the location you desire and press shift tab. To clear a tab, press control tab. The printer can also be set to stop at the end of every page. This is nice when single sheets of paper are being fed into the printer. I have even managed to do things not specifically called out in the manual. One time I had a page get completely eaten up by my printer. It happened to be the sixth page of an eight page document. I certainly didn't want to reprint the entire document for just one page. After all, Computer paper isn't that cheap!! What did I do? Instead of crying HELP MR. WIZARD, I took the text that I wanted to reprint and placed it in the buffer. I then deleted all of the text and recalled the page I had just saved from the buffer. All of this was done in about 10 seconds!! I then printed the page out and everything worked perfectly. Another feature that I have used is the saving of formats to the disk for future use. Personal letters have one format, business letters have another and my technical documents have still another format. All I did was take my format lines and save them on disk individually. Now when I want to write a technical report, I call in my TECFORM file first and then start typing. If I come to a place in the text where I need to format certain lines, I merge the proper format from the disk and then continue to type. It really isn't necessary but it is nice.

DATA BASE MANAGER

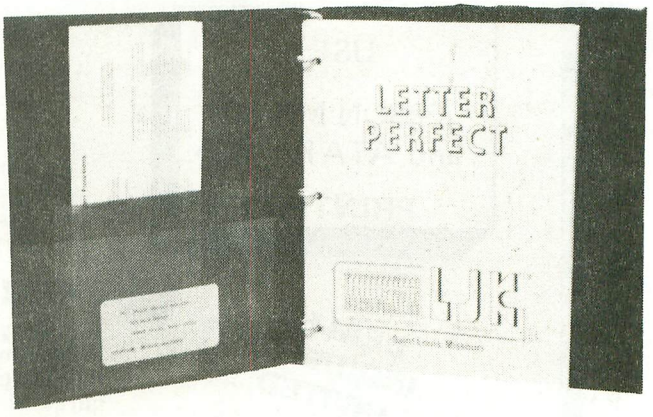
Remember the Data Base Merge command I told you about before. Well here's what it does. LETTER PERFECT is actually a sister program to another package called DATA BASE MANAGER. I don't believe it has been released yet for the ATARI. This program will allow you to create a customized data base of anything you want. Mail list names, club members list, numerical data. . . whatever. The data base Merge command allows LETTER PERFECT to access the data base you have created and print custom letters, mail labels, statistic Charts etc, just like the BIG GUYS. Adding this package should give any business the flexibility of any word processor around as well as having the power of many small main frames. All in the space of a tabletop!!!

FINAL NOTES

There is one last item which needs to be mentioned. When I first bought LETTER PERFECT I had a problem with the Boldface Center Underline commands when used together. These three commands typed in at the beginning of an eight page document which was due for deadline on the following Wednesday. When I went to print the document the following sequence of events occurred:

1. The printer choked.
2. The program and system locked up.
3. I had to power down the system and lost my text.
4. The neighbors called the police. They thought my screaming was the burglar alarm going off.
5. I jumped on the phone to speak with someone at LJK.
6. It was 12:30 on Friday afternoon.

The person I talked to was Ken Berry. Now I have usually gotten the shuffle, no answer, or talked to some operator who doesn't know shift from shinola when I've called any software firm to complain, and or demand something be done about my problem. LJK was completely different. Ken got specific and asked for all the details. Obviously he knew of the problem and had something to do with the software development. He told me this was a recognized problem on the early releases of LETTER PERFECT. Before I could say two words, he told me another copy would be sent to me that day. I was amazed! I was impressed! Here was a company that not only sold the software, but backed it up 1000%. I hung up after many thank yous and on Monday I received my new copy of LETTER PERFECT. Believe me, it worked without a hitch. The point is that LJK has an excellent product and they will back it up if anything goes wrong. Each program must be registered with them. The forms are included with the software package.



I hope I have given you some insight about LETTER PERFECT. The package has met my tough standards in all areas and has passed with flying colors. Those of you who have been hesitating do not have any excuse. This package is A+ all the way. (Sorry ATARI you were too late). I am anxiously awaiting the release of Data Base Manager and will give you all an update after I've had a chance to evaluate it. □

LETTER PERFECT T.M. LJK

WORD PROCESSING FOR THE *ATARI — 800 T.M.

MAIN - MENU

CURRENT DRIVE NUMBER #1

→ Editor ←
Change Drive #
Load
Save
Merge
Screen Format
Printer
Lock
Unlock
Delete
Format Disk
Data Base Merge
Quit

Press '<' or '>' to move cursor
Press (Return) for selection

USE:

EPSON MX-80
and ATARI -825

PRINTERS

EASY TO USE: LETTER PERFECT is a character orientated word processor with the user in mind. The program (machine language) is very fast. It is a menu driven program that is very easy to operate. The program is a single load program and can work with one or more disk drives. It requires a minimum of 16K of memory and a single disk drive. With the Artari 825 printer you can print text with right hand justification. You may also use different type fonts (10 and 17 character per inch) within the body of the text itself. Boldface is printed as expanded print font. Underlining can be done as well as sending Escape characters within the body of the letter itself. All the formats are a default but you can change them all to desired values if you wish. Right Margin, left margin, top of form, line spacing, etc. are easily changed. Data Base Merge works with the sister program LETTER PERFECT — DATA BASE MANAGER. User may use this program to create mailing lists and completely develop your own data base for your personal needs. All text packed before storage to diskette for greater storage capacity. Large Buffer allows you to pick up and move up to one full page of screen text and move it to any location in the text. Merge more than one file together for easy editing. Screen Format allows you to see on the video screen exactly how the text will appear on the printer. Automatic page numbering, headers and footers are easily accomplished. This program is easy to use because of its meaningful and easily mastered commands. Fully documented with a users manual that explains in simple language 'how to' completely use the program.

All this and more, for $149.95.

Features:

FULL CURSOR CONTROL
Home Cursor
Scroll Page Forward
Scroll Page Backward
Pause Scroll
Scroll Line at Time
Scrolling Speed Control
Move Cursor Down
Beginning of Text

MULTIFUNCTION FORMAT LINE
Standard Formats a Default
Formats Easily Changed
Right Justification
Left Margin
Page Width
Line Spacing
Lines Per Page
Form Stop
Set Page#
Top Margin
Bottom Margin

Delete a Character
Insert a Character
Delete a Line
Insert a Line
Headers and Footers
Shift Lock and Release
Global and Local Search and Replacement
Underlining and Boldface
Automatic Centering
Horizontal Tabs
Special Print Characters
Split Catalog
Page Numbering up to 65535
Prints up to 255 Copies of Single Text File
Non Printing Text Commenting

FUNCTIONS
Delete All Text
Delete All After Cursor
Delete All Before Cursor
Delete Next Block
Delete Buffer
Move Next Block to Buffer
Add Next Block to Buffer
Insert Block From Buffer
Merge Text Files

DEALER INQUIRIES INVITED

apple®

This program also available on the Apple in 40/80 Video (Super 'R' Term, Smarterm, Videx, Bit-3). You may use any printer type. The Hays Micromodem II can be used to send files. Can be Reconfigured at any time to use different printer, 80 column board, or standard 40 column video. Much, Much, More!

COMPUTER BASED SOFTWARE LJK ENTERPRISES INC™

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P.O. Box 10827
St. Louis, MO 63129
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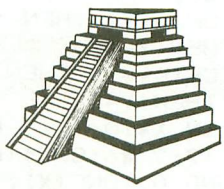
*Apple T.M. of Apple Computer Inc. — *T.M. Atari Computer Corporation

TOWERS OF HANOI . . .



by Ricky Knopman

Requires 16K

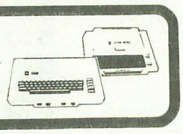
It was said that in one of those incredible Towers of Hanoi there were placed 64 golden disks, no two the same size, set on one of three golden pegs. The priesthood of the temple were set moving disks, one at a time, to any one of the pegs, always subject to the condition that no disk be placed above a smaller disk. The priests were to aim at arranging all disks on another peg. They were pledged to move a disk every second, making sure that the goal would be completed in the least number of moves. When this task was completed, there would be a day of doom for many, but reward for the faithful.

