PORTLAND ATARI CLUB

APRIL 1986

Next General Meeting

Monday, April 7, 1986, at 6:30 p.m.

BPA Auditorium, NE 9th and Holladay

PAC Bulletin Board Systems

24 Hours - 7 Days a Week

#1 - (503) 245-9405 - 300/1200 BPS
#2 - (503) 245-4608 - 300/1200 BPS

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PORTLAND ATARI CLUB

(Not affiliated with ATARI, Inc.)

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Commercial Advertising Rates: full page (7 X 9 1/2) - $50, half page (7 X 4 1/2) - $25, quarter page (3 1/4 X 4 1/2)- $15. Ads must be prepaid and a 1/3 discount is given for 3 consecutive ads. The copy may vary in content, but the space must be the same in each issue. Send camera ready copy and check payable to PAC at the address below. Contact the Editor for other arrangements. Ad deadline is the 5th of the month prior to publication.

Membership is $20 per year and includes a subscription to this newsletter and access to members-only functions. Single copy price of the newsletter is $1.50. General meetings are open to the public and start at 6:30 p.m. on the 1st Monday of each month (2nd Monday in the case of holidays) on the date and at the location listed on the cover of this newsletter.

Exchange newsletters, articles, correspondence and ads should be sent to the following address:
Portland Atari Club, Attention: (appropriate board member), P.O. Box 1692, Beaverton, OR 97005

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PRESIDENT'S COLUMN
Vern Vertrees

It won't be hard to fill my column this month because a lot has happened in the past few weeks. For those of you who missed the last general meeting, I will try to bring you up to date. Two weeks before the meeting was to take place, Elanna received the rules and regulations from the GSA (this is the governing body for the BPA building where our general meetings are held). As with most government documents, these regulations were written so that only a lawyer could possibly understand them.

After reviewing them myself, we made the decision to have them deciphered by the government agency who issued them. To make a long story short, Elanna called me shortly after her meeting with them to give me the bad news. It seems that no one in the club had ever bothered to have the rules explained to them. At least that is the only explanation that I can conceive as to why we would be in violation of their rules. One very strict rule was that there would be no sales on the premises. This rule includes even lottery tickets, club diskettes, and all backroom activities.

Since all of these activities are a big part of our meeting, I was devastated. It was I, as president of this club, who had to break the the bad news to you. I was not looking forward to the next meeting; in fact, I had visions of a recall vote. At this time I would like to thank the 95% of you in attendance for your help, suggestions, and support in this matter. I do wish the other 5% understood that this is in no way a conspiracy to do away with any part of our club functions. As I stated in my campaign letter, I feel that the backroom sales are a very viable part of our meeting.

I also knew that we could no longer have these sales going on while knowing full well we would not be in compliance with the rules of the GSA. I guess that you could say that for the past few years ignorance has been bliss.

As if this wasn't enough bad news, we were also informed that we could not sign up for this building for a full year for two reasons. First, we have to apply within 30 days of each meeting and, secondly, the BPA will be moving to their new building some time this year and we would be losing this facility altogether. Since we had already had our board meeting for the month and the general meeting was only a few days away, Elanna and I had to make a decision on what direction to take. Thank whoever for a great vice president. Elanna got on the phone and soon was compiling a list of available meeting sites. As most of you remember, we went through this about a year ago and came up with nothing suitable. I also want to thank all of you members for your suggestions.

We are looking for facilities with ample room for the general meeting, parking, and sales. We are also looking for easy access to and from the freeways in all directions, and for something in the downtown core area. This is not easy to find. Elanna did find one such place. It is called North West Service Center located at N.W. 18th & Everett. Elanna and I looked at this facility and found it quite acceptable. It has seating for 800 and a nice size room for sales (the community room). There is a wheelchair ramp and a elevator for easy access for the disabled. There are at least three parking lots within a block. The Center is three blocks from the freeway to and from all directions.

Does it sound to good to be true? This is for you to decide. I would like as many of you as possible to look at this building before the next meeting so that you won't be voting for something that you will not be happy with. It is open from 8:00 a.m. to 5:00 p.m. Please, take a look.

The cost for both rooms is $975.00 per year, which I think is within our budget without raising our dues. This will be determined by our disk sales and our expenditures throughout the year. I have asked that all board members check out this building before the board meeting so that we can get their input before we bring it to a vote. For those of you who were not at the meeting, there was a motion made, seconded, voted upon and passed that the board present to the members a recommendation to be voted upon by the members for a new facility in which to meet. This we are working hard to do and I would hope that as many of you members as possible will come to the next general meeting to voice your opinions. After all, this is your club, and I am sure that I speak for the entire board when I say we desire only to follow your wishes. We do not run the club. We only help lead it.

continued...

(**PRESIDENT'S COLUMN**, continued from page 1)

I am aware of some accusations which I refuse to address unless those people responsible are fair enough to confront me in person or by phone. Better yet, see me at the next board meeting or general meeting. Enough said.

I would like to say one more thing before I leave this subject. The board meeting is open to all members; in fact, we encourage you to attend. We can always use your input whether criticism or suggestions. Feel free to attend. I don't know if you will get this news letter in time to attend this month, but I will give the time and date anyway. This month's **Board Meeting** will be held at IB Computers at 7:00 p.m. on the Monday before the meeting, March 31st.

New subject, if I may. For those of you who follow tv commercials, you have undoubtedly seen that guy who keeps referring to VERN, like "Hey, Vern, I like your teddy bear." Okay, so I'm exposed. I plan to have my teddy at the next meeting. Hope to see you there.

PAC HELP HOTLINES

The following people have generously offered to take telephone queries in the areas indicated.

Adventure Games	Russell Schwartz	646-6418
Assembly Language	Leroy Baxter	653-1633
BASIC Programming	Nick Yost	981-0838
	Lee Gassaway	642-2455
BBS Usage	Steve Billings	246-1751
	Don Adams	245-7168
	Russell Schwartz	646-6418
C	Randal Schwartz	643-1089
Cassette Operation	Lee Gassaway	642-2455
DOS Operations	Gary Lippert	233-7069
FORTH Programming	Ron Chaffer	283-5691
	Ricky Wooldridge	224-7163
Hardware Operation	Gary Lippert	233-7069
Modem Operations	Gary Lippert	233-7069
Operating System	Nick Yost	981-0838
	Leroy Baxter	653-1633
ST Advanced	Chuck Hall	626-3717
ST Fundamentals	Richard Barhitte	(206) 573-0299

BOARD MEETING NOTES
Dan Gibson

The February **Board Meeting** was held at 7 p.m. on February 19th at IB Computers. Attending were the following: Chuck and Jean Hall, Dan Gibson, Tom Brown, Jim Miller, Steve and Debbie Billings, Tom Addis, Tom Brown, Elanna Schlichting, Jerry Anderson, DeLoy Graham, and Vern Vertrees.

MARCH MEETING

The March general meeting will begin at 6:30 with PAC software sales until 7:00 to 7:15 when the main meeting will start. First off, the Board members will give a brief update on their respective areas. Then the SIG Group leaders will tell us what each of their groups are doing and when they are meeting. The business part of the meeting will center on the question of where we will continue to hold our monthly meetings. In a meeting with the GSA, it was determined that no sales of any kind (including PAC disks) could be held on the Bonneville Power premises. In addition, no raffels or lotteries can be held, either. The Board feels that sales are a vital part of the club. So, we need to find another meeting place. If you have any ideas on this matter please contact any Board member. NOTE: There was a motion made at the general meeting that the Board consider the ideas presented at the March 3rd meeting and report back on its findings at the April meeting. The last part of the March meeting will be a demonstration of the Atari 7800 game system by Chuck Legg. He will be showing Pole Position II and be telling us what other software will be coming.

