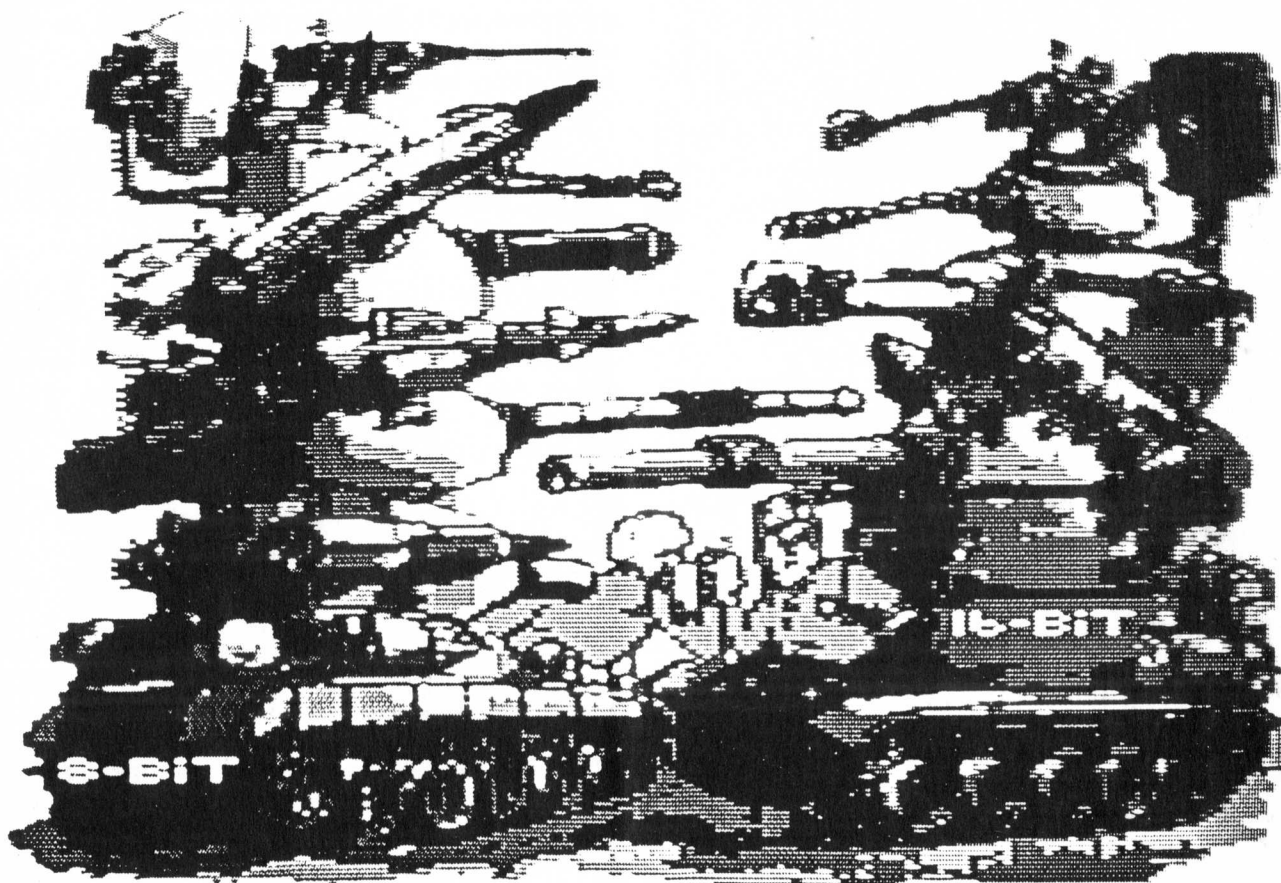


JUNE 1986 - NEWSLETTER



ATARI VS ATARI

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Late News



July will be the new E-board's first meeting, and this means a recommitment to you the user. Don't miss this next meeting.

1st There will be a preview of the 3 disks of the month for July. With the emphasis on programs that will enhance your usage of the Atari.

2nd Thom Geller will demonstrate the Atari CX85 keypad. This keypad offers you the ability to enter huge amounts of numbers into your program without the tedious task of standard keyboard entry.

3rd ABE's ACEs will offer, at this meeting, the opportunity to participate in a bulk user group purchase of these CX85 numeric keypads, at the low price of \$8.00!

P.M. (Plus More)



Editorial

"I'm sorry to report that the Atari community is divided. On one side there are the 8-bit users. On the other side are the ST owners.

The 8-bit users tend to feel threatened by the 16-bit users. And the 16-bit owners can, at times, act a little stuffy toward the older Atari owners... when, in fact, most of them started with one of the original computers.

The response we've gotten from both sides indicates that the 8-bit owners are the more fanatical of the two groups."

Michael Des Chenes
Publisher
ANALOG Computing
June 1986 Editorial

Talk about hitting the nail on the head! As past president of ABE's ACEs (during the time the ST was reaching dealer shelves) and as an owner of both 8 & 16-bit Atari computers, I have first hand knowledge of the subject. The cover art sums things up... This is WAR!

We have fanatics in this club on both sides of the issue. I am NOT one of them. I use both Atari systems each and every day, either for my business, club projects, or for pleasure. I will not be drawn into a debate as to the merits of either system. As with anything in life, those merits are dependant on the needs and wants of each individual user.

What I will be happy to debate, is my position that this club can successfully support both systems. And, that it should do so. We are, after all, a group whos sole purpose is to give support to users of Atari computers. Not just 1200XL Atari computer users. Not just 1040ST Atari computer users. ALL Atari computer users.

A small group of paranoid 8-bit owners have been running around in a panic ever since the ST computers were announced. First they didn't want the club to support the 16-bit line, period. It was like pulling teeth to get them to part with the funds so that our club would have an ST system for use by our ST SIG, for demos at our meetings and to generate ST library disks. Fortunately, the majority of our members, based on an informal pole taken at our January meeting, were open-minded, and responded positively when asked if they wanted our club to purchase an ST.

The paranoia continues however. Even though we have not yet had one "official" ST demo during a general meeting, complaints were lodged about the ST MIDI demos that we had running before the May 10th meeting.

Next came the HELP KEY II which is running on an ST computer. Since it's running on an ST, it must be for the ST users right? Wrong. We've gone out of our way to support the 8-bit owners with tons of downloads, 40-column displays in all areas of the BBS except the ST SIG base, and as much 8-bit news as we can get our hands on. None of this has any effect on the fanatics and the rumors keep filtering back to us. "I hear you're not going to support the 8-bits." "No ATASCII? Are you doing that to try to limit access by 8-bit owners?" GOOD GRIEF!

The latest wrinkle? The issue of the newsletter that you hold in your hands. Yep, even before this issue went to press, the 8-bit fanatics were raising all sorts of hell about its content. Our incoming president has been getting so much flak, that he calls me every 48-hours to check on this issues status. "How many pages for 16-bit?" "Any new 8-bit stories?" "If we don't get enough 8-bit submissions, can we pull items from other newsletters?"

As newsletter editor, let me state my policy as to its content. Top priority goes to articles written by our own club members, and to club-related news. Next comes "outside" Atari-related news and last on my priority list, is reprints from other newsletters. We have some fine reprints in this very issue, but I won't be printing any twenty page newsletter filled with reprints.

As to the content of the articles written by our members, that's up to them. I've posted messages on both club Bulletin Board Systems requesting more 8-bit submissions. To date, only John Chay responded with an article.

All of this is not unlike a certain, grade-B science fiction movie. 8-bit owners awaken one morning and find many of their neighbors, former 8-bit owners, are suddenly talking about 16-bit computers. They run to their local 8-bit Atari User Group with this information only to find

out they are TOO LATE! The User Group itself has been infected by 16-bit owners. Reports from national Atari magazines reveal the crisis is nation wide. Even non-Atari publications are covering the 16-bit Ataris. News from all of the trade shows is weighted towards the newer machines. The remaining 8-bit owners run into the streets shouting "THEY'RE HERE NOW!" to deaf ears. Fade out... end credits.

Your feedback on this issue of the newsletter (now that it's been published) is welcome. Of course, if you ask me why there weren't more 8-bit reviews and stories, you KNOW what I'm going to ask you.

-Dennis John-

animated as they were rotated about their axis. There were two great printer dump routines included in this version. The only real drawback to this program was the fact that you could only display "stick" figures where all of the objects edge lines were always visible. In spite of this I really was impressed with this program.

