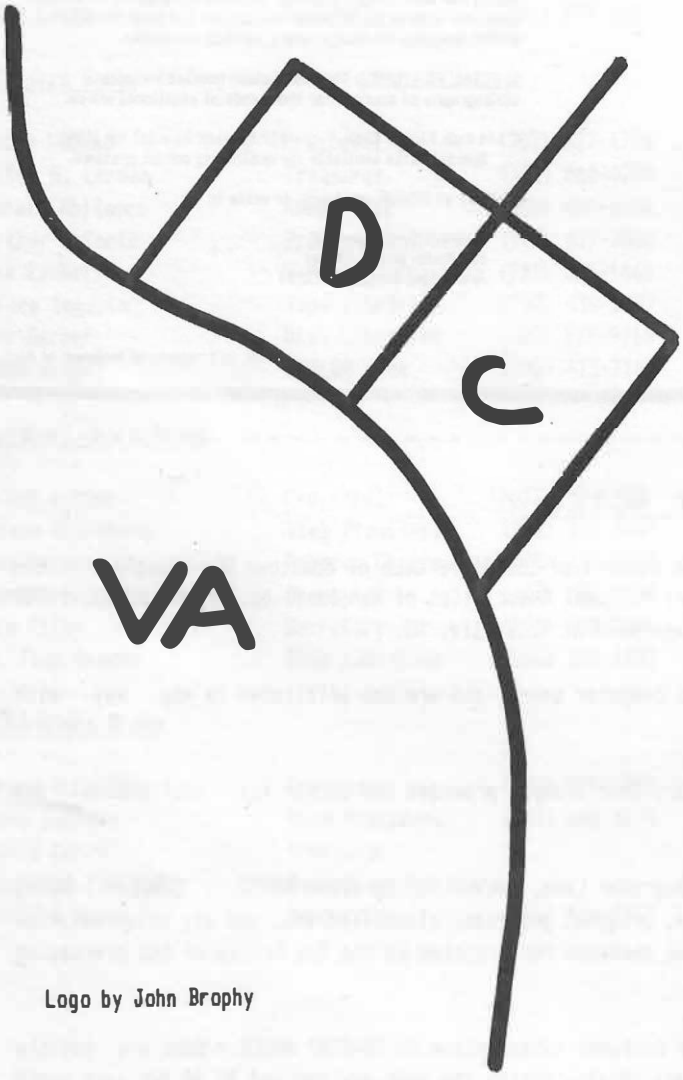
CURRENT NOTES

The Newsletter for ATARI Users of Maryland, D.C. and Northern Virginia

Volume 4, Number 3
March/April, 1984



Logo by John Brophy

INSIDE

ITS COMING!

BIG BROTHER'S NEWSPEAK MACHINE

They were deep in the bowels of the Ministry of Truth, but one of the unblinking surveillance cameras had spotted a flash of telltale blue denim. His companions watched helplessly as the cage swooped down upon his paralyzed form. If the remaining rebels could not pass the authorization checks and the many cameras that still lay between them and the Central Control area, then Big Brother would keep his unchallenged command of the English language, and with it, control over the thoughts of all English speaking people.

****

NEWSPEAK is a vocabulary building game for one player, age eight to twelve. A unique blend of joystick action and education NEWSPEAK sends the student threading through alternating mazes and word-origin puzzles. NEWSPEAK requires an ATARI* computer with at least 24K of memory, an 810 Disk Drive, a BASIC language cartridge, and a joystick controller.

SPECIAL FEATURES: The instruction booklet includes a bibliography of sources for thousands of additional words.

5 1/4 inch Floppy Disk $19.00 each (special for 1984)
Special rates available for qualifying school systems.

Find me at DCAUG meetings, or write to

Bennett Rutledge, CDP
327 South Wayne Street
Arlington, Virginia 22204

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CURRENT NOTES

CURRENT NOTES is published monthly free of charge to the members of the Atari Club of downtown DC, Novatari (the Northern Virginia Atari Users Group), and A.U.R.A. (the Atari Regional Association of Maryland) by Current Notes, 11804 Magruder Lane, Rockville, Maryland 20852. Second-class postage paid at Rockville, MD.

The three member groups are independent groups for Atari computer users, and are not affiliated in any way with Atari, Inc.

The Editor of CURRENT NOTES is Staffan Sandberg, 11804 Magruder Lane, Rockville, Maryland 20852. CURRENT NOTES telephone number is 301-468-6686. News items, short articles, original programs, classified ads, and any other material of interest to the membership are eagerly solicited. The deadline for articles is the 2nd Friday of the preceeding month.

Membership dues for both groups are $15.00 a year, which includes subscription to CURRENT NOTES. Dues are payable at the beginning of each calendar year. Dues for new members joining during the year are reduced $1.00 for each month which has passed since the first of the year. Dues may be paid at any meeting, or be sent to the editor. Persons living outside the metropolitan Washington DC area may subscribe to CURRENT NOTES for $12.00 per year.

Advertising policy: classified ads are free to members. Commercial advertising Rate Cards are available upon request.

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AURA GROUP MEETINGS

are held on the first Wednesday of every month at 7 PM in Room One of the Long Branch Public Library on Garland Avenue in East Silver Spring. Take the Beltway (I-495) to Exit 29-B South (University Blvd East, Route 193). Follow University Blvd. East (Route 193) to the second light (Piney Branch Rd.). Turn right on Piney Branch Rd. and continue to the second light (Arliss St). Turn right on Arliss St. past the apartments to Garland Avenue. Turn right on Garland Ave. The Long Branch Library is on the corner. Park in the Library's lot. Due to construction, please use the upper-level entrance.

NOVATARI MEETINGS

are on the second Sunday of each month. Novatari meets in the Greenbriar Community Center on Stringfellow Road in Chantilly, Virginia. Stringfellow Road, also known as Route 645, runs south from US 50 a little more than two miles west of the Fair Oaks Shopping Mall (intersection of I-66 and 50). There is a traffic light where Stringfellow Road meets route 50. The Greenbriar Community Center is on the left-hand side of Stringfellow Road, 1.4 miles south of 50. There is a small parking lot in front and a larger one just north of the center (that is, just before you get to the center). The meeting room is available from 5-9 PM. We offer a BASIC tutorial from 6:00 to 6:30 each month. We also offer a monthly arcade tournament that begins at 6:30. The business meeting starts at 7:00 and is followed by two formal half-hour presentations, one focusing on hardware and the other on software.

DC GROUP MEETINGS

are held on the third Tuesday of every month in Room 543 of the National Science Foundation offices, 1800 G Street NW, Washington, DC. The closest subway stop is Farragut West, on the Blue and Orange Lines. Take the 18th Street exit, and walk south (against the flow of traffic) down 18th Street for 3 blocks to G Street. The building is on the corner of 18th and G; it can be identified by a sign for the Madison National Bank on the corner. Front entrance is in the middle of the block. Parking is available in the building, for a fee. The entrance is on the west side of 18th Street, between F and G. Meetings begin at 5:30 PM and usually last until 8 or 9.

Novatari Notes

March 11: The New XLs and LOGO

The new 600XL and 800XL computers are -- finally -- available on store shelves. What are the new ATARIs like? Find out at our March meeting as the new XLs will be our hardware feature for the month.

Because of a timing mixup, Jim Campbell had to delay his LOGO presentation until this month. If you've never seen, or heard of, LOGO, be sure to catch Jim's presentation. If you already have been working with LOGO, perhaps you could bring in some examples of LOGO programs.

February Meeting:

Many thanks to Tim Kilby who, on short notice, was able to help launch our language series by a discussion of the strengths and weaknesses of the various languages available for the ATARI. We will continue the series by covering LOGO this month and the new OSS ACTION language in April.

Joe Waters led the discussion of alternative disk drives for the ATARI. Three were available at the meeting -- the INDUST GT, the TRAK, and the PERCOM. Factors that distinguish almost all the new drives from the original 810 include smaller size, twice the storage, and extra features. For example, the TRAK and PERCOM can be purchased with a printer port. The INDUS comes with a carrying case that doubles as a storage case for 80 of your diskettes. The INDUS also comes with three software programs that should allow new owners to immediately put their drives to productive use: a data management program, a spreadsheet program, and a word processing program. These programs were not available with early releases of the INDUS but should be available by the time you read this. Early owners should also know that a 107 page DOS XL Operator's Guide is now available and can be obtained by calling Lorn Fant (1-800-33INDUS), the INDUS customer service representative.

BASIC TUTORIAL

Joe also continued his BASIC tutorial by beginning discussion of the game BLOCKADE which was published in last month's *Current Notes*. Unfortunately, a few lines from that program were, apparently, gobbled up by the modem when the file was transferred to the editor. Listed below are the corrected lines:

```
20 TXTROW=656: TXTCOL=657: CRSINH=752: CONSOLE=53279:
START=6: OPTION=3
60 JOY=100: FR=130: SCORE=150: QUIET=170: BELL=180: BOX=200:
BLOCKS=220: PAUSE=240
70 MAIN=300: ACTION=400: DONE=500: BEGIN=600: FIELD=700:
TITLE=900
750 Y3=YMAX/3: Y1=INT(Y3+RND(0)*Y3): Y2=INT(Y3+RND(0)*Y3)
```

The tutorial will continue using this program in MARCH. The tutorial starts at about 6:00 and will run for about 45 minutes.