MISCELLANEOUS

The Board will be developing a method of pooling the club's computer systems for SIG group use. We will be purchasing a letter quality printer for the newsletter. We will be contacting **ANTIC** to get permission to use their software in PAC disks. We will also contact other Users Groups in search of good public domain software.

TREASURER'S REPORT

As of this writing, the balance in our checking account stands at $1,542. At the last meeting software sales totaled $145 and $520 for memberships.

MEMBERSHIP NOTES
Jim Miller

As of this writing, we have 580 members. I wish to welcome the following new members and their families:

Doug Tesdal
Stacy Glennon
Dale Eckstein
Victoria Wegeowski
Mark Seyler
Bob Francisco
Mike Troup
William Carpenter
Digby Morrow
Stephen Lawrow
James Wilkinson
James Tatman
James Schooner
David Pelinka
Angie Arndt
Alfred Littau
Mike Provant
James Alexander
John Branch
Benjamin Brown
Harold Clark
John Stendal
Carolyn Johnson
Computers, Etc.
Glen Carlson
Peter Abraham
Charlyne Demonnin
Sharon Olson
Lee Thannum
Terry Jenkins
Alvin Robertson

As membership Secretary, I wish to be accessible to you during the meeting. In order to decrease the noise during the meeting, I have moved to a table down front. I will be there from 6:30 p.m. on. Please do not come down during the actual meeting. Feel free to see me before the meeting begins, during the break, or right after the meeting.

I would like to make my stand on the issue of **our meeting place.** I support the back room during the meeting and, if we cannot have sales in the BPA building, I will support another meeting place that will allow sales (both private and business) at the least cost to PAC members. I am sure a vote will come up at the next meeting. **Please come!** We need a good representation of from our members.

Happy Computing!

SPECIAL INTEREST GROUPS
Tom Brown

BUSINESS APPLICATIONS SIG
Dates: 1st & 3rd Wednesday
Time/Place: 7:00 p.m. / Beaverton HS, Room 129
Leader: Tom Brown
Phone: 646-5237

BEGINNER'S ST SIG
Dates: 1st & 3rd Thursday
Time/Place: 7:00 p.m. / Tektronix, bldg 50
Leader: Richard Barhitte
Phone: 206-573-0299

GENERAL ST SIG
Dates: 2nd & 4th Thursday
Time/Place: 7:00 p.m. / Tektronix, bldg 50
Leader: Pat Warnshuis
Phone: 246-3724

MODEM & COMMUNICATIONS SIG
Dates: 2nd & 4th Monday
Time/Place: 7:00 p.m. / Call
Leader: Jerry Anderson
Phone: 655-3914

EXPLORER'S SIG
Dates: 2nd & 3rd Tuesday
Time/Place: 7:00 p.m. / Call
Leaders: Tom Comerford 246-4694
Wayne Winterbottom 669-1367

ASSEMBLER SIG
Dates: 1st & 3rd Tuesday
Time/Place: 7:30 p.m. / Call
Leader: Clyde Pritchard
Phone: 648-0461

NEWSLETTER SIG
Date: Wednesday following general meeting
Time/Place: 7:00 p.m. / Call
Leader: R. Deloy Graham
Phone: 649-6993

Once again, I would like the help of all PAC members in filling out and returning the questionnaire you received in the last newsletter. That information will help bring you the programs you would like!For information on SIG activities, call SIG leaders or Tom Brown at 646-5237.

SPEAKING OUT
Chuck Hall

I wish to take a few minutes here to respond to some things I heard during and after the last meeting. One item that needs immediate clarification deals with our use of the BPA auditorium. No matter what we say or do at this time, the auditorium soon will not be available to us. When their new building is ready later this year, the auditorium we are now using is going to be used for something else. Vern intended to mention this at the meeting, but we got off track a little and it did not come out. We have been looking for another meeting place for some time, and now we just need to intensify our search. We had some good ideas at the last meeting. If you know of other locations which might be usable, please give our vice president, Elanna, a call. I know she would appreciate it.We are attempting to find a place with seating for 750 or more, plus an access to additional rooms or space for swap tables.

Since we will not have to follow rules set by the government, which currently prohibit any commercial sales, this will alleviate many hard feelings and friction between segments of our membership. Anyone who wants to have a table or space to sell will be able to do so. This includes our local stores. Of course, all will have to be members of PAC, unless the seller is a special guest whom we have invited to offer you a special opportunity.

Let me clarify one statement that was brought up at the last meeting. A member stated that I had promised him a full year of selling privileges if he bought a club membership. What I recall promising was that as long as I was president, we would have backroom sales available. Now that I am no longer president, I cannot make the same guarantees. But as an Atari user and a club member, I am still defending your right to be able to sell your material as a club benefit.

Let me digress for just a moment here and give you an idea where I am coming from. When I first got my Atari 800, my wife and I ran all over town looking for software. We watched the paper for ads and in particular looked for software stores going out of business. In this way I was able to purchase much of my software at 50% and 75% off retail. I then passed the info I had on to as many people as I knew that were interested. What I'm trying to get across is that even though I am an officer of the club and do what I can to help out, my first priority is that of a user. I am looking for the best deal I can get on software, hardware, etc. The backroom fits perfectly into this view. This is your opportunity to score on software, etc., at reasonable prices. I usually do not find too much of interest there myself, but for a beginner or newcomer I'm sure it's a real delight. From a user's point of view, it is one of the best benefits offered by the club.Enough digression.

When we do find a place, it will probably cost us to use the facility. There was talk at the last meeting about possibly having to raise membership fees a little to help pay for it. I am totally against this at this time. If we have to pay for a facility, I suggest that whatever the monthly fee or share is, we dedicate that portion of our disk sales each month to cover it. We should open an account on our books for facility expense or rental and start building for next year. We currently should have enough in our bank account to cover this year. But in order for this to be successful we have to have good disk sales. We had great sales this past year and we need to continue that. If you have anything to contribute, whether material or time, please let Jerry Andersen know.

Another topic I got involved in after the meeting was the club's relationship with IB Computers. Some people have the feeling that IB, especially Jim Berry, has been trying to close down the backroom for a long time. In my dealings with Jim in the past three years, it has not been apparent to me that he has wanted to close it down, but instead that he has desired that those who sold back there did so under the premise for which it was set up. That premise is that if a person is selling software (especially in original packages) in large quanity, then he is a dealer and should not be allowed to sell there. That sort of activity is against the principle of the set up and, of course, in direct competition with the stores. And what is wrong with that? Nothing, except that authorized, established dealers, like IB Computers, are not allowed to do the same. I have to agree with Jim that not only

is it unfair, but that we are not being consistent in our policy when we allow it. The board is now in the process of establishing the policy in written form. Depending on where we move our meetings, the guidelines may be quite open and generous.

Another problem that has risen in the last two meetings is that a couple of individuals are openly selling pirated software and chips. This will not be tolerated. We will soon be adding verbage to the bylaws to the effect that anyone caught being involved in this activity will have his/her membership revoked and will no longer be welcome to the meetings. Again, it is the responsibility of our members using the backroom facility to police this kind of activity and report it to a board member. You do not have to become involved in the action taken yourself. That is why we have a Seargant-At-Arms.

One more complaint I hear is that, with four employees as board members, IB Computers seems to be running the club. I have a couple of points to make about that. The first is one we all know about. IB has been here and stuck with us through thick and thin. Nobody can argue about that. One way of thanking them for their past perseverance is to continue our patronage of the store. They are still being very good to the club and we need to remind ourselves to thank them for that from time to time. So I do so here publicly. Thank you.

