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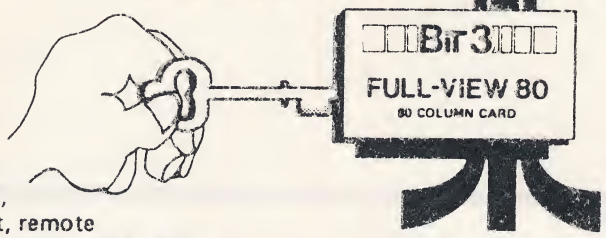

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May, 1984

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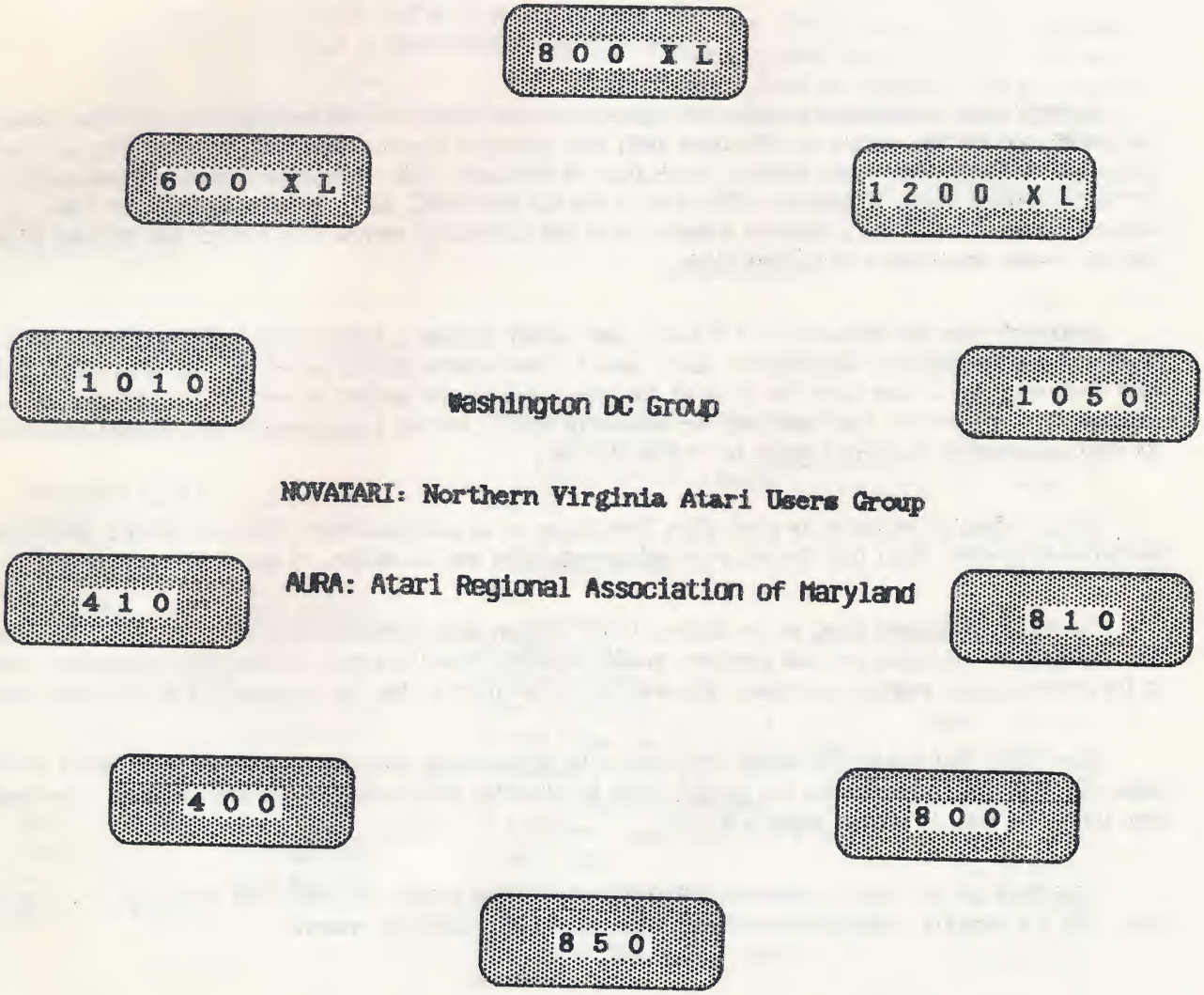
CURRENT NOTES

The Newsletter of the Washington D.C., Maryland, and Virginia
ATARI Compututer Enthusiasts



Washington DC Group

NOVATARI: Northern Virginia Atari Users Group

AURA: Atari Regional Association of Maryland

May 1984

Sun	Mon	Tue	Wed	Thu	Fri	Sat	
		1	[2]	3	4	5	<- AURA (1st Wed.)
6	7	8	9	10	11	12	
Mother's Day-> (13)	14	[15]	16	17	18	19	<- DC GROUP (3rd Tue.)
* NOVATARI -> [20] (3rd Sun.)	21	22	23	24	25	26	
27	28	29	30	31			

* Novatari meeting changed this month because of Mother's Day on 2nd SUnday.

CURRENT NOTES

Current notes is published monthly (excluding January and August) by the Washington DC Atari User Group for its members and for the members of affiliated ATARI User Groups in Virginia (NOVATARI: Northern Virginia Atari User Group) and Maryland (AURA: Atari Regional Association of Maryland). The three member groups are independent groups for Atari computer users, and are not affiliated in any way with ATARI, Inc. Opinions expressed in this publication are those of the individual authors and do not necessarily represent or reflect the opinions of any of the User Groups associated with Current Notes.

Membership dues for each group are $15.00 a year, which includes a 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 sent to the appropriate club treasurer (see last page for membership form). Persons living outside the metropolitan Washington DC area may subscribe to Current Notes for $12.00 per year.

Current Notes is available to other Atari User Groups on an exchange basis. Material in this newsletter may be reprinted by other Atari User Groups, provided Current Notes and the author, if applicable, are cited.

The Editor of Current Notes is Joe Waters, 122 N. Johnson Road, Sterling, Virginia 22170, (703) 430-1215. News items, short articles, original programs, product reviews, classified ads, and any other material of interest to the membership are eagerly solicited. The deadline for articles is the 2nd Saturday of the preceeding month.

Other ATARI User Groups can become affiliated with Current Notes and have the magazine distributed to their membership. Affiliated groups may use Current Notes to advertise their existence and make whatever announcements they like. The cost is $10 per member per year.

Classified ads are free to members. Commercial advertising rates: full page, $40; half page, $25; quarter page, $15; 1/6 page $10. Detailed advertising rate cards are available on request.

Editorial:

As many of you know, Staffan Sandberg, who has worked so deligently to developed Current Notes into one of the leading newsletters of Atari computer enthusiasts, has found the combined demands of full-time study, part-time work, and newsletter editor a difficult task to handle. So with this issue we have played a game of musical chairs. I have assumed the duties of editor with Don Hayden serving as business manager. Staffan has consented to serve as associate editor to help us during the transition. I would like to take this opportunity to thank Staffan, on behalf of all the club members, for the excellent job he did in launching Current Notes into its present size and format.

You may have noticed some other changes in this issue. We have a new cover, club announcements have been grouped together, and I have included a number of articles by "Atari, Inc.". These last are taken from material supplied to Atari Users Groups by Atari Customer Relations. I will try to regularly print useful information obtained from Atari and from the newsletters we receive from other Users Groups around the country. I am sure these will not be the only changes in the months ahead. Needless to say, if anyone would like to contribute ideas (or help!) toward improving Current Notes, please feel free to call.

I would also like to draw your attention to a new monthly column: Musical Notes by Jay Gerber. Jay, who is well-versed in both computers and music theory, has undertaken a difficult task: he is going to try and help those of you who have little, if any, musical background to take advantage of some of the musical opportunities afforded by the Atari computer. I think all readers will enjoy Jay's column.

Joe Waters

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May, 1984

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Washington D.C. Atari Users Group

1800 G Street NW, Washington, DC

Club Officers

President.....	Frank Huband	(202) 527-4770
Treasurer.....	Allen H. Lerman	(301) 460-0289
Membership.....	Gerald Whitmore	(301) 459-6164
Program Chairman..	Arthur B. Corte	(703) 437-7860
V Program Chairman	Jim Campbell	(703) 425-1440
Disk Librarian....	Jay Gerber	(703) 525-9715
Tape Librarian....	Bruce Ingalls	(703) 430-3287
ANALOG Disk.....	John Brophy	(703) 425-7169

DC Meetings

are held on the 3rd 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.

Coming Events

by Arthur Corte

May 15: Our May meeting will feature a comparison of three word processing/spelling checker programs. Programs to be demonstrated are:

* AtariWriter/ATS Speller for AtariWriter
* Letter Perfect/Spell Perfect
* Text Wizard/Spell Wizard

As time permits, we will also demonstrate a few other programs, both games and utilities.

June 19: In June we hope to demonstrate telecommunications with the Atari and the use of our bulletin board together with CompuServe, the Source and some other timesharing services. Later on in the year we hope to demonstrate some of the SAT practice programs that have recently become available.

Disk Librarian's Update

by Jay Gerber

Well, I must say that the job of club librarian is a lot more work than I thought. Although the copying and catalogue updating is easy but time-consuming work, creating new disks is not. The hardest part of this task is getting programs to fill up new disks. I can always type in Compute! and Antic, but it is all but impossible to get people to contribute programs to their own user's group! This club has more than a hundred members in it, and many more counting members of their families. Surely someone, somewhere must have a program worth induction into the library. Share that 'dumb old program' that's been sitting on a disk for months ... Send ANYTHING -- just send something and chances are they will wind up on a club disk, and you'll become a famous software author to be immortalized on disk for everyone to see forever!!!

