ABE'S LOG - DECEMBER 1985

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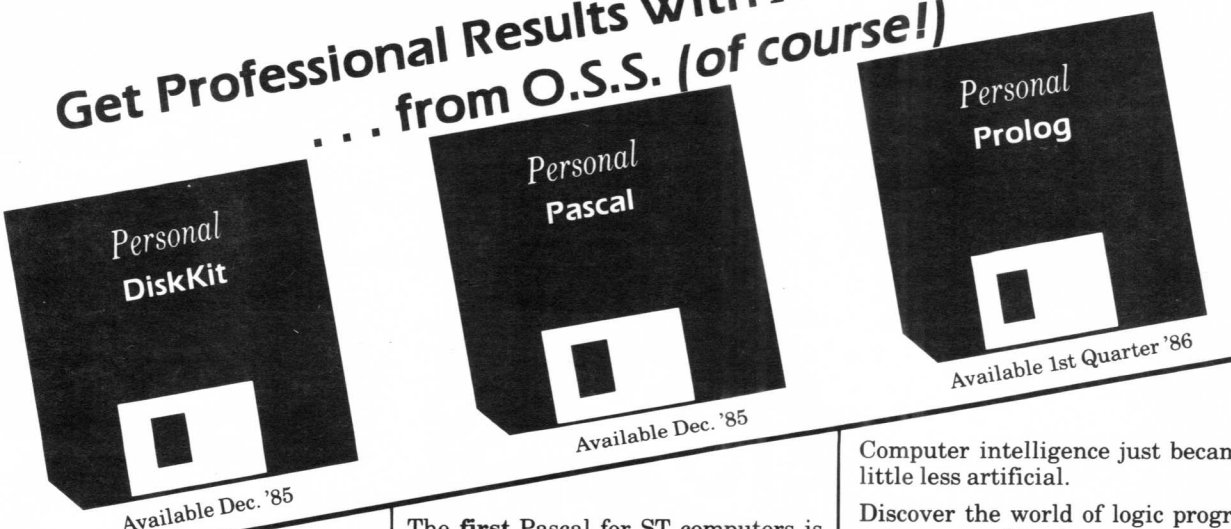

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POKING POKEY

SOUND PROGRAMMING BY J. D. CRAIG

First, let's take a look at another BASIC program:

```
10 POKE 53768,0:POKE 53775,3:POKE 5376
0,0:POKE 53761,164
20 FOR LLL=1 TO 9
30 READ P,D
40 POKE 53760,P
50 FOR LL=0 TO D:NEXT LL
60 NEXT LLL
70 END
100 DATA 15,120
101 DATA 20,40,21,40,20,40
102 DATA 19,120
103 DATA 20,120
104 DATA 0,120
105 DATA 16,120
106 DATA 15,120
```

For the musically curious, this familiar fragment is (approximately) in B Major.

Now, a command by command analysis of this little massage of our machine's POKEY chip.

Line 10: The two instructions to locations 53768 and 53775 initialize POKEY, and it is recommended that you start all sound routines with these commands. It doesn't seem to really make too much difference after a RUN using TONE 10, but it's still a good practice to get into for future use with some of the "unstable" tones. The POKE of 0 into 53760 sets the pitch value of AUDF1 to 0, effectively turning off the sound of oscillator 0. The POKE of 164 to 53761 sets both the TONE and VOLUME: TONE 10x16+VOLUME 4=164. (These two commands equal SOUND 0,0,10,4. The reason for using the POKES will be explained in the next issue of the LOG.) The audio frequency location AUDF 53760 and the audio control location AUDC 53761 will be used from here on. In this program, however, future lines will use only AUDF.

Line 20: Set the outer loop, LLL, for the number of tones or rests to be used.

Line 30: Read the pitch (P) and duration (D) values from DATA (lines 100-106).

Line 40: POKE the pitch value (P) into AUDF.

Line 50: The inner loop, LL, delays the playing of each successive pitch until the counter reaches a value of D (from DATA).

Line 60: The NEXT of the outer loop. When finished, fall through to line 70 where the END will turn off the sound.

Examination of the DATA lines (100-106) may reveal some rather interesting protocol. I've grouped my data in measures. In other words, each data line takes the same amount of real time to execute. (Execution times can be tricky, and some programs will slow or speed up appreciably as they run. This one doesn't, though, and we will cover more on this subject later.) Every 1st entry is a pitch number (these were derived by experimentation) and every 2nd entry is the timing control number (refer again to line 50). The small timing unit used is a count up to 40, the longer to 120. Note that only these two timing values are used, and that they show a 1:3 ratio, merely a peculiarity of the melody used. Substitute a 1 for each duration 40 and a 3 for each 120 and you can hear how fast this program could run without further modification. Who says BASIC is slow? Substitute other 1 to 3 values for still more tempo. Note also line 104 where pitch 0 is held for duration 120 - that's the TONE 10 rest. It doesn't work well on some other tones though, for example TONE 0. Try a POKE of 0 to AUDF 53760, and a 4 to AUDC 53761 (SOUND 0,0,0,4): Hisssss.....