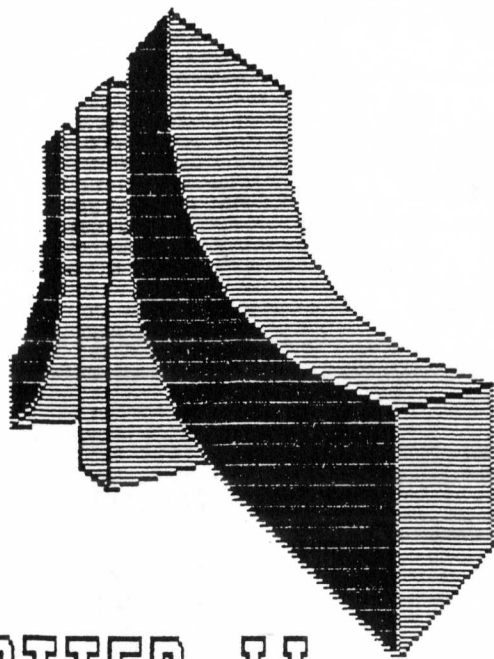
Last December I purchased "SUPER 3D PLOTTER" version two. This is one of the most sophisticated 3D graphics programs available for any 8-bit computer! The new version adds the ability to design objects with a joystick using a special graphics editor (I still prefer to plot mine out on paper first). Hidden surface elimination is now available, as is advanced surface fill. The printer dump routines have been improved and include a custom printer driver construction file so almost all dot matrix printers can be used. Three different resolution modes are available. One of the greatest improvements is the ability to do multiple loading of object files. This allows you to create an object once and then have the ability to "rubber stamp" it on any other object. Version two also has the ability to rotate objects about all three axis at one time (at different speeds if desired no less).

There are some minor drawbacks to the program. To create an object that will be displayed in either surface fill mode or hidden line elimination mode you must create the file especially for that type of viewing. This takes both more time and it slows the object movement down. Simple objects can be drawn at a rate of about 3-5 per second, while these more complex objects are slowed down to 1-2 seconds per drawing. The optional modes also use more memory which limits the complexity of your object (any object can have up to 255 points or 255 edge lines). I have also noticed glitches in extremely complicated solid fill objects. I created a "FUJI" symbol that utilizes all of the available lines (255). This object will have clear windows occur every once in a while when it rotates. I think that these are minor problems and they can be overcome by experienced users.

There has been lots of concern about the future of 8-bit software. I personally think that by supporting small independent software artists, like Randolph Constan, we have nothing to worry about. If you are tired of games and have any interest in drafting, blue prints, engineering, or 3D imaging give this program a try. It is available for \$39.95 through:

Elfin Magic
23 Brook Place
East Islip, NY 11730
(516) 581-7657

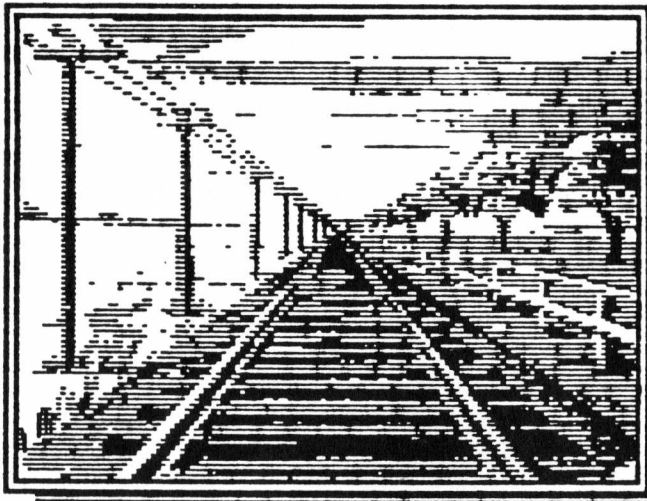
SUPER 3D PLOTTER II by R.Constan



An 8-bit review by John Chay

I've always been intrigued by the way computers can be used to aid in the design of three dimensional objects. After observing a CAD (Computer Aided Design) system in use I wanted to try to do similar things with my ATARI. My original attempts were based on the "SOLID STATES" program from ANALOG. This program had some of the capabilities that I was looking for, but it was extremely slow and didn't have many features.

Along came Randolph Constan's first version of "SUPER 3D PLOTTER". This program was much faster, and had many additional features. Unfortunately it wasn't a real CAD program. You must do most of the design work ahead of time. The main feature of the program was in it's ability to display the object. Simple objects would almost look



President's Perspective by Thom Geller

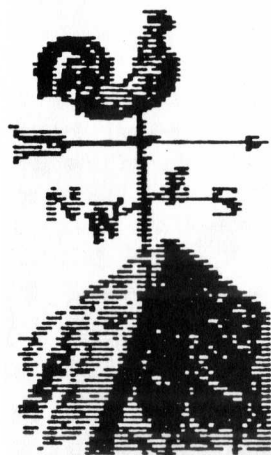
This is my first column as your new President, and I would like to personally thank the past E-BOARD for a job very well done. This election also marks a first for this club, and that is a woman has decided to run for the office of Vice President. Shirley Bickert, is running uncontested for our Vice Prez position. "Welcome Aboard", oops, I think that's a Commodore slogan, oh well, welcome Shirley.

To put this article into perspective, let me give you a little history on ABE's ACEs. This club was first formed in April 1982, its purpose was to provide a forum to share ideas, get advice and learn how to get the most out of the Atari Computer, and we've come a long way since that first meeting of just 14 members. Our membership has swollen to over 260, our disk library has over 90 double sided, public domain disks, and the paper library has close to 30 different titled books, and over 160 periodicals, that have all Atari related articles cross-referenced.

A new problem that we are about to face is, we are now entering a very tough time for Atari user groups, that is the 8 & 16 bit computers. Some 8 bit members act as if the ST is a foreign invading computer, they're probably still suffering from the near fatal demise of Atari, caused by the good old Commodore boys. Some 16 bit users act as if the 8 bits are merely a game machine, a cute little toy computer. Well, their both right, and wrong, that is a computer (any computer) is what you use it for, and nothing more, nothing less. A computer, is a computer, is a computer, and as an Atari Computer club we are committed to support all Atari Computers, 8 & 16 bit.

Plans for the new year? Yeah, we've got plans, but do we have any volunteers? Do I hear crickets? Let me explain a little about the workings of this users group. I am a volunteer, so are all the other E-BOARD members. What

about John Douglas, and Bob Tune? Yup they're volunteers too. We get no pay for our services, but we realize something, and that is, without our contributions, this club would not exist. What famous man once said "ASK NOT WHAT YOUR CLUB CAN DO FOR YOU, BUT WHAT CAN YOU DO FOR YOUR CLUB." We are you, just a member of this club. We didn't go to the Dale Carnegie school of E-BOARDS, we didn't use computers since they came out. Take myself, I bought my computer less than 2 years ago, I used a cassette for 6 months. I don't know Basic, like the back of my hand, and I still have a lot, and I do mean a lot to learn. All in all, I saw a need for more member participation, so I became active. You are on the outside looking in, we are in the inside looking out. Lets break down this separation, and all share the wealth of knowledge and information of the Atari Computers.



Looking Ahead

by Shirley Bickert
Vice-President

Just a short article to introduce myself, and to ask for your help in choosing the club's direction.

This is your club, and I am your representative. My job is to steer the club's presentations in whatever direction the members wish it to go. In order to do that however, I need to know what you would like to see at the club meetings.

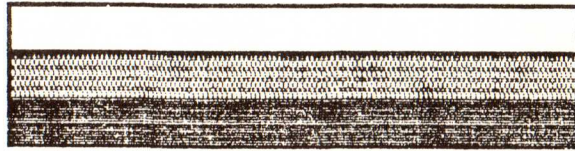
Are you looking for more demos? If so, what type of demo are you interested in? Education, word processing, games, utilities, hardware?

Are you looking for more outside speakers? If so, who would you like to see at one of our meetings?

I'll be happy to talk with any member about future presentations. See me after a meeting, call me on the phone at the number listed on page 20, leave me a message on one of the club's Bulletin Board Systems, or send me a note via U.S.Mail.

Let's make this another interesting year for ABE's ACEs.

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Bring this newsletter and your membership card
and receive two free blank disks.