During the meetings, we give all dealers an opportunity to come forward and pass on whatever they wish. Jim takes advantage of this the best way he can. He is in the know on what is going on with Atari and the software distributors, and he passes on much important information to us. He also makes it entertaining. All other dealers have the same opportunity. If they do not wish to avail themselves of it, that is their business.

Now for something a little more personal. There are some of us who are so enthusiastic about our Atari systems that we take every opportunity to get others interested, also. Last year when Neil Harris of Atari was here for the CES show, we took him out to Washington Square to do a little shopping. While there, I stopped in at B. Dalton's (probably the best computer book selection in town) and saw a fellow and his son looking at Atari books. I said, "hi," and asked him if he owned an Atari. He replied that he did, and I then proceeded to sell him on the Club. It happens often. Hopefully there are a couple of you out there who found out about us that way. Anyway, Neil and my wife were standing there and watching me. They could not believe what I was doing. Neil mentioned that they didn't have to worry about promoting their products up here. I was doing it for them. The point I want to make is that I am not the only one. There are several of us who are glad to help out and answer any questions we can. I do this by volunteering to be a board member, writing in the newsletter, and working with Special Interest Groups. One thing I enjoy very much is stopping by the Atari stores to see what is going on. While there I look at new software or hardware. I talk to employees, and I will join in and talk with customers or potential customers. I do not go to the store with the intention of selling anything, but because of my knowledge of certain products, and my excitement about them, I have been responsible for a few sales. And I am not the only one who has done this. You will find that those people who are really into working with the club and helping its members do the same thing.

So now you find those that help run the club also spending a lot of time at the store(s). When the Atari business really picked up, and IB found themselves unable to cope with the increased number of customers, where did they go for help? Right! The people who both had the time to spend at the store and knew the products well. I don't know how much these guys make, but they are not getting rich. Most of them are working to pay for computers of their own rather than for wages. I do know that they get a great deal of satisfaction out of it. (Of course merchandise discounts help also.) But they do enjoy themselves, and they are helping themselves, the store, the club, and you.If you do not like employees of a computer store as board members, then I suggest that, instead of complaining about it, you run against them next time, or find yourself a candidate to do so. In the meantime, I thank them for their interest and support.

One of the purposes of our club is to let you know what the latest in software and hardware is. You will find that it is usually a store employee who knows the most about something that is brand new. It makes sense to let them demo it to you, since they have to demo it all of the time at the store. We are always looking for people to demo products (old or new) at the meetings. If you would like to do this, then please contact Jim Berry and offer your help. He would really appreciate it, and so would your fellow members.

See you at the next meeting.

EXPLORER'S SIG
Wayne Winterbottom

During the month of March, the Explorer's SIG met twice. In the opening of the first meeting we had a discussion about printers and interfaces. For those of us that do not own printers, this was a very beneficial discussion, allowing us to compare various printers and interfaces owned by other members. After considerable discussion, the group decided that the Star SG-10 printer and 850 interface would be the most compatible with existing software and hardware. Given the difficulty of locating an 850, the Supra interface was suggested as a alternative.

Lee Bole, a member of the Explorers, followed the discussion with a demonstration of **Disk Keeper**, which is produced by ROYAL SOFTWARE in Eugene. **Disk Keeper** is a fine utility which allows you to index your software library and to print labels for your disks.

At our second meeting, Scott Burr, also a member of our group, prepared an interesting demonstration to show the group exactly what happens when you format a disk. Before that demo, all I knew about formatting was that I press the letter "I" from the DOS menu to format a disk. There is a lot more that happens to that floppy disk than we were aware (much more!). Thank you, Lee and Scott, for your fine demonstrations.

We welcome any member new to Atari computers to join us in explorinw the basics of Atari and beyond.

BUSINESS APPLICATIONS SIG
Tom Brown

At the March 19th meeting, Ron Chaffer will be finishing up a three part series on **PaperClip**, the word processor from Batteries Included. At the following meeting on April 2nd, Vern Vertrees will begin a study of **Letter Perfect**, a word processor from LJK.

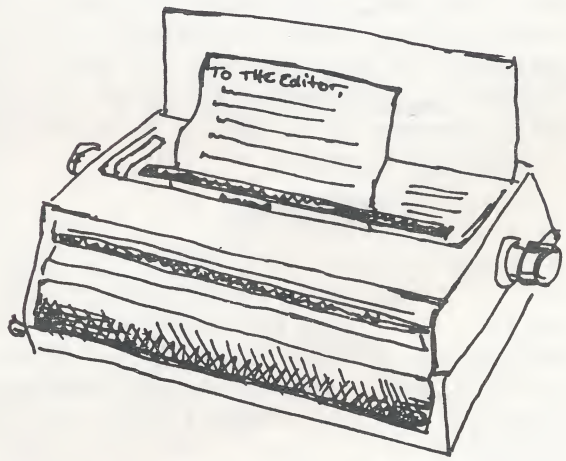
We invite anyone who wants to learn more about using business oriented programs, including word processors, spread sheets, and data base management software. Our current emphasis is on 8 bit Atari software; however, some ST owners have expressed interest in starting a similar group for the 16 bit computers. If you have interest in participating in such a group, please tell me.

OPEN LETTER TO THE MEMBERS OF PAC
Benjamin F. Brown V

I am asking the Portland Atari Club for support. The company I work for, Pacific Northwest Bell, and the Electronic University have teamed up to offer college courses via personal computers. I think this is great. Anytime I can use my computer to enhance my well being, the computer pays for itself.

However, in order to enroll in the Electronic University, you need to have a modem and a Commodore, IBM, or Apple computer. I hope you can see the rub. Please note that Atari, a far better machine, is not listed and not allowed. This is why other Atari owners and I are asking the Portland Atari Club for help. Possibly the club could communicate with Atari or the Electronic University, or both, and see if they could work something out. Perhaps Atari could push for IBM compatibility or something. There are thousands of Atari owners whose participation in home education courses could only help the Electronic University.

Atari personal computers are outstanding machines, and I would hate to think I would have to buy half the power at twice the price in order to take advantage of this program. We who are confronted by this problem will appreciate all the help the Portland Atari Club can provide.



PEEKING AROUND ERNIE NEGUS

By Vern Vertrees

If I ran into Ernie Negus right now he would probably give me one of his knock knock jokes (home made, of course), so this is to pay him back.

"Knock knock."

"Who's there," you ask?

"Ernie," I say.

"Ernie who," you ask?

"Ernie 'nough money last year?"

Oh, I know it's bad, but so are his, and I've heard quite a few lately.

Except for his jokes, I find Ernie to be exceptionally talented in many areas of the computer world. He has written several programs for the 8 bit Atari, including **Cornell Road** and **Copy 130**, which was the first program written exclusively for the 130XE to be published in **ANTIC**. Ernie got his start in the Atari world when he bought his Atari 400, Serial number 000056. For those of you who pay attention to serial numbers, you would find that this was very soon after they hit the market in Oregon. It had a whole 4K of RAM, so you can just imagine the sense of power he felt. To this day, Ernie has stayed with the 8 bit Atari, but certainly not with the 4K of RAM. He now owns three 130XE computers in different configurations, none of which are stock. If you were one of the lucky ones who got close enough to his 1 megabyte XE at the PAC meeting two months ago, you might remember all of those flashing LED's and the row of switches and ports not seen before on a 130XE.

You do not see much of Ernie at our general meetings because, besides working for IB Computers, he also teaches evening courses on computer repair at Reed College. This may explain why I was involved in showing you his computer. For those of you who were not there, I will explain this computer (or at least try).

To begin, besides having 1 meg of RAM, it has many items built in that you don't see, including an 850 interface, battery power, portable TV, modem, and five (5) operating system ROM's, including Omniview, Omnimon, XL-MATE, XL-BOSS and Atari XL/XE.

