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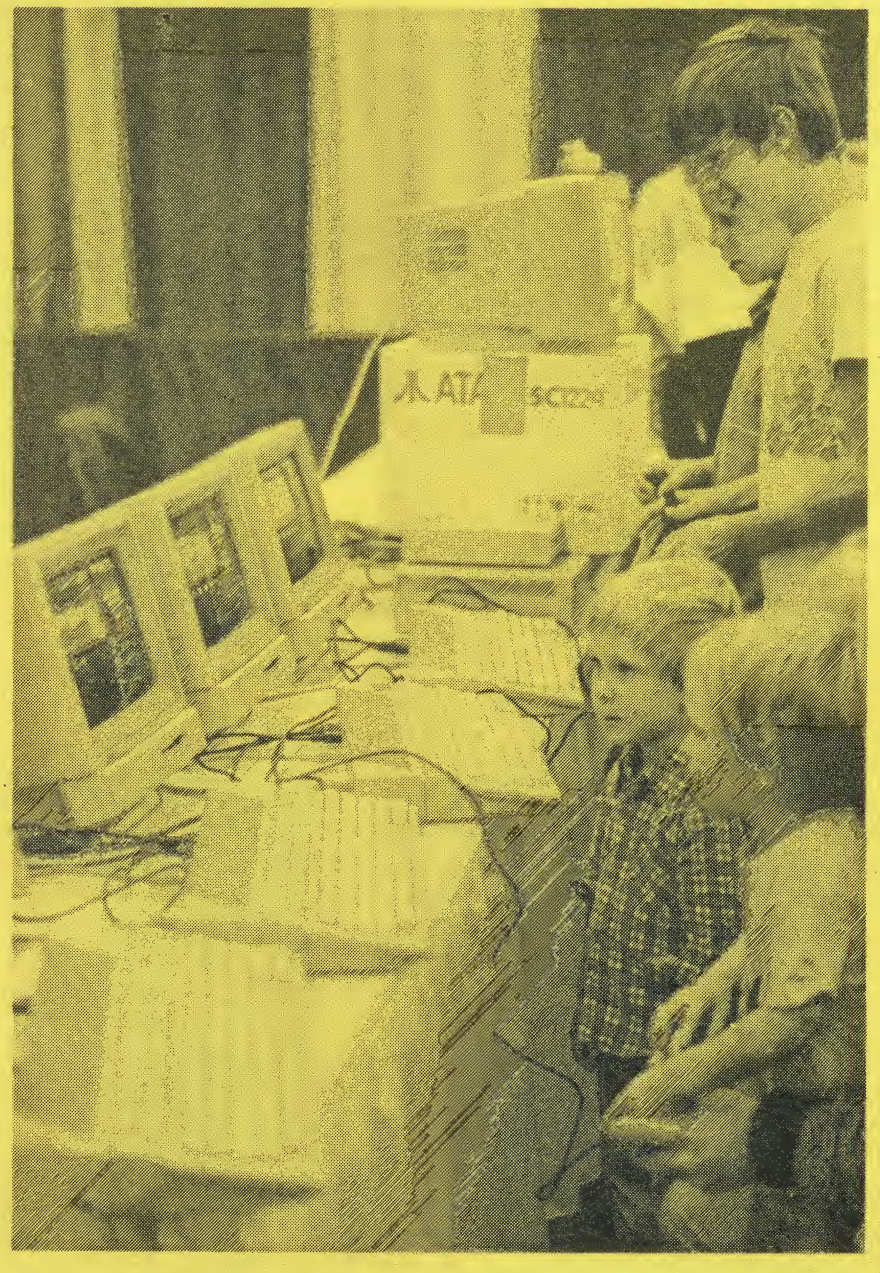
PORTLAND ATARI CLUB

NOVEMBER 1986



NEXT GENERAL MEETING

Monday, November 3, 1986, at 6:30 p.m.
Northwest Service Center, 1819 N.W. Everett St.

PAC Bulletin Board Systems: 24 Hours - 7 Days a Week

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(Not affiliated with ATARI, Inc.)

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Advisor:	Chuck Hall	626-3717

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 Material for publication may be submitted in the following formats: ST text files, Atari DOS II text files, LJK text files, printed, typewritten, or legible handwritten copy. Media may be sent to the editor at the address below and will be returned to the submitter. Contact the editor for instructions on uploading submissions to the PAC BBS.