Next time, more modifications and extensions on this program, which, as ever, is available from the library.

****

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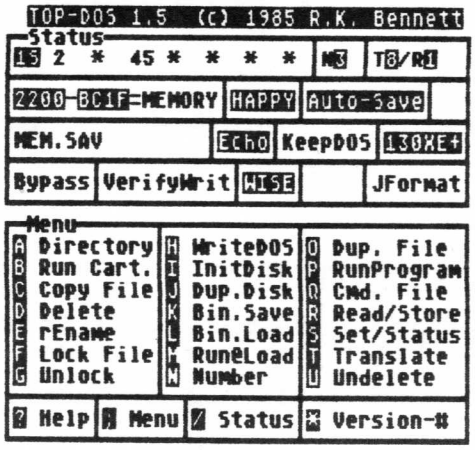
TOP-DOS VERSION 1.5

by Ben Martnick

The cover of the manual states "Quite simply the best DOS ever written for Atari computers". I was curious, to say the least, and hence this review. The DOS itself is similar in some ways to Atari DOS and others that use menus. The Top-Dos menu is very readable and easy to work with (see FIGURE 1). I will go over the menu selections that add to or are different than the standard Atari 2.0.

FIGURE 1



A. Directory options - In <Top-Dos> disk format (more about that later), you can alphabetize and compress the directory. In both formats, you may find and list deleted and open files. You may also set the number of columns sent to the screen or the printer. The default is 2 columns. You can also get a directory listing by inputting the drive number alone.

C. Copy Files options - Wildcards may be used to append a series of files to another file. You may query for copy before copying each file. You may set no query for delete of existing destination files. And my two favorite options in this command are the UPDATE and MERGE copy functions. UPDATE copies from the source disk only those files that already exist on the destination disk without query. MERGE copies from the source disk only those files that do not already exist on the destination disk. These options are a real time saver.

I. Initialize Disk options - Top-Dos will format a disk in their <Top-Dos> or standard <Atari> format. You also have the options of using single, enhanced and double density. Double sided, double density (Quad) is also available. If you own a 130XE, as I do, you can initialize a standard 64K ramdisk or an expanded 78K 611-sector ramdisk that uses the ram under the OS that is normally wasted. I use my ramdisk a lot and that extra 100+ sectors is nice.

J. Duplicate Disk options - Top-Dos will detect if your destination disk is not the same density as your source disk and format it automatically if you so desire. 130XE owners can use all available ram for a one pass disk copy in single density. If the disk is not full, this option will be faster than a sector copier that reads all sectors, empty or otherwise.

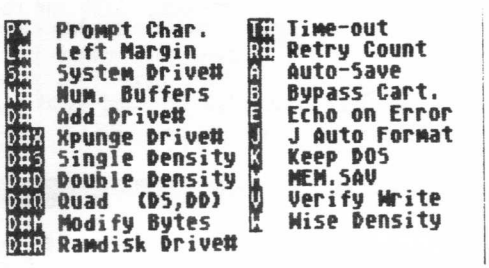
L. Binary Load options - You can load and suppress execution of the run and/or the initialization addresses. You also can get a memory map of the loaded file. N. Number - Hex/Decimal number conversion. O. Duplicate Files options - Query for copy of a wildcard series. Also set different source and destination densities.

Q. Command Files allow you to execute a complex series of instructions in one simple automatic operation. These can be nested to four levels. Commands that require response can be handled in two ways, preprogrammed into the command file or user supplied from the keyboard. This allows a lot of versatility and is a very powerful feature of Top-Dos.

R. Read/Store Memory gives you a convenient way to examine and replace bytes in memory without using Basic's PEEK, POKE and PRINT commands or resorting to an assembler or a utility program.

S. Set/Status command (see FIGURE 2) enables you to customize many features of Top-Dos to your own needs including selecting options and specifying the configuration of you disk drives. You can make all changes permanent by writing out your customized DOS to disk.

FIGURE 2

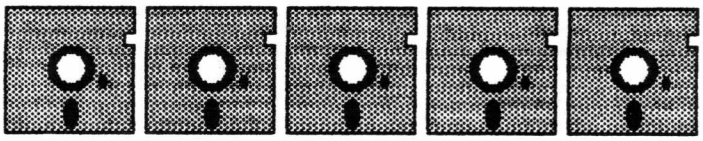


T. Translate interprets error numbers and displays a message to help explain the error. U. Undelete will restore deleted files if that area of the disk has not been written to since deletion. If it has been written on, it will save all of the file that it can find.