Games:

Our ARCHON tournament got off to an excellent start. Ten contestants started and the field was narrowed down to five by the end of the meeting. While the ARCHON finalists are battling it out at our March meeting, we'll let the other players take a turn at KABOOM!

COMING EVENTS:

April 8: If you're a regular at Novatari, you know we have had several programs on educational software. But don't be discouraged when I say that we will once more feature an educational program. You see, all the previous educational software concentrated on kids. In April, you'll see how you can use your ATARI to teach frogs. Jim Stevenson will present a computer learning theory simulation in which a FROG -- KERMIT will make guest appearance -- will be taught to jump into a pond. Jim will touch on such topics as concepts of learning theory, computer versus biological mind, and artificial intelligence as well as the ATARI Player/Missile graphics used in presenting the program. Our language series will also be continued in April with Joe Waters presenting the new OSS ACTION language.

DC CURRENTS

March 20 - GRAPHICS PADS

This month we will leave number oriented programs to review some of the new graphics oriented hardware and software that has appeared on the market. We will demonstrate the Koala Pad graphics tablet that allows the user to draw on the screen using a small hand held tablet and stylus.

We will also demonstrate the typing practice program "MASTERTYPE" which makes a game out of typing practice. There will also be a demonstration of some of the latest games from Electronic rts and other software houses as time permits.

We also hope to have the talk by John Baum on the care and maintenance of Atari hardware originally set for the February meeting. John was unable to come as scheduled in February due to a death in the family and we hope he will be able to come in March. Many members look forward to hearing his talk.

AURA UPDATE

ATARI USERS' REGIONAL ASSOCIATION
LONGBRANCH PUBLIC LIBRARY - TAKOMA PARK, MD

AGENDA for APRIL 4, 1984

7:00 PM Informal discussions and disk/cassette claims

7:30 PM CONVENE MEETING
Reading of the minutes from the meeting of 3/7/84
Treasurer's report
Communications report

7:45 PM ANNOUNCEMENTS
Next meeting: Wednesday, MAY 2, 1984
Library Construction is finished!
General membership announcements

8:00 PM FIRST PRESENTATION
ACTION is a new language from Optimized Systems Software and Frank Jones will demonstrate the power and speed of this new and different addition to BASIC, C, PASCAL, etc.

8:15 PM SECOND PRESENTATION
A Tektronics emulator for the ATARI Computer was written by Jack Palevich. Dubbed, 'KERMIT', this program is used at NIH and will be demonstrated by Mr. Rinzel.

8:30 PM THIRD PRESENTATION
VISI-CALC is talked about by most of us, and understood by some. For those who would like to evaluate the potential of the 'VISI-CALC' phenomenon, tonight's demonstration will be a clear and simple approach.

8:45 PM OPEN FLOOR
ADDITION DEMONSTRATIONS, time permitting.
Formal announcement of additional committees needing staff and peripheral support.
General questions and interchange of information from the membership and, if present, selected guest speakers.

9:15 PM ADJOURNMENT of GENERAL BUSINESS MEETING
(may be delayed until 9:30 PM or later, depending on interests)

AURA Minutes

(February 1, 1984)

1. The next meeting will be March 7 at 7:00 p.m.

2. Bruce presented the treasurer's report. As of November 1983, we had 60 members and $134. In 1983, the club had expenses of $70. Our expenses in 1984 have been related to the newsletter.

3. Linc Helen proposed the club purchase a subscription to U.S. Computype ($90/yr), a firm that will type in programs from *Analog*, *Compute!*, *Antic*, and *Creative Computing*.

4. Bob Bell gave the communications report.

a. Although *Atari Age* is geared to game machine owners, he recommended it since the subscription price is very low and it does have some computer articles.

b. The club received a copy of "Free Software for your Atari." It is primarily a listing of BBS numbers from which programs can be downloaded. Since the numbers change frequently, Bob did not recommend it for purchase.

c. The library now has 32 discs. #30 has been revised and #32 is solely music composer files.

d. The translator disc for the XL is available.

5. Steffan Sandberg distributed copies of *Current Notes* to those who paid their 1984 dues. Additional volunteers are still needed to help produce the newsletter.

6. Steve Gauss demonstrated "The Wedge" (originally in a 1982 *Compute!*) which allows you to add instructions to BASIC. He has created an improved version which will be available in our library.

7. Mike Rinzel described the game *BLUE MAX* and gave it a high rating.

8. Mike showed us his ASTRA disc drive -- two double density drives which resets itself for single density. Other than it uses the timing hole (you have to punch one out if you want to use the back of discs) and it has difficulty reading some brands of discs (CDC), he is very please with its operation.

9. Nominations from the floor were taken for officers. Hank Jacob volunteered to be Corresponding Secretary and Applied Computer Associates will serve as SYSOP. The entire slate was elected unanimously.

President: Bruce McLendon, *Vice President*: Dave Haseman, *Treasurer*: Dave Curry, and *Membership Sec.*: Richard Stoll.

D.C. Disk Library News

by Bob Danson

February brings a new Disk Library Volume, #21. This includes utility programs to print disk directories on mailing labels; a program to configure disk drives that use the PERCOM protocol; two PM Graphics designers; a character font designer; a program to convert boot files to normal disk files; a program to compact AMAC object programs; and a TV test pattern program. Games include a version of Towers of Hanoi, a scrolling line game, a two-person "Breakout" type game, and lunar lander. There are two graphics programs, including a graphing demo. Thanks go to Bruce Ingalls, Bruce Blake and Bennett Rutledge for program contributions.

New Volume - Disk #22

The March D.C. meeting brings the addition of Library Disk #22. This volume contains a player program for music composed with the ATARI APX ADVANCED MUSICSYSTEM and eight tunes. Thanks goes to Stan Sulak for contributing the material on this disk.

The Library will publish additional disks of AMS music as they become available - any contributors out there?

D013 Options

The SHOW program on Disk Volume #13 has a feature that is not documented. The ATARI key will act as a toggle switch and cause the pictures to appear as "positive" or "negative" images. Try it!

New Disk Librarian

The "Help Wanted" ad in the February 1984 Current Notes worked! Jay Gerber, who also writes the "Nibbles & Bits" column, has agreed to replace me as Disk Librarian. I'll be available to assist Jay during the transition and answer any questions about the Library, but starting with the March '84 meeting all contributions for the disk library should go to Jay.

Thanks to all those who have contributed to the D.C. Library during the past year and provided assistance when I needed it.

HALOMWU Update

by John Brophy, SYSOP

If you're wondering about the name of this column, dial it. While you're on line, use option L to tell me what you think of it. I received no (0) votes for any name, since last time.

STATISTICS: in the last 20 days, we received 72 calls/day, including 12 wrong numbers. Eyeballing the tally sheet, 7 minutes stands out as the most frequent time. This works out to 7 hours use, 17 hours idle, each day. Has everyone sold their modems? We were down 4 times, for 5, 8, 3, and 7 hours respectively.

NEW FEATURES: er, ah, umm... Boy, it sure is hard to grab a few hours to do a little programming, isn't it!? Well. The BLOCKADE program by Joe Waters (used in NOVATARI's BASIC Tutorial) should be in the D/L library by the time you read this. I'm starting a new message file, for hardware/maintenance problems. Jon Baum, of STS Video, will read it and answer questions. Jon is solely responsible for the continued operation of the BBS' slave drive, and my own master drive (unsolicited testimonial). The BBS number file has been updated at last, and I still intend to add a (N)EWS menu option, and rewrite some of the explanation files.

APRIL FOOLS' day seems an appropriate time to delete all old member numbers/passwords. Those who received the February issue of Current Notes have new member numbers and passwords on the top line of your mailing label.

I found out why the U/Ls were failing--the directory on D2 was filled. Some of the files were open and didn't show up until I was able to look at the disk with a DD patch program. U/Ls should work now, and members with articles to submit to Current Notes can upload them with option C. (You have to sign on with your member # to use it.)

A.N.A.L.O.G. Disk Library

by John Brophy

The Compendiums have arrived, and will be available at the next meetings. The disk version is on three disks (all 6 sides recorded), and will be available to group purchasers for $4.50 less $1.90 credit for shipping charges. At later meetings, the disks will be available at a price to be determined, to members who show proof of purchase of the compendium.

I have 2 people, and need 8 more, to join in a group subscription, which will allow the club to purchase a disk subscription for $60, half the usual rate. I am not anxious to get any extra participants, but I won't turn anyone down. A 1-year subscription or renewal is $24 (a $4 discount). Make checks payable to 'Atari Users', and get them to me by the end of May. New subs will start with #22; renewals MUST HAVE YOUR OLD MAILING LABEL. I am having a terrible time with the subscription service, and I don't want to give them any excuses for fouling up.

Atari Scuttlebits

by Bob Kelly

In attempting to sketch out a single theme to cover in this month's column, I became aware of how the range of potential topics continues to expand. In this regard, I would like to thank all of you who have called or written to offer suggestions for topics to be covered. The suggestions have ranged from the influence upon Apple of the MacIntosh, Coleco's future in the home computer market, and third party hardware suppliers for the new Atari XL line of computers (memory expansion, etc.). While mulling over the various ideas, it struck me that most home computer enthusiasts - particularly those who belong to users groups - consider themselves to be technological innovators. Their Atari computer is a means to participate in the rapid revolution that is underway. Risk and uncertainty are a part of this environment and makes life somewhat more interesting. This spirit reflects itself in a number of ways (commercial business programming, game development, etc.). For those of you who are still not totally satisfied - the biggest game in town is being played with lots of risk, requiring an adventuresome spirit, and finally the potential for large gains or losses involving real money. The "game", if you have not guessed now, is Wall Street and investing in computer stocks.