Now we consider the extra switches and ports. There are the operating system switches, the 128/1 meg switch, the modem power switch, the 850 interface power switch, the pill switch, and the battery charge switch. The ports include an extra keyboard port, a phone line port, and a printer port. The battery power for his Indus disk drive comes through the I/O port. The LED lights keep track of all port functions as well as the operating systems. Boy, is that a mouth full -- or should I say a computer full.

You may have noted in passing that I mentioned a Indus drive and a TV. Well, let me explain that. As unbelievable as it may sound this is a completely portable system. With the built in nickel cadmium rechargeable battery backup, Ernie can take this computer with him anywhere he wants to go, including to work on the bus, and at the same time (for at least two hours), he can load and run any program that he happens to have brought along on disk. Even though the TV screen is small (3"), the picture is of good enough quality to play a game.

There are two things that I don't think Ernie has accomplished yet. One is that while on the bus he isn't able to use the modem or a printer, but I think I once heard him mention using a radio telephone.

At the meeting, I loaded into RAM from a hard disk 120 frames of world maps drawn with ANTIC's **MAPWARE**. This ran so fast that what we saw was the earth revolving in space. Ernie wrote a paddle-controlled, page-flipping program that controlled the speed of each revolution. Using the paddle without the trigger allowed me to adjust the rotation speed, and holding the trigger down and turning the paddle made it possible for me to turn the earth in both directions manually.

Ernie also has his own bulletin board system, called BEE-CATS. For those of you out of state (Oregon), the number is 1-503-BEE-CATS (1-503-233-2287). This BBS system consists of the following: a 130XE with 2 megs of RAM which is divided into four 256K, 2042-sector ram disks, two 10 meg generic hard disks (7.8 meg each after format), and two ASTRA DS/DD disk drives plus two generic DS/DD drives which are controlled through the ASTRA drive's controllers. All of these come together through one SUPRA hard disk controller and one XEBEC hard disk controller multiplexed through a home-built appliance controller. All items listed in this paragraph are powered by a Tektronix Switching Supply. The software was written by Ernie and includes custom interfacing with 30K/second access time. Ernie uses SpartaDOS 3.2 to get it up and to keep it running.

At this point, it seems trivial to mention his Minnesman Tally Spirit 80 printer ("six years

continued...

(**PEEKING AROUND**, continued from page 7)

old and still ticking loudly"). But maybe you will find his super cartridge interesting. It has built-in Basic XL (version 1.02), Action, Mac65, and The Writer's Tool.

I won't go into his third 130XE, which is now under reconstruction, but I must mention that he still has his original Atari 400, which now has a Mosaic 64K RAM board, a built-in 850 interface, the PILL, the IMPOSSIBLE, and a full stroke key board including a ten-key numerical pad.

If I looked around and probed Ernie a little longer, I could probably fill another page or two, but I know Ernie and I'm sure I'll have another story later. I should also mention that in his spare time he does the 1 meg upgrade on the 520ST.

I have promised this article for two month's now, but after reading it I hope that you will understand why it was so long in coming.

Who will be the next subject for **Peeking Around**? May I interview you? Please give me a call at 1-503-647-2855.

THE NEWEST IN ULTIMA ADVENTURES
Review
Dwane Vertrees

It all started one day when I was alone at my computer. Dad had brought me **Ultima IV**, and I just made some time to play the game. Well, in went the game and reality went out the window.

I found myself by a stream next to a willow tree and I was already tired. Suddenly a flash of blue light and a high pitched sound captured my attention. Turning, I saw what seemed to be a door, but when I looked at it, it disappeared. I heard something drop with a thud, and further investigation proved it to be a folded cloth and some kind of cross with a loop on top. As I picked it up I found it contained not one, but two books. The cloth looked like some kind of map.

Well, it was time to find out just what was going on, so I sat down by the willow tree and began to read. One book had some strange writing on the cover and a mystic aura. I set it aside for a while and looked at the the other book. The cover of this book had written on it "The History of Britania as told by Kyle the Younger." I opened the book and began to read. After reading for a time, I got up and heard a strange music coming from over the hill. As I crested the hill I saw a fair where I had passed before. This fair had not been there before! The music was drawing me closer and closer, almost hypnotically.

As I approached, I could see that this was not just any fair. It was a Renaissance fair. When I reached the fair, a man started to ask me for an admission fee until he saw the ank (the cross with the funny loop on top), and then he stopped what he was about to say and told me, "Enter in peace and find your path."

With that welcome, I continued, still entranced with the music. The music lead me to a wagon off to the side of the main fair. When I entered the wagon an old gypsy woman offered to tell my future. After she talked for a while and asked me several questions, I found myself in yet another strange situation. This time I was lost!

After wandering around for some time I found a city and I entered. Well, this was where the game really began. I ran around the city and started my detective work. I asked everyone everything I could think of. This is where I started having problems. I found that by asking one key word and picking key words out of discussions that I could get the necessary information that I needed to continue on my Quest of the Avatar.

I would like to help more, but I haven't been able to make room in my time schedule to continue my quest. So far, I have made it in and out of a dungeon, and I can tell you it is much better than the old dungeons in Ultima I, my only other Ultima experience. The battlefields and the ship fights are much more visual, almost like Arcon.

One other hint or two. Watch out for the funny crashing sound when you go through a swamp. If you get poisoned, resting a lot on your way to town works to keep your hit points up until you can buy a healing. You need to ask in nearby towns for the mantra (chant for shrines).

Well, I hope that I helped some of you get over the bumps that were in my way without ruining the game for you. There is a lot that even I haven't seen or heard yet, so good luck to all and happy adventuring.

By the way, I feel this is the best adventure game that I have played so far in my year and a half of computering.

ASSEMBLY LANGUAGE COURSE
Lesson Six: Subroutines and the Stack

Chris Crawford

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We now take up the first topic in this series that is not absolutely essential to writing programs: subroutines. The loops and indexed addressing discussed in the previous lecture are truly essential: it is hardly possible to write a useful program that has no loops. Subroutines are a matter of convenience, not necessity.

It is quite possible to write an entirely adequate program without using a single subroutine. However, you will find that the convenience of subroutines with large programs is so great that you would never want to write such a program without them.

The primary purpose of a subroutine is to perform some function that is frequently needed at many points in the program. Instead of having to repetitively insert the same code over and over again, we simply write it once, place it in a subroutine, and call that subroutine many times from the main program. The use of subroutines dramatically reduces the size of a program.

Subroutines are implemented on the 6502 in a fashion very similar to that used by BASIC. You may recall the two BASIC commands for subroutines: "GOSUB lineno" and "RETURN". The two corresponding 6502 commands are "JSR label" and "RTS". The label in "JSR label" is the label of the beginning of the subroutines.

Thus, writing and using subroutines in 6502 is trivially simple. First, you write the subroutine. You give it a name (say, "MYSUBR") and stick that label in front of the first instruction. You put an RTS command after the last normal command of the subroutine. To call the subroutine, you just put JSR MYSUBR. That's all it takes!

However, in order to understand how it works is not so easy. Here's the problem we must solve when the 6502 jumps to a subroutine: the JSR instruction tells it the destination address to which the 6502 must jump. But when the 6502 hits the RTS instruction, how does it know the address to which it must return?

The RTS doesn't say, "Return to THIS address"; it says only "Return". Moreover, how could the 6502 know where to return? If the subroutine can be called from, say, five different points in the program, how would the processor know to which of those points it must return?

What if we gave the 6502 a special register for remembering return addresses? That is, whenever the 6502 encounters a JSR instruction, it stores the current address into its return address register. Then when it encounters an RTS instruction, it simply takes the address out of the return address register.

