WORDPLAY

The PUNN Newsletter · Portland, Oregon

PUNN OFFICERS

PRESIDENT
TERRY PRIEST_____649-3934
VICE-PRESIDENT
MYRTLE CALKINS___636-1839
SECRETARY
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TREASURER
CAL OBERG_____357-8353

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SOFTCOPY LIBRARIANS
TED PETERSON_____244-1587
JIM THOMAS_____284-2425
HARDCOPY LIBRARIAN
MIKE CALKINS_____636-1839
NEWSLETTERER EDITOR
MIKE CALKINS_____636-1839
ADDRESS:
1215 S.W. CEDAR ST.
LAKE OSWEGO, OR 97034

BBS COMMITTEE

RON MAYER_____232-7363
MIKE KING_____357-4413
WALT MOREY_____239-5105
PUNN BBS_____232-5954
300-1200-2400,E/0/1,24hrs

MURPHY'S LAW
NO COMPUTER IN THE
HISTORY OF MANKIND
HAS EVER BEEN BURNED
AT THE STAKE BY A
PRIEST OR ANYONE
ELSE--YET!!!

From the President

TO ONE AND ALL--A VERY MERRY CHRISTMAS AND A HAPPY NEW YEAR!!! I HOPE YOU GET TO CELEBRATE WITH YOUR FAMILIES AND YOUR ORPHAN COMPUTER.

NEXT MEETING WILL BE A BUSY ONE. FIRST WILL BE THE ANNUAL ELECTIONS. SO WILL BE MY LAST MESSAGE AS PRESIDENT AS WE HAVE A TWO TERM LIMIT. PLEASE GIVE OUR NEXT PRESIDENT THE SAME KIND OF SUPPORT YOU HAVE GIVEN ME (I WILL BE RUNNING FOR ANOTHER OFFICE). FOLLOWING THE ELECTION OUR PROGRAM WILL BE A CONTINUATION OF TI BASE. WE WILL GET INTO THE NITTY GRITTY OF RELATIONAL PROCESSING AND MAYBE THE CONVERT SEGMENT. THEY WORK HAND IN HAND JUST LIKE THE REST OF THE PROGRAM. IF TIME PERMITS, CAL OBERG HAS PROMISED A SHORT GRAPHICS DEMONSTRATION.

MIKE CALKINS HAS BEEN CORRESPONDING WITH OTHER USER GROUPS AND WILL HAVE THE RESULTS OF THE SURVEY SOON. SOME USER GROUPS HAVE FADED AWAY AND A FEW PUNN INCLUDED ARE STILL GOING STRONG.

THE REASON PUNN IS STILL AROUND IS YOU. YOUR INTEREST AND FINANICAL SUPPORT CONTINUES TO MAKE PUNN A SUCCESS. SO MAKE IT A POINT TO LET EVERYONE HEAR FROM YOU--CALL THE BBS IF FOR NO OTHER REASON THAN JUST TO SAY HI! OR HAPPY HOLIDAYS.

IF YOU'VE FORGOTTEN YOUR PASSWORD DON'T BE EMBARRASSED IT HAPPENS. ALL YOU HAVE TO DO IS CALL RON MAYER AT HIS HOME NUMBER AND HE WILL BE TICKLED PINK TO GET YOU ONLINE AGAIN.

BY THE WAY DID YOU KNOW THAT YOUR TI IS MORE ACCURATE ON FLOATING POINT MATH OPERATIONS THAN THE FLAWED PENTIUM CHIPS? YUP, IT'S TRUE. PENTIUM HAS ERROR AT 9 DECIMAL PLACES. THE TI, WHILE DISPLAYING 10 DIGITS ACTUALLY KEEPS PRECISION TO 13 OR 14 PLACES INTERNALLY. DISPLAYING ONLY 10 DIGITS USUALLY WILL ELIMINATE CULMULATIVE ROUND OFF ERRORS. HOWEVER ALL COMPUTERS HAVE LIMITATIONS THAT CAN UNDER THE RIGHT CIRCUMSTANCES GIVE AN INCORRECT ANSWER. TRY X=2/3 -1/3 - 1/3. THIS WILL GIVE A NON ZERO ANSWER--1E-14, INDICATING A PROBLEM IN THE 14TH PLACE(ON A TI 99).