To amplify this point, let's examine what has occurred in the stock market over the past few months. The stocks we will briefly look at are Warner Communications (Atari), Commodore, IBM, and Coleco. It is important to the discussion that follows that you are aware of a historical relationship. Namely, when the economy is in an expansion phase, as it is currently, stock values generally tend to appreciate.

In 1982, Warner Communications was flying high with its stock valued in the neighborhood of $60 per share. By December 1983, the per share value had declined to roughly $21. Enter Rupert Murdock and his attempt at taking over Warner. Prices rose and by February 1984 stock values had risen to $29 per share. By March 19, once Warner announced the buy-out of Murdock's stock holdings, the share value had declined to approximately $22 per share.

IBM, in late 1983, announced a range of new computers including the PCjr. One would expect that with such an array of new, attractive products, IBM stock prices would have risen. This did not occur. Between January and March per share value declined by 9%.

Commodore, having its most profitable quarter in its history (Oct.-Dec. 1983), experienced a steep decline in its stock price from $49 per share in early January to $36 per share on March 16th (Commodore stock prices rose only recently from a low of $28 per share).

Coleco, plagued with problems associated with the introduction of its new computer, has seen its stock follow the same pattern over the past two months declining in value by 80% per share to approximately $11 on March 16.

While the general decline in the values of these four stocks has been attributed to a number of factors; e.g. fear of rising interest rates, uncertainty regarding long-term market viability of some computer manufacturers, senior management changes, etc., the fact remains that the financial outlook for most of these companies, to varying degrees, either remains positive or has improved. For example, both IBM and Commodore are projected to have higher earnings per share in 1984 than what they experienced in 1983. Warner Communications posted a dividend in the fourth quarter of 1983 after experiencing more than one-half billion dollars in losses for the first three quarters of 1983. Many analysts are quietly saying that Atari has turned it around. Assuming some new innovative products are introduced in 1984, Warner/Atari's financial position should improve further. It should be understood that Atari has said nothing publicly about any enhancements to its XL series of computers.

Coleco posted a $35 million loss in the fourth quarter of 1983. Losses were generally attributable to the Adam computer (the return rate on defective Adam Computers has been reported as high as 30% in early 1984). According to official Coleco pronouncements, it expects to post a profit, mainly from the sale of it's Cabbage Patch Dolls, by the second quarter of 1984. However, according to market sources, Coleco is experiencing a shortage of cash due to a continued slump in the sales volume and reliability problems associated with the Adam. To reduce cash flow requirements, it has been reported that Coleco has cut back on advertising.

Clearly, the most controversial electronics stock on the market at present is Commodore. The market uncertainty regarding Commodore stems primarily from the resignation of former president, Jack Tramiel, as well as several other senior executives. It has been reported that Commodore will soon announce a much more sophiscated line of computers that are intended to be compatible with the IBM PC. It is anticipated that Commodore will attempt to undercut IBM's current price structure. Commodore has not confirmed or denied these reports but hints as to Commodore's market course are expected shortly as Marshall Smith, the new president of Commodore, begins to make his initial management decisions known.

No attempt has been made here to present a complete picture of the financial and market outlook for the four companies examined. I have attempted to show that money can be made and lost in home computers which involves no knowledge of either the internal architecture of the machine or the specifics by which humans communicate with the machine (Basic, Assembly, Logo, etc.). A different set of facts must be assembled and analysed. Further, even after assembling what may be considered a reasonable set of information, risk and uncertainty remain. For example, there is obviously a greater risk in investing in Coleco than IBM. At present, many market analysts consider a number of electronics stocks to be undervalued - including one or two discussed in this column. With further in-depth analysis and a willingness to take some risk with your money, financial gains are indeed possible in computer hardware stocks.

In summary, it is my opinion that the potential for financial gain from investing in Wall Street is more likely for the majority of us when compared to the definitive "game" each of us is hoping to develop.

Atari LOGO Product Information

by ATARI, INC.

Atari Logo was developed for Atari Inc. by Logo Computer Systems Inc. of Montreal, Canada. It is a derivative of and highly compativle with an earlier version of Logo developed for the Apple computer called *Apple Logo*. The release of Atari Logo is historically significant because it allows for the first time a "full" implementation of Logo on an inexpensive home computer.

Atari Logo has been designed to take advantage of much of the hardware capabilities of the Atari system. This has resulted in some enhancements over previous versions f Logo, most notably the availability of four programmable "turtles" with collision detection and a player-missile "shape" editor. Other enhancements include a 128 color spectrum, eash access to sound and controllers, and the ablity to call assembly language subroutines. Also, Logo programs can be easily saved off to a storage device (disk, cassette, printer).

Although widely used in education, Logo is a powerful and sophisticated language. It was designed to have "no threshold" and "no ceiling". It is actually a subset of LISP, a language known for its use in the area of artificial intelligence research. The Atari Logo version is a full featured Logo and includes advanced computer science constructs such as list processing, recursion and local variables.

Logo is generally considered to be an excellent introductory programming language for children and adults. It has already been widely used in the educational field to teach the structure of computer programs and to illustrate the flow of logic within a computer program ... concepts that are central to all programming languages.

Atari Logo is available in two forms ... a consumer package and a special school package. The consumer package includes the followig:

* 16K LOGO Cartridge
* Introduction to Programing through Turtle Graphics Manual
* ATARI LOGO Reference Manual
* ATARI LOGO Reference Guide Manual
* Retail price: $99.95

The school package is available in several different versions: (1) Economy Pac: 16 K cartridge and ATARI LOGO Reference Guide. Retail price: $74.95. (2) Manual Pac: Same three manuals listed in consumer package. Retail price: $29.95. (3) Full Pac: Same as the consumer package. Retail price: $99.95.

(Continued on Page 13)

BASIC BEAT

by Joe Waters

This month we are going to see how to access, and display, a disk directory from within a basic program. This will satisfy the first option in the main menu of our DISKETTE LIBRARIAN program: READ DISK DIRECTORY. I have taken some time to explain in detail the steps involved along the way. Some readers may find all of this too elementary. However, in conveying any kind of information, I've always found it better to assume the audience knows less rather than more about whatever the topic at hand may be.

The routines listed below are numbered to fit in with the earlier two installments. If you don't have all the earlier code in place, you can still make use of these programs by adding the short utility routines that are called and also properly dimensioning any needed variables. For easy reference, I have reprinted the utility routines along with the new assignment and dimension statements at the end of the article. When the entire program is finished, I will provide a complete listing and place the end result on ARMUDIC for those of you with modems. (If you just started receiving *Current Notes*, I will have reprints of earlier columns available at the Novatari meetings.)

You'll notice another slight change in this month's listings. I've cut back on the number of REM statements included, in particular omitting the line of asterisks highlighting various parts of the program. With this month's (and next month's) code, free memory was rapidly becoming a scare commodity. By eliminating those "decorative" REM statements, I was able to recapture about 2.5K. Before we are finished, I'm sure we are going to need all the memory we can get. So much for preliminaries, let's get down to work!

Overview.

If we want to read a disk directory, the first thing we have to determine is what directory to read. If we have only a single disk drive, there is no problem; the only drive available is no. 1 and so we can proceed immediately to the next step. However, if we have a multiple drive system, we must determine which drive to read before we can proceed.

When we know the drive number, the next step is to actually read the information in the directory. To do this, we must know (1) how to access the directory, (2) how data are stored in the directory, and (3) how information is moved from the disk into memory.

The final step is to display the directory contents on the screen. Ideally, we would like to see the entire directory on the screen at once. It's always frustrating to see the filename you are looking for scroll off the top of the screen before a listing is finished, so we will format our listing to print the directory in two columns.

Determining the Disk Drive.

The first thing we have to determine is the number of disk drives available. Recall that the eight-element array DTYPE holds information on the disk drive configuration. If the nth element of DTYPE is a "1", a single density disk drive is available. A "2" indicates a double density drive and "0" represents the absense of a drive. (Note: the user has to tell this program what the disk drive configuration is; the program does not check to confirm that this is correct. Automatic checking of the disk configuration is a refinement you may want to add later.) Since we want to know how many drives are attached, let's create a new variable (NDRIVE) to keep track of the Number of DRIVEs.

