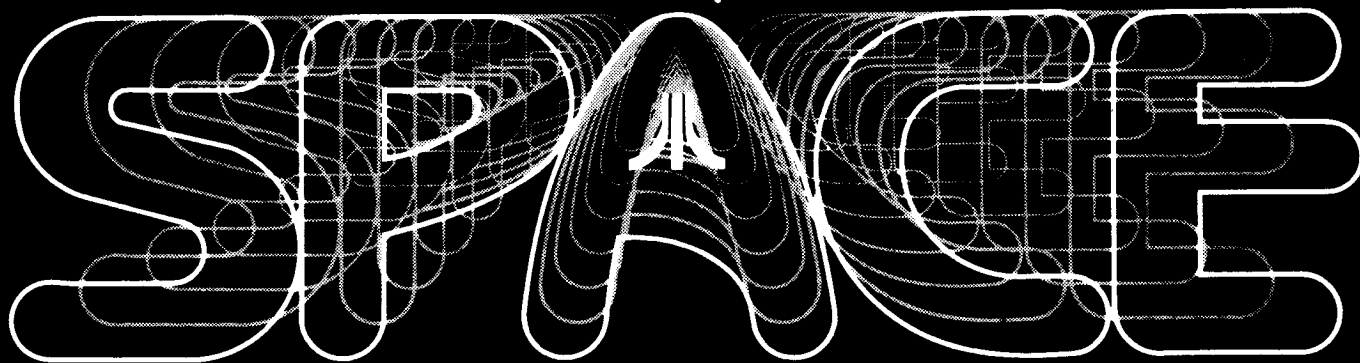


# Saint Paul ATARI Computer Enthusiasts



An independent computer user group

OCTOBER 1985

Next meeting: October 11th, 7:30 PM  
November Meeting: November 8th, 7:30 PM

Notice: Elections will be held at this meeting, try to make it!

If you have someone to nominate  
(especially for editor--still unfilled)  
contact one of the following:

Glen Kirschenmann 786-4790 or  
Sherm Dirkson 434-5254

Bob Floyd . . . President	487-2627	Jon Nelson . . . Editor	484-9027
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SPACE/TAIG Bulletin Board . . . 473-2897			

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**AT THIS MEETING:**  
**OUR ATARI REPRESENTATIVE**  
**CLUB OFFICER ELECTIONS**

**FEATURES IN THIS ISSUE:**  
**PART IV OF CHRIS CRAWFORD'S**  
**ASSEMBLY LANGUAGE COURSE**

**PART I OF A DOS TUTORIAL**  
**FROM A REMOTE SPACE MEMBER**

**THE MEANING OF ATARI FROM**  
**ANOTHER SPACE MEMBER**

**A SUMMARY OF OUR VISIT**  
**FROM BRODERBUND**

**ATARI 260ST SPECS.**

BYTES FROM THE PRES.

by Bob Floyd

**Atari Rep at Meeting** - The local Atari manufacturing representative, Charlie Devine of Continental Merchandising, will be at this meeting to demo ST software and answer our questions. A few of you left questions with me at the last meeting, which I have passed along to Charlie. Feel free to ask him other questions at the meeting, especially if they are related to XE, XL etc., since these could be missed with all the ST excitement. I have asked Charlie to demo the MIDI capabilities of the ST, but I don't know if he'll be able to do this.

**What about the XE/XL?** - It has been brought to my attention that the club is paying too much attention to the ST and not enough to the XE/XL/800 (8-bit) series. Since only a few members have ST's, we really should spend most of our time on the 8-bit computers. Unfortunately, most of the news has been on ST's and the October meeting will be heavily ST oriented. So, we should be more 8-bit oriented by November. I hope to help out on 8-bit in the Beginner's Group once I relinquish presidency.

**User Friendly** - User Friendly Computers has changed owners. They are very friendly and have a large amount of Atari software and hardware for both 8-bit and ST series. User Friendly also bought out the Schaak inventory of Atari software and is selling it at \$1.00 for cassette programs and \$2.00 for disk and cartridge programs. There are some good oldie-goldies there. They are also now an authorized Atari service center. Incidentally, Phil Seifert is now at Wizard's Work.

**What's Happening?** - SPACE and TAIG are selling Happenings books at the October meetings. These are the large 2-for-1 coupon books that many people purchase. We will have a listing posted at the meeting of retailers in the book. Joanne and I always buy one each year and easily get our money's worth on movies alone. See Joanne at the meeting to buy a book. Price is \$14.50 - this is \$2.00 less than suggested retail. The club will make a small profit on each one sold.

