NUMBER 4

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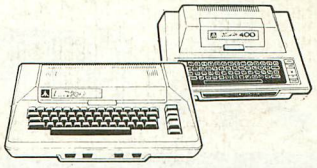
A.N.A.L.O.G. 400/800 MAGAZINE™

THE MAGAZINE FOR ATARI® COMPUTER OWNERS



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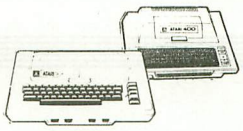

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EDITORIAL

by Mike Des Chenes

I'm glad to see that a few of our subscribers are taking the time to send us some nice articles and programs. They are always welcome. It takes a lot of the workload off of Lee, Charlie, and myself. What between the layouts, typesetting, advertising, artwork, billing, updating our mailings, and correspondence, we spend many a long night reviewing software and writing articles. So please, even if you feel that your program or bit of information may not be spectacular, send it to us anyway. Who knows, maybe you'll be helping someone out there who's having a problem with a particular program. You'll even get a check if we decide to publish your submission. Most publications don't print how much they pay for reader contributed articles and programs, but I'll let the cat out of the bag in our case. A.N.A.L.O.G. pays $30.00 per printed page for text articles, and anywhere from $50.00 and up for feature programs depending on the length and complexity.

You won't see A.N.A.L.O.G. expanding its pages to cover other systems or adding more advertisers without adding more pages to offset the difference. As you may already have noticed, we have enlarged our publication two times and this is only our fourth issue! I'll admit that we've been late with every issue so far, but the contents of our (your) magazine are more important to us than the time of mailing. Who knows, maybe we'll surprise you and have an issue come out a month after another. Remember, A.N.A.L.O.G. is somewhere between a users' newsletter and your usual computer magazine. As I mentioned in my last editorial, we are not a literary magazine. A personal level with response, feedback and participation from our readers is what we are aiming for.

It would be a lot easier to publish a computer magazine that covers a wide range of systems, but we want to cover what we feel is the best system. We were afraid that this would greatly limit the amoutnt of information that could be published. However, it seems that we are only beginning to scratch the surface of what the Atari is capable of. It seems that not a day goes by without one of our readers calling us with a new discovery. So please, put it down in writing and send us the information so that we can share it with our fellow Atarites. I realize that most of you are new to the computer world and look towards us for help, but there are a lot of talented people out there who can give the beginners a hand. And let's not forget the contest that we have for the best article, program or tutorial.

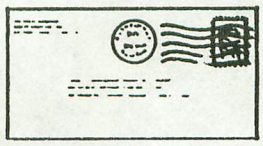
OK, now that you're ready to send us that program, or share a little of your talent with us, I'll explain how easy it is to submit it to us. If possible, send a program on disk, if not a cassette will be fine. If you're using a cassette CSAVE one side and LIST"C the other. If you want your program returend to you, include a self addressed stamped envelope with sufficient postage. All articles should be typed in upper and lower case with double spacing. If you're good at printing and can't get a hold of a typewriter then that's OK. Include your phone number in case we have some questions concerning the submission. Anyone submitting a program whould also include an introduction and/or explanation of what's being done. If you would like we will send you a non-disclosure statement before you submit your program. Don't worry, if we decide not to use your program no one else will see it. We have spent a great deal of time trying to track down the big Atari pirates. Also, don't be disapointed if we accept your submission but don't use it in the next issue. If we're lucky we may have that issue already completed.

See how simple it is. Of the forty thousand plus Ataris out there, we should have a good thing going in our future issues. We are depending on you. Who knows, maybe I'll have time to watch the late movie some night.

MORE ON PIRATING

I wanted to get on the subject of pirating again but I got carried away. You will be reading more on this subject in our next issue. However, I would just like to mention that A.N.A.L.O.G. is doing its part in trying to prevent this widespread hobby. It seems that the pirating of Atari software is surpassing every other system. As far as we can tell, much of this is coming from the New York, Long Island area. And with companies selling programs that are made only for copying, it is going to be a long and hard battle. There are even dealers who specialize in selling pirated software. When we track down these pirates and get proof of their dealings, A.N.A.L.O.G. *will* publish the information along with the name of the persons or company. I know of many exciting programs that are sitting on shelves, delayed for release, because of the amount of pirating in the Atari circle. Please let us know if you have any dealings with these people who offer or sell pirated software, and maybe we'll see more software being released. □

READER COMMENT...



Dear Sirs:

Your magazine is the best thing to come along since my Atari. Your helpful hints have helped me a great deal. I have no complaints about the newsletter at all but, I must comment on your recent review of the program sold by Adventure International.

Before reading the magazine I bought the program "Deflection." I was so glad that Adventure came out with a program for only 8K of memory I bought the program before trying it out. Once I got it home, loaded it in and 'ran' it I was very disappointed. I found it utterly terrible and very boring. I tried getting used to it but it was useless. I put the program away and I haven't used it since.

Then seeing your article on it, I became very disappointed. I thought that your magazine would have high quality standards. So that only the best of programs for my Atari would be praised and the others were to be thrown into the garbage.

Besides that, keep up the good work!!!

Sincerely,
Eric Bass
Spring Valley, NY

Dear Sirs,

I am writing this letter to congratulate you on the fine work you have done in putting together this magazine.

The articles are informative and very well written. The touch of humor you add to some articles helps keep them interesting.

I feel I have done a little injustice to some of the answers I gave on your questionnaire about your magazine. Why is this, I was getting ready for a trip to London when I received your magazine. When I looked through it and saw that the questionnaire had a deadline, I skimmed through the magazine to be able to answer your questions before I left. Now I have just finished reading it completely (35,000 feet over the Atlantic Ocean) and finding myself waiting for the next issue so please add these comments to my questionnaire.

The detailed descriptions of programs that you have tested and programs to be released along with a review of software vendors is worth its weight in gold. Atari can do what the basic book and reference manual do not bring out is well welcome.

You can tell a good magazine when it not only tells you the good things about the system but some of its problems and how to overcome them or get it repaired, (bugs & bytes) no system is perfect.

Again congratulations on a very fine magazine. Please continue with the format you have started.

A very pleased subscriber,
Philip Diedeman
Phoenix, Maryland

Dear Editor:

I have belatedly learned something about repair services for Atari products and thought that your other readers might be interested. I returned my Atari 800 to Control Data because I was having intermittent difficulty getting anything on my TV screen, or I would lose everything after the computer was running for awhile. I tried cleaning the contacts on the ROM and RAM but this didn't help. Control Data then informed me that I needed a new motherboard (I assume this means the 6502 microprocessor) and a new keyboard because the motherboard had been updated (since last December!) and wasn't compatible with my keyboard! The computer is only 5½ months old, and I am already having to pay in excess of $100 for repairs (almost 15% of my original purchase price). In annoyance, I called the Atari customer service people in Sunnyvale, and they told me that once the computer was out of warranty, Control Data was free to fix and charge as they saw fit. Then the Atari people told me that they have their own repair service. I did not know of this service and as far as I can tell it is not mentioned in any of Atari's literature. Their service charges a set fee for the piece being repaired. For an Atari 800 the fee is about $60 whether the contacts needed lubrication or they had to rebuild the entire computer. For the disk drive it is another set price and so on. They are opening up services around the country (there is a place now in Somerset, NJ) and have authorized some dealers to make repairs, all at the set prices. So, if you are out of warranty and can let your computer go for a few weeks, you are much better off sending Atari the computer if the problem is major.

Sincerely,
William D. Evers
Palmyra, PA

Dear Editors:

I'd appreciate it if you would inform your readers of a bug in the **Disk** Save/Load Game routines of Star Trek 3.5.

The error is in the routine which inputs the file name to save/load form. The error causes the filename to be altered before the I/O is performed, which can

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Rescue at Rigel *(Automated Simulations) 32K* Ten people from the Orion colony at Ultima Thule (including your favorite female) have been captured. Your mother ship must leave in 60 minutes. As "Sudden" Smith, you must find and release them, but it won't be easy in the maze of corridors, rooms and levels. Oh, by the way, the place is crawling with bad guys. Cassette $29.95

Sands of Mars *(Crystal) 40K* This is the one gamesters are all talking about. A two diskette game, with diskette one putting you in command of the "Starship Herman". You must stock her, select her crew, command the launch and negotiate your way through the hazards of the Universe. Diskette two holds your adventures on the Sands of Mars. The game is saveable. Two Diskettes $39.95

Star Trek 3.5 *(Adventure International) 24K* Lots of color, lots of action as you hyperwarp through the quadrants in your search for Klingons. This program will satisfy the "trekkie" in us all. Cassette $14.95

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Mission Impossible *(Adventure International) 24K* Another adventure from the great Scott Adams. Beginning "Good morning, your mission is...", your task is to save a nuclear reactor from destruction. No magic help in this one. Addiction is possible. Cassette $14.95

Bridge 2.0 *(Dynacomp) 24K* Now you can practice your bridge at home before you have to embarrass yourself at the neighbors. Bridge 2.0 bids (Goren) and plays both contract and duplicate bridge. It even doubles if you get carried away with your bidding. No graphics, but clearly arranged format makes playing easy. Cassette $17.95

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cause some strange results (such as replacing a program on the disk with the game data file).

The fix is very simple:

Change the third statement of line #1335 from B$(LN+C5) =".TRK" to B$(LN+C4) =".TRK". The corrected line # 1335 is:

```
1335 B$="D1:":B$(C4)=
F$:B$(LN+C4)=".TRK":
RETURN.
```

I would have caught this earlier, but I only had 32K of RAM when I wrote the program (and it requires 40K to work with DOS).

Sincerely,
David H. Simmons
607 South P.C.H.
Redondo Beach, CA 90277

Dear Editor:

After reading through your first and second issues, I didn't see any graphics information. Sooo, I decided it was up to me. A couple of weeks ago I was just experimenting with the Atari. I wrote a short program like this:

```
10 GRAPHICS 0
20 X=X+1
30 POKE X, 7
40 GOTO 20
```

On line 30, "7" was just a number I picked. Well, after a few errors, X equaled 87 and everything cleared from the screen (except "READY"). Next I started changing line 10. . . After that, the program looked like this:

```
10 GRAPHICS 8
20 POKE 87, 7
30 PLOT 0,0:DRAWTO
   319, 128
40 END
```

After running this program, there was an error 141 — cursor out of range. I looked it up in the Basic Reference Manual but 319 is OK in graphics mode 8 . . . Mmmmm. So I changed line 30 to "30 PLOT 0,0: DRAWTO 159, 95," ran it and ah ha, no error. After setting the background color to 0 so I could see the line better, the line was one solid color. Next I changed line 10 to "GRAPHICS 8: COLOR 2." The line turned red. Now color 3, white and color 4 turned it black (background).

I hope you will like this article enough to put it in your magazine. I am 13 years old and have been using our Atari for about eight months. I am especially interested in graphics and animation programming.

Thank you.
Rick Williams
Phoenix, AZ

Here is my article:

MULTI-COLOR GRAPHICS 8

By Rick Williams

Have you ever been annoyed by only having one color in graphics 8? Try this program and you can see how you can have four colors and not use any extra RAM. This statement makes multi-color graphics 8 possible:

```
10 GRAPHICS 8:POKE 87,
   7:COLOR 1
```

The "7" in "POKE 87, 7" means graphics 7 so the limits of the "PLOT" are: X, 159 and y, 95. Because of this the graphics are only displayed on the top half of the screen. Try this program and you will see what I mean:

```
10 GRAPHICS 8:POKE
   710,0:REM ** Setcolor
   background black **
20 POKE 87, 7:REM
   ** Make multi-color
   graphics possible **
30 SETCOLOR 1,0,14:
   REM ** Brightness
   level 14 **
40 FOR Y=0 TO 95:
   C=C+0.1
50 COLOR C: PLOT 0,Y:
   DRAWTO 159, Y
60 NEXT Y
70 END
```

To draw below this you must return to normal graphics by writing "POKE 87, 8." This will not remove the above image from the screen but there will be only two colors possible in the bottom half of the screen — black and white.

HAPPY COMPUTING!!!!!!!□

Dear Editors,

This is a program you may want to fill space in the newsletter. It's great if you have small kids to use in spelling drills. Add the spelling list to the DATA and go.

```
 5 DIM A$(10),B$(10),
   A(17,7):COUNT=O:
   GR.1
10 "T":FOR I=7 TO 17:
   A(I,7)=-1:NEXT I:
   POKE 708,0
15 RESTORE:POSITION
   12,15:?#6;"SCORE";
   " ";COUNT
100 J=INT(22*RND(0)+1):
   FOR I=1 TO J:READ
   A$:NEXT I
110 N=LEN(A$):FOR I=1
   TO N
120 B=INT(N*RND(0)+7):
   IF A(B,7)=1 THEN 120
130 POSITION B,7:?#6;
   A$(I,I):A(B,7)=1:
   NEXT I: POKE 708,40
140 INPUT B$:IF B$=A$
   THEN COUNT=
   COUNT+1:GOTO 10
145 COUNT=0:GOTO
   140
200 DATA BOY,GIRL,
   HAPPY,SING,PLAY,
   DOWN,RIVER,
   HOUSE,CHAIR,RUG,
   TABLE,CARS,CANDY
210 DATA PAPER,
   PENCIL,TAPE,SHIRT,
   PANTS,DRESS,
   SOCKS,PLATE,
   SPOON
```

The program has been dimensioned for words up to 10 letters long, for the older kids. Add the words and change line 100 to correspond.

Jerry Aamodt

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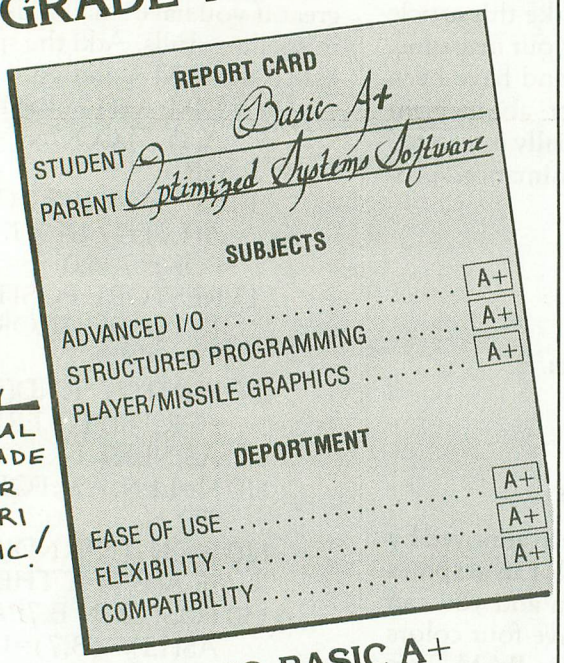

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FROM THE AUTHORS OF ATARI BASIC!

BASIC A+

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TRACE WHILE...ENDWHILE IF...ELSE...ENDIF
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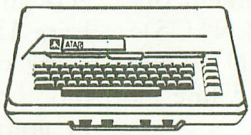

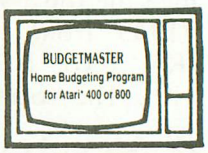

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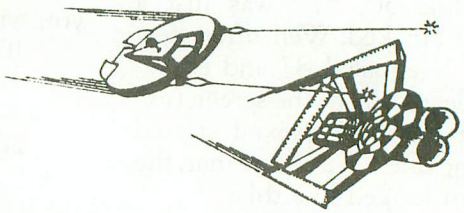

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ATARI NEWS.....

ATARI LIGHT PEN: I finally found one of the few light pens shipped. Here is the light pen story. Announced a year ago, the original release was cancelled because the software included wouldn't work on the 400's. When released next six months ago, the original release was cancelled because the software included wouldn't work on the 400's. When released next six months ago, only 200 went out before ATARI realized that quality control on the internal switch was poor with about ½(?) not working! Anyway, the latest discussion is that ATARI feels that for the price the pen should work better. This excuse is thus the reason that it may never be released.

What is wrong with the pen? I don't know. Mine seems to work fine. Using the example program enclosed you can draw, erase, or fill any pixels you want to create nice pictures that can be saved to tape or disk. Sure, the accuracy is not perfect so you sometimes don't get the exact pixel to light or erase, but the alternative to using the light pen is 100's of drawtos and plot statements. A few letters written to ATARI might help. Other uses besides drawing pictures are to pick out menu selections in various games and business programs, to pick out points where the programs is to draw or read something, and to generally replace the joystick and paddles in all their applications. I admit that sometimes the switch on my pen doesn't work either, but I'm sure these problems can be fixed.

The last problem with the pen that ATARI cites is that it is hard for it to read certain colors like light red. Also, certain parts of the screen can't be read well enough to be considered reliable. If your listening ATARI, here is my solution. Since you have so much time invested in the light pen program already, why not release the unit (with a better switch) and tell people about it's limitations before purchase. Now, sell it for a lower price. After all, $75 is too high for the minimal amount of parts involved (case, photodoide, switch, wire, and plug). We'll except it for what it does so well and quickly at say $49.95!

The ATARI Conversational ITALIAN(tm) tapes have been dropped from production. SPANISH has been available for some time now, and GERMAN & FRENCH are due to be released shortly.

Control Data Corporation will no longer be repairing ATARI computer systems starting in the next few months. Authorized ATARI dealers are now being set up to repair and service your equipment. For most owners, this should mean quicker service available at many more locations than before.

As you may know, the 400(tm) computer is now being shipped with no frills. For the $399.95 list price, you acquire only a 400 and operator's manual. Four 'packages' are available separately: The COMMUNICATOR(tm), The ENTERTAINER (tm), The PROGRAMMER(tm), and The EDUCATOR(tm).

The ATARI Program Exchange has been shipping their products for some time now. Some of the more interesting programs include: AVALANCHE (tm), EASTERN FRONT 1941, OUTLAW & HOWITZER, and several adventure type games. More on these in the next issue of A.N.A.L.O.G. □

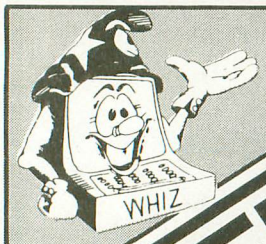
★ CONTEST! ★

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. □



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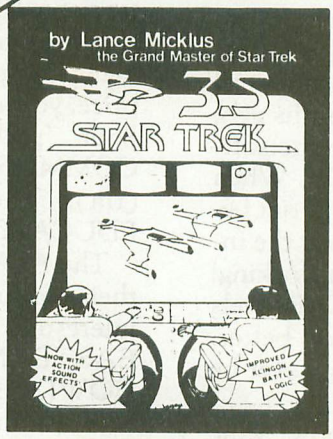
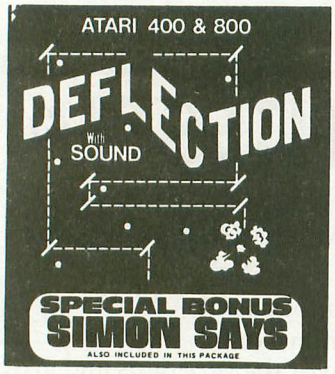
BY LANCE MICKLUS
The Grand Master of Star Trek



This improved Star Trek version includes • Action Sound Effects • 10% Faster Execution • Up To 30% Faster Execution for Long and Short Range Sensor Scans • Smoother Command Flow • Multiple Moves when using Impulse Engines During non-combat Situations • Reduction of some Unnecessary screen display • and Improved Klingon Battle Logic for Greater Challenge.
PLUS our standard features - • a three demensional galaxy made up of 192 quadrants • a galaxy made up of various types of stars, planets, black holes and a pulsar • a mission which includes exploration and combat • animated visual displays • extensive commands • load and save game.
ATARI 800 - 32K TAPE 051-0025 $19.95



A fast moving Arcade game with simple rules and many skill levels will keep you and all your kids occupied for hours and hours. Early reports indicate this program has addictive qualities. **Special Bonus** — Also included with this program is the memory game SIMON SAYS.

ATARI 400/800 8K
TAPE TO DISK 051-0078
$14.95

ANGLE WORMS - For 2 players (Requires two joysticks, if "NONE" is entered for second player's name then one may play). Each player attempts to prevent his growing worm from hitting an obstacle! Each worm may fire a projectile from its head to try and shorten its own length. Watch for the walls!

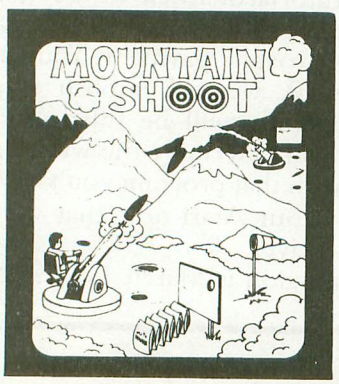
ATARI 400/800 8K
TAPE TO DISK 051-0092
$14.95

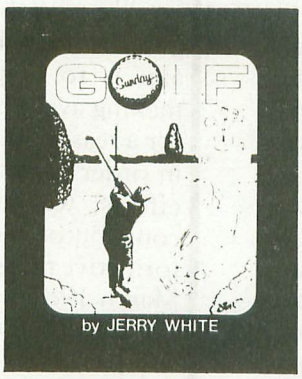
MOUNTAIN SHOOT

by Jeff Jesse

Pick your powder and pick your angle as you plug away over the mountain. Great sound and superb colors! Has special limited powder version too for greater challenge!

ATARI 400/800 16K
TAPE TO DISK 051-0079 $14.95





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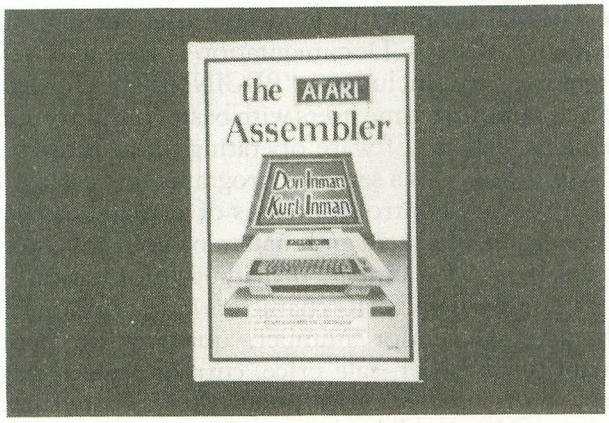
NEW PRODUCTS...