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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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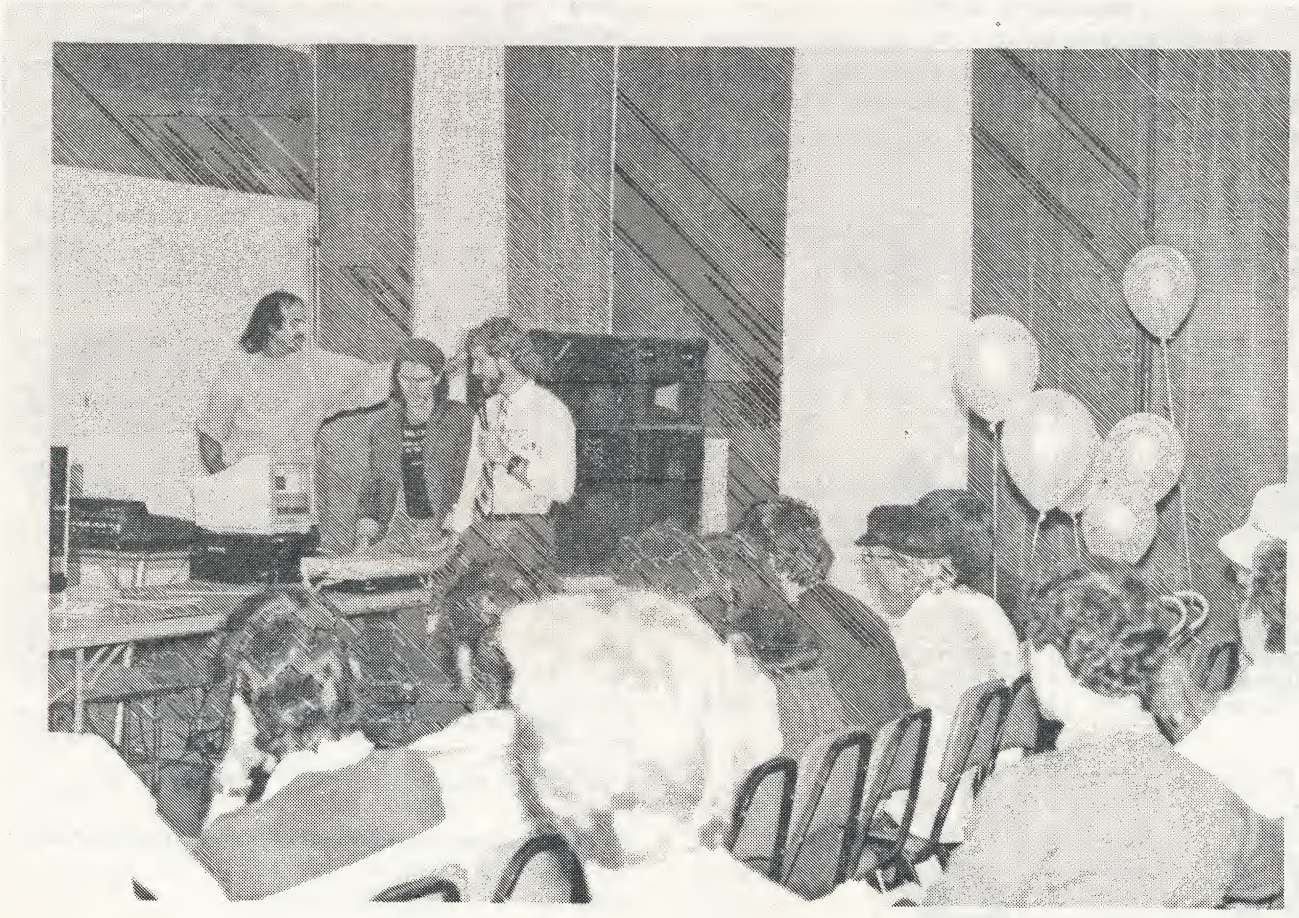

BOARD MEETING NOTES
Dan Gibson

The September Board Meeting was held at 7 p.m. on September 29th at IB Computers. Attending were the following: Dan Gibson, Chuck Hall, Tom Addis, Tom Brown, Steve Billings, Jim Berry, Jim Miller, Russel Schwartz, Jerry Andersen, Elanna Schlichting, Vern Vertrees, DeLoy Graham and Dean Wagner.

OCTOBER MEETING

The October general meeting will begin at 6:30 at the Northwest Service Center with PAC software sales until 7:00 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 around election of PAC Board members for 1987. There will be a question and answer period. Next, Vern Vertrees and Chuck Hall will give us an update on the Northwest Atari Expo. The local stores will have an opportunity to tell us what is new. The meeting will break and you will have the chance to see new software on systems that will be set up in front.

TREASURER'S REPORT

As of this writing, the balance in our checking account stands at $104. At the last meeting software sales totaled $110 and memberships $340.

PAC PEOPLE

MEMBERSHIP NOTES
Jim Miller

I wish to welcome the following new members and families to the PAC:

Steven Daniels	Dwane Vertrees
Steve Dong	Todd Henderson
Brenda Wilmarth	Christopher Nelson
Joshua Kaine	Marv Abe
Alex Chamberlain	Michael Whalen
Ross Davison	George Walker
Paul Ritzer	Casey Taylor
Mark Lyon	Chuck Bernard
Teri Williams	Vern Smith
Leonard Scott	Chet Bishop
Bill MacDonald	Ron Cardenas
Jack Elmore	Jeffrey Rogers
Michael Session	John Hays
Lee Nielson	Jeremy Bernhardt
Norm Piercy	Dennis Lionberger
Robert Chapman	Paul Spear
John Dahl	Fran Hoak
John Jubb	Milt Ingram
Arnold Neidert	Darrel Smylie
David Williams	Paula Bramwell
Gordon Shown	Noel Hemmerich
Doug Bowers	Wayne Knapp
Kenneth Ramsey	Larry Metzger
Del Gierke	Stephen Lovejoy
David Dillnier	John Christensen
David Linquist	Bill Hooper
Roger Yasui	Will Sheahon

It is a large list of new memberships because of our computer show this month. I thank all of you who worked in the PAC booth and got people to sign up for memberships.

I wish to encourage any of you who have an ST and know how to use **dBMAN** or are willing to learn it, to run for the office of Membership Secretary. There are also several other vacant offices for you to consider. The club relies on your input and help. It will be only as effective as we make it. Decide now to do your part!

****
*
* IMPORTANT DATES *
*
* Newsletter Deadline November 8 *
*
* Board Meeting November 24 *
*
****

SPECIAL INTEREST GROUPS

Tom Brown

8-BIT EXPLORERS SIG

Dates: 2nd & 3rd Tuesdays
Time/Place: 7:00 p.m. / Call
Leaders: Tom Comerford Phone: 246-4694
Wayne Winterbottom Phone: 255-8219

MODEM & COMMUNICATIONS SIG

Dates: 2nd Monday
Time/Place: 7:00 p.m. / Call
Leader: Jerry Anderson Phone: 655-3914

ST SIG

Dates: 2nd & 4th Thursdays
Time/Place: 7:00 p.m. / Tektronix, Bldg 50
Leader: Pat Warnshuis Phone: 246-3724

NEWSLETTER SIG

Next meeting: Wednesday, November 5
Time/Place: 7:00 p.m. / call
Leader: R. Deloy Graham Phone: 649-6993

Maybe suspending some of the Special Interest Groups during the summer was not a good idea. Now it appears not many if any want to start up again. I will try to get some idea what your interests are at the next general meeting. For information about SIG meetings and activities, call SIG leaders or Tom Brown.