**BBS** - The BBS is up again, but on the old Foren software. A 130XE is being purchased by TAIG thru Wizard's Work at cost for the BBS (thanks Phyllis!). The switch to BBS Construction Set software will be made once the 130XE arrives.

**Misc.** - We received a disk back from Atari Computer Club of Denver in response to our mailing to them. We will make these programs available in the near future. I have purchased another book on "C" programming for the club. It is "Programming in C" by Stephen P. Kochan and is easier for the beginner. There are more examples and sample programs. Also, I think "King Tut's Tomb" from Antic Magazine is one of the best bargains around, and for a reasonable price. It is basically a clone of the arcade game Tutankamen. It must be mail ordered from Antic.

The last SPACE meeting was held September 20 with 85 people present. During the President's report, Bob Floyd thanked Gordy from Wizard's Work for arranging with the University to keep our present meeting room. With regard to recent news/rumors, he noted that the software company Datasoft has gone out of business. He also recommended buying printer supplies at the Computer Supply Store, noting that the store now has colored paper in stock.

During the Vice President's report, Bruce Haug said that the plan to purchase a ribbon re-inker is moving forward. The re-inker machine requires different adaptors for different types of ribbons. Which adaptors are purchased by the club will depend upon which printers are owned by interested club members. (If you are interested in this service and have not contacted Bruce to give him information about the type of ribbon you use, please do so at the next meeting.) Bruce also discussed the article in the last newsletter on "C" programming language. A "C" language compiler is available for purchase from the club, but people will need to read a book to figure out how to use the compiler. Bruce recommends a book by Brian W. Kernighan and Dennis M. Ritchie called The C Programming Language.

Max Feuer, the treasurer, reported that the club's bank balance is \$790.76 (minus outstanding bills) and that the membership count is about 100. Dick Johnson, president of TAIG, reported that the TAIG-SPACE bulletin board will be down until a new BBS system is put together using the recently purchased "Bulletin Board Construction Set". Dick also announced that he is interested in starting an ATARI ST group. Under old business, Bob announced that the Cloquet ATARI user's group SPACE has purchased most of our disk library and will independently distribute those disks to its members. Under new business, the nominating committee, which is responsible for lining up candidates for the November officer elections, was appointed. Sherm Erikson and Glen Kirschenmann volunteered to serve on this committee.

At the end of the meeting, Bill Holt, a representative of Broderbund software, demonstrated Printshop, Stealth, and Whistler's Brother. (He held several drawings during the course of his demonstrations, giving away these three programs as well as Loderunner's Rescue and Spelunker.) Bill also gave some background information about Broderbund, noting that most of their programs are written not by software developers but by individual users. He also made the point that Broderbund will be unable to continue to support ATARI if the present level of program piracy continues, since software companies don't make as much profit as we assume they do. With regard to new products, he mentioned that a Print Shop Companion is coming out with new fonts, new borders, and other features, and that a total of 4 graphics library disks will be available. A new Print Shop is also being developed which will allow capabilities such as viewing and editing cards, saving cards, putting 2 graphics on one side of a card, and putting graphics on the inside left of a card. New ST programs will include a Print Shop version from Broderbund and a spreadsheet and adventure texts from Synapse. (Broderbund recently acquired Synapse but did not take over product development.)

Missed by some people because the meeting was running late was a demonstration of Computer Eyes, a device for the 800, XLs, and XEs which can capture any picture coming into your video source. (The hardware plugs into joystick ports 1 and 2.) The sample pictures shown were impressive for their clarity and detail. The device was developed by TAIG member Jim Bergman and is now being marketed. He was offering the hardware-software package to club members for a discounted price of \$109.95.

ANALOG D.O.M.  
Bob & Joanne Floyd

We will have Analog Computing magazine disk for issue #35 at the meeting. Price is \$4.00 for registered Analog subscribers. It arrived 1 day after the last meeting. Apparently, the arrival will be a little unpredictable. The disk now comes with a menu program so that it will automatically boot up to the menu. DOS and DUP are also on the disk. We will have a set of "generic" directions to hand out that will be for all future Analog disks. See Joanne to purchase the disk. Also, you may order back-issues from #10 on up.