RESTON PUBLISHING COMPANY, INC.
A Prentice-Hall Company
11480 Sunset Hills Road
Reston, Virginia 22090

Reston Publishing Company is pleased to announce the publication of a new computer book, *The Atari Assembler*, by Don Inman and Kurt Inman.

Since the explosion in the use of personal microcomputers, more and more people are acquiring computers of their own. After conquering BASIC language, an assembler is the next step. *The Atari Assembler* gives you simple, detailed directions for using the Atari Assembler Cartridge with the Atari 400 or 800 Model Computer. Inman and Inman help you take what you already know about BASIC and apply it to learning Assembly language.



Slow paced for beginners, the instructions are explained in words and pictures too, in a breezy yet educational style. You'll see sketches of the video screen for each stage of entry and execution of demonstration programs, and you'll find each program described in easy-to-understand terms so you can immediately begin experimenting in this new language.

Topics in this information-packed book include Memory Use, Machine Language, Assembler Review, Program Design, and Addressing Modes.

Compassion for the beginner, easy instructions and numerous illustrations make this a perfect guidebook for an exciting new experience in personal computing!

ATARI I/O PACKAGE
Mosaic Electronics
P.O. Box 748
Oregon City, OR 97045
Order number H309, Price $18.00

The MOSAIC I/O Package can help give the ATARI computer direct ties to the real world. The four ports on the front of the ATARI computer connect directly to a PIA for use as output as well as input ports. Now ATARI owners can build custom program controllers, interface to home control circuits, or use any hardware the imagination can devise.

The I/O package comes with 4 - nine pin connectors, 4 - twelve inch lengths of nine conductor ribbon cable, and complete instructions for their use. The documentation includes examples of home-built program controllers, how to access the ports through BASIC commands, shadow registers, or directly, and how to set up and address the ports for output. □

SMART TERMINAL PROGRAM FOR THE ATARI
Microperipheral Corporation
P.O. Box 529
Mercer Island, WA 98040

Redmond, WA — The MicroPeripheral Coporation has just announced TSMART, the first smart terminal program written for the ATARI 800, with provision for autodialing other computers. The program is available on cassette with instructions for transferring to disk. TSMART permits the transfer of BASIC programs between a remote host computer and an ATARI cassette or disk storage device. The autodial feature works in conjunction with the AUTO-MICROCONNECTION, a direct connection modem ($199.50), manufactured by the MicroPeripheral Corporation.

The program permits off-line text preparation (messages, manuscripts, letters, etc.) with a text editing or word processing program for on-line transmission. A built-in feature permits creation and storage of text, then transmission by TSMART for those who do not have a text editor.

TSMART also permits transfer of source code assembler files. The recipient can create the object code using an editor/assembler program. A separate command is available for transferring object (hexadecimal) code files, such as ATARI Music Composer Files.

An AUTOBUF feature will open and close the memory storage buffer automatically when uploading or downloading. TSMART recognizes the automatic buffer open/close (X-on/X-off) codes transmitted by TSMART or other compatible programs. Downloading from FORUM 80 bulletin boards is also accomplished automatically. The buffer can be "toggled" on and off as many times as desired while data is being downloaded. Another feature is software selectable half or full duplex

operation.

The program will also automatically send messages to bulletin boards using the standardized block mode or 16 line prompt recognition message entry.

The program was written for the ATARI 800 by Dr. James W. Clark. It can be used with any RS-232 compatible modem, although the dialer feature cannot be used with obsolete acoustic modems. TSMART is supplied in a protective binder with extensive easy-to-use operating instructions and is priced at $79.95. For additional information on TSMART or the MICROCONNECTION, contact the MicroPeripheral Corporation. □

TWO PLAYER INVASION ORION, NEW FROM EPYX

Mountain View, CA — Automated Simulations, Inc. has added a new two-player option to its popular EPYX game, Invasion Orion.

Invasion Orion, a tactical space battle game, can now be played by either one or two players.

In Invasion Orion, each player controls up to nine spaceships armed with destructor beams, missiles and torpedos. Ships spend energy on movement, shields and firing weapons, and each player must decide how to allocate that energy to defeat his opponent.

Invasion Orion includes 10 scenarios that provide a variety of settings and objectives for both beginners and experts. When battling against the computer, the player can adjust the difficulty of the game by choosing from three skill levels. An expert player can make a challenging game against a novice human by allowing his opponent more powerful ships.

A second program, also included, lets the players create more scenarios of their own, and even design their own starships.

Invasion Orion comes in a four-color box with game program and 48-page battle manual. The game is available on cassette or disk for the Atari 400/800 (32K). The suggested retail price is $24.95.

Invasion Orion is available from Automated Simulations, Inc., P.O. Box 4247, Mountain View, Ca 94040. □

NEW PRODUCTS FROM DYNACOMP, INC.

DYNACOMP, Inc.
1427 Monroe Avenue
Rochester, New York 14618

DYNACOMP has introduced three new game packages for the Atari 400 and 800 computers. Each employs the joystick as well as extensive sound and graphics. ALPHA FIGHTER ($14.95 cassette / $18.95 diskette) requires you to destroy the alien starships passing through your sector of the galaxy. INTRUDER ALERT ($16.95 cassette / $20.95 diskette) places you in the middle of a "Dreadstar" with the goal of avoiding the droids while trying to find your ship to escape in. GIANT SLALOM ($14.95 cassette / $18.95 diskette) pits you against a downhill course consisting of both open and closed gates. All three packages permit choice as to level of play and all are addictive! Free catalog available upon request. □

MICROINV

COMPUMAX Associates
P.O. Box 1139
Palo Alto, CA 94302

The COMPUMAX **Inventory Control** package for small businesses, requires the ATARI 800 Personal Computer, two 810 disk drives, a 40 or 80 column printer, and 32K RAM.

MICROINV is oriented to the novice computer user and may be run successfully by those possessing only basic knowledge of bookkeeping practices and/or microcomputer operation.

The programs are menu-driven, providing conversational prompts to guide the user through the sequence of steps. Documentation is clear and well-organized, and includes a "BEGINNER'S GUIDE" to acquaint first-time users with basic computer concepts as well as software operating procedures.

MICROINV is a series of programs that carry out the inventory control functions of a small business. The master file sorts and maintains your inventory items by stock number, providing information on part number (up to 10 characters), description (30 characters), vendor number, quantity on hand, quantity on order, sale price, current cost, average cost, units used, reorder point, year-to-date usage, delivery date and lead time. The transaction file maintains data on sales, orders, and delivery activity on items contained in the master file. Posting updates the master file to reflect this activity. Quantity on order is automatically updated when items previously ordered are received. MICROINV computes cost of goods sold based on average cost. A job costing option is included.

Reports Generated: REORDER REPORT, listing all items below the required minimum; ABC REPORT, providing ABC sort and value for each class as well as for each item; STOCK STATUS REPORT, which gives the status and valuation of all inventory items; SINGLE ITEM REPORT, enabling the user to retrieve items whose part numbers begin with common characters; JOB COST REPORT; VENDOR REPORT, in which all items supplied by any vendor may be retrieved; and 'EDQ,' a program which calculates the Economic Order Quantity, or most economical quantity in which to order, for any specified item.

MICROINV handles, 400 inventory items
used with 50 transactions per batch
MICROLEDGER OR

300 inventory items
150 transactions/batch
Used stand-alone: 400 inventory items
100 transaction/batch

MICROINV is integrated with MICROLEDGER, the COMPUMAX General Ledger system, and with ORDER ENTRY*. As with all COMPUMAX programs, the source code is provided. PRICE: $140.00. Available from many retailers, or from COMPUMAX direct. □

NEW AXLON MEMORY SYSTEM FOR ATARI* 800* ANNOUNCED

Sunnvale, CA — Axlon Incorporated of Sunnyvale today announced the release of its 128K memory system for the Atari 800, making it one of the most powerful personal computers on the market today.

According to John Vurich, Axlon's president, the system, called the RAMDISK Memory System, comes with software that makes the new system function like a disk device. The system can also be programmed as bank selectable RAM memory.

The RAMDISK Memory System, when utilized as an additional disk device in conjuction with an Atari 810* Disk Drive, is compatible with existing software written for the Atari 800 system. Function for function, the RAMDISK system is up to 20 times faster than the Atari 810.

The RAMDISK Memory System can also be utilized as bank selectable RAM memory. The system is orgainized into eight (8) 16K pages which can be selected under program control. Larger and more complex programming applications are now feasible utilizing bank selection.

The RAMDISK Memory System is the first memory product for the personal computer market using 64K RAM chips. Until now a product such as RAMDISK was not feasible because of the high cost of the new 64K RAM chips.

The RAMDISK module is installed in the second RAM slot in the Atari 800 with 16K modules in the first and third RAM slots providing 160K bytes of RAM memory. Installation is accomplished in a matter of minutes and requires no modifications to the Atari 800 computer.

The RAMDISK Memory System includes the 128K RAMDISK module, operating manual, DOS Memory Management Software and utility software. The RAMDISK Memory System is available at Atari dealerships nationwide. The suggested retail price of the system is $699.00. Axlon, Inc., 170 N. Wolfe Rd., Sunnyvale, CA 94086. □

STAR WARRIOR FOR ATARI COMPUTER

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

Star Warrior, a fast action science fiction adventure, is now available for the Atari 800 from Epyx, by Automated Simulations, Inc.

In Star Warrior, the player is an interplanetary avenger, who must single-handedly take on an entire planetary force of storm troopers and nine types of military vehicles.

In Star Warrior, the player can walk, jump — or even fly — over swamps, forests and mountains. He is armed with sophisticated electronic direction finding equipment, decoys to fool the enemy, nuclear missiles, blaster and powergun.

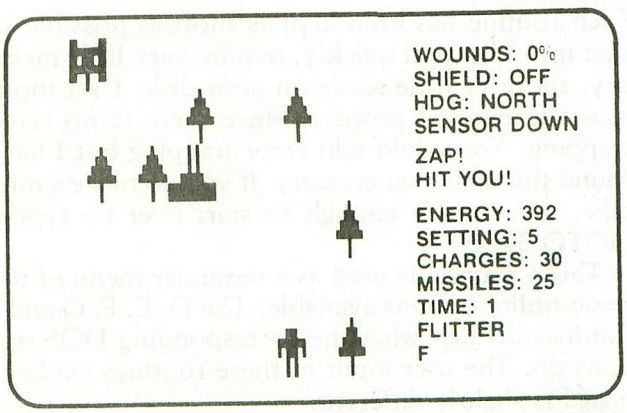
In addition to several suits of armor, the player also has a choice of two scenarios.

In the first, he must direct the enemy away from the main attack, while destroying as many military installations as possible. He can even set his own time limit, so he can play for a little or a as long as he likes.

In the second scenario, the player must track down and destroy the tyrannical military governor and his staff. But the governor is always on the move, so the player never knows where to find him from one session to the next.

Star Warrior has 19 command options and five levels of skill, combined with sound effects and graphics display.

Star Warrior comes boxed on a cassette or disk for the Atari 800 with 32K RAM. Suggested retail price is $39.95. Star Warrior is an EPYX game from Automated Simulations, P.O. Box 4247, Mountain View, CA 94040. □



Sample Display

BASIC DISK UTILITIES.....

by Jerry White

When you compare Atari's DOS to the old DOS 1, you will find the new DOS to have advantages and disadvantages. On the positive side, bugs in the first version have been corrected. The latest version requires less RAM because it's utility package is loaded only when the DOS command is issued. A big disadvantage will be noticed at this time.

The utilities will be loaded into your program area unless you have a MEM.SAV file. If you use the MEM.SAV option, it will take about 30 seconds to delete the prior MEM.SAV file, save the current program area, and load the DOS utilities (DUP.SYS.)

Many of these utilities can be accessed much faster by using small Basic routines. These routines can be stored on your work diskettes and called in using the ENTER command. Each of these Basic utilities begins at line 32000. Entering them will not disturb your program in RAM as long as it does not use the same line numbers. I intend to supply ANALOG readers with other useful routines. The lowest line number will be 30000. Keep this in mind as you write your programs. Just use line numbers from 0 thru 29999.

These routines must be listed onto disk. Do not use the SAVE command. We will use single letter file names which correspond to the similar DOS options except for the letter B. For example, we use the DOS option A for a disk directory. The A routine will be listed onto the diskette using the following command: LIST"D:A". To use the A routine, type ENTER"D:A" and return. Then type GOTO 32000 and return.

Each routine has been kept as short as possible so that it can be used quickly, require very little memory, and very little room on your disk. User input must be entered properly since there is no error trapping. You could add error trapping but I have found this to be unnecessary. If you do make a mistake, it is simple enough to start over by typing GOTO 32000.

The B routine is used as a reminder menu of the Basic utility options available. The D, E, F, G and I routines do just what the corresponding DOS options do. The user input to these routines via keyboard is slightly different.

When using the D, F and G options, you must specify the disk drive to be used. For example, to delete a file called test from drive 1, you would type D:TEST. If that file were to be deleted from drive 2, the command would be D2:TEST. LOCK and UNLOCK (F and G) work the same way.

When using the RENAME and FORMAT DISK (E and I) routines, drive 1 is assumed. To rename that TEST file to TEST10, you would simply type TEST, TEST10.

A:

```
32000 CLR :GRAPHICS 0:DIM R$(20):OPEN
#1,6,0,"D:*.*":PRINT :PRINT "  DISK DI
RECTORY":PRINT
32010 TRAP 32030:INPUT #1,R$:IF R$(5,1
6)="FREE SECTORS" THEN 32030
32020 PRINT R$:GOTO 32010
32030 PRINT R$:CLOSE #1:END
```

B:

```
32000 GRAPHICS 0:? :? ,"BASIC DOS UTIL
ITIES":PRINT :PRINT ,"A= DISK DIRECTOR
Y":PRINT :? ,"B= LIST OF UTILITIES"
32010 ? :? ,"D= DELETE FILE":? :? ,"E=
 RENAME FILE":? :? ,"F= LOCK FILE":? :
? ,"G= UNLOCK FILE"
32020 ? :? ,"I= FORMAT DISK":? :? ,"EN
TER PROGRAM BY LETTER":? :? ,"TYPE GOT
O 32000 RETURN":END
```

D:

```
32000 CLR :GRAPHICS 0:? :? ,"DELETE FI
LE":DIM F$(20)
32010 ? :? "ENTER D#:FILE";:INPUT F$:X
IO 33,#1,0,0,F$:END
```

E:

```
32000 CLR :GRAPHICS 0:DIM FIN$(20),FOU
T$(20),X$(40):? :? "RENAME FILE"
32010 ? :? "ENTER OLD NAME";:INPUT FIN
$:? :? "ENTER NEW NAME";:INPUT FOUT$
32020 X$="D:":X$(LEN(X$)+1)=FIN$:X$(LE
N(X$)+1)=FOUT$:XIO 32,#1,0,0,X$:END
```

F:

```
32000 CLR :GRAPHICS 0:? :? "LOCK FILE"
:DIM F$(20)
32010 ? :? "ENTER D#FILE";:INPUT F$:XI
O 35,#1,0,0,F$:END
```

G:

```
32000 CLR :GRAPHICS 0:? :? "UNLOCK FIL
E":DIM F$(20)
32010 ? :? "ENTER D#FILE";:INPUT F$:XI
O 36,#1,0,0,F$:END
```

```
32000 GRAPHICS 0:? :? "FORMAT DISK":?
:? "INSERT DISK TO FORMAT":? :? "PRESS
 START WHEN READY "
32010 IF PEEK(53279)<>6 THEN 32010
32020 ? :? "PRESS OPTION KEY TO FORMAT
 DISK"
32030 IF PEEK(53279)<>3 THEN 32030
32040 XIO 254,#1,0,0,"D1:":END
```

Study these little programs. They demonstrate only a few of the many uses of the X10 command. The A routine will show you how to access the disk directory by opening the directory file with the operand 6.

Using these Basic programs instead of DOS will save you time and eliminate the possibility of losing a program in memory by calling DOS. You can call in one of these routines after another since the ENTER command causes identical line numbers to overlay new over old. You need not delete one before using another.

Having done more than a little Atari Basic programming during the past year, I can tell you that these Basic utilities will come in very handy. I only wish I had thought of this idea sooner. □

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PRODUCT REVIEW
By Phil Baker

SPELLBOUND
By T.H.E.S.I.S.
P.O. Box 147
Garden City, MI 48135

Requires Cassettes, Basic Cartridge, 24K RAM

$15.00

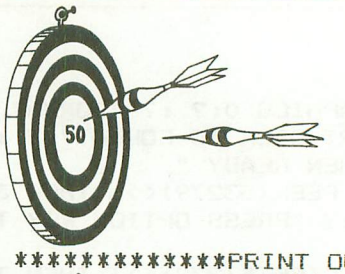
Spellbound is an educational program that reminds me of "Speak and Spell" without the sound. Words are flashed onto the screen in large letters. After each word, the user types in his spelling of the word. If he is correct he receives a little cheer from one of the bug-like characters sitting at the bottom of the screen and goes on to the next word. Should he be incorrect on his spelling, both the correct and incorrect spelling are displayed together for a few moments. Incorrectly spelled words will inevitably appear again before the lesson is over. There is a learning option which gives more time to study the word. There are also provisions for permitting words to be loaded by the user (such as this week's spelling lesson), both directly from the keyboard and from data tapes. T.H.E.S.I.S. also supplies data tapes at $5 apiece, each with 300 words. There are ten data tapes at this time, arranged by grade and word types (i.e. short vowels/long vowels — Grade 1-2 to unstressed/independent sounds — Grade 5-6).

Spellbound is well designed and documented and, like their other products reviewed to date, a good value.

I should point out that I had trouble loading both the master tape (which is self contained and includes its own words) and one of the data tapes. In both cases "Error 138 — time out device" interrupted loading. The master tape was replaced by the manufacturer and, subsequently, loaded in three out of four tries. The manufacturer reported that the original tape loaded on their machine with no trouble.

The data tape would not load. Whether the problem is with my February '81 Atari is not clear. T.H.E.S.I.S. indicated that my experience is unusual and offered to exchange the tape. I would not be deterred however, from purchasing the program, providing your dealer will stand behind it. It's highly educational and useful for children of all ages. The only thing that's missing is a voice speaking the words, which should be available soon from T.H.E.S.I.S. using the Type & Talk voice synthesizer. □

DARTS.....



by Ricky Knopman

Darts is a game for any number of players. It requires a joystick in port one. The object of darts is to throw each of six darts at a target and to get them as close to the bullseye as possible. The only computer generated factor in this game is gravity. The higher the gravity, the higher the angle of takeoff and/or the height of takeoff of the dart is necessary to keep the dart on the board. If a player has a high score, he is asked for a name, and it is displayed along with his score. (Instructions are included in the program.)