(Offer ends June 30, 1986)



A SPECIAL TREAT

For ABE's ACEs Members From ZOBIAN CONTROLS

At our May meeting, Zobian Controls offered "THE RAT" at a special discount price to ABE's ACEs members. I saw at least one member order a system at the meeting. Since the turnout in May was small, I asked Mr. Zobian if the offer could be extended to members who didn't attend. As a result, all ABE's ACEs members have until June 30th to order a system for \$100. This is a 13% discount and in order to receive it, you will have to send along a photocopy of your ABE's ACEs membership card.

If you want more information on THE RAT, look at the full page ads in the last several issues of ANTIC. The demo given at our May meeting, with Rambrant, showed the potential of this system for art applications.

Remember that deadline, and send your order to:

Zobian Controls
P.O.Box 6406
Wyomissing, PA 19610

CLUB UPDATE

Ralph Fenner has been a very, VERY busy member. In April, he arranged for a donation, from Haba Systems Inc., of a Habamodem. This 300/1200 baud modem was placed in service on our club's Bulletin Board System, THE HELP KEY on Sunday April 6th.

In May, the outgoing E-Board approved plans for a 2nd club BBS to be run on our ST computer system. Ralph turned to E+E DataComm who donated a prototype of their new Avatex 1200hc modem. When the unit goes into production, E+E will replace our prototype with a production unit. On May 10th, THE HELP KEY II went up as our club's 2nd, 24-hour 300/1200 baud BBS.

Not yet satisfied, Ralph again contacted Haba who agreed to donate a 10-megabyte hard disk drive to ABE's ACEs for use on THE HELP KEY II.

Thanks to the generosity of both Haba Systems Inc. and E+E DataComm, ABE's ACEs now has two Bulletin Board Systems for its members to access. Hats off to both companies, and to Ralph Fenner, whos efforts have been above and beyond the call of duty.



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GEnie™

"Welcome to GEnie, The General Electric Network for Information Exchange.

GEnie offers you a variety of choices in entertainment, information and software exchange, communications, shopping - all from your computer. By using simple menus and/or a few easy commands, you can talk to a friend across the country one minute; go on an electronic shopping trip the next; try your hand at a few games; and finish up by attending an electronic meeting with software developers to discuss new programs for your computer."

Thus begins the introductory section of the GEnie User's Guide. We've chosen to do an in-depth story on GEnie because, while it has many of the same features on the other subscription telecommunications services, it has two distinct advantages. First, it's one of the least expensive services available, an important consideration for most cost-conscious Atari owners. Second, GEnie is, in many ways, similar to the local Bulletin Board Systems most new users test the "telecommunications waters" on. In fact, if you thought of GEnie as a very large, very fast, local BBS which just happened to get callers from all over the country, you'd have a pretty clear picture of the system.

Let's look at the system first, and then get into the price/service information.

In our area, you connect to GEnie by calling an Allentown number. After your connection, you type in your special number and password and the first menu will appear. From this menu you can move directly to the GE Mail system, News Section, CB Simulation, National Real-Time Conference, Shopping Services, Game Rooms or Roundtables.

RoundTables are what GEnie calls its User Group areas and the Atari Roundtable is very active. If you've used any local BBSS, you'll feel right at home in the Atari RoundTable (or any other RoundTable for that matter).

The Atari RoundTable, or RT as they are often called, has a bulletin board, or message base area, a program library and several conference rooms. The message base is huge but divided into manageable CATEGORIES. You've got categories for graphics, telecommunications,

programming, new product information and so on. Within each category, messages are grouped under TOPICS. A unique feature here, is that any user can start a topic.

Suppose you've just purchased a program and find yourself in need of help. You could go to the category that best fits your subject, say programming, and start a topic dealing with the program in question. You enter a short description of your topic, and what you are looking for under it, and perhaps enter the first message under that topic. Over the following days and weeks, other GEnie users can add messages under your topic. Each time you get back on GEnie, you can request a summary of new messages and read any or all of them.

Here GEnie clearly offers the combined advantage of the ease-of-use of a local BBS, with the information resources available only to a large, national service. Representatives from Atari Corp and many software publishers scan GEnie, answering various questions. It's nice to go right to source for the answers to your questions. Of course, the more private GE Mail service is also available to you if you wish to use that route.

The program library is divided into categories just like the Bulletin Board area. This will help you track down the type of program you are looking for. You can request a directory of the programs in any category. In addition to the file name, program size and number of users who have downloaded a file, each file has a one-line description of just what the program is. If you want more info on a specific program, you can BROWSE. This will bring up a more complete description of each file. GEnie's policy of not charging for upload time, has resulted in a massive influx of quality public domain software. There are over 500 Atari programs in the Atari RT already, and more are being added all the time. It should also be pointed out that, for whatever reason, be it fewer users or better design, GEnie is much faster than most other subscription services. 1200 baud downloads are 1200 baud.

For new users, the on-line menus and ever-present Help Files, allow you to navigate the massive system from the moment you first log on. As you become familiar with the commands, you can do away with the menus and really speed around and make the most of your connect time.

There are many other areas of the system that you will want to explore but we just don't have the space to cover them here. Full details about all areas of GEnie are included in the User's Guide that you get when you sign-up.

GEnie costs just \$5 per hour for 300 or 1200 baud connect time. You are billed per minute, only for the time you are on the system. There is no monthly charge and no minimum. At the time of this writing, GEnie is offering a special start-up package. For a one-time, \$18 sign-up fee, you receive the complete User's Guide, a quick reference card, and three (3) hours of free connect time.

You can pay for GEnie with a major credit card or by direct transfer checking. System access is available from 6PM to 8AM weeknights, all weekend, and on all holidays.

For more information, or to sign-up, call 1-800-638-9636 Ext. 21.

HabaView

A 16-bit review by Ralph Fenner

HabaView is one of those programs that's very difficult to write about. I could give you a very long review, including all of all its fine features and how well they work, but that might tend to make the program appear more complicated and difficult to use than it actually is. For this review, I will try to briefly cover most of the major features and what they do.

Searches: Searches can be performed for a selected item or for a range of items. Even very intricate multi-level searches are easy through their fine use of GEM. An example of this would be a group of records that are the result of a search could be searched, then that group searched, and so on. Search functions also allow you to either include or exclude the items being searched for. At any time you can easily display either the full data base or the selected records.

Display: The display can alternate between a full form displaying all the fields of one record or a list of all the records. Either display mode allows screen formatting with the mouse. All editing is done from the Form display.

Printouts: The program can format printouts for either 80 or 132 column printers. Printout options include Print to printer, Print to disk, or preformatted output for Habawriter. Hardcopy includes page numbering and database title information. The program will also print standard mailing labels.

Ease of Use: In this category I have to give the program a solid 10. Thru its exceptional use of GEM and clear understandable menus, displays, and prompts, it is the easiest program to use that I've seen to date on the ST.

Memory: This program stores all records in RAM and only saves to disk at the end of a session. In a standard 520 ST with TOS in ROM and no desk accessories loaded in, the program has about 300K for storage. This should be more than enough, even for business use. With a 1040ST, free memory jumps to 700K.

Price: \$74.95

Well that's it for this review. It has many more features that haven't been covered here. To sum it all up I highly recommend HabaView.

Desk File Column Select Sort Options Print

ABE's ACEs Newsletter Exchange List

	Club Name	City	ST	Zip	Last	
1	A.A.A.U.A.	San Antonio,	TX	78247	4/01/86	Yes
2	A.C.A.O.C.	Fountain Valley,	CA	92728	3/01/86	Yes
3	AA-AUG MEMO PAD	Upland,	CA	91786	4/01/86	Yes
4	ABACUS	San Francisco,	CA	94122	3/01/86	Yes
5	ACCESS	Sacramento,	CA	95806	2/01/86	Yes
6	APL ATARI USERS GROUP	Laurel,	MD	20707	4/01/86	Yes
7	Atari Computer Enthusiasts	Eugene,	OR	97405	4/01/86	Yes
8	B.U.G.	Boise,	ID	83704	5/01/86	No
9	BAANG	Palo Alto,	CA	94303	4/01/86	No
10	Bits, Bytes & Pieces	Williamson,	NY	14589	2/01/86	Yes
11	CL.A.U.G.	Chicago,	IL	60645	4/01/86	No
12	CURRENT NOTES	Dumfries,	VA	22026	5/01/86	Yes

In LIST mode, HabaView's screen display shows you what your 80 column printout will look like. Rearranging fields is as simple as pointing the mouse at one and dragging it to its new location.