SEE YA ALL AT THE MEETING!

<TERRY>

MYRT'S MEMOS

As many of you may know, this year the club again held a food drive. The food that was collected was donated to our host organization, Neighborhood House, along with a check for $50.00. I had the pleasure of delivering all of this to the volunteer coordinator at Neighborhood House and was greeted with open arms. Now I have the pleasure of bringing you the heartfelt thanks of the Neighborhood House team for the contributions of food and money. The food went immediately onto the shelves for distribution to those in need, and the check was earmarked for the purchase of turkeys to go into Christmas boxes. It makes me feel good to be able to deliver a message like this at the Holiday Season.

I also think it is a good time to thank those who have done so much in the past year who have put so much of their time and energy into making our Club a truly worthwhile organization: Terry Priest for guiding us through another year, Walt Morey for keeping the membership list up to date, Ron Mayer and Mike King for their patient parenting of the BBS and Mike King, again for keeping track of our minutes, Cal Oberg and company for guarding our funds, Ted Peterson for setting up programs and to him and Jim Thomas for overseeing the softcopy library, and to Mike Calkins for ensuring that WORDPLAY came out every month and for accepting the contributions to the hardcopy library. Last, but not least, here is a thank you to all of you members, far and wide, who continue to support both PUNN and the TI99/4A. We need everyone to continue putting out some effort if the club is to remain active.

Now to a bit of housekeeping news. I managed to get an OK for us to use the room at the Senior Center on Monday night in spite of the fact that the Multnomah Art Center itself will be closed. However, we only have permission to be in the Senior Center itself. This means that anything beyond the swinging doors in the hall (i.e. the Coke machine) is out of bounds. A word to the wise, they say, is sufficient. If you can't get through the meeting without a soft drink, BRING ONE FROM HOME!!!! LAST BUT NOT LEAST there will be no janitorial service, so we must be extra careful to leave the room in good shape for the next day.

THE CURMUDGEON SPEAKS

Well from the editors point of view we may not be doing so well. I have one heck of a time getting people to keep their word and get articles in on time. Everyone is so nice about going through WORDPLAY and finding every goof I make and no one ever hesitates to tell me how late I was in getting it out. But every one thinks I'm just a mean old meany if I get the slightest upset about not having every thing on hand when I start the layup.

The problem and the reason I get so upset is that until I have everything on hand there is no way for me to alot space. It's like trying to buy carpet for a house before the architect decides how big the rooms will be. Well enough said on that point.

Now as to who does all the work. It's the same bunch year after year believe me we would very much like to have someone ask for our jobs and I think most of us would gladly step down. An organization like PUNN is a good learning experience. Not only that it looks great on a Resume to say I sereved as the president of the P.U.N.N. computer society or I edited a computer news letter. Come on people lets get with it.

Mike C.
THE REST OF THIS PAGE IS DEDICATED
TO THOSE WHO SHALL BE UNNAMED.

Hi-Res Graphics Part V

(Fifth in series by Ann Dhein. This series reviews the various drawing programs that allow the user to create graphics by turning on (or off) the smallest addressable unit of the screen- a single pixel.)

Four of the programs have the ability to magnify a small part of the picture you are working on so that it temporarily fills the screen. This allows you to work on small details with a high degree of accuracy. Joy Paint call this mode "fatpixel", Paint 'N Print calls it "magnify". TI Artist and Graphx call it "zoom". Joy Paint also displays a normal sized version of the graphics in the upper right corner of the screen so that you can see what your changes are going to look like as you make them. TI Artist lets you use other drawing functions while in the zoom mode - even to making a zoomed hard copy or saving to disk. While in the zoom mode Graphx provides a marker to show where color boundaries begin and end. If you happen to be using the grey checker board pattern used for marking color boundaries in Graphx, it will still be present in your zoomed in copy.

Paint 'N Print has a high degree of magnification. Each pixel is shown as a square eight times its original size. Each square is outlined in a fine black line and each block of 64 are outlined in a bold black line. The bold line marks the color boundary for each character block.

When the zoom function is chosen Joy Print, TI Artist and Graphx all let the user choose which part of the screen will be zoomed by showing a box with which to enclose the desired area. In the Paint 'N Print environment, the place where the cursor is sitting when zoom is chosen becomes the central point of the screen, with the screen then acting as your "window" to a small but highly magnified part of the drawing. All of the drawing is accessible by scrolling it by this point, but the cursor never moves.