There is only one problem with this: what if we use nested subroutines (one subroutine calls another)? The second subroutine call will erase the return address for the first subroutine call. Trouble!

The solution to all this is called a stack. A stack is a chunk of RAM allocated for certain special operations such as subroutines. The 6502 stack is stored on page one -- that is, addresses $0100 to $01FF. The stack operates like 128 return address registers arranged in sequence (remember: two bytes per address). The 6502 keeps a stack pointer register to keep track of which byte in the stack is currently being used.

I will now trace through the operation of the stack in a subroutine. We start with the stack pointer set equal to $FF. That means that the stack is empty; the stack pointer is at the very top of the stack. The 6502 encounters a JSR instruction. It takes the current value of the program counter and breaks it into two bytes. It pushes the first byte onto the stack. This means that it stores the first byte at $01FF, then decrements the stack pointer. Now the stack pointer is $FE.

Then the 6502 pushes the second byte of the return address onto the stack, storing that byte at $01FE and decrementing the stack pointer to $FD. Then the 6502 jumps to the subroutine. When it encounters the RTS instruction, it pulls the two address bytes off of the stack (increments stack pointers and loads byte at address $0100,SP). Those two bytes go directly into the program counter, returning the 6502 to the original entry point.

The advantage of this approach is that it allows very deep nesting of subroutines. If one subroutine calls another, the 6502 simply stores more values onto the stack. The addresses won't be confused because you always exit subroutines in exactly the reverse of the order that you entered them.

(continued on page 12)

SPARTADOS CONSTRUCTION SET
Review
Clyde Pritchard

SpartaDOS ($39.95) from ICD, Inc., is one of several DOS packages available as alternatives to standard Atari DOS. When I talk about standard Atari DOS, I am talking about DOS 2.0 or DOS 2.5, not DOS 3. If anyone out there bought a 1050 disk drive with DOS 3 and hasn't yet replaced it with DOS 2.5 (or something else), do so as soon as possible. All or most of the alternatives to Atari DOS were created to support double density drives, although some of them also made themselves into CP/M or MS-DOS like DOS's. This means that some of them are menu based like Atari DOS, and others are command processor driven like CP/M and MS-DOS. **SmartDOS** and **MyDOS** are in the first category, while **DOS/XL** and **SpartaDOS** are in the latter, although both offer a menu option. Command processor DOS's do not have a DUP.SYS file (the menu) that loads when DOS is booted; instead, they load and give you a command processor prompt, which is the default drive number, **D1:**.

With the introduction of the 1050 and its enhanced density diskettes, and the 130XE and its extended memory, the need arose for DOS support of these features. Atari DOS 2.5, **MyDOS** 3.016 and **SpartaDOS** 3.2 each provide this support, but they do so in different ways. Atari DOS 2.5 gives you the basic support needed for enhanced density and extended memory, but it isn't flexible because the RAM Disk is set to D8 only. Also, it doesn't support double density capability. **MyDOS** 3.016 supports a RAM Disk that can be assigned to drive numbers other than D8, and supports many drive types and densities. Its enhanced density support seems to need some help in terms of interchanging disks with DOS 2.5. **SpartaDOS** (the focus of this article - believe it or not) also supports many drive types and densities, and has flexible RAM Disk support.

The **SpartaDOS Construction Set** gives you three different versions of **SpartaDOS** from which to choose. Version 1 is for the 400/800 systems and can be used on the XL/XE machines. Versions 2 and 3 are for the XL/XE systems only. All versions support the ICD US Doubler Chip for the 1050 drive, which gives the 1050 true double density and higher speed. The disk storage technique used by Versions 2 and 3 is also slightly different than those of Version 1.

When **SpartaDOS** version 1 came out, I felt that it was a poor choice because it used its own disk format, and didn't have built-in support for disks created by other DOS's, especially Atari DOS 2. I do tend to prefer a command processor DOS to a menu, but DOS/XL met that need and supported standard Atari format disks in single or double density. It still seems like a poor choice for the 400/800 systems, unless you have double density drives and want a command processor DOS that supports sub-directories.

Versions 2 and 3 are another story. They are very similar, the main differences being that version 3 supports BASIC XE from OSS and the 10 megabyte hard disk from Supra. They both have built-in support for standard format, single and double density disks, as well as read-only support for enhanced density. Actually, they will write to an enhanced density disk, but only to the first 720 sectors. They will not format in Atari enhanced density, but do support **SpartaDOS** format in enhanced density.

So here we are at the command processor prompt, what do we do now? How about a directory listing? Just type DIR <RETURN> and we see a directory list. It looks different than a standard directory list, though. Instead of filenames and sector counts, we see filenames, file sizes in bytes, and the date and time that each file was created. This is one of the features that makes **SpartaDOS** nice. It supports a real-time clock, either by use of a supplied clock routine, or an optional battery-powered clock. You can also have the date and time displayed at the top of the screen while in DOS, BASIC or other programs that don't use their own Display List Interrupts.

If you want to see file sector sizes, just use the DIRS command. To go to BASIC or another cartridge based program (assembler, etc.) use the CAR command. When you type DOS from BASIC, you get the command processor prompt immediately -- no waiting for DUP.SYS to load. What, you held down the option key when you booted and BASIC isn't there? Just type BASIC ON. Oh, you forgot to hold down the option key when you booted and want to run a program that won't work with BASIC installed? Just type BASIC OFF. How's that for ease of use?

So far, the commands that I have talked about have been internal or intrinsic commands. This means that they are built into DOS (loaded at boot time) rather than being external or extrinsic commands that are loaded from disk. Most internal commands can be executed without losing a program in memory, so you can do many DOS functions while doing BASIC programming without having to waste time SAVEing your programs. **SpartaDOS** has many internal commands, including COPY. COPY will destroy a program left in memory, but you don't have to wait for a menu or copy program to load.

To initialize (format) a disk in **SpartaDOS** format, you use the external command XINIT. First you choose the version/sub-version of **SpartaDOS** that you want written to the disk after it is formatted, or you can specify that you don't want DOS on the disk. Then, you specify which drive to use. Next, you specify the number of tracks and sides that your disk has. Then you give the sector size. Each of these steps displays a list of choices from which to pick. Next you are asked for a volume name. Each **SpartaDOS** disk should have a unique name. The next prompt is used only if you have the US Doubler on your 1050 and want the disk formatted for high speed access. The last prompt waits for you to press RETURN before starting the initialization process. After it is done, press RETURN to initialize another disk, or ESCape to return to the command processor prompt.

You can easily add **SpartaDOS** to a disk that was formatted with no DOS by copying one of the **SpartaDOS** versions to the disk and then using the BOOT command to create the boot sectors. The BOOT command can also be used with other stand-alone programs, such as binary game menus.

To initialize a disk in Atari format, just type AINIT. This is an internal command, and the only prompt is "Are you sure? Y/N". Density depends upon drive configuration. **SpartaDOS** cannot be written to Atari format disks.

SpartaDOS supports two RAM Disks, one in extended memory and one "under" the BASIC cartridge. The extended memory RAM Disk can be used in a 130XE, or on an 800 or 1200 XL system that has been upgraded with a kit from ICD. The manual doesn't talk about support for other memory upgrades. The RAM Disk under the BASIC cartridge is supported on the XL and XE systems. Each RAM Disk can be installed as any drive from 2-8.

SpartaDOS also supports sub-directories, which allow you to store more files on a disk and to categorize files to improve disk organization. This is especially important on high capacity disks. A sub-directory is basically a file that is a directory. Each directory can contain up to 64 files. The first directory on the disk is the main directory and is created when the disk is initialized. Sub-Directories are created as you need them with the CREDIR command. The main directory can contain multiple sub-directories, as can each sub-directory. This means that you end up with a hierarchical or "tree" structure of directories. To access a file in a sub-directory, you specify the "path" from the main directory down to the file in the sub-directory. Other commands to support sub-directories are DIR?, which shows the path to a specified directory; DELDIR, which deletes an empty sub-directory; CWD, which specifies the current working directory to save keystrokes and time in accessing files; and TREE, which shows all directory paths under a specified directory. TREE can also list the files in each directory.