ABE's ACEs Newsletter Exchange List

Club Name CURRENT NOTES

c/o c/o Jack Holtzhauer

Address 15817 Vista Drive

City Dumfries, ST VA Zip 22026

Last 5/01/86

Yes

Comment

Remove Delete New

In FORM mode, HabaView's screen display is in the layout you selected when you set up the file. You can rearrange the layout at any time. The top five lines will be printed, perfect for mailing labels.

ABE's ACEs Newsletter Exchange List

	Club Name	City	ST	Zip	Last	
24	BAANG				4/01/86	No
25	O-ACE'S				3/01/86	Yes
26	P.A.C.E.				4/01/86	Yes
27	P.A.C.E. NO				5/01/86	No
28	R.A.M.				5/01/86	Yes
29	RIACE				3/01/86	Yes
30	S.N.A.C.C.				3/01/86	No
31	S.P.A.C.E.				5/01/86	Yes
32	San Leandro				4/01/86	Yes
33	SHLACE				4/01/86	Yes
34	Status	va. beach,	VA	23433	4/01/86	Yes
35	The Pokey Press	Lake Worth,	FL	33461	4/01/86	Yes

INCLUDE Exclude View information

when data in field: Club Name

OK CANCEL

All functions are performed via drop down menus.

A 130XE-COMPATIBLE 256K UPGRADE FOR THE ATARI 800XL
 by Claus Buchholz
 Reprinted from April 1986 CURRENT NOTES

I designed the 256K upgrade described in my article, "The Quarter-Meg Atari" (BYTE, September, 1985), in December, 1984. Since this predated the 130XE, there was no precedent for extended memory on the XLs. I felt free to implement a system of eight 32K banks. The major reason was to keep the add-on circuit as simple as possible.

The 130XE, introduced in early 1985, set a different standard for bank-select memory. It uses 16K banks and makes them separately available to both the CPU and the video controller (ANTIC). The XE has 128K total memory. The 64K extended RAM is split into four 16K banks.

A 256K 800XL has 192K extended RAM, which requires 12 16K banks. I have designed a new upgrade for the 800XL that implements such a scheme. Its similarity to the 130XE's scheme allows use of software for the XE on a 256K 800XL.

To select one of four banks, the XE uses two bits, #2 and #3, in the memory control register (port B of the 6520 PIA, addressed at \$D301 or 54017 decimal). Zeroing bit #4 makes the selected bank appear at addresses \$4000-\$7FFF (16384 to 32767 decimal), as seen by the CPU. Zeroing bit #5 makes it appear there as seen by ANTIC.

In my upgrade, bits #2, #3, #5 and #6 select one of the twelve banks. Zeroing bit #4 makes the selected bank appear at \$4000-\$7FFF to both the CPU and ANTIC. So, any program for the XE that uses the extended RAM for CPU storage will work on an 800XL with this mod. Those programs won't use the additional 128K, though. Programs that use the video banking feature of the XE might run on the modified XL, but the screen display will be wrong.

The procedure for this upgrade is basically the same as in the article, except for the following points. If your ANTIC (U7) part number is C021697, use the circuit described by the first connection list below. If it is C012296, include the circuit in the second list. The circuit requires five connections to the PIA (U23). So, pins 12 through 16 must be bent up and connected to the circuit. The rest of the procedure is the same. Notice that this circuit has one more chip than the article's circuit. This is the price of compatibility.

With the 256K dynamic RAMs in your XL, be sure to wait at least ten seconds after turning the computer off. Otherwise it may not coldstart properly when you turn it back on.

My original RAMdisk software doesn't work with this new mod, so I have written a new version. It is used in the same way, except that it offers a choice of either two single-density RAMdisks or one double-density. If you wish a disk copy of the source and object code, send me a blank disk and return mailer with full postage, and I will promptly send it back with the software. Alternately, you may download the software from the Capitol Hill Atari Owners' Society BBS at 517-371-1106 or from the Castle Communications board at 517-371-4234. The source file is called QMEGXLD.SRC for Quarter-MEG XL Double.

Also available is a RAMdisk program that sets up one single-density RAMdisk and leaves the XE-equivalent banks free for XE software. This is quite useful with BASIC XE, DOS 2.5, or the new Synapse software. Its name is QMEGXLS.SRC.

I ask one thing in return for this information: Please pass it around to all your interested friends. Put it in your club's library or on your favorite BBS. Encouraging software support of 256K will result in many interesting uses for it. Thank you and enjoy!

DEFINITION OF MEMORY CONTROL REGISTER
 AT \$D301 (54017 DECIMAL)

XL MOD	130XE
bit: 7 6 5 4 3 2 1 0	bit: 7 6 5 4 3 2 1 0
D a b E c d B R	D V C x y B R
D=0 enables diagnostic ROM	D=0 enables diagnostic ROM
B=0 enables BASIC ROM	B=0 enables BASIC ROM
R=1 enables OS ROM	R=1 enables OS ROM
E=0 enables extended RAM	V=0 enables extended RAM for video
abcd is 4-bit extended RAM bank #	C=0 enables extended RAM for CPU
- ranges from 4 to 15	xy is 2-bit extended RAM bank #
- banks 12 to 15 are equivalent to XE's banks 0 to 3	- ranges from 0 to 3

-----PARTS LIST-----

- 8 - 41256 256K-bit dynamic RAM (200ns or less)
- 1 - 74LS153 Dual 4-to-1 multiplexer (IC2)
- 1 - 74LS139 Dual 2-to-4 decoder (IC3)
- 1 - 33 ohm, 1/4 watt resistor

ADDITIONAL PARTS
 FOR ANTIC #C012296

- 1 - 74LS158 Quad inverting 2-to-1 multiplexer (IC4)
- 1 - 74LS393 Dual 4-bit counter (IC5)

**LIST OF CONNECTIONS
FOR THE UPGRADE CIRCUIT**

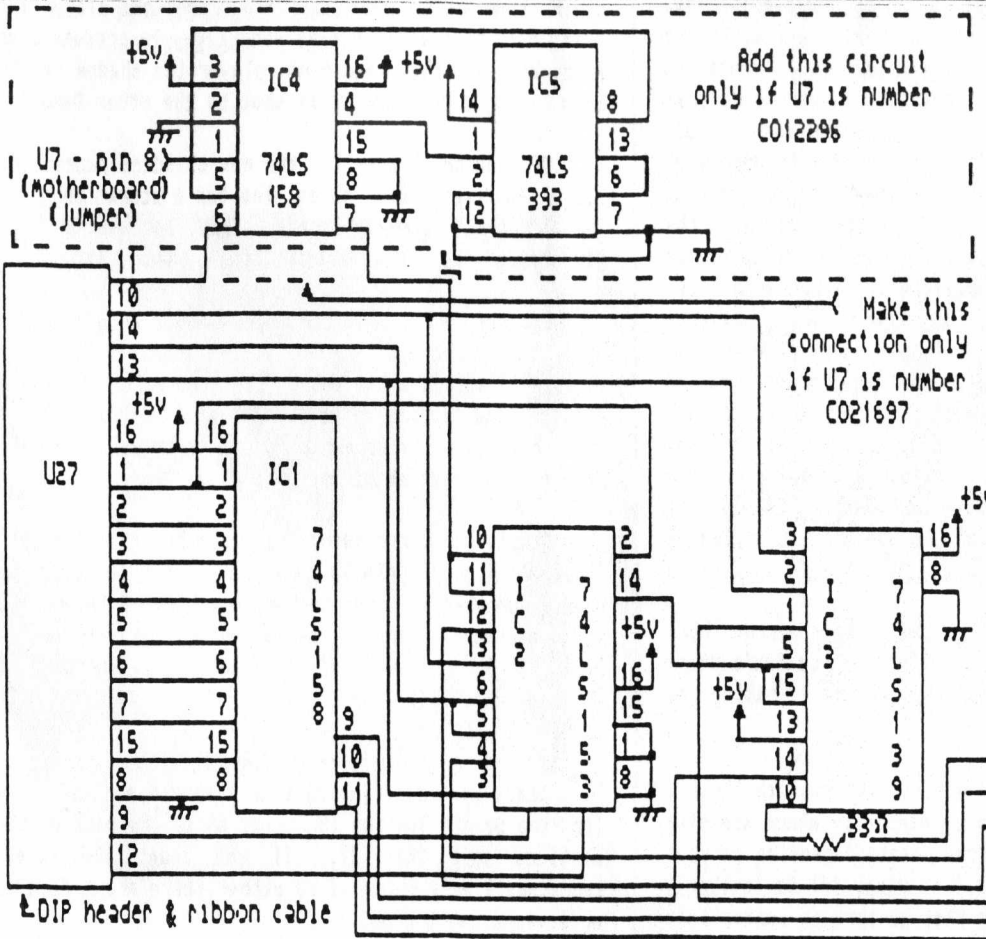
Instead of a drawing of the upgrade circuit, below is a list of connections. Each entry in the list begins with the name of the signal followed by all the IC pins that connect together and share the signal. IC3-13 means pin 13 of IC3. The IC numbers appear in the parts list above. IC1 is the 74LS158 chip from socket U27 on the XL motherboard. DIP is the DIP header to be plugged into socket U27. U23-xx refers to the pins you bend up on the PIA chip at U23 on the motherboard.