The disk drive configuration is read from the DISKLIB.PRO file when the program begins. These settings can only be altered by using the CHANGE PROFILE option. We calculate NDRIVE, therefore, when the profile is read and when the disk drive settings are changed. Adding the following revisions to the previous code accomplishes the task:

```
(Change in the RPROFILE Routine)
11328 NDRIVE=0
11330 FOR I=1 TO 8
11332 INPUT #2,X
11334 DTYPE(I)=X:IF X>0 THEN NDRIVE=NDRIVE+1
11336 NEXT I

(Change in the CHDISK Routine)
13290 REM Calculate number of drives
13291 NDRIVE=0:FOR I=1 TO 8
13292 IF DTYPE(I)>0 THEN NDRIVE=NDRIVE+1
13293 NEXT I:RETURN
```

Now that we have NDRIVE, let's look at the subroutine DIRRD which is called when the option to read a disk directory is selected:

```
(The DIRRD Routine)
2000 REM DIRRD: DIRECTORY READ
```

```
2010 GOSUB SCREEN:ROW=1:INV=1
2020 B$="READ DISK DIRECTORY":GOSUB PRCEN
2030 IF NDRIVE=1 THEN DNUM$="1":GOTO 2100
2040 POSITION 2,3:? "WHICH DRIVE? (  ";
2050 FOR I=1 TO 8:IF DTYPE(I)>0 THEN ? I;" OR ";
2060 NEXT I:? ") ";
2070 GOSUB KEYBD
2080 IF K$<"1" OR K$>"8" THEN GOSUB BADKEY:GOTO 2070
2090 IF DTYPE(VAL(K$))=0 THEN GOSUB BADKEY:GOTO 2070
2095 DNUM$=K$
2100 ? :? "READING DIRECTORY FROM DRIVE NO. ";DNUM$
2110 ? :GOSUB RDIR
2120 GOSUB DDIR:GOSUB PAUSE
2130 RETURN
```

Lines 2010-2020 clear the screen and print out a centered title. A one-character string variable, DNUM$, is used to hold the disk drive number. In line 2030 we check to see if NDRIVE=1 and, if so, we set the value of DNUM$ to 1 and then skip to line 2100.

If NORIVE is greater than one, we must determine which drive to read. Remembering our goal of user-friendliness, when we prompt the user for the disk drive, we display the drives the program thinks are available and only allow an answer that matches one of those drive numbers. Lines 2040-2060 present the drive numbers; line 2070 calls KEYBD to get the response; line 2080 checks the response for a number between 1 and 8; and line 2090 verifies that the drive selected is available. If the response meets all of these tests, it is placed in the variable DNUM$. After printing a brief message saying what we are doing, we call the subroutine RDIR where we *R*ead the *DIR*ectory and then call DDIR where we isplay the *DIR*ectory. With the directory on the screen, we call PAUSE to give the user a chance to read the information before returning to the main menu.

Reading a Disk Drive.

To read anything from a disk drive we must first open a channel to that drive. Opening a channel is like connecting a cable from the computer to the disk drive. The cables available are numbered (#1, #2, #3, ... #7). When we open a specific channel to a disk drive, for example, channel #1, we are connecting one end of cable #1 to the computer and the other end to the disk drive. With the cable connected at both ends, data can now flow over the channel.

We open a channel with the OPEN command:

```
OPEN #n,m,0,device
```

The "n" is the channel number. Although seven channels are available, it is safest to stay in the 1-5 range since the BASIC graphics statements use channel #6 and the LPRINT and CLOAD/CSAVE commands use #7.

The second parameter, "m", indicates the direction of data flow. For a disk drive, five different values are possible:

m	Meaning:
4	- Read from device
6	- Read disk directory
8	- Write on device
9	- Append data to device
12	- Read and write to device

The third parameter is always "0" for disk drive operations. Even so, you must include it nonetheless. The last parameter is the device specification. If we were opening a channel to the printer, the device would be "P:", if the channel were opened to the keyboard, the device would be "K:". Note that for a printer, the only value of "m" that would make sense is "8" (write on device) and for the keyboard, the only allowable value would be "4" (read from device).

A disk drive is referenced by the letter "D" and the appropriate drive number, e.g. "D1:" or "D2:". Since a disk drive can hold several different files, however, the device letter is not sufficient to indicate which file we want to use. When we want to access a file on the disk drive, therefore, we must include the filename along with the device, e.g. "D1:DISKLIB.PRO" or "D3:LIBRARY.DAT".

A separate code (m=6) is used to read the disk directory. When we access the disk directory, the device specification identifies the files we want listed. Wild-card characters are allowed. For example, "D1:*.BAS" would refer to all files with a filetype of "BAS". If we want to list all files on the disk, the device specification would be "D1:*.*". Thus, the format of the OPEN statement for accessing all the files in the disk directory would be:

```
OPEN #1,6,0,"D1:*.*"
```

Note that the device specification is, in fact, a string. If we were to assign a string variable the appropriate expression, (for example, B$="D1:*.*"), we could use this string variable in the OPEN statement:

```
OPEN #1,6,0,B$
```

Why use the string variable? We want the program to be as general as possible. The user can refer to any of 8 possible disk drives. We could use 8 IF ... THEN statements (IF drive 1 THEN open drive 1). But using a string variable to indicate the device is a simpler and more efficient way to generalize the OPEN statement. The drive number is the

second character of B$. By setting this character to the appropriate disk drive number, the OPEN statement would always refer to the correct drive.

With that background in mind, let's look at the subroutine that reads the data in the disk directory:

(The RDIR Routine)

```
2200 REM RDIR: READ DIRECTORY
2210 B$="D1:*.*":B$(2,2)=DNUM$
2220 OPEN #2,6,0,B$
2225 DIR$="":DDEN$="SINGLE"
2227 IF DTYPE(VAL(DNUM$))=2 THEN DDEN$="DOUBLE"
2230 NFILES=0:FREE=0
2240 INPUT #2,B$
2250 IF B$(5,10)="FREE S" THEN FREE=VAL(B$(1,3)):GOTO 2290
2260 DIR$(LEN(DIR$)+1)=B$
2270 NFILES=NFILES+1
2280 GOTO 2240
2290 CLOSE #2:RETURN
```

You can see now what is going on in lines 2210 and 2220. We are setting the value of B$ and opening channel #2 to the disk directory. It really doesn't matter which channel we use. But, once a particular channel is opened to a device, we must always use that channel number when attempting to read or write information to that device.

Before we discuss the remainder of this routine, we'll have to digress a bit and talk about the format of the data stored in the disk directory.

Disk Directory Files

When you are in DOS and you ask for a listing of your files (Option A in ATARI DOS), you see precisely the information stored in the disk directory. Every line listed corresponds to a record in the directory. Every record, except the last, is 17 characters long:

```
* DOS      SYS 039  <- Sample Records
* DUP      SYS 042
* AUTORUN  SYS 011
  GOLF     BAS 043
  HORSE    BAS 022
  LOGO         012
  DISKNAMEDAT 001
537 FREE SECTORS
```

An asterisk in the first character position indicates that the file is locked. The second character is always blank. Characters 3 through 10 are the file name and characters 11 through 13 the file extension. The 14th position is blank. The last three characters are the number of sectors occupied by the file. The very last record shows the number of free sectors left on the disk.

Reading the Disk Directory.

If we were only interested in displaying these records once, we could read them with the INPUT statement and then print the results on the screen. The following segment of code would do the trick:

```
2238 TRAP 2246
2240 INPUT #2,B$
2242 PRINT B$
2244 GOTO 2240
2246 CLOSE #2
```

We read a record from the directory into the string variable B$ (line 2240); print the record on the screen (2242); and then repeat the process (2244). When there are no more records in the directory, the INPUT statement will result in an error. The TRAP statement in line 2238 catches this error and moves us to 2246 where the channel is closed.

The trouble with this approach is that we lose the information once it is printed on the screen. If we want to do anything else with the data (store it in a databank for example), we would have to do it immediately or read the directory again later. Let's transfer the contents of B$ into something more permanent. The variable DIR$ is dimensioned to hold 1,088 characters (17 * 64 -- the maximum number of disk files). Every time file information is read from the disk directory, we will add it to DIR$.

Now we can consider the rest of the RDIR procedure introduced above. Line 2225 initializes DIR$ to the empty string. We also initialize the variable DDEN$ which represents the disk density. The variable NFILES keeps track of the number of *FILES* on the disk and the variable FREE holds the number of free sectors. In line 2290 we check to see if we have read the FREE SECTOR message yet. When we do, we jump to 2290 where we close the channel and return to the calling routine.

Displaying the Directory

When we display the directory, we want to do it in two columns so we can put the maximum amount of information on the screen at one time. Two records will take 34 characters. If we put the files inside a box, the box line will take an additional three characters (left, center, and right) for a total of 37 characters. Since our screen displays 38 characters, it will all fit just right.

Assume we have six files in the directory. We want our display to look something like this:

DISK DIRECTORY: DRIVE NO. 1

```
SINGLE DENSITY        537 FREE SECTORS
----------------------------------------
¦* DOS     SYS 039¦ HORSE    BAS 022¦
¦* DUP     SYS 042¦ LOGO         011¦
¦* AUTORUN SYS 011¦ DISKNAMEDAT 001¦
¦  GOLF    BAS 043¦                 ¦
----------------------------------------
```

All of the file information is in DIR$. File 1 is stored in DIR$(1,17); file 2, in DIR$(18,34); file 3, in DIR$(35,51), etc. Since every file is exactly 17 characters long, we can use a mathematical formula to calculate the beginning and ending characters of any file we want. For file "n", the beginning character is given by (17*(n-1)+1). Replace "n" with 1, 2, and 3 and compare the results with the examples at the beginning of this paragraph to convince yourself that this formula works. Once you have the first character, add 16 to get the last character.