In addition to the internal COPY command, **SpartaDOS** also has some external copy commands. The internal COPY command cannot copy files from one disk to another on a one drive system. SPCOPY allows files to be transferred between version 1 and Atari DOS. XCOPY is the version 2 and 3 complement to SPCOPY. It can also be used with version 1 as long as you are using only **SpartaDOS** format disks. XCOPY is smaller than SPCOPY, so you have a larger copy buffer. Both of these commands are very easy to use. You never have to type a filename. After you set the source and destination drives, the directory of the source disk is displayed and you scroll down the list "tagging" the files that you want to copy. If you tag a file and change your mind, you can "untag" it. You can go though the directory as long as you like, tagging and untagging files, before you start the copy process. DUPDSK is used to make duplicate copies of a disk. It works with one or multi-drive systems. SCOPY will do a sector copy of a disk, compact a full disk into a single file on the destination disk, or expand a file that contains a compacted disk back into normal format. It also works on one or multi-drive systems.

SpartaDOS has many commands to help you maintain your disk library. These are ERASE, which deletes files; UNERASE, which restores files you shouldn't have ERASEd; RENAME; PROTECT, which locks a file to prevent deletion; UNPROTECT; LOCK, which does a global protect of

continued...

(**SpartaDOS**, continued from page 11)
all files at the disk level; UNLOCK; CHVOL, which lets you change the volume name of a disk; and CHTD, which lets you change the date and time stamp of a file.

Other commands allow you to install the clock, set the date and time, install RS232 handlers for the 850 or ATR-8000, configure the RS232 port, redirect I/O, display file content in character or character/hex format, display memory in character/hex format, enable/disable a 32-byte keyboard buffer, check disk drive RPM, display disk volume information, load and run binary files, save memory to a file, turn write verify on or off, and several other even more esoteric commands.

SpartaDOS also comes with a binary file menu program that supports sub-directories. The back side of one of the master disks has this program and some public domain games to show you how it works.

The manual is 167 pages (plus a 36 page supplement for version 3) and is very well written. It has a lot of information for both the beginner and the expert. It includes information on using DOS functions from BASIC (including many new XIO commands for special **SpartaDOS** functions) and fairly detailed interface information for assembler programmers. This is the best DOS manual that I have seen for any Atari DOS. It doesn't have an index, but it is put together so that between the table of contents and the appendices, the user can manage without an index most of the time.

I don't care for the DOS menu program that comes with **SpartaDOS**, but I didn't want it anyway. It appears to be fairly functional, but I think that the command processor mode is what you should use with this type of DOS.

I have used **SpartaDOS** with several different programs, including **MAC/65**, **AMODEM** 7.1 under **BASIC XL**, **BACKTALK**, and many other public domain binary and BASIC programs with only one problem, which arose while using **BACKTALK** with the keyboard buffer is on. It worked fine with the buffer off. The possibility of this kind of problem was covered in the manual, so I figured it out right away.

ICD seems to have put a lot of work into making **SpartaDOS** a good product and into keeping pace with new developments in the 8-bit Atari systems. They have done a much nicer job with it than OSS has done with DOS/XL, and I appreciate their efforts. I hope you will too, so if you feel that **SpartaDOS** is for you, buy it, don't copy it.

(**SUBROUTINES**, continued from page 9)
You can use the stack yourself, if you wish. You have six instructions that allow you to play with the stack: PHA, PLA, PHP, PLP, TSX, and TXS.

The PHA instruction pushes the value of the accumulator onto the stack and decrements the stack pointer. The PLA instruction increments the stack pointer and pulls the current stack value into the accumulator. These two instructions allow you to store and retrieve values onto the stack. They must be exactly balanced, though, or you will generate that most feared of bugs, the stack crash.

Consider: you are in a subroutine. You push a value onto the stack, but forget to pull it off. When the 6502 attempts to return to its original location, it pulls two address bytes off the stack -- but they're the wrong two bytes. One of them is the value you pushed but didn't pull. Result: the 6502 return to the wrong address. You program goes haywire and the computer crashes.

This is called a stack crash. This type of crash tends to the particularly difficult to recover from. Prevention is the best medicine here. The rule for preventing stack crashes is simple and absolute: each and every push onto the stack must be balanced by one pull from the stack. Violate this rule and you will certainly experience a stack crash.

The next pair of stack manipulation instructions are PHP and PLP. These push and pull the process status register onto the stack. They are useful for two purposes. First, you may wish to save the values of the various flags before performing some operation, then restore them so that you can branch on a previously created condition. Second, it is sometimes handy to PHP, than PLA to get the processor status register into the accumulator where you can more directly manipulate it. Again, each push must be balanced by one pull.

The third stack manipulation pair of commands do not modify the stack. They are TSX and TXS. These transfer the stack pointer to and from the X-register. Once in the X-register, you can change the value of the stack value and then TXS to jump over sections of the stack. This can be a very handy way to pass parameters to subroutines, but it is also very tricky. If you make a mistake, you will generate a stack crash. So be careful with this one. I have always avoided these commands like the plague. They are very dangerous and never essential.

SNIPERFIRE, M.A.D., AND CUSTOM T-SHIRT MAKER
Review
Steve Billings

Pop quiz time! What do all the the computer program files in the title of this article have in common?

Give up? They were all written by a fellow Portland Atari Club member. His name is Robert Kabacy and he has been selling them at the club meetings for a while now. So far, these programs have been generally overlooked by the bargain hunters. They are a bargain, however. They are not only homegrown, but are decent, well-put-together games.

I need to retreat for just a second. **Custom T-Shirt Maker** is not a game. It is, as the title suggests, a screen image reverser and printer dump. I have to go out to see if I can find a thermal transfer ribbon for my Panasonic printer to really give this program a try. I will talk more about this next month if I can find the ribbon that will allow me to iron onto a t-shirt. I am kind of excited about it, though. If it comes out good, I will model it at a future meeting.

In the mean time, I can tell you about the games, **Sniperfire** and **M.A.D.** These two games come on one disk for $10. One game is on each side. They are both machine language loaded and appear to be compiled BASIC files. This helps speed up the action. The documentation clearly explains how to load and play the games and gives a little scenario as to each game's story line. I think Robert did a good job of putting the package together for a bootstrap programmer and marketer.

M.A.D. is an acronym for Mutual Assured Destruction. Yes, we are talking nuclear holocaust, folks. You are seated behind a console at the NORAD defense headquarters. Lights are flashing and the screen shows Soviet bombers approaching. You plug in your joystick and now have control of a particle beam disintigrater. You set in to stop the bombers, but they continue to fly in faster and thicker. They are staring to get past your defenses.....

Boom!

In **Sniperfire,** you jump into a firefight in the Vietnam jungle. You now control, with your stick, a rapid fire computer-guided machine gun. The enemy is hiding in the bushes. You can see the traces of their return fire and occasionally one makes a break through the trees.

Gun 'em down. If you let two escape or are hit by the the return fire the game ends.

I don't think anyone can win either of these games. It is more of a matter of how long you can last before the opposition overcomes you. You do get a score, though, and a little philosophy -- "War is hell" type stuff.