Top-Dos will treat any binary load file with an .AUT extension the same way 2.0 handles an AUTORUN.SYS file. The nice part is that you are not limited to just one autorun on a disk. You just place them on the disk in the order of execution and they will load in, one by one. It is also nice to use a descriptive name such as RHANDLER.AUT instead of the archaic AUTORUN.SYS.

When you boot up, DOS will look for a command file on the disk called HELLO and execute that file, if found. You have the option of keeping DOS resident in ram if desired. You can also bypass the cartridge on boot-up and go directly to the Dup menu. Top-Dos supports the Axlon, Mosaic and 130XE ramdisks. It also supports the Happy Mod with Warp speed.

I have touched here on some of the features of what I also feel is the BEST DOS currently available for the 8-bit Atari line. It comes with an excellent 90+ page manual. This is a fine DOS for the beginner and can be a very powerful tool in the hands of the experienced user.



LIBRARY NEWS

by John Slaby

Starting at the January meeting, you can sign up for a one-year ANALOG Magazine subcription for ONLY $24. This is $12 off the newstand price. We need a minimum of ten people to get this reduced rate. Renewals can also get this reduced rate, but I will need your subscription number off the mailing label. The deadline for signing up will be the March 1986 meeting. Please sign up early! Make the checks out to ANALOG and get them to me as soon as possible.

At the January meeting, I expect to have completed the reorganization of all the old disks (A001 - A064, U001 - U005 and RM001 - RM005). Starting this meeting, these disks will NO LONGER be available. All the working programs have been reborn on the new 100+ disks and the Archive disks. Directory disk U100 will be available.

USER SUBMISSIONS

Please put the program(s) on a 'spare' disk and hand them in to the library at the meeting. The disk will be returned to you at the next meeting.

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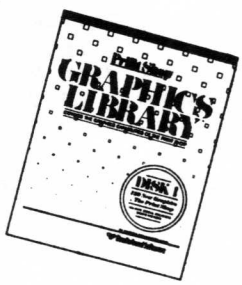

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FINANCIAL REPORT

BY RALPH FENNER TREASURER

CHECKBOOK AUDIT

Current checkbook balance = $993.84
Beginning year balance = $1532.18

	+ DEP	- EXP	= END BAL
Month #1	674.50	651.28	1555.40
Month #2	543.50	320.84	1778.06
Month #3	684.50	496.64	1965.92
Month #4	476.00	330.00	2111.92
Month #5	310.00	258.44	2163.48
Month #6	254.50	512.28	1905.70
Month #7	866.00	2263.35	508.35
Month #8	682.25	671.82	518.78
Month #9	632.50	588.30	562.98
Month #10	759.24	714.69	607.53
Month #11	1068.00	681.69	993.84
Month #12	0.00	0.00	993.84

YEAR THRU NOV	EXP	BUD	+/-	%
A.President	29	55	26	0
B.Vice Pres	14	26	12	0
C.Treasurer	5	22	17	0
D.Secretary	31	22	-9	0
E.Library	1966	1371	-595	26
F.Membershp	78	165	87	1
G.Newslettr	729	913	184	10
H.Programs	106	165	59	1
I.Equipment	3432	275	-3157	46
J.Mics.Exp.	108	55	-53	1
K.Promotion	670	244	-426	9
L.Club BBS	200	110	-90	3
M.SIG'S	0	110	110	0
N.Donations	100	0	-100	1
O.	0	0	0	0
P.	0	0	0	0
Q.	0	0	0	0
R.	0	0	0	0
S.	0	0	0	0
T.	0	0	0	0
U.Check Chg	20	0	-20	0
TOTALS-->	7489	3533	-3956	100

OOPS!

In our last issue, we published an article titled "BUYERS UPDATE". Unfortunately, the following vendors were missed:

BLACK MOON STEREO - Wind Gap, PA

Black Moon Stereo carries hardware (computers, printers and modems), software (8- and 16-bit) and supplies (paper, printer ribbons, cables and disks). If you don't want to drive out to Wind Gap, see Ben Martnick at his vendor table or give him a call.

JIM CRAIG - Allentown, PA

Jim sells music software as well as giving music instruction.

PRESIDENT'S VIEW

by Dennis John

At each of the last few meetings, one or more new members have approached me to ask about Special Interest Groups. It seems that rumors have been going around that our club has SIGs on everything from GRAPHICS to PRINTERS. I'm sorry to say it, but it's not so. We do have a Modem SIG that should be active again starting in January. Our new ST SIG is growing as more members take the 16-bit plunge. Those are the only SIGs we have at this time. A hardware SIG has been talked about for years but has never been formed. Graphics? Music? Business? They won't happen unless one or more members make them happen. Call me if you want to start a SIG. I'll be happy to work with you. The entire E-board will support you. Read page ten of our club handbook for more information about Special Interest Groups.