(Actually the task would have taken 585 million years to complete, but you can simulate (to a smaller degree) what these men tried to do. Plug a joystick into port one and run this program. Instructions are included in the program.) □

```
90 REM TOWERS OF HANOI
100 REM RICKY KNOPMAN :(c)MARCH 1981
110 REM A.N.A.L.O.G. 400/800 MAGAZINE
120 GOTO 830
130 REM **** GAME STARTS HERE *******
140 ? "↰LOWEST NUMBER OF TURNS POSSIBL
E ";MINTRN
150 S2=RND(0)*4+1
160 ? "TURN NUMBER ";TURN
170 PS=0:POKE 752,1:? "▶↓< < FROM PEG?
 > >";:GOSUB 710:PS=Y
180 REM
190 FOR K=0 TO NUM:IF D(K)<>PS THEN NE
XT K:? "  ":GOTO 170
200 ? "↑▶< < FROM PEG ";PS;" TO PEG? >
 >  ";:GOSUB 710:PF=Y
210 IF PF=PS THEN 140
220 FOR P=0 TO K:IF D(P)=PF THEN ? "↑"
:GOTO 200
230 NEXT P
240 REM ******** MOVE DISK **********
250 FOR Q=VP(PS)+2 TO 2 STEP -1
260 COLOR 0:PLOT PS*20-P,Q:DRAWTO PS*2
0+P,Q:COLOR 2
270 SOUND 0,Q*S2+P*20,10,4
280 IF Q>VT THEN COLOR 1:PLOT PS*20,Q:
COLOR 2
290 PLOT PS*20-P,Q-1:DRAWTO PS*20+P,Q-
1:SOUND 0,0,0,0:NEXT Q
300 ST=SGN(PF-PS):SP=PF:IF ST>0 THEN S
P=PS
310 FOR W=PS*20+(ST<0) TO PF*20+1-(ST>
0)*2 STEP ST
320 COLOR 0:PLOT W-P*ST,Q
330 COLOR 2:PLOT W+P*ST+ST,Q:NEXT W
340 FOR Q=1 TO VP(PF)-1:COLOR 0:PLOT P
F*20-P,Q:DRAWTO PF*20+P,Q:COLOR 2
350 SOUND 0,Q*S2+P*20,10,4
360 IF Q>VT THEN COLOR 1:PLOT PF*20,Q:
COLOR 2
370 PLOT PF*20-P,Q+1:DRAWTO PF*20+P,Q+
1:SOUND 0,0,0,0:NEXT Q
380 REM ******* CHECK FOR WIN *******
390 D(K)=PF:VP(PF)=VP(PF)-2:VP(PS)=VP(
PS)+2
400 FOR P=0 TO NUM:IF D(P)<>3 THEN TUR
N=TURN+1:GOTO 140
410 NEXT P
420 REM ******* PLAYER DID IT !! ****
430 ? "↰YOU DID IT!!!":RESTORE :? "IN
";TURN;" TURNS. . ."
440 IF TURN=MINTRN THEN ? "A PERFECT S
CORE!!!"
450 REM ******** A LITTLE MUSIC *****
460 FOR K=1 TO 28:READ P,Q:SOUND 0,P,1
0,10:FOR S2=1 TO 3*Q/4:NEXT S2
470 SOUND 0,P,10,5:FOR S2=1 TO Q/4:NEX
T S2:SOUND 0,0,0,0:NEXT K
480 DATA 186,30,140,30,110,40,92,30,92
,30,92,30,110,30,110,30,110,30,140,30,
110,30,140,30,186,120,0,50
490 DATA 186,30,140,40,110,40,92,30,92
,30,92,30,110,30,110,30,110,30,186,30,
186,30,186,30,140,120,0,500
500 GOTO 830
510 REM ** PRE-GAME INITIALIZATION **
520 POKE 752,1:TRAP 520:POKE 84,23:? "
↑↑";
530 ? "▶→→NUMBER OF DISKS (3-9) = ";:I
NPUT NUM:NUM=NUM-1:IF NUM>8 OR NUM<2 T
HEN 520
540 TURN=1:MINTRN=INT(2^(NUM+1)):Y=1
550 TRAP 40000
560 GRAPHICS 5:SETCOLOR 1,8,14:SETCOLO
R 2,4,4
570 IF S2=0 THEN DIM D(9),VP(3),TONE(3
)
580 VT=26-NUM*2
590 COLOR 1:FOR P=0 TO 2:PLOT P*20+13,
30:DRAWTO P*20+27,30:PLOT P*20+20,29:P
LOT P*20+20,29:DRAWTO P*20+20,VT:NEXT P
600 VT=VT-1
610 FOR K=0 TO NUM:D(K)=1:NEXT K
620 COLOR 2:FOR P=1 TO 3:VP(P)=28:NEXT
 P
630 FOR P=NUM TO 0 STEP -1
640 PLOT D(P)*20-P-1,VP(D(P)):DRAWTO D
(P)*20+P+1,VP(D(P)):VP(D(P))=VP(D(P))-
2:NEXT P
650 RESTORE 660:FOR P=1 TO 3:READ K:TO
NE(P)=K:NEXT P
660 DATA 92,110,140
670 REM *** CHANGE DISPLAY LIST ****
680 P=PEEK(560)+256*PEEK(561)+39:POKE
P,2:SETCOLOR 2,0,0
690 GOTO 140
700 REM ***** JOYSTICK ROUTINE *****
710 IF FL AND ( NOT STRIG(0)) THEN 710
720 FL=0:X=1:POKE 87,0
730 FOR P=1 TO 3:POSITION P*10,17:? #6
;STR$(P):NEXT P
```

```
740 POKE 755,( NOT PEEK(755))*2
750 IF STICK(0)=7 THEN Y=X+1:POKE 755,
2:IF Y>3 THEN Y=1
760 IF STICK(0)=11 THEN Y=X-1:POKE 755
,2:IF Y<1 THEN Y=3
770 POSITION X*10,17:? #6;STR$(X):POSI
TION Y*10,17:? #6;CHR$(ASC(STR$(Y))+12
8):X=Y:SOUND 0,TONE(X),10,4
780 FOR PAU=1 TO 40:IF STRIG(0) THEN N
EXT PAU:GOTO 740
790 POKE 755,2:SOUND 0,46,10,10
800 FOR PAU=1 TO 10:NEXT PAU:SOUND 0,0
,0,0
810 FL=1:POKE 87,5:RETURN
820 REM ***** INTRODUCTION *********
830 GRAPHICS 2:SETCOLOR 2,0,0:POSITION
 7,1:? #6;"towers                of hanoi
"
840 POSITION 2,4:? #6;"by ricky knopma
n"
850 POSITION 0,7:? #6;"................
....."
860 IF CHR$(KEY)="N" THEN ? "":GOTO 5
20
870 POSITION 5,8:? #6;"DO YOU NEED
    INSTRUCTIONS?":POKE 764,255
880 OPEN #1,4,0,"K:":GET #1,KEY:CLOSE
#1
890 IF CHR$(KEY)="N" THEN POSITION 5,8
:FOR K=1 TO 32:? #6;" ";:NEXT K:? "":
GOTO 520
900 IF CHR$(KEY)<>"Y" THEN 880
910 GRAPHICS 0:POKE 752,1:SETCOLOR 2,0
,0:POSITION 11,1:? "TOWERS OF HANOI"
920 ? :? "  THE OBJECT OF THIS GAME IS
 TO"
930 ? "MOVE ALL THE DISKS FROM TOWER #
1 TO"
940 ? "TOWER #3, BY MOVING ONE DISK AT
 A"
950 ? "TIME, AND TO ACCOMPLISH THIS IN
 AS"
960 ? "FEW MOVES AS POSSIBLE."
970 ? :? "  MOVE JOYSTICK (LEFT-RIGHT)
 TO"
980 ? "POSITION THE BLINKING CURSOR UN
DER"
990 ? "THE PEG FROM WHICH YOU WISH TO"
1000 ? "REMOVE A DISK. PRESS THE BUTTO
N,"
1010 ? "MOVE THE CURSOR TO THE PEG ON"
1020 ? "WHICH YOU WISH TO PLACE THE DI
SK,"
1030 ? "AND PRESS THE BUTTON AGAIN. IF
 BOTH"
1040 ? "OF THE PEGS FOR A MOVE ARE THE
 SAME,"
1050 ? "THEN THE MOVE IS CANCELLED."
1060 ? :? " YOU CANNOT PLACE A LARGE D
ISK ON "
1070 ? "TOP OF A SMALLER ONE."
1080 GOTO 520
```


A.N.A.L.O.G. 400/800 MAGAZINE



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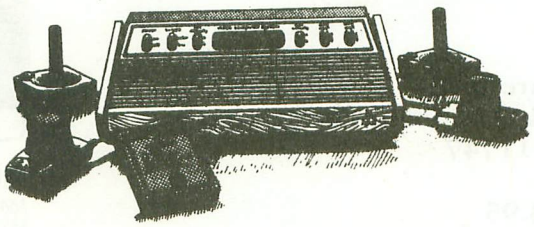
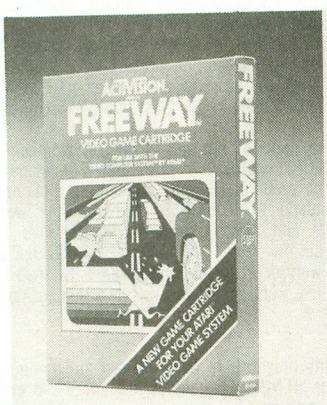
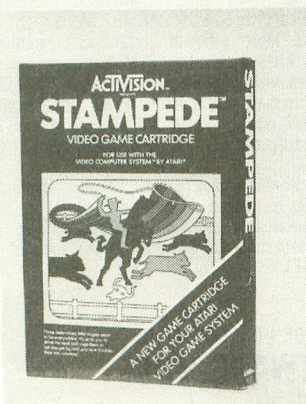
VIDEO COMPUTER SYSTEM UPDATE...

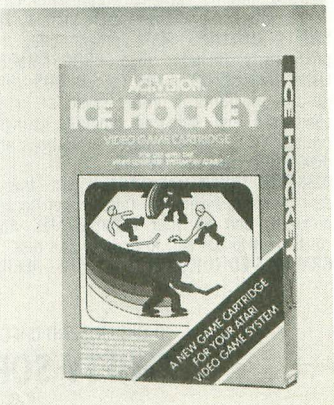


By now many of the previously announced VCS cartridges should be available in your area. These include ATARI's OTHELLO(tm), Video Pinball(tm), and the un-announced Missile Command(tm). From Activision, Freeway(tm) and Kaboom!(tm) are soon to be released this summer, and two new games just announced, Stampede(tm) and Ice Hockey will be available in December of this year.

Ice Hockey is described as a realistic video version of the fast moving game, and with Activisions great graphics, I'm sure it will be. Stampede doesn't quite sound like your everyday game cartridge... you're supposed to be on a horse attempting to rope down all sorts of critters... this sounds interesting!







Also of course, the Warlords(tm) cartridge from ATARI is due for release the end of June. I've seen an arcade version of this and it looks pretty good. Asteroids(tm) is due in July/August. Games announced for the second half of 1981 from ATARI include a version of Super Breakout(tm) for the VCS, 'Haunted House' (you got me... maybe on the idea of their Adventure cartridge?), Turret Gunner (don't know much about this one either), and Steeplechase, which is based on their arcade game of the same name. The latter is available exclusively through most SEARS stores now, along with another game, Stellar Track.

Many of A.N.A.L.O.G.'s readers own ATARI's VCS and the response to this column has been good, so it will remain a regular feature. One question that pops up fairly often is to whether the VCS cartridges can or will function in the computers. The answer to this is NO (at least for the time being). The interfacing formats are different between the two and you'll probably burn out the game cartridge chip if you put it in a computer cartridge, so I wouldn't attempt it. It's possible someone is working on a 'compatibility' module right now... □

SOFTWARE REVIEW: FILE-IT

Swifty Software Inc.
P. O. Box 641
Melville, NY 11747
File-it
24K Disk $34.95

The name Swifty Software really doesn't do justice to the software produced by the company. Considering that 80% of the software I've seen for the Atari is mediocre. Swifty's software is above average (they specialize in Atari).

File-it is no exception. This neat little package is a data base system that was developed by Jerry White (a name not unfamiliar to Atari owners.) File-it is a disk based program consisting of six separate programs, four of which are designed to work together, and two utility programs that help make disk usage more convenient. The first thing that impressed me about File-it was the well documented and easy to understand users manual. The program itself was very easy to use and shouldn't scare away any newcomer. Each program not only prompts the user to supply appropriate information when needed, but seems to have made good use of error trapping, even I couldn't make a mistake with this one.