Now that we know how to locate filenames in DIR$, let's consider the order in which to print the files. Files will be listed in two columns. The first half of the files appear in column 1; the second half in column 2. Now the question is If we have "n" files, how many rows are needed to print the data? For 1 or 2 files, one row is sufficient. For 3 or 4 files, two rows are needed. The total number of rows needed can be given by the following formula:

```
NUM=INT((NFILES+1)/2)
```

Using the variable NUM, we can easily identify the files to print in each column. Set up a FOR/NEXT loop to handle the printing (FOR I = 1 TO NUM). The file in column one is the Ith file and the file in column two is the (I+NUM)th file. All of this is implemented in the DDIR routine. Let's take a look at it now:

(The DDIR Routine)

```
2300 REM DDIR: DISPLAY DIRECTORY
2310 GOSUB SCREEN:POKE CONTROL,NO
2315 ROW=1:INV=1:B$="DISK DIRECTORY: DRIVE NO. "
2320 B$(LEN(B$)+1)=DNUM$
2325 GOSUB PRCEN:? :?
2330 ? DDEN$;" DENSITY";BLANK$(1,7);FREE;" FREE SECTORS"
2335  IF  NFILES/2<>INT(NFILES/2)  THEN
DIR$(LEN(DIR$)+1)=BLANK$(1,17)
2340 NUM=INT((NFILES+1)/2)
2345 IF NFILES=0 THEN GOTO 2430
2350 ? CHR$(17);:FOR  I=1  TO  17:?  CHR$(18);:NEXT  I:?
CHR$(23);:FOR I=1 TO 17:? CHR$(18);:NEXT I:? CHR$(5)
2360 FOR I=1 TO NUM
2370 I1=17*(I-1)+1:I2=I1+16
2380 J1=17*(I+NUM-1)+1:J2=J1+16
2390 ? "¦";DIR$(I1,I2);"¦";DIR$(J1,J2);"¦"
2400 NEXT I
2410 ? CHR$(26);:FOR  I=1  TO  17:?  CHR$(18);:NEXT  I:?
CHR$(24);:FOR I=1 TO 17:? CHR$(18);:NEXT I:? CHR$(3)
2420 GOTO 2480
2430 ? CHR$(17);:FOR I=1 TO 35:? CHR$(18);:NEXT I:? CHR$(5)
2432 ? "¦  There are no files listed   ¦"
2434 ? "¦       in the Directory!      ¦"
2436 ? CHR$(26);:FOR I=1 TO 35:? CHR$(18);:NEXT I:? CHR$(3)
2480 POKE CONTROL,YES
2490 RETURN
```

Lines 2310 through 2330 print out the heading. In line 2335 we determine whether or not NFILES is odd (for an odd number NFILES/2 will not be equal to INT(NFILES/2). If it is odd, we add 17 blank spaces to the end of DIR$. (The blank spaces fill the last position in our directory table.) In line 2340, we calculate NUM as discussed above. In line 2345 we verify that the directory has some files. If not, we skip to lines 2430-2436 where we print out a message to that effect.

Lines 2350 through 2420 print out the directory. The CHR$ function is used to print out the outlines of the box surrounding the directory. You should recognize the formulas in lines 2370 and 2380 that calculate precisely what characters in DIR$ are to be printed.

The one remaining element that may cause some confusion is the POKE CONTROL,NO in line 2310 and POKE CONTROL,YES in line 2480. CONTROL is 766. This memory location controls the display of control characters (the arrow keys, the clear key, etc.). When a zero is stored here, the control keys perform their normal function. When a nonzero value is stored, the control keys generate characters on the display screen. When you read a disk directory from some self-booting disks you may get a file directory that contains nothing but very strange characters, including some that are normally interpreted as control characters. If we tried to print out DIR$ with these characters in it, strange things could happen. So, for protection, we turn off the normal interpretation of control characters before we attempt to print DIR$ and then turn them back on when we leave this subroutine.

Well there you have it. You are now able to access and read the contents of a disk directory right from your BASIC program. Next month, we will complete the second main menu option: 2) UPDATE DISK DIRECTORY. We will see how to use the BASIC XIO command to lock and unlock files and to rename or erase files. While we are modifying the directory, we will also see how to display part of a disk file and create an entirely new disk file while still in our BASIC program.

Assignment and Dimension Statements

```
 82 RDIR=2200:DDIR=2300
 86 LET CONTROL=766:CURSOR=752:YES=0:NO=1
110 KEYBD=300:SCREEN=340:BADKEY=350
112 PAUSE=360:PRCEN=370
```

```
19040 DIM DIR$(1088),DNUM$(1),DDEN$(6)
```

Short Routines

```
300 REM **** KEYBD ****
305 CLOSE #1: OPEN #1,4,0,"K:"
310 GET #1,K:K$=CHR$(K)
315 CLOSE #1:RETURN
340 REM **** SCREEN ****
345 GRAPHICS 0:SETCOLOR 2,BKC,BKL
347 SETCOLOR 1,0,CHL:POKE CURSOR,NO:RETURN
350 REM **** BADKEY ****
355 SOUND 0,150,12,10:FOR II=1 TO 20:NEXT II
356 SOUND 0,0,0,0:RETURN
360 REM **** PAUSE ****
365 POSITION 7,23:? "(HIT ANY KEY TO CONTINUE)";
366 GOSUB KEYBD:RETURN
370 REM **** PRCEN ****
373 CLEN=LEN(B$):COLUMN=INT((40-CLEN)/2)
374 POSITION COLUMN,ROW
375 IF INV=0 THEN ? B$:GOTO 377
376 FOR J=1 TO CLEN:? CHR$(ASC(B$(J,J))+12B);:NEXT J
377 RETURN
```

(LOGO from Page 8)

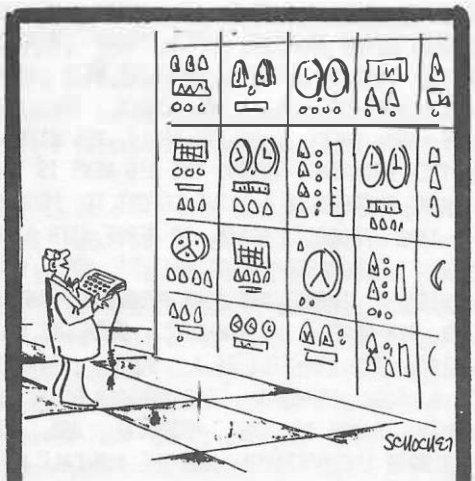
Both the Consumer package and the three school Pac's are currently available at your local Atari retailer, at software stores or from computer mail order houses. They are all fully compativle with all ATARI products. The Logo cartridge fits the cartridge slot on the 400/800 computers as well as the entire series of XL computers.

ATARI LOGO does have limitations. They include: no fill command; Logo language uses graphics mode 7 only; splits words at end of screen (unlike Atari PILOT or AtariWriter); no debugging aids (trace, remarks, etc.); pressing SYSTEM RESET erases all programs in mory (programs *not* erased in PILOT, BASIC, etc.); additional documentation may be necessary to learn advanced LOGO features, such as recursion and list processing (a list of available literature on the LOGO language can be provided upon request).

For additional information concerning Atari Logo, or any other Atari hardware and/or software products call Atari's toll-free Customer Service line (800) 538-8543.

Comics

"I warned you about playing that video game!"



"Guess who's being replaced by advanced technology this time?"

"I'm worried about Junior. He's been up in his room since Christmas of '81 with that computer you gave him.

THE HIDDEN ATARI

by Arthur B. Corte

The Atari 400 and 800 both share one feature unique to these two machines and unlikely to be duplicated again that could keep these computers in demand for years to come. This feature is the provision of four game ports, ports which have the potential for far more serious uses. There has been little atention paid to date to this capability, either in the computer journals or in the hardware marketplace.

Each of these ports supports either a joystick controller or two game paddles.. To do this each port monitors 5 switches(normally closed) that sense the direction of tilt of the joystick and the position of its trigger, and two analog to digital converters that convert the paddle position to a number between 0 and 255(the paddle triggers use the joystick switch circuits). This gives the 400/800 the ability to monitor twenty open/closed circuits and eight analog voltages.

The twenty circuits that sense open/closed circuits can also be used in the other direction, that is to control the switching on/off of some other device. The fundamentals of the hardware required for doing this have been described in the July 1983 BYTE in an article entitled "Control Your Environment with the Atari 400/800" by David Alan Hayes. Basically the weak curents and voltages in the computer are used to control a light emitting diode in an optical isolator so that there is no electrical contact between the computer's delicate circuitry and external voltages that could damage the chips. The output from the optical isolator is used to control another electronic device called a triac which is capable of turning on and off the 110 volt line voltage to whatever device it is desired to control.

This capability to monitor a significant number of sensors and use the information so received to control several devices in accordance with a logic scheme programmed in Basic can be very useful. Possible applications are home security systems, climate control or controlling the automatic watering of a garden in relation to soil moisture. What has hindered the use of our Ataris(and other makes as well) for this purpose has been a lack of hardware to do the sensing and controlling and a scarcity of articles in the computer journals on how to do it. Fortunately, this is changing.

One of the first products to utilize the Atari's control capabilities is a home security system marketed by Tomorrow Tech of Gibsonia PA. Their product, COMPUGUARD, monitors four security circuits and a key switch, and will activate a 115 volt outlet when one of the security circuits is broken (as by opening or breaking a window, door, etc.). A key switch and time delay circuit allows the homeowner a period of time to enter the house and key in the appropriate codes without triggering the alarm. The software allows a non-programmer owner to deactivate sensor circuits as desired and command the turning on and off of lights at specified times.