I'd like to thank all of the members who have volunteered to pitch in and help the club on many levels. Grace Iley, Jack Luettgen, Bill Miller and Bernie Blasko agreed to look into larger halls for our general meetings. Walt Lukow took on the task of locating advertisers for our newsletter. His son, Greg, is helping set-up our ST SIG. Lee Tice now writes the Meeting Highlights column for our newsletter. Jim Craig is a regular contributer to our newsletter; his music articles help give our publication its own personality. A number of members have offered to demo programs at our meetings. Some you've already seen at our October and November meetings. Others will be given early next year. It's this kind of effort that has made our club what it is today, the largest computer users group in Pennsylvania.

Let's make 1986 the best year ever for our club. The E-Board has a lot planned for the next six months. We're counting on the continued support of the membership. Your attendance, comments and suggestions are truly appreciated.

Have a safe and happy holiday and a prosperus new year.

HONOR ROLL

The following is a list of vendors who have advertised in ABE's Log in 1985. Please remember them in doing your holiday shopping and mention ABE's ACEs when you are making your purchase. It helps to let the vendors know the impact of advertising in ABE's Log.

RETAILERS

Black Moon Stereo
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Gemini Enterprises
Hal Systems
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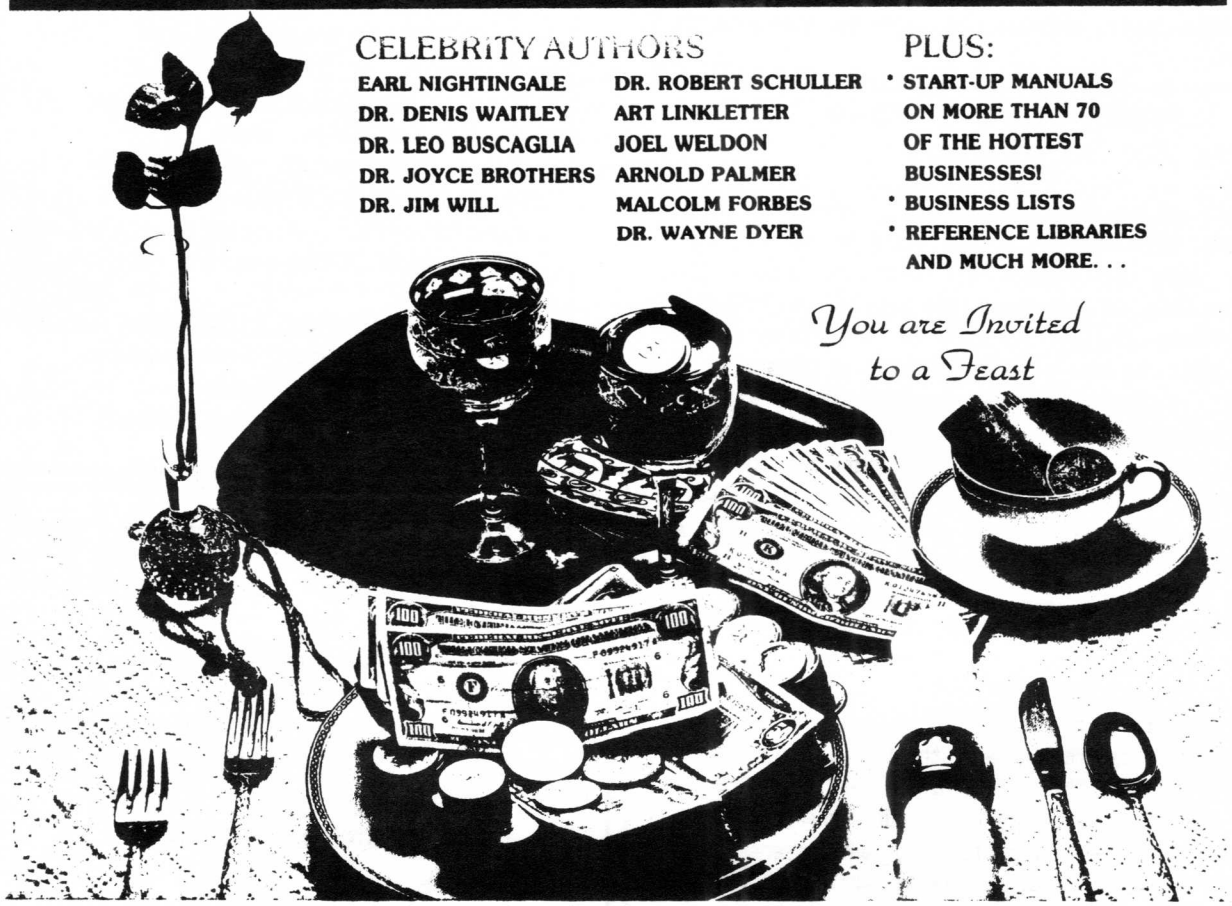

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ST CORNER

by Brad Piatt

ST SPECIAL INTEREST GROUP

The first meeting of ABE's ACEs ST SIG was attended by a dozen people. The meeting started with a discussion of hardware problems (there were very few) and available software. Club president Dennis John took a poll of attending members to find out what the executive committee could do for the SIG. He also informed them that the executive committee was considering making equipment purchases to assist the SIG. The last portion of the meeting featured a "tour", by Greg Lukow, of the GEM desktop and demos of NEOchrome and DEGAS.