Before I get carried away with my impression of File-it, let me explain just what it can do. File-it, as the name implies, creates, stores, retrieves, edits, and deletes personal type files. You may, at any time, access a record within a file, display or print single or multiple records from any file, and sort selected files. Another feature that I have found to be very useful, is the ability to create address information files which can then be printed on standard one or two up mailing labels (using the Epson or 825 printer.) The number of records that can be stored depends on the amount of memory. For example: with the minimum required 24K, you can have approximately 120 records, and for each additional 8K you can add 100 more files.

Another very useful program included with File-it is Disklist. This is another one of the little additions that I have used many times. With Disklist you have the printer print disk labels that fit nicely on the disk jacket, and can print a heading on the listing if desired.

Overall, I've found File-it to be an easy to use, economical data base management system, ideal for coupon listings, hobby collections, or any other type of personal data files. For $34.95 File-it is a bargain. □

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GRAPHICS EDITOR (refer to MY FIRST ALPHABET.)

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SOFTWARE REVIEW: ATARI TOUCH TYPING

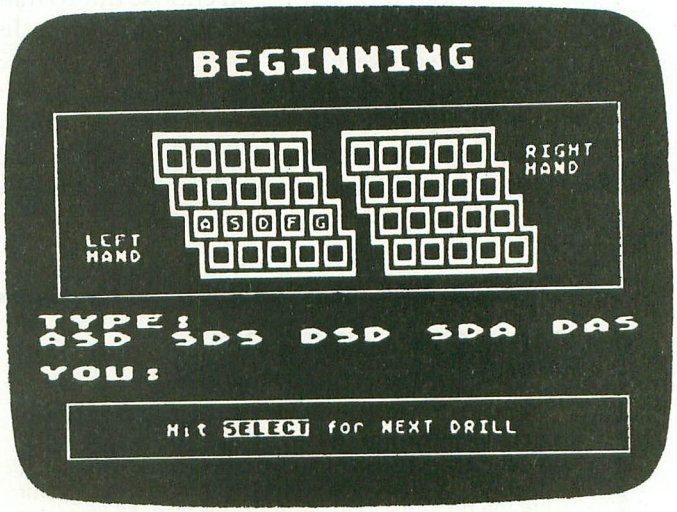
Bill Latino

So you'd like to key in more ANALOG program listings, but you know from painful experience that this can cost you hours of hunt and peck typing and often an equal investment in the time correcting typographical errors. Or perhaps you have a printer sitting idle while you labor long hand on letters and reports because, slow as writing is, it's faster than your typing. Maybe you'd simply like to add typing to your repertoire of skills...

Whatever your interest in learning typing might be, Ataris' Touch Typing offers a quick and enjoyable method of accomplishing same. This $24.95 package consists of two program tapes and an instruction manual. System requirements are a 16K (min.) 800 or 400, a 410 Program Recorder, and the Touch Typing cassettes.

The 12 page manual supplied with this package, though well written and easy to understand, is about 10 pages too long. One of the niceties of computer aided instruction (CAI) is that is takes the student patiently through the material at whatever pace is appropriate. If the program is well written, it will be self prompting and will have the necessary basic instructions for its operation contained within the program. Touch Typing covers both these points well and hence makes a 12 page instruction manual an unnecessary burden to the student. In fact, the software package I recieved came without any manual at all, but this didn't create a hardship. When a manual was finally obtained the following week, I can honestly say it added little to the utility of the program. This is more a testament to software quality than a condemnation of the documentation which is good, but superfluous.

Beginning Typing, the first of three parts, is found on side 1 of cassette A and takes about 3 ½ minutes to load. This section familarizes the student with the location of those letter, number, and punctuation keys common to a typewriter keyboard. On the screen is depicted a mockup of the Atari keyboard divided into left and right hand sections. The program provides drill, five letters at a time, alternating between hands. For example, on the left hand side of the mockup, the positions of the letters ASDFG (uppercase only for this part) are shown and then you drill on random 3 letter combinations of those letters. Three types of errors are checked for: mistypes, extra letters, and missing letters. Each 3 letter combination is considered a 'word' and any error in a word causes all 3 letters of the word to show red on the video and count as one error in the word error count. After each drill the user is advised of both his typing speed and number of word errors. After all 26 letters have been practiced, the program selects random letters for both hands and provides drill as above. At this point an additional feature becomes apparent - the program evaluates which letter you are having the most trouble with, prompts with the message LET'S PRACTICE: and your worst letter, and provides subsequent drill heavy in that letter. The internal letter error count is ongoing and constantly adjusted, so you recieve drill in the area you need it most. Numbers and punctuation are practiced in the same way as letters.



The program for both parts 2&3 of this package is located on side 2 of cassette A. Patience is required here since the program takes nearly 6 minutes to load. When the program finally finishes loading, it displays a screen showing INTERMEDIATE LEVEL and beneath it ADVANCED LEVEL and asks for a choice. Assuming INTERMEDIATE LEVEL is selected, randomly generated sentences (often nonsensical) are displayed for you to practice. Program operation is similar to part 1 and simple punctuation as well as both uppercase and lowercase letters are used.

ADVANCED LEVEL requires the additional loading of data from cassette B. The use of this second data cassette provides for the generation of hundreds of six line paragraphs using all letters, numbers, symbols, and punctuation learned thus far. Paragraphs start out simple and become progressively more difficult. Although you are still advised of your most worst letter, you are no longer given

randomly generated drill in your weak area, but are forced to repeat the current excercise until you get it right or hit the return key to select the next paragraph. When you're able to reach 40 - 60 WPM in this section, you've a right to feel proud!

Touch Typing has other niceties not mentioned herein, but suffice to say the programs work well and provide a relatively painless way to learn/improve typing at your own pace. This is not to say they're perfect however. Effective use could have been made of color to show which fingers are supposed to strike which keys — far better, and more in line with the concept of CAI, than the numbered chart in the manual. My final gripe is that the programs are not easily transferable to disk, and Atari provides no notes on how to modify the programs to accomplish same. Anyone used to a disk, and worst case load times under 30 seconds, will find a 6 minute cassette load to seem like an eternity. Unnecessary burden #2...How about it Atari? If you choose not to make disk conversion notes available, at least offer a disk version of the software!

Overall, I found Atari Touch Typing well worth the asking price. By breaking me of that abominable 'hunt & peck' syndrome, it's already paid for itself many times over. One of the Atari "recommendables"... □

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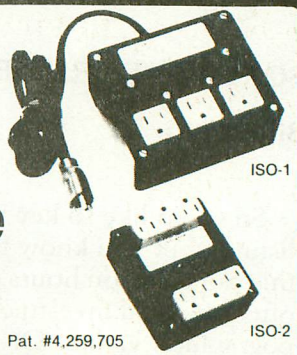

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SOFTWARE REVIEW: BASIC A+

Optimized Systems Software
10379 Lansdale
Cupertino, CA 95014

Jerry White

I have to admit that when I was asked to review the OSS Basic A+ package, and found out that the price tag was $80.00, I said that it could never be worth that kind of money. Some day I'll learn not to form opinions without knowing all the facts. The more I look into this package, the more I realize how wrong I was.

If you are at all serious about programming, and have at least 32K and a disk drive, I think you'll find Basic A+ to be the greatest invention since Atari computers. If you are just getting into programming your Atari, you'll find it much easier having all the added features this package puts at your fingertips. If you've been at it for a while like I have, you'll quickly know what you've been missing.

A program written entirely in Atari Basic will run under Basic A+. You could write a program in Atari Basic and use some of the Basic A+ features to help debug it. For example there's the TRACE command. This allows you to run your program and see the line numbers on the screen during execution. While debugging, you'll love the error message descriptions like NO SUCH LINE # instead of just plain ERROR 12. Another helpful tool is the DEL (delete) command. If you want to delete lines 200 thru 300, you can do it without typing in each line number. The command would be DEL 200,300.

One of the things I found it rough to get used to was lengthy string manipulations. With the advanced features in this package A$=B$:A$(LEN(A$)+1)=C$ becomes A$=B$=,C$. I'm sure you will also find many uses for the FIND instruction.

String manipulation was the only way I could find to format screen displays and printed output. Again, some rather complex routines can be replaced with the PRINT USING instruction. This comes in most handy for things like right justification of money fields.

If you've noticed how slow input/output can be using GET and PUT, you'll certainly appreciate BGET, BPUT, RGET, and RPUT. For this review, I'll just say that the B stands for Block and the R stands for Record. There's also the MOVE command which will move any number of bytes from any address to any address at assembly language speed.

While I know I don't have enough room to explain all the features available, I've got to mention the Player/Missile Graphics commands. It's not easy to access PMG using Atari Basic. Here we have commands like PMCOLOR, PMMOVE, PMWIDTH, PMCLR, PMADR, and BUMP. BUMP for example accesses the collision registers. I think you can guess what the other PM commands are used for.

OSS also has a companion package that sells for $80.00 or can be combined with Basic A+ for $150.00. This package also includes its own EDITOR/ASSEMBLER/DEBUG (EASMD). While you can use Basic A+ with Atari's DOS, it is a a bit awkward to load. If you can afford it, you really should buy the combination package. If not, I'd still recommend Basic A+ and I'll certainly be looking forward to future products from OSS. □

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Special Review: Atari's Missile Command....

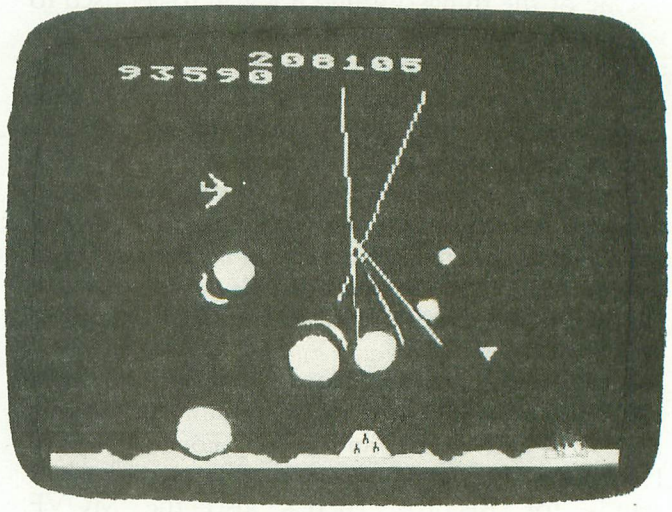
LEE PAPPAS

Shown at the Consumer Electronic Shows this year in Las Vegas and Chicago, the Missile Command(tm) cartridge from Atari looks really great! Next to Star Raiders I personally feel it to be the best action game on the home computers I have seen yet. It includes the same features as the arcade version: you must protect six cities at the bottom of the screen from the onslaught of dozens of ICBM's (some with multiple warheads which split up at certain points). As the game progresses the missiles come down faster, and the dreaded 'smart bombs' start to bug you. These are triangular in appearance rather than the diamond shape in the arcade version. These also come down faster as the game continues and in greater numbers. Of course you also have the fly-bys of planes and satellites which drop even more missiles if you don't blow them away in time. And like the arcade Missile Command, the colors on the screen becomes more furious as you rank up your points.