An article in the January 1984 ANTIC deals with using an Atari to control a small servomotor. Let us hope this is just the beginning, and that vendors will soon produce sensors and controllers easily interfaceable to our Ataris, and that computer magazines will run articles on the programming necessary to integrate this hardware into complete systems. We have only begun to explore the capabilities of home computers to perform a variety of useful tasks that are beyond the reach of consumers today.

SUNNYVALE SECRETS

by the Secret Sunnyvale Correspondent

Q: WHAT'S GOING ON IN THE INDUSTRY NOW?

A: THE INDUSTRY IS DOWN AS A WHOLE AND IT SEEMS THAT THE ONLY ONES DOING ANYTHING IN COIN-OP ARE ATARI, BALLY AND WILLIAMS. COMMODORE AND ATARI ARE PUSHING NEW PRODUCTS AND YOU'LL SEE ATARI COMING BACK TO LIFE IN FULL FORCE BY THE END OF 1984!

Q: HOW ABOUT NEW PRODUCTS? WHAT'S COMING?

A: FIRST, THE 1450 IS ALIVE AND WELL. THIS AND THE OTHER XLs WILL HAVE AN ASSORTMENT OF ADD-ON BOARDS FOR THE BACKPLANE CONNECTOR ALA APPLE. AN UNLIMITED VARIETY OF FUNCTIONS WILL SOON BE AVAILABLE TO ALL XL OWNERS. SECOND, A NEW PRODUCT FOR THE 'ATARI WRITER', NAMED 'PROOF READER' WILL BE OUT IN 45 DAYS. IT WILL CO-EXIST WITH 'ATARI WRITER' SUCH THAT YOU WILL BE ABLE TO CHECK SPELLING, CONTINUE COMPOSING AND CHECK SPELLING AGAIN, ALL WITHOUT HAVING TO LOAD ANOTHER PROGRAM! THIRD, THE BIG NEWS IS THAT SYNAPSE AND ATARI HAVE ENGAGED IN A JOINT EFFORT TO PRODUCE A 'LOTUS 1-2-3' TYPE PRODUCT, AGAIN, TO MERGE WITH ATARI WRITER. (IF YOU HAVEN'T PURCHASED 'ATARI WRITER', YOU WILL WANT TO AFTER THIS!) THERE ARE FOUR PRODUCTS PLANNED: SYN-FILE, SYN-TREND, SYN-GRAPH, AND SYN-CALC. EACH ONE WILL RETAIL FOR ABOUT $100. THE SYN-FILE IS A SUPER DATABASE MANAGER PROGRAM, A MUCH IMPROVED FILE-MANAGER 800+; THE SYN-TREND AND GRAPHING (MAYBE AS ONE PRODUCT) ARE NEW METHODS TO DISPLAY DATA & COMPARISONS AND THE SYN-CALC WILL BE A SUPER VISICALC TYPE PROGRAM, MORE FLEXIBLE THAN THE ORIGINAL. ANY OR ALL OF THESE PRODUCTS WILL MERGE WITH 'ATARI WRITER' AND CAN BE INTERMIXED WITH YOUR TEXT!

Nibbles and Bits

by Jay Gerber

This month I will review *Jumpman* and *Jumpman Jr.* (just like I said I would last issue), and Electronic Arts' new arcade game, *Hard Hat Mack*.

First off, a game that needs no introduction (then why are you giving one for it?): *Jumpman*. *Jumpman* has been a very popular arcade game for at least a year. In it, the player(s) find themselves as galactic heroes disarming enemy bombs planted in Jupiter Headquarters. The game bears a strong resemblance to the ever popular *Miner 2049'er* in that you move on girders, climb ladders, and avoid nasty aliens constantly. The goal here is to collect all the bombs on each of thirty levels. There are several thought-provoking puzzles which require more brainwork than reflexes, the latter of which you must always use.

Jumpman Jr. is twelve new levels using the same gameplay as it's predecessor. It is great for people who don't have a disk drive or those who don't want to spend centuries waiting for their 410s to load. As in *Jumpman*, *Jumpman Jr.* is extremely well-designed: good sound effects, great graphics, smooth animation, and clever challenges throughout. Both games are by Randy Glover, who I feel is very talented as a game designer, as these fun-to-play games demonstrate.

I very willingly give *Jumpman* and *Jumpman Jr.* a rating of 9 out of ten.

Jumpman, by Epyx on 32K disk and cassette for $34.95
Jumpman Jr., also by Epyx on 16K cartridge for $39.95.

Electronic Arts is a new company in the software industry with what it believes to be a new standard for all future software. This is "to fulfill the potential of personal computing." One of the ways in which they try to achieve this goal is the game *Hard Hat Mack*.

In this cleverly designed game, a poor little fellow named Mack is trying to complete a three-story building. But the city vandals and the OSHA men just won't let him do it. They are constantly pursuing him throughout the hectic and often frustrating game. As if this wasn't enough, rivets bounce throughout the building, seemingly homing in on poor Mack. Rocks fall on him, conveyors throw him into machines and porta-potties, and he still has to face commonplace hazards such as faulty wiring and merciless steel smashers.

The three level game is so intricately detailed, I felt as if I were in the coin-op arcades rather than at home on what a lot of people term "just a glorified VCS". The realistic effects such as the girder - elevator movement and the springboard operation are very well-done. The music is clever and matches the frenetic pace of the game. Every item on the board was so well-defined in terms of resolution, that I could tell what everything was, even without looking at the well-documented package. If this game is any indicaton of EA's talent, they have gone far beyond completing their goal. This game rates a well-deserved 10.

Hard Hat Mack, on 48K disk by Electronic Arts for $35.00.

ATARI Reference Library

By Joe Waters

If you are a new ATARI owner, you undoubtedly noticed that the documentation included with your new ATARI XL computer was a bit on the skimpy side. However, do not despair. There are some excellent publications available that can help you in learning to use your ATARI. I have gathered the information provided below from ATARI publications, various articles, and advertisements. Hopefully, you will find it useful in building your own ATARI reference library.

Starting Out

The following book is the best introductory book out for being "user friendly." The author really covers the field, including graphics, sound, and the GTIA chip. The illustrating programs are blessedly brief. It is full of pictures and humor.

INSIDE ATARI BASIC, by Bill Carris, published by Reston Publishing Co., (800) 336-0338, 1983, $12.95, 183 pages.

After the above book, or if you already have it, this next one is an excellent all-round book for the ATARI. Written before the GTIA and the XL series, it nevertheless remains the best standard reference on ATARI BASIC programming, including graphics, sound, and player/missile graphics, use of tape recorders, disk drives, and printers.

YOUR ATARI COMPUTER, by Lon Poole with Martin McNiff & Steven Cook, published by Osborne, 1982, $17.95, 458 pages.

ATARI Magazines

Magazines are an excellent vehicle for keeping up with the rapidly changing computer market. Listed below are four magazines that are exclusively geared to the ATARI (note: HI-RES recently announced that they will split their coverage between the ATARI and the COMMODORE):

ANALOG COMPUTING, 565 Main Street, Cherry Valley, MA 01611, (800) 345-8112, monthly, $3/issue, $28/year.

ANTIC - THE ATARI RESOURCE, Editorial Offices, 524 Second Street, San Francisco, CA 94107, (415) 957-0886, monthly, $3.50/issue, $24/year.

ATARI CONNECTION, Subscription Department, P.O. Box 50047, 60 E. Plumeria, San Jose, CA 95150, quarterly, $3/issue, $10/year.

HI-RES, Compupress, Inc., 933 Lee Road, Suite 325, Orlando, Fl 32810, monthly, $2.95/issue, $20/year.

As anyone who has looked at a magazine rack lately knows, the number of computer magazines available has sky-rocketed. Many of these are geared to a specific machine (like the ATARI magazines listed above). Of the more general magazines, two have been around for many years, regularly carry columns on ATARI, and are worthy of mention:

COMPUTE!, P.O. Box 5406, Greensboro, NC 27403, (919) 275-9809, monthly, $2.95/issue, $24/year.

CREATIVE COMPUTING, P.O. Box 5214, Boulder, Colorado 80321, (800) 631-8112, monthly, $2.95/issue, $20/year.

If, somehow, you haven't been reading these magazines for years, you can still benefit from their earlier ATARI articles. Several of these magazines have published books of collected articles specific to the ATARI (see below). These books contain not only tutorial articles, but also a wide variety of software (games, educational programs, utilities, etc.) that are yours to enjoy as soon as you type them into your ATARI.

ATARI Books

If you have looked in your local book stores lately, you may have noticed a disappointing lack of ATARI coverage. It is not because there are few publications available. On the contrary, as the list of over 70 volumes illustrates,

the number of ATARI reference books has grown enormously over the past few years. I have tried to make this list as complete as possible but am sure I have missed some worthy entries. If you have some books you think should be on the list, let me know. I will try and keep this bibliography up-to-date and will publish an updated version later.

101 ATARI COMPUTER PROGRAMMING TIPS AND TRICKS, Alan North, Arcsoft, 1983, $8.95, 128pp. Collection of programming techniques and shortcuts each featuring complete, ready-to-run program -- graphics, games, educational tools, and home financial aids.

31 NEW ATARI PROGRAMS FOR HOME, SCHOOL, & OFFICE, Alan North, Arcsoft, 1983, $8.95, 96pp. Programs designed to be easily input into ATARI. Included are programs for home, classroom, or small business. Each accessible to novice users.

32 BASIC PROGRAMS FOR ATARI COMPUTERS, Dilithium Press, 19.95. 32 pre-tested, ready-to-run programs covering business, education and games.