****

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	626-6907
Cassette Operation	Lee Gassaway	642-2455
DOS Operation	Wayne Winterbottom	669-1367
FORTH Programming	Ron Chaffer	283-5691
	Ricky Wooldridge	224-7163
Operating System	Nick Yost	981-0838
	Leroy Baxter	653-1633
Pascal	R. DeLoy Graham	649-6993
ST General	Chuck Hall	626-3717
ST Fundamentals	Richard Barhitte	206-573-0292
ST Logo	Randal Schwartz	626-6907

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Vancover, WA 98684
(206) 254-5849

Computers, Etc.
12145 NE Halsey
Portland, OR 97230
252-0179

***Computron**
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Portland, OR 97205
224-2220

Computron
11705 SW Pacific Hwy
Tigard, OR 97223
639-6780

Creative Computers
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Beaverton, OR 97005
644-1160

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Tigard, OR 97223
684-3280

Computron Business Systems
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Portland, OR 97205
224-2220

SUPPORT

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DEALERS!

CANDIDATE FOR PRESIDENT
David M. Holliday

I guess no matter what it is, people like to have a choice. Whether it's chocolate or vanilla, Whopper or Big Mac, or 8 bit or 16 bit. It is for this reason I'm announcing my intention to run for club president.

I'm probably unknown to many of you so I'll give you a little history of myself. I've been an Atari owner for about four years and a club member for three. I was the Special Projects Director for the club in 1985. I have tried to remain active in the club including helping set up and work at the recent Northwest Atari Expo at the Coliseum.

I'll try to save the speech making for the appropriate time at the November general meeting, but I would like to take a minute to mention a couple of issues I feel are important.

First, I'm very proud of the club both in size and character. Past officers have worked very hard to get us up to the level we are today. However, lately I have seen a trend that I feel is of grave concern. Attendance at our meetings has been extremely low. Since I don't feel the newsletter can adequately cover everything, something must be missing in our meetings. If elected I would try to reverse this trend and give the meetings that extra boost that makes people want to come.

Secondly, I am a little concerned with the current club finances. The Treasurer's report at the last meeting and in the newsletter was distressing at best. The financial picture may have improved since the show but no matter, my primary concern would be to get the club back on a firm financial base.

There are many more issues important to the club's welfare and I've only mentioned a couple here. I hope to have a little time at the November meeting to talk to you so that you can understand what I think and give you the opportunity to make an informed decision at election time.

CANDIDATE FOR ST LIBRARIAN
David Roberts

This last year has brought all of us in the Atari community a great many things. We are proud to be part of a new generation of Atari users who want the best from their machines. I want to help meet those hopes by being next year's ST Librarian.

I started out with an 8-bit Atari and graduated to the ST for many reasons. One of the more important reasons was the support for the ST in the public domain. I would like to continue the excellent work of Dean Wagner and provide the club ST users with the most current and exciting programs available.

I am a dedicated ST user. I use no other machine. I have a large library of public domain software that I would like to be able to share with other users. I am also a steady modem user and I use all the local boards which will help me in my quest for finding new club software. With the help of the club I hope to be able to contact other user groups and possibly trade ST programs with them to increase our library.

Another idea of mine is to call the Atari BBS on a regular basis (provided there are funds for the long distance phone bill) and get any of the newest demos and programs directly from Atari. The Atari BBS is an excellent source of quality public domain programs.

I am an experienced Atari user and an active member of our club. I have been a member of our club for about two years, and I am now ready to take on the responsibility of the ST Librarian. I have most recently been invloved in planning and organizing our local Atari Expo and have had a lot of experience working with our current board members.

Finally, I just want to say that I want to give back some of the good our club has done for me with my contribution of time and effort to be the best ST Disk Librarian yet, and with your vote I hope to achieve that goal. Thank you.

SUBSCRIBE NOW!

THE NEW ALADDIN

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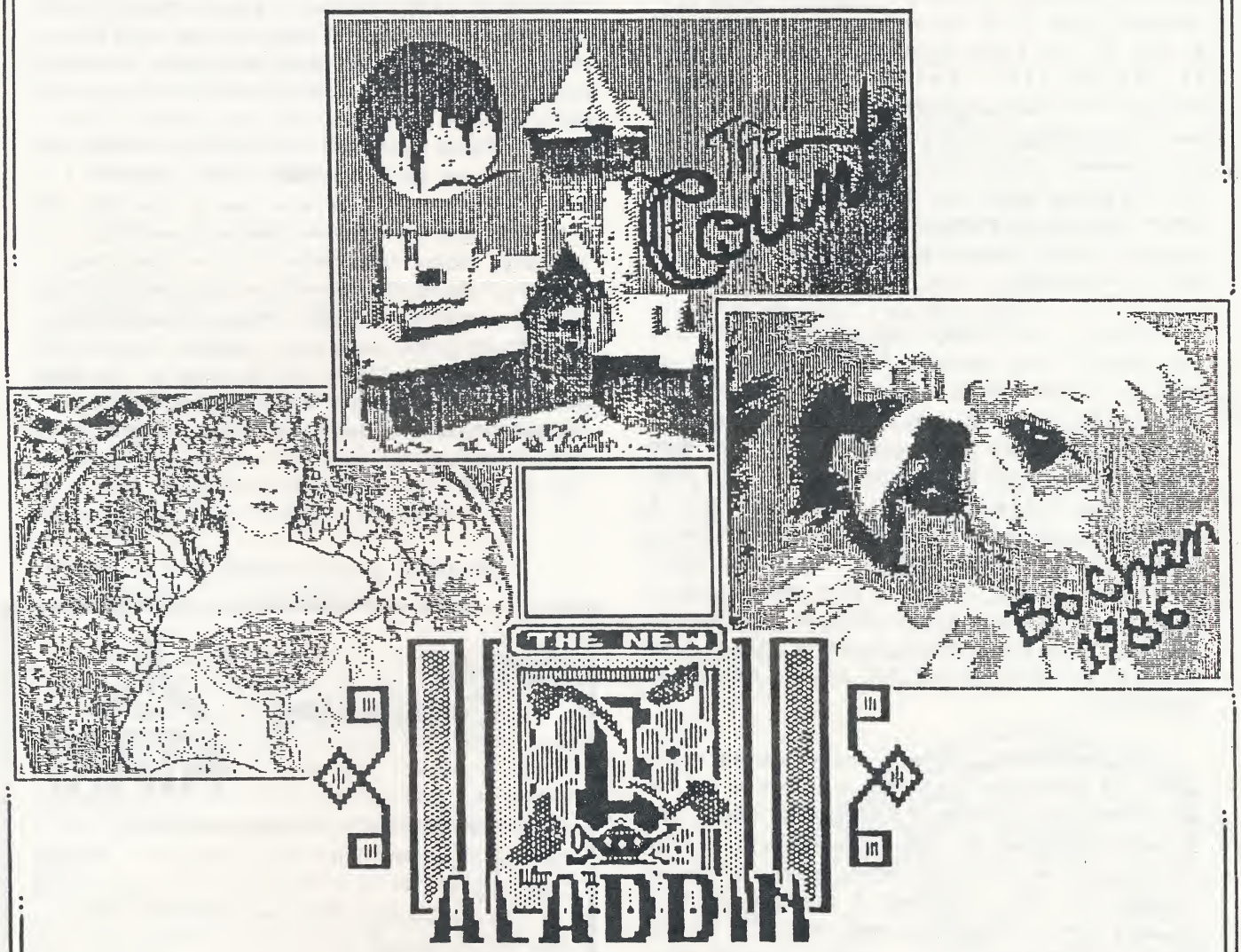