What does 'Atari' Mean?  
by Yoshio Satoh

When I first heard the word 'Atari' a few years ago, I thought the company must be Japanese. However, I was not correct. According to what I have read, the name was chosen since there are many Japanese company names which sound like American (such as Sony, NEC, Panasonic, etc.) and Atari liked the opposite. It would probably be true that it is the only genuine American company which name came from the Japanese language.

The word 'Atari' in Japanese means 'hit' as in 'a big hit' of a record album. It is a synonym of 'success'. Also, the word is used to mean 'bite' as in 'I've got a heavy bite' in fishing.

Atari's logo was made as the shape of Mt. Fuji. And the mountain's name means 'no two', or 'no other can compare with this'. Mt. Fuji is the highest mountain in Japan (3,776 meters).

Atari seems to have been proving the meaning of its name from the birth of the Atari 800 to the new Atari superb computers with incredible prices. When I decided to purchase my own computer about two years ago, I felt a 'heavy bite' from Atari computers' outstanding graphics capability for the price, as well as their other features as full-fledged computers. Since then I've been enjoying drawing a lot of pictures on the TV screen with my Koala Pad and also getting a lot of help from productivity-oriented software including word processing and database programs.

I hope Atari also means 'favorite partner' to you.

May Atari and SPACE live long!

BRODERBUND VISIT  
by Bruce Haug, VP

I did not take notes to write a report on the presentation given by Bill Holt from Broderbund at our last meeting. Here are a few points of information that stuck in my mind, and I think they should be repeated.

1. 85% of the programs produced by Broderbund are submitted by people outside the company--most of these people belong to USER GROUPS.

2. PROGRAMS submitted must be original ideas, be creative, and be complete with documentation etc.

The most important point Bill made, in my opinion, was "If you like a program - write a letter". Now if you dislike a particular feature or mode of operation of a program, "More of a reason for you to write a letter". Print Shop is being changed because of these letters. When you write be sure you mention you belong to a "USER" group. "USER" groups do have a say in the direction a software company develops new software, let them know what you would like to see in new programs.

What about other software companies, write them also, tell them the same things. Be sure to write them if you see a program for a computer other than ATARI and you want this program released for the Atari!--YOU can make this happen!!

I'm sure there were other good points that Bill Holt made, that joggled the minds of all of you, but the items listed above made me think of ALL SOFTWARE companies. After all Broderbund came to St. Paul-Mpls to talk to ATARI ! not IBM, Commodore, Apple, or others. They know we are important - Lets show them, and other software Companies we are IMPORTANT.

D.O.M. News  
by: Frank Haug

You people are making my job alot harder than it needs to be. SPACE has something like 100 members, so you'd think that SOMEBODY could donate a program to the DOM. Come on people, we can't trade for other programs if we have nothing to trade with. Thanks again to all those who have donated programs in the past.

This month's disk is an auto - booting disk. IT WILL NOT WORK WITH BASIC IN!!!! Those of you with one of the XL's or an XE should hold down OPTION. The menu uses the joystick and trigger to select and execute the programs.

Now on with the programs on the October 1985 D.O.M.

1. SMUSH - You must climb to the top avoiding or smushing the creatures on the ledges. As you climb you will pass objects like lunch boxes and the like. Picking these up give you extra men.

2. FROGGIE - Get your frog into its bunker across the street and the river.

3. CHOMPER - Eat all the dots avoid the monsters

4. ROUNDUP - Lasso all the cattle, don't let three get past you and don't forget the black calves.

5. XEVIOUS - Shoot all the people cars and gold targets that you can in three passes.

6. NORDIC - Ski to the bottom as fast as you can.

## 260ST Speculations by Bob Floyd

Perhaps some of you are waiting for the 260ST or 260STD to arrive before buying an ST. Here are a few things that I have figured out and I think are probably true.

Originally, the 520ST was going to have an output for television sets. You can see this chip in a photo from Antic magazine a few months ago. This chip was only incorporated in the pre-production models of the 520ST. I think when Atari started to consider what to do for an even lower priced ST, they to drop the TV output from the 520ST and include it in their 260ST/STD so people could get into an ST system for the lowest possible price (i.e., without monitor). So, here are a few considerations for those thinking of buying an ST:

1. The 260ST/STD does not come with a monitor, but will work on a TV. However, it will probably only work on your TV in the lowest resolution (320x200), 16 color graphics mode. This only allows 40 columns of text and may not be what you had in mind for your ST, but will be incredibly superior to TV graphics from your 8-bit machine. However, you can still buy a monitor to hook up to the 260ST/STD. Thus far though, you can only separately buy a color monitor from Atari, and it appears that the monochrome monitor is somewhat a special beast. So, don't count on being able to get a monochrome monitor.