Okay, enough of the begging. There is a new disk out this month called Music Comp. 2 (all club disks now have a title). Among the numerous Music Composer files are some musical Basic programs and SYN.OBJ, a binary-load file which will allow members without the Music Composer cartridge to play any MC file (includes all MC files on Disk #4). This new addition will raise the number of library diskettes to 23. Disk 24, which should be available by the May meeting, is an adventure story program. It is a cross between a short story and an adventure, like Zork. The program will display a chapter of the story on the screen. Let's say it says that you have traveled to a castle. There will then be a list of options of what you can do. Like enter, turn around, wait, etc. Your decision is typed with a single letter (a,b, or c), and the program will then display what happens because of your choice.

I would like to thank Eric Stollnitz and Peter Kilcullen for their contributions this month. Your work will appear on future disks. And speaking of disks, I will offer a free library disk to anyone who contributes a program or set of programs on disk. Either stop by on any meeting night or mail it to: Jay Gerber, 3639 N. 36th Rd., Arlington, Va. 22207, (703) 525-9715.

Novatari: Northern Virginia Atari Users Group

Greenbriar Community Center -- Chantilly, Va.

Club Officers

President.....	Vacant	
Vice-President...	Steve Steinberg	(703) 435-2962
Prog Chairman....	Joe Waters	(703) 430-1215
Treasurer.....	Curtis Sandler	(703) 734-9533
Membership.....	Curtis Sandler	(703) 734-9533
Secretary.....	Jim Stevenson	(703) 378-4093
Disk Librarian...	M. Evan Brooks	(703) 354-4462

Novatari Meetings

are on the 2nd Sunday of each month 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 6:45 each month. We also offer a monthly arcade tournament for the young at heart. The business meeting starts at 7:00 and is followed by a formal program highlighting a specific software or hardware product.

Novatari Minutes

April 8, 1984

Announcements: Frank Potter announced his forthcoming four-month visit to Europe. Because of this extended absence, Frank also announced his resignation as club president. He nominated Joe Waters as his successor. No action, however, was taken at the April meeting. An election will be held at the May meeting. If Joe assumes the president's position, we'll need a new program chairman. Any volunteers?

Demonstrations: Frank brought along a Macintosh which he had recently purchased to handle word processing requiremets on his trip. We were treated to a brief demonstration of the MacPaint and MacWord programs. Members who hadn't seen a Mac before were clearly astonished by this new generation in computing. At ten times the cost of an ATARI 800XL the Mac clearly is not competing in the low-end home market. However, for the price, it does provide a fascinating alternative to the IBM PC.

Program: Many thanks to Jim Stevenson for his presentation on "frog training" and artificial intelligence in general. Thanks also to Joe Waters for introducing us to Action! This new language looks like a real exciting addition to the available Atari languages.

Coming Events

May 20: Printers. Note: this month's meeting is being moved back one week to avoid conflict with Mother's Day. Boyd Morse will bring his Epson RX 80 and demonstrate the use of the printer port on the Percom drive. Rob Stewart of Future Tech will bring a specially modified Pro-writer. We will also illustrate the use of an Atari 850 interface to drive a printer and try to have the ATARI 1027 printer, which runs directly out of the serial port, on hand.

And Word Processing. If you decide to buy a printer, what are you going to do with it? You can list your programs. That's simple, you just type LIST "P:". You can also, with some printers, transfer the contents of the screen to the printer. Not so simple, you'll need a screen dump program working on your particular printer. We will have some programs on hand to illustrate screen dumps. Most people find that they use the printer primarily for word processing. For this, too, you need a program. Boyd Morse will discuss Letter Perfect and Mike Pham will cover Text Wizard and Atariwriter. These three are the leading word processors available for the Atari.

And a Bonus. Boyd has an ATARI 400 which he has modified to compete with its bigger brothers (more memory, keyboard). His latest modification may be very interesting to other 400 owners. He has added a board to allow the 400 to communicate via a monitor and to send audio to your stereo system. We'll see this super 400 in action at our May meeting.

(Continued on page 7)

AURA: Atari Users' Regional Association

Longbranch Public Library -- Takoma Park, Md

Club Officers

President.....	Bruce McLendon	(301) 587-7890
Vice President...	Dave Haseman	(301) 681-5776
Treasurer.....	David Curry	
Rec Secretary....	Rochelle Follender	
Membership.....	Richard Stoll	(301) 946-8435

AURA Meetings

are held on the 1st 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 Road). Turn right on Piney Branch Road and continue to the second light (Arliss St). Turn right on Arliss St. past the apartments to Garland Avenue. Turn right on Garland Avenue. The Long Branch Library is on the corner. Park in the Library's lot. Due to constructon, please use the upper-level entrance.

AURA Minutes

March 7, 1984.

Reports: The next meeting will be April 4 at 7:00 p.m. David Curry presented the Treasurer's report. He has deposited $493 in th club account and disbursed $6.93. The club owes about $200 for the newsletter. There are about 25 paid members of AURA. Bob Bell gave a Communications report. Disc #33 has the wedge and slide show program. To use Disk #30, remove the AUTORUN.SYS file. The XL translator is in the library -- 2 discs are required or a double-sided disc. (If you own an XL, you're entitled to a disc -- call ATARI). HI-RES magazine gets low marks. Members are cautioned not to leave valuables in their car when they attend a meeting.

Announcements: ACA has set up the Bulletin board on 424-4112. Call between 6 and 10 a.m. and all day Sunday. Membership cards will be produced. Chris of ACA volunteered to pick up the cost. Correspondence secretary Hank Jacobs wrote to US Computype but has not yet received a response. Mike Kerwin is getting 2K static ram for the Pro-writer printer. Computer Swap meet in Baltimore Civic Center on March 18. Len Halen suggested club purchase hole puncher to double-side disc. Concensus was that any cheap hole puncher will do. TRAK drive versions 1.05 or lower only have 2K and will not operate properly in machine language (number is inside). You can send in ROM and get revised ROM or buy a 2K chip. Richard Stoll offered to order Best ATARI Software for anyone who wants it. Bruce McLendon shared the March ANTIC interview with James Morgan, head of ATARI. The 850 interface is back in production. For a source of reasonable typesetting on compugraphic machines, call John Barnes at 921-3251. Bob proposed a copying charge for older discs to buy a club drive. No decision made.

Demonstrations: Marshall Abrams demonstrated ATSPELLER, a spelling checker. You can create your own dictionary and works with DOS files (but not LETTER PERFECT). Suggests you buy version 2 which can be used with AtariWriter cartridge. Bruce demonstrated a machine language program which improves on reading the directory. Mike Gauss demonstrated PLANETFALL, a Sci Fi adventure game by the makers of ZORK. Mike Rinzel demonstrated BLUE MAX. Bob demonstrated ENCOUNTER by Synapse which is in 3-D and full color. Very like BATTLEZONE. Bob Bell showed and told: new APX mini catalog; WIZ ($74.95) -- a touch tablet for ATARI; an adjustable paper holder ($19.95); a headset by ELITE which is a replacement for a telephone handset ($59.95). Also recommended you regularly test the speed of your disc drive. Contact Mo Sherman, hardware committee chairman, if you want to demo something.

AURA Minutes

April 4, 1984

Reports: No club member has received a newsletter. Bruce is looking into the problem without much success. COMPUTER AGE at 9433 Georgia Ave is having a clearance sale of ATARI software. Richard Stoll gave the treasurer's report for David Curry. There are 42 members and a total of $697 in the treasury. Bob Bell gave the Communication report. The XL translator is in the library. If you have a 1200, you're entitled to a free copy from ATARI; otherwise you have to pay for it. As of June 1 there will be a nominal charge for disk copies to build a fund to pay for a club disk drive. Disk #34 has AMODEM 4.05 and games. APX is no longer in existance. Chris Crawford (designer of EASTERN FRONT) has been laid off by ATARI.

Announcements: Membership cards will be available soon. Chris of ACA reported on the bulletin board. There are three disk drives on it. Log in with "NONE" and apply for a password. Leave a message that you're an AURA member. He has ATARI 1030 modems in stock for $139. Bruce gave an ATARI report. DONKEY KONG, MOON PATROL will be out in 30 days. Full recovery of the company is expected by the end of the year. Next meeting will be May 7. Possibility of a change in location for next year will be discussed. TRAK will upgrade their drives to include the new ROM free of charge. Call Illinois to get a repair authorization (RA) number. Currently there is a quick turn around time for the modification. One member requested technical info for the XL series, especially concerning the print vectors. Notes: 2600 TRAK BALL will work with the computer like a joystick. OSS has a Basic XL which is an improved Basic. ATARI's improved BASIC is not yet available. The translator cassette is put out by a 3rd party -- not ATARI. LETTER PRFECT double density version 6 is due out soon. AtariWriter will work in double density. There's a problem with the Menu program from the April COMPUTE! Let Bob know if you found the error. Various items were offered for sale by club members i.e. a modem; VISICALC; RAM boards.

Demonstrations: Bob displayed the ACTION program demo. Mo Sherman demonstrated B/GRAPH. Has two menus and costs about $80. Very good if you need a graph package. SPELLDIVER by Scholastic WIZWARE has good graphics, color and music. Player can select size of words and create own words. Chris of ACA displayed the Sakata 13" color monitor which sells for about $250. It has a telephone jack in front and a speaker. He described BRUCE LEE and demonstrated AGENT USA which is an educational, fun game, involving learning the states and using train schedules. Bruce demonstrated VISICALC. John made several suggestions for improving the club library including name coventions.

Novatari

(Continued from page 5)

component of this configuration, the computer, has steadily dropped in price to the point where it is often the cheapest component of the system. Therefore, how would you like to have several computers sharing common (expensive) disk drives and printer(s)? Rene Hertz will demonstrate a four-user system with an educational software management program that allows one of the units to monitor the activities of the other three.

HALOMWU Update

by John Brophy, SYSOP

The board is now running under BASIC XL ((C) OSS), which should eliminate message file crashes. The only major downtime was 18-19 April, while I was at a 3-day class. I have no statistics this month, but the length of the printed log indicates that usage has increased somewhat.

I am phasing in non-member restrictions beginning with D/Ls. I can see from the log that there is some confusion concerning how to sign on as a member (the Password explanation is not too clear), so here's the procedure:

After answering the linefeed question, the board asks for name or member number. THE NEXT 4 CHARACTERS YOU TYPE MUST BE A POUND SIGN & A 3-DIGIT NUMBER. For example:

#264

Optionally, the number can be followed by a non-numeric character and any other name by which messages may be addressed to you; for example:

#264 JJB

This logon will find messages addressed to #264 (which will appear locked to others, but not to you) and to JJB. It will not reveal messages for 264 (no # sign) or to JJBrophy or to 'JJB #264' (backwards).