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REVIEW OF MICRO-TIME

(from Micro-Time Electronics)
Steve Billings, PAC

Last month there was an article about a user-installable internal clock for the ST. It sounded great to me and well worth the money. On my way to the store I stopped by the Atari Expo at the Portland Coliseum and--lo and behold--there was an identical clock for sale at one of the booths for $20 less.This clock is made by a company called Micro-Time Electronics. They are located in Merlin, Oregon. I have no idea where Merlin, Oregon, is. They probably sell baseball caps there that say "Where the h___ is Merlin, Oregon!"

Anyway, I am always one for saving $20, and of course "Buy Oregon First" is one of my mottos--I even have a sticker on my Japanese car that says just that. If you want to know about the product, read last month's review of **Mind Mine** and substitute **Micro-Time** for the words **Mind Mine**. The installation and performance is identical, except of course that **Micro-Time** is made in Oregon where they care more about their customers. And if you wreck your computer while installing it, you may be able to find Merlin, Oregon, on the map and go there to yell at them instead of driving all the way to Bellevue, Washington.

Unfortunately, I have one of those early model ST computers that has a capacitor in the way of the installation of the plug in board. The installation sheet for the clock neglects to give instruction on this problem, so I had to come up with my own fix. First hand, I can tell you that it is a very frightening experience to clip the wires to the capacitor and, using all ten thumbs, add little tiny wire extensions to the leads to get it out of the way. Whew! I did it myself, but, if you run into the same problem, I recommend finding someone else dumb enough to try it if you are not pretty competent with a soldering iron. This allows you the opportunity to sue them if they damage your hardware.The guys in the booth at the show said they would be happy to do it--just bring it on over to Merlin, Oregon, and they will install it for you. I think this is a good option, if you can find Merlin.

My only complaint is not against Micro-Time Electronics. Their product keeps great time, and it is a pleasure to see files saved with the actual date and time. My complaint is with Atari. If you load the Control Panel accessory, it zeros out the seconds and resets the clock to the last whole minute. This can loose you several minutes a day if you boot the Control Panel often, and you could be late for work. Atari needs to fix this bug. I am in the process now of removing the file from some of my disks and only booting it if I need to change the screen color or something.

The address is Micro-Time Electronics, P.O. Box 125, Merlin, OR 97532. Phone: (503)476-9590. The $29.95 price was a show special. I think the regular price is around $49.95--same as the **Mind Mine**. See, you should have turned off the game and gone on down to the show to get in on some of these great deals.

TIMER ROUTINE

D. F. Neff

Reprinted from the September MACE Newsletter

The most often used timer routine for BASIC Language programmers is a "do nothing" FOR-NEXT loop. This simply causes the computer to count to a given value without performing anything else. This routine is used for a time-delay device and looks like this example:

```
10 PRINT "Counting..." : FOR T = 1 to 800 :
     NEXT T : PRINT "DONE!"
```

This works well enough for general timer purposes but is very inaccurate. It also presents serious difficulties when a program is exchanged between a standard Atari and one with a high-speed operating system (Omnimon, Boss, etc.).

Fortunately, all Ataris have built-in clocks which run at a common speed and are accessible by the programmer. These realtime clocks are located at memory locations 18, 19, and 20. You can see them incrementing with this one-liner:

```
10 POS. 10,10 : PRINT PEEK(18), PEEK(19),
     PEEK(20), "   ": GOTO 10
```

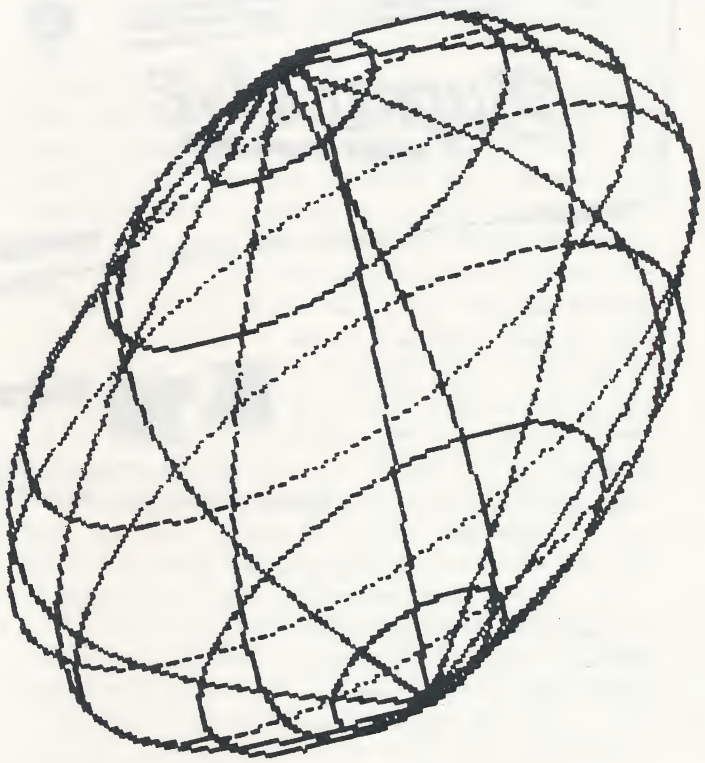
As you watch the display you'll notice that the value of PEEK(20) changes too fast to be read but PEEK(18) doesn't change at all. The value of location 20 increments 60 times per second until it reaches 255. Then the location 19 is incremented by one count and location 20 is reset to a value of 0. A similar relationship exists between locations 19 and 20. It would take almost 20 minutes for location 18 to be incremented if you left the above one-liner running.