ADVANCED PROGRAMMING TECHNIQUES FOR YOUR ATARI, Linda Schreiber, Tab Books, 1984, $19.95, 244pp. How to use PM graphics, scrolling and screen flipping, entering a ML subroutine to play music while BASIC programming is running, other programming tips.

ADVENTURES WITH THE ATARI, Jack Hardy, Reston, 1984, $14.95, 356pp. Hardy walks reader through the basic steps involved in creating computer adventures, and provides six games to try out and study. One cah choose among games written in Atari PILOT, Microsoft BASIC, or ATARI BASIC.

THE ANALOG COMPENDIUM, ANALOG, 1984, $14.95. Contains the best ATARI programsfrom the first ten issues of A.N.A.L.O.G. Computing magazine, including new material not previously published. Packed with utilities, educational and business programs and some excellent game programs.

THE ANTIC ANTHOLOGY, VOL 1., Antic, 1984, $12.95. Collection of the most popular programs and feature articles from ANTIC's first year of publishing. Includes useful utilities, step-by-step tutorials and exciting games.

ASTROLOGY ON YOUR ATARI 800, Elcomp, $9.95. How to calculage your own horoscope. Including listing of the program.

ATARI 400/800 DISKGUIDE, John Taylor, Osborne, 1983, $7.95, 32pp. Spiral-bound, computer-side guide contains ATARI commands and functions -- DOS, BASIC, numeric functions, machine functions, and others.

THE ATARI ASSEMBLER, Don & Kurt Inman, Reston, 1981, $14.95, 268pp. Guidebook designed for readers with some BASIC but assumes no assembly language background. Learn how to use ATARI Assembler Cartridge and program in assembly.

ATARI BASIC, Richard Haskell, Spectrum, 1983, $13.95. Provides solid introduction to BASIC, uses hands-on top-down approach to programming. Instructions augmented by wealth of examples.

ATARI BASIC: A SELF-TEACHING GUIDE, Albrect et.al., John Wiley, 1979, $10.95, 332pp. Shows you how to read, write, and understand the ATARI BASIC programming language. Self-instructional format. Very little on graphics or sound.

ATARI BASIC, FASTER AND BETTER, Carl M. Evans, IJG, $30. Author is columnist ("Tape Topics" and "Tangle Angles") for ANTIC. This introduction to ATARI BASIC is the result of his attempts to get the most out of his computer with the least programming effort. Filled with a vast amount of information.

ATARI BASIC, LEARNING BY USING, Thomas Rowley, Elcomp, 1981, $7.95, 73pp. An excellent book for the beginner. Many short programs and learning exercises. Covers screen drawings, special sounds, keys, paddles, joysticks.

ATARI BASIC, A QUICK REFERENCE GUIDE, Gilbert Held, John Wiley, 1982, $2.95. Printed on heavy coated stock, handy item to have alongside keyboard. Includes: generic terms, BASIC operators, file naming convention, system commands, etc.

ATARI BASIC SOURCEBOOK, Wilkinson, O'Brien & Laughton, Compute! Books, $12.95, 296pp. A complete annotated source code listing and a wealth of information on the internal workings of BASIC.

ATARI GAMES & RECREATIONS, Kohl, Kahn, Lindsay, & Cleland, Reston, 1982, $14.95, 350pp. Excellent starter for novices and kids. Learn programming through game creation. Start with easy games that serve as building blocks to more complex and creative programs. Learn graphics, sound, color.

ATARI GRAPHICS AND ARCADE GAME DESIGN, Jeffrey Stanton, The Book Co., 1984, $16.95, Takes you from game concept through player-missile and character set animation techniques at the machine language level. Also covers BASIC language programmin with machine language subroutines, custom display lists, GTIA color, and sound.

ATARI IN WONDERLAND, $9.95, 139pp. Twenty-two programs for learning and fun.

ATARI PILOT FOR BEGINNERS, Conlay and Delman, 1983, $14.95, 229pp. Allows beginner to learn through play and experimentation. Included are programs for music, color, graphics, and mathematics.

ATARI PROGRAMMING WITH 55 PROGRAMS, Linda Schreiber, Tab Books, 1982, $13.95, 244pp. Non-technical, easy-to-follow lagnuage, provides a host of programming ideas from ATARI operation to organizing and writing your own programs.

ATARI SOUND AND GRAPHICS, A SELF-TEACHING GUIDE, Moore, Lower, Albrecht, John Wiley, 1982, $9.95, 234pp. Self-teaching guide, advance progressively through simple techniques for creating an array of sounds and images. Uses BASIC, requires no programming knowledge.

ATARI TECHNICAL REFERENCE NOTES, Atari, 1980, $29.95. Includes Operating System User's Manual, Operating System Source Listing, Hardware Manual.

THE ATARI USER'S ENCYCLOPEDIA, The Book Co., 1984, $19.95. Presents hard to find information, organized alphabetically, about DOS, BASIC, programming, user's groups, software and peripherals.

ATARI USER'S GUIDE: BASIC AND GRAPHICS FOR THE ATARI 400/800/1200, Mark Ellis Brady, 1983, $15.95, 300pp. Comprehensive guide, easy to read, yet detailed explanation of ATARI BASIC and graphics. Includes applications in graphics,word processing, and business.

ATARI: A BEGINNER'S GUIDE, Lance Zimmerman, Brady, 1983, $12.95, 200pp. Comprehensive tutorial. Written in a user-friendly style, informal text designed to help beginners understand all aspects and capabilities of the ATARI.

BASIC EXERCISES FOR THE ATARI, J.P. Lamoitier, SYBEX, $12.95, 251pp. Shows how to use ATARI for many accounting, statistical, and financial tasks. Exercises include statement & analysis of problem, flowcharts, and programs.

BASIC ROUTINES FOR THE ATARI, Jerry White, Adventure International, $24.95. A self-help system that allows the user to learn effect programming techniques fast. Comes with a manual(tape or disk) that includes routines in book.

BASICALLY SPEAKING, A YOUNG PERSON'S INTRODUCTION TO COMPUTING, Frances Cohen, Reston, 1984, $12.95, 144pp. Explains how computers evolved, what makes them work, and how to program with ATARI BASIC.

THE BOOK OF ATARI SOFTWARE 1983, Stanton, Wells, Rachowansky, The Book Compnay, 1983, $19.95, 347pp. Examplary resource manual: software reviews, each evaluation written by expert in the field. Programs grouped by type-business, educational, communications, database, entertainment. (1984 Volume is now available.)

COMPUTE!'S FIRST BOOK OF ATARI, Robert Lock, ed., Compute! Books, 1981, $12.95, 184pp. Some of the best of the ATARI material to appear in COMPUTE! from 1980-1981. Includes a memory map. For beginning to advanced users.

COMPUTE!'S SECOND BOOK OF ATARI, Compute! Books, 1982, $12.95, 250pp. Contains unpublished ATARI articles on a variety of subjects. Chapters about utilities, programming techniques, graphics and games, applications, and machine language.

COMPUTE!'S THIRD BOOK OF ATARI, Compute! Books, 1984, $12.95, 308pp. Packed with articles on programming techniques, ready-to-run software, computer utilities, and reference information. Chapters on sound, applications and education, graphics, utilities, advanced techniques, and machine language.

COMPUTE!'S FIRST BOOK OF ATARI GAMES, Compute! Books, $12.95, 232pp. Fifteen commercial quality game programs, ready to type into an Atari. Contains fast machine language games as well as brain testers that feature strategy and logic. Many programming techniques explained in depth.

COMPUTE!'S FIRST BOOK OF ATARI GRAPHICS, Compute! Books, 1982, $12.95, 248pp. Contains published as well as original, unpublished material. Includes sections on using ATARI graphics, "painting" the screen in 256 colors, mixing graphics modes, making high resolution graphs and charts, redefining character shapes, and PM graphics.

COMPUTE!'S SECOND BOOK OF ATARI GRAPHICS, Compute! Books, 1984, $12.95, 220pp. Includes sections on redefining character sets, animation, PM graphics, and much more.

COMPUTER ANIMATION PRIMER, Fox and Waite, Byte Books, $18.95, 208pp. Animation graphics clearly explained. Good reference for beginner or expert.

THE COMPUTER TUTOR: ATARI HOME COMPUTER EDITION, Little, Brown & Co., 350pp. Designed for parents and teachers who wish to work on computer skills with children. Allows youths to work on math and verbal skills, learn metric system, and play the stock market.

COMPUTERS FOR KIDS: ATARI EDITION, Sally Larson, Creative Computing, 1981, $4.95, 72pp. Well-illustrated, easy-to-understand. Large type makes it accessible to children. Kids learn basics of computing and how to construct their own games,pictures.

THE CREATIVE ATARI, David and Sandy Small, George Blank, eds., Creative Computing, 1983, $15.95, 243pp. Full of valuable "hands-on" projects, in-depth tutorials, product reviews, philosophical ramblings, insider's gossip, and insights into the powers of the ATARI.

DE RE ATARI (All About the ATARI), Chen, Crawford, Dunion, Fraser, and Winner, Atari Program Exchange, 1981, $19.95, 150pp. Series of tutorials cover, in detail, techniques required to fine scroll, move PM, operate vertical blanks. Indespensible manual for the advanced programmer.