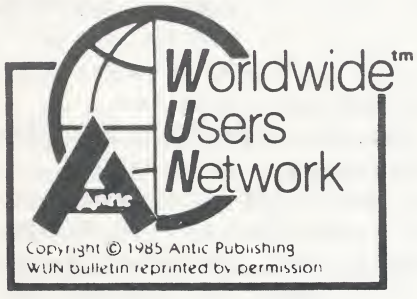
I wish the cursor could move a little faster in M.A.D. When the planes get past your location, there is no way to catch up with them.

These games are not real sophisticated 'chip shakers'. The graphics are good and the playability fair, but don't expect too much. These programs were not done by a software house in Southern Cal.

The games are violence oriented. Sniperfire is the more original game. I cannot remember seeing one with quite the same concept. I also liked the well-drawn background. Robert has shown some talent here, and I hope that he will continue to produce even better efforts on his Atari.

The club members should support this kind of effort. If we have a back room, look around for Mr. Kabacy and see what he has for sale. If you are even more adventurous, he also is hawking a product he put together called **Playdisk.** I don't think Playboy Magazine has too much to worry about at this time, but it is an interesting concept.

Next month I will report on my success with T-Shirt Maker. If anyone knows of a source for the ribbons, give me a call. I know they are out there, but I don't know what types of printers they are available for.



THOUGHTS ON PERSONAL PASCAL
Review
Rob Re

Reprinted from ABACUS Newsletter, February 1986, page 9.

At the last ABACUS meeting, we were treated to an excellent demo of OSS's new **Personal Pascal** software by Mark Rose of OSS. I was one of the lucky individuals that got my hands on one of the first copies of the package, and let me say up front that I am extremely impressed with it. First of all, the manual is one of the best to come with any ST software to date. With several hundred pages of documentation, including 138 pages on GEM alone, this language is one of the most usable to come out yet for the ST. I have been working with C for the last several months, and though I really enjoy programming in C, I have switched over to Pascal. With my C experience, I was able to learn Pascal in a week. Granted, I miss some of the features of C, such as easy use of pointers and the several ways I had discovered to cheat and get around the typecasting. Also, **Personal Pascal** is reportedly a little slower than C, but the ease of use of the **Personal Pascal** environment more than makes up for it. And besides, with the speed of the ST, even with the slight loss of speed, programs should fly.

The editor included is not GEM based, unlike the rest of the **Personal Pascal** environment, but I did not miss it at all. The editor is fast, flexible, and easy to use. Just to give you an idea of one the nice touches, an indent feature is included that you can toggle on and off. If it is engaged, then the cursor will return right under the first letter on the previous line, rather than the left margin, thus making nice indented source code a snap to write. All of the usual editor functions are supported, as well as full use of the function keys and the HELP. The only feature I miss is an easier way to cut and paste large sections of code.

The rest of the functions of **Personal Pascal** are GEM based, with menus and dialog boxes. No more remembering all of those commands. All you have to do is just click on the compile and link options you want, which are quite complete by the way. The compiler is a one pass compiler, and is thus faster than the C languages that most of us are used to. Also, if there are errors on compiling, you can have them saved to a file for later review, or have the program stop and display the line containing the error together with an English error message -- a novel concept. If the later option is selected, you can at this point select to go directly to the editor, in which case the source file is loaded and the cursor is placed on the line with the error.

When you compile a program, one of the options is full debugging. I did not fully appreciate this feature until I had a run-time error when I ran a compiled and linked program. Not only was an error message given, but the line in the source code where the error occurred was also displayed! This is a great tool that will definitely make debugging far easier. And after your program is fully tested and debugged, you can compile it without the full debug option to create a program with less code and faster operation.

As I alluded to earlier, **Personal Pascal** fully supports GEM, but the folks at OSS did not just give us all of the hooks into GEM and leave us to struggle on our own to find out how to use them, like that other company did with their C. The developers took the time to rework the calls, making them much easier to use than the GEM calls in C. As an example, to start a GEM application, only one command is used, Init_GEM. If you have been using C, then you will recognize this as a blessing. They have also eliminated some of the redundant calls. In effect, what the developers of **Personal Pascal** have done is take some of the pain out of GEM application development. Now I am not implying that they have made it a trivial task, for a lot of work is still involved, but I think they have done a great job of offering an excellent development environment that will allow most of us to create the GEM applications we have been wanting to do but up until now have not had the tools to work with. With only a book on Pascal and the OSS manual, I have already mastered dialog windows.

If you have been frustrated with Atari BASIC, Logo, or Hippo C, you finally have a viable alternative. And at $75 retail, I think that it is a deal, especially when you consider the documentation and the support from a company that cares. And if all of this is not enough, OSS is one of the few companies that has enough respect for its users that they chose not to copy protect the disk. Congratulations OSS, and thank you.

SOME NOTES ON THE OPERATINGS SYSTEM (TOS)

John Demar

(Exerpted from a letter on Compuserve, entitled Some Tips on the ST.)

It's pretty frustrating when I hear people talk about the ST's operating system. Here's a few definitions and clarifications on what's inside there. I'll start from the bottom up.

The **ST BIOS** (Built-In Operating System) is a group of functions to handle the lowest-level tasks in the ST. This includes simple input and output to and from the devices and other functions specific to the hardware. These routines are used by advanced programmers when more control or speed is needed. Since the BIOS is mostly specific to the ST, use of these calls will make it harder to convert the program to another computer.

GEMDOS is the medium-level set of functions that handles disk file management, general input and output, memory allocation and program loading. This set of routines is similar to CPM/68K but is NOT CP/M compatible (this has been one of the most common misunderstandings!). Although GEMDOS was written by Digital Rresearch Inc., the makers of CP/M, GEMDOS is closely related to MSDOS with similar function numbers and parameters.

Since GEMDOS separates the programmer from the hardware specifics, programs are more easily converted to other computers.

Another low-level set of routines is called the **Line-A Graphics.** These are very fast drawing functions used extensively by GEM and are also available directly to the programmer. The Line-A routines are responsible for just about everything you see on your ST screen. Use of these routines makes it difficult to move programs to other computers and it's very difficult (or impossible) to make them work nearly as fast on any other computer!

GEM itself is actually not an operating system -- it's a library of routines available to the programmer that manages the graphics display and the user interaction with the program. GEM is divided into two major sets of functions: the **VDI** (Virtual Device Interface) which handles higher-level graphics, and the **AES** (Application Environment Services) which are high-level libraries of routines for the user/program interaction.

VDI makes extensive use of the Line-A graphics to control the screen display with over one hundred available functions! The **AES** contains libraries of routines (totaling over a hundred, again!) that use VDI and GEMDOS. The programmer uses these libraries for a consistent environment between the program and the end user. GEM programs that do not make calls to the BIOS, are, in theory, completely portable to GEM on other computers, including the IBM PC.

The **GEM DeskTop** is actually a GEM application that runs by default when you turn on your computer.

Any or all of these routines, including the BIOS, can be ignored by another operating system loaded into the ST. I can't wait to see what kinds of systems become available for the ST! I hear there's definite plans for OS9 and other multitasking OS's.

ST SCREEN DUMP AND STAR PRINTERS

Mike Fulton

Reprinted from Atari Computer Association of Orange County's OrnJuce Newsletter, Volume 6, Number 11, page 15.

ST owners who have hooked up a **Star Micronics** printer, including the Gemini 10, Gemini 10X, and SG-10, may have noticed that using the built-in screen dump produces printouts with blank, white lines at various points. The reason is that the printout is designed for either Epson-compatible printers or Atari printers. On an Epson, a certain code changes the linefeed to x/216ths of an inch. But on the Star printers, this same code changes the linefeed to x/144ths of an inch. This is a very small difference, but it's big enough to mess up a graphics dump.