We can write a simple, but reasonably accurate, timer routine using locations 18 and 19. Since location 20 increments 60 times each second we can get a rough count of seconds from Seconds=PEEK(20)/60. This works well until the fifth second which is longer than the previous four. That's because the fifth second starts counting from 240, rises to 255 and is reset to begin at 0 again. This adds a quarter of a second to every fifth second if it is not accommodated for in the timer routine. Each of the three locations can be reset to 0 by POKEing a 0 in that location. We can use that to reset location 20 and keep our seconds equal in length. Here is a sample of a timer routine using the internal clock:

```
10 REM Realtime Timer Routine
20 REM    by D.F.NEFF
30 PRINT "TIMING..."
40 GOSUB 1000
50 PRINT CHR$(125); "DONE!"
60 LIST : END
1000 REM ** 1 MINUTE TIMER **
1010 POKE 18,0 : POKE 19,1 : POKE 20,195 :
     POKE 752,1
1020 IF PEEK(20) < 195 THEN POKE 20,195 :
     REM RESET EVERY SECOND (255-60=195)
1030 POS. 10,10 : PRINT PEEK(19) :
     REM INCREMENTED EVERY SECOND
1040 IF PEEK(19) < 60 THEN 1020 :
     REM 60 SECONDS
1050 RETURN
```

If you compare this to your watch you'll find that the routine takes a little more that one minute. That's because of the internal delay as the computer executes lines 1030, 1040, 1050, and 50 at the conclusion of the program. You can adjust the poked value in line 1020 to compensate for this if you desire higher accuracy.

Now you have a timer routine that is more accurate than a FOR-NEXT loop and runs at equal rates on all Ataris. Timer compatibility at last!



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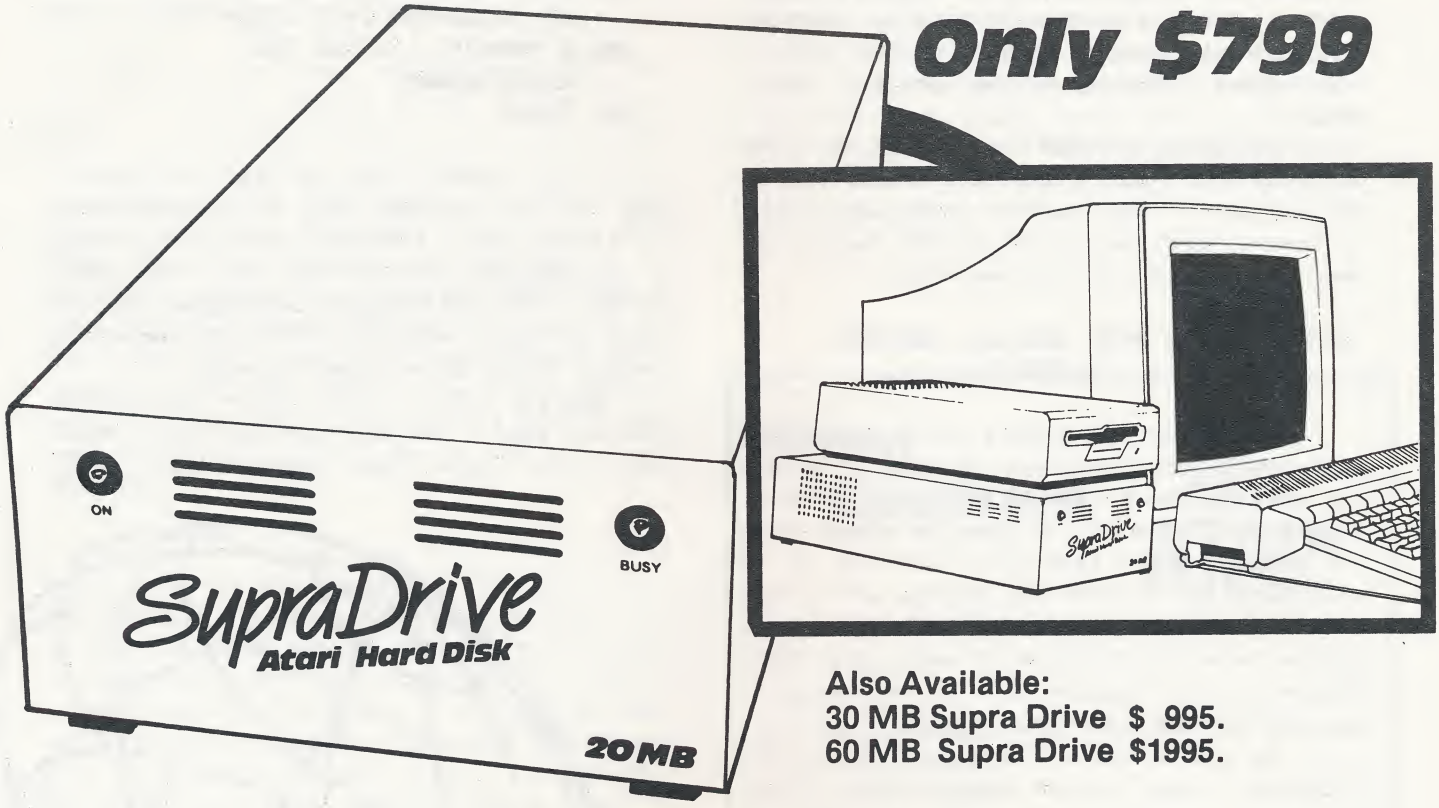