If you correctly type a member number, you will be asked for your password, and if you type that correctly, the board will respond 'WELCOME, MEMBER!' If this doesn't happen, you are not signed on as a member. Make sure you're not typing a space in front of your number, and that your number is correct (all numbers below 400 have been deleted). Your current number and password appear above your name on the label of Current Notes.

BBS.....		(703) 425-6698
SYSOP.....	John Brophy	(703) 425-7169
Passwords.....	John Lauer	(301) 599-1621

Nibbles and Bits

By Jay Gerber

Hello everybody and welcome to the third edition of N&B! Instead of rushing ahead with the reviews, let's take a look at the current software market. There are a lot of new programs, both entertainment (games) and serious (everything else) that are currently bombarding the stores and mail-order houses. Although the majority of new Atari software are games, there are a surprisingly (and pleasing) number of utilities, educational, and even business programs to keep any Atarian happy.

Among the new business software is MMG (Final Flight) and it's impressive selection of new releases. There is a very versatile Payroll Package, a reliable Inventory Control program, and the famous 'accountant's trio': Accounts Receivable, Accounts Payable, and, of course, General Ledger. These all list for $99.95 and together with Mail List and Form Letter Writer ($29.95 each), make a complete office package perfect for small businesses.

There is quite a selection of games, both arcade and adventure, that will brighten up the rainiest day. Among the better action-types are: Encounter! (a 3-D tank battle) and Dimension X (reviewed later in this column), both by Synapse, the people who brought you Shamus. Broderbund has four new games including Sparechange (a wacky race inside a video arcade) and Drol (also reviewed in this issue). Epyx (Jumpman) is releasing seven new games, two which represent a novel idea in arcade translations. Do you remember what arcade games were like before Pac-man and Space Invaders? Besides Breakout and SuperPong, there was StarFire, Seawolf, Gunfight, and Fire One. These last four have been reproduced, two to a disk, by Epyx. Although these games have limited graphics, they still have enough action to keep my interest game after game.

Enough chatter. Let's get down to business! Mix BattleZone, StarWars (the arcade game), StarTrek (again the coin-op), music and sound effects from the Twilight Zone, and fantastically realistic scrolling graphics, and what do you have? If you are Synapse Software, you have just created Dimension X, a top rate blow 'em to bits game. In Dimension X, you are the only remaining hope of the doomed world of Jaraloba. In your cyclo-skimmer, you must destroy all invading Rigillian ships before they reach and destroy the capital city (the last remaining vestige of the Jaraloban population). You have a 25-sector territory to protect. As soon as your long-range scanner detects enemy vessels, you head your ship in the direction of the time tunnel that leads to the Rigillian-invaded sector. As you enter, walls start screaming by you. You skillfully avoid those and the energy-barriers that must be ducked or flown over at high speed. Once emerging from the tunnel, you encounter a ruthless Rigillian spewing out blasts of deadly energy. You deftly avoid his barrage and get off a few shots of your own ... Bulls-eye! Right on target! The enemy ship disintegrates into nothingness. But your troubles are far from over as a sneaky alien speeds up from behind you. Before you can react, a laser blasts hits true to the mark and you feel a shuddering as the ship takes the full force of the blast ... Oh, no! The alarm claxon sounds as your shield deteriorates ... Code Red! ... One more blast, and you're a goner! You feverishly race to the tunnel that leads to the fuel/repair base ... Better hurry because one's on your tail ....

Dimension X is graphically, the best game on the market. The 3-D scrolling and tunnel perspectives pull you into the game. The game is easy to learn and play since all your information is on one screen. The enemy ships are, at first easy to pick off, but as time progresses, you'll have your hands full just trying to stay alive. As for the staying power of the game, it will keep you amused for long periods of time only if you like to do nothing but shoot at aliens over and over. It is this factor that lowers this game, which is in every other way excellent, to a rating of 6. DIMENSION X by SYNAPSE for $34.95 disk only.

Drol is a cute game from Broderbund about a witch doctor, a family, and a robot ... No, I am not pulling your leg. Drol is a little robot who faintly resembles R2-D2 in looks. He moves about by walking or floating, thanks to a jet-pack on his back. In response to your joystick, Drol moves left or right, or up (via jetpack) or back down. His mission is to re-unite two kids and their pets with their mommy. In your way are giant scorpions, snakes, birds, and even vacuum cleaners. You move Drol through gates that seperate the four-level maze in which you must find the children.

The gameplay in Drol is surprisingly good. When I first booted the game and saw the cutsy graphics and the overly simple rules, I had doubts. After a few games, I fell in love with it's incredibly detailed scenery and monsters. There is enough challenge in it's three boards of play per level to keep me playing the game over and over in order to rescue mommy, after which there is a nice cartoon, making the difficult task worthwhile. The attention to both the graphics / music and the playability / stayability makes Drol a winner with a well-deserved rating of 9. DROL by Broderbund for $34.95 disk only.

Classified Adds

ASTRA 1620 disk drives, $510. Comes with MONEY MANAGER and MASTER IST by Programmer's Workshop and OSS DOS XL. Mike Kerwin, 496-2383 (day) and (301) 845-4477 (evening).

x x x x

If interested in purchasing an ATR-8000, call Bob Kelley, 839-7377 (evenings).

x x x x

[Note: classified ads are free to members of Atari Users Groups affiliated with Current Notes.]

Atari Scuttlebits

by Robert Kelly

It's time for some additional good, old-fashioned speculation on what's happening in the home computer market. My last column, focusing upon market rumors and speculation, written in December 1983, received mixed reviews. While some thought the article accurately reflected the range of near term outcomes in the home computer market, others wondered aloud about what my physical state may have been when the column was written. Let's return to those days of yore, December/January, to assess the accuracy of what was written and to view the immediate future once again.

Atari (Warner Communications)

As is well known, Rupert Murdock was unsuccessful in his attempt to gain control of Warner. In fact, Warner bought out Mr. Murdock's holdings at a premium. This action on the part of Warner's management has resulted in a number of shareholder suits based upon the belief that the buy-out, given the price per share paid to Murdock, was not in the best interest of public shareholders (who would have guessed this could happen!).

Atari and North American Philip's parent corporation did conclude an agreement as was rumored at the time. They are currently working on the next generation of video game products. Furthermore, according to the Wall Street Journal, rumors continue to circulate that Warner will sell Atari to North American Philips for $150 to $200 million. Personally, I doubt that Atari will be sold to anyone in the immediate future since many market analysts are speculating on a "gut" feeling emanating from a negative opinion of past company operations.

The market is waiting for Atari's next move in terms of product line development. Atari has been unusually quiet in terms of selectively leaking to the press potential new product ideas for introduction this fall (an omen which may be good). Even the users' Group rumor mill has been inactive. However, if Atari fails to introduce any new innovative computer products by the Christmas season - particularly in regard to a more sophisticated computer and software designed for the "hacker" or business application, Atari may indeed be placed on the market by Warner.

This view is all the more reasonable, in my opinion, if one examines Commodore's aggresive strategy in regard to the home computer market. Commodore is aware that the market for computers designed primarily for video games is a declining one and that people want a machine that also possesses a wide range of capabilities. Also, Commodore is aware that a significant number of people want to upgrade their existing computers and, like it or not, want machines that are closer to the standards which are gradually evolving in the industry. All of this is obvious if one reads the spec sheet for the new Commodore 264. In this regard, I am particularly disturbed by the fact that Atari has not seen fit to court the existing owners of 800/400 machines. It is a significant market opportunity if the right computer was offered.

IBM

It seems like a long time ago but it was only last November that the PCjr was introduced. I noted that IBM's impact on the market may be somewhat overstated and that software houses who were gearing up to service the rush to the PCjr may be digging themselves into a financial hole. Well, PCjr computer sales have not materialized to the degree many/most predicted (who says consumers are uninformed!). In this regard it is worthwhile to read INFOWORLD's review of the PCjr (May 7 issue). Needless to say it mirrors what you read in this column several months ago (a pat on the back for the staff of CURRENT NOTES).

In response to this situation, IBM has already announced a number of enhancements to improve the marketability of the jr. IBM has also shifted its emphasis more towards the business and educational markets. I must give credit to IBM, they are reacting quickly to market signals - unlike some other corporations we know. The next time someone tells you "people buy IBM for the name alone" you might add "IBM knows people and attempts to market products to satisfy preferences". Although their existing pricing policy leads one to believe they want to restrict market growth.

Despite IBM's quick reaction, most analysts believe that sales will probably remain somewhat sluggish for this year. A more accurate reading on the

long term future of PCjr must wait until the end of the year. My own feeling is that in the short term PCjr sales will improve. However, those software development houses and magazine publishers who originally stockpiled to meet the "overwhelming demand" and make a "quick killing" in the market may be in trouble. Discount software sales, particularly games, may be in vogue for PCjr owners by the end of the year. This outcome, if it occurs, will contribute to more mergers and bankruptcies on the part of computer magazines and software publishers. It truly is a risky business!

Software Sales

For those of you who missed the Wall Street Journal article on the forecasted shakeout in the home computer market, the table below is exerpted from that column:

Personal-Computer Software Sales

(Wholesale, 1983)

HARDWARE MAKERS	
IBM	$110,000,000
Tandy	110,000,000
Commodore	75,000,000
Apple	70,000,000
Atari	70,000,000
Texas Instruments	60,000,000
INDEPENDENTS	
Microsoft	68,000,000
Lotus	53,000,000
Digital Research	48,000,000
MicroPro	45,000,000
Visicorp	45,000,000
Ashton-Tate	40,000,000
Peachtree	22,000,000
Broderbund	12,000,000
Perfect Software	12,000,000
Sierra	12,000,000
Sorcim	12,000,000
Spinnaker	12,000,000
Synapse	12,000,000
Continental	11,000,000
Software Arts	11,000,000
State of Art	11,000,000
Software Publishing	10,000,000

What is immediately noticeable is the dominance of business software firms. Is it any wonder why Synapse, initially a game house, is moving towards the development of a line of business software to strengthen its market position? From what I understand, Atari has purchased the rights to this business/home finance series and is currently enhancing the product as well as it's compatability with other Atari products (good going, Atari). I have not examined the product although it is one of the few I would care to review. It should be noted, however, that this "new" product has been advertised by various computer discount houses for at least three months and still is not available (bad going Atari/Synapse). I believe Atari/Synapse's corporate strategy to market more business software is absolutely correct.