FREEWARE REVIEWS

A68000K.TTP version 1.0

A pre-release version of an assembler for the ST written by Robert Blake, this is a test version of a commercial program released to the public domain for testing. The Assembler swiftly compiles source files written in standard 68000 assembly language. No frills, it just works! Warning: this program is for advanced users with knowledge of assembly and the 68000.

STERM.TOS

STERM by Jeremy E. San is to the ST what AMODEM is to the 8-bit. Again, no frills, but it works better than most commercial terminal programs. STERM does it all - XMODEM, CAPTURE, etc. Even CompuServe can't bomb this program.

SECTOR.TOS

SECTOR by James Eli is a disk sector editor similar to those for the 8-bit Atari. This very powerful program displays sectors in hexidecimal and ASCII and dumps output to printer or screen. With this program you can recover trashed files and learn about ST disk structure.

STWRITER

AtariWriter grew up and now runs on the ST! It does everything the old AtariWriter did, plus more. You get 80 columns of crisp black-and-white display and double-column printing. It outputs to printer, screen or disk (so you can format BBS postings). Now you can edit large files over 165,900 characters. It is possible to write a novel in one ST Writer file!

NEOCHROME.PRG version 0.5

NEOchrome is a PD preview of a drawing program under development at Atari. This GEM program allows you to draw in lo-res mode (16 colors, 320x200) using the mouse. You can use several "tools" to draw (pencil, paint brush and spray can). The program will also let you cut-and-paste sections of your drawing. You can create simple animation with NEOchrome by rotating colors.

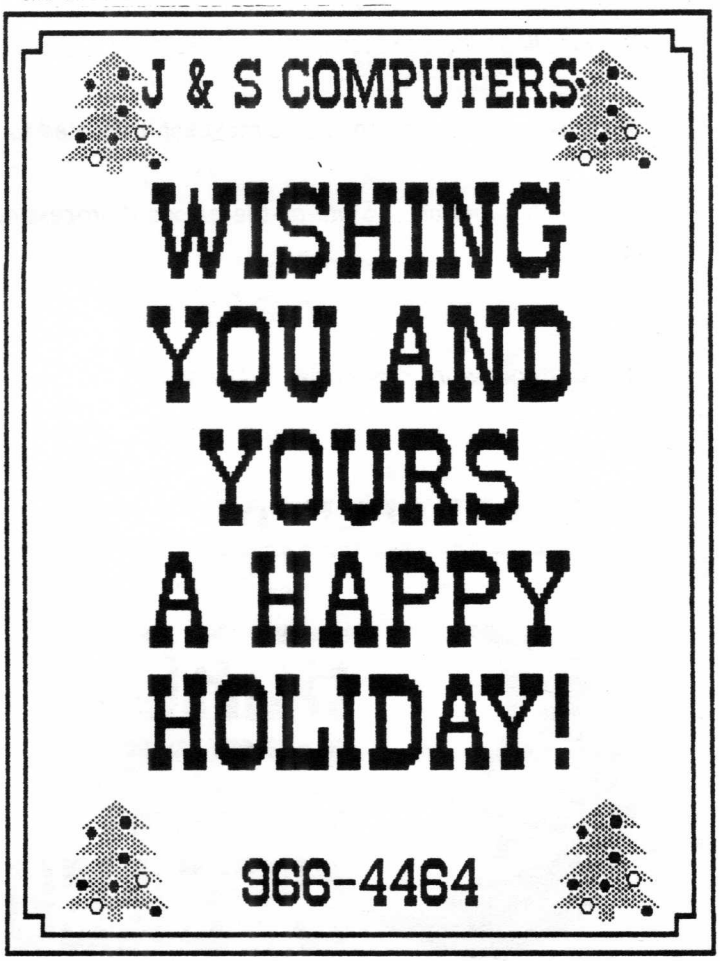
ST HINTS

Filename Extenders

Extenders (the part of the filename after the period) are very important to TOS. If a filename ends in PRG it will run with the full GEM interface. If a file ends in TOS, it will run without the GEM desktop in TOS(CPM 68K), saving RAM and running faster. If a file ends in TTP(TOS takes parameters) it will run in TOS, but will request parameters (source files, etc.) before executing.