DESIGNS FROM YOUR MIND WITH ATARI GRAPHICS, Tom Rowley, Reston, $12.95, 226pp. For those interested in PM graphics, character redefinition, scrolling, animation and vertical blank interrupts.

DISCOVERING ATARI LOGO, David Thornburg, Addison, $14.95, 173pp. (Atari Version of earlier APPLE LOGO book.) Probably the most complete and beautiful treatment of turtle graphics you can ul treatment of turtle graphics you can find.

EASY GUIDE TO 400/800, Kascmer, $7.95, 160pp. Jargon-free guide word processing, math, budgeting, filing, etc.

FORTH ON THE ATARI, LEARNING BY USING, Ekkehard Floegel, Elcomp, $7.95, 118pp. Covers FORTH language, useful in manipulating graphics and programs that run much faster than BASIC.For beginners and those interested in learning FORTH.

GAMES FOR THE ATARI COMPUTER, Sam Roberts, Elcomp, 1982, $7.95, 115pp. This book describes advanced programming techniques like PM Graphics and use of hardware registers. Contains many ready to run programs in BASIC and one in machine language.

GAMES FOR YOUR ATARI COMPUTER, Dell, $5.95. Dell Computer Games series wasn overnight success in England, where it was first published. Atari version contains arcade-style games, brain teasers, puzzles, computer terms, bibliographies, and music.

HACKER BOOK FOR YOUR ATARI COMPUTER, Elcomp, H.C.Wagner, $9.95, 116pp. Important subroutines in 6502 machine language. How to make bootable cassettes, disks, and EPROMs. Complete construction article and software on how to build an EPROM burner.

HANDS ON BASIC FOR THE ATARI 400/800 COMPUTER, Peckham, $19.95, 352pp. Written by the man who developed the "Hands-on" method of teaching computereese.

HOW TO PROGRAM YOUR ATARI IN 6502 MACHINE LANGUAGE. Sam Roberts, IJG, 1982, $9.95, 106pp. Introduction to machine language for the BASIC programmer. Also covered is use of assembler and development of Machine Language subroutines from BASIC.

HOW TO USE ATARI COMPUTERS, Alfred, $2.95, 65pp. Pocket-sized quick guide that offers an overview of the complete ATARI computer system.

HOW TO WIN ATARI COMPUTER GAMES, $8.95.

I SPEAK BASIC TO MY ATARI, Aubrey Jones, Hayden, $15.95, 229pp. Good BASIC tutorial for kids seventh grade and above, including sections on the disk drive and how to do simple graphics, full of exercises and quizzes, intended for classroom instructional use.

INSIDE ATARI BASIC, Bill Carris, Reston, 1983, $12.95, 183pp. The purpose of this book is to introduce you to the key concepts of BASIC programming while inflicting as little pain as possible.

INSIDE ATARI DOS, Bud Wilkinson et. al., Compute! Books, 1982, $19.95, 108pp. This book contains the only complete and official listings for the disk File Manager System (FMS) commonly known as Atari DOS 2.0S. An invaluable programming tool for intermediate to advanced programmers.

INTRODUCTION TO ATARI GRAPHICS, $16.95.

KIDS AND THE ATARI, Edward Carlson, Reston, 1983, $19.95, 218pp. Lively introduction will have kids programming in hours. Probably a bright seven year old could read and use this book. ATARI operations and elementary programming are cut into the tiniest conceptual units, explained very simply, and illustrated appropriately -- usually one concept per page.

LEARNING WITH ATARI LOGO, Daniel Watt, McGraw Hill, $19.95, 358pp. (Atari version of earlier APPLE LOGO book.) Excellent text for teaching Logo to a class or a parent, child, spouse or friend. Combines cartoons with "Helper's Hints" that teach the "helper" to help the learner and result in both learning.

MAPPING THE ATARI, Ian Chadwick, Compute! Books, 1983, $14.95, 194pp. A comprehensive listing of memory locations and their functions. Many applications are suggested, complete with program listings. For beginning to advanced programmers.

MASTER MEMORY MAP, Educational Software, 1981, $6.95, 25pp. Over 500 memory locations in easy to read format. Helpful for beginning programmers in teaching which memory locations are important.

MOSTLY BASIC: ATARI VOL #1, $12.95, 181pp.

MOSTLY BASIC: ATARI VOL #2, $12.95.

PICTURE THIS!-AN INTRODUCTION TO COMPUTER GRAPHICS FOR KIDS OF ALL AGES,, David Thornburg, ADDISON, 1982, $14.95, 191pp. A kid's introduction to graphics through Atari PILOT. Combines PILOT and Turtle Graphics to solve problems, create pictures, invent games on ATARI.

PROGRAMMING YOUR ATARI COMPUTER, Mark Thompson, Tab Books, $10.95, 280pp. Covers fundamentals of BASIC, internal workings of ATARI and peripherals. Number systems, microcomputer architecture and operation, binary arithmetic, and Boolean operations covered in introductory chapters. Doesn't get to ATARI information until chapter 6. Program listings including two games are included.

RAINY DAY ACTIVITIES FOR THE ATARI, Nancy Mayer, Reston, 1984, $12.95, 156pp. For children between the ages of three and nine, contains over 50 programs that use letters, numbers, colors, music and designs to entertain children. No program longer than 20 lines, so games were definitely planned with children in mind.

SOME COMMON BASIC PROGRAMS: ATARI EDITION, Poole, Borchers, Cook, Osborne, 1981, $14.95, 200pp. Financial, statistical,

mathematical and tree management. 76 short programs each presented with complete source listings, documentation, sample execution.

STIMULATING SIMULATIONS: ATARI EDITION,, C.W.Engel ed., Hayden, 1979, $5.95, 118pp. Contains 12 "simulation programs" which are actually game programs. Starting point for the hobbyist who wishes to use a computer to simulate real events.

UNDERSTANDING ATARI GRAPHICS, Michael Boom, Alfred, 1982, $2.95. A pocket-sized quick guide. Hands-on manual teaches how to create graphics. Directed at beginning and intermediate programmers. No prior programming required, but need to known ATARI BASIC

USER'S HANDBOOK TO THE ATARI 400/800 COMPUTERS, Weber and Szczecinski, WEBER, 319pp. Takes you from installation of machine through graphics and sound, includes chapters on recorder, disk drive, and ATARI printers.

YOUR ATARI COPUTER - GUIDE TO 400/800 PERSONAL COMPUTERS, Lon Poole with Martin McNiff and Steven Cook, McGraw Hill, 1982, $17.95, 458pp. Describes the 400 & 800 computers and covers the common external devices and accessories, including disk drive and printers, and how these interact with an ATARI. The collection, presentation, and organization of ATARI information is superior.

YOUR FIRST ATARI PROGRAM, Rodney Zaks, $9.95, 150pp. For ages 8 to 88. Write your first program in just an hour.

THE VISICALC BOOK: ATARI EDITION, Donald Beil, Prentice, 1982, $14.95, 313pp. Shows how to build VISICALC model, enter data, and begin to explore various business and financial questions. Includes practice problems and exercises.

Atari 400/800 Program Recorder

by ATARI, INC.

The 410 and 1010 Program Recorders are cassette tape based systems for the storage and retrieval of computer programs. The following general information regarding the use of the 410 or 1010 should assist you in your saving and loading of cassette based programs.

Type LPRINT and hit RETURN before CSAVE, CLOAD, SAVE "C:", LOAD "C:", LIST "C:", or ENTER "C:". LPRINT clears out the cassette buffer and resets the Pokey chip inside the computer. Forward the tape past the colored leader (usually to number 5 on the recorder's tape counter). These steps will usually correct any loading errors.

Use any medium quality, low-noise audio tape (TDK Mavericks-30 minute tape is a good buy). Use shorter tape, 30 minute or less. Longer tape is thinner and can stretch, break, or crease more easily. Leaderless computer tape can also be useful in preventing loading errors. Avoid leaving the 410/1010 in a play mode overnight as this will put a crease on tape, making it unuseable. *REMEMBER!!* Never use Chromium Dioxide, or any high bias tapes, as they will wear the recorder heads away at a much faster rate than normal bias tapes. Cheap quality tape can also damage the recorder heads.

Keep the cassettes in a dust free container and away from any magnetic fields or power sources, such as a television set. *NEVER* set a tape on top of your television set, as this can erase some or all of the data stored on it. In essence ... use common sense when dealing with your computer tapes.

Periodically (about every 2 or 3 months) clean the recorder's heads, capstan and pinch roler. This can be done with a cotton swab and some Isopropyl alcohol. Don't use a commercial head cleaning cassette, since this can damage the recorder heads if it is an abrasive type head cleaner.

Occasional problems might occur when the operating system doesn't properly control the 410/1010 motor. This can be checked by using POKE 54018,52 to turn on the cassette motor and POKE 54018,60 to turn it off. If these POKE locations don't work, then the computer should be taken in for service.

Remember!!! If loading problems do occur ... troubleshoot!!! If the 410/1010 won't load programs, disconnect other peripherals and connect the 410/1010 directly to the computer -or- try loading the programs using *another 410/1010* connected to their computer. This will generally indicate if the tape or the 410/1010 is defective. 95% of the time, the problem is the 410/1010 or the tape. ALSO! Save only *ONE* program per tape side, and save it two or three times to create back-up copies in case you have trouble loading a particular program.

If you have any additional questions about the 410 or 1010 Program Recorders, please call Atari's toll-free customer service line (800) 538-8543

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