--- 10 points
--- 20 points
--- 40 points
--- 75 points (bullseye!)
--- 40 points
--- 20 points
--- 10 points

```
70 REM DARTS by RICKY KNOPMAN
80 REM (c) COPYRIGHT 1981
90 REM A.N.A.L.O.G. 400/800 MAGAZINE
100 GOTO 610
110 REM *******GET PLAYER'S POSITION
120 COLOR 0:PLOT 158,K-1:DRAWTO 145,K:
DRAWTO 158,K+1:COLOR DC
130 IF STICK(0)=15 THEN MVN=1:GOTO 180
140 IF ST<>STICK(0) THEN MVN=1
150 MVN=MVN*1.2:ST=STICK(0)
160 K=K+((ST=13)-(ST=14))*MVN:W=W+((ST
=7)-(ST=11))
170 K=(K<0)+(K>0 AND K<80)*K+(K>79)*79
:W=(W>0 AND W<11)*W+(W>10)*10
180 ? "ELEVATION=";INT(W+0.5);"◆◆◀ GRAV
ITY= ";INT(GV*2000)
190 IF STRIG(0) AND STRIG(1) THEN PLOT
 158,K-1:DRAWTO 145,K:DRAWTO 158,K+1:G
OTO 120
200 REM ******************THROW DART
210 S=-W/5
220 FOR P=138 TO 4 STEP -2
230 TRAP 240:COLOR 0:PLOT P+13,K-1:DRA
WTO P+2,K:DRAWTO P+13,K+1:COLOR DC
240 S=S+GV:K=K+S:IF K<3 OR K>79 THEN 2
70
250 SOUND 0,K,10,10
260 PLOT P+11,K-1:DRAWTO P,K:DRAWTO P+
11,K+1
270 NEXT P:TRAP 40000
280 REM *******FIND OUT WHERE HE HIT
290 SOUND 0,0,0,0:FOR H=1 TO 99:NEXT H
300 DIS=INT(ABS(39.5-K))
310 IF DIS>35 THEN S=0:GOTO 370
320 IF DIS>21 THEN S=10:GOTO 380
330 IF DIS>8 THEN S=20:GOTO 380
340 IF DIS>0 THEN S=40:GOTO 380
350 REM *************PRINT OUT SCORE
360 S=75:? "◥  BULLSEYE!!◆◆";:RESTORE
880:GOTO 390
370 ? "◥     MISS!◆◆";:RESTORE 870:GOTO
 390
380 ? "◥  ";S;" POINTS◆◆";:RESTORE 860
:IF S<29 THEN RESTORE 890
390 READ P,K:IF P>0 THEN SOUND 0,P,10,
10:FOR X=1 TO K:NEXT X:SOUND 0,0,0,0:G
OTO 390
400 SC=SC+S:? "SCORE IS ";SC
410 FOR S=0 TO 300:NEXT S:NEXT TURN:GO
TO 420
420 REM ********************END GAME
430 TRAP 40000:IF SC>HS THEN HS=SC:GRA
PHICS 0:SETCOLOR 2,2,0:POSITION 2,10:?
 "PLEASE ENTER YOUR NAME ";:INPUT N$
440 GRAPHICS 18:POSITION 1,3:? #6;"FIN
AL SCORE IS ";SC
450 ? #6:? #6;"     HIGH SCORE:":? #6;"
 ";N$;" ";HS;" POINTS"
460 POSITION 2,9:? #6;"HIT FIRE BUTTON
":? #6;"     TO RESTART"
470 IF STRIG(0) AND STRIG(1) THEN 470
480 REM ******************SET UP GAME
490 SC=0:FOR TURN=1 TO 6
500 GV=RND(0)/20:K=10
510 REM SET GRAPHICS WITH LARGE TEXT
520 GRAPHICS 7:SETCOLOR 0,8,14:SETCOLO
R 2,1,6:SETCOLOR 4,4,0:DC=2:BC=1
530 MEM=PEEK(560)+256*PEEK(561)+85
540 POKE MEM+4,65:POKE MEM+5,PEEK(560)
:POKE MEM+6,PEEK(561):POKE MEM,71:POKE
 MEM+3,7
550 REM ****SET UP BOARD, DRAW DARTS
560 COLOR 3:FOR H=1 TO 4:PLOT H,5:DRAW
TO H,74:NEXT H:COLOR DC
570 IF TURN<>6 THEN FOR H=1 TO 6-TURN:
PLOT H*20+20,0:DRAWTO H*20+7,1:DRAWTO
H*20+20,2:NEXT H
580 COLOR BC:PLOT 4,5:DRAWTO 4,16:PLOT
 4,30:DRAWTO 4,38:PLOT 4,41:DRAWTO 4,4
9:PLOT 4,63:DRAWTO 4,74
590 GOTO 110
600 REM INITIALIZATION **********
610 GRAPHICS 18:SETCOLOR 0,0,0:POKE 75
6,226:COM N$(7)
620 ? #6:? #6;"          ◆ ◆ ◆ ◆":? #6;"
   ◆ DARTS ◆":? #6;"          ◀ ◀ ◀ ◀"
630 POSITION 1,5:? #6;"BY  ricky knopm
an"
640 POSITION 0,8:FOR K=0 TO 19:? #6;"◆
";:NEXT K
650 ? #6:? #6;" instructions  y n"
660 OPEN #1,4,0,"K":GET #1,A:CLOSE #1
670 IF A=ASC("N") THEN 490
680 IF A<>ASC("Y") THEN 660
690 REM ***************INSTRUCTIONS
700 GRAPHICS 0:MEM=PEEK(560)+256*PEEK(
561)+6
```

```
710 POKE MEM,6:POKE MEM-2,84:SETCOLOR
2,0,0
720 POKE 83,39:? "↰↓▶▶▶<<<<DARTS>>>>"
730 ? "↓   Moving the joystick vertica
lly  controls the initial release posi
tion of the dart."
740 ? "↓   Moving the joystick sideway
s  controls elevation (initial takeoff
  angle) of the dart."
750 ? "↓At elevation=(10), angle = 60
degrees.";
760 ? "At elevation=(0), angle =  0 de
grees."
770 ? "↓   Gravity (from 0 to 100), is
▶▶added to influence the tragectory of
"
780 ? "the dart. The stronger the grav
ity,"
790 ? "the higher the elevation requir
ed"
800 ? "to keep the dart 'on target'."
810 ? "↓   A few practice games will h
elp"
820 ? "to improve your score dramatica
lly."
830 ? "↓   HIT THE FIRE BUTTON TO STAR
T←";
840 GOTO 470
850 REM **********DATA FOR MUSIC
860 DATA 57,75,57,75,57,75,72,250,-1,0
870 DATA 65,75,65,75,79,75,58,75,65,15
0,79,100,-1,0
880 DATA 130,30,100,30,80,30,65,70,80,
30,65,100,-1,0
890 DATA 96,75,85,75,108,75,216,75,144
,200,-1,0
```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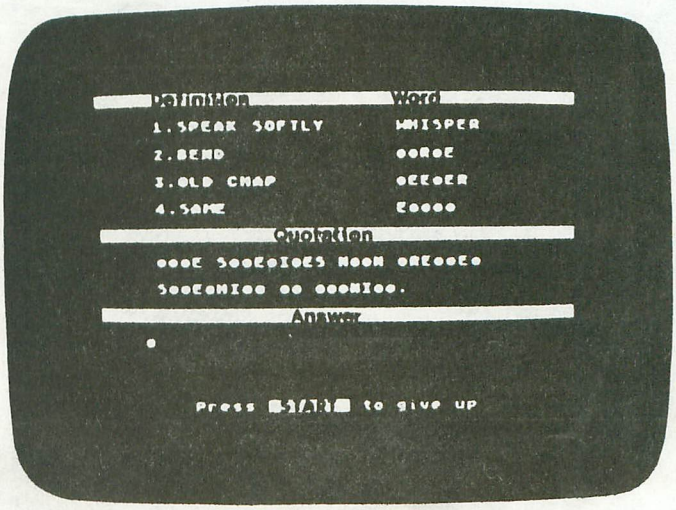
**Not yet released for ATARI*

SOFTWARE REVIEW: ASTRO-QUOTES

Program Design Inc.
11 Idar Court
Greenwich, CT 06830

Jerry White



Astro Quotes by Dr. Dean Victor is a package of two programs on cassette. The programs will run on any 16K Atari 400/800. They loaded flawlessly and came with adequate documentation.

I found Astro Quotes to be educational and fun. The screen displays are very professional looking and the sound effects blended well. The object is to fill in a famous quotation by finding the words to go with the four definitions supplied. When a correct answer is given, that word is filled in. The letters of that word are also filled in wherever they appear in the other words and in the quotation. A score of 100% is given when each word and the quotation are filled in correctly.

If you can't finish any given puzzle, you can give up by typing a question mark. The remaining letters will then be filled in for you and the percentage based on the number of letters you had correct at that time.

As a bonus, you are given the author of the quotation and the dates of the author's life span. No you don't have to know dates or authors. You just play the word game and hopefully learn something along the way. A typical quotation would be, "Reading is to the mind what exercise is to the body. Sir Richard Steele 1672-1729."

Each program contains dozens of quotations making the package well worth the $14.95 price tag. □

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SOFTWARE REVIEW: TEXT WIZARD (VER. 1.2)

DATASOFT INC.
19519 BUSINESS CENTER DR.
NORTHRIDGE, CA 91324
$99.95 - Diskette/32K
Reviewed by Bill Latino

The long wait is over. For a mere century note, owners of a 32K ATARI 800, 810 Disk Drive, 850 Interface Module, and 825 Printer (or Centronics 737 or Epson MX-80 Printer) can meld their hardware into a word processing system rivaling dedicated systems costing over $6000.00. Writers and small businessmen would do well to note that the aforementioned hardware can, by judicious shopping, be purchased for about $2200.00. That the above is also a personal computer system of considerable merit is frosting on the cake.

IN PERSPECTIVE...

Most stand-alone word processors display the text under development on an easy to read, green phosphor monitor, at 80 to 132 characters per line. Text Wizard (and other currently available word processing software for the ATARI) displays text at 40 characters per line on a TV screen (fair readability) or monitor (excellent readability), hence, text format will appear quite different (from what appears on the screen) when it is actually printed on paper. Most of the time, this will present no great problem, but it does demand a little imagination when doing columnar work.

Although the three printers usable with Text Wizard are capable of clear, easily read print with true lower case descenders, print quality is not as good as would be obtained with most dedicated word processors. However, when one considers that dedicated word processors derive their typewriter quality print from optional equipment Daisy-wheel printers which cost more than the whole system described at the beginning of this review, "correspondence quality" print starts to look pretty good! I've yet to have an editor return my manuscripts, or an advertising manager my ad copy, because of unacceptable print quality.

And then there is service. Should a user have trouble with a Wang or Olivetti word processor, a phone call would most likely result in the appearance of a service engineer within the hour. Service for personal microcomputers is spelled one way: "carry-in". The result being loss of equipment usage for a few days (at best) to perhaps months. From a service standpoint, the only argument in favor of a personal microcomputer based word processor is that you could own 3 to 5 of them for the price of a typical dedicated word processor and the associated service contract. While not suggesting that 2 or 3 systems be kept on the shelf solely as backup systems, it is conceivable that "spare" systems could more than earn their keep in areas entirely unrelated to word processing. I cannot imagine many Engineering, Sales, or Accounting Departments, within a small company, which couldn't put a 32K ATARI computer (outfitted with disk drive and printer) to good use.

The above discussion is not meant to be critical of the Text Wizard program. Similar limitations are fact for most better micro based word processing systems regardless of hardware/software parentage. Hopefully, the foregoing will have helped the reader determine whether or not he should even consider implementing a word processing system on his ATARI. Contrary to some ad copy, such an implementation is not for everyone. My own feelings on the matter are that many professionals — writers, lawyers, doctors, and salesmen, and some small businesses, could find a cost effective solution to their text generation problems with such a marriage.

NOW THAT WE'VE CLEARED THE AIR...

To those readers still with me — Text Wizard gets my unconditional recommendation. No, it is not perfect, but of the half dozen or so commercially available word processors for the ATARI computers, it certainly comes away the winner in my book.

Text Wizard is simplicity exemplified. Unlike some competitive programs, DataSoft's offering does not have separate text, edit, and format modes. No selection from a menu is demanded of the operator, nor is the menu missed — all options are available to the operator without demanding inconvenient and time consuming stopovers at a menu. After program loading, text is entered directly from the keyboard or via a previously saved text file from diskette. Multiple files may be merged or chained so that composite documents may be created.

The 31 editing commands act directly on your text and provide for extensive manipulative capability independent of current text position — hence, if you look up at the screen and notice that 3 paragraphs back you misspelled a word or left out a sentence, a few keystrokes will have the error corrected and the cursor back at the last type position.

Some of the edit features follow — most are self explanatory:

CHARACTER TYPE — upper case text, lower case text, inverse character (remarks)

CURSOR MOVEMENT — up, down, left, right, page up, page down, top of text, bottom of text, and tab (appears as 5 character spaces on screen — 3 when printed)

TEXT INSERTION — character insert and line insert (actually as many lines, paragraphs, pages, etc. as required)

TEXT DELETION — character left, character right, line (1 physical, on screen), and block (all lines following)

TEXT MOVEMENT — set start of phrase, set end of phrase, and move phrase

TEXT DUPLICATION — set start of phrase, set end of phrase, and duplicate phrase
TEXT SEARCH (each occurence or global) — define search phrase and search for phrase
TEXT REPLACEMENT (each occurence or global) — define search phrase and search for phrase

There are 28 printing commands — all of which are imbedded in the text (in inverse video) and can be edited as simply as the text itself. Remarks are also entered into the text in inverse video and, like the print commands, will not be printed. The ease with which print formats may be specified and edited invites experimentation as to the form the finish will take. This word processor is especially nice when working up ad copy, catalogs, sale brochures and the like. Following are some of the printing features:
MARGINS — set left, set right, set top, set bottom, set length of form, set second left and right margins (allows printing across the paper in two columns)
SPACING — line and character (nominal spacing between characters)
PRINT FONTS — proportional (yes, it will right justify proportional type), condensed, elongated, subscripted, and superscripted
MISC. — center text, block text right, underline text, indent text, justify right, un-justify right, define header, define footer, set page number, page numbering, eject page, wait at page end, and chain files

Text files may be saved to, loaded from, or deleted from disk under program control. A disk directory, listing all text files and the amount of sectors remaining on the diskette, can be called from Text Wizard. However, all diskettes must first be formatted under ATARI DOS.

It might be argued that a non-menu program with about 70 commands might be difficult to master. Thankfully, DataSoft had the foresight to use mnemonic commands wherever practicable. We are given commands such as:
START + "D" to set the start of a phase to be duplicated
START + "S" to define a search phrase
CTRL + "C" to center text
CTRL + "E" to start elongated print
OPTION + "L" to load a file
OPTION + "P" to print a file

With such a logical methodology (and a concise, easily read manual), it's easy to become familiar with Text Wizard's commands and capabilities after only a few hours of use. It's a sure bet that once you do, the old Smith-Corona will be reserved for such mundane tasks as addressing letters.

CONSIDER...

No more retyping entire documents simply to correct a few mistakes, insert those few words or line you left out, or to try for different flavor in a sentence or paragraph.

Very little conscious effort is required of the operator in regards to text placement on the screen or, ultimately, on paper. Text is simply typed until one wants to terminate a line or start a new paragraph (accomplished with 1 or 2 'returns' respectively). As text is output to the screen, word-wrap-around is automatically initiated — that is, if a word cannot fit on a screen line without being continued onto the next line, it is moved in its entirety to the following line. Thus, words are never at line ends. Text wrap-around also occurs when the text is printed. One can simply rely on the default parameters of the program and text will be printed with about one inch top, bottom, right, and left margins. Of course, alternate formats may easily be specified while entering text or 'ipso-facto' (if one wishes not to disrupt his train of thought while creating text).

A particularly nice feature of Text Wizard is that right margins may be specified as either un-justified (ragged-right) or justified (straight right margins). Justified right margins make for especially neat and professional appearing text — much as is seen in most books, magazines, and typeset documents. The justified mode works with proportional print, condensed print, and elongated print. The same cannot be said for the competition.

It would obviously be very difficult to determine from the screen at what point a printed page will end. This could make page numbering a formidable task were it not for the pagination feature built into Text Wizard. At the users option, automatic page numbering directed to appear anywhere on the top or bottom line of a page.

Suppose you just finished writing a 30 page feasibility study and upon rereading your work discovered that a particular word (yes, the one used about 50 times...) was misspelled. Even with a word processor it would be a formidable task to locate and correct all 50 errors. Text Wizard has a search feature that may be used alone simply to locate words or phrases or in conjunction with a replace feature to automatically replace either selected or all occurrences of the search phrase with the replacement phrase.

You say that last paragraph of your term paper might look better as the third paragraph? No problem — use the move text feature to try it on for size. It doesn't look good there either? Try deleting it altogether or possibly replacing it with a fresh approach — both options easily exercised via the delete and replace features also thoughtfully provided in Text Wizard.

Identical inquiries with nearly identical replies — the creation of 'personalized' form letters is easily accomplished. Simply save the body of your most polished answers to your most frequent queries. Next time one of these replies would seem to fit the occassion, simply type the address and appropriate greeting and merge this with the previously save file. A few minutes of editing to personalize the reply (if

necessary) and an appropriate closing and you're in business.

TO WRAP IT UP...

As mentioned earlier, Text Wizard is not perfect. The addition of just a few features could turn a very good program into a truly remarkable one.

User adjustable line scrolling would allow the operator to "read" his text at whatever rate he desires — great for proofreading and checking the readability of ones work (if reading what you've written slows YOU down, what will it do to your readers?)

How about a more direct method to accomplish text removal form within a document? As it stands now, unless the section one desires to delete is at the end of the text, one must either: A. delete it one line at a time, B. move the section to the end of text and perform a block delete, C. move the section to the beginning of the text and save the edited version from the "old" beginning point, or D. save from beginning of text to beginning of section to be deleted, from end of section to be deleted to end of text, and then chain the files thus created to obtain the edited version. Deletion SHOULD be as simple as placing the cursor over the beginning and end of the section to be deleted and hitting a control key.

Ever notice how top heavy most short lettters appear? A vertical centering option would allow the computer to set top and bottom margins so as to vertically center the text on the page.

As mentioned, Text Wizard's tabs are set for 5 screen spaces or 3 printed spaces. Nice, but tab stops should be user adjustable.

A built-in math function would eliminate the necessity to turn to ones $10.00 calculator because he couldn't access the number crunching capability of the $1000.00 computer sitting under his fingertips.

A decimal alignment feature would be particularly useful for those involved with preparing fiscal reports or other columnar numerical work.

Well, there's my "wish list". Who knows what version 1.3 will bring... I certainly wouldn't hold out for Utopia however. Text Wizard has exceptional utility in its current version and, should new versions be forthcoming, these will be made available to registered owners for a nominal fee. Which reminds me... $5.00 will buy a back-up copy of the program when submitted with the registration card. Crashed diskettes will be replaced for a $30.00 charge.

In closing I do have one major criticism of Text Wizard — DataSoft, you took too long! □

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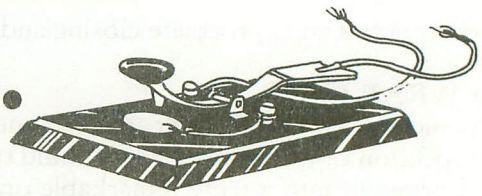
MORSE 800.....



BY ROBERT E. ALLEGER

MORSE 800 is a MORSE code practice program for your ATARI 400/800 computer. It is written in BASIC and interfaces with a very simple machine language timing routine. The program only requires 7461 bytes of RAM and therefore will even run on a 16K cassette based system.

All comments/suggestions are welcome. Send them to the address below. Replies are not guaranteed without an SASE.

Bob Alleger WB2JMU
207 Blue Jay Lane
Mt. Holly, NJ 08060

After initialization, a menu is presented on your screen. Enter a 1 to change parameters, 2 to receive English words, 3 to receive random characters, 4 to receive text, or 5 to define a body of practice text.

Option 1 is used to change the parameters used in outputting MORSE code sounds. To make a change, type in the new value for a parameter, to keep a particular parameter the same, hit a carriage return. The program is initialized with the following defaults.

words per minute = 13 (range 1-43)
DAH weight = 3
character space weight = 3
word space weight = 7
frequency of tone = 55 (range 0-255)

The values above are normally used. A dit is the smallest unit of time. A dah is 3 times the length of a dit. The space between a MORSE code element (i.e. the space between the dit and the dah in the letter A) is equal in length to a dit. The space between characters is 3 times the length of a dit. The space between words is 7 times the length of a dit. When you go beyond 13 wpm it is common practice to alter one or more of the above parameters, such as the character space weight or word space weight.

Option 2 will allow you to practice with the 104 5-character words stored in DATA statements.

Option 3 will use 5-character words made up of random letters and numbers for practice.

Option 4 will use a body of text previously entered, using option 5, for practice.

Option 5 will allow you to enter a body of text to be used in practice. All text should be entered without hitting the carriage return. All corrections must be made by using the back space key. When you are done entering text, hit a carriage return. The maximum amount of text that can be entered is 911 characters.

NOTE — In options 2 and 3, hitting a "P" will pause the program after the current word is sounded. Hitting another "P" will cause it to continue. Hitting an "M" at any time will return you to the menu after the current word is sounded.

The number of words used in option 2 can be expanded by changing the variable NBRWORDS in line 170 and adding additional DATA statements.

MAJOR VARIABLES (strings)

CHAR$(a string of all characters that can be used for practice in option 3. If you do not want to allow numbers to be used for practice (NOVICEs ?), or if you want to allow punctuation, just change line 230 to include only those characters that you want.

ML$(the machine language code for the timing loop is stored in this string. A typical statement such as "X=USR(ADR(ML$),DITLENGTH is used to access the routine.

MORSE$(a string of MORSE character codes. Each string element is 6 characters long. The contents of each element is any combination of "1"s and "3"s with the trailing unused positions padded with "0"s. A "1" represents a dit (or dot) and a "3" represents a dah (or dash). A "0" signifies the end of this MORSE character.

String Element	Contents
1	comma
3 - 4	period, and slash
5 - 14	the numbers 0 to 9
15	question mark
16 - 47	the letters A to Z

SEND$(used to store a string of characters to be translated into MORSE sounds.

WORDS$(a string of English words in 5 character groups to be used for practice.

MAJOR VARIABLES (numeric)

CHARSPACE — length of space between characters
CSWEIGHT — use in - CHARSPACE = DITLENGTH * CSWEIGHT
DAHLENGTH — length of a dah
DAHWEIGHT — used in - DAHLENGTH = DITLENGTH * DAHWEIGHT
DITLENGTH — length of a dit
ELEMSPACE — length of the space between elements of a MORSE character
FREQ — pitch of the tone produced through your TV speaker
NBRWORDS — number of English words in the DATA statements
WORDSPACE — length of the space between words
WPM — speed in words per minute
WSWEIGHT — used in - WORDSPACE = DITLENGTH * WSWEIGHT

TAKE-A-PART

#30 — transfers control to the Initialization section.

#40-150 — the subroutine that translates ASCII strings into MORSE code sounds. It is defined at the Beginning of the program so that the BASIC interpreter does not waste any time in searching for the Beginning line number of the routine when a GOSUB is issued. It calls the machine language routine to provide the timing between MORSE elements, characters, words, and the duration of a dit or dah.

#160-240 — the Initialization section does the following:

--sets the default values for:

CSWEIGHT=3
DAHWEIGHT=3
FREQ=55
NBRWORDS=104
WPM=13
WSWEIGHT=7

— reads in the machine language routine from DATA statements.

— reads in the MORSE characters from DATA statements.

— reads in English words from DATA statements.

— transfers execution to calculate timing values used in MORSE translation.

#250-390 — this is the Menu section. It makes use of an 'INKEY$' type of routine to input the users choice and calls the routine on line #1030-1050 to flash portions of the screen.

#400-560 — this is the Change Parameters routine. It allows the user to make changes to various operating parameters and to calculate those variables used in timing of the MORSE code sounds. These variables are CHARSPACE, DITLENGTH, DAHLENGTH, ELEMSPACE, and WORDSPACE.

The formula on line #490 was derived from the relationship of the delay loop value vs. words per minute. I modified the program to send a continuous stream of dits. On page #356 of the 1978 "The Radio Amateur's Handbook" it says that the code speed can be found from SPEED (wpm) = (DOTS/min.) / 25. I produced a table of relationships and then fed them through a program that gave me the formula with the highest correlation.