Auto-loading Programs

Programs may be automatically run after TOS is booted by placing them in a folder called AUTO on the TOS disk. After boot, TOS looks for the AUTO folder and runs the first program it finds. If AUTO contains more than one program, they will be run sequentially. All files in AUTO must have the extender PRG.



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PaperClip contains over 30 printer files for all the current major models. The documentation is excellent and the disk itself unprotected, though keyed through a joystick port. This means you can make as many back-up copies as you like, but can use the program only when the key is inserted."–*CREATIVE COMPUTING*

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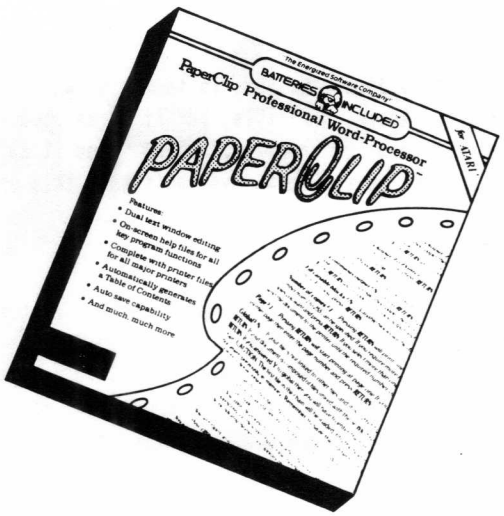
"many features...easy to use"–*ATARI EXPLORER*

"the ultimate word processor..."–*ANALOG*



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*as compiled from national retail store sales reports for week ending January 5, 1985

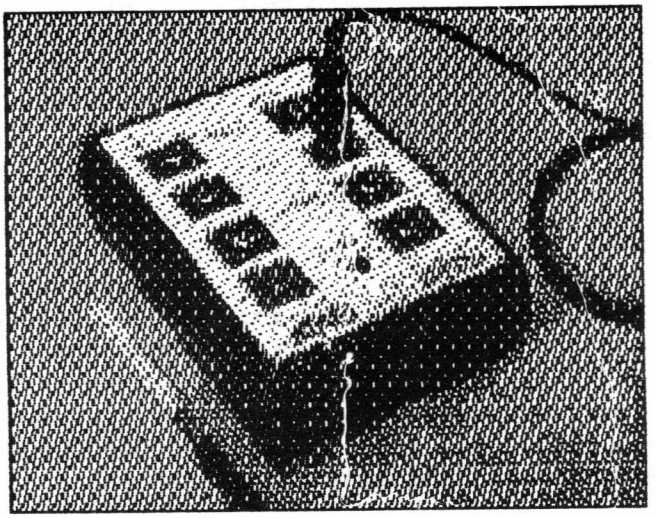
AtariLab™ Light Module

by Dennis John

The AtariLab Starter Set was demonstrated at an ABE's ACEs meeting in 1984. Just to review briefly...

AtariLab was developed by Dickinson College. The idea behind the series is a hands-on approach to science where you learn by doing rather than just reading. AtariLab is designed for users age 9 to adult.

The Starter Set lists for $90 but is selling for about $60 in this area. It includes an interface which plugs into one of the Atari joystick ports and allows you to connect up to eight RCA-type phono plugs to your computer. This interface is needed to run all of the other modules in the series so the Starter Set is a must. Included with the Starter Set is the Temperature Module. It includes a 16K ROM cartridge, a temperature sensor, a thermometer, and a 138 page manual with about one hundred experiments.



THE ATARILAB™ INTERFACE

The Light Module is selling for about $40 and includes a ROM catridge, light sensor, light assembly, various filters, a test tube, light stick, glow panel and a 106 page manual with about fifty experiments.

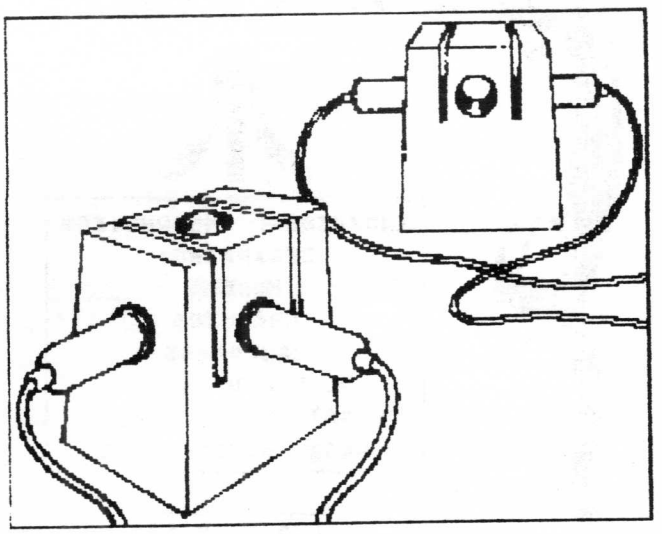
As with the Temperature Module, the software with the Light Module is very nice and easy to use. A "light meter" can be displayed which shows a percentage of light, from 0 to 100, in the form of a color bar. Normally you calibrate your system so that the brightest light in a given experiment will read 100% on this meter. Calibration takes only a few seconds and is virtually automatic requiring only two key presses. If at any time the light reaching the sensor goes above 100% or below the lowest possible reading, the yellow light meter display bar turns red and the digital display is preceded by a > or < sign. Up to three digital displays can be recorded on the screen at a time.