What is also surprising to me in the table is the volume of total sales for Tandy (Radio Shack) and in particular Continental Software. Comparing Continental's total sales from its relatively limited line of business software, to game producers which have a significantly larger number of products on the market, demonstrates that quality, not quantity alone, yields profits. In my opinion, the rate at which software firms diversify to meet all the needs (business/educational) of the public will determine their long-term viability. For the investor, it should be noted that some of the firms shown in the table have recently gone public and are worth a closer look if seeking high returns. Needless to say, any investment in a software firm is a somewhat risky investment.

ATR-8000 Users' Group

The first meeting of the National Capital ATR-8000 Users' Group is scheduled for the end of May. Announcement of the exact time and date will be sent by mail to those who have already expressed an interest to me in joining the group. Please contact me for information if you have not done so and if you own an ATR-8000. Efforts are underway to initiate a disk library based upon the CP/M 2.2 system - contributions to the library will be appreciated. A regular column will soon be appearing in CURRENT NOTES covering the activities of this group.

Next month we will take a closer look at those computer magazines. Which are the largest in terms of circulation? Do they serve users' group interest? Are they more interested in satisying the purchaser of the magazine or the computer manufacturer?

Musical Notes: An Atari Music Tutorial

by Jay Gerber

First of all, let me take a few minutes to introduce myself. I am a nineteen year old college student who has been playing piano for well over five years now. In that time, I have learned a considerable amount of music theory, as well as experience in actual technique. I have been in two high-school bands as a clarinet-player and, more recently, xylophones in concert band. I am currently enrolled in music courses at Northern Virginia Community College, which has a reputation for excellence in the musical arts. As for my computer background, I have been working with computers for almost as long as I have played piano. I started learning Basic on my Mom's Basic Four micro about five years ago. Since then I have worked on a variety of machines ranging from an IBM 360 to a Timex-Sinclair 1000 when they first came out (for the amazingly low price of $200!!).

Ever since I touched a terminal, I have wanted to mix the two loves of my life: music and computers. Up until 1979, all I could do was hear the Apple click and buzz. Then, in a wave a sheer brilliance, Atari introduced it's 400 and 800 computers with four independant sound channels! It was love at first sight as I immediately took a job at McDonald's in order to buy one. Not long after, I began programming music with the Basic cartridge included. After awhile of long data statements and arrays, the Music Composer cartridge came along and took a lot of the work out of transferring music to computer medium.

Now there are a lot of new music composing/editing tools on the market, including the long-awaited Music Construction Set by Electronic Arts. I will review and teach these utilities along with helping you get the most out of Basic music and Music Composer files.

I will start off by explaining how your Atari generates sound. Deep within the plastic shell of your Atari lies a small microchip called POKEY. This chip is responsible for producing sound, as well as I/O (input-output) tasks, such as reading the keyboard. When you activate this chip (by a SOUND command in Basic, for instance), you are making POKEY send out a series of pulses to the four audio channels. The frequency of these pulses is too high for the human ear to hear. By dividing the total number of pulses that are sent to the speaker with a number between 1 and 255, the Atari can generate different notes. For example, let's say you enter (in Basic) the command:

```
SOUND 0,121,10,10.
```

What this means is to send the number 121 to the frequency register of audio channel one. Then, for every 121 pulses that POKEY sends out, the Audio channel will send out only one pulse. This, in turn, oscillates (vibrates) the speaker in your television and you hear the note 'Middle C' (which corresponds to the value of 121 in your SOUND statement.

Before we get any further, I'd like to take some time out to explain what sound really is. Everything in this universe of ours vibrates, even a human being! Since most of these vibrations are faster than 20,000 cycles per second (Hz), (the high range of human hearing), we do not percieve these vibrations as noise. And that is exactly what noise and sound are: your brain recieving vibrations in the surrounding air and translating them (so long as they are within the range of human hearing: 20 to 20000 Hz).

What separates sound from noise? Technically, nothing. They are both waves caused by an object vibrating which is translated and heard by the human ear. However, in dictionary terms, noise is usually described as a sound that is loud, confused, or otherwise disagreeable. I like to define noise as a collection of sounds being made simultaneously. But from now on, let us call sound and noise the same to avoid any confusion.

Now, back to the Atari Basic SOUND statement. In the above example, I explained what the second parameter or number in the SOUND statement meant. By putting a number between 0 and 255, we control the frequency of the sound. The zero as the first number indicates that we want the first sound channel. The third number, 10, tells the assigned audio register that we want to make 'pure' sound. That is a true soundwave of even pulses. By putting a number other than 10 here, we create a distorted sound.

A pure soundwave is made up of cycles resembling an infinitely long, flat roof with numerous geometrically perfect rectangular chimneys jutting out of it. Each of these chimneys is a waveform or cycle. Each cycle relates to the shape of a vibration. The

shape of a cycle is divided into four time periods, called Attack, Decay, Sustain, and Release.

Attack is the time it takes for a sound to go from point zero (no motion) to it's peak frequency. It is just like an accelerator on a car. The time it takes to go from a complete stand still to a maximum speed can be defined as attack.

Decay is how long it takes for a sound to fall from maximum volume to a steady, constant 'cruising speed' or sustained volume.

Sustain is the duration or how long it stays at that steady volume.

Release is how long it takes for a sound to go from the sustained volume back down to zero.

These four factors make up a kind of 'envelope' which is different for every different sound whether it be a baby crying or a pianist playing. This ADSR envelope theory is how a synthesizer or organ can make distinctly different types of tones. Scientists can use an oscilliscope to actually see an instrument's waveform. They can then copy it's envelope by producing vibrations at very high speeds to simulate that instrument's sound.

Unfortunately, the Atari cannot (without the help of extremely complicated machine-language routines) duplicate or even alter it's own ADSR envelope. The distortion in the Atari SOUND statement does not at all relate to true distortion in terms of music. Changing the distortion factor to say, 6, will give you an engine-type sound. Instead of altering the waveform, the Atari actually deletes random parts of it. This gives it a sound which agrees with my above dictionary definition of noise.

Finally, the last number in the SOUND statement is volume. This number ranges from 0 (sound off) to 15 (loudest). Volume is theoretically the length of a wave from crest to crest. You can think of sound in this way: the more waveforms or vibrations there are, the higher the sound; the bigger a wave-length or the harder the vibration is occurring is the volume.

Next issue I will start discussing putting together different frequencies of vibrations in order to produce what is called music. I also will discuss the different music software packages available for the Atari computer. Oh, before I forget...

==========

ANNOUNCING A CONTEST!

==========

Musical Notes is having a contest for all you musically inclined computerists. Send in your best Music Composer files on disk to me. Every issue I will pick the best out of what I recieve, and store them on one main disk. When the disk gets full, I will send a copy to all who participated. And, as an added incentive, everyone who sends in a disk to me will have their name printed in the next Musical Notes column.

Send contest entries, comments, suggestions, gripes, etc. to:

Jay Gerber
3639 N. 36th Road
Arlington, Va. 22207

Please keep copies of you files, since I will erase all disks submitted and copy the main disk on to the ones you send.

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BASIC BEAT

By Joe Waters

Everyone who works with computers creates files. On a mainframe computer, these files gradually build up until, eventually, you run out of storage space. At that point you have to do some house cleaning to get rid of files that are no longer important. In a microcomputer environment, the files build up on diskettes. As long as you have enough diskettes, you can keep adding files to your collection. But even if you can afford plenty of diskettes, it is to your advantage to periodically clean out files you no longer want or need. You need to make back-up copies of your files, but you don't need three or four back-up copies. When you are working on a program and have made multiple copies (each in differing stages of completion), finding your most recent effort can be a frustrating experience. The ATARI operating system makes no provision for dating your files.

Last month, we saw how to read a disk directory and display its contents on the screen. The above introduces this month's topic. We will print our directory on paper and also store it's contents in a master directory of all our files. But what happens if, when we see the directory on the screen, we decide that, actually, there are some files there that we really don't want or would rather they had a different name? If our program provides no provision for changing the disk contents, we would have to exit our BASIC program, go to DOS, and make the changes we want. Then, we would have to go back into our program (swapping diskettes in the drive to do so) and start all over again. If we are using ATARI DOS, the movement to DOS and back again can be quite time consuming.

So, the second option in our main menu allows us to update (i.e. modify) our disk directory. What kind of updates can we do from within a BASIC program? We can lock or unlock files. We can rename a file. We can erase a single file, multiple files, or the entire disk by reformatting it. All of these tasks can be accomplished by use of the BASIC XIO command. There are two more options that are also useful and should be included: displaying a file's contents and creating a new (text) file. That, in brief, is our objective for this month. Let's see how to do it.

Modifying Your Disk Directory

The first thing we will want to do is display our current directory along with a list of all the options available for making modifications. In other areas of our program, we have presented the list of possible options as a numbered set of choices. If we do that here, the directory will most likely scroll off the top of the screen. It would be better if we could see the directory and the available options together. To do this, we must make the option prompts as short as possible. Therefore, let's make each option a one word command invoked by typing the first letter of the word. On the screen, our prompt would look like this:

```
-----------------------------------
Lock, Unlock, Erase, Rename, Display,
Create, Format, Help, or Quit
-----------------------------------
```

We prompt for a command. The user enters a letter (it must be one of the nine acceptable options), and the program responds accordingly.