- Vcc : DIP-16, IC1-16, IC2-16, IC3-16, IC3-13
- Vss : DIP-8, IC1-8, IC2-8, IC2-1, IC2-15, IC3-8
- A7 : DIP-11, IC2-10, IC2-11
- A15 : DIP-10, IC2-13, IC3-3
- A6 : DIP-14, IC2-6, IC2-5
- A14 : DIP-13, IC2-3, IC3-2
- MUX : DIP-1, IC1-1, IC2-2
- A4 : DIP-2, IC1-2
- A12 : DIP-3, IC1-3
- RA4 : IC1-4, DIP-4
- A5 : DIP-5, IC1-5
- A13 : DIP-6, IC1-6

- RA5 : IC1-7, DIP-7
- E : DIP-15, IC1-15
- RA7 : IC2-9, DIP-9
- RA6 : IC2-7, DIP-12
- PB2 : U23-12, IC2-4
- PB3 : U23-13, IC2-12
- PB4 : U23-14, IC3-1
- PB5 : U23-15, IC1-10
- PB6 : U23-16, IC1-11
- 2d : IC1-9, IC3-14
- 01a : IC3-5, IC3-15, IC2-14
- 02b : IC3-10, One side of resistor
- RA8 : Other side of resistor, Pin 1 of all RAMs

If your U7 part number is C012296, do not connect signal A7 above, and make the following additional connections. The connection to U7 is to a trace on the motherboard that runs from pin 8 of U7.

- Vcc : DIP-16, IC4-16, IC5-14, IC4-3
- Vss : DIP-8, IC4-8, IC4-2, IC4-15, IC5-7, IC5-2, IC5-12
- A7 : DIP-11, IC4-6
- REF : U7-8, IC4-1
- REF : IC4-4, IC5-1
- A7' : IC4-7, IC2-10, IC2-11
- Q7 : IC5-8, IC4-5
- Q3 : IC5-6, IC5-13



256k XL

XE - Compatible
Schematic
by Claus Buchholz
DEGAS drawing
by Ed Seward

Motherboard Jumpers

- RA8 RAMS - pin 1
- PB2 U23 - pin 12
- PB3 U23 - pin 13
- PB4 U23 - pin 14
- PB5 U23 - pin 15
- PB6 U23 - pin 16



TIME BANDIT
from MichTron
by Bill Dunlevy & Harry Lafnear



A 16-bit review by John Slaby

When you open the package you are met with the following greeting on the disk and manual "The Ultimate Atari ST Arcade Game". At this point I have to agree. In fact most stand up arcade games don't have better animation or game play.

While labeled as an arcade game, this game also has several text adventures mixed in with the 16 different worlds you reach via the Timegates. Each of these 16 worlds have 4 major phases (1-4) and 4 sublevels (A-D). To master a world you must make it to level 4D and collect the great artifact that the Guardians of Time stole from the treasury racks. And the ultimate goal is to collect all the great artifacts.

The playing screen takes about 1/2 of the total screen area with the remaining area taken up by score, number of lives and other messages. The game play is simple. Use a joystick (recommended) or the keyboard to move your man (Bandit) along the landscape which has landmarks which represent each of the worlds to which you can journey. These worlds range from a Pacman maze to fantasy worlds to west worlds to space worlds to Egyptian worlds. Once you move onto one of the landmarks you are transported to that land. Each of the lands are richly detailed and show off the ST graphic abilities. They also scroll through what seems to be 2 full screens (in the lowest level) to show you a large land. To exit this land and return to the timegate landscape you must find the key which is located somewhere in this world and will let you through a lock. There may be several locks on any level. Then make your way to the WAY OUT block. Along the way you can also collect (steal) other treasures of gems, money bags, and golden cups. Each time you enter a world you can journey further into the land seeing new creatures and situations. I should also mention that as you progress further a spaceship(s) appear at the timegate landscape and if they touch you you are transported to one of the worlds at random.

To help you get familiar with the various worlds there is a demo mode which goes into effect if you don't start the game. It shows you all the worlds by taking you through the first level.

What about the arcade? You will also find that there are LOTS of "Evil Guardians". Basically shoot anything that moves. You will be awarded points depending on your degree of bravery which varies from wimpy (0) to foolhardy (50). When the Guardians die they go through contortions

and the like. The one the kids like best are when the ghosts die a Ghostbusters symbol appears as they disappear in a cloud of smoke. The animation as the Guardians move are also great, large blinking eyes, lizard men, snakes, and many others. Luckily you will receive one extra life for every 1000 points you earn. And you will need them as a good deal of the time the screen looks like Robotron with all the moving objects but with mazes and buildings to maneuver through is alot harder.

Still not impressed? Well there are also several text adventures that must be solved. Pilot the spaceship Excalibur and save its crew, break into the vault in the ghost town, and there are several others. One unfortunate thing is that there is no script command like the Infocom adventures so make sure you write down all the text screens because the text does change even when replaying the same level in a new game.

Want more? There is a two player mode. Each player gets their own window and while you both have to be in the same world you are free to explore as you choose and work with or against each other. An extra feature with this mode is that when the one player loses all his lives he/she becomes a shadow that can shoot Guardians and the other time bandit and steal treasures (that player's score will not increase), but not the key. To prevent a shadow from killing the remaining player the shadow is stunned when hit by a creature or if shot by the other Bandit.

Of course there is the now standard pause and high score features that saves the top 6 scores on the disk. The #1 score is already taken by Crazy Kev who was the main play tester and gives you something to shoot for.

One of the incredible things about this game is that once it is loaded the only disk access is for the high score. That doesn't sound like much until you start playing and realize there must be at least 40 full screens (the box says 100s) which should take well over 512K in memory. And what about the game itself?

Simply put I recommend this game highly. The bad news is that the program is copy protected. The good news is that a new disk will not cost more than \$5.00 which I think is an acceptable service charge. The ST drives don't grind like the 8 bit drives when loading copy protected software so hopefully heavy use of copy protected disks will not result in alignment problems.

There is one confusing item I should mention. The ads for Time Bandit mention 18 worlds while the back of the box mentions more than 20. If you count the time gate landscape I only found 17 so either there are hidden worlds or someone can't count.

PHOTO SCRAPBOOK

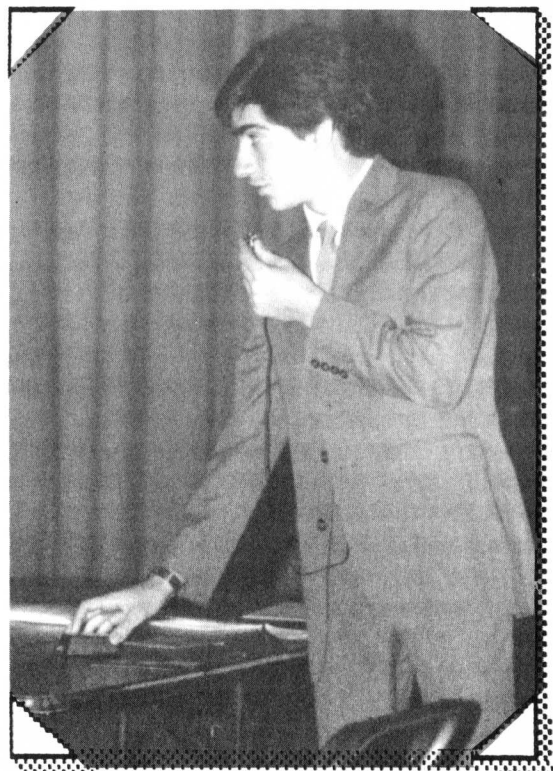
MEETING HIGHLIGHTS



MEMBERS INSPECT THE ATARI 1040ST AT SOFTWARE BARN'S LOBBY DISPLAY (MAY)



ILEEN MUSCHLITZ EXPLAINS THE INNOVATIVE "PC DIRECT" SERVICE AVAILABLE FROM PSFS (MAY)



MATHEW ZOBIAN, PRESIDENT OF ZOBIAN CONTROLS, GIVES AN IMPRESSIVE DEMO OF "THE RAT" RUNNING THE RAMBRANDT GRAPHIC PACKAGE. (MAY)



RALPH FENNER (LEFT) PRESENTS SYSOP JIM FINLEY WITH THE HABAMODEM 1200 BAUD MODEM DONATED BY HABA SYSTEMS INC. (APRIL)



Programmer's Outpost

This month we have two short type-in BASIC programs for the 8-bit Atari.