#570-750 — this is the Receiving Practice routine.

#760-930 — the Define a Body of Text routine allows the user to enter a body of English text to be used for practice purposes.

#940-1050 — the Presentation routine starts the program by presenting the user with the name of the program and copyright statement.

The "POKE 756,192" on line #950 changes the ATARI's character generator base register and is responsible for the "funny" screen at the beginning of the presentation. Line #1020 will restore the screen to normal.

The "POKE 752,1" in line #950 turns the cursor off.

The routine at #1030-1050 flashes the copyright statement while the DATA statements are being processed and other variables are being set up. This is accomplished by POKEing a 0 or 2 into location 755 (CHACT). This location, among other things, will display all reverse video characters as normal reverse or non-reverse characters.

#1060-1520 — DATA statements for the machine language routine, the MORSE code translation table, and a group of English words used for practice.

MACHINE LANGUAGE SUBROUTINE

```
FRO =          $D4              ;floating point register
                                0
68     START   PLA              ;pop # of arguments off
                                stack
68             PLA              ;msb of delay count
85D4           STA   FRO        ;store it
68             PLA              ;lsb
85D5           STA   FRO+1      ;store it
;              short delay loop
A20A SDLAY     LDX   #10        ;added to stretch delay
                                to provide
                                better timing
                resolution
CA     SDLAY1  DEX
DOFD           BNE   SDLAY1     ;long delay loop
C6D5 LDLAY     DEC   FRO+1      ;decrement lsb of delay
DOF7           BNE   SDLAY
C6D4           DEC   FRO        ;msb
DOF3           BNE   SDLAY
60             RTS              ;back to BASIC
```

Note that an ORG statement is not used because this routine is completely relocatable. Also, FRO is being used as free page zero space because this routine does not make use of any floating point math. □

```
0 REM MORSE CODE PRACTICE version 1.0
10 REM (C) copyright 1980
20 REM by Robert E. Alleger
30 GOTO 160
40 REM ASCII to MORSE
50 L=5
60 FOR CHAR=1 TO L:C=ASC(SEND$(CHAR,CH
AR)):IF C<44 OR C>90 THEN 140
70 C=C-43:FOR E=1 TO 6:IF MORSE$(C*6-6
+E,C*6-6+E)="0" THEN 120
80 SOUND 0,FREQ,10,8
90 IF MORSE$(C*6-6+E,C*6-6+E)="1" THEN
 X=USR(ADR(ML$),DITLENGTH):GOTO 110
100 X=USR(ADR(ML$),DAHLENGTH)
110 SOUND 0,0,0,0:X=USR(ADR(ML$),ELEMS
PACE):NEXT E
120 X=USR(ADR(ML$),CHARSPACE):? SEND$(
CHAR,CHAR);
130 NEXT CHAR:? " ";:RETURN
140 IF C=155 THEN RETURN
150 X=USR(ADR(ML$),WORDSPACE):? " ";:G
OTO 130
160 REM Initialization
170 WPM=13:FREQ=55:DAHWEIGHT=3:CSWEIGH
T=3:WSWEIGHT=7:NBRWORDS=104
180 GOSUB 940
190 DIM MORSE$(47*6),WORD$(NBRWORDS*5)
,M$(6),ML$(21),SEND$(912),CHAR$(36)
200 FOR N=1 TO 21:READ C:ML$(N,N)=CHR$
(C):NEXT N
```

```
210 FOR N=1 TO 47:GOSUB 1030:READ M$:M
ORSE$(N*6-5,N*6)="000000":MORSE$(N*6-5
,N*6)=M$:NEXT N
220 FOR N=1 TO NBRWORDS:GOSUB 1030:REA
D M$:WORD$(N*5-4,N*5)=M$:NEXT N
230 CHAR$="ABCDEFGHIJKLMNOPQRSTUVWXYZ0
123456789"
240 GOTO 490
250 REM Menu
260 GRAPHICS 0:? "                MORSE MEN
U  "
270 ? "1 Change Parameters"
280 ? "2 Receive English words"
290 ? "3 Receive random characters"
300 ? "4 Receive text"
310 ? "5 Define a body of practice tex
t"
320 ? "↓ enter choice: ";
330 POKE 764,255
340 CLOSE #1:OPEN #1,4,0,"K:"
350 GOSUB 1030:FOR W=1 TO 25:NEXT W
360 IF PEEK(764)=255 THEN 350
370 GET #1,N:N=N-48:IF N<0 THEN 330
380 ON N GOTO 400,570,570,570,760
390 GOTO 330
400 REM Change Parameters
410 GRAPHICS 0:? "        Change Parame
ters↓↓↓":TRAP 480
420 ? "Words Per Minute          = ";WPM;
:INPUT WPM
430 ? "DAH weight                = ";DAHW
EIGHT;:INPUT DAHWEIGHT
440 ? "character space weight = ";CSWE
IGHT;:INPUT CSWEIGHT
450 ? "word space weight         = ";WSWE
IGHT;:INPUT WSWEIGHT
460 ? "frequency of tone         = ";FREQ
;:INPUT FREQ
470 TRAP 65535:GOTO 490
480 N=PEEK(186)+PEEK(187)*256+10:TRAP
480:GOTO N
490 DITLENGTH=35606.5*WPM^-1.31112
500 IF WPM<1 OR WPM>43 THEN 400
510 DAHLENGTH=DITLENGTH*DAHWEIGHT
520 ELEMSPACE=DITLENGTH
530 CHARSPACE=DITLENGTH*CSWEIGHT
540 WORDSPACE=DITLENGTH*WSWEIGHT
550 IF FREQ<0 OR FREQ>255 THEN 400
560 GOTO 250
570 REM Receiving Practice
580 GRAPHICS 0:? "        Receiving Pra
ctice"
590 IF N=2 THEN POKE 83,37:GOTO 650
600 IF N=4 THEN POKE 83,37:GOTO 700
610 L=LEN(CHAR$):FOR N=1 TO 5:P=(INT(R
ND(1)*L)+1):SEND$(N,N)=CHAR$(P,P):NEXT
 N
620 GOSUB 40:X=USR(ADR(ML$),WORDSPACE)
630 IF PEEK(764)<>255 THEN GOSUB 710
640 GOTO 610
650 P=INT(RND(1)*NBRWORDS+1)*5
660 SEND$=WORD$(P-4,P)
670 GOSUB 40:X=USR(ADR(ML$),WORDSPACE)
680 IF PEEK(764)<>255 THEN GOSUB 710
690 GOTO 650
700 L=LEN(SEND$):GOSUB 60:GOTO 250
710 IF PEEK(764)=37 THEN POP :POP :GOT
O 250
720 IF PEEK(764)<>10 THEN 750
730 POKE 764,255
740 IF PEEK(764)<>10 THEN 740
750 POKE 764,255:RETURN
760 REM Define a body of text
770 GRAPHICS 0:POKE 752,1:? "      Defi
ne a body of text"
780 ? "↓↓When the screen clears, enter
"
790 ? "the text that you wish to use f
or"
800 ? "receive practice.  Do not hit t
he"
810 ? "RETURN key until you have enter
ed"
820 ? "all the text.  You are limited
to"
830 ? "912 total characters.  Use the"
840 ? "BACK S key to correct any mista
kes."
850 FOR W=1 TO 1000:NEXT W
860 GRAPHICS 0:POKE 702,64:POKE 694,0
870 CLOSE #1:OPEN #1,4,0,"K:":SEND$=""
880 FOR N=1 TO 911
890 GET #1,C:IF C=155 THEN POP :SEND$(
N,N)=CHR$(155):GOTO 250
900 IF C=126 THEN ? CHR$(126);:N=N-1:G
OTO 890
910 IF (C<44 OR C>90 OR C=45 OR C=64 O
R (C>57 AND C<63)) AND C<>32 THEN 890
920 ? CHR$(C);:SEND$(N,N)=CHR$(C)
930 NEXT N:GOTO 250
940 REM Presentation
950 GRAPHICS 2:POKE 756,192:POKE 752,1
960 SETCOLOR 0,5,15:SETCOLOR 1,11,14:S
ETCOLOR 2,2,4:SETCOLOR 3,7,14:SETCOLOR
 4,2,4
970 POSITION 6,4:? #6;"morse800"
980 ? "                  ----------------
-----------"
990 ? "      (C) 1980 Robert E. Alleger
"
1000 ? "                  ----------------
-----------"
1010 COLOR 10:PLOT 4,2:DRAWTO 15,2:DRA
WTO 15,6:DRAWTO 4,6:DRAWTO 4,2
1020 FOR W=1 TO 250:NEXT W:POKE 756,22
4:RETURN
1030 REM Blink reverse fields
1040 IF PEEK(755)=2 THEN POKE 755,0:RE
TURN
1050 IF PEEK(755)=0 THEN POKE 755,2:RE
TURN
1060 REM machine language data
1070 DATA 104,104,133,212,104,133,213,
162,010,202,208,253,198,213,208,247,19
8,212,208,243,96
1080 REM ASCII to MORSE data
1090 REM special symbols  , ./
1100 DATA 331133,0,131313,31131
1110 REM numbers 0 to 9
1120 DATA 33333,13333,11333
1130 DATA 11133,11113,11111
1140 DATA 31111,33111,33311
1150 DATA 33331
1160 REM special symbol  ?
1170 DATA 0,0,0,0,0,113311,0
1180 REM alpha characters A to Z
1190 DATA 13,3111,3131,311
1200 DATA 1,1131,331,1111
```

```
1210 DATA 11,1333,313,1311
1220 DATA 33,31,333,1331
1230 DATA 3313,131,111,3
1240 DATA 113,1113,133,3113
1250 DATA 3133,3311
1260 REM WORDS of practice data
1270 DATA APPLE,ALIEN,ANKLE,ALTER
1280 DATA BOOST,BLAST,BLOOD,BOXER
1290 DATA CANDY,CLIMB,CLASS,CAIRO
1300 DATA DROPS,DANCE,DRUNK,DIZZY
1310 DATA ERASE,ELDER,EAGLE,ELUDE
1320 DATA FIELD,FROST,FIZZY,FOCUS
1330 DATA GHOST,GHOUL,GRASS,GAUGE
1340 DATA HOTEL,HORNY,HANDY,HATCH
1350 DATA INDIA,ITALY,INGOT,INLET
1360 DATA JOKED,JERKY,JUMPS,JEWEL
1370 DATA KINKY,KEYER,KNACK,KNIFE
1380 DATA LONER,LEVEL,LASER,LIVER
1390 DATA MONEY,MOVIE,MAZES,MANGO
1400 DATA NOISE,NASTY,NOOSE,NAVAL
1410 DATA ORION,OASIS,OSCAR,ORBIT
1420 DATA PLANE,POUND,POPPY,PORCH
1430 DATA QUEEN,QUAIL,QUICK,QUIET
1440 DATA RADIO,RAZOR,ROPES,ROGER
1450 DATA SHAME,STONE,SENSE,SAUCE
1460 DATA TORCH,TRITE,TOUCH,TUNER
1470 DATA UMBER,UNCLE,UNDER,UTTER
1480 DATA VIVID,VOICE,VALID,VALVE
1490 DATA WHIFF,WEIGH,WHICH,WEAVE
1500 DATA XENON,XYLEM,XEBEC,XEROX
1510 DATA YIELD,YOUNG,YACHT,YOUTH
1520 DATA ZEBRA,ZIPPY,ZOMBI,ZONES
```

●

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The Game Room

by Tom Repstad

THE WAIT IS OVER!

Computers were inherently boring until a few years ago when two creative geniuses named Willie Crowthers and Don Woods developed "Adventure", a classic fantasy role playing game that has been the standard for years, and the model against which most adventure games were designed.

There are probably very few mainframe computers today that don't have a copy for the original adventure (whether sanctioned or secretly placed on the system by some daring programmer). Well, you know the computer field, you take one good idea and it's going to snowball. And so it did. The original adventure has grown from one adventure designed for the big mainframes to hundreds of adventures available for the personal computer owner.

Adventure International has recently made available for the ATARI it's series of adventure games. Adventure International is probably better known by the name of its creator, Scott Adams. Scott Adams was one of the earliest people to come out with adventures for the personal computer. His programs are written in assembly language and are highly imaginative. Also available are adventures from the following sources:

"The Quest": Survival Software, 3033 La Selva #B306, San Mateo, CA 94403, "Drac is Back": Syncro Inc. (Software division), 31332 Via Colinas, Suite 107, Westlake Village, CA 91362 and of course there is the adventure offered by A.N.A.L.O.G.

The object of any adventure is to surmount the obstacles the author of the program has placed in your way while you gather treasures, slay monsters, survive, and perform various other feats of derring-do on your way to finishing the adventure.

Do not expect to be able to sit down and finish even the simplest adventure in an hour or two. Most adventures require many hours of playing over several weeks (depending on the frequency of play), but virtually all adventures allow you to "SAVE" your game in progress and pick it up again at a later time. This feature also allows you to try some dangerous stuff without worrying about getting killed and having to start over from the beginning.

Most adventures have a theme or scenario for play. These adventures are oriented to a particular location, time, geography, and cast of characters. For example, Scott Adams "GHOST TOWN" takes place, appropriately enough, in an old west ghost town. All of the objects and treasures are oriented toward things that can be found there. Some of the things you will find are a horse, **GOLD NUGGET**, jail house, "BOOT HILL" and other such items.

This theme is what you should always keep in mind when playing. It allows you to narrow the scope of your thoughts while you are trying to overcome the various puzzles you will encounter. Don't narrow your thoughts too much however, because you will find that many programmers have sadistic streaks. If you can't solve a problem using logical means, then by all means try illogical solutions, ridiculous solutions are very often useful too.

Most adventures use a simple one or two word command format. This format consists of a verb and a noun, or in some cases just a verb. Some examples:

VERBS	NOUNS
GET	DOOR
LOOK	BED
OPEN	LAMP
CLOSE	**GOLD NUGGET**
TURN	HORSE
DIG	CELL
JUMP	GRAVE

To give a command you simply combine a verb and a noun. For example:

OPEN DOOR
LOOK CELL
JUMP GRAVE
etc...

In addition some verbs will do all by themselves, some of these are:

QUIT
SLEEP
LAUNCH
DRIVE
SAVE
etc...

All these verbs would have an implied noun, the noun of course would be game dependent.

There is one more special case, the motion verbs. The simplest form is simply using compass directions. Virtually all adventure games recognize this form of motion. You can usually just type the first letter of the direction you want to go in as the command and you will find yourself propelled in that direction. Example:

N	**(NORTH)**
S	**(SOUTH)**
E	**(EAST)**
W	**(WEST)**
U	**(UP)**

etc...

You can usually precede the motion words with **"GO"** or **"MOVE"**, i.e. **"GO NORTH"**, **"MOVE SOUTH"**, etc. But unless you are into the "JOY OF TYPING" you will probably find yourself using the terse form of the command.

Most of the nouns or objects will be described to you by the game. Some objects will have hidden meanings or functions, be on the lookout for these. In addition some adventures define all allowable verbs in the instructions, others make you discover what verbs/commands are valid. Discovering which verbs are valid is done on a trial and error basis in these kind of adventures.

Last but not least, *THE MAZES!* Mazes are the curse of every adventure player. The only really useful tool you will have if you encounter a maze is to try and "map it out". This is done by dropping objects in each room of the maze so you can tell where you have been already. In your map you draw a box for each room and indicate what object you left there. You should also indicate which direction you entered and exited the room from. Remember, most rooms have multiple entrances/exits. The most important thing to remember about mazes is — *PERSEVERE.* No adventurer ever successfully finished an adventure because he gave up in the mazes. Scott Adams doesn't use a lot of mazes in his games, but I am sure you will run into a great deal as more and more adventures become available for the Atari.

Well that about sums up most of the high points of adventuring. If I had just one word of advice to give a novice adventurer it would be:

"NEVER SAY DIE"

My second word of advice would be:

"ASK FOR HELP!"

If you can't find someone to help you with an adventure and you are ready to commit suicide, send me a S.A.S.E. and your question. I'll do my best to give you a little help (I warn you that I only give clues, not outright answers). Well, good luck and good adventuring. □

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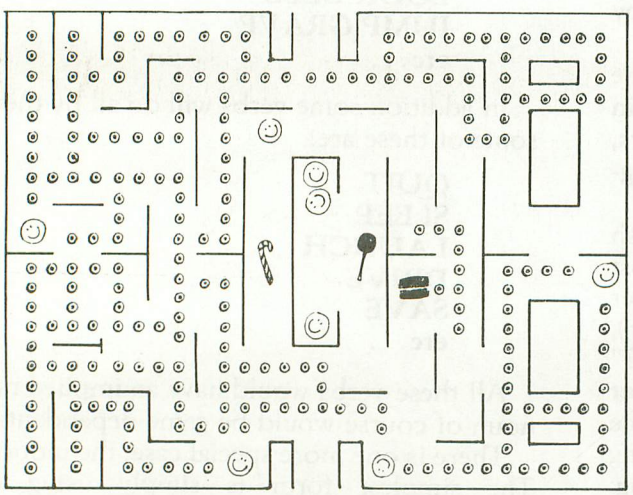

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PROGRAM CONDENSER.....

BY MODESTO ALVAREZ

This is an extremely useful program.

First of all; it can be used to convert numbers in certain base to another base. That process occurs between instructions 2000 and 2160.

The program as a whole does something really great; converts from base 32 into base 256; and back into 32.

Before you exclaim "that's it?" or "so what?" let me explain something: DATA FILES.

Let's say that you want to produce a disk-file (or cassette file) with 4000 long strings (records); each string being the combination of 10 or 12 substrings (fields).

Well! Under those premises each record will occupy a string with 90 or more characters in length (90+ bytes); which means that in spite of using four double density (180K) disk-drives you will be limited to around 8000 records (unless you insert another set of disks).

HERE COMES THE TRICK: If you could reduce each field of 5 characters into one of three character length; you will actually increase your storage capacity about 40%. Right? OK! Next!

ARRAYS OF STRINGS

Atari O.S. does not take the string-arrays, but if you really want to, you can go around this.

The clue is to take a normal array (actually I should say a matrix), dismember the strings into its characters, and deposit each string into each row of the matrix.

For a particular row, each column will contain the ASCII value of one character on that string. Therefore, if you want to work with twenty strings of 5 character length you will require an array of 20x5 (e.g. 20 DIM A(20,5)

HERE COMES THE OTHER TRICK: By reducing a five-character string into a three-character string, and then taking this "condensate" and converting it to decimal base; the obtained decimal value will be small enough so that it can be stored in just one cell of the array. So; you end up putting a five-character string in just one array cell. ISN'T THAT SOMETHING??

This means that if you have enough RAM memory to handle DIM (900;5) — 900 rows of 5 columns — you can instead use 5400 rows — DIM(5400) — of just one column. A capacity increase of 600%.

HOW IS IT DONE? Since the alphabet uses only 26 characters out of a total of 256 that our ASCII keyboard will tolerate, I can equate a 5-letter word into a 32-base number (26 chr. + 6 symbols = 32 or 25 a natural base) which can now be translated into a 256-base quantity requiring only three digits. □

```
10 DIM A$(120)
20 PRINT "ENTER LIST FILE";:INPUT A$
30 OPEN #1,4,0,A$
40 INPUT #1,A$:A=LEN(A$):FOR I=1 TO A
50 B=ASC(A$(I)):IF B>127 THEN B=B-128
60 IF B<32 OR (B>124 AND B<128) THEN A
$(I,I)=" "
70 NEXT I:IF A<39 THEN LPRINT A$:GOTO
40
80 LPRINT A$(1,38):IF A<77 THEN LPRINT
 A$(39):GOTO 40
90 LPRINT A$(39,76):LPRINT A$(77):GOTO
 40
1005 REM *from ascii into base 32*
1010 DIM COND$(5),D(9)
1020 ? "Write word to condensate (max.
 5 characters) :";:INPUT COND$
1030 FOR I=LEN(COND$) TO 1 STEP -1:NUM
=ASC(COND$(I,I))-64:IF SGN(NUM)=-1 THE
N NUM=NUM+48:IF NUM=16 THEN NUM=0
1040 COND$(I,I)=CHR$(NUM):NEXT I:? "En
 base 32 :    ";COND$
1045 REM *changing to base 256*
1050 BASE1=32:BASE2=256:GOSUB 2100:? "
En base 256 :  ";COND$(1,W)
1055 REM *changing to base 32*
1057 L=1:IF K>2^8 THEN L=2:IF K>2^16 T
HEN L=3:IF K>2^24 THEN L=4
1060 COND$=COND$(1,L):BASE1=256:BASE2=
32:GOSUB 2100:? "Descondens.:    ";COND
$
1100 END
1500 REM *CONVERSION SUBROUTINE:from
Base1 to Decimal;from Decimal to Base2
2000 REM *base1 to decimal*
2100 COUNT=9:FOR I=1 TO 9:D(I)=0:NEXT
I
2110 K=0:FOR I=LEN(COND$) TO 1 STEP -1
2120 X=INT(ASC(COND$(I,I))*INT(0.9+BAS
E1^(I-1))):K=K+X:NEXT I:K1=K:IF BASE2=
32 THEN ? "Decimal :       ";K
2125 REM *decimal to base2*
2130 Y=K1/BASE2:COZ=INT(Y):RESTO=K1-CO
Z*BASE2
2140 D(COUNT)=RESTO:COUNT=COUNT-1
2150 IF COZ>BASE2 THEN K1=COZ:GOTO 213
0
2155 D(COUNT)=COZ
2158 FOR I=1 TO 9:IF D(I)=0 THEN NEXT
I
2160 J=I:POP :W=0:FOR I=J TO 9:W=W+1:N
EXT I
2164 REM *reconvert or cycle*
2165 FOR I=1 TO W
2170 IF BASE2=32 THEN CHR=(D(10-I)+64)
:IF CHR>90 THEN CHR=CHR-48
2172 IF BASE2=32 AND CHR=64 THEN CHR=3
2
2175 IF BASE2=256 THEN CHR=D(10-I)
2180 COND$(I,I)=CHR$(CHR):NEXT I
2210 RETURN
-48
```

A.N.A.L.O.G. REVIEWS....