The major difference between the arcade and computer versions are the number of missile bases under your control. The arcade version, as you probably know, has three launching stations; one in the bottom center and one laterally on each side of it. The home computer version has one in the center. When I first saw this I thought, "forget it; this is no good," but on the VERY FIRST GAME I played, I didn't even miss the other two bases I grew accustomed to at the arcade. You have six missiles at the base at a time, and are replenished five times for a total of 30 missiles. A 'woink' tone is heard whenever you use up a group of missiles (6), so you can keep a mental check on how many missiles are remaining. The only problem with one base remains in the fact that when that base is struck, you have to wait a couple of seconds for a new one to reappear. And well into the game with the missiles and smart bombs descending rapidly, your base may get blown away, only to reappear just as another missile strikes it! To me, this just makes the game more challenging — you MUST protect your base!

The colors and graphics are very good, although the cities aren't made up of three colors each as in the arcade model, also the satellites don't 'pulsate' as they traverse across the playfield. The sound effects are at least as good as the commercial version (make sure you crank up the volume when you play this game!): the 'woink' whenever you run out of missiles, the noises of the satellites and smart bombs, the 'fffffff' of a missile being launched, the sounds of the saved cities and unused missiles appearing on the screen for extra points, and the explosions. One thing that is neat about the explosions: when a detonation occurs it 'flashes' in bright hues; there isn't just a white colored blob on the screen.

At the games end, there is an explosion filling the whole screen, with the letters "THE END" flashing at you. There are other options but I won't mention these, as they may change when the final version is released. Missile Command is a one or two player game using the joystick controllers (to move the 'firing cursor' around), and is due in July/August on ROM cartridge retailing for $39.95. □



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TARGET SHOOT.....

Requires 8K

by Steve Smith
Albuquerque, New Mexico

This program uses player/missile graphics and some of the peek and poke locations released to date. Some of the features include: a gun which can be moved horizontally using a joystick in position #1, random selection of targets and target vertical positions, easy modification of target objects, target speed and missile speed, and some color and sound.

Lines 20 thru 35 — Sets up player/missile graphics to use three players. Player 0 is used for the targets, player 1 is used for the gun, and player 2 is used for the missile. (I haven't mastered the use of the missile's yet.)

Line 50 — Loads a numeric array with the binary numbers used for target objects. Each object has its own data statement in lines 610 thru 700. Changing these data statements will change the target shapes. This is easily done by using a standard 8×8 binary matrix where each number (byte) represents ⅛th of the target object.

Line 110 thru 125 — Draws the gun on the screen and sets its horizontal position in the player 1 horizontal position register at location 53249.

Lines 150 thru 170 — Provides gun movement using the joystick (left or right) and pokes the new gun position into its horizontal position register. Note that the same position is also poked into the player 2 (missile) horizontal position register in order for the missile to move with the player 1.

Line 400 — Sets up a random direction for the targets (left-to-right or right-to-left) which is used in steps 410 and 420. The step value in these two locations can also be changed to slow down or speed up the targets. The GOSUB 500 in this line is used to actually draw the target in player 0 memory locations.

Lines 425 thru 450 — Moves the target horizontally across the screen, tests the fire button to provide missile movement and checks location 53262 to test for player 0/player 2 collision. The speed of the missile is changed by the value subtracted from "C" (two places) in line 440.

Lines 610 thru 700 — Holds the binary representations of the targets.

Lines 1000 thru 1090 — Provides the target explosion sound and erasure from the screen of the hit target and the missile which hit it.

Lines 3000 thru 3050 — Displays the score and allows further play.

```
6 C0=0:C1=1:C2=C1+C1:C3=C2+C1:C4=C3+C1
:C6=C4+C2:C8=C6+C2:C10=C8+C2:C15=C10+C
4+C1:GRAPHICS C0:POKE 752,C1
7 ? :? :? :? "DEPRESS ANY KEY WHEN YOU
 WISH":? :? "TO START OR END GAME! ";:
POKE 764,255
8 IF PEEK(764)=255 THEN 8
9 GRAPHICS C2:POKE 764,255
10 SETCOLOR C2,C0,C0:POKE 53279,C0
15 DIM W(91),A$(C1):TC=C0:TH=C0:G=C0
20 A=PEEK(106)-C8:POKE 54279,A:BASE=A*
256:POKE 559,46:POKE 53277,C3
30 POKE 704,216:POKE 705,42:POKE 706,4
2
35 POKE 752,C1:PRINT
50 RESTORE :FOR W=C10 TO 89:READ A:W(W
)=A:NEXT W
110 FOR G=BASE+641 TO BASE+768:POKE G,
C0:NEXT G:G=BASE+745
120 POKE G,24:POKE G+C1,24:POKE G+C2,1
26:POKE G+C3,126
125 POKE G+C4,255:POKE G+C4+C1,255:POK
E 53249,140:G=140:GOTO 400
150 S=STICK(C0):IF S=C10+C1 THEN G=G-C
4:IF G<50 THEN G=50
160 IF S=C6+C1 THEN G=G+C4:IF G>200 TH
EN G=200
170 POKE 53249,G:POKE 53250,G-C3:RETUR
N
400 D=RND(C0)*C10:GOSUB 500:FOR F=BASE
+769 TO BASE+896:POKE F,C0:NEXT F
405 POKE BASE+873,C3:POKE 53250,G-C3:C
=BASE+873:N=C0:POKE 53278,C0:HIT=C0
407 POKE 77,C0:TC=TC+C1:IF PEEK(764)<2
55 THEN 3000
410 IF D<C6 THEN FOR PASS=30 TO 215 ST
EP C4
420 IF D>=C6 THEN FOR PASS=215 TO 30 S
TEP -C4
430 POKE 53248,PASS:IF HIT<>C3 THEN SO
UND C3,PASS-30,C10,C8
432 IF N=C1 THEN 440
433 IF N=C2 THEN 450
435 F=STRIG(C0):IF F THEN GOSUB 150:NE
XT PASS:SOUND C3,C0,C0,C0:GOTO 400
440 POKE C-C6,C3:POKE C,C0:C=C-C6:SOUN
D C1,20,40,C15:SOUND C1,C0,C0,C0:N=C1:
IF C<BASE+768 THEN N=C2:GOTO 450
445 HIT=PEEK(53262):IF HIT=C3 THEN N=C
0:GOTO 1000
450 NEXT PASS:SOUND C3,C0,C0,C0:GOTO 4
00
500 FOR T=BASE+512 TO BASE+605:POKE T,
C0:NEXT T:SOUND C3,C0,C0,C0
510 R=INT(RND(C0)*C10+0.05):U=R*C8+C2:
IF R<C1 OR R>C8 THEN 510
```

```
520 FOR T=BASE+517+R*C8 TO BASE+524+R*
C8:POKE T,W(U):U=U+C1:NEXT T:RETURN
610 DATA 24,24,24,255,255,24,24,24
620 DATA 255,129,165,129,129,189,129,2
55
630 DATA 0,0,24,60,60,24,0,0
640 DATA 60,66,153,165,165,153,66,60
650 DATA 24,24,60,90,24,60,36,36
660 DATA 144,144,240,144,158,4,4,14
670 DATA 255,195,189,189,189,189,195,2
55
680 DATA 0,60,66,129,66,60,36,66
690 DATA 8,16,24,125,190,24,8,16
700 DATA 129,90,36,66,129,129,126,129
1000 SOUND C3,C0,C0,C0:SOUND C1,C0,C0,
C0
1010 SOUND C2,75,C8,C15:I=0.7
1020 V1=C15:V2=V1:V3=V1:TH=TH+1
1040 SOUND C0,20,C8,V1:SOUND C1,40,C8,
V2:SOUND C2,70,C8,V3
1045 IF V3=C15 THEN FOR Z=BASE+517+R*C
8 TO BASE+524+R*C8:POKE Z,C0:NEXT Z:PO
KE C,C0
1050 V1=V1*I:V2=V2*(I+0.05):V3=V3*(I+0
.08)
1070 IF V3>C1 THEN 1040
1080 SOUND C0,C0,C0,C0:SOUND C1,C0,C0,
C0:SOUND C2,C0,C0,C0
1090 POP :IF D<C6 THEN POKE 53248,35
1095 IF D>=C6 THEN POKE 53248,215
1100 GOTO 400
3000 POKE 764,255:POKE 53277,C0:GRAPHI
CS C0:POKE 77,C1
3010 ? :? :? "YOUR SCORE:":? :? "NUMBE
R OF TARGETS = ";TC:? :? "NUMBER OF HI
TS = ";TH
3020 ? :? :? "ANOTHER GAME? (Y/N) ";:I
NPUT A$
3040 IF A$="Y" THEN RUN
3050 IF A$<>"N" THEN 3020
9999 END
```


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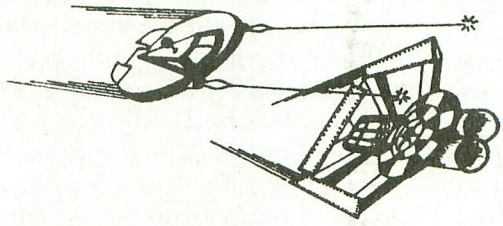

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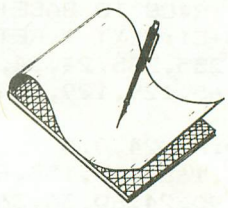


by Henrique Veludo

Requires 8K

After having seen some programs around that supposedly enabled you to sketch on the screen (in 4 colors!), I came to the conclusion that the only thing that happened was that a dot (a square actually) was moved about. And a square moved about does not a picture make. Graphics 7, although it has the advantage of displaying up to 4 colors in 8 luminances, does not have enough resolution for any detailed work (diagonals look like staircases...etc.). Actually it is possible to have 4 colors in hi-resolution: one just make the ATARI think that it is working in graphics 7 while really it is in graphics 8, by poking dec 87 with 7; but then only half of the screen is in 4 colors (the other half will be a normal graphics 8-1 color display).