Another area of the program allows you to set up a experiment for a specific length of time ranging from tw seconds to 24 hours. You can also base the experiment o data points with no specified time reference. When yo begin your experiment a color graph will be displayed as th various light levels are recorded. The temperature senso for the Starter Set can also be connected to the interfac and its readings will be displayed in a second color alon with the light readings. This is useful for some of th experiments dealing with weather and solar energy.

The Light Module software can be run from the keyboar or from a joystick. This is a big bonus if used as part o a science fair project since it allows you to keep you computer a safe distance away from wandering hands.

After the data has been collected, the program allow you to re-display it in several graphic forms or as numeri data. This data can be saved to a disk drive and the graph dumped to Epson compatible graphic printers.

The hardware in the Light Module, while simple, is wel designed. A small cube of black plastic called the ligh stand has holes in four sides. The light sensor fits int any of these holes. The light assembly, a small light whic is powered by the AtariLab interface, also fits into thes holes. The kit's test tube can be placed in the holde between these two devices. With all three units in straight line, experiments testing the transmission of ligh thru various liquids can be made. By moving the light an sensor at right angles, reflective tests can be made on th same liquids.



LIGHT STAND SET FOR REFLECTED (LEFT)
AND TRANSMITTED READINGS

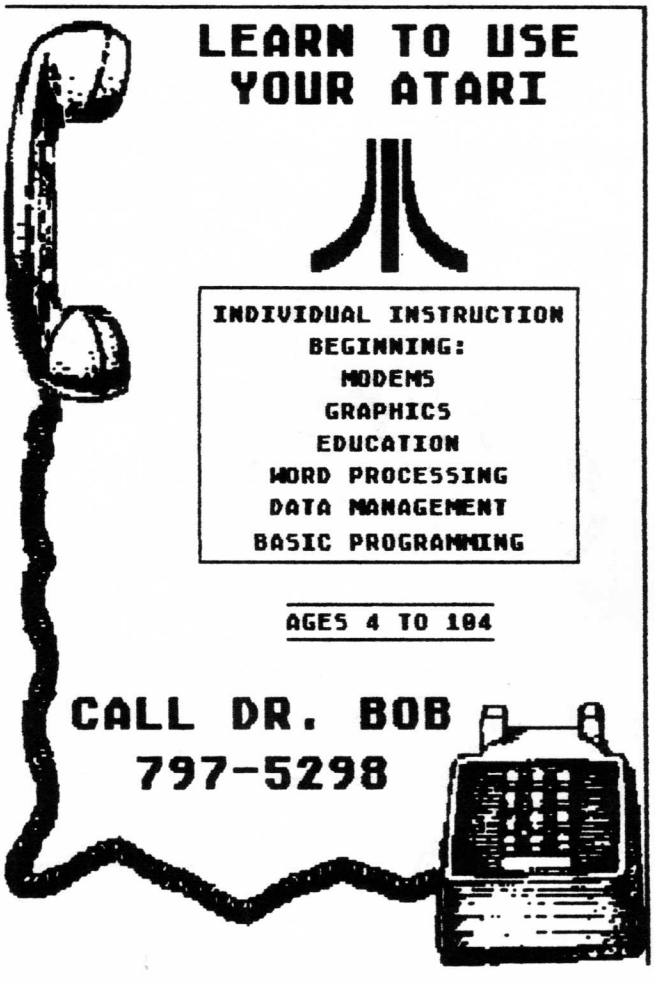
The color filters and a unique calibrated polariz wheel included in the package can be placed in the ligh stand's filter slots for those experiments in which they ar required.

CONTINUED ON NEXT PA

The manual is well written and complete. In addition to the wide variety of experiments included, there are sections on calibration, equipment set-up, sample programs in BASIC and Logo, blank tables and graphs, a trouble-shooting guide and much more.

Not all of the experiments are winners (how about one to see if the light in your refrigerator really goes out when the door is closed?) but most of them are interesting and, as with any good scientific experiment, they generate as many new questions as they do answers. Designed as a learning tool, the AtariLab is a full blown success. As an added bonus there are many practical applications for the series. As a commercial photographer I've used the Temperature Module on a number of occasions to check chemical temperature bath equipment and processing procedures. I'm now considering a program to use the light module to determine proper exposure times on my enlarger. With the control output on the AtariLab interface I may even be able to have my Atari automatically select the proper exposure time and turn my enlarger off at the correct time.