Most drawing packages have provisions for setting aside part of a picture and later adding it to another picture. This "scratchpad" memory can be handled in two ways: by saving a permanent version of the clipped picture onto a disk which you can reload as needed; or by storing the picture-part in intermediate memory where you can recall it when you need it, even though you have loaded new picture files in and out of the program since the picture part was saved.

When this type of picture-part is saved to disk it should not be confused with a regular picture file. When a picture file is loaded into your program, whatever you had on the screen before is erased and gone, and the new picture takes its place. Picture-parts however, are loaded IN ADDITION to whatever else is already there. These small pictures have become very popular with the drawing community so that they have

their own special term - clipart.

Each program is unique in its handling of this additional storage. Joy Paint uses internal storage for a Cut and Paste method much like the paint programs that other popular computers use. All screens are saved in the same format. When something is wanted from another picture, save the current picture first, then load in the picture to be borrowed from. "Cut" out the piece you wish to use. Reload the original picture and "Paste" the new part anywhere on the drawing.

Bitmac uses the "Store" function for internal temporary storage. Current screen graphics can be overlaid with graphics stored on a disk, using what is called "Boolean Input". This allows special graphics effects which are unique to Bitmac.

TI Artist also has unique storage methods. Besides the normal full screen picture files, parts of pictures can be saved as "instances" or "slides". Slides are a collection of up to 24 miniature designs that can be independently designed, rotated and moved around on your drawing. Instances are images that can be added to your drawings or combined together in whatever manner you wish. They can become a permanent, editable part of your drawing. The nice thing about instances is that they are saved in a DISPLAY/VARIABLE 80 format which can easily be transported to Extended Basic programs or TI Writer files as well as being used for clipart.

Graphx has a very powerful "Clipboard" feature. With it you can create and store clipart permanently on a disk and it is also possible to copy a portion of one picture into another, much like Cut & Paste. A portion of a picture, or even serveral pictures, can be stored, then decided on later as to which ones to keep and which ones to erase.

In the high resolution mode each graphic position available to be used on our electrronic drawing board is called a pixel. You may remember being told that the screen is like a grid with 256 pixels accross and 192 pixel rows; and that each individual pixel on the screen can be turned off or on separately while you are drawing - all 49,152 of them! Right? Wrong if you are using color! Color resolution for the 99/4A is not the same as drawing resolution. We still have the same 192 rows of pixels, but instead of 256 pixels across, we have only 32 graphic positions across each row. Each row of pixels is grouped in eights, starting from the left of the screen, and each set must be the same two colors - a foreground and a background.

Now you can see why color resolution is 32 x 192. Any given group of eight horizontal pixels MUST be the same two colors. The groups on either side can carry entirely different colors, but each group is limited to two colors. Knowing this, and arranging your draw-

-ings according to the color boundarys is important when working with color.

Most programs make full use of the TI-99/4A's 15 brilliant colors, allowing control over the foreground and background colors, and in many programs over the screen color as well. Sometimes the screen color is called the "backdrop".

All programs using color allow the swapping of one color in a drawing for any other. When the exchange takes place, every incidence of that color on the screen is swapped for the new one. Additionally, some programs like TI Artist and Graphx allow selective repainting of a chosen area.

Some of the programs provide special helps for working with color. TI Artist provides a function that lets a special color cursor move on color boundaries. Graphx does the same; also providing a "Grey and White Checkerboard" function which is handy for planning drawings which will use a lot of different colors. This makes it much easier to plan the various colors in your picture so that they don't bump into each other. When you no longer need the grid simply choose the "Remove Grey Boxes" option.

For special color effects, two programs that shine are Draw-A-Bit with its Redraw feature described earlier and Paint 'N Print which includes five extra rainbow colors in varying widths of horizontal and vertical stripes. Draw 'N Plot makes limited use of color. Only two are used at any one time - foreground and background. These colors can be easily switched so you can see how the various combinations of color look together.

Besides the Graphic Package, which doesn't use color either, Joy Paint is the only major paint program not using color. Here emphasis is on the manipulating of picture components, and color is used only as a background, with the pencil line always being your choice of either black or white. Painting refers to filling shapes with the many patterns available, or using the air brush to "spray paint" an area with a chosen pattern.