The above is accomplished with the code listed below. Line 3010 clears the screen (GOSUB SCREEN) and displays the contents of the disk directory (GOSUB DDIR). The subroutine to display the directory was introduced last month (back issues of Current Notes are available from the editor). Line 3020 closes channels 1 and 2 and includes a TRAP statement that transfers control to line 3740 if an error is encountered. Closing the channels would not normally be necessary. However, since there is no penalty (i.e. no error) in closing a channel that is not open, this statement is included as a safety precaution. We will be opening these channels (and, hopefully, closing them) at various places in these routines.

```
3000 REM DIRUP: DIRECTORY UPDATE
3010 GOSUB SCREEN:GOSUB DDIR
3020 CLOSE #1:CLOSE #2:TRAP 3740
3030 GOSUB LINE:? "Lock, Unlock, Erase, Rename,
Display, Create, Format, Help, or Quit":GOSUB LINE
3040 A$="LUERDCFHQ":? "Enter Command: ";:GOSUB XANSWER
3050 IF ANS=9 THEN RETURN
3060 ON ANS GOTO 3080, 3080, 3080, 3200, 3260, 3400,
3510, 3590
3070 GOTO DIRUP
```

The subroutine to draw a line is a new one. At various points in the program, a horizontal line across the screen will help highlight different parts of the screen display. The subroutine to accomplish this is placed with the other short utility routines used in the program. Two other short routines are also introduced this month. One is called BELL. It simulates a soft bell sound and is used to alert the user. The pitch used in the BELL routine is given by a variable called PITCH which must be set before calling the routine. The other is called XANSWER. It's function is discussed in the next paragraph. The three new utilities are listed below.

```
400 REM XANSWER: CHECK ANSWER
401 GOSUB KEYBD
402 FOR I=1 TO LEN(A$)
403 IF K$=A$(I,I) THEN POP:GOTO 408
404 NEXT I
406 GOSUB BADKEY:GOTO 401
408 ? CHR$(K+128);:ANS=I:RETURN


410 REM BELL: MAKE BELL SOUND
412 FOR V=14 TO 0 STEP -1
414 SOUND 0,PITCH,10,V:SOUND 1,PITCH+1,10,V
416 NEXT V:RETURN


420 REM LINE: DRAW HORIZONTAL LINE
422 FOR I=1 TO 36:? CHR$(18);:NEXT I
424 ? CHR$(18):RETURN
```

Our earlier menus had numbered choices all of which had to fall in a range from 1 to the highest possible numbered alternative. This time we have nine possible answers, but they are all different, non-contiguous, letters. We could use nine IF-THEN statements to determine if the answer matches one of the alternatives. Another solution, which is more general and can be used elsewhere in the program, is to place all the possible correct answers in a string. A separate routine, called XANSWER, is then used to check the keyboard response -- and keep checking -- until an appropriate answer is provided. XANSWER will set the value of a new variable, called ANS, to a number corresponding to the position in the string of the option selected.

In line 3040 we set A$ to the nine possible letter responses, L for Lock, U for Unlock, ... Q for Quit. We prompt for a command and then call XANSWER to get an appropriate response. If the user selects Q, the ninth element in the string, the value of ANS will be 9 and we will return to the main menu (line 3050).

If not 9, then ANS must be some number between 1 (for Lock) and 8 (Help). The BASIC ON-GOTO statement is then used to determine where to transfer control of the program. For those of you not familiar with this statement, it's use is fairly simple. Consider the following statement:

```
ON x GOTO a,b,c,d
```

If "x" is 1, the program would go to the line number represented by the 1st statement after the GOTO, in this case "a". If "x" were 2, the program would go to "b"; 3 would go to "c"; 4 would go to "d"; any value of "x" greater than 4 would ignore the GOTO and skip to the next line of BASIC code.

In our program, the Lock, Unlock, and Erase options (ANS=1,2,3) are very similar and are all handled in the same segment of code starting at line 3080. The Rename option is handled at 3200, Display at 3260, Creating a text file at 3400, Formatting a disk at 3510, and the Help message starts at line 3590. We will examine each option in turn.

Locking, Unlocking, and Erasing Files

To lock, unlock, or erase a file, the only additional information we need is the name of the file (or files). We prompt the user for a file identification (or file id pronounced file eye dee) and then perform the desired operation. Note that wild card characters can be used. So, if we want to lock all the files on a disk, the file id could be entered as "*.*". To erase all files with a file extension of LST, we could enter "*.LST". In the case of erasing a file, the modification to the directory is permanent. The file is gone forever. Therefore, if the erase option is chosen, we should give the user a chance to confirm that the file should, indeed, be destroyed. The code below handles all of this:

```
3080 REM ==> LOCK,UNLOCK,ERASE
3090 IF ANS=1 THEN CMD=35: A$="LOCK"
3100 IF ANS=2 THEN CMD=36: A$="UNLOCK"
3110 IF ANS=3 THEN CMD=33: A$="ERASE"
3120 ? A$;" WHICH FILE ";: INPUT A$
3130 IF A$="" THEN GOTO DIRUP
3140 B$="D1: ": B$(4)=A$: B$(2,2)=DNUM$
```

```
3150 IF ANS<>3 THEN 3180
3160 PITCH=160: GOSUB BELL: ? : ?"==> ERASE ";B$: ? : ?
"ARE YOU SURE (Y/N) ";
3165 A$="YN": GOSUB XANSWER
3170 IF ANS=2 THEN GOTO DIRUP
3180 XIO CMD,#1,0,0,B$
3190 GOSUB RDIR: GOTO DIRUP
```

Line 3120 prompts for a file id. The earlier lines simply assure that we ask the right question and set the appropriate command number for the XIO statement in line 3180. If this is all a mistake, the user can enter a null response (blank line) to the prompt and control is passed back to the beginning of the routine (line 3130). Line 3140 puts the file id, along with the appropriate disk devise (D1: , D2: , etc) into B$. If a file is to be erased, lines 3160 and 3170 give the user a chance to stop the operation. Note that the erase confirmation gives us another chance to use the XANSWER routine. Line 3180 uses the XIO command to perform the actual operation. After the directory change, we read the directory again before returning to allow other changes (line 3190).

More on XIO

If you purchase one of the new ATARI XL computers, the only BASIC documentation you receive is a short 14-page ATARI BASIC Reference Guide. Although this document is subtitled "For Experienced Programmers," you will find no mention of the existence of the XIO command in ATARI BASIC. If you have had your ATARI for some time, you probably have the ATARI 400/800 BASIC REFERENCE MANUAL. Unfortunately, the documentation on XIO in this "reference" manual gives almost no examples of how the command is used. The general format of the command is:

```
XIO command, #channel,aexp1,aexp2,filespec
```

In the examples above, we use any of three possible commands: 35 (Lock file), 36 (Unlock file), or 33 (Delete/Erase file). The channel number we used was 1, but it could have been any channel. Note that we did not have to first open that channel. If we were going to read or write from a file, we would have to first open the channel. Both arithmetic expressions (aexp1 and aexp2) are set to zero. The filespec was found in our string array B$, which could have been, for example, "D1: TEST.ONE". If we wanted to specify an explicit file, we would have to include the expression in parentheses. When the expression is already in a string variable, the parentheses are not used, e.g.:

```
XIO 33,#1,0,0,B$   or
XIO 33,#1,0,0,"D1: TEST.ONE"
```

The format for lock, unlock, and delete is exactly as illustrated above. For rename (command=32), the file specification includes both the old name and the new name. For example,

```
XIO 32,#1,0,0,"D2: TEST.BAS,MATH.4"
```

would rename the file "TEST.BAS" on disk drive no. 2 to be "MATH.4". Note that the devise specification (D2:) is not repeated for the new file name.

To format a disk, use command=254. In this case the filespec includes only the device specification and no individual files. To format drive 1, you would use:

```
XIO 254,#1,0,0,"D1: "
```

You can also open a file (command=3) or close a file (command=12) using the XIO statement. Of course, it would be easier to simply use the OPEN or CLOSE statement as appropriate. The ATARI REFERENCE manual gives other commands that can be used with the XIO statement such as GET RECORD(5), PUT RECORD(9), STATUS(13), POINT(37), and NOTE(38). The manual also states that these are similar to their BASIC equivalents (INPUT, PRINT, STATUS, POINT, and NOTE). It's a good thing we have these BASIC "equivalents" because there is absolutely no indication in any of the ATARI BASIC references I have -- or non-ATARI references for that matter -- of how one could use the XIO command to accomplish any of these tasks. All the BASIC "equivalents" have a provision for a variable (INPUT #1,C$ puts the data being read into the variable C$) that is nowhere to be found in the XIO structure.

Renaming A File

After that little diversion, let's return to our program. As you know from the XIO discussion, renaming is essentially similar to the earlier choices. The only difference is in the format of the filespec. To help the user, we provide a more explicit prompt:

```
3200 REM ==> RENAME FILE <==
3210 ? "Enter OLD ID and NEW ID in this form:
OLDNAME.OFT,NEWNAME.NFT ":INPUT A$
3220 IF A$="" THEN GOTO DIRUP
```

```
3230 B$="D1: ":B$(4)=A$:B$(2,2)=DNUM$
3240 XIO 32,#1,0,0,B$
3250 GOSUB RDIR:GOTO DIRUP
```

Displaying a File

Some of you may not be aware that you can examine the contents of a file from ATARI DOS. Use the copy option. When prompted for the "from" and "to" specs, copy the file you want to examine to the Editor. For example, to copy TEST.LST to the Editor, you would respond:

```
D1: TEST.LST,E:
```

Similarly, if you wanted to copy a file to the printer, you could enter P: as the "to" file.

For our display option, we will read the characters in the file, one at a time, and display them on the screen. Should we display the entire file? What if we only want to see part of the file? What if the file is moving too fast for us to read? How do we stop it?