However, there is a possible fix. Some Star printers can switch between what they call the Star and IBM modes. Each mode interprets control codes a little differently. In the Star mode, the printer recognizes Epson-type control codes. In the IBM mode, the printer uses IBM-style control codes. The graphics commands are the same in both modes, with one important exception. In IBM mode, the printer will use the certain code mentioned above to change the linefeed to x/216ths of an inch, while in Star mode the linefeed is changed to x/144ths of an inch. So, change to IBM mode when you do your screen dumps.

FORTH
Tony Roth

The FORTH language has been called a "ghetto" language right along with BASIC. The C language has of late been called the new generation language, good for systems programming as well as normal software applications programming. Most C programmers will point to C's very efficient code production and readable program listings as two of its strong features. FORTH was created by Charles Moore as a language to control a realtime environment. Moore needed a system to guide the movement of telescopes. This heritage shows in its speed of execution. C is fast, but in large applications FORTH is much faster.

FORTH is, I feel, significantly easier to learn than C. I have programmed in C before, professionally and otherwise. I learned FORTH in a matter of months; conversely, I studied for years to completely learn C.

FORTH as a learning language is unique in that you are not hidden from the computer's inner workings. This has its pros and cons though. Unlike BASIC, in which one finds it rather difficult to make a program blow up, FORTH will give you ample opportunity to nuke yourself. At first, that is an annoyance, but this annoyance is quickly made up by the fact that any problem you do create can be quickly fixed. On the other hand, running a C compiler, at least on home computers, is quite a frustrating experience. Even the smallest program takes about five minutes to compile. The same size program in FORTH compiles in about twenty seconds. That is quite a difference in time!

FORTH makes things that are quite complex in other compiled languages rather trivial to implement. For example, linked lists, pointers, recursion, and even machine language are easy to implement in FORTH.

Another plus of FORTH is that the compiler is easily extendable. In fact, the entire FORTH environment is quite extendable.

If you would like to learn FORTH, I will be offering a class in FORTH for members of the ST SIG. Ten two-hour classes will cost $50.00. The classes will be held twice a month. We will study:

1) Getting Familiar with the FORTH Environment.
2) Variables. Two classes
3) Control Structures.
4) Use of the FORTH File System.
5) The Stacks (Parameter and Return).
6) Factoring and Good Programming Practice.
7) Vectoring Program Control.
8) FORTH and Real Numbers.
9) Assembly Language from FORTH.

Call 222-4999 for more information.

ST BASIC SPEED
Steve Billings

In the February issue of Compute magazine, there was a column dedicated to the IBM machines. The column was called IBM Personal Computing (original, huh). This particular article was about the advantages gained in processing time by compiling a BASIC program.

BASIC as found in the Atari XE/XL and ST is an interpreted BASIC. Each line of code of the application program that you are running is read by the computer and run through the BASIC language interpreter in the computer. The BASIC statement is converted into machine language and run by the computer. This interpretation process has to be done over and over throughout the execution of the application program that you are running.

In a sense, there are two programs running at the same time -- the application written in BASIC code and the BASIC interpreter which converts the BASIC code into machine language that can be understood by the computer. This is why BASIC is so slow. It takes time to process the code and then run it. A way to speed this up is to compile the program. When you compile a BASIC program the compiler coverts the BASIC code into machine language just once and creates a new program that can be executed directly by the computer without the BASIC interpreter being required.

The intent of the article in Compute was to compare the speed savings gained by compiling BASIC programs on the IBM. For a comparison they used the following program:

```
10 For I = 1 to 2000
20     J=I*I
30 Next I
```

Being a curious sort of person I wondered how my 800XL and the 520ST stacked up to the IBM AT and the AT&T 6300+.

Using an interpreted BASIC, the compared times are as follows.

From the article:		By my testing:	
IBM PC	8 seconds	800XL	
IBM AT	3 seconds	Atari BASIC	18 seconds
AT&T	2 seconds	BASIC XL	13 seconds
		520 ST	4.5 seconds

So you can see the 8 bit Ataris are on the slow side. The ST is better but it still looks like there is room for improvement. There is no reason I know of why the ST should not run as fast as the IBM AT.

Just for your information, after the IBM BASIC programs were compiled the execution times dropped into the 1 and 2 second range for the AT and PC respectively. So you can see the advantage of compiling a BASIC program if speed is your aim.

COMPUTER CHRONICLES AND THE NEW LITERACY
OREGON PUBLIC BROADCASTING

Computer Chronicles and **The New Literacy**, two television series presented by Oregon Public Broadcasting, KOAP-TV 10 Portland, KOAC-TV 7 Corvallis, KOAB-TV 3 Bend, and KTVR-TV 13 La Grande, aim their information at computer users and owners. They provide an overview of computers, their uses, and new trends in the field.

For the computer literate, OPB presents **Computer Chronicles**, a weekly information magazine airing Sundays from 12 noon to 12:30 p.m. Users of business and personal micro-computers, educators, and computer industry professionals can see, in action, computer innovations that otherwise they may only read about in computer magazines.

The series is hosted by Stewart Chiefet and Gary Kildall, and is co-sponsored by **BYTE** and **Popular Computing** Magazines and the American Federation of Information Processing Societies (AFIPS).

The New Literacy is a telecourse introducing computer concepts, system data flow, applications, design and programming. The bi-weekly series airs Mondays and Wednesdays 12:30 to 1:00 p.m. and repeats both programs on Saturday mornings, 10:00 to 11:00.

The course, which can be taken for credit through participating community colleges in Oregon and southwest Washington, documents the capabilities and potential uses of computers, reviews hardware and software systems, and examines developments that will advance information processing in the American marketplace.

Two years in the making, the series came out of the collaboration of 17 recognized computer experts from academia and industry, joining forces with television professionals. A textbook, Information Processing, and a student study guide are available for the course, through the community colleges.

For further information, contact Marjorie Floren, 295-6174.

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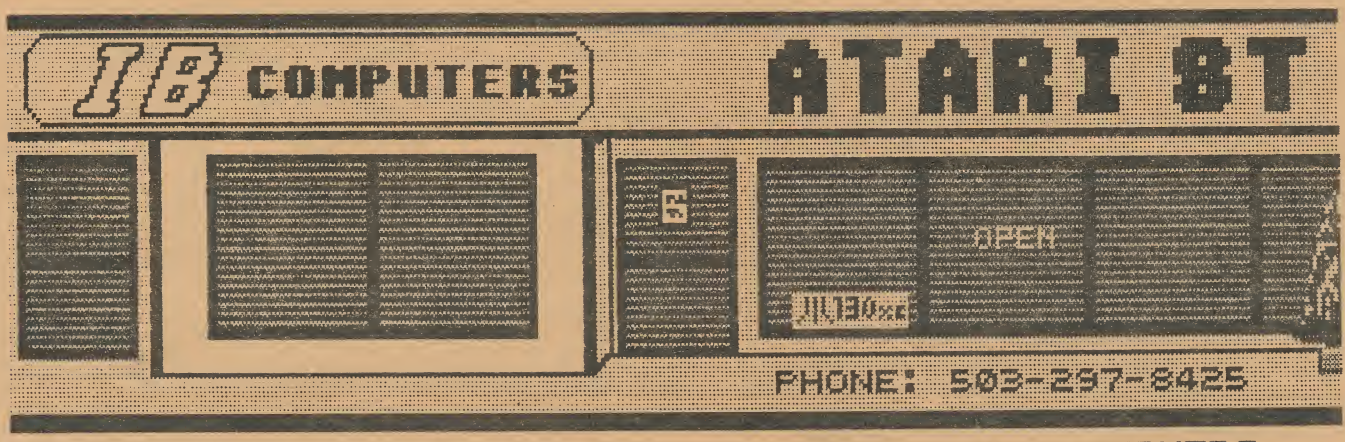

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