OUTER SPACE ACTION

The age we live in is often referred to as the space age. Computers and outer space seem to be made for one another. After all, it was computers that certainly made the space age come about. As computers became more and more affordable for institutions such as businesses and schools, it was only natural that those with imagination would sneak games into those systems. The first popular game was, of course, Star Trek. Modern day space warfare games on multi-user mainframes include Empire and various graphic and non-graphic space war type situations (similar to that which was developed at MIT in the early computer days).

Now that home computers are becoming common place, space warfare at home appears to be a rapidly spreading pastime. Ever since Star Wars and Space Invaders made their debut nearly simultaneously, celestrial battles have really gotten off the ground (sorry!). So here we have the following games reviewed to give you an idea of what is 'out there'. Space Invaders, Star Raiders, Missile Command, Battle Warp, and five versions of Star Trek have already been covered in previous issues. —LP

- **Sands of Mars/Crystal Software**
- **Starship Duel/John Konopa**
- **Space Chase/Swifty Software**
- **Lunar Lander/Adventure International**
- **Starbase Hyperion/Quality Software**
- **Conflict 2500/Avlon Hill**
- **Race In Space/ANALOG SOFTWARE**
- **Rescue At Rigel/Automated Simulations**
- **Asteroids/ATARI**

SANDS OF MARS

CRYSTAL COMPUTER
12215 MURPHY AVE.
SAN MARTIN, CA 95046
ATARI 800 48K Disk $39.95

Tony Messina

THE SANDS OF MARS, issued by Crystal Computer, has been advertised as the finest adventure of its kind. It is so difficult to solve, that the company has even offered a $100.00 reward to the person or persons who solved the mystery which lies beneath the SANDS OF MARS. Being an adventurer, I decided to answer the call and went to my local software distributor. He happened to have a copy which he just received. I plopped down my $39.95 and raced home to play. After playing the adventure without success (more on the reasons later) I decided to write a review about what I had encountered. I'll start with the documentation first.

THE DOCUMENTATION

SANDS OF MARS includes an instruction booklet, a map of Mars (I guess that's what it is) and two disks containing the program. The booklet gives a brief history on the civilizations of Mars and their current status. It includes a glossary of Martian terms and explains what items are available before you start your expedition. The mission is to go to Mars, rescue a long lost scientist, solve the mystery beneath the SANDS OF MARS and return to earth. Other items contained in the booklet are landing and take-off procedures and what you can expect on Mars. I don't know what the map is, but it may provide clues once you arrive on THE RED PLANET. The game itself consists of two phases, hence two disks. Disk 1 contains the program for initialization, take-off, flight to Mars and landing on Mars. Disk 2 contains the program for the exploration of Mars and the take-off sequence (more later on this).

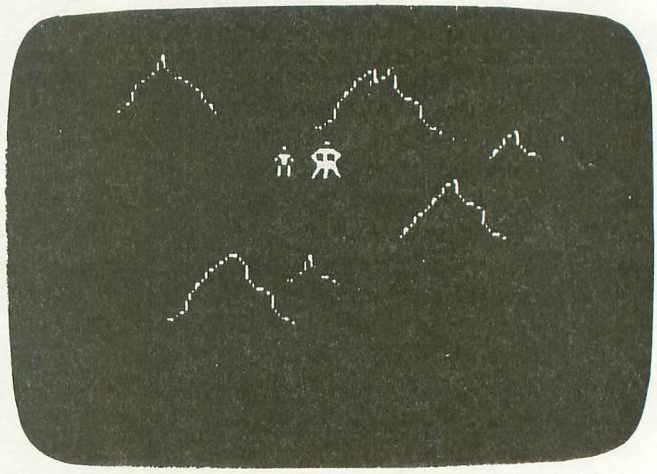
DISK 1

The program starts by giving you a fixed amount of local currency. You then must outfit your mission. A list of available items is given, which ranges from food tablets, weapons, space suits, ropes and rocket fuel, to the actual crew members you decide to take. Each item costs a fixed amount and upon purchase is deducted from your total currenty available. Entry of the items is done by typing the first and last letter of the item requested. A prompt appears and asks you how many of the items selected you wish to purchase. Having gone through this sequence several times, I noticed that the amount of currency you start with and the prices of the items change each time. This feature makes each game different. When you feel you are ready to take off, the display switches to a view of the launch pad with the Starship HERMAN waiting for take-off. The screen also shows a blockhouse on the right with a revolving radar dish. A little blue truck leaves the blockhouse travels to the launchpad, deposits a little man and then returns to the blockhouse. (CUTE!!!) The screen now switches to the control room. A large screen appears with the message "PREPARE ME FOR TAKE OFF". If directions are requested, then they will appear. The object upon take-off is to control thrust, burn rate and pitch of the starship in order to dock with an orbiting space station. Velocity for docking must be 18,000 mph. Pitch (from my experience) is not really critical. The first few times (two in my case) the lift-off seemed somewhat challenging. After that it was quite boring. Two joysticks are required to manipulate thrusters, main rockets, pitch and fuel burn rate. The values are presented on the screen along with the rocket sounds at take-off. The screen jiggles around to simulate the rocket vibration. If you exceed the 18,000 mph needed to dock, you end up in space and must find Mars from that point. If you suceed in docking, which isn't really too tough, you are rewarded with 20,000 additional units of rocket fuel. This may come in handy for the landing sequence. At this point two options are available:

1.) Hyper-warp to Mars
2.) Fly to Mars manually.

OPTION 1

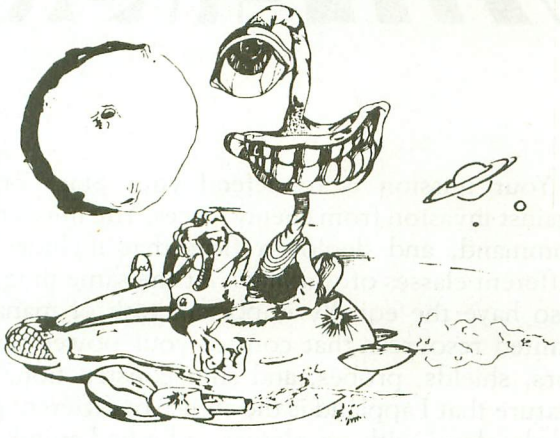
Hyper-warping requires you to have purchased ASTRACRYSTAL, a navigator and a computer programmer. Without all three of these don't plan on getting to Mars. This method is the quickest way to get from the space station to Mars and can save you from the perils that manual navigation present.



OPTION 2

Manual navigation presents some interesting problems. First, you must find Mars. The screen shows your starship, the space station and a starfield. You must engage your rocket engines and maneuver using the joystick. If you fail to move the joystick, you will burn fuel in place. Several dangers face you in this method of traversing space. Space pirates may appear, board your ship and steal anything they can get their hands on, including equipment and crew members. You can fight these ships using Lasers or Rifter Pods (assuming you purchased them). Other

weird craft may appear: Space traders, or alien ships. They may be hostile or just inquisitive. When craft appear you are offered several alternatives. You may hail them, offer to trade, send a diplomatic envoy, call Starfleet for instructions or blast away at them. By entering the appropriate number and pressing RETURN, your orders will be executed. The structure and sub-structure available are a bit confusing. The manual assumes you have played LASER WARS, but does explain what is available. It took several replays of the game to become used to what I could and could not do as my mistakes caused complete and utter destruction, forcing me back to a replay. This is more of a frustration than a challenge! When encountering any alien vessels, none of the commands appeared to work except blasting them. This portion needs improvement to give some positive response to the player other than some message that says "Orders carried out". The landing sequence, once you find Mars, is pretty straight forward. Keep the landing velocity less than 50 mph at touch-down. When landing, I kept waiting for the HI-RES close-ups referred to in the manual. All I ever saw was the landing values displayed on the screen. No close-ups, no anything except, you guessed it, the flash of my ship being vaporized. Yes.. I had to start from scratch. I have been informed that a change sheet was supposed to accompany the program and tell you not to expect a HI-RES landing. Real fine!!! Well I made it to Mars. "Very nice landing commander" was my welcome. A message appeared instructing me to insert disk 2 and hit RETURN when I was ready.



DISK 2

After I inserted disk number 2 and hit RETURN I was greeted with a disk line error. At this point I decided to try something. I powered down the system and rebooted with disk 2. The program asked if this was my maiden voyage or a continuation. I hit continuation. After several buzzes and clicks, I found myself standing on Mars next to my spaceship. Several thoughts came to mind as to why this had occured.

1.) There are default values saved for this purpose.
2.) Someone played this before I bought it.

Knowing my software distributor is not in the habit of playing the customers software, I opted for theory 1. When I took an inventory I found I had very little food. I started to explore Mars. I encountered some lizard men and even ventured beneath the lost city of Lumeria. I couldn't do too much exploring as my food ran out and everyone died. Movement is controlled by the use of the joystick, accompanied by the pitter-patter of your footsteps. Your party is represented by a man-like figure. If you stop moving and happen to hear the pitter-patter of footsteps, BEWARE!! Some unseen danger is nearby ready to leap out and destroy you. Hills, ruins, vegetation and creatures are all displayed on the screen. The screen display scrolls along to present new terrain as you travel. The same technique is used during manual navigation from the space station to Mars. There is a problem with this method. If you reach a point where you cannot continue, the scrolling stops! I didn't have to travel very far before this occurred. Now Mars and space are fairly large, and being forced to stop after only a little traveling is not realistic. Besides, my crew got eaten by lizard-men because I was trying to run in a direction I couldn't go. This whole mess could be corrected if a wrap-around technique were employed. Although not a major flaw, it does detract from the realism of the game. Overall, the graphics and sound were fine. Again, I feel they were not something that would win an Academy Award. The next day I returned the program to my software distributor and found out some interesting things. I was not the first to return this software. Others had preceded me and all problems were due to our friend, Mr. Disk Link Error. I saw LASER WARS and asked for a demo on his system but we couldn't get it loaded due to a boot error! The manager talked with someone out at Crystal Computer. The disk problems were apparently a plague that had struck the company. This I can understand, as not all disks are created equal. What's the verdict you ask? Well, let's take everything into account.

THE GOOD NEWS

It is apparent that a lot of work and detail went into creating this game. The graphics and sound used in the SANDS OF MARS are good. The game flow and sequence of events is not bad either. Everything progresses logically. The Martian landscape is interesting. The game becomes challenging when facing alien ships and lizard men on Mars. Everything is in real time, and your party can be annihilated if you don't act quickly.

THE NOT SO GOOD NEWS

The documentation does not reflect the program operation in many places, and is incomplete in other areas. I realize this is an adventure and if everything was revealed much of the fun would be removed. I do believe, however, that you should at least be given a chance to complete it. Alternate solutions should be available to many of the problems you face. This

was not apparent in the program. I also feel that an adventurer should not be wiped out or destroyed instantly without warning. He should be given at least some chance of survival. Again, this did not occur. The game can only be saved once you land on Mars. The entire take-off sequence, and especially the purchase of goods, cannot be saved. Perhaps an improvement can be made to allow this to be done The documentation tells you to save programs on disk #1 yet the program prompts tell you to save it on disk #2. The landing sequence Hi-Res graphics were missing (I never got the change sheet). The manual never mentions how to move or use weapons when you explore Mars. By the time I found out, by trial and error, half of my crew had been eaten by lizard men. There is no documentation at all on how to boot in the programs. Perhaps this seems a trivial point, but if a problems arose due to booting in, I might think it was due to some configuration error rather than a program fault. This is true of other programs such as LASER WARS which has nothing at all! The program does not live up to the advertising hype of "Revolutionary 3-D graphics". The only 3-D things I saw were the revolving radar dish, and the view of space from the bridge of the Starship Herman. These are certainly not revolutionary, at least in my opinion. This package gets an overall C. (I didn't include the program crashes as part of my evaluation). The value of the program is that it is a bit different from most adventures. The fact that it is multi-phased in nature and does not require you to enter two-word phrases and hit RETURN make a difference. The price of $39.95, however, is steep and in this authors opinion not worth it. □

STARBASE HYPERION

Quality Software
6660 Reseda Blvd.
Reseda, CA 91335
24K Cassette, $19.95, Disk $22.95

Reviewed by Mike Des Chenes

At first glance, Starbase Hyperion reminded me of a reconstructed Star Trek game. I was never a big fan of those ever popular computer Star Trek games. However, I found myself playing Starbase Hyperion over and over and over. I hope that my review does justice to this fine program from Quality Software. Most people who have seen the game demonstrated weren't very impressed with my presentation, but when I talked them into bringing the program home and giving it a try, they were waving cash in my face the next day. The important thing about this game is that you should read both the instruction booklet and the Battle Manual before you sit down to play. The Battle Manual is a fictional "Classified Document" for "Star Commanders," and marked "EYES ONLY". It includes helpful information on enemy ships, ground defense, ship tactics and other classified subjects which came in very useful during my campaign.

Starbase Hyperion is a single player tactical simulation game. You'll probably need to play several times to learn not only the rules, but also the advantages and errors of different tactics. My first few games were disasterous. I was getting zapped within the first few minutes.

Your mission is to defend your Star Fortress against invasion from enemy forces. You must create, command, and deploy a fleet that includes five different classes of warships. At the same time, you also have the equally important task of managing limited resources that control your power generators, shields, probes, and ship construction. One feature that I applaud is the choice of different game levels along with an almost unlimited number of scenarios. No two games will be exactly alike.

Starship Hyperion is not an arcade type game (a nice change) nor does it have Star Raiders' type graphics, but it does have good graphics and color with great sound effects and playability. This is a game that will make you feel like you've accomplished a personal victory with every game you win. Starship Hyperion is a program that won't disappoint you once you've learned the game strategy. A must for your software collection. NOTE: Both the cassette and disk version are copy protected. □

STARSHIP DUEL

John Konopa
6 York St.
Bridgeport, CT 06610
119.95 8K Cassette

The first thing that you'll probably say before giving this program a chance is "8K!, it can't be that good." But don't let the memory requirement fool you. For an 8K program, I am impressed with the game's playability.

Starship Duel, as the name implies, is a two player, shot your opponent type game. The object of the game is to destroy your opponent's fleet of 10 starships, one at a time. Two fleets of reserve starships are located horizontally on the screen, yellow ships on the top, and the green ships on the bottom. The amount of shots available for each ship is limited to 36, but before your shots are depleted, the message "LOW" appears on the screen to warn you that you have only 5 shots left from that starship before it disintegrates and is replaced by another (if you have reserve ships left). However, you can replenish your fuel supply by shooting a white "X" that keeps popping up on the screen.

I have a bad habit of not reading instructions. So, because this is a two palyer game, I plugged the jousticks into jacks one and two. And for the next ten minutes I was not able to get the playfield to come up on the screen after I chose the game option. I finally decided to give the instructions a try and found out that the game uses jacks one and three and for some strange reason the game crashes when using the wrong ports and must be reset and RUN again.

When shooting at your opponent, it's not just a simple matter of hitting him with your laser. You must be precise and hit him with the "end" of the laser beam and the ship must be moving in the direction that you want to shoot. Also, you can not fire the laser when your ship is stationary. There are four game options available. Game 1 is the simplest one-on-one combat type game. Game 2 is the same except that the starships become partially or totally invisible toward the left and right edges of the screen. I also noticed that in all game options it was impossible to shoot when your ship is on the edge of the screen, even though it was a wraparound playfield. The ships also would change brightness as they were moving, and disapper when stationary. I don't know if this is intentional, but it seemed to be annoying on my screen. Game 3 has a blinking "white phantom" ship which moves randomly across the screen. If any starship flies into or collides with the phantom ship, that ship will be destroyed. However, if either player shoots the white phantom with the "end" of their laser, then the phantom ship becomes your ally, takes on your ship's color, and will only destroy your opponent's ship. The playfields background has randomly plotted stars which make the game nicer graphically. However, if either ship hits a star, the star is erased. Player missile graphics would have been a better choice to use for the ships. Over all Starship Duel has its good and bad points. Playability, graphics, color, and sound are good compared to similar shoot-em-up space games. However, the $19.95 retail price seems a bit high for this particular game. □

LUNAR LANDER

Adventure International
Box 3435
Longwood, FL 32750
24K Cassette, $14.95

How can we possible have a complete review of space games without including a version of the ever popular Lunar Lander. The best version available thus far for the Atari is from Adventure International.

Once loaded, (which seems to be very difficult with many Adventure International's Atari programs), you are given the choice of four difficulty levels. Novice, Scout, Captain, and Commander. Novice, the easiest, gives the user plenty of fuel and a fairly simple landscape in which to land your LEM. The Scout level has a smaller fuel supply and a slower landing speek must be observed than in the Novice level. The Captain level has a more difficult landscape than in the Scout level along with smaller landing pads. And then there's the Commander level, where you must maneuver your LEM into a crater and land your ship at the end of a winding underground tunnel. Halfway through the tunnel you must land your ship in order to replenish your fuel supply or you'll find yourself out of fuel before you reach the landing pad at the tunnel's end. I haven't made a successful landing as of yet in the Commander level (But I'll keep trying). The entire game uses the joystick controllers for left and right thrust, braking rockets, and for choosing the difficulty levels.

You get 5 chances to land the LEM each game, with a new supply of fuel for each try along with your updated score. On the first three levels, you have a choice of 5 landing areas which are numbered to indicate the difficulty and score values. The fuel supply is shown as a green bar graph located at the right of the screen. The graph turns red to indicate that 75% of the fuel has been used. There is also a similar bar graph on the left side of the screen that changes from red to green which indicates whether or not your descent speed is low enough to make a

safe landing. After each landing attempt your score is shown, and if you land successfully 5 out of the 5 trys, you'll be rewarded with a special display showing two astronauts walking on the lunar surface and planting the American flag. Very well done using player missile graphics.

Lunar Lander is a very enjoyable one player game. I would like to have seen the use of a numerical display as used in the arcade version. However, the bar graphs seem to do the same job. I hope to see a version of Lunar Lander that incorporates many of the special features that are possible with the Atari. But as I mentioned earlier, this is the best version I have seen to date for the Atari Computer. Sound, graphics, and playability are very good as we all would expect from Adventure International. I would, however, recommend that they find a new source for tape duplication. □

CONFLICT 2500

Conflict is a challenging tactical simulation game that combines the usual lo-res grid scenario with some nice hi-res graphics and sound. On top of that, it's fun to play and there is enough diversity in the scenarios to keep you interested and challenged for quite a while. Each new game lets you select how many planets, star bases, hyperfighters (yours) and planet pulverizers (the computer's) will populate the universe. As you probably guessed, the more of theirs and the fewer of yours, the harder it gets.

There are some irritating bugs in the version I used which are nothing more than sloppy programming and testing. The battle messages which let you know the result of each conflict at the end of every turn, overwrite one another and become unintelligible very quickly. Also, on several occasions I got a no **'SHIP DESTROYED'** message only to find that a fighter I had expected to be in a certain place wasn't there or anywhere else on the next turn.

The most frustrating problem cropped up when there were more than two opposing ships in the same sector with a planet. The hi-res graphics scan would occasionally "murphy" my position changes. It could conceivably have been an extreme case of fumble fingers on my part, but it happened often enough that I'd advise you to watch for it.

On the whole, CONFLICT is a nice addition to the game shelf. The problems noted should be easy enough to correct and hopefully will be removed from future releases.

You may find your first game a little slow if you follow their familiarization suggestion and use only one ship on each side. Don't despair — things get much more interesting with a few more ships and planets in the universe.
Good Hunting. □

RESCUE AT RIGEL

One of the best 'Dungeons and Dragons' games based on a Science-Fiction theme to come along for the Atari Computer System is **Rescue at Rigel**, by Automated Simulations. This game makes excellent use of sound, real time interaction and player-missile graphics. And to further add to the mood of the game, a science fiction style character set.

Having played Rescue at Rigel many times before, I thought I was familiar with the command of the game. But, reading the instructions one more time proved differently. The instruction book (which is 32 pages long) fully describes the sixteen commands and their application in the game, as well as everything else that you need to know about Rescue at Rigel.

The object of the game is to rescue ten human beings from an asteroid orbiting the planet Rigel (hence the name, Rescue at Rigel). You, in the part of the character "Sudden Smith", have been supplied with a Blaster, an adjustable Powergun, a defensive Shield, an AMBLE (Accelerated Movement through Bio-eLectronic Enhancement) System; also known as Bionics, and several Medikits and transporter beams. Using this equipment, you have up to one hour to free the ten prisoners from this orbiting rock or your rescue ship will leave without you. There are seven types of aliens that make their home in the asteroid, all of which are hostile to you and your mission, and will do their best to see that you fail.

Although Rescue at Rigel makes no use of joysticks (and it was missed initially), one soon gets accustomed to entering all commands through the keyboard. A suggestion to Automated Simulations: add a prompt line so we will not have to refer to the instruction book to check on those little used commands (ie: B=Blast, F=Fire, S=Shields, etc.). A quick reference card is supplied, but in a fast moving game of this nature, it is better to keep one's eyes glued to the TV screen. This game is a challenge, even on the easiest of the three difficulty levels (most people will not last more than a half hour).