Let's give ourselves the option of stopping the file listing by simply pressing any key on the keyboard. To resume listing the file, we again press any key. To stop the listing permanently, we press the RETURN key. Let's take a look at the section of code that accomplishes this:

```
3260 REM DISPLAY FILE CONTENTS
3270 ? "DISPLAY WHAT FILE ";:INPUT A$
3280 IF A$="" THEN GOTO DIRUP
3290 B$="D1: ":B$(4)=A$:B$(2,2)=DNUM$
3300 GOSUB SCREEN
3310 ROW=1:GOSUB PRCEN:? "Press any KEY to
START/STOP.":? "Press RETURN to end display."
3320 GOSUB LINE:POKE 764,255:?
3330 OPEN #1,4,0,B$:POKE CONTROL,NO
3340 GET #1,X:? CHR$(X);
3350 IF PEEK(764)=255 THEN GOTO 3340
3360 IF PEEK(764)=12 THEN ? :GOSUB LINE:POKE
CONTROL,YES:CLOSE #1: GOSUB PAUSE:GOTO DIRUP
3370 POKE 764,255
3380 IF PEEK(764)=255 THEN GOTO 3380
3390 POKE 764,255:GOTO 3340
```

We start by prompting for a new file name. Again, a null response provides an exit back to the current directory listing. If a name is provided, the filespec is placed in B$ (lines 3260-3290). The screen is once more cleared. In line 3310 we print out the file name (recall that PRCEN will print whatever is in B$ in the middle of row ROW) and two lines of instructions before drawing a solid horizontal line.

The last keyboard character pressed can be obtained by looking at location 764. We first clear this location by putting 255 in it. In line 3330 the appropriate file is opened for reading and we turn off control characters (by POKING a 1 in location 766). This routine will read any kind of file. Of course, if the file is not a text file, strange characters will be printed on the screen. Some of these characters may be control characters. To prevent them from performing their normal functions, we turn control characters off before displaying the file contents.

Line 3340 gets a character from channel #1 (the file on your disk drive) and prints it on the screen. Line 3350 checks the keyboard and, if nothing as been pressed, goes back to getting and printing characters. If a key has been pressed, we check to see if it was the RETURN key (764 will have a 12 in it). If so, we print a line, turn control characters back on, close the file, wait for the user to indicate he is ready to go on, and then return to the beginning of this subroutine.

If some other key was pressed, line 3370 clears out location 764; line 3380 waits until another key is pressed after which line 3390 once again clears out 764 and then returns to line 3340 to continue getting and printing characters.

Creating a Text File

Now that you've seen how to display a file, creating one shouldn't be too difficult. We ask for the file name, open the file for writing, clear the screen and print out a heading. Instead of reading data a character at a time, however, we read it in a record at a time. A record is defined as a stream of characters delimited by a carriage return. The records could be as long as we want as far as printing them to a file is concerned. However, we are limited to 110 characters as the maximum record size that the INPUT statement can handle. For our purposes, instead of defining a new string variable, we can just use good old B$ to get lines of input and then print them to the disk. This effectively limits our record length to a maximum of 40 characters. Here is the code:

```
3400 REM ==> CREATE TEXT FILE <==
3410 GOSUB SCREEN:INV=1:B$="CREATE TEXT FILE":GOSUB
PRCEN:?
3420 ? "ENTER NAME OF NEW FILE: ";:INPUT A$:IF A$=""
THEN GOTO DIRUP
3430 B$="D1: ":B$(2,2)=DNUM$:B$(4)=A$
3440 OPEN #1,8,0,B$
3450 GOSUB SCREEN:ROW=1:GOSUB PRCEN:?  "MAX 40
CHARACTERS/LINE"
3455 ? "ENTER CNTRL S+RETURN WHEN FINISHED."
3460 GOSUB LINE:? :POKE CURSOR,YES
3470 INPUT B$:IF B$="" THEN B$=" "
3480 IF B$(1,1)=CHR$(19) THEN ?CHR$(28);:GOSUB LINE:?
:CLOSE #1:GOSUB RDIR:GOTO DIRUP
3490 PRINT #1;B$
3500 GOTO 3470
```

Initially, I developed this routine such that a null line indicated that I was done entering data. However, this meant that I could not create a file that had any blank lines in it. You see, the INPUT statement does not recognize a response of all blank characters. If you press the space bar several times before pressing RETURN, BASIC still thinks you entered nothing. To correct for this, line 3470 changes a null response to represent at least one blank space. To signify the end of the file, I use CNTRL-S plus a carriage return. In this case the ATASCII representation of the first character of B$ is a 19 (see line 3480). When we are done creating our file, we move the cursor up one line (? CHR$(28);) where the CNTRL-S was, print a horizontal line, close the file, read the new directory, and return to the beginning of this subroutine.

Formatting a Disk

To format the disk, we once more employ the XIO command. Since formatting completely erases a disk, we provide an audible warning and ask for verification of the command. If that's what is wanted, we go ahead and do it. Here is the code:

```
3510 REM  ==> FORMAT DISK <==
3520 PITCH=140:FOR I=1 TO 3:GOSUB BELL:NEXT I
3530 ? :? "THIS COMMAND WILL ERASE ALL DATA ON  THIS
DISKETTE.  ARE YOU SURE YOU WANT TO DO THIS (Y/N) ";
3540 A$="YN":GOSUB XANSWER
3550 IF ANS=2 THEN GOTO DIRUP
3560 B$="D1: ":B$(2,2)=DNUM$
3570 XIO 254,#1,0,0,B$
3580 GOSUB RDIR:GOTO DIRUP
```

Printing the HELP Message

Since our command prompts are reduced to a single word, it wouldn't hurt to provide a more detailed explanation if requested. That is precisely what happens if the Help option is selected.

```
3590 REM  ==> PRINT HELP MESSAGE <==
3600 GOSUB SCREEN:ROW=1:INV=1:B$="UPDATING DISK
DIRECTORY":GOSUB PRCEN:?
3610 ? "     You can alter the contents of  your
diskette from this program."
3620 ? "Enter the first letter of the action  you
desire.  You will be prompted for any information
needed.": ?
3630 ? "Lock   - Lock (or Protect) file."
3640 ? "Unlock - Unlock (or Unprotect) file."
3650 ? "Erase  - Erase file from disk. "
3660 ? "Rename - Rename a file on disk ."
3670 ? "Display- Display contents of file."
3680 ? "Create - Create a text file on disk."
3690 ? "Format - Format disk."
3700 ? "Help   - Print out this message."
3710 ? "Quit   - Go back to main menu."
3720 GOSUB PAUSE
3730 GOTO DIRUP
```

Helpful Error Messages

Way back at the beginning of this routine, we set a TRAP to move all errors to line 3740. We want to do this for two reasons. One, we don't want the program to simply end with an error message. Secondly, if we encounter an error, we want to indicate the nature of that error in something more understandable than an ERROR NO. xxx statement.

If there is an error, the number of that error can be found in location 195. We look at the error number and then set B$ to an English equivalent of what the error means. I have included only those errors most likely to occur during disk input and output. If you want to expand the error list, go ahead. If an error occurs that is not found in one of the IF-THEN statements, line 3830 assures that B$ contains at least the error number.

```
3740 REM  ==> PRINT ERROR MESSAGE
3750 X=PEEK(195)
3760 IF X=170 THEN B$="--> FILE NOT ON  DISK! <--":GOTO
3840
3770 IF X=144 THEN B$="--> DISK IS WRITE PROTECTED!
```

```
<--":GOTO 3840
3780 IF X=167 THEN B$="--> FILE IS LOCKED! <--":GOTO
3840
3790 IF X=165 THEN B$="--> FILENAME ERROR! <--":GOTO
3840
3800 IF X=162 THEN B$="--> SORRY, DISK  IS FULL!
<--":GOTO 3840
3810 IF X=138 THEN B$="--> SORRY, DISK DOES NOT RESPOND!
<--":GOTO 3840
3820 IF X=136 THEN B$="--> END OF FILE! <--":GOTO 3840
3830 B$="--> ERROR NO.
":B$(LEN(B$)+1)=STR$(X):B$(LEN(B$)+1)=" <--"
3840 INV=0:ROW=21:GOSUB PRCEN
3841 PITCH=140:GOSUB BELL
3842 PITCH=190:GOSUB BELL
3843 PITCH=160:GOSUB BELL
3850 GOSUB PAUSE
3860 GOTO DIRUP
```

Well that's it for another month. If you are building up this program as we go along, be sure to set the values of XANSWER, LINE, and BELL somewhere around line 100 where we set the earlier short routine values. Next month: we'll build our database.

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XL Compatibility Guidelines

By Atari, Inc.

[Editors Note: These guidelines ae provided by Atari to assist authors in writing software that will be upward compatible with the 1200XL (and, presumably the 600XL and 800XL.)]

NOTE: Many popular computer magazines and textbooks provide sample programs which break some of the guidelines presented below. One common example is the provision of so-called "useful POKE locations" for ATARI BASIC programmers without any mention of which variables are internal. Do not assume that a program will run on an ATARI 1200XL if it uses a technique from a published source that breaks any of the following guidelines. Use the Operating System User's Manual (OSUM) as the authoritative source if there is any doubt about the legality of a specific programming decision.

Violation of any of the following guidelines could cause a program to malfunction on the ATARI 1200XL. Programs written entirely in ATARI BASIC which do not use the PEEK or POKE instructions should have no compatibility problems. All other programs which do not deliberately attempt to violate one of the rules below are probably also compatible.

Note that the following paragraphs use the convention of preceding hexadecimal numbers with a "$".

1. There are no "spare" locations in the operating system database. Memory locations $0000-$007F and $0200-$047F are reserved and should not be assigned to user variables or constants. For example, programs which assign values to the previously unspecified locations $02C9-$02E3 are likely to fail on the 1200XL.

2. "User accessible" variables (suc as the left margin of text area, LMARGN at $0052, and the cursor inhibit, CRSINH at $02F0) have retained their original addresses. However, "internal" and "temporary" variables may have been moved, so no attempt should be made o access them. For example, PBUFSZ, previously at $02DF, has been relocated.

WARNING: NEWROW and NEWCOL, previously at $0060 and $0061, respectively, have been relocated [Ed. -- to $02F5 and $02F6]. They are internal variables even though they are specifically referenced in th ATARI 400/800 BASIC Reference Manual.

3. System calls to operating system routines should use only "advertised" entry points and vectors. These addresses are provided in Appendix J of the OSUM. Vectors labeled "for OS internal use only" (such as DISKIV), or found from scanning the operating system listing may have moved and should not be used.