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A HALLOWEEN STORY: Or "Not a Cheap Clippy"

A Review of **Paperclip** from Batteries Included

Bill Pike, PAC

The MAD HACKER descends the creaking stone steps to his labor-it-tory (yes, I know it's misspelled--give me some poetic license!) with his faithful servant Igor (that's I-Gor, shades of Mel Brooks). There, on the work bench surrounded by old chips, burnt out chips, ruined chips, and a few stale potato chips, lie (are you ready for this?) an Atari 800XL and an Atari 130XE computer. The HACKER'S widow sits upstairs contemplating the big glass eye and considering what mayham to bring down upon her husband's head and shoulders if he doesn't leave those computers alone and pay some attention to her (the last sentence was added by one who outranks me).

Meanwhile, back in the workshop, Igor has obtained the vital parts for the creation of an improved computer--a handful of 256K X 1 ramchips. The MAD HACKER sits down with the printout of that mystical tome, The PAC HARDWARE DISK #1. He opens his tool box and takes out cutters, pliers, solder, and other implements of destruction. He removes a phillips screwdriver and begins to disassemble the 130XE. We will draw a kind curtain for the next hour or so, as it takes a strange and warped personality to take joy in the modification of a poor innocent computer.

As the curtain rises the computers are still there but they are changed. Igor has booted up MYDOS 4.2 on the 800XL and it has a RAM DISK. The MAD HACKER has increased the memory to 256K bytes. He boots up the 130XE and it has 320K bytes of memory. Igor speaks,"Bbbbut Master, the 130XE already had a ramdisk. Why did you add extra memory?"

"I just started and got carried away," says the MAD HACKER. "I guess that I'll just have to use the extra memory as a bigger ramdisk," the M.H.(MAD HACKER) responds dejectedly.

A glowing cloud appears at this moment (convenient for this story, isn't it?) above the bench, and a small glowing object appears. It is shaped like a 1050 disk drive with NO power cord. There is an inscription on the side which says "BATTERIES INCLUDED" (yes, that is why there is no power cord). The slot in the front of the drive opens and a disk floats out and enters the disk drive on the bench. The air shimmers again and the floating disk drive disappears, leaving behind mystical runes floating in the air that say "$49.95." The 130XE boots up and the title screen appears: "PAPERCLIP."

But as the M.H. looks closer, he sees "spelling verifier" and "128K memory enabled." The title screen disappears and the main screen comes into view. There in the upper left corner is the glowing word "FREE: 2767". Yes! Yes! YES! The program is using the extra memory in the 130XE. Igor and the M.H. dance around the work bench in jubilation.

If you think that I wrote the story just to get to this review of the new version of **Paperclip**, you're right. If you think that I am not playing with a full disk file, you may be right. Anyhow, let's get to the point.

Batteries Included has a new version of **Paperclip** out which has all the features of the old program plus a spelling verifier. It also uses all the extra memory you have put in your 800XL or 130XE computer. If you boot up the README file, you will find that if you are running an enhanced memory **Paperclip** reserves 90K bytes of memory for the dictionary disk, which by the way contains 37,000 words plus your own dictionary file. Yes, that is what I said. The dictionary for the spelling checker resides in RAM! Just you try to think of how fast a spelling check will go.

The rest of the enhanced memory is used for extra text file memory. This feature will be of importance only to those who have the memory enhanced 800XL's and 130XE's.

For the rest of you who don't have the enhanced memory (sob,sniff,sniff), the dictionary resides on disk and spins all the time you are checking. This checker is one of the fastest I have seen. It has one feature that may or may not be of advantage, depending on how you feel. You have to tell the program which words to save for your personal dictionary at the time you are checking, rather than at the end of the sequence.

There have been many reviews of **Paperclip** elsewhere, and if you have read them you already know that this is one of the most advanced word processors for the 800XL/130XE series of computers. It has the capability of doing just about anything that you can think of; however, because of this there is a long list of commands to learn. But on the plus side the commands that you use most often are <CTRL> sequences and are directly related to what you wish to do. For example, to choose italics you press <CTRL>-I.

By the way, the same protection technique is used for the new program as for the previous versions. The disk is unprotected but the program requires a hardware key in joystick port 2. The same key that works with the last version of **Paperclip** works with this version, also.

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DAY OF THE WEEK: ST Logo Version

Randal L. Schwartz, PAC

Hey, Chuck, I accept your challenge. And, just to show people that LOGO (including ST LOGO) is not just for kids, here's your "day of the week" program from the July 1985 newsletter in ST LOGO, of all things.

The LOGO language has its roots in a language called LISP. LISP is a popular language for Artificial Intelligence (AI) applications, because of its ability to handle arbitrary data structures, including data structures of arbitrary shape made during the execution of the program. LISP can also have programs that create other programs, and then execute them from within that program. (Try that in Pascal or C!) LOGO shares these capabilities, although nearly anyone that first starts playing with LOGO thinks just about "kids" and "turtle graphics".

For those of you that are somewhat familiar with LOGO, notice that this program does not use any "GO"s (like GOTO in BASIC or Pascal), "LOCAL"s (like local variables in Pascal), or "MAKE"s (like the assignment statement in many other languages). Although all these features are provided for in LOGO, I can demonstrate that you never need to use them to write any program. Try that in your favorite other language. The reason is that LOGO, like its parent LISP, can be thought of as a functional transformation language, where every operation of the program is just a subroutine that takes some inputs and passes on some resulting output. Although GO, LOCAL, and MAKE are provided to ease the transition from other languages (like BASIC or Pascal), they can be avoided, and actually make testing a program much simpler.