2. The 260STD will have a built-in single sided mini-floppy disk drive. This is an advantage for desk layout and useability (the drive connector cords are too short on current outboard drives). The disadvantage is that if your drive needs servicing, the computer goes with it. Of course, if you only have one drive, it hardly matters. Incidentally, a 520STD with built-in double sided drive might be a very interesting product if Atari were to consider it.

3. The 260ST will have the operating system in ROM from the beginning. Eventually, the 520ST will also, and old models will be able to be upgraded. However, what if you want to load an alternate operating system? (I know this is unlikely). The 256K memory of the 260ST/STD may prove to be inadequate. (However, I'm relatively sure that we will see some memory upgrades available for both 520ST and 260ST/STD in the near future. The rumor is of a 2 megebyte RAM cartridge of some sort. The reason that more memory may be desirable is that BASIC is very big and with TOS in RAM also, there isn't much memory left. Perhaps BASIC could be put on a ROM cartridge - that would be nice.)

4. Here is a synopsis of the graphics modes:

- High-res (640x400) monochrome for the monochrome monitor only.
- Medium-res (640x200) 4-color for the color monitor only.
- Low-res (320x200) 16-color for the color monitor or, if you have a 260ST/STD, for a TV, too.

5. The ST's, both 260 and 520, are configured for Epson, the new Atari printers and Epson compatible printers. This means that the operating system expects to see one of these

printers when doing a screen dump. You can still use most any printer that your particular software permits. Most word processors allow you to set up codes for your particular printer. It is only for screen dumps that you may wish to have one of the printers listed above. My new Epson LX-80 works very well on the ST for screen dumps, supports near letter quality text and was reasonably priced.

I hope this has helped some of you make your ST decision. There is a lot to consider from this, plus your financial situation.

## USING DISKS WITH BASIC (FOR THE CURIOUS ONLY)

By Chris Copeland  
PART I

One blustery winter day last November I was playing Wizard's Revenge (from APX) and accidentally pushed the BREAK key. I was astonished to find that the program was written entirely in BASIC. It used the disk drive to look up all sorts of responses to commands typed in from the keyboard, much like Zork. How could you do something like that using BASIC? Unable to resist the challenge, I plunged into the program, got out my DOS manuals and books, and came up with the following conclusion: I needed help!

Fortunately for me, there wasn't any available, so I learned all about the BASIC disk commands on my own. This series of articles is for those who don't have time to figure it all out themselves, but would like to use the disks in their own programs. It's easy, just read on and type in all the examples.

Let's start like I did- without any explanation beforehand, let's look at a program that will read a file from the disk. First the program, then a line-by-line explanation:

```
5 REM PROGRAM 1
10 DIM A$(111):TRAP 60
20 OPEN #1,4,0,"D:FILENAME"
30 INPUT #1,A$
40 ?A$
50 GOTO 30
60 ?"END OF FILE"
70 CLOSE #1
```

Line 10 dimensions A\$ and tells the computer to expect an error when it reaches the end of the file.

Line 20 OPENS the disk file for reading. More about that later. Consider it the equivalent of pulling out a drawer of a card file, going to the beginning of the drawer, and getting ready to read.

Line 30 INPUTs a line of text (called a record) from "D:FILENAME" and puts it into A\$. Note: a record can only be 110 characters long. A paragraph of text from a text file is usually longer, so you can't read most text files with this program. There is a way, but it's not nearly as much fun as this.

Line 40 prints the record.

Line 50 goes back for another record.

Line 60- When the computer reaches the end of the file, an ERROR-136 occurs. Of course, this wasn't a mistake, we expected it. TRAP 60 in line 10 told the computer to skip to

line 60 in the event of an error. Take out the TRAP if you want to see this yourself.

Line 70- My mother is always telling me that if you break something, fix it, if you use something, put it back, if you make a mess, clean it up... Well, we opened something....