4. No attempt to detect BASIC, PILOT, or other types of cartridges should be made. Since no documented procedures exist for doing so, revisions to these cartridges could cause such programs to fail. Similarly, no attempt should be made to execute a jump directly into cartridge ROM.

5. Programs should conform to the interface described in the OSUM with regard to:

- Power up initialization (coldstart).
- RESET initialization (warmstart).
- Interrupt processing.
- System time utilization.
- I/O operations.
- Floating point operations.
- Memory management.

6. Programs should not rely upon "side effects of system functions. The interface for each operating system function is documented; since "bonus" features such as finding a useful constant in a register upon return cannot be relied upon, they should not be used.

7. The "initialization values" given in Section 6 of the early versions of the OSUM are not valid for the 1200. They should not be relied upon.

8. No attempt should be made to access the hardware register PORTB, at memory location $D301 (54017 decimal). Since the two game ports formerly controlled by PORTB have been eliminated from the 1200, it has been reallocated for other purposes.

9. System calls to O.S. routines should utilize only "advertised" entry points and vectors. These addresses are provided in Appendix J of OSUM, and they fall in two address regions: 1) $E400-E47F (rev A/B) for the OS, and 2) $D800-DFFF for the floating point package.

10. The character set definitions are at locations $E000-$E3FF and $CC00-CFFF for the international character set.

O.S. Data Base Changes From Rev. B to XL

Location	Rev. B Use	XL Use
0000	reserved	LNFLG --for inhouse debugger
0001	reserved	NGFLAG--for power-up selftest
001C	PTIMOT moved 0314	ABUFPT--reserved
001D	PBPNT moved 02DE	"
001E	PBUFSZ moved 02DF	"
001F	PTEMP deleted	"
0036	CRETRY moved 029C	LTEMP --loader temp
0037	DRETRY moved 02BD	"
004A	CKEY moved 03E9	ZCHAIN--handler loader temp
004B	CASSBT moved 03E9	"
0060	NEWROL moved 02F5	FKDEF --func key def ptr
0061	NEWCOL moved 02F6	"
0062	" " 02F7	PALNTS--PAL/NTSC flag
0079	ROWINC moved 02F8	KEYDEF--key def pointer
007A	CLINC moved 02F9	"
0233	reserved	LCOUNT--loader temp
0238-0239	"	RELADR--loader
0245	"	RECLEN-- "
0247	LINBUF deleted	reserved
0248-026A	"	"
026B	"	CHSALT--character set ptr
026C	"	VSFLAG--fine scroll temp
026D	"	KEYDIS--keyboard disable
026E	"	FINE --fine scroll flag
0288	CSTAT deleted	HIBYTE--loader
028E	reserved	NEWADR--loader
029C	TMPX1 deleted	CRETRY--from 0036
02BD	HOLD5 deleted	DRETRY--from 0037
02C9-02CA	reserved	RUNADR--loader
02CB-02CC	"	HIUSED--loader
02CD-02CE	"	ZHIUSE--loader
02CF-02D0	"	GBYTEA--loader
02D1-02D2	"	LOADAD--loader
02D3-02D4	"	ZLOADA--loader
02D5-02D6	"	DSCTLN--disk sector size
02D7-02D8	"	ACMISR--reserved
02D9	"	KRPDEL--auto key delay
02DA	"	KEYREP--auto key rate
02DB	"	NOCLIK--key click disable
02DC	"	HELPFG--HELP key flag
02DD	"	DMASAV--DMA state save
02DE	"	PBPNT --from 001D
02DF	"	PBURSZ--from 001E
02E9	"	HNDLOD--handler loader flag
02F5	"	NEWROW--from 0060
02F6-02F7	"	NEWCOL--from 0061

XL Memory Map

The following memory map assumes that DOS 2.0S is booted with a graphics mode 0 screen in BASIC.

HEXIDECIMAL	DECIMAL	USE
0000-007F	0- 127	OS page zero RAM
0080-00FF	128- 255	user page zero RAM (BASIC)
0100-01FF	256- 511	6502 stack
0200-05FF	512- 1535	OS RAM
0600-06FF	1536- 1791	FREE RAM
0700-1CFB	1792- 7419	DOS
1CFC-9C1E	7420-39966	user RAM (BASIC)
9C1F-9FFF	39967-40959	display list and screen RAM
A000-BFFF	40960-49151	BASIC cartridge
C000-CFFF	49152-52223	OS ROM
CC00-CFFF	52224-53247	OS ROM (intn'l character set)
D000-D0FF	53248-53503	GTIA registers
D100-D1FF	53504-53759	reserved for future use
D200-D2FF	53960-54015	POKEY registers
D300-D3FF	54016-54271	PIA registers
D400-D4FF	54272-54527	ANTIC registers
D500-D7FF	54528-55295	reserved for future use
D800-DFFF	55296-57343	OS ROM (floating pt package)
E000-E3FF	57344-58367	OS ROM (dom. character set)
E400-FFFF	58368-65535	OS ROM

O.S. Changes (Continued)

Location	Rev. B Use	XL Use
02F8	reserved	ROWINC--from 0079
02F9	"	COLINC--from 007A
030E	ADDCOR deleted	JMPERS--option jumpers
0314	TEMP2 moved 0313	PTIMOT--from 001C
033D	reserved	PUPBT1--power-up/reset
033E	"	PUPBT2-- "
033F	"	PUPBT3-- "
03E8	"	SUPERF--screen editor
03E9	"	CKEY --from 004A
03EA	"	CASSBT--from 004B
03EB	"	CARTCK--cart checksum
03ED-03F8	"	ACMVAR--reserved
03F9	"	MINTLK-- "
03FA	"	GINTLK--cart interlock
03FB-03FC	"	CHLINK--handler chain

AtariWriter: Product Update

By Atari, Inc.

AtariWriter is the new word processing software now available from Atari. There are a number of differences between the old Atari word processing program and the new AtariWriter.

The new AtariWriter software is considered FILE oriented, while the old word processing program is considered page oriented. The formatting and paginating time with a lengthly document is greatly reduced over the old word processing program, because AtariWriter formats a document as it prints.

AtariWriter is available in cartridge form, not diskette, so document files can be saved to cassette as well as to diskette. This means more memory is available to write and edit with. Also, no more worries about the Master disk going bad! It may be used with either the Atari 400, 800, 1200XL, 600XL, or 800XL computers.

Even though AtariWriter has a 40 column screen output, it compensates for this limitation with a unique print preview feature. Print preview allows the user to view the 80 column format on the screen before the document is printed. The use of the ESCAPE key anytime during the writing/editing of a document will take the user back to the menu with no harm to the file or system. Also, the SYSTEM RESET key can be used to return the user to the program menu with no harm to the file or system.

AtariWriter is extremely user-friendly and is compatible with any non-ATARI parallel printer. The user can easily insert the control codes for their printer anywhere into the text, thus giving them all the special functions of their non-Atari printer. This puts an end to printer/program incompatibility. Also, the AtariWriter can be merged with document files from the old Atari word processing program.

Control Codes. The AtariWriter Word Processor may be used with any parallel (or "Atari serial") printer. The AtariWriter program includes printer drivers for four Atari (820 and 822 40 column and 825 and 1025 80 column) printers.

If you intend to use AtariWriter with any printer other than those listed above, you will need to obtain a printer driver or use your printer's control codes to format and print your documents. The following steps illustrate how to enter printer control codes into your AtariWriter text.

1) Select the proper decimal control code sequence from your printer manual for the function you want to perform. (You may have to covert the hexidecimal values to decimal.)

2) Enter the control code sequence at the desired place in your AtariWriter document. The codes are entered by typing "control O" before each decimal number in the cotrol code sequence. Control codes that affect the entire document should be placed at the top of the text immediately under the AtariWriter's format codes. Control codes that affect only portions of the text such as underline and double width (elongated) print should be inserted in the text at the point where the function begins.

3) When you use the "Print" or "Print Preview" function the first time after you load AtariWriter, the names of four Atari printer drivers will appear at the bottom of the screen. If you do not have one of the printers listed, select the 3rd printer (Atari 820) driver and then print or preview your document.

Example. If you wanted to use elongated print and your printer's decimal control codes were 14/117 to start elongated printing and 14/118 to end elongated printing, you would do the following to print an elongated heading called EXAMPLE:

1) Hold down the key marked "CTRL" with one hand and with the other press the "O" key. This will put the inverse video letter "O" on the screen. Then type the first decimal number "14". Again hold down the "CTRL" key while pressing the "O" key and then type the number "117". Now type the word "EXAMPLE" and then repeat the process using the control key, control O, and the numbers 14 and 118. Your screen should now look like this (underlined characters on the paper represent inverse video characters on the screen):

O14O117EXAMPLEO14O118

2) Note: A "CONTROL O" must be placed in front of EACH decimal number. The "RETURN" key msut be pressed somewhere in the document after the point in which the codes were inserted.

3) On those printers that have international characters you must first enable the printer's character set (using "CONTROL O / decimal code" sequence outlined above) and then repeating the sequence for each character to be printed.

4) The control codes will not print on your printer and will not take up space unless directly followed by pressing "RETURN" in which case they will appear as a blank line on your printer.

Using the method above, you should be able to obtain almost any capability that your printer can perform. Do not try to mix type styles on the same line (such as elongated and 10 cpi). AtariWriter has no way of knowing what codes you are sending to your printer and therefore cannot make the spacing adjustments to compensate for the change in print styles. This should not be a problem if you have a printer driver.

Printer Drivers. The purpose of a printer driver is to convert the printing and formating codes in AtariWriter to codes that your printer understands. Using a printer driver with AtariWriter will allow you to use the printer codes in the AtariWriter manual. For all printer functions supported by AtariWriter you will not need to use the "CONTROL O / decimal code" sequence mentioned above. Printer drivers are now available for the following third-party parallel printers:

Atari 1020 and Atari 1027
Epson MX-80, FX-80, and MX-10
Epson MX-80, MX-100 w/GRAFTRAX
EPSON MX-80, MX-100 FT III
GEMINI-10
NEC-8023A
C. Itoh PROWRITER-8510
IDS 480
Mannesman Tally
Okidata Microline 92A and 93A

Disks retail for $24.95 and each disk contains a file for every printer listed above.