The listings of these programs were made with G: and should look, on your screen, just the way they look here. See the box below for information on any special characters.

CUSTOM LABEL MAKER

This program was written by club member Ben Martnick. It allows you to design a disk label and view the completed layout prior to printing copies.

The program is self-prompting, with on screen instructions for use.

THE FORMATTER

Written by Mike Mitchell and reprinted from BITS, BYTES & PIECES. It's a single keystroke formatter program that will save you a lot of time if you like to format a new box of disks all at once.

When loaded, this BASIC program will automatically reconfigure your system to work with up to four disk drives. This is done by changing memory location 1802 to a value of 15. (Most DOS's default to two drives.)

When you're done formatting all of your disks, pressing the space bar will exit you from the program and set your system back to the original number of on-line drives.

The program will load in one third the time it takes to load DUP.SYS and will format disks in what ever density you have your drives set to.

CHARACTER = HOW TO GET IT

- ␣ PRESS [ESC] THEN
PRESS [CONTROL] AND [C]
- ␣ PRESS [ESC] THEN
PRESS [CONTROL] AND [Z]
- ← PRESS [ESC] THEN
PRESS [INVERSE] THEN
PRESS [CONTROL] AND
LEFT ARROW KEY

CUSTOM LABEL

```

10 REM *****
20 REM *** LABEL PROGRAM ****
30 REM *** by bj martnick ***
40 REM ***** 03/28/85 *****
50 REM **** (for Moonsoft) ****
60 REM *****
70 GOTO 100
80 POSITION 2,2:FOR L=1 TO 5:? BL$:NEX
T L:RETURN
90 IF PEEK(764)=28 THEN ? "ABORTED":F
OR D=1 TO 300:NEXT D:POP :GOTO 2100
95 RETURN
100 GRAPHICS 0:DIM L1$(31),L2$(31),L3$
(31),L4$(31),L5$(31),L6$(31),LINES(31)
,D$(1),BL$(35)
200 POKE 752,0:BL$(1)=" ":BL$(35)=" ":
BL$(2)=BL$:LINES=BL$:SETCOLOR 2,4,8:SE
TCOLOR 1,2,2
300 L1$=LINES:L2$=L1$:L3$=L2$:L4$=L3$:
L5$=L4$:L6$=L5$
400 TRAP 450:CLOSE #2:CLOSE #3:OPEN #2
,4,0,"K":OPEN #3,8,0,"P":GOTO 500
450 ? "K":? " Turn on printer & hit a
ny key!";:GET #2,A:GOTO 400
500 ? "K":POSITION 2,10
600 ? "
610 ? "
620 ? "
630 ? "
640 ? "
650 ? "
660 ? "
670 ? "
680 POSITION 2,10:? "Use the [CTRL] and
inverse arrow keys":? "to input your l
abel, hit RETURN only "
682 ? "when your label is complete! ":
?
683 ? "program by "Moonsoft" Wind Gap
,Pa"
685 REM po box 152, wind gap pa 18091
690 POSITION 2,1:? "INPUT LABEL, RETURN
WHEN DONE":POSITION 2,11:INPUT D$
700 FOR LINE=1 TO 6
720 POSITION 2,10+LINE:POKE 764,12:IMP
UT LINES$
725 POSITION 2,10+LINE:? " ":POSITION
34,10+LINE:? " | "
750 IF LINE=1 THEN L1$=LINES$
760 IF LINE=2 THEN L2$=LINES$
770 IF LINE=3 THEN L3$=LINES$
780 IF LINE=4 THEN L4$=LINES$
790 IF LINE=5 THEN L5$=LINES$
800 IF LINE=6 THEN L6$=LINES$
900 NEXT LINE
910 POKE 752,2:POSITION 2,1:? "IS YOUR
LABEL CORRECT? (Y/N)"
920 GET #2,A:IF A=78 OR A=110 THEN 210
0
950 GOSUB 80
1000 TRAP 1000:POSITION 2,1:? "HOW MAN
Y COPIES OF THIS LABEL "":? "←←
←←←←←";:INPUT NUMBER:TRAP 40000
1005 IF NUMBER<=0 THEN 2100
1010 POSITION 2,3:? "GET PRINTER READY
AND "":POSITION 2,4:? "HIT ANY KEY T
O BEGIN, ESC TO ABORT":GET #2,KEY
2010 FOR LABEL=1 TO NUMBER:GOSUB 90
2020 POSITION 2,5:? "PRINTING LABEL";
LABEL;" "

```

CONTINUED ON NEXT PAGE

```

2040 ? #3;L15:? #3;L25:? #3;L35:? #3;L
45:? #3;L55:? #3;L65
2050 NEXT LABEL
2100 POSITION 2,1:? "PRESS NUMBER OF C
HOICE: "?: BL5
2110 ? "1.PRINT SAME LABEL
"
2120 ? "2.EDIT SAME LABEL
"
2130 ? "3.PRINT NEW LABEL "
? "4.END SESSION "
2140 GET #2,A:IF A(49 OR A)52 THEN 214
0
2150 IF A=49 THEN GOTO 950
2160 IF A=51 THEN GOTO 200
2170 IF A=52 THEN GRAPHICS 0: ? 1? "Bas
ic":? 1? " is":END
2190 GOSUB 80:POKE 752,0:GOTO 690

```

FORMATTER

```

100 REM The Formatter Rev. 2.1
101 REM One keystroke formatting
102 REM with auto drive config.
103 REM by Mike Mitchell 10/9/85
105 VA=PEEK(1802):VB=VA:IF VB(>)15 THEN
VB=15:GOSUB 310
110 GOSUB 300:DIM DRIV$(2):MAIN=140:FM
AT=254
140 POKE 710,148:POKE 712,146
150 ? "K"
152 POSITION 12,2:? "THE FORMATTER"
154 POSITION 13,4:? ">>>WARNING<<<"
155 POSITION 7,5:? "Once a drive is se
lected"
156 POSITION 7,6:? "it will start form
ating!"
157 POSITION 5,11:? "Which drive to fo
rmat 1-4 ?"
158 POSITION 7,18:? "Press SPACE-BAR
to exit."
159 POKE 764,255
160 DR=PEEK(764)
161 IF DR=255 THEN 160
162 IF DR=31 THEN DRIV$="D1":GOTO 200
163 IF DR=30 THEN DRIV$="D2":GOTO 200
164 IF DR=26 THEN DRIV$="D3":GOTO 200
165 IF DR=24 THEN DRIV$="D4":GOTO 200
166 IF DR=33 THEN ? "K":POKE 752,0:POK
E 710,148:POKE 712,0:POKE 764,255:VB=V
A:GOSUB 310:NEW
168 GOTO 160
199 GOTO MAIN
200 POKE 710,66:POKE 712,64
202 ? "K":POSITION 7,11:? "NOW FORMATT
ING DRIVE #";DRIV$(2,2)
205 TRAP 250:XIO FMT,#1,0,0,DRIV$
208 POKE 710,148:POKE 712,146
210 ? "K":POSITION 3,11:? "FORMATTING
COMPLETE IN DRIVE #";DRIV$(2,2)
220 FOR DE=1 TO 500:NEXT DE:GOTO MAIN
250 TRAP 40000:? "K":POSITION 6,11:?
"DRIVE #";DRIV$(2,2);" IS NOT RESPOND
ING!":FOR DE=1 TO 500:NEXT D
255 GOTO MAIN
300 POKE 752,1:POKE 77,0
305 POKE 16,64:POKE 53774,64:RETURN
310 POKE 1802,VB:POKE 1536,104:POKE 15
37,108:POKE 1538,12:POKE 1539,0
315 X=USR(1536):RETURN

```

-----WANTED-----

PERCON DRIVE CONTROLLER
IF YOU HAVE ANY INFORMATION
CALL CRAIG ABRUZZESE
215-437-2664

OPINION

J.D. Craig

Some time ago, this club ran a contest to see who could write the best number picking program for our monthly drawings. Many interesting entries were submitted, and prizes were awarded. This gave the members a chance to exercise their skills toward a predetermined end, which in itself is a good thing. This is just the kind of activity a club like ours should foster - the expansion of the skills of its membership and the recognition of excellent effort.