To run this program, enter the code using the ST LOGO editor, and say "MAIN". You'll probably want to resize your text window so that you can read the prompt and follow it with your response. For a fun, educational time, turn on TRACE, and resize the TRACE window to the full width of the screen. (I like running with my text window on the top half, and the TRACE window on the bottom half. I also peg my editor window in the same full-width bottom half.)

Although I used Chuck's awful expression to convert the month/day/year value to a day of week (just to try and keep the programs similar in some ways), there are better ways of doing this conversion, especially in a language like ST LOGO.

The program contains comments following the semicolons; they are not necessary for the program to function properly. Note that LOGO considers an indented text line to be implicitly joined to the preceding line.

I believe this program will also work on the 8-bit LOGOs as well, although I haven't tried it (my 8-bit is reserved for playing Flight Simulator).

Enjoy!

****

```
; Listing begins here...
TO MAIN                 ; Main routine.
PRINT GET.NAME          ; Do one conversion.
MAIN                    ; And repeat forever (CTRL-G gets you out).
END

TO GET.NAME                     ; Get a day-of-week name...
OP DOW.TO.NAME GET.DOW          ; by translating a day-of-week...
                                ; to a day-of-week name.
END

TO DOW.TO.NAME :DOW ; Translate a day-of-week number to a name.
OP ITEM (:DOW + 1)  ; Output selected item from this list:
    [Saturday Sunday Monday Tuesday Wednesday Thursday Friday]
                    ; (:DOW is offset by one because it comes...
                    ; in with Ø = Saturday.)
END
```

```
TO GET.DOW                  ; Get a day-of-week number...
OP MDY.TO.DOW GET.MDY       ; by translating a Month/Day/Year...
                            ; list to a number.
END

TO MDY.TO.DOW :MDY  ; Translate a Month/Day/Year to a day-of-week.
OP MDY.TO.DOW.A     ; Split apart Month/Day/Year into three...
    (ITEM 1 :MDY)   ; arguments so that we can look at them...
    (ITEM 2 :MDY)   ; separately.
    (ITEM 3 :MDY)
END

TO MDY.TO.DOW.A :M :D :Y ; Subroutine: figger out MONTH/YEAR...
                         ; adjustment.
IF (:M < 3)              ; If Jan or Feb, fudge one way:
    [OP MDY.TO.DOW.B (:M + 12) (:D) (:Y - 1)]
                         ; otherwise, just go ahead:
    [OP MDY.TO.DOW.B :M :D :Y]
END

TO MDY.TO.DOW.B :M :D :Y ; Subroutine: convert (possibly adjusted)
                         ; Month/Day/Year to day-of-week number.
OP REMAINDER (
        :D + (2 * :M) + INT (0.601 * (:M + 1)) + :Y +
        (QUOTIENT :Y 4) - (QUOTIENT :Y 100) + (QUOTIENT :Y 400) + 2
     ) 7            ; Chuck's Gawdawful formula, slightly LOGO-ized.
END

TO GET.MDY          ; Gimme a Month/Day/Year list.
CATCH "BAD.DATE     ; Set up a catch.  Run this list:
    [OP VALIDATE.MDY GET.RAW.MDY]
                    ; and return here if anybody throws back up.
                    ; Otherwise, return the MDY to the caller.
PRINT [Invalid date was input.]
                    ; Ooops.  Somebody must have thrown, so:
GET.MDY             ; try again.
END

TO VALIDATE.MDY :MDY     ; Did we get a good month/day/year?
IF (BAD.MDY (ITEM 1 :MDY) (ITEM 2 :MDY) (ITEM 3 :MDY))
    [THROW "BAD.DATE]    ; If bad, throw (caught in GET.MDY).
OP :MDY                  ; If all ok, pass it on.
END

TO BAD.MDY :M :D :Y      ; Does :M :D :Y represent bad combination?
IF (:M < 1) [OP "TRUE]   ; Month less than one?
IF (:M > 12) [OP "TRUE]  ; Month bigger than twelve?
IF (:D < 1) [OP "TRUE]   ; Day less than one?
IF (:D > DAYS.IN.MONTH :M :Y) [OP "TRUE]
                         ; Day too big for month?
                         ; (you could add more checks here...)
OP "FALSE                ; Made it past.  Must be OK.
END
```

```
TO DAYS.IN.MONTH :M :Y    ; How many days in month :M, year :Y?
IF MEMBERP :M [1 3 5 7 8 10 12]     ; get months with 31 days...
    [OP 31]
IF MEMBERP :M [4 6 9 11]            ; and then 30 days...
    [OP 30]
                      ; must be Feb at this point.  What kind of year?
IF (REMAINDER :Y 4) > 0         ; Not multiple of 4?  Non-leap.
    [OP 28]
IF (REMAINDER :Y 100) > 0       ; Multiple of 4, but not 100?  Leap!
    [OP 29]
IF (REMAINDER :Y 400) > 0       ; Multiple of 100, but not 400? Noleap!
    [OP 28]
OP 29                           ; Multiple of 400? Must be Leap!
END

TO GET.RAW.MDY       ; Output a non-validated MDY list, by:
OP STR.TO.RAW.MDY GET.STR      ; converting a string.
END

TO STR.TO.RAW.MDY :STR    ; Convert a MM/DD/YYYY string to MDY list.
IF (COUNT :STR <> 10)
    [THROW "BAD.DATE]     ; Bad if wrong length.
OP (LIST                  ; Convert fields to numbers:
        (S.TO.N PIECE 1 2 :STR)     ; MM part.
        (S.TO.N PIECE 4 5 :STR)     ; DD part.
        (S.TO.N PIECE 7 10 :STR)    ; YYYY part.
    )
END

TO S.TO.N :S          ; Generic string-to-number, with error toss.
IF (NUMBERP :S)       ; Only try to convert numbers.
    [OP :S + 0]       ; Convert by adding zero.  (Simple, eh?)
THROW "BAD.DATE       ; Throw up (hee hee) to GET.MDY if invalid.
END

TO GET.STR            ; Get me a string, not validated.
TYPE [Enter date #(MM#/DD#/YYYY#):# ]
                      ; Prompt user.  Note the "#"... it quotes the
                      ; following character to keep LOGO from treating
                      ; the character as a special.
OP RQ                 ; Hand back an unevaluated string.
END

; End of the program.
```