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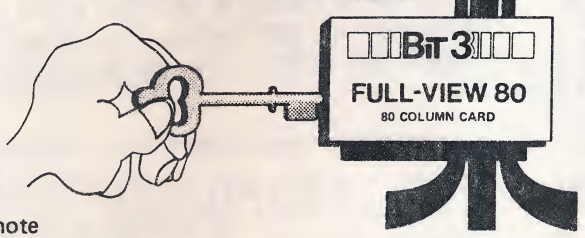

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ATARI BASIC:
Revision B Information Sheet

By ATARI, Inc.

Revision B of the 8K ATARI BASIC corrects many of the anamolies that exist in the original cartridge. To determine which revision you have, type the following command: PRINT 2^2 [RETURN]. Revision A will return a value of 3.99999996. Revision B will return a value of 4. The token file maintained in RAM is 16 bytes larger with revision B BASIC. Therefore, programs that utilize all available memory may not load with revision B.

The following bugs are fixed in revision B ATARI BASIC:

Editing Lockup. When editing a BASIC program, especially deleting a large number of program lines, the system will either cause part of the token file to be scrambled or will completely lockup requiring power off/on and resulting in loss of the resident program.

Print Lockup. PRINT A=NOT B will lockup the system.

Input Lockup. An INPUT command with no variable specified can either lockup the system, generate an error 10 or put the variable in an unexpected place.

DIM command. Inserting spaces between the variable name and the dim length is not interpreted properly.

LOG and CLOG commands. LOG(0) and CLOG(0) give erroneous negative results instead of an error. LOG(1) and CLOG(1) give erroneous results instead of zero (0).

Negative zero (-0) gives exponentiation results. PRINT -0 yields -0E-<8.

Integer exponentiation does not give integer results. PRINT 2^2 yields 3.99999996. Revision B only partially fixes this bug. If the base and exponent are integers, the result will be rounded to an integer value. However, the result will not always be as accurate as could be obtained with repetitive multiplication. (PRINT 2^22 yields 4194303 while PRINT 2^11*2^11 yields 4194304.)

Equating strings that are multiples of 256 bytes in length causes the data to be moved incorrectly resulting in inequality.

A CTRL R or CTRL U in a PRINT statement will suppress the end of line function.

GET and VAL commands. When using a GET command to read the keyboard and using a VAL command in the same program, the last key pressed is echoed in the first byte of a string variable.

ON A GOSUB B,C,D command. If the value of the conditional variable (A) exceeds the number of GOSUB arguments (3), a GOSUB entry is still placed in BASIC's run time stack causing an error 13.

The following bugs still exist in revision B ATARI BASIC:

INPUT command. The prompt is included in the input text if more than one line of text is input causing the cursor to wrap-around to the next line and then the control arrow up or backspace is used to move the cursor to the first line.

SAVE/LOAD commands. The LOAD command adds 16 bytes to the token file in RAM. Therefore, program developers who frequently SAVE their programs will notice the amount of free RAM is 16 bytes less the next time the program is LOADed. The loss of 16 bytes of free RAM is cumulative each time a SAVE command is followed by a LOAD command. To recover this free RAM a LIST, NEW, ENTER sequence can be executed.

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

by John Brophy

I still need six more subscription orders or renewals in order to maintain the club's disk subscription to A.N.A.L.O.G. Please bring or mail a check, payable to 'Atari Users', for $24.00 (for 1 year) to me at 9300 Shari Dr., Fairfax VA 22032. If yor order is a renewal, PLEASE ENCLOSE YOUR LATEST MAILING LABEL!!

I have received disks through #18, and they appear to have our subscription straightened out. However, our current subscription runs out with issue #21, and I would like to mail the order soon.

GTIA Graphic Modes
Using Modes 9, 10, and 11

By Atari, Inc.

[Editor's Note: The following is taken from Atari's DEMOPAC #4: ATARI COLOR GRAPHICS.]

The GTIA chip allows three extra graphic modes, 9, 10, and 11. Modes 9 and 11 are complimentary; they work the same way, except that mode 9 has one hue and sixteen luminences, while mode 11 has one luminence and sixteen hues. Mode 10 combines the player and playfield color registers, so that nine registers are available at once.

In mode 9, the single hue is set in the background register, with the statement SETCOLOR 4,hue,0. In mode 11, the single luminence goes in register 4: SETCOLOR 4,0,luminence. In both modes, the COLOR statement selects one of the 16 variations of luminence (mode 9) or hue (mode 11). The STAR9 and STAR11 programs which follow demonstrate this technique.

Mode 10 combines all the player and playfield color registers, so that nine registers (1 background, 8 foreground) can be used at once. Since player registers cannot be set by SETCOLOR commands, it is best to set all nine registers with POKE commands. The locations are 704 - 712 (decimal). 704 controls the background color. You can then select a register with the COLOR statement, 0-8.

The resolution in all three modes is the same, 80 by 192. Each pixel is one scan line high and four color clocks wide. In contrast, a mode 8 pixel is one scan line high and half a color clock wide. A picture drawn in a GTIA mode looks similar to one drawn in mode 7, although the individual pixels are a different shape.

Mode 9 is appropriate for the simulation of depth and 3-D effects, since the many luminances allow fine shading gradations. Mode 10 can be used to provide an illusion of motion, by cycling colors through the registers, as shown in the following demo program. Mode 11 allows more colors to be displayed at once than any other mode, without resorting to machine-language programming. For a thorough discussion of how these modes are selected by ANTIC, refer to Appendix E of De Re ATARI.

Graphics Mode 9 Demo

```
1 REM STAR9
2 REM JB 3/82
3 REM a starburst pattern in graphics mode 9
4 REM cycling through all colors and luminances
5 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10 GRAPHICS 9:C=0
20 C=C+1:IF C>15 THEN C=0
30 SETCOLOR 4,C,0:REM change the color after each cycle
40 FOR X=0 TO 15:REM cycle through every luminance
50 RX=INT(RND(0)*80):RY=INT(RND(0)*190)
60 COLOR X:REM change the luminance
70 PLOT 40,95:REM center point
80 DRAWTO RX,RY
90 NEXT X
100 GOTO 20
```

Graphics Mode 11 Demo

```
1 REM STAR11
2 REM JB 3/82
3 REM a starburst pattern in graphics mode 11
4 REM cycling through all colors and luminances
5 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10 GRAPHICS 11:C=0
20 C=C+1:IF C>15 THEN C=0
30 SETCOLOR 4,0,C:REM change the Luminance after each
cycle
40 FOR X=0 TO 15:REM cycle through every color
50 RX=INT(RND(0)*80):RY=INT(RND(0)*190)
60 COLOR X:REM change the color
70 PLOT 40,95:REM center point
80 DRAWTO RX,RY
90 NEXT X
100 GOTO 20
```

Graphics Mode 10 Demo

```
1 REM GTIA MODE 10
2 REM JB 5/82 [Modified by JW 4/84]
3 REM Mode 10 has 9 color registers available.  This program shows
4 REM how to simulate motion by cycling colors through the registers.
5 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
10 GRAPHICS 10
15 REM Hues are assigned by poking into the registers.  704 is background.
16 REM Here, each color is +16, to get the next hue with the same luminance
20 POKE 704,0:POKE 705,30:POKE 706,46:POKE 707,62:POKE 708,78
30 POKE 709,94:POKE 710,110:POKE 711,126:POKE 712,142
35 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
40 FOR CC=1 TO 8:REM select a register with the color statement, 1-8
50 COLOR CC:X1=10*(CC-1):X2=X1+9
60 FOR X=X1 TO X2:PLOT X,0:DRAWTO X,190:NEXT X
70 NEXT CC
75 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
80 REM Cycle colors through registers -- poke each with peek of next one.
90 N=PEEK(705)
100 FOR I=705 TO 711
110 POKE I,PEEK(I+1)
120 NEXT I
130 POKE 712,N
140 GOTO 90:REM keep cycling
```

Demo of Graphics Modes 3-8

```
1 REM SWIRL
2 REM WWB/DBM  4/82
3 REM A demonstration of the graphics modes and their capabilities
10 GRAPHICS 2+16:REM No text window
20 POSITION 3,5:PRINT #6;"CHOOSE A MODE"
30 PRINT #6;"HOLD start TO RESET"
48 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
49 REM Read the keyboard
50 OPEN #1,4,0,"K:":REM Open the keyboard as a device
60  GET #1,X:REM Returns ATASCII code for the key pressed
70 CLOSE #1
80 MODE=X-48:IF MODE<3 OR MODE>8 THEN 50:REM Convert ATASCII code to mode number
90 RESTORE 400+MODE:REM Read only data for chosen graphics mode
100  READ  HORIZ,VERT:REM  Read  data  as  x  and  y coordinates
110 GRAPHICS MODE+16:REM Full-screen graphics
198 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
199 REM Create swirling effect
200 COLOR 1:REM Select color register
210  POKE  708,RND(0)*255:REM  Put  random  color  into register
215 GOSUB 300:REM Call drawing routine
220  IF  PEEK(53279)<>7  THEN  RUN  :REM  If  START  key pressed, start over
225 COLOR 2:REM Select new register
230  POKE  709,RND(0)*255:REM  Put  random  color  into register
235 GOSUB 300:REM Call drawing routine
240 IF PEEK(53279)<>7 THEN RUN :REM Check for START key
250 POKE 77,0:REM Disable the attract mode
260 GOTO 200:REM Start over
298 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
299 REM This subroutine draws the design
300 FOR I=VERT TO 0 STEP -1
310 J=VERT-I:REM J goes down as I goes up
320 PLOT 0,I
330 DRAWTO HORIZ,J:REM Draw the line
340 NEXT I
360 FOR I=0 TO HORIZ
370 J=HORIZ-I:REM J goes left as I goes right
380 PLOT I,0
390 DRAWTO J,VERT:REM Draw the line
395 NEXT I:RETURN
399 REM xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
400 REM The data statements define the screen size for each graphics mode
403 DATA 39,23
404 DATA 79,47
405 DATA 79,47
406 DATA 159,95
407 DATA 159,95
408 DATA 319,191
```

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