The graphics, interaction, nice sound effects, and fast-paced real time action make for an interesting conflict/simulation. □

GALACTIC QUEST

Galactic Quest, another space-based adventure-type game from Crystalware, puts you in the position of a star cruiser Ensign. Your ship's captain has just 'bought it', and now YOU are in command of the ship. Your mission: to defend your ship from any deadly Vegan assault cruisers that happen along, and to do as much trading throughout the star system as

possible and build up your revenues. The game ends when (a) you have destroyed 100 Vegan cruisers, (b) you have earned ten thousand Quintons (Quinton=$$$$$$), or (c) you have gotten yourself blown up.

To defend your ship you have Rifter Pods (similar to photon torpedoes) and Meson LASERs. To move about you switch to either a diagram of the local star system surrounding your ship, or a galactic star map showing the section of the galaxy containing all the nearby star systems. It isn't too difficult to keep an eye on oncoming Vegan ships. The Star Map can give you at least 30 seconds warning before they approach, or spy reports from your bases will let you know also. However, it is up to you to check these resources. Just sitting there flying your ship with the joystick, without checking these readouts may result in your destruction.

The danger of getting destroyed by an alien ship, running into a sun, or accidentally hitting the self destruct button (an easy thing to do), present the main dangers and suspense in the game. As far as the trading aspect of the game goes, I found it fairly boring. You have a dozen and a half planets with which to trade; you buy some goods, use what you need, then trade off the rest for profit at another star system. One 'bug' in the game: after trading with a planet, how after traveling a dozen systems away, do I come to arrive at the same planet? In other words, you may come across 2 or 3 planets VOLCANIC, and so on.

The game does use several of the ATARI's capabilities such as course scrolling screen, rewritten character sets, and sound effects. However, most of the graphics and sound movement routines are identical to those found in "The Sands of Mars". In all I found the game mildly interesting. Those who know little of the 400/800's abilities may find the game fascinating, the more experienced will just say "is that it?" □

ASTEROIDS

ASTEROIDS and ATARI: these two words must be known to every family in the world (except for a few remote tribes here or there). There now exist three formats by ATARI of this most popular game; the arcade machine, the video computer system version, and now the 400/800 computer cartridge.

Now I must start out by saying the computer version of this game is a big let down. I don't know who at ATARI wrote it, but they should have seen the computer version of Missile Command to learn about more of the ATARI's capabilities. The difference between the video game version of ASTEROIDS and the computer version isn't near as great as the Missile Command versions. And compared to the newer ASTEROIDS Deluxe arcade version, the computer ASTEROIDS looks bad indeed. If you haven't seen the 400/800 ASTEROIDS, just picture several blue meatballs against a black background and you have a good picture of how the graphics are.

The imagination that went into the computer version not only isn't there, it's almost retrogressive. You have several options in the game. Hyperspace will blank out your ship and randomly place it somewhere else on the screen. However unlike the arcade version it usually puts you in a safe area — your chance of materializing inside an asteroid isn't too high. Flip over is an interesting option allowing you to instantly flip your space ship 180 degrees to destroy an aft coming asteroid rather than having to waste a couple seconds pivoting. The shield option is ridiculous. It's not even close to the ASTEROIDS Deluxe feature in either graphics nor function. The arcade option gives you a time limit on how long you can use your shields (as does even the video game version), and should you get struck by an asteroid, you will be nudged by it. Now if you get caught between TWO oncoming asteroids (approaching each other head on), you will be obliterated. The computer shield option simply turns your ship into an uninteresting blob allowing asteroids to pass behind you undisturbed. No time limit, no danger, no nice graphics. (Note to ATARI: look at ANALOG SOFTWARE's Race In Space if you need any further ideas for shield effects or nice space-type sounds).

Not to cut down this game any further, but the sound effect of the oncoming space rocks is pretty pitiful. Why they used the first sound effect they probably came upon instead of experimenting with new ones I couldn't even begin to guess at.

There are a few good points to this game though. Up to four players can compete, either one at a time, or simultaneously. There are even versions where you can blow away your opponent's ships. An interesting difference between this game and the video game ASTEROIDS: the saucers in the VCS version are much better shots. However when you really get going in the computer version, that saucer is nuisance enough.

The saving grace to this game is that it's addictive. And at the very least it will improve your peripheral vision. It also will run in 8K (but who cares? how many 8K 400's or 800's are out there? 10? 11?). I won't heartily recommend this game, however, if you DO like 'STROIDS, you may as well buy it until an improved version comes along. □

SPACE CHASE

SWIFTY SOFTWARE
P.O. Box 641
Melville, NY 11747

24K Disk $19.95 — 16K Cassette $14.95
Review by Mike DesChenes

Space Chase is a one player game pitting you against intelligent alien ships. Your mission is to save a number of planets in the solar system from these space menaces. Using the joystick to guide your ship, you must collide with or touch a large number of white dots (planets) which disappear on contact. You must try to clear the screen of these planets and at the same time try to outmaneuver the alien ships. You receive points for every planet you touch. However, if the alien ships come in contact with a planet, your score goes down. You also have nuclear devices that you can leave behind in hopes of destroying an enemy ship. When an enemy ship has been annihilated, it is soon replaced with another, but destroying an enemy ship adds points to your total. Another of the options are shields. The shields only protect you from the nuclear devices, not the enemy ships.

The first game pits you against one enemy marauder, and the user selects the amount of nuclear devices available and whether or not shields will be used. Once that galaxy is conquered, you must face two enemy ships. When and if you survive the second galaxy, you continue on to the third galaxy, where you are then confronted by three ships. The game ends when an enemy ship collides with yours. It then displays the top score, number of planets saved, and number of galaxies conquered.

Space Chase is fun and sometimes can be very addictive. Excellent sound and color with good graphics. Well worth the price. Another fine job from Swifty. □

ABOUT A.N.A.L.O.G.'s PROGRAM LISTINGS:

We have spent some time considering the best method to present our program listings. The greatest problem encountered by our readers occurs in the understanding of the 'control graphic character set'. If you see an unusual character, look it up in the BASIC Reference Manual to find out how to enter it into the computer. To get the listing format in the magazine, we use an Epson MX-80 F/T along with a short program to format the listings to 38 columns. Rather than have "[CONTROL T]" printed instead of "●", we chose the 38 column format to make debugging easier, so what is on your screen is matched to what is listed in the magazine (the last character on a line on the screen will be the same last character in the magazine listing). □

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The program uses voice, sound effects, music, color and mixed graphics.

Sammy The Sea Serpent
can be used with either the ATARI 400 or 800 and requires 16K. It is available in cassette format only. Price is $16.95 plus $2.00 shipping and handling.

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PDI

Program Design, Inc. 11 Idar Court Greenwich, CT 06830
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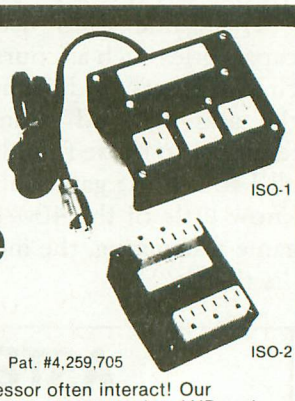

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SOFTWARE REVIEW - ATARI CONVERSATIONAL SPANISH

Before entering High School, I had a few important decisions to make concerning courses. The most difficult of these was choosing which of the two required language courses would be the least boring and the easiest to pass. That may not be the right attitude, but at the time it was like choosing the lesser of three evils. My choices were, Latin, French, and Spanish. So during the course of the following four years I studied Latin and French, which were the two most dreary subjects I can remember.

While I have always been excited about the release of new software from Atari, I wasn't in any particular hurry for their Conversational Language Programs and to make matters worse I have been chosen to review their first release in this series of language courses, "Conversational Spanish". So, after carefully studying the reference manual and completing the five cassette programs, all I have to say about the course is, where was Atari when I was in School? Conversational Spanish made learning a language both interesting and enjoyable, even fun at times.

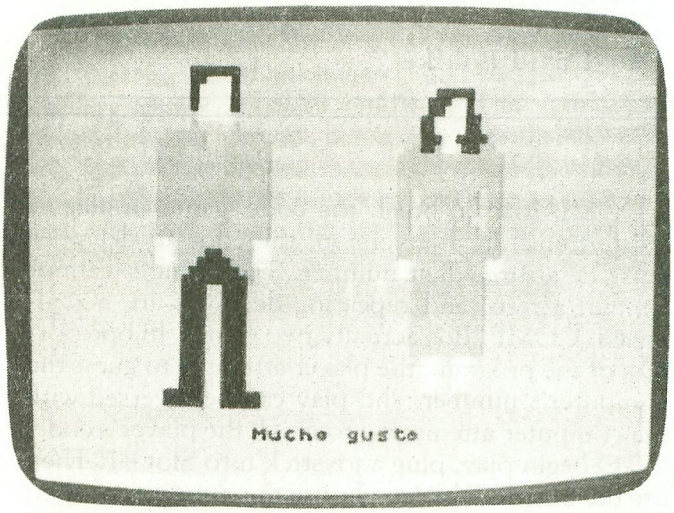
CURSOS DE VERANO

CURSOS DE VERANO

EN LA

UNIVERSIDAD AUTONOMA de QUERETARO

With most of the readily available self study courses you are really on your own. But with Atari's Conversational Language courses it is almost as if you have your own private tutor who interacts with you, showing you where you're going wrong. Conversational Spanish can be used by anyone 14 or over who wants to learn Spanish from scratch. The programs make good use of Atari's abilities with a nice mixture of sound, graphics and text. The use of the cassettes audio track makes the course more interesting and easier for the user to learn the correct pronunciation. I must admit however, that I was a little uneasy talking to my television set. Each unit of the lessons contain sections where you listen, or listen and repeat words, phrases, and sentences. The ability to respond with the audio track is an excellent feature, which makes the Atari computer perfect for this type of educational program. I found that feature to make the course more challenging and the learning less boring.



The course consists of five program cassettes and a 27 page course book. Each cassette contains two units — one on each side, and each unit is divided into two or three "learning phases" or sections. The course book, which is very well written, is divided in the same manner as the cassettes with each unit containing a study, a practice, and an activity section, along with a grammar summary and vocabulary list. All this plus a useful cassette counter chart are nicely packaged in an attractive notebook binder.

After you've completed the course, you should have reached a level where you've begun to understand, speak, read and write the kind of Spanish needed in everyday situations, whether you're traveling in Spanish-speaking countries or conversing with Spanish speaking peoples.

Atari, along with Longman Group Limited ( ) and EMI of England ( ), have put together a very impressive language course. My only complaint, is that now that I have seen their first in a series of Conversational Language courses, I'm impatient for the next courses to be released (French and German). Learning a language can be fun after all. □

COMP III

Requires 16K

by David Bohlke

COMP III is a 'break the code' game similar to Mastermind. In this version, the code to decipher must be a three digit number. The number cannot contain a zero; and repeating decimals are not allowed. COMP III is actually two games. In one portion of the program, the player attempts to guess the computer's number, and play can be reversed with the computer attempting to crack the player's code.

TO begin play, plug a joystick into Slot #1. Then use the SELECT key to choose the game you wish to play. That is, whether the human or computer will guess the other's number. Next, press the START key to initiate your selection.

There are three responses used as clues to aid you in finding the number — Zip, Par, and Ace. A Zip clue indicates that all three of the digits you have guessed are incorrect. The clue Par means that one digit is correct, but in the wrong location. An Ace indicator means that a digit is both correct and in the proper location. The clues Ace and Par may be used together in several combinations as responses to a given guess.

As an example, suppose the hidden number is 123. Following are several sample guesses with the proper clue responses:

869 Zip (all digits incorrect)
437 Par (one digit correct, but in the wrong location)
215 Par, Par (two digits correct, but each in the wrong location)
826 Ace (one digit correct and in proper location)
143 Ace, Ace (two digits correct and both in the proper location)
327 Ace, Par (one digit correct and in proper location, one digit correct and in wrong position)
231 Par, Par, Par (all three digits correct, and each in the wrong position)
321 Ace, Par, Par (one digit correct and in the proper position, and two digits correct but in the wrong position)

When you are guessing the computer's number, these clues will be displayed to the right of your guess. If the computer is guessing your number, then this entire list of possible responses will be printed on the screen. You will need to use the joystick to move the cursor along side of the proper response to the computer's guess, then press the Fire button. If the number is not guessed in nine attempts (for either code breaker), a new game will be initiated. The Atari can usually guess your number in four to six tries — and with a little practice you should be able to become just as efficient.

COMP III Listing Description

10-32 initialization
20 A $ (1000) holds possible picks for the computer's guess, B$(5) is used in prints
27 set screen display
30 get game selection
32 branch to player's guess
45-260 computer to guess player's number
45 initialize array
NG is the number of the guess
50-90 pick a random guess from the array
130 A,B,C are the digits of the guess
134-154 print prompts
200-222 get player's response, CP is the position of the cursor
250-254 print old guess
260 get next guess, loop through sequence
400-625 player to guess computer's number
400-420 computer selects number to be guessed
GN is the guess number
422-425 player didn't get the number in nine attempts
430-455 input player's guess
500-560 print response for player's guess
600-625 STICK controls for player's guess
700-810 computer's guess logic
700 check each remaining number
X,Y,Z are the possible guess digits
720 possible guess if Zip response
730 possible guess if Ace response
640
740 possible guess is Par response
750 possible guess if Par, Par response
760 possible guess if Ace, Ace response
770 possible guess if Ace, Par response
780 possible guess if Ace, Par, Par response
790 possible guess if Par, Par, Par response
850-870 initial array
A$(N,N) ="O" if number is elimi-
by logic in line #720-790, else
A$(N,N) =1
900-932 select game
950-974 screen display

```
 GRAPHICS 2
12 SETCOLOR 4,12,4:SETCOLOR 2,12,4
14 SETCOLOR 1,7,8:SETCOLOR 3,11,8
16 SETCOLOR 0,3,8
20 DIM A$(1000),B$(5)
25 POSITION 4,0:PRINT #6;"comp iii"
26 POSITION 14,0:PRINT #6;"GUESS"
27 POKE 752,1:GOSUB 950
30 GM=1:GOSUB 900
32 IF GM=1 THEN 400
35 LPRINT CHR$(27);"E"
40 TRAP 100:INPUT #1,A$:A=LEN(A$):FOR
I=1 TO A
45 GOSUB 850:NG=0
50 G=INT(RND(0)*900)+100:S=G:J=G
52 POKE 77,0
60 IF A$(J,J)="1" THEN 90
70 S=S+1:IF S>999 THEN S=111
72 SOUND 0,S/4,10,2
75 IF S=G THEN 960
80 J=S:GOTO 60
90 G=J:NG=NG+1
95 LPRINT A$(77,114):LPRINT A$(115):GO
TO 40
100 PRINT "...DONE!"
130 A=INT(G/100):B=INT((G-A*100)/10):C
=G-A*100-B*10
134 P=12
135 POSITION 13,NG:PRINT #6;NG;
136 COLOR 9:PLOT 14,NG
140 POSITION 16,NG:PRINT #6;G;
145 GOSUB 150:GOTO 200
150 PRINT "ZIP - all digits incorrect"
152 PRINT "PAR - digit correct, positi
on wrong"
154 PRINT "ACE - digit and position co
rrect":RETURN
200 CP=1
203 POSITION 0,CP:PRINT #6;" ";
205 IF STRIG(0)=0 THEN 215
206 IF STICK(0)=14 THEN CP=CP-1:IF CP<
1 THEN CP=1
207 IF STICK(0)=13 THEN CP=CP+1:IF CP>
9 THEN CP=9
210 POSITION 0,CP:PRINT #6;"*";
211 SOUND 0,CP*10+100,10,2
212 FOR J=1 TO 50:NEXT J:SOUND 0,0,0,0
:GOTO 203
215 A$(6,6)="0"
222 ? :? :? :?
230 IF CP=9 THEN 971
240 IF NG=9 THEN 970
250 COLOR 144+A:PLOT 16,NG
252 COLOR 144+B:PLOT 17,NG
254 COLOR 144+C:PLOT 18,NG
260 GOSUB 700:GOTO 50
400 GRAPHICS 2:SETCOLOR 4,0,8:SETCOLOR
 2,0,8
402 SETCOLOR 0,7,10:SETCOLOR 3,4,10
403 POKE 752,1
405 POSITION 6,0:PRINT #6;"COMP III";
410 A=INT(RND(0)*9)+1:B=INT(RND(0)*9)+
1:IF A=B THEN 410
415 C=INT(RND(0)*9)+1:IF A=C OR B=C TH
EN 415
418 GN=0
420 GN=GN+1
422 IF GN<10 THEN 430
424 ? :? :PRINT "You can do better the
n this !!!"
425 PRINT "The number was ";A;B;C:GOTO
 971
430 POSITION 1,GN:PRINT #6;GN;")";
432 POKE 77,0
440 ? :? :PRINT "SELECT YOUR GUESS :":
?
442 PRINT "Push the stick to select th
e digit,":PRINT "then press FIRE.";
450 P=3:N=5:GOSUB 600:X=N
451 FOR I=1 TO 100:SOUND 0,I*2,10,2:NE
XT I
452 P=4:N=5:GOSUB 600:Y=N:IF X=Y THEN
FOR I=1 TO 200:SOUND 0,I,6,2:NEXT I:GO
TO 452
453 FOR I=1 TO 100:SOUND 0,I*2,10,2:NE
XT I
454 P=5:N=5:GOSUB 600:Z=N:IF Z=X OR Z=
Y THEN FOR I=1 TO 200:SOUND 0,I*2,6,2:
NEXT I:GOTO 454
455 FOR I=1 TO 100:SOUND 0,I*2,10,2:NE
XT I
500 POSITION 7,GN
510 IF X=A AND Y=B AND Z=C THEN PRINT
#6;"correct";:? :? :? :GOTO 971
520 IF X<>A AND X<>B AND X<>C AND Y<>A
 AND Y<>B AND Y<>C AND Z<>A AND Z<>B A
ND Z<>C THEN 560
530 IF X=A THEN PRINT #6;"ace ";
532 IF Y=B THEN PRINT #6;"ace ";
534 IF Z=C THEN PRINT #6;"ace ";
540 IF X=B OR X=C THEN PRINT #6;"par "
;
542 IF Y=A OR Y=C THEN PRINT #6;"par "
;
544 IF Z=A OR Z=B THEN PRINT #6;"par "
;
550 GOTO 420
560 PRINT #6;" ZIPPO ";:GOTO 420
600 COLOR N+16:PLOT P,GN
605 SOUND 0,0,0,0:IF STRIG(0)=0 THEN R
ETURN
610 IF STICK(0)=14 THEN N=N-1:GOTO 620
612 IF STICK(0)=13 THEN N=N+1:GOTO 620
615 GOTO 605
620 IF N<1 THEN N=1
622 IF N>9 THEN N=9
624 FOR I=1 TO 10:SOUND 0,N*25,10,2:NE
XT I:SOUND 0,0,0,0
625 GOTO 600
700 FOR I=111 TO 999
705 IF A$(I,I)="0" THEN 810
708 X=INT(I/100):Y=INT((I-X*100)/10):Z
=I-X*100-Y*10
715 GOTO CP*10+710
720 IF X=A OR X=B OR X=C OR Y=A OR Y=B
 OR Y=C OR Z=A OR Z=B OR Z=C THEN 799
721 GOTO 800
730 IF X=A AND Y<>B AND Y<>C AND Z<>B
AND Z<>C THEN 800
732 IF B=Y AND X<>A AND X<>C AND Z<>A
AND Z<>C THEN 800
734 IF C=Z AND X<>A AND X<>B AND Y<>A
AND Y<>B THEN 800
739 GOTO 799
740 IF A=X OR B=Y OR C=Z THEN 799
742 IF (A=Y OR A=Z) AND B<>X AND B<>Z
AND C<>X AND C<>Y THEN 800
744 IF (B=X OR B=Z) AND A<>Y AND A<>Z
AND C<>X AND C<>Y THEN 800
746 IF (C=X OR C=Y) AND A<>Y AND A<>Z
AND B<>X AND B<>Z THEN 800
749 GOTO 799
750 IF (Y=A OR Z=A) AND (X=B OR Z=B) T
HEN 800
752 IF (Y=A OR Z=A) AND (C=X OR C=Y) T
HEN 800
754 IF (B=X OR B=Z) AND (C=X OR C=Y) T
HEN 800
756 GOTO 799
760 IF (X=A AND Y=B) OR (X=A AND C=Z)
OR (C=Z AND Y=B) THEN 800
762 GOTO 799
770 IF X=A AND B=Z AND Y<>C THEN 800
771 IF X=A AND B<>Z AND Y=C THEN 800
772 IF B=Y AND C=X AND A<>Z THEN 800
773 IF B=Y AND C<>X AND A=Z THEN 800
774 IF C=Z AND X=B AND Y<>A THEN 800
775 IF C=Z AND X<>B AND Y=A THEN 800
779 GOTO 799
780 IF X=A AND B=Z AND Y=C THEN 800
782 IF B=Y AND Z=A AND C=X THEN 800
784 IF C=Z AND B=X AND A=Y THEN 800
786 GOTO 799
790 IF A=Y AND B=Z AND C=X THEN 800
792 IF A=Z AND B=X AND C=Y THEN 800
799 A$(I,I)="0":SOUND 0,Z*10+20,10,2:G
OTO 810
800 A$(I,I)="1":SOUND 0,Z*10+100,10,2
802 POSITION 16,NG+1:PRINT #6;I;
810 NEXT I:RETURN
850 ? :? "INITIALING ARRAY . . . (30 S
EC)"
851 PRINT "Think of a three digit numb
er ":PRINT "   with no zeros, and"
852 PRINT "   without any repeating di
gits !";
853 FOR X=1 TO 9:FOR Y=0 TO 9:FOR Z=0
TO 9
854 N=X*100+Y*10+Z
855 IF X=Y OR X=Z OR Y=Z OR Y=0 OR Z=0
 THEN A$(N,N)="0":GOTO 860
856 A$(N,N)="1"
```

Continued on page 52

RUMORS...