That wasn't too hard. This time let's write to a disk file record- by- record:

```
5 REM PROGRAM 2
10 OPEN #1,8,0,"D:MYFILE"
20 ? #1,"Record number one"
30 ? #1,"The Second Record"
40 ? #1,"You can put anything in a record!"
50 CLOSE #1
```

Line 10- Open the file for writing. Again, more on this later. One word of warning- don't use a filename that's already on the disk or it will be deleted.

Lines 20-40 Now we write something to the file.

Line 50- Never forget! If you have a word processor like AtariWriter or Speedscript 3.0, take break to load the file we just created. That's what it looks like... just what we told it to do.

If you don't (even if you do), go back and type in the first program (Do you think I actually beleived you would type it in?) and try reading MYFILE (change line 20). For those of you too lazy to type all that in, you're missing all the fun!

Now try the following changes to the last program-

```
1 REM PROGRAM 2.5
5 DIM A$(111)
20 ?">";:INPUT A$
30 IF A$="Q" THEN 50
40 ?#1,A$
```

- and use program 1 to read what you type. INPUT in line 20 works like it does in regular BASIC.

Ready for some more? Let's take a look at the OPEN command- what it does and how to use it.

Without getting too technical, I will try to explain how it works. Whenever your Atari communicates with a peripheral, it OPENS one of its eight Input/Output Control Block (IOCB)'s. Think of each IOCB as a channel to a peripheral. They are used to communicate with disks files, the printer, modems, the screen, the keyboard, or any other peripheral.

The IOCB's are numbered from 0 to 7. IOCB #0 is used for the screen editor, it can't be OPENed or CLOSEd from BASIC. IOCB's 6-7 are used for other things like CLOAD and graphics. The others (1-5) are reserved in BASIC for your use.

When you open an IOCB, you must tell the computer:

- 1) Which channel you want to open
- 2) What you want to open a channel to.
- 3) What you want the channel to do (read, write, or some combination of the two)

Let's look at the BASIC OPEN statement:

```
OPEN #x,command,0,"device:filename (disk only)"
```

"x" in the example above tells the computer which IOCB to open. The last paramater tells which device to open a

channel to. Valid device names are C: (cassette), D:FILE (disk), K: (Keyboard); and a bunch of others. The value placed in the "command" paramater tells the computer what type of operation is to be performed. The commands used with drives follow. The same numbers can mean something else to another peripheral.

4 opens the IOCB for reading only. We already used it in one example.

6 is very useful. It opens the disk directory (use it with the filename D:\*.\*)

8 opens the IOCB for writing starting at the beginning of the file. It creates a file if "FILENAME" doesn't already exist, or deletes it if it exists and is unlocked. OPENing locked files for writing returns an ERROR- 167.

9 opens the file at the end for writing, so whatever you PRINT to the file will be tacked on to the end. This can waste disk space if used too often, as every "append" (as it is called), takes at least one sector.

12 is used to open a file for both reading and writing.

Again, these numbers mean different things when used with other peripherals. Some commands can't be used with some devices- you can't read from the printer or write to the keyboard. Here we are only concerned with disks.

As I said before, when you OPEN a file, you MUST CLOSE it. If you don't, it may not appear in the directory, not all of your data will be written to the file, and all sorts of other yucky stuff can happen. You can't OPEN a file twice, either. OPEN it, do your stuff, and CLOSE it.

Now that your curiosity about has been raised, I'll leave you until next month, when we'll discuss two commands that can make your disk drive really work for you- NOTE and POINT. Until then, experiment with these commands and see what you can come up with.



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#### CHRIS CRAWFORD ASSEMBLY LANGUAGE COURSE - LESSON 4: BRANCHING

One of the most important ideas in computing is the concept of conditional execution. This is the ability of the program to execute different routines depending on conditions at the time of execution.

The significance of this capability is best realized by considering how programs would operate in its absence. A program without conditional execution would not be able to change its program flow in response to conditions.

In other words, it would always execute exactly the same code in exactly the same order. Every run of the program would follow exactly the same sequence and perform exactly the same operations. Not very interesting, right?

To get a grip on conditional execution, we need to look at it in its simplest expression. The simplest type of conditional execution is binary in nature. We have a chunk of code; the 6502 will either execute it or it will not execute it. The decision is made on the basis of a boolean value; a true value will tell us to execute the chunk, while a false value will tell the 6502 not to execute the chunk.

The basic mechanism for doing this is through an instruction that performs a transfer of control. This involves nothing more than altering the program counter. You may recall that the program counter is a register in the 6502 that points to the address of the currently executed instruction.