First the program clears the screen and displays a list of commands: one can draw or erase in three different "pen" sizes, change the background and pen color and intensity, fill an entire area with color (this is a very powerful, versatile and time saving command, although it requires skill to master), clear the screen to start anew, save and load a picture to and from tape, list the commands and exit the program. Then the screen display list is redefined: full hi-resolution display with just one line of graphics 1 at the bottom for displaying messages.

Plug a joystick in controller jack 0 and run the program. The default settings are the Erase Mode and Medium pen. Move the joystick and press D. You are now Drawing. Press S-M-L to change pen size. Press C-I-B to change colors. To fill an area with color you must first understand how the Basic Fill command works. You draw a line from A to B; the Fill will draw a line horizontally from each point of the line you have drawn (starting at A, ending at B) to any non-zero pixel to the right (any colored dot); therefore you must make sure that there is something drawn to the right of A-B, or the Fill-drawn lines will wrap around (unless that is what you want...) Example: to draw a filled-in square: press D, start at lower right, draw to upper right, draw to upper left, press l, draw to lower left, press 2, press F. The sequence doesn't have to be in that order, only the F command has to be last.

Soon you will become a master draftsman and will want to save your masterpiece (or part of it): just press ctrl-S and the picture will be saved to tape. To save the whole screen, though, is a lengthy process. You can limit the screen size by changing the variables at line 2015: then just the portion of the screen you have been working on will be saved. Also if you have a disk drive, the open commands at lines 710 and 810 must be changed to an open disk file command. To retrieve a saved picture from tape (or disk) and display it on the screen press ctrl-L.

Subroutine breakdown:

100-185 Plot & Erase routine
300-480 Command routine
500 message display routine
600-900 List of commands page
700-750 Load routine
800-850 Save routine
900 Fill routine
1000 array data for the plotting routine
200-2060 initialization and redefinition of the display list

In conclusion:

It will take a while to become proficient with the joystick, but this program should help...Experiment! Hint: to move quickly about goto Erase mode and Small pen; to erase large areas, goto Erase mode and Large pen; use the Fill to cover large areas with color.

Finally, I would like to thank William Bailey and Al Baker for their idea of converting the positions of the joystick into an array: it simplifies and makes the program draw faster

```
10 REM *****ATARI SKETCH-PAD*****
20 REM Ver.3.0  May 1981
30 REM Copyright 1981 by
40 REM Henrique Veludo   NYC,NY
50 REM All rights reserved
90 GOSUB 2000
100 FOR LOOP=0 TO 0 STEP 0:IF PEEK(KEY
)<>255 THEN GOSUB COMD
120 Y=Y+YD(STICK(0)):Y=Y+(Y<YMIN)-(Y>Y
MAX):X=X+XD(STICK(0)):X=X+(X<XMIN)-(X>
XMAX)
160 IF PEN=1 THEN COLOR A:PLOT X,Y:COL
OR  NOT A:PLOT X,Y:NEXT LOOP
170 IF PEN=2 THEN COLOR A:PLOT X,Y:DRA
WTO X-1,Y:DRAWTO X-1,Y+1:DRAWTO X,Y+1:
COLOR  NOT A:PLOT X,Y:DRAWTO X-1,Y:DRA
WTO X-1,Y+1:DRAWTO X,Y+1:NEXT LOOP
180 IF PEN=3 THEN COLOR A:PLOT X,Y:DRA
WTO X-1,Y:DRAWTO X-1,Y+1:DRAWTO X+1,Y+
1:DRAWTO X+1,Y-1:DRAWTO X-2,Y-1:DRAWTO
 X-2,Y+2:DRAWTO X+1,Y+2
185 COLOR  NOT A:PLOT X,Y:DRAWTO X-1,Y
:DRAWTO X-1,Y+1:DRAWTO X+1,Y+1:DRAWTO
X+1,Y-1:DRAWTO X-2,Y-1:DRAWTO X-2,Y+2:
DRAWTO X+1,Y+2:NEXT LOOP
300 P=PEEK(KEY)
310 IF P=0 THEN PEN=3:A$(15,20)=" LARG
E"
```

```
320 IF P=37 THEN PEN=2:A$(15,20)="MEDI
UM"
330 IF P=62 THEN PEN=1:A$(15,20)=" SMA
LL"
340 IF P=42 THEN A=1:A$(1,10)="ERASE M
ODE"
350 IF P=58 THEN A=0:A$(1,10)="DRAW MO
DE "
360 IF P=18 THEN C=C+1:POKE 710,C*16+K
:POKE 712,C*16+K:IF C=15 THEN C=-1
370 IF P=13 THEN K=K+2:POKE 710,C*16+K
:POKE 712,C*16+K:IF K=14 THEN K=0
380 IF P=21 THEN B=B+2:POKE 709,C*16+B
:IF B=14 THEN B=-2
390 IF P=54 THEN GOSUB 2030
400 IF P=128 THEN GOSUB LOAD
410 IF P=190 THEN GOSUB SAVE
420 IF P=150 THEN POKE KEY,255:POKE 82
,2:END
430 IF P=57 THEN GOSUB HELP
440 IF P=56 THEN GOSUB FILL
460 IF P=31 THEN B$=A$:A$="START POINT
 FOR FILL":GOSUB WRITE:FOR I=1 TO 100:
POKE 53279,0:NEXT I:X1=X:Y1=Y:A$=B$
470 IF P=30 THEN B$=A$:A$=" END POINT
FOR FILL ":GOSUB WRITE:FOR I=1 TO 100:
POKE 53279,0:NEXT I:X2=X:Y2=Y:A$=B$
480 GOSUB WRITE:POKE KEY,255:RETURN
500 FOR I=1 TO LEN(A$):POKE CHRDIS+I-1
,ASC(A$(I,I))-32:NEXT I:RETURN
600 GRAPHICS 0:POKE 752,1:POKE 710,48:
POKE 712,48
610 ? "    SKETCH-PAD * LIST OF COMMANDS
":? :? :?
620 ? "  L - SETS PEN SIZE TO LARGE":?
 "  M - SETS PEN SIZE TO MEDIUM":? "
S - SETS PEN SIZE TO SMALL"
630 ? "  E - SETS PEN TO ERASE MODE":?
 "  D - SETS PEN TO DRAW MODE":? "  H
- HELP...LISTS THE COMMANDS"
640 ? "  1 - STARTING POINT FOR FILL":
? "  2 - ENDING POINT FOR FILL":? "  F
 - FILLS THE AREA WITH COLOR"
650 ? "  C - CHANGES BACKGROUND COLOR"
:? "  I - CHANGES BACKGROUND INTENSITY
"
660 ? "  B - CHANGES PEN BRIGHTNESS":?

670 ? " CLEAR< - CLEARS THE SCREEN":?
" CTRL-L - LOADS PICTURE FROM TAPE"
680 ? " CTRL-S - SAVES PICTURE TO TAPE
":? " CTRL-X - EXITS PROGRAM":? :? "
       PRESS KEY...":POKE KEY,255
685 IF PEEK(KEY)=255 THEN 685
690 GOSUB 2030:RETURN
700 B$=A$:TRAP 750:POKE KEY,12
710 A$="LOADING PICTURE.....":GOSUB WR
ITE:OPEN #1,4,0,"C:":POKE KEY,255
720 FOR I=XMIN-2 TO XMAX+1:FOR J=YMIN-
1 TO YMAX+2:GET #1,X:POSITION I,J:PUT
#6,X:NEXT J:NEXT I
730 A$="PICTURE LOADED.....":GOSUB WRI
TE:FOR I=1 TO 50:POKE 53279,0:NEXT I
740 IF PEEK(KEY)=255 THEN 740
750 CLOSE #1:TRAP 40000:A$=B$:GOSUB WR
ITE:X=XMIN:Y=YMIN:RETURN
800 B$=A$:TRAP 850:POKE KEY,12
810 A$="SAVING PICTURE.....":GOSUB WR
ITE:OPEN #1,8,0,"C:":POKE KEY,255
820 FOR I=XMIN-2 TO XMAX+1:FOR J=YMIN-
1 TO YMAX+2:LOCATE I,J,X:PUT #1,X:NEXT
 J:NEXT I
830 A$="PICTURE SAVED.....":GOSUB WR
ITE:FOR I=1 TO 50:POKE 53279,0:NEXT I
840 IF PEEK(KEY)=255 THEN 840
850 CLOSE #1:TRAP 40000:A$=B$:GOSUB WR
ITE:RETURN
900 PLOT X1,Y1:POSITION X2,Y2:COLOR 1:
POKE 765,1:XIO 18,#6,0,0,"S:":RETURN
1000 DATA 0,0,0,0,0,0,0,0,1,1,1,-1,1,0
,0,0,-1,1,-1,-1,-1,0,0,0,0,1,0,-1,0,0
2000 DIM XD(15),YD(15),A$(20),B$(20):B
$(20,20)=" "
2010 FOR I=1 TO 15:READ A:XD(I)=A:READ
 B:YD(I)=B:NEXT I
2015 XMAX=318:YMAX=188:XMIN=2:YMIN=1
2020 KEY=764:LET COMD=300:WRITE=500:HE
LP=600:LET LOAD=700:LET SAVE=800:FILL=
900:C=12:K=4:B=0:GOTO HELP:RETURN
2030 GRAPHICS 24:POKE 708,32:POKE 709,
C*16+B:POKE 710,C*16+K:POKE 712,C*16+K
2040 DISLST=PEEK(560)+PEEK(561)*256+4:
DISDAT=PEEK(DISLST)+PEEK(DISLST+1)*256
:CHRDIS=DISDAT+191*40:POKE DISLST+194,
6
2050 PEN=2:A=1:X=INT(XMAX/2):Y=INT(YMA
X/2)
2060 A$="ERASE MODE    MEDIUM":GOSUB W
RITE:RETURN
```

✪ CONTEST! ✪

ANALOG'S 1ST ANNUAL PROGRAMMING CONTEST!!

Our contest is simple. A.N.A.L.O.G. is looking for top quality programs for use in our magazine, and as you can see many of the programs and articles in our pages are submitted by our readers. Hopefully you'll agree that the programs in our pages are as good as if not better than many on the market. Our aim is to help support the Atari computers by making available top quality programs and tutorials for a reasonable price (the cost of a subscription). So in order to get more of our readers involved in our efforts, we have decided to add a bonus to the contributor fee. The author of the best or most informative program, tutorial or article we use through March 1982 will receive an Atari 810 Disk Drive, in addition to his or her royalty payment. You will be the judge. In issue #9, we will publish a questionnaire which hopefully will be filled out and returned to us, and will determine the winner.