In any case I'm very pleased with the first two releases in the AtariLab series and I look forward to the rest of the modules. While I'm waiting I think I'll check and see if that light in my refrigerator really does go out...



ABOUT THE COVER ART

by Dennis John

First of all, I'm no artist, so I began by digitizing a Christmas tree from one of my daughter's coloring books. I used ComputerEyes (what else?) in the hi-res, normal capture mode. Even this graphics 8 screen didn't have the resolution I wanted however. To increase resolution, I digitized the drawing in two sections, top and bottom. I made sure I overlapped the coverage of the tree in the middle and that I didn't change the distance from the camera to the artwork. Otherwise I would have problems matching the two printouts.

The original artwork had only two packages and there was a cat sitting under the tree blocking part of the striped package on the left. I found another drawing that had one more package that I liked and I digitized that as well.

The next step was GRAPHIC MASTER. This program is no longer in production. It was one of the first graphic programs I purchased for the Atari in 1981. I've used them all and, in my opinion, this is still the best, most powerful program for the Atari.

Using Graphic Master, I made a number of small changes in the tree. I added the Atari symbol on the one ball and filled in some branches. Then I erased the cat (awww...) and fixed the package he was blocking. I picked up each of the packages in a Graphic Master window and used the mirror function to reverse them and place them elsewhere around the tree. I made an extra copy of the striped package and then erased the stripes to make it look different. To fill in a hole on the lower left side of the picture, I drew an eighth package using the line function.

Graphic Master allows you to work with two screens in memory at one time. I loaded the top and bottom sections of the picture into the two screens. I then moved the pictures around until they matched perfectly. The top of the second screen would start right where the first screen left off. By using two screens, my final resolution was 320 pixels wide by 384 high.

Color Print was used to make the printouts which were then pasted together. If I had wanted a smaller or larger picture, I could have used a different Color Print mode and no paste-up would have been required. Several of the 1/4 and 1/2 page ads in this issue were made from two to four graphic 8 screens, printed with Color Print in one pass on a single sheet of paper.

Finally, to add the small name tags to the gifts (the whole reason for doing this artwork), I used RUBBER STAMP, a great new graphic program from XLEnt Software. I simply typed the names in text mode, switched to graphics mode to add the tags and strings, and printed them out in label size. The tags were then cut out and pasted in position on the finished drawing.

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MEETING HIGHLIGHTS

BY LEE TICE

Club president Dennis John opened the meeting by introducing the E-board. Membership Chairman John Chay noted that there are at least 220 total members. Treasurer Ralph Fenner informed members that he had fixes for the Calendar and Loan Shark programs available.

Vice President Thom Geller told of the December meeting events. Bill Holt, the "Ambassador' from Broderbund and Synapse Software, will be here to show us new software. There will be lots of door prizes and snacks and soda for everyone. A donation of $1.00 is asked.

Secretary Jim Finley asked anyone having problems getting a password for the BBS to please see him. Dennis John said that the 130XE SIG had a meeting and 7-8 people attended. All are awaiting release of new software.

Straw poll for a meeting day still indicates that a Saturday is preferred. There will be sets of VHS and BETA videotapes available in the library for basic ATARI instruction. These are four 1/2 hour lessons and a deposit of $5.00 is asked.

Please use the Hotline when you're not sure of a meeting cancellation due to inclement weather. Volunteers were requested to help with this column and also to solicit advertisers for the Newsletter and two people did volunteer.

The 50/50 drawing was held using Ben Martnick's second place program, after which Dennis John did a demo on Microprose's new program "Kennedy Approach" where you become an Air Traffic Controller. Bill Miller then did a demo on Flight Simulator II and all the complex components of this interesting simulation.

Ralph Fenner demoed the Relax program and Thom Geller gave us a sampling of a sound generator device found by Harry Davis in the March issue of Creative Computing. The meeting ended with Thom Geller listing those programs that will be demoed in the next few meetings, including: Dark Crystal, Sticky Bear and Spelunker.

President Dennis John opened the meeting by announcing that we now have 225 members and $611.79 in the treasury. He also asked for and had three people volunteer to help look for a new meeting hall.

A videotape was then shown on Glen Snyder's model railroad and the computer he uses to keep track of all those miles of wire and inventory. Glen's daughter co-starred.

Dennis John demonstrated the new LucasFilm program, Koronis Rift. The Eidelon, a similar program, was auctioned off for the 50/50 drawing. After a description of the disk-of-the-month, the Christmas Buyer's Guide was presented by Dennis John and Thom Geller.

The meeting was then turned over to Scott Hawker, who demonstrated Andy the Robot using Forth to contol its movements. The meeting ended with Thom Geller giving a comparison between MY-DOS and DOS 2.0.

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