When that instruction has been executed, the program counter is increased by the length of the instruction (1, 2, or 3 bytes, depending on the instruction). It now points to the next instruction. This little system allows the 6502 to step through a program in sequence.

But there are also instructions that will alter the value of the program counter, allowing the 6502 to jump to another area of memory and another part of the program. The simplest of these is the JMP instruction. It takes the form JMP LABEL.

This loads the value of the LABEL into the program counter. Its effect is to make the 6502 jump to the address of LABEL and continue execution from there. It is directly analogous to a GOTO instruction in Basic.

For conditional execution we need something more. We need the 6502 to have capability to make a binary decision based on a binary value. The solution used by the 6502 involves flags. These are single-bit Boolean values stored together in a single byte of the 6502 called the processor status register (SR).

The status register is eight bits wide but stores only seven flags. These seven flags are labelled N, V, B, D, I, Z, and C. You have already encountered the C (Carry) flag and the D (Decimal) flag. In this chapter, we are concerned only with the N, V, Z, and C flags.

The magic instruction that makes possible conditional execution can take many forms. Its general form is BfV LABEL. The B stands for "branch". The "f" stands for a flag, and the "v" stands for the value of the flag, either true or false. However, in this case, we do not use the terminology "true or false".

Instead we use the terms "set" or "clear". "Set" means the same thing as "1" or "true", while "clear" means "0" or "false". The label is the address to which the 6502 should branch if the condition is satisfied. If the condition is not satisfied, then the 6502 will simply skip this branch instruction and go to the following instruction.

For example, suppose that we have the following instruction sequence:

```
LDA    #0
BCS    KARELIA
LDA    #5
KARELIA STA    FISH
```

This will first load the accumulator with a zero. Then the 6502 encounters the BCS ("Branch on Carry Set") instruction. It looks at the Carry flag. If this flag is set then the 6502 will indeed branch to the label KARELIA. (For all you geography buffs, Karelia used to be in Finland.) In other words, if the Carry flag is set, the 6502 will skip over the LDA #5 instruction. Thus, a zero will be stored into FISH.

However, if the Carry flag is clear, then the 6502 will not take the branch. It will instead continue executing the next instruction, which will load a 5 into the accumulator. Then it will come to the label KARELIA and store that 5 into FISH. Thus, the value of the Carry flag determines whether a zero or a five is stored into FISH.

The converse of BCS is BCC ("Branch on Carry Clear"). This will cause the 6502 to take the branch if the Carry flag is clear.

There is also a pair of similar instructions for the V-flag. These are BVS and BVC. They will cause the 6502 to branch on the value of the V-flag.

Now the situation gets unnecessarily confusing. The instructions for the Z-flag should be BZS and BZC -- "Branch on Z Set" and "Branch on Z Clear". Unfortunately, the dumb designer of the 6502 thought he would get cute at this point, so instead he called these instructions BEQ and BNE, for "Branch on Equal" and "Branch on Not Equal". He never mentioned what he thought is supposed to be equal to what. We're stuck with it, so make the best of it.

Just remember what these instructions really mean BZS and BZC. If you think in terms of the Z-flag, it will work out just fine. If you try to think in terms of equal or not equal, your attention will be diverted from the real truth of the matter and you may make mistakes. So keep your eye on the ball and think in terms of Z!

The next pair of branch instructions use the N-flag. These are even more insidious than the previous two. They are called BMI and BPL, meaning "Branch on Minus" and "Branch on Plus".

At first glance, these appear to be reasonable substitutions for BNS and BNC. After all, if you load the accumulator with a signed number, and the number is negative, then the N-flag will be set, while if the number is positive, the N-flag will be clear.

Thus, it would seem that BMI is truly equivalent to BNS and BPL is truly equivalent to BNC. This is the source of

many a bug in beginner's programs. Consider the following fragment of code:

```
LDA FISH
SEC
SBC GOAT
BPL POSANSR
```

This code is supposed to branch to POSANSR if FISH is greater than GOAT. And indeed, if FISH is greater than GOAT, then when you subtract GOAT from FISH, you will get a positive result, right? Not necessarily!

Suppose, for example, that the value in FISH is \$C1 and the value in GOAT is 1. When the 6502 subtracts GOAT from FISH, it will get a result of \$C0. Note that the highest bit of \$C0 is set to 1. This is the value that will go into the N-flag. In other words, even though FISH is greater than GOAT, the 6502 will not take the branch, and this code will fail.