You know, one of the nice things about rumors is that by the next issue, alot of last issues hot items are changed, so here goes the latest from "FUNNYVALE":

SINGLE DRIVE DEPT. — The 810 disk drives now coming off the assembly line are supposed to have two major improvements. First, the famous model "c" ROM that allows fast formating is installed. For those of you who don't know the difference, fast formatting allows the drive to both read and write about 50% faster! Also included is an update to the electronics that lets those of us who have tried to read disks from other drives, you know what a blessing this will be. Now for the best news. ATARI says that once the assembly line has enough parts to meet supply needs, then the improvements will be offered through service centers as you bring your drives in for service!!

OVERDRIVE DEPT. — There is a new ATARI operating system, called (with love) OZ-2. The chips I recieved were marked as a "b" revision and went into my board very easily. These too will be put into new production starting soon and be offered to you by your service agency about 3 months after they are in production. The changes consist of the following: 1) The disk drives will no longer stop and then restart during use. This has been especially upseting to those of us in the habit of removing our disks by the sound of the drive and not the busy light; 2) The computer itself will not go to sleep anymore to the O.S. It will, however, go to sleep if the contacts on any of your boards get dirty; 3) The T.V. display should no longer go crazy under certain I/O conditions. This has really got me mad a couple of times; 4) Sending SIO the hex number $FF as part of an address for a buffer will no longer put the unit into an infinite timer; 5) Pokey timer #4 now works, although I personally have no idea what it does; 6) A vector has been added for the break key. This means programs can be written for us that use the break key to do something besides stop the program.

Now think of this... If these were the only errors that ATARI could find to change in two years, then maybe we've got a great computer to start with!!

QUAD DRIVE DEPT. — Have you ever heard of a certain 815 dual density drive that was supposed to be sold a year ago. Well the latest rumor (and this is strickly a rumor, not fact as above) is that since ATARI took so long to market it, other companies have gone beyond double to quad density. So, we hear, ATARI will go back to the drawing boards to re-engineer the unit for the higher capacity. They had better be quick, as I understand a device to allow SHUGART drives to run with the ATARI is almost ready to be marketed by an independent vendor!

LAST DEPARTMENT DEPT. — Some misc. items: Optimal Systems SOFTWARE, who bring you BASIC A+ (these are really nice people) are offering an execute only version of A+ for people who write software to use. This is big news for some of us since BASIC A+ offers many improvements in speed and power. For the rest of you it means better programs to buy, so everyone benefits.

Another bit of good news. There is a new series of programs available (advertised in the issue) from Santa Cruz Software that teach you to use the graphics power of the ATARI 400/800's. These are low cost lessons with many practical examples for each subject. Also, the computer is used for most of the calculations, so even beginners can start the lessons, save some of the enclosed examples on their own tape or disk, then write a new program around the method taught. For us hackers who have gone crazy trying to figure our 12 page magazine articles on graphics, these "TRICKY TUTORIALS" are a blessing.

Finally, the word on the light pens is that they may never be released. Write your congressmen then see the review in this issue. □

Users' Groups

Vic Zinn Music Center
83 South 9th Street
Noblesville, IN 46060

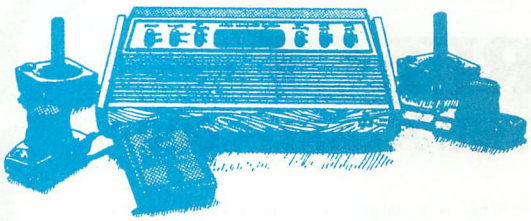
South Bay Atari Computer Enthusiasts
c/o Gerald J. Bransford, President
2301 Artesia Blvd.
Redondo Beach, CA 90278

Michigan Atari Computer Enthusiasts
c/o Ashby Woolf, President
6236 Worlington Road
Birmingham, MI 48010

Atair Computer User Group of Chicago
c/0 Larry Hitz, President
15 Mohawk Drive
Clarendon Hills, IL 60514

Orange County Atari Computer Associates
c/o John Branom, President
9108 Helm Ave.
Fountain Valley, CA 92708

VCS UPDATE...



This month I would like to cover the topic of not using your ATARI VCS cartridges. No matter how often you use your programmable video game, at least some of the several dozen cartridges you probably own must reside somewhere. Leaving them on the living room floor usually causes either many arguments with whomever cleans up the house, or results in a few broken cartridges (or both!).

To this end there exists cartridge holders of many sorts to store and protect your valuable games from dust, direct heat, moisture, or nuclear bombardment. Four different storage units are available that I know of.

The first of which is ATARI's model number ORG-300 "Game Library" that holds 8 cartridges plus instructions. This stores the games vertically and has a button to eject th cartridge which you desire. Then there is the "VIDEOSTAK" cartridge organizer (model number VS-2, available from A-L-S Ind. in Torrance, CA 90504). These units are stackable and hold 8 cartridges horizontally. I find the VIDEOSTAK to be the easiest to use and adapt to the amount of room you have. Third is the "Cassette 'n Game" File storage system from Innovative Concepts, Inc. (2284 Ringwood Ave., San Jose, CA 95131). This unit resembles the tinted plastic diskette-type containers on the market, and offers the classiest method of preserving your precious cartridges.

The fourth storage unit holds up to 12 ATARI game cartridges in a vinyl notebook style covering. This is manufactured by ATARI, but harder to come by it seems than their Game Storage Library.

So does all this mean that your computer cartridges are left out in the cold? No, although the variety of storage methods are greater for the VCS game carts, the VIDEOSTAK organizers have small ridges in slots to hold and position your computer cartridges.

Also, one late news flash..a version of PACMAN(tm) for the VCS should hit the market sometime in early 1982! Several new games have also been announced which we will cover in a later issue. □

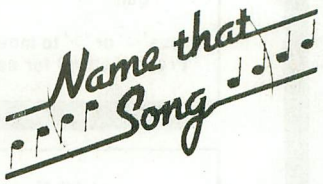
SOFTWARE
for the ATARI 800*
and ATARI 400*
from QUALITY SOFTWARE

STARBASE HYPERION™
By Don Ursem

Become absorbed in this intriguing, original space simulation of war in the far future. Use strategy to defend a front line Star Fortress against invasion forces of an alien empire. You create, deploy, and command a fleet of various classes of space ships, while managing limited resources including power generators, shields and probes. Real time responses are sometimes required to take advantage of special tactical opportunities. Use of color, sound, and special graphics add to the enjoyment of this program. At least 24K of RAM is required.

On Cassette — $19.95 On Diskette — $22.95

NAME THAT SONG
By Jerry White



Here is great entertainment for everyone! Two players listen while the Atari starts playing a tune. As soon as a player thinks he knows the name of the song, he presses his assigned key or joystick button. There are two ways to play. The first way requires you to type in the name of the song. Optionally, you can play multiple choice, where the computer asks you to select the title from four possibilities. The standard version requires 24K of RAM (32K on diskette) and has over 150 songs on it. You also get a 16K version that has more than 85 songs. The instructions explain how you can add songs to the program, if you wish. Written in BASIC.

On Cassette — $14.95 On Diskette — $17.95

QS FORTH
By James Albanese

Want to go beyond BASIC? The remarkably efficient FORTH programming language may be just for you. We have taken the popular fig FORTH model from the FORTH Interest Group and expanded it for use with the Atari Personal Computer. Best of all we have written substantial documentation, packaged in a three ring binder, that includes a tutorial introduction to FORTH and numerous examples. QS FORTH is a disk based system that requires at least 24K of RAM and at least one disk drive. Five modules that may be loaded separately from disk are the fig-FORTH kernel, extensions to standard fig FORTH, an on screen editor, an I/O module that accesses Atari's operating system, and a FORTH assembler.

Diskette and Manual — $79.95 Manual Only — $39.95

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*Indicates trademarks of Atari

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

PRINTER

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

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!

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*Apple T.M. of Apple Computer Inc. — *T.M. Atari Computer Corporation

SOFTWARE REVIEW:
CCA DATA MANAGEMENT SYSTEM

Review By Steve Singer

CE Software
238 Exchange St.
Chicopee, MA 01013

A Data Management System performs for the User the housekeeping chores associated with record keeping. Primarily...

*Handling the addition, modification and deletion of records
*Locating specified records for inspection, modification or deletion
*Sorting the records in the data base into alternative sequences
*Printing reports to the screen or the printer using the available data

The CCA Data Management System does all of these functions and more. It is the first truly generalized data management system available for the Atari 800 computer. System requirements are a minimum of 40K of memory and at least one disk drive. Two disk drives are recommended. A printer is highly desirable but not required.

There are some very powerful and unique features in this data management system. Records of up to 249 characters may be used. Each record may have up to 24 fields. Fields may be defined as alphabetic, numeric, reserved (fields which may not be updated) or may be computed using other fields, numerical operators (+-*/v) and constants. Example: TC=CE*Q:TC=TC*.9 (total cost = unit cost times quantity. Total cost is then multiplied by .9 to yield a discounted value). This computation feature is one of the most powerful I've seen in a micro data base system. Unfortunately, the manual was a bit weak here in describing how and when formulas are evaluated.

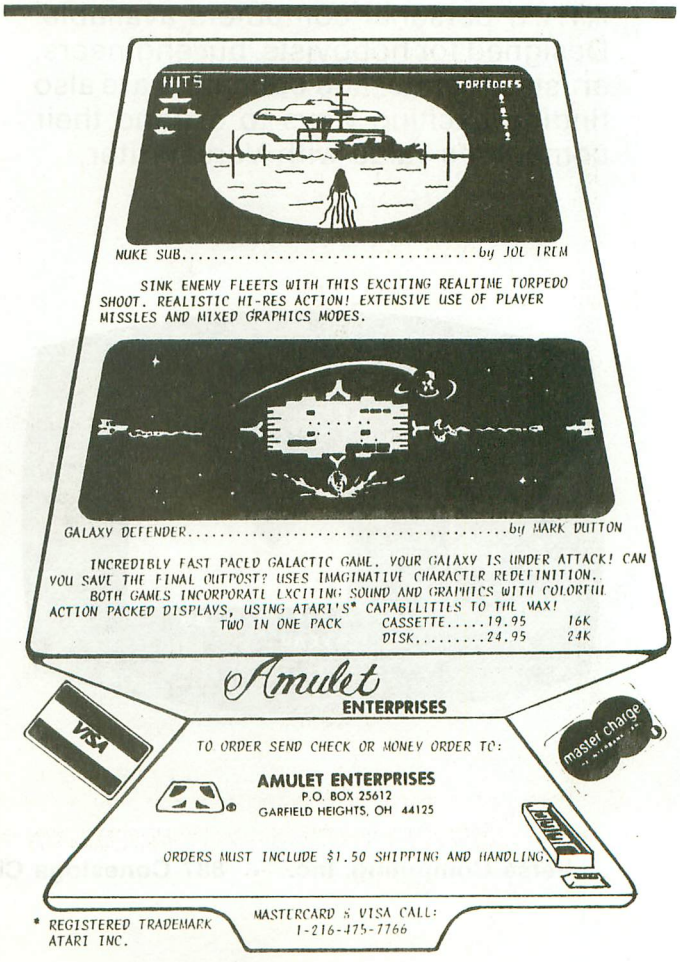
To perform maintenance on a record, it must be accessed using the record number. If you don't know it or can't find your print out, you can scan the file for any records which have a specified entry in a specified field — for example: to find Palm Drive in the address field you might scan for 'alm' until you find the record you want. You would then note record number and perform your update by record number. Unfortunately, scanning the file is relatively slow. A very valuable related function is the scan/mark function. This enables you to create a sub file of records which meet scan criteria for subsequent reporting. Since the results of more than one scan can go into one output file, a very extensive selection capability results.

The system supports up to a 10 level sort — each level may be either ascending or descending. No one needs any more power than that. The sort is rather slow, however, and if you want to feel like the proverbial paper hanger, run the sort with one disk drive. I was up to 14 disk swaps for my 150-record sort when I stopped counting. In fairness, two disk drives are recommended. However, this was the only part of the system that I felt truly required two drives.

The report capabilities are excellent. Fields may be specified in any order. Alpha fields can be truncated. Numeric fields can be edited and totalled. One break field may be specified. Report formats are easy to set up and may be saved for subsequent use. A from/to selection using one field (alpha or numeric) tops off what may be the best report writer around.

All in all, this is an excellent product that is very much needed. The rank amateur will need help. A pretty good idea of where you want to get is a must. Setting a data base up is complicated. It would be a wise investment in time to set up the files and enter only a handful of records so that the interaction of all the system's features can be observed. This approach might eliminate the need to enter a large data base twice because all of the nuances weren't known.

48K Disk $99.95 □



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.

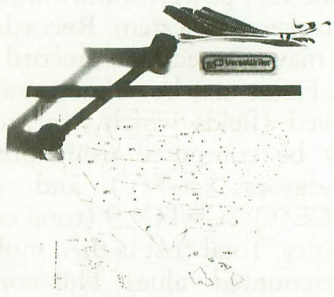
VersaWriter

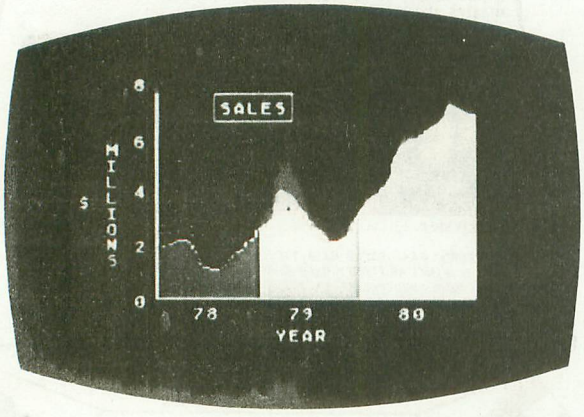
FOR ATARI PERSONAL COMPUTERS

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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HARDWARE REVIEW: VERSAWRITER

VERSA COMPUTING
887 Conestoga Circle
Newbury Park, CA 91320

$299.00 Requires 32K + 810 Disk Drive

Reviewed by Mike DesChenes

Many programs can benefit from animated or high resolution graphics. Many times, the use of dramatic graphics will distinguish an outstanding program from an ordinary one. The Atari computer has what I consider to be the best graphic and color capabilities available in any micro computer on the market. However, it can take hours or even days to perfect that certain graphic image desired in a program.

A far better solution for plotting or drawing those graphic images is with the help of a Plotter, Graphics Tablet, or Digitizer. And of all the available units now on the market, when comparing price, performance, and construction, one unit seems to stand out above all the rest. The Versa Writer from Versa Computing. This graphic system also has the lowest list price along with simple and sturdy construction. The Versa Writer may look inexpensive with its 14″ × 12″ plastic bed, clear plastic overlay sheet (held in place with black masking tape), and double-jointed pantography type arm. But looks are not the most important factor when it comes to choosing a graphic system. It is how well it performs the required functions. The Versa Writer performs as well as, if not better than most tested, ranging in price from $500 to well over $1000.

At each of the two arm joints, there are potentiometers which are wired to a joystick-style plug, and connected to controller jack #4. No special interface or power supply is needed.

It is in the software that the Versa Writer excels. Many of the graphic units tested had very poor or nonexistent user software. This unit comes complete with two disks of well written user software which includes a demo program. There are over 63 total commands available, 25 commands in both the Medium-Res and High-Res drawing modes, and 13 Textwriter and utility type programs. All commands use simple one-letter mnemonics entered by the keyboard, such as "E" for Erase and "L" to Load a picture from disk. The drawing modes (Medium and High-Res) have the following commands and functions:

P — POINT Cursor
Space Bar — Draw straight line
1 — Draw foreground color (1)
0 — Draw background color (0)
X — Draw with X Fixed
Y — Draw with Y Fixed
W — Recenter to current position
U — Change X and Y scaling
M — Change smoothing factor
B — Change BACKGROUND color (0)
C — Change foreground COLOR (1)
E — ERASE screen
R — REVERSE picture
/ — Split/Full screen
N — NORMAL
F — FILL with color
Z — Draw/Edit paint brush
A — Draw AIR Brush
D — DISK directory
L — LOAD picture from disk
S — SAVE picture from disk
G — Run other Res GRAPHICS
H — HELP
Q — QUIT
T — Run TEXTWRITER

All of the command routines work very well and are easy to remember. Some of the more interesting functions in the menu are the Paint Brush and Air Brush modes. The Paint Brush mode, as the name implies, is used to imitate the action of a paint brush. You must first select the desired brush size (0 for fine to 5 for broad), select the paint color (0 for background or 1 for drawing or foreground) and then paint the screen. You may also use this feature for editing your picture by selecting the background color for your paint color, and then going over the foreground lines. The Air Brush mode allows the use of shading in a picture. The area, which is covered with a color or colors in this mode, appears in the form of dots; the quicker the arm is moved, the sparser the dots will appear. The demos, included with the Versa Writer, show examples of the above painting techniques.

But that's only the beginning. You can fill in closed areas of drawings in any of three colors (in different shades). Text may be added to any high-res pictures with three fonts included in the software, plus the standard Atari font. Included are a Computer style, Greek, and Stylized version of the standard font. Nice.

All in all, the Versa Writer is a nice package with good documentation, great software, and an attractive price at only $299.00 (suggested retail). If you're in the market for a graphics system for your Atari, you must check out the Versa Writer. □

Adventure
BY Scott Adams

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0. ✓ **"SPECIAL SAMPLER"** - Never tried ADVENTURE? This special inexpensive sampler complete with 3 Treasures is a cut-down version of our large Adventureland. Guaranteed to supply hours of enjoyment: Try an ADVENTURE today!
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ATARI - 24K TAPE to DISK* **051-0001 $19.95**

2. ✓ **PIRATE'S ADVENTURE** - "Yo ho ho and a bottle of rum..." You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing, matey. . . .
ATARI - 24K TAPE to DISK* **051-0002 $19.95**

3. **MISSION IMPOSSIBLE ADVENTURE** - Good morning, your mission is to... and so it starts. Will you be able to complete your mission on time? Or is the world's first automated nuclear reactor doomed? This one's well named. It's hard, there is no magic, but plenty of suspense. Good luck. . . .
ATARI - 24K TAPE to DISK* **051-0003 $19.95**

4. **VOODOO CASTLE** - Count Cristo has had a fiendish curse put on him by his enemies. There he lies, with you his only hope. Will you be able to rescue him or is he forever doomed? Beware the Voodoo man. . . .
ATARI - 24K TAPE to DISK* **051-0004 $19.95**

5. **THE COUNT** - You wake up in a large brass bed in a castle somewhere in Transylvania. Who are you, what are you doing here, and WHY did the postman deliver a bottle of blood? You'll love this ADVENTURE, in fact, you might say it's Love at First Byte. . . .
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6. **STRANGE ODYSSEY** - Marooned at the edge of the galaxy, you've stumbled on the ruins of an ancient alien civilization complete with fabulous treasures and unearthly technologies. Can you collect the treasures and return or will you end up marooned forever?. . . .
ATARI - 24K TAPE to DISK* **051-0006 $19.95**

7. **MYSTERY FUN HOUSE** - Can you find your way completely through the strangest Fun House in existance, or will you always be kicked out when the park closes?. . . .
ATARI - 24K TAPE to DISK* **051-0007 $19.95**

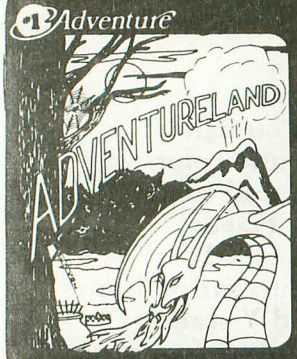
8. **PYRAMID OF DOOM** - An Egyptian Treasue Hunt leads you into the dark recesses of a recently uncovered Pyramid. Will you recover all the treasures or more likely will you join its denizens for that long eternal sleep?. . . .
ATARI - 24K TAPE to DISK* **051-0008 $19.95**

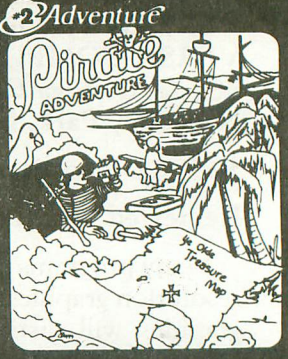
9. **GHOST TOWN** - Explore a deserted western mining town in search of 13 treasures. From rattlesnakes to runaway horses, this ADVENTURE's got them all! Just remember, Pardner, they don't call them Ghost Towns for nothin'. (Also includes new bonus scoring system!)
ATARI - 24K TAPE to DISK* **051-0009 $19.95**

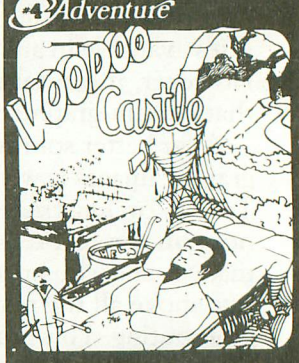
10. **SAVAGE ISLAND — PART 1** - WARNING FOR EXPERIENCED ADVENTURERS ONLY! A small island in a remote ocean holds and awesome secret. Will you be the first to uncover it? NOTE: This is the first of a larger multi-part Adventure;, it will be necessary to purchase additional packages to complete the entire Adventure.
ATARI - 24K TAPE to DISK* **051-0098 $19.95**

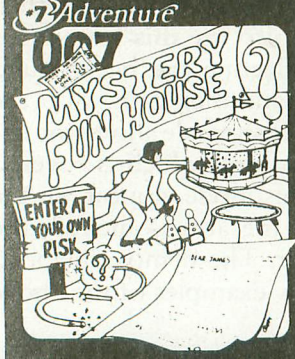
11. **SAVAGE ISLAND — PART 2** - After struggling through Part 1, you have the consolation of knowing its half over. This concludes this two part ADVENTURE it requires you have completed #10 and received the password to start #11.
ATARI - 24K TAPE to DISK* **051-0128 $19.95**

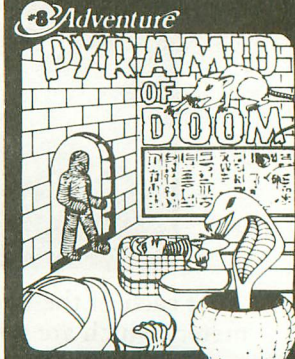
✓ **RECOMMENDED FOR THE NOVICE ADVENTURER, with many built-in helps**
***TAPE to DISK - a standard cassette tape that runs on a tape machine or can easily be transferred to disk.**

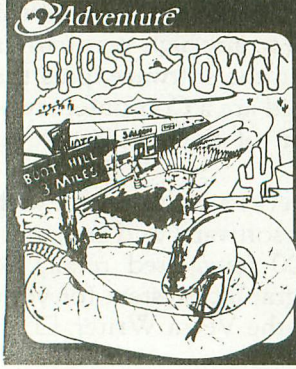


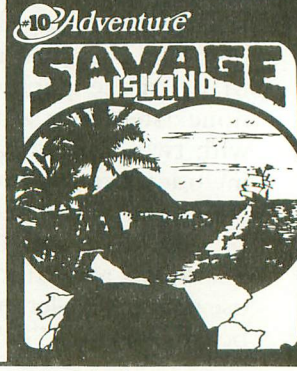












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LISTER.....