So let's get going with that program you've always wanted to write for your Atari now that we have given you some incentive.

Deadline for submission is March 1st, 1982. □

SOFTWARE REVIEWS — TARGET BLOCKADE & BATTLE WARP

West Coast Software
4645 Sauk Ave.
San Diego, CA 92117
Target Blockade 8K Cassette
Battle Warp 16K Cassette

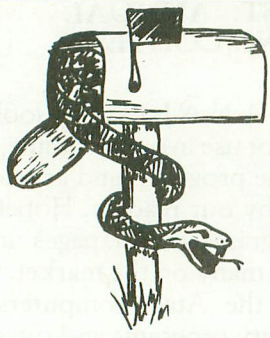
by Phil Baker

TARGET BLOCKADE is a two player game requiring joysticks. It is similiar to BLOCKED in the Jan/Feb issue of ANALOG with an interesting variation that changes the strategy. Each player directs his cursor over a playfield leaving a trail behind. The object is to avoid running into the outside walls or crossing your own or your opponent's trail (scores your opponent 15 points) while directing your cursor over randomly distributed targets in the playfield which score you 3 points each. The trails can be diagonal as well as horizontal and vertical. Since length of the path does not determine score as in BLOCKED the best strategy seems to be to capture territory containing as many targets as possible and then go back and run over as many as possible while ignoring your opponent. Directions were lacking in how to get a replay; hitting Y after completion of a game generated a new game, however.

Rating:
Entertainment: Good
Addictive Level: Low
Graphics: Fair
Overall Rating (5 highest): 2

BATTLE WARP is also a two player game. It uses high resolution graphics but the objects (players) are so small that it can be fatiguing. Each person controls his own player (either a lunar lander or saucer) over the playfield using a joystick. Each can fire a torpedo, but only one per player is allowed at a time. The object is to hit your opponent 9 times. No aiming is needed as these torpedos automatically alter direction and follow your fleeing opponent, unless they should happen to encounter one of the other three types of fixed objects randomly scattered across the field. (The number of these objects is user selectable.) The first are spacewarps into which a torpedo or player may enter, emerging at another spacewarp. The second and third are blackholes and novas which act as obstacles. I experienced occasional problems with this program including a sudden loss of the playfield and the inability to generate the next game. On another occasion the game continued indefinitely without a winner. Instructions were complete but full of misspellings.

Rating:
Entertainment: Good
Addictive Level: Low-Medium
Graphics: Fair
Overall Rating: 2½



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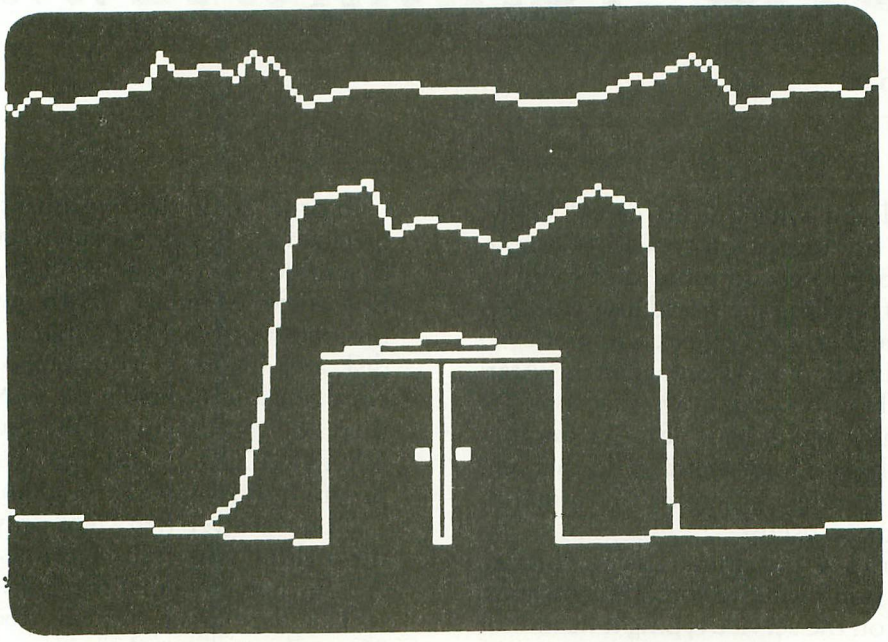

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UPLOAD TERMINAL.....

by Robert Hartman

Requires 8K

Upload terminal? So what? Who cares? Okay, listen to this. You are logged on to CIS (Compuserve Information Services) and some idiot (with an Apple [of course]) is telling the world how wonderful his machine is, and how no other computer even comes close. You laugh. You know what the Atari computers can do. How do you show others on CIS? Well, you can't really, but at least you can smother his words with garbage. Don't want to do that, eh? Okay, we can try putting this upload terminal to something a little more useful.

We want to write a program (Basic, Fortran, Macro etc.) but we don't want to spend an arm and a leg's worth of time on the service typing it in and/or writing the program. So, how about if we create the file down here (on the Atari) and then send it up to a file on CIS.

First, without logging on, create the file on the Atari by either using the DOS option C (Copy file from E: [editor] to filespec [your file] or by using the program in listing 1 which opens and writes strings into a sequential file. If you are using the DOS option, after you are finished press BREAK. If you are using the program, type RETURN.

After logging on with the program in listing 2, get into MNET (Micronet) and create your file by FILGING it. For example, say we want to send our Basic LISTED source program (which we have in a file on drive 1 called TESTER.BAS) to a MNET file called 'FILGE XAMTER.XBA', and MNET will come back with something like 'new file XAMTER.XBA created — ready'. Now we press START on the Atari console and type in the file to be uploaded or in this case TESTER.BAS (RETURN), and then the drive number — 1 (RETURN). The file will then be transferred. If all is well, and no errors occurred, you must type (RETURN) to get back into the terminal, and /EX which will close the file (see the MNET manual for details).

Believe it or not though, there are more useful things to do with this program than play MNET Basic files. Assume that I've just written an Atari Basic program that I must get to a friend (or editor) in Boston, and I really don't want to spend $4-8 sending it to him over the phone with the possibility of SOMEONE screwing something up (guess who, Lee).* Using the procedure above I can send untokenized (listed Basic source) to a MNET file, and then he, (the Bostonite), can download it.

In order to do this, we must first (without logging on) load the Basic program to be sent and list it back to another file (if confusion arises consult the Basic Reference Manual). Then we send our listed program up to a MNET file. Copy the file into his disk area, or lower your protection level so he can copy the file (consult the MNET manual). From there, he can download the file by TYPing it (TYP XXXXXX.XXX) and by using the download program in issue #2. Could anything be easier?

Don't answer that. Not only do you have to go through all this, but one must worry about non-ASCII characters that the Atari Computers produce which the larger system doesn't "understand". These characters include control and inverse control characters and characters such as clear, insert, et. What can you do about them? It is possible to reroute the LISTER program (elsewhere) so that the program is listed into another file without control characters, and to then upload that file. If problems arise, feel free to Email me, #70475,506 ('Good guy'), but please, don't curse heavily.

NOTE: You must have either DOS 2, 2.7, 2.8, 2.S, or 2.0S — and — the RS232-C Handler (AUTORUN.SYS) to run both the download and upload programs. If in doubt, run the programs. They will tell you. □

**Yeah, who Robert?*

```
10 REM ***************************
20 REM * Analog Upload Terminal  *
30 REM *   Copyright 1981 by     *
40 REM *    Robert Hartman       *
50 REM ***************************
60 GRAPHICS 0:DIM DISK$(15),TEM$(15):C
ON=53279:LSCH=764:DISK$="D :":IF PEEK(
208) THEN 90
70 GOSUB 340:POSITION 8,2:? "Analog Up
load Terminal":FOR I=8 TO 29:POSITION
I,1:? "└"
80 POSITION I,3:? "┘":NEXT I:POSITION
2,6:POSITION 2,6:? "Terminal Ready."
90 TRAP 220:OPEN #1,4,0,"K:":OPEN #2,1
3,0,"R:":XIO 40,#2,0,0,"R:":TRAP 40000
100 STATUS #2,D:IF PEEK(747) THEN X=US
R(1536)
110 A=PEEK(LSCH):IF A<>255 THEN IF A<>
39 THEN X=USR(1600):REM MASK INVERSE
120 IF PEEK(CON)<>6 THEN 100
130 TRAP 100:? :? "Enter name of file
to upload ";:INPUT TEM$
140 IF TEM$(1,1)="D" THEN IF (TEM$(2,2
)=":" OR TEM$(3,3)=":") THEN 160
```

```
150 DISK$(LEN(DISK$)+1)=TEM$
160 TRAP 220:CLOSE #1:CLOSE #2:OPEN #1
,4,0,DISK$:OPEN #2,8,0,"R:"
170 TRAP 180:GET #1,A:PUT #2,A:? CHR$(
A);:GOTO 170
180 A=PEEK(195):IF A<>136 THEN 220:REM
 anything but End of File is abnormal
190 ? :? "Press return to return to te
rminal":POKE LSCH,255
200 IF PEEK(LSCH)=255 THEN 200
210 POKE LSCH,255:RUN
220 CLOSE #1:CLOSE #2:ER=PEEK(195):POS
ITION 2,PEEK(84):? "↑↑↑ ERROR ";ER;"->
 unknown ←←←←←←← ";
230 IF ER=130 THEN ? "Interface not bo
oted":CLR :END
240 IF ER=144 THEN ? "Device Done Erro
r"
250 IF ER=164 THEN ? "Links on disk ar
e not reading":? "correctly"
260 IF ER=170 THEN ? "Incorrect file n
ame":GOTO 280
270 GOTO 190
280 ? :? "Would you like a disk menu ?
";:INPUT TEM$:IF TEM$(1,1)<>"Y" AND TE
M$(1,1)<>"y" THEN RUN
290 TRAP 280:? "Enter drive number ";:
INPUT A:IF A<1 OR A>4 THEN 290
300 DISK$="D :*.*":DISK$(2,2)=STR$(A):
OPEN #1,6,0,DISK$
310 TRAP 320:INPUT #1,TEM$:? TEM$:GOTO
 310
320 IF TEM$(10,11)<>"SE" THEN ? "↑→→→
FREE SECTORS"
330 GOTO 190
340 REM Machine language subroutines
350 REM TYPE IN CAREFULLY !
360 REM ---- -- --------- -
370 POSITION 8,2:? "Please wait";
380 FOR I=1536 TO 1704:READ A
390 POKE I,A:IF (A>225 AND A<253) THEN
 ? ".";
400 NEXT I:POKE 208,1:RETURN
410 DATA 162,32,169,7,157,66,3,169,0,1
57,72,3,157,73,3,32,86,228
420 DATA 201,32,48,20,168,162,0,169,11
,157,66,3,169,0,157,72,3,157
430 DATA 73,3,152,32,86,228,104,96,155
,253,74,111,115,32,105,115,32,66,69,84
,84,69,82
440 DATA 32,33,33,33,155,173,252,2,201
,253,208,32,162
450 DATA 0,169,11,141,66,3,169,44,141,
68,3,169,6,141,69,3,169,20
460 DATA 141,72,3,169,0,141,73,3,32,86
,228,16,195,169,0,141,182,2
470 DATA 162,16,169,7,157,66,3,169,0,1
57,72,3,157,73,3,32,86,228
480 DATA 201,126,208,17,162,0,169,11,1
57,72,3,157,73,3,169,126,32,86
490 DATA 228,169,127,168,162,32,169,11
,157,66,3,169,0,157,72,3,157,73
500 DATA 3,152,32,86,228,104,96
```