The moral of his tale is, don't take those instructions literally. They are misleadingly named. When you see BPL, don't think "Branch on Plus", think "Branch on N Clear". Otherwise, you'll screw up someday.

By the way, the correct branch to use in the above problem is BCS.

Now for a catch with the branch instructions. A JMP instruction is a simple absolute jump -- you specify the target address and it goes there. The designers of the 6502 realized that the vast majority of branch instructions only go a short distance. They therefore decided to implement the branch instruction as a relative branch.

The machine code doesn't specify the target of the branch, it only specifies an offset. In other words, instead of saying, "jump there", it says, "jump so many bytes forward or backward." The allowable range is 126 bytes forward or backward. Thus, you can't branch anywhere you want, only to nearby locations. If you must branch further, reverse the logic of the branch and use the branch to skip over a JMP statement.

Here are a few review summaries, for more in-depth reviews of these and about 50 other excellent programs see your library.

InfoWorld Report Card				
ATR-8000				
	Poor	Fair	Good	Excellent
Setup	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Serviceability	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Summary

The ATR-8000 is a device that comes in three versions: one functions as an intelligent peripheral, another gives you a CP/M 2.2 computer and the third offers you an MS-DOS 2.1 computer. Version 2 also handles the functions of version 1, and version 3 can function as version 1 or 2. These packages are powerful and useful; take a close look at them.

#### Features of unit tested

- ☐ Z80A CPU; 8088 in add-on Co-Power board
- ☐ 16K RAM in Atari peripheral version; 64K RAM in CP/M 2.2 version; 256K RAM in Co-Power expansion
- ☐ Up to four disk drives: 5¼- or 8-inch, single- or double-sided disks
- ☐ MYDOS — Atari peripheral version; CP/M 2.2 — CP/M version; MS-DOS 2.1, CP/M-86 — Co-Power board

Suggested list price: Atari peripheral version, \$449.95; CP/M 2.2 version, \$599.95; Co-Power expansion, \$1099

SWP Microcomputer Products, Inc.  
2500 East Randol Mill Road  
Suite 125  
Arlington, TX 76011  
(817) 469-1181

InfoWorld Report Card				
SynFile+				
	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Summary

SynFile+ is a fine data-base-management system for use with Atari computers. It offers powerful features and is also easy to use. We'd like to see some on-line documentation, but beyond that reservation, we have only praise for this program.

#### System Requirements

- ☐ Atari computer
- ☐ 48K RAM
- ☐ One disk drive

Suggested list price: \$99.95

Atari Corporation  
1312 Crossman Road  
P.O. Box 61657  
Sunnyvale, CA 94089  
(408) 745-2000

InfoWorld Report Card				
AtariLab				
	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Summary

The AtariLab Starter Set with Temperature Module is an excellent hardware/software combination for studying science. It can be used by children and adults, at home or in schools.

#### System Requirements

- ☐ Atari computer
- ☐ 16K RAM

Suggested list price: \$89.95

Atari Corporation  
1312 Crossman Road  
P.O. Box 61657  
Sunnyvale, CA 94089  
(408) 745-2000

## WANT ADS

It is possible for members to place 'Want Ads' in this newsletter. The ads may be for selling used hardware, used software, tutoring services, or just about anything that has to do with Atari. The rates are as follows:

6 Lines	\$1.00	216 Letters
1 Line	.25	36 Letters

The following is a list of advertising rates for vendors or individual members.

Full page	\$18.00	7-1/2" X 10"
Half page	10.00	3-5/8" X 10"
Half page	10.00	7-1/2" X 5"
1/4 page	5.50	3-5/8" X 5"

All advertisements must be paid for when they are submitted. Deadline for ad placement is two Mondays before the meeting. To place ad or for more info, call the editor.



St. Paul Atari Computer Enthusiasts  
2589 Fisk St.  
Roseville, MN 55113

Meeting site:  
U of M St. Paul campus  
Office Classroom Bldg. rooms B-35 & B-36  
St. Paul, Minnesota

## B & D HOME COMPUTER SUPPLIES

1697 E. HOYT AVE.  
ST. PAUL, MINN. 55106  
(612)-774-6226

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10 FOR \$8.90**

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350 TO CHOOSE FROM  
OR  
ORDER CUSTOM MADE**

**SPACE BUTTONS  
WITH YOUR NAME \$.50**