****

CORRECTION: Last month, I made a last-minute change to my Softworks BASIC version of the Day of the Week program that created a problem because I forgot to move a portion of the code. Specifically, the InitScreen routine on page 19 should have been moved into the subroutine area of the program; otherwise, the program will abort with a RETURN WITHOUT GOSUB error. Sorry! -- Editor

PERFECT RATIOS WITH DRAWINGS DONE IN BASIC

C. Gerald, SLOACE

Reprinted from the August 1986 SLO-POKES, pages 6-7

Have you discovered that vertical pixels are not the same size as horizontal ones? It turns out that the ratio is dependent on the resolution, as one would expect. Also, the size of figures such as circles or ellipses is measured in horizontal pixels. What this means is that a horizontal line tangent to the top or bottom of a circle has a distance from the center unequal to the radius with which the circle is drawn.

Here's an example. the statement CIRCLE 151,83,91 draws a circle that is tangent to the top and the bottom of the screen (in low res) and has its center at the midpoint of the screen, which is at x=151, y=83. It's radius is 91 pixels (measured in terms of x-pixels.) To draw a line that is tangent to the bottom of the circle requires a y-value, not of 83+91=174, but 166. This is because the y-pixels are about 10% longer that the x-pixels. (Using a multiplier of .9 on the y-value seems to work; but 83/91=0.912) Similarly, a line tangent to the top of the circle is at a y-value of 0.

Another way to illustrate this is to compute the points on a circle that coincides with the one drawn by the above statement. Here is a program segment that does just that:

```
DIM X(100), Y(100)
R=91: PI=3.1415926
FOR I=1 TO 100
X(I)=R*COS(I/50*PI)+151
Y(I)=0.9*R*SIN(I/50*PI)+83
NEXT I
FOR I=1 TO 99
LINEF X(I),Y(I), X(I+1),Y(I+1)
NEXT I
LINEF X(100),Y(100), X(1),Y(1)
```

The 0.9 factor when the Y(I) are computed is required to make the figure a circle rather than an ellipse.

In med res, the factor is 0.45. This is expected because there are twice as many x-pixels on the screen than in low res but the same number of y-pixels.

Another factor that one needs to know when text and graphics are combined is the relation between text lines and pixels. Some explorations showed me that there are 9 pixels per character in both the x and y directions. In both med and low res, there are 18 rows, numbered 0 to 17. (Row 18 prints but displaces the bottom border of the screen.) There are 34 columns in low res, numbered from 0 to 33. The result of this is the following relationships between pixels and column-row positions as given by the GOTOXY command.

GOTOXY:	Pixels (x,y)		
0,0	0,5	0,1	0,9
0,10	0,50	0,46	0,54
0,17	0,158	0,154	0,162
30,0	270,5	270,1	270,9
30,17	270,158	270,154	270,162
x,y	9*x,9*y+5	9*x,9*y+1	9*x,9*y+9
	-	-	-
pixel at:	center	top	underline of character

A challenge: what does the above table look like in med res?

One reason I wanted to work out these facts about graphics in BASIC was to compose a program that would create a pie chart. The listing below is what I came up with. The figure that accompanies this piece is a sample of the output. The 0.9 factor occurs in lines 420, 440, and 530, there tick marks are drawn to point to a label for each slice of the pie. In lines 540 and 550 the col-row versus x,y pixels relation is used. Line 560 saves labels to the left of the center of the pie back so they don't overprint the chart.

Another challenge: can you do a similar program in LOGO? I'll submit my solution to this for next month's newsletter.

```
10 REM does a pie chart (ST BASIC)
20 DIM V(20),L$(20),F(20)
30 CLEARW 2: FULLW 2
40 REM get inputs
50 GOTOXY 0,2
60 INPUT "Title (line 1)";T1$
70 INPUT "Title (line 2)";T2$
80 INPUT "How many items ";N
90 FOR I=1 TO N
100 PRINT "Value for item ";I;
110 INPUT V(I)
120 NEXT I
```

```
130 FOR I=1 TO N
140 PRINT "Lable for item ";I;
150 INPUT L$(I)
160 NEXT I
170 CLEARW 2: FULLW 2
180 REM calc total, fractions
190 FOR I=1 TO N
200 TOT =TOT+V(I)
210 NEXT I
220 FOR I=1 TO N
230 F(I)=V(I)/TOT
240 NEXT I
250 REM now do the pie chart
260 SA=360-F(1)/2*3600:C=1
270 FOR I=1 TO N
280 EA=SA+F(I)*3600
290 C=C+1:IF C=17 THEN C=2
300 COLOR 1,C,1,2,I MOD 3+1
310 IF C=4 THEN COLOR 1,C,1,3,5
320 PCIRCLE 150,100,50,SA,EA
330 SA=EA
340 NEXT I
350 REM tick marks and labels
360 A=0:C=1
370 FOR I=1 TO N
380 C=C+1:IF C=17 THEN C=2
390 COLOR C,C,1
400 CA=COS(A):SA=SIN(A)
410 X1=150+55*CA
420 Y1=100-55*SA*0.9
430 X2=150+60*CA
440 Y2=100-60*SA*0.9
450 LINEF X1,Y1,X2,Y2
460 GOSUB LBL
470 A=A+(F(I)+F(I))*3.1416
480 NEXT I
490 GOSUB TITL
500 COLOR 1,0,1:END
510 LBL:'does the labels
520 X=150+65*CA
530 Y=100-65*SA*0.9
540 ROW=((Y-6)/9+.5)
550 COL=INT(X/9+.5)
560 IF CA<0 THEN COL=COL-LEN(L$(I))
570 GOTOXY COL,ROW
580 PRINT L$(I);
590 RETURN
600 TITL:'does title
610 IF T1$="" THEN RETURN
620 GOTOXY 5,1
630 PRINT T1$;
640 GOTOXY 7,2
650 PRINT T2$;
660 RETURN
```

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