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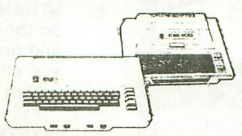

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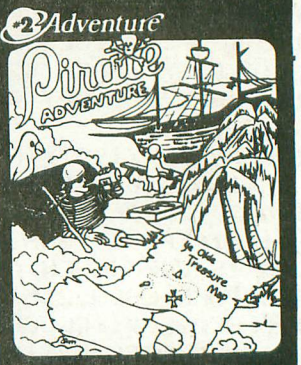

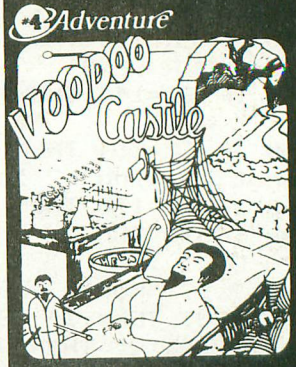

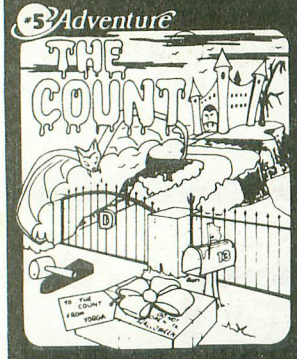

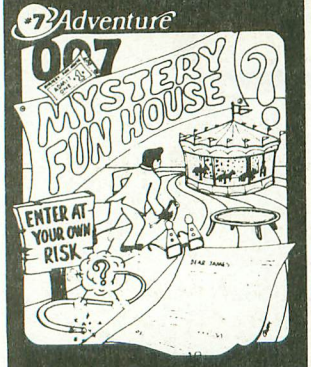

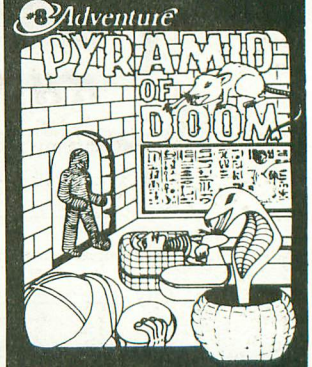

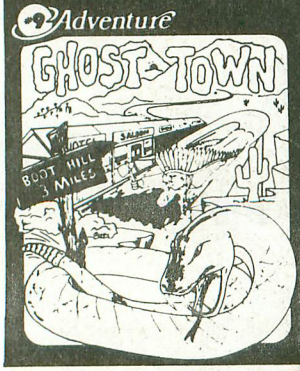

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32K BOARDS...

by Michael Des Chenes & Lee Pappas

Why buy a 32K board? Well for starters, if you have only 8K or 16K system, the installment of just one 32K board will bring your system up to 40K or 48K. In a 400, you will need to purchase a board made just for that application (or do a little modification), as most of the 32K's need a 16K board to run along with it. In the case of Mosaic's 32K, you can buy a "companion board" for $5.00 to allow you to run the 32K board independent of any others (you could sell your 8K or 16K board and just use the 32K board).

There are four 32K's available at this time. The Axlon, Microtek, Mosaic, and recently introduced, the Intec 32K. Intec has also announced a 48K board for 400's which we will report on next issue.

The advantages of any one of these boards is fairly obvious. All use gold plated edge connectors to help eliminate the problems of oxidation causing system lock-up. You also have less heat build-up for a cooler running system, plus the free slot in the back of the buss plane left for future expansion of some sort (i.e., Axlon's card cage expander). And of course, in the case of a 400, the use of one of these boards is the only way to expand beyond 16K. Until ATARI's price reduction of the 16K boards, the price alone was reason enough to purchase a 32K board. The only major disadvantage may be that using one of these aftermarket boards may void your warranty.

Here are a few factors you should take into consideration if buying a 32K board:

- Check the warranty. Mosaic offers a one year warranty while Axlon and Microtek have 90 day.
- Axlon is the only board that is supplied with an enclosure. The others are 'bare boards'. Personally, we feel a case is unnecessary, as heat is released more freely. The boards are usually not handled enough to worry about a case. The only major advantage to a case is the prevention of the user putting the board in backwards (which doesn't do too many nice things to the computer!).
- Mosaic advertises that you can't ruin the computer if you accidentally put their board in a wrong slot. Whether this is true with the other boards or not I haven't attempted to try.

We have used all these boards and must admit they all operate as advertised. The quality of components vary in all the boards, with the more expensive Mosaic using, what we feel are the highest quality components, which may improve reliability.

One last comment. We have noticed on the Microtek, Axlon, and Intec boards fine vertical lines on the left hand portion of the screen. These can be very annoying with some color combinations. The interference occurred on 5 different Axlon and Microtek boards. The Mosaic showed no sign of interference and gave the best screen clarity.

At some point in the future we will update this information. If any readers are using these boards and care to comment on them, let us know. □

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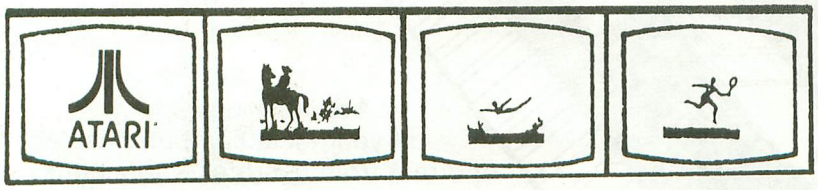

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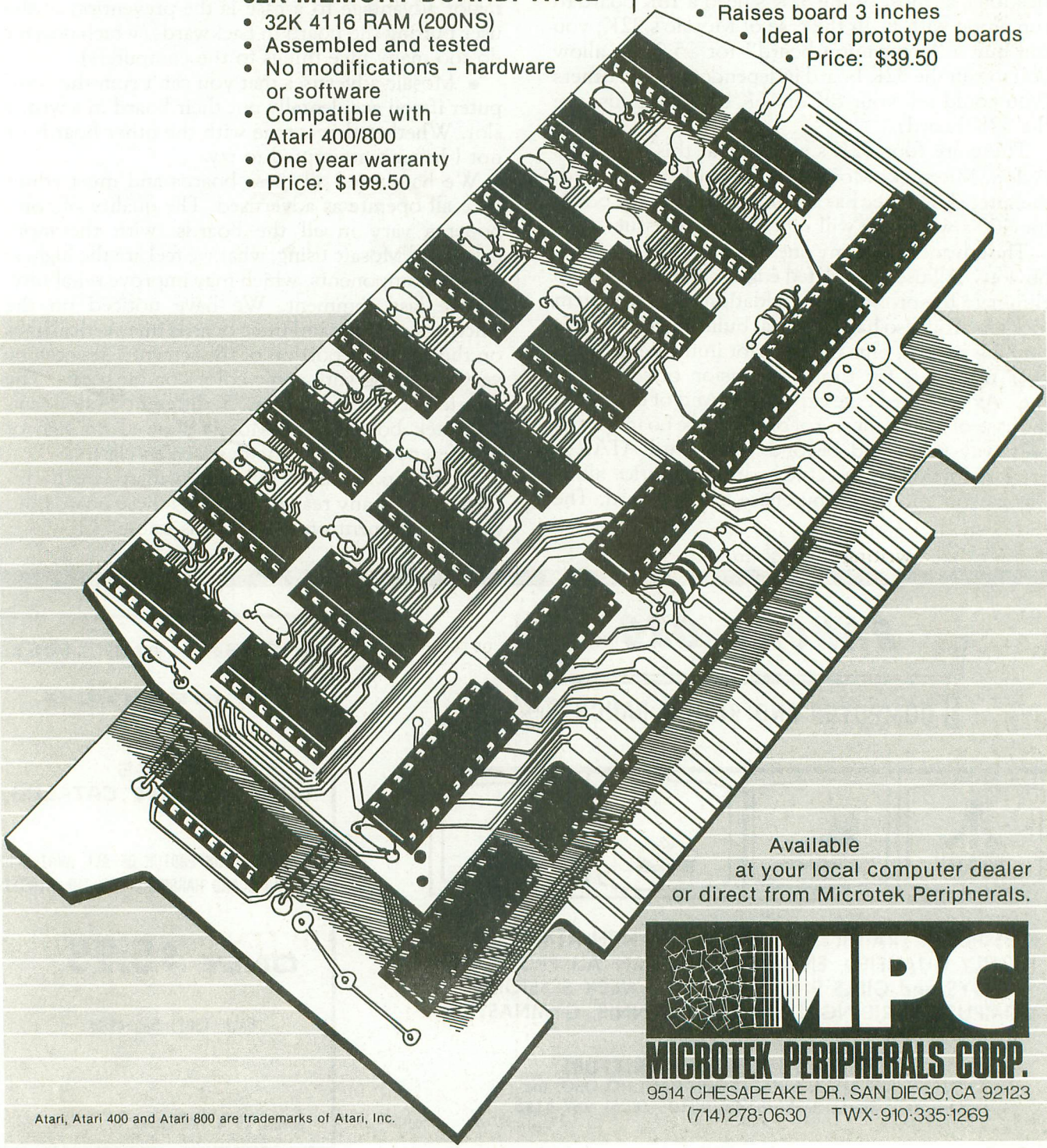

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BUGS & BYTES...