However, I believe that the use of these programs at the meetings should pass into our hallowed history. I know that we have this nice big projector, and that the lights can be dimmed or brightened, but as long as we are going to use paper tickets we should simply pick the winning stubs from a container and forget the cute visual and lighting effects. Few of us memorize our ticket numbers when we get them and (as has been demonstrated) the use of the projector requires dimmed lights, which prevents ticket reading.

Perhaps another contest could be devised which takes advantage of the computer's capabilities and eliminates the tickets altogether. Each person who wants to enter the drawing would step up to a terminal with money in hand. What happens then might be the object of the contest. But there will be no entry from me.

Some years ago I learned, and life continues to teach me, that different media are best suited for different things. There is a unique thrill in holding a winning ticket as the number is called: The winner possesses the ticket and that possession is tangible, adding to the thrill of victory. The caller takes his ticket, compares it with the stub, and proclaims the official winner. It's traditional, it's efficient, and when well handled, is exciting.

Keep the tickets, have a child draw 'em from a hat, and retire the drawing programs. I'll even donate a hat.



by
J.D.Craig

PROGRAMMING

CATCH-UPS

No, this is not going to be a piece on seasoning hot dogs, this is a chance to clean up some of the inevitable human errors we make.

Guest Editor Dennis John did a terrific job on the last issue (cheering crowd noises), but somehow the title was omitted from my article. It was "RING, CHRISTMAS BELLS", which should tell you the name of the tune we're building. Also, Dennis seems to feel that the zero (0) should be unslashed, typewriter style. Well, if he's going to be THAT way, perhaps future programs should avoid using the letter O as a variable. [Ed note: Opps! the missing title was my oversight. The unslashed zeros are another story. Everything in the June issue except the Sound Programming item was printed by me complete with slashed zeros. The sound piece was handed to me, printed out (sans slashes) and ready to paste-up. Starting with this issue, ALL zeros will be slashed. Also, I will do my best to print program listings just as they should look on your screen. ie. 38 characters per line]

Another variable that could cause confusion is letter I, which can be mistaken for a one (1). And in languages which allow lower case variables, the letter l is easily confused with a one. The proper procedure would be to not use any characters that could be misread, but since we will be continuing to build onto a program already begun, the letters I and O will stay, at least til this tune's done. Just read the program carefully. The DATA lines contain nothing but numbers, and FOR/NEXT variables are all letters (except for the STEP in line 55).

And for the last time (PLEASE!) another attempt to clean up my errors that misrepresented an interesting

scale. Pitch names are on the left, with low numbers being the lower octaves:

B	131	65	F	183	91	
A#	137	68	E	193	96	
A	145	72	D#	207	103	51
G#	154	77	D	219	109	54
G	165	82	C#	231	115	57
F#	175	87	C	247	123	61

This scale's A is slightly flat, and unless you are willing to sacrifice one of the four oscillators (by linking two together in "double precision" mode), you can't get an exact A=440 Hz from BASIC. Here's another scale, this one slightly sharp:

B	127	63	F	179	89	
A#	139	69	E	191	95	
A	143	71	D#	207	103	51
G#	151	76	D	215	107	53
G	163	81	C#	227	114	56
F#	171	85	C	243	121	60

Neither of these scales is equal tempered, and what "sounds best" might be to use some pitches from one set, and some from another. But I have double checked these for typos, and am confident that either or both can be used to musical advantage. Experiment!

Now, here are some changes and additions to complete RING CHRISTMAS BELLS which, incidentally, uses neither of the scales above:

```
0 A=1:B=2:C=3:D=5:E=0.66:F=0.25:G=160
:H=166:P=53760:Q=P+B:R=Q+B:S=R+B:T=P+
A:U=T+B:V=U+B:W=V+B:X=42:Y=198
```

This replaces the old line 0. The only difference is the addition of two new constants - X and Y.

```
10 FOR O=A TO X
```

There are 42 (X) steps in the new O loop, and here's the additional DATA to be read in it:

```
420 DATA 205,136,86,51,86,51,86,51,86,
57
430 DATA 174,104,86,68,86,68,86,68,104
,86
440 DATA 184,109,91,77,91,77,91,77,91,
68
450 DATA 205,104,104,86,136,104,136,10
4,136,104
460 DATA 136,0,136,0,109,0,104,0,91,0
470 DATA 0,0,86,77,109,77,0,68,104,86
```

```

480 DATA 184,0,136,0,109,0,104,0, 91,0
490 DATA 0,0,174,77,219,77,219,68,205,
86
500 DATA 0,0,0,86,0,91,0,86,0,104
510 DATA 0,0,0,86,0,91,0,86,0,104

```

Again, these are in groups of 10 and are all played by the same rhythmic pattern. Near the end of the tune, when we want a different rhythm, we create a new loop, replacing the old line 20:

```

20 FOR O=B TO D:READ K:POKE P,K:FOR J=
H TO 6 STEP -(F/C):POKE T,J:NEXT J:NEX
T O:FOR O=A TO G*C:NEXT O

```

This reads a shorter data line:

```
520 DATA 86,91,86,104
```

The final data line -

```
530 DATA 136,86,68,91,77,86,68,103,51
```

- is handled by these instructions:

```

30 READ K,L,M:POKE P,K:POKE Q,L:POKE R
,M:FOR J=H TO G*B STEP -(F/D):POKE T,J
:POKE U,J:POKE V,J:NEXT J
40 FOR O=A TO C:READ K,L:POKE Q,K:POKE
R,L:FOR J=H TO 6 STEP -(F/C):POKE U,J
:POKE V,J:NEXT J:NEXT O:POKE T,G

```

The closing note is played by these lines:

```

50 FOR O=A TO G*B:NEXT O:POKE P,111:PO
KE Q,36:POKE R,205:POKE S,103
55 FOR L=Z TO C*B STEP 0.025:POKE T,Y-
L:POKE U,Y-L:POKE V,H-L:POKE W,H-L:NEX
T L

```

So as to not be obscure, the program we've just finished uses (mostly) the following scale:

B	129	64	F	184	91
A#	136	68	E	197	98
A	147	73	D#	205	104 51
G#	154	77	D	219	109 54
G	165	82	C#	232	116 57
F#	174	86	C	247	123 61

Next issue, criticism of this program and suggested changes. The new program and data lines have been added to the library, and can be ENTERED on top of the old program to give the complete tune.

Software Barn

837-9725

ALL DAY - ANY DAY

Don't wait for mail order, and don't drive 2 hours to those "local" guys. We're here when you need us!

Unfortunately we ran into zoning and building problems so the store's not open yet - but give us a call, we have lots of inventory in stock.

- *1040ST
- *HabaModem
- *Blank Disks
- *Muppet Keyboards
- *Monochrome 520ST w/TOS RAM
- *8-bit Software Galore
- *CTI Printer
- *Cardco Inter.
- *Storage Cases



Remember

MEETING DATES

July 12th

August 9th

Doors = 1PM

Meeting = 2PM

News & Rumors

NEWS

ATARI USER GROUP NEWS

Atari Corporation has a new User Group Coordinator. Sandi Austin has been hired to fill the position left vacant when Dave Duberman decided to leave. Along with the new coordinator came a new publication called Atari User Group News. Issue #1 has some very interesting information. For example:

READ THE LABEL

The system requirements labeled on each Atari software box are very specific about which peripherals and computers can work with the program. If it specifies a 1050 disk drive, you can be sure an 810 will not work due to disk capacity limitations. "Silent Butler" and "Atari Planetarium" are two examples of this.