ROBERT HARTMAN

It is bad enough that when we list Basic files to the printer that the control characters don't show up, but it gets really annoying when the 825 starts underlining for seemingly no reason. This program will allow you to replace the control characters listed to your printer with readable English. A ⊥ will be listed as "(Control-X)" and a [⊥] printed as "[Inverse Control X]".

The source file must be untokenized Basic (listed to the drive). For instance, I have just loaded a Basic program into memory. I list it back to the drive by typing LIST "D:XXXXXXXX.XXX" where XXXXXXXX.XXX is the listed filename. Then I run the LISTER program (below) and I use the file that I just listed to the drive — simple, right?

It is conceivable that one might re-route the program for cassette usage, but as always, the time it takes may not be worth the effort. □

```
10 REM ********************************
20 REM *                              *
30 REM *       Analog Lister          *
40 REM *    All Rights Reserved       *
50 REM *   (c) 1981 A.N.A.L.O.G.      *
55 REM *       400/800 Magazine       *
60 REM *                              *
70 REM ********************************
80 DIM A$(500),B$(200),C$(200),D$(15),
DSK$(15):DSK$="D :"
90 GRAPHICS 0:POSITION 12,2:? "Analog
Lister":TRAP 90:POSITION 5,8:? "Enter
Filespec ";:INPUT D$
95 IF LEN(D$)=0 THEN 90
100 IF LEN(D$)<3 THEN FOR I=LEN(D$)+1
TO 4:D$(I,I)=" ":NEXT I
120 IF D$(1,1)="D" AND (D$(2,2)=":" OR
 D$(3,3)=":") THEN DSK$=D$:GOTO 140
130 TRAP 90:POSITION 5,9:? "Enter Driv
e # ";:INPUT DR:DSK$(2,2)=STR$(DR):DSK
$(LEN(DSK$)+1)=D$
140 TRAP 150:OPEN #1,4,0,DSK$:GOTO 160
150 GOSUB 270:RUN
160 TRAP 300:INPUT #1,A$
170 TRAP 250:FOR I=1 TO LEN(A$):A=ASC(
A$(I,I)):IF A>31 AND (A<128 OR A>154)
THEN NEXT I:GOTO 190
180 CNT=CNT+1:NEXT I
190 FOR Q=1 TO CNT:FOR I=1 TO LEN(A$)
192 A=ASC(A$(I,I)):IF A=125 THEN B$=A$
(I,LEN(A$)):A$(I,I+12)=">SHIFT CLEAR<"
:NEXT I:GOTO 250
200 TRAP 250:IF A>31 AND (A<129 OR A>1
54) THEN NEXT I:NEXT Q:GOTO 250
210 B$=A$(I,LEN(A$)):C$=B$:B$(2,LEN(C$
)+1)=C$(1,LEN(C$)):B$(1,1)=CHR$(ASC(B$
(2,2))+64):B$(2,2)=">":A$=A$(1,I-1)
220 IF A<31 THEN A$(I,I+8)="<Control-"
:A$(LEN(A$)+1)=B$:NEXT I:GOTO 250
230 REM CNTRL-CODE IS IN INVERSE
240 A$(I,I+16)="[Inverse-Control-":B$(
2,2)="]":A=ASC(B$(1,1)):B$(1,1)=CHR$(A
-128):A$(LEN(A$)+1)=B$:NEXT I
250 TRAP 260:LPRINT A$:GOTO 160
260 GOSUB 270:GOTO 250
270 POSITION 2,20:? "Error->";PEEK(195
);"<---Press [RETURN] when ready":POKE 7
64,255
280 IF PEEK(764)=255 THEN 280
290 POKE 764,255:RETURN
300 IF PEEK(195)<>136 THEN GOSUB 270:G
OTO 160
305 REM EOF ($88)
310 GRAPHICS 0:POSITION 12,8:? "COPY C
OMPLETE"
320 POKE 764,255:GOSUB 280:GRAPHICS 0:
TRAP 40000:END
```

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ASSEMBLER/EDITOR NON-TUTORIAL: PART III

by Charles Bachand

One piece of software that has come my way is an Assembler/Editor program by ***Optimized Systems Software (OSS)*** called ***EASMD.*** This is a disk based program that is remarkably similar to ATARI's cartridge Assembler. And well it should be, for it was written by the same people who wrote the ATARI Assembler. Now, since this version is resident in RAM, the programmers were not limited to the space restraints of a ROM cartridge. They had plenty of space left for those little extras such as long error messages, a symbol table at the end of an assembler listing, verification of a line after changing characters using the command REP, and the feature that makes me pick it over the cartridge: the directive **.INCLUDE #filename.**

You might have guessed that programmers who do a lot of work with an Assembler (like maybe 4K of object code is a lot, eh!), tend to have very large source code files. So much source code in fact, it will not all fit into the available RAM space (even with 48K). This is where the **.INCLUDE** directive of ***OSS's EASMD*** comes into play. Instead of one big file of source code, the program is written as a bunch of little files. As an example, we will call these files "D:FILE1", "D:FILE2", and "D:FILE3". These will be my source files. We now make one last file, which contains the following statements:

```
0100    .INCLUDE
0100 .INCLUDE #D:FILE1
0110 .INCLUDE #D:FILE2
0120 .INCLUDE #D:FILE3
```

When these statements are executed, ***OSS's EASMD*** will open FILE1, read the source code, close FILE1, open FILE2, read that source code, etc., etc.

INCLUDE directives are not necessarily limited to a separate file. They may be included within the text of a program. An example of this would be the inclusion of often used subroutines in one's programs. Many of my own machine language programs make extensive use of joysticks and the START, SELECT, and OPTION switches. Since the code to access these devices was written to be the same in all cases, it is to my advantage to have the Assembleer **INCLUDE** the code while it is in the process of assembling. This cuts down not only on typing, but also your disk space usage. The **INCLUDE** feature is an absolute necessity when your lines of source code start to number in the thousands.

Getting back to some resemblance of a tutorial, I would like to tell you a little about binary load files and a curious problem I encountered. This problem, it turns out, was with my understanding of binary loaded files at the time. But first, what the @&%"?# is a binary load file?

As you may have noticed, the menu for Atari's Disk Operating Systems, DOS for short, come onto your television screen, there are two options displayed which are rarely used by many casual users. These are (L) Binary Load, and (M) Run at Address. The first loads a binary file into RAM and the second specifies the address to start executing a machine language program at.

A bianry file is organized in such a way that a program, such as **DOS,** will be able to load it into memory. The format that was finally decided upon, and which is used by both **DOS II** and the Assembler/Editor Cartridge is to start the file with two bytes containing 255's (or $FF to those HEXadecimal hacks out there. Yes, we know who we are!!) as a file header. A loader program will generate an error if during a load it does not first encounter these two bytes. The next two bytes contain the starting address, the location where the binary load is to begin. The micro-processor expects to see addresses with the low byte first, high byte second (for a hex address of $1234 for example, the first byte would be $34, and the second would be $12) and so for conformity, the binary loader handles memory addresses in the same way. Now that the loader knows where to start loading, it next needs to know how many bytes to load into memory. The next two bytes however, do not contain this information, but they do contain the next best thing, the ending address of the binary load, in low byte first, high byte second format. The bytes that follow are what make up the actual machine language program. No, that's not entirely true. It is only the ENDING ADDRESS minus the STARTING ADDRESS number of bytes that are loaded, If the end-of-file (EOF) has not been reached, then it tries to load another block of memory by looking for another starting address (low byte, high byte), another ending address (low byte, high byte), and more machine language data. In this way, a binary load file can load data into low memory, into high memory, and memory in between.

Now that you understand that (I hope!), we can discuss my problem. After a binary file is loaded into memory, we need to find a way to start it executing. If it is going to just sit there, it is of no use to us. There are three ways of giving life to your creation. #1, use the USR function in BASIC, #2, use the (M) Run At Address command in DOS, or #3, use the G command of the Debugger that resides in the Editor/Assembler Cartridge (or ***OSS's EASMD*** for that matter). But I have heard stories of load file software running itself after loading. If this has ever happened to you, please do not try to exorcise evil spirits, for it is perfectly natural. There is a fourth way to run your software.

There are two secret (not any more, eh!) bytes in DOS which contain the address that the loader

program jumps to after every memory load. Normally, these two bytes point to the routines to load another block of memory, but since these two bytes are located in RAM, they can be changed. Give you any ideas! If we change these two bytes to point to the entry point of OUR routine instead of THEIR routine, our program will start up immediately after loading! Wonderful, isn't it!!

Now for the particulars. The starting address of these two bytes is 736 decimal (for you HEX hacks, better make it $2E0). Now comes the fun part. To get your load files to run automatically, six bytes (is that all?) must be appended onto your files. The first two bytes are the starting address of 736 (or $2E0 HEX), low byte first (224 or $E0 HEX), high byte second (2 or $02 HEX). Then comes the ending address of 737 (or $2E1 HEX), again using the low byte (225 or $E1 HEX), high byte (2 or $02 HEX) sequence. Sound familiar? The last two, and final bytes contain the entry point address of YOUR software. I am not a mind reader, so I cannot tell you wht the numbers should be, but only that they should also be in reversed (low byte, high byte order). In Assembly language, it would look like this:

```
0900  *=$02E0 ;Generates START and END addresses
0910 .WORD INTRO ;Your execution address here!
```

Now for a word of warning! The Auto-boot has to be the last block in a binary file. Take it from someone who knows. I wrote a program and put the AUto-boot at the beginning. The subsequent load file was 32 sectors longs and you can imagine my surprise when it tried to run itself after loading only one of those 32 sectors. This had me going crazy for a whole weekend! What had happened, if you haven't already guesses, was that the DOS had loaded the new Auto-boot address into its RAM location and proceeded to run my space war program, even before the game was loaded into memory. Like jumping into a swimming pool before the water is put in! □

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```
860 NEXT Z
861 SOUND 0,X*Y*2+50,10,2
862 NEXT Y
864 NEXT X
870 ? :? :? :RETURN
900 ? :PRINT "[SELECT] game, then pres
s [START]"
910 POKE 656,3:POKE 657,3:GOTO GM+914
915 PRINT "Player to guess Atari's nua
ber.";:GOTO 920
916 PRINT "Atari to guess Player's nua
ber.";
920 IF PEEK(53279)=6 THEN RETURN
925 IF PEEK(53279)<>5 THEN GOTO 920
930 IF GM=1 THEN GM=2:GOTO 910
932 GM=1:GOTO 910
950 POSITION 1,1:PRINT #6;"ZIP"
951 POSITION 1,2:PRINT #6;"ace"
952 POSITION 1,3:PRINT #6;"par"
953 POSITION 1,4:PRINT #6;"par,par"
954 POSITION 1,5:PRINT #6;"ace,ace"
955 POSITION 1,6:PRINT #6;"ace,par"
956 POSITION 1,7:PRINT #6;"ace,par,par
"
957 POSITION 1,8:PRINT #6;"par,par,par
"
958 POSITION 1,9:PRINT #6;"ALL CORRECT
"
959 RETURN
960 ? :? :? :? "INCONSISTANT ENTRIES "
962 GOTO 971
970 PRINT "I GIVE UP  ???????"
971 ? :? "PRESS [START] for new game ?
? ";
972 IF PEEK(53279)=6 THEN RUN
974 SOUND 0,RND(0)*200,10,2:GOTO 972
```

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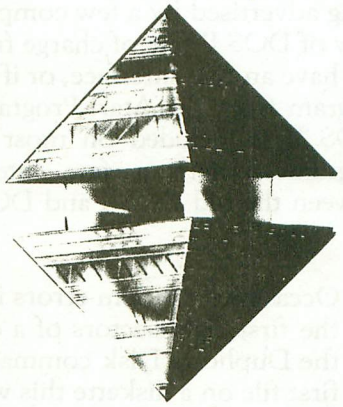

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BUGS & BYTES...

DOS UPDATE

Many people have called me asking whether or not DOS II is available for sale from Atari or its dealers. As far as I know DOS II is not included with the disk drives as of this writing. However, I have seen DOS II being advertised by a few companies You can get a copy of DOS II free of charge from Atari providing you have an 850 Interface, or if you purchase a disk program from the Atari Program Exchange library (DOS II is included on most of the APEX disk programs). Here a few interesting differences between the old DOS I and DOS II:

1. Occasional random errors in the duplication of the first eight sectors of a diskette when using the Duplicate Disk command. If DOS was the first file on a diskette this would cause DOS to sometimes be incorrectly duplicated and as a result a newly duplicated diskette would sometimes not boot. Old FMS users are well advised to check for the successful duplication of any file which is located in the first eight sectors (fixed in DOS II).
2. Use of wildcards in Copy File and Duplicate File command was not prohibited and can cause problems (fixed in DOS II).
3. Will not accept full length filenames in some instances; e.g. D2:A2345678.ABC will fail to delete etc. (fixed in DOS II).
4. Duplicate disk does not copy sector 720. FMS does not use sector 720 so most disks will have no problems because of this. Those programs which write to this sector with the disk handler will lose track 720 when a DUPLICATE DISK is performed.
5. Margins are not reset when entering DOS (fixed in DOS II).
6. Have a long wait for unit to cycle through a long file if file is open to append (fixed in DOS II).
7. User is not informed if Format Disk command finds any bad sectors (fixed in DOS II).
8. AUTO.SYS didn't work properly. It loads files but will not execute them (fixed in DOS II).
9. Append option in copy didn't work (fixed in DOS II).
10. Directory sector available data could be invalidated when a file which had been opened and appended was not properly closed. This resulted in reduced sectors available on the diskette as sectors were marked in use which were not a part of a valid file.
11. Update mode will cause damage to a file if the user was writing to a sector and that sector was not written before closing the file (the write modify bit in the FCBFFLG is set). When closing a file, the close routine modifies the FCBFLG location to test if the mode is acquiring sectors (output only) or update (not acquiring sectors) and does not resume the location. If the file is in update mode then the write next sector routine is called (WRTNS). This routine assumes that the FCBFLG location has **not** been modified. Therefore when it tests to see if mode was output only or update it mode what it actually is testing is the write modify stop. If the sector was modified when the routine assumes it was acquiring sectors for this file and will allocate a sector and like the write modified sector to this new sector. The sector just allocated is not legally within the file, its control bytes are never set.
    Because of the bad link in the file number mismatch error (164) will occur if this file is read (open input). Also, the data after the sector with the bad link will be lost.
    The error is in the close routine not the write sector, POINT or NOTE routines. The error occurred because a ROL was used on FCBFLG for testing the flag when a Bit Test instruction should have been used.
12. When the Run Cartridge Command is executed and no cartridge is present, the test for no cartridge in the computer fails occasionally (fixed in DOS II).
13. No more or less than three files can be open simultaneously and this is supposed to be user adjustable by poking location 1801(Dec) (fixed in DOS II).

IN THE SPOTLIGHT.....

PROGRAM DESIGN, Inc.
11 Idar Court
Greenwich, CT 06830

Program Design, Inc., better known as PDI, has been involved in supporting the ATARI computers since even before its release. Most ATARI computer owners know of this company through the Invitation to Programming series, which was conceived and executed entirely by PDI. Located in southern Connecticut, PDI has been actively producing educational software for several small computer systems, concentrating on the ATARI in particular.

The majority of PDI's offerings are oriented towards children, with the age bracket ranging from 3 years old to high school level. All of the programs are on cassette format only, frequently taking advantage of the voice track capability. One of the newer programs, "Sammy the Sea Serpent", is an interactive storybook type game where the child participates in the story. While graphics are displayed on the screen, a voice (a female actress' voice was used in this case) narrates the story calling upon the child to use a joystick from time to time to move 'Sammy' about the screen. This program is easily one of the best to get youngsters involved with computers.

Other tapes drill students on vocabulary and number problems, with some aimed at preparing high school students for the SAT tests.

For adults, Astro-Quotes and Mini-Crossword Puzzle can be an interesting challenge (Astro-Quotes, our particular favorite). All of PDI's programs make use of the ATARI's sound effect capabilities adding some spice into what many might think are boring educational programs — which these certainly are not. You own a computer, not JUST an advanced computer game machine! It would be a shame to limit its diversification, along with your own. □

THE VORTRAX TYPE 'N TALK

ANALOG has been using the VORTRAX Type 'n Talk voice synthesizer for several months now, and we will provide a report on this remarkable device next issue. However, several of our readers have questioned us as to how the VOTRAX is software interfaced to the ATARI 400 or 800. The following demo program when run with the VOTRAX allows you a simple method of entering data and immediately having it 'spoken' by the Type 'n Talk. Be sure you have the RS-232 handler on disk if you are using the 810 disk drive. The most important functions in the program are on lines 20 and 30, the OPEN and X10 statements. These are used to open and direct the data through the port you are using on the 850 interface module. Use these two lines in a program you may write, to use the VORTRAX. "R2:" may be changed to port 1 on the 850 ("R:"), or any other port you may wish to use.

```
10 DIM A$(5000)
20 OPEN #1,8,0,"R2:"
30 XIO 34,#1,48,0,"R2:"
40 INPUT A$
50 PRINT #1;A$
60 GOTO 40
```

MULTI-COLOR GRAPHICS 8

By Rick Williams

Have you ever been annoyed by only having one color in graphics 8? Try this program and you can see how you can have four colors and not use any extra RAM. This statement makes multi-color graphics 8 possible:

```
10 GRAPHICS 8:POKE 87, 7:COLOR 1
```

The "7" in "POKE 87, 7" means graphics 7 so the limits of the "PLOT" are: X, 159 and y, 95. Because of this the graphics are only displayed on the top half of the screen. Try this program and you will see what I mean:

```
10 GRAPHICS 8:POKE 710,0:REM
   ** Setcolor background black **
20 POKE 87, 7:REM ** Make multi-color
   graphics possible **
30 SETCOLOR 1,0,14:REM ** Brightness
   level 14 **
40 FOR Y=0 TO 95:C=C+0.1
50 COLOR C: PLOT 0,Y:DRAWTO 159, Y
60 NEXT Y
70 END
```

To draw below this you must return to normal graphics by writing "POKE 87, 8." This will not remove the above image from the screen but there will be only two colors possible in the bottom half of the screen — black and white.

HAPPY COMPUTING!!!!!!!□

A.N.A.L.O.G.

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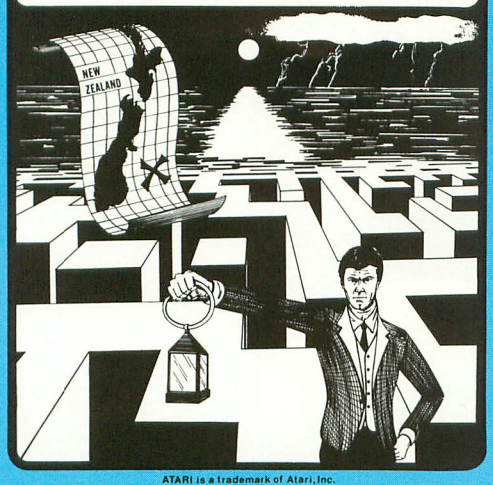

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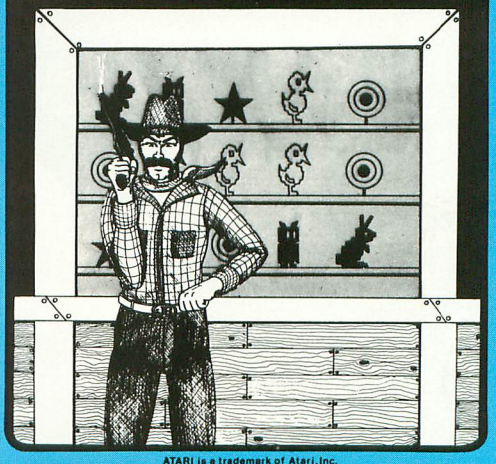

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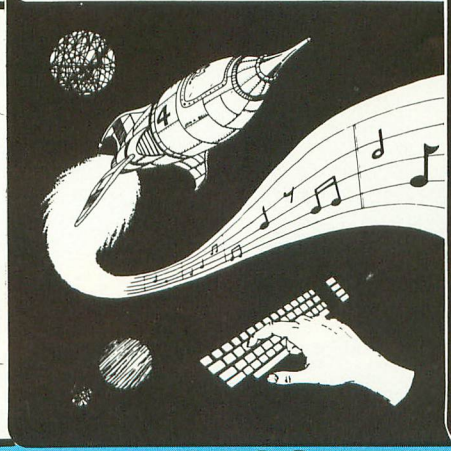

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