As you may have noticed, Bugs & Bytes seems to be getting smaller with each issue. We depend on our readers to help supply us with information that they have come across concerning problems and or remedys on the Atari computers. Is it possible that there are so few problems that we will have to finally cancel this column? I hope so.

There are a few bugs in the Atari Basic that you may never encounter, and according to a reliable source, they will be remedied in future Atari Basic ROMs. If you are aware of these bugs then you should be able to avoid problems. They are as follows:

(1) LOG(O), LOG(1), CLOG(0), CLOG(1), and most exponents have wrong values.
(2) LPRINT loops cannot be stopped using the BREAK key.
(3)PRINT A=NOT B will cause a keyboard lockup.
(4) A PRINTed CTRL R or CTRL U is treated as a semicolon.
(5) A DIM L(10) generates a DIM L(10).
(6) An input statement with no variable is not flagged as an error.

As you may notice, the above bugs are not very serious and may never be encountered. It's difficult trying to find faults witht the Atari system which doesn't make writing this column an easy task. □

WHOOPS .....

In our last issue we included an update to **Maze Rider** in our Bugs & Bytes column. However, I left out an important poke that should be inserted in line no. 1050, it should read:
1050 GOSUB 10000 : GOSUB 600: **POKE 54286,64:** POKE 77,0

Also in the last issue, **Balance Your Checkbook** had one small item that was omitted but did not affect the programs operation. Lineno 9000 should read as follows:
9000 FOR I=1 TO 18 PRINT "—";:NEXT I:PRINT :RETURN

The addition of the "—" makes the printout much neater. □

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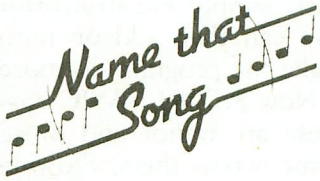
By Jerry White



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By James Albanese

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PROGRAM IN STYLE.....

By Lee Pappas

Unfortunately too may people think just sitting down in front of their computer and 'programming' away qualifies them as just that, programmers. Programming in BASIC is the equivalent to writing a book or short story, and the only sure way to become proficient is to practice. If you are new to computers the best way to get accustomed to them is to type away — start with doing small programming work then progressing to more lengthy ones. After all, you are virtually learning a new language; a new vocabulary.

Before undertaking your new venture, decide on what it is you want the program to do. Obviously you can create and change as you go along, however some goal should be set. If you are a beginner, you may want to set your sights on a simplified program, maybe not quite as advanced as you may want it to turn out in the long run. One reason for this is debugging. As you progress into the program, debugging is a bit simpler if the program is kept fairly simple and straightforeward. As you debug it you can then add on more advenced routines to make the program do more tricky things.

Now ATARI BASIC has a few bugs, but most of these are minor and most programmers will not come across them. Slowness has to be the biggest fault of BASIC, not just ATARI's, but nearly every BASIC is too slow to do more advanced techniques or very fast 'visible' processing. However BASIC is much easier to use over most other languages such as assembly. The beginner programmer will get a handle of BASIC much faster then he/she will over most other computer languages.

HOW TO MAKE BASIC SEEM LIKE SUPER-BASIC

You have to face the fact that BASIC is 'slow, however many programmers have to blame themselves as part of the problem. Poor programming can lead to significantly slowing down what could be a semi-fast running program.

1. Putting subroutines called up frequently and FOR/NEXT loops at a program's beginning will help speed things up. BASIC starts at a program's beginning to search for a line number; thus if the computer must continually go to the end of a long program to reach a subroutine, this will slow things down.

2. Put loops on one line if possible. You save several bytes by not having the computer go to one or two other following lines.

3. Shorten a program's length as much as possible. Compacting a BASIC program means it uses less RAM, so the system isn't burdoned down with so much information. This can be done in several ways:

- Getting rid of REM statements; even though the program ignores them, the computer has to sort through all of them.

- If a constant is used more than twice, replace it with a variable.

C1=1: C2=C1+C1: C3=C2+C1 is more efficient then **C1=1: C2=2: C3=3.** Here 6 bytes can be saved every time this is done. In a long program this adds up!

- Every time a new variable is introduced 8 more bytes in the variable table is used up plus whatever the length of the varable name is.

- Whenever possible use multiple line statements:
  PRINT : FOR I=1 TO C7 : NEXT I

This can save 3 bytes every time you avoid having to add another line number plus it speeds up the program somewhat.

- If the same text is used over and over again, replace it with a string.
  A$="what do you want to do now"

- In GOSUB and GOTO routines, calling a line number as a variable speeds thing up and can save quite a bit of RAM (but only if that line is called up frequently). ie. instead of GOTO 10 you can say GOTO Z10 if you previously set Z10=10.

- In the process of writing a program, you may have deleted some previously used variables, however they may still be in the variable stack even though they are no longer in the program itself. LISTing the program to disk or cassette, typing NEW, and then ENTERing the program will get rid of the unused variables.

- Using POKE instead of the SETCOLOR statement saves 8 bytes each time you it.

4. Disable the screen with POKE 559,0 (see "Unleash The Power of ATARI's CPU" last issue).

5. Using assembly USR calls when feasible will speed up the program considerably. In fact it may seem as though a program is all in assembly; as in ANALOG SOFTWARE's "Shooting Gallery".

6. When using the DIM statement, keep the value to only that which the program requires. If you need

only 400 bytes, don't dimensionalize it to DIM (1000).

7. Of course avoid silly mistakes:

30 PRINT : GOTO 40

40 PRINT "HELLO" : GOTO 80

(don't have a GOTO go to the next line).

8. Put instructions or routines used at the introduction of a program at the programs end-this speeds things up a bit.

9. Humanize the program. Try to allow for any typing mistake the user may input. If your program requires the use of a numerical input on the users part, and he or she hits a letter, you don't what the program to 'bomb out'. This "humanizing" can be the most time consuming and tedious part of programming, but human interfacing is what it's all about. □

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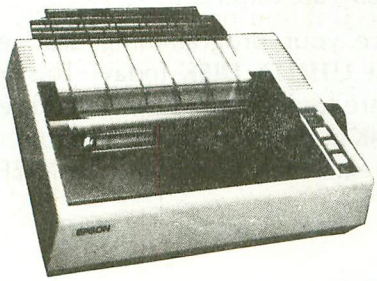

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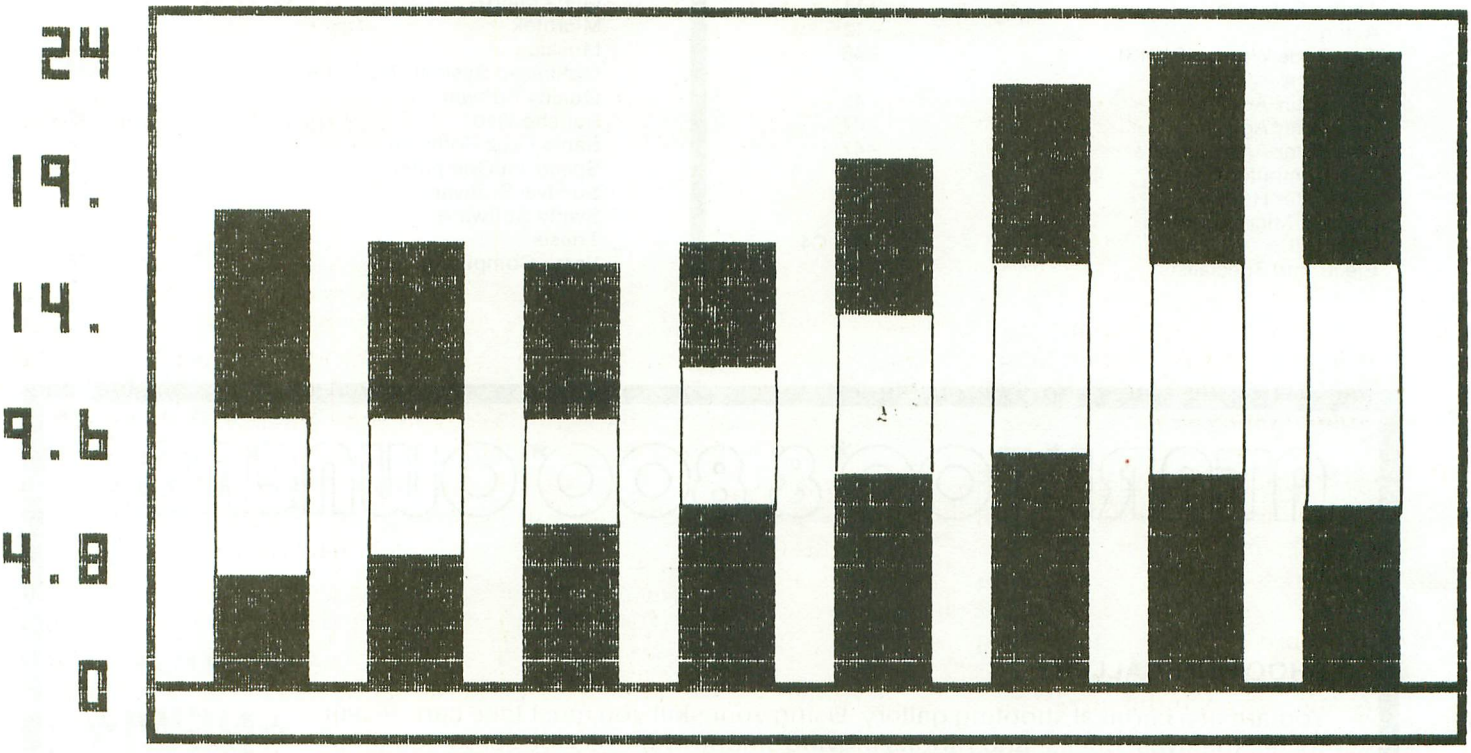

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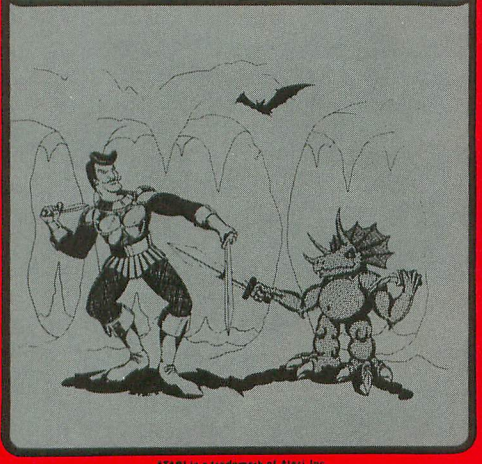

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