ATARIWRITER PLUS ALERT

A small number of dictionary disks went out with a garbled area in the portion of the alphabet between "bloomers" and "bubbles". If you discover a problem with your dictionary disk, send a postcard with your name and address to:

Atari Customer Relations
Attn: AtariWriter Dictionary
1196 Borregas Avenue
Sunnyvale, CA 94086

PRODUCTS/SERVICES

REPAIR SERVICES FOR ORPHAN DISK DRIVES

Antic On-Line reports that Percom Data Corp. has awarded a nationwide contract to repair all Percom floppy disk drives, including those for Atari computers, to STS Computers. They have schematics available for \$5. STS has also developed a new operation system ROM.

STS Computers
1073 W. Broad Street
Falls Church, VA 22046
(703) 237-0558

For owners of Trak disk drives, Integrated Computer Resources can repair and upgrade your unit. They also have the printer cables for the AT-D2 drive to utilize the built-in 4K printer buffer.

Integrated Computer Resources Inc.
247 N. Neltor Blvd.
West Chicago, IL 60185
(312) 231-6104

RUMOR

FUTURE PRODUCTS FROM ATARI?

Information gleaned from the transcript of the Atari Conference held at the last West Coast Computer Fair, indicates Atari Corp hopes to release the following new products:

For the 8-bit line, a 500K, 3 1/2" disk drive with a new DOS which is being written by Bill Wilkinson. (Said to be able to port from 5 1/4" but not back again.) This drive will not be out until the 3rd or 4th quarter. An 8-bit computer with more memory. (A 260XE?) A mouse for the 8-bit line. Also, the 80-column display unit is still alive with production set for this month (June). There will be some additional RAM in the 80-column unit. Also, and very important, there will be a big advertising push in a few months, for the 8-bit line.

For the 16-bit line, OCTOBUSSY, a box which will let you chain hard drives to the ST. (At this time only one hard drive can be connected to an ST.) The "IBM box" should ship in August.

Regent

REGENT WORD

Regent Word is a fast, reliable, sophisticated, and easy to learn word processor for the Atari ST! Multiple printer drivers, on-line help menus, and communications utilities are included.

REGENT SPELL

A 30,000 word Spelling Checker for the Atari ST! Shows misspelled words in context. Insert/Delete words in dictionary. 10 Suggested Spellings. Windowing and Mouse Controls. Type in your own spelling.

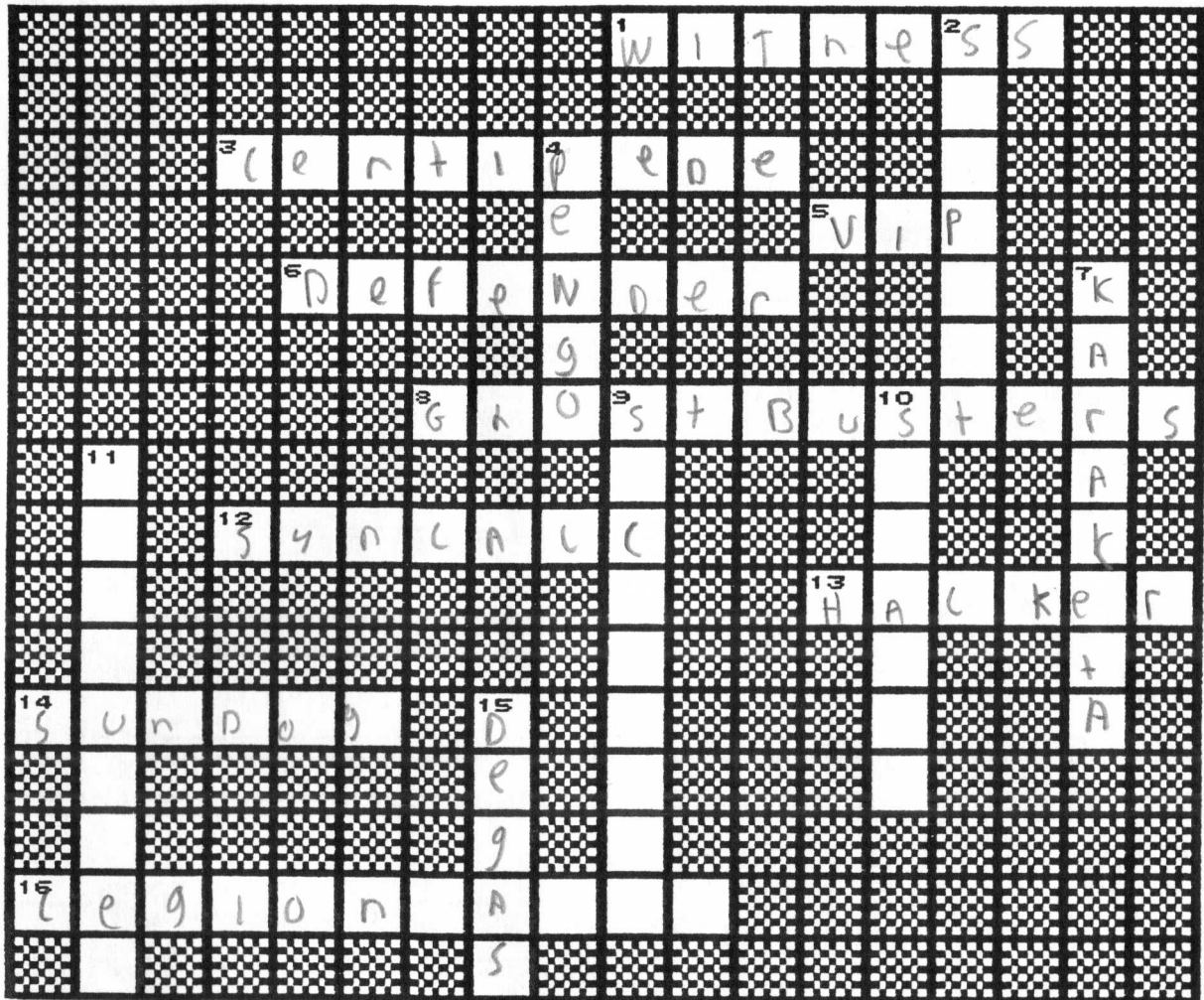
REGENT SOFTWARE

7131 Owensmouth, Suite 45A
Canoga Park, CA 91303
(818) 883-0951

ATARI ST ■ ■ ■ | |

COMPUTER CROSSWORD

ALL ANSWERS ARE SOFTWARE TITLES



ACROSS CLUES

- ✓ 1. A PERSON WHO TESTIFIES IN COURT
- ✓ 3. "BUGGY" ARCADE GAME FROM ATARI
- ✓ 5. 1-2-3 CLONE FOR THE ST
- ✓ 6. ONE WHO PROTECTS
- ✓ 8. SPIRIT SMASHERS
- ✓ 12. DATABASE PROGRAM FROM SYNAPSE
- ✓ 13. NICKNAME FOR SOMEONE VERY INVOLVED WITH COMPUTERS
- ✓ 14. "THE FROZEN LEGACY"
- 16. MR. CRAWFORD'S FOLLOW-UP TO "EASTERN FRONT 1941"

DOWN CLUES

- 2. TO THINK PROBABLE OR LIKELY
- ✓ 4. REQUIRES YOU TO PUSH ICE
- ✓ 7. BRODERBUND'S ANSWER TO BRUCE LEE
- 9. A PERSON WHOSE HOBBY IS EXPLORING CAVES
- 10. A GOING SECRETLY
- 11. TO COME TOGETHER IN COMBAT
- ✓ 15. BI'S ST GRAPHIC PROGRAM

ANSWERS FOR APRIL

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.....
.   I   M   .
. SPINAKER I .
.   F   R   .
. MICROPROSE A .
.   C   P   G   .
. DATASOFT SYNAPSE .
.   T M X   U M .
.   A P C   ANTIC .
. BRODERBUND C C .
.   I N S   O H .
.   G   M T .
.   U   R .
. ACTIVISION R .
.   N   N .
.....
    
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ABE'S ACES

Allentown Bethlehem Easton's Atari Computer Enthusiasts is an independent user group organized and run by owners of Atari Computers. Atari is a trademark of Atari Corp.; all references should be so noted.

If you would like more information about ABE's ACES, write us at the club's address or call one of the club officers at the numbers listed on this page.

NEWSLETTER

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Submissions to the newsletter may be made via the HELP KEY II, at the general meetings, or transmitted directly to the editor at 300 or 1200 baud. Call the editor for more information.

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