A Slide Show is a method of presenting pictures in a selected order. Bitmac is the only program with this feature built in; Draw A Bit and Draw 'N Plot have disk demos that you can adapt for your own pictures. TI Artist has an excellent companion disk called Display Master that gives you many options in designing your own slide display. Asgard Software put out a slide show program for Graphx files.

The Undo command lets you "take back" the last step of a drawing. If something was moved or erased that shouldn't have been, no harm done, just "undo" it. Joy Paint is the TI-99/4A's only program with this feature but it is quite common in paint programs for other computers.

(Part VI will appear next month)

Hi-Res Graphics-Part VI

(Sixth in a series by Ann Dhein)
Do you have a second computer that you wish you could tie in to your 99/4A?

The Bitmac software will let you do just that. When the coprocessor function is in effect, the other computer (not necessarily a TI) can manipulate data while the 99/4A is processing elaborate graphics from that data.

Bitmac has a Cursor Report feature which can be turned on or off as desired. It keeps track of the actual pixel location of the cursor. The program also lets you scroll your picture one pixel at a time to the right or left or up and down on the screen. This is handy for getting a drawing onto color boundaries, and also for special effects using the Boolean inputs AND, OR and XOR.

The TI Artist instance file was mentioned last month as being an excellent additional storage area for clipart, because these files can be added so easily to any picture you are currently working on. The instance file is invaluble for using as a vehicle to transport your artwork to other mediums. Many support programs have been built around the ability of these instances to be so easily used, including Font Writer (Asgard) Art Convert (Trio+) and Character Sets and Graphic Design III (Texaments).

Besides being used for planning color in drawings, the unique grey box function in Graphx can be used for designing schematics and other precision drawings which require precise measuring.

The Graphx clipboard also lets you experiment with computer animation. If you store the appropriate images on the clipboard you can create short, animated sequences which you can display against a background of your normal Graphx pictures.

Like the Norton Graphics Package, Draw 'N Plot is primarily a programmer's tool. Unlike the Graphics Package however, Draw 'N Plot has a very nice full-featured drawing board. Also the routines in Draw 'N Plot are in assembly language which considerably speeds up operations. Draw 'N Plot makes an excellent program to design your own Extended Basic program; however memory can be a problem. (Ed Note: Draw 'N Plot is built into Tritons Super Extended Basic.)

Draw a Bit is really a full-scale programmer's tool too, but the programmer must be somewhat conversant in assembly language as well as Extended Basic to use it with his own programs.

As you work in the Draw A Bit environment, your picture is automatically saved for you in intermediate memory. Any time you wish you may clear the screen and with the push of the right keys, redraw the picture, line by line. This is a fascinating procedure to watch. Pictures may also be saved in this Draw mode if desired. Also interesting to use is the Concept-Dots option. This is like a line function except that you plot all your dots first; then the line appear when you are ready for them.

Built right into Paint'N Print is a font editor that will let you easily change the shape of the resident alphabet. The companion disk additionally allows editing of the texture character for all sorts of special textural effects.

Paint 'N Print is the only drawing package which allows a screen dump to be in color, providing you have the right printer (the Axiom GP 700)

Super Sketch is the only program that includes a touch tablet. This graphics tablet, although deceptively simple looking, is a precision tool that accepts commands through a control arm which determines screen position. The control arm moves the pointer (your pen) around the tablet, and the computer keeps track of where this pointer is at all times. In this manner, any picture placed on the tablet can be traced onto the screen. The device is so simple that even a child can use it easily.

The Artist Extras package from Incebut allows the use of the Super Sketch touch tablet with TI Artist. When used this way, the tablet becomes an integral part of the TI Artist program and is used in place of a joystick or trackball to allow designs traced with the tablet to appear on the screen.

Except for Super Sketch and Draw 'A Bit which both have supporting disks that contain screen dumps, the drawing package all include built-in printer routines. The printer and software package you use must be compatible. All of the programs are compatible with the TI Impact Printer which was made by Epson, so any printer that uses the same formats and codes as an Epson is also compatible. Paint 'N Print comes in a choice of three cartridges depending on which printer you have. Cartridge A works with the Axiom GP-100 and GP-700 printers. The GP-700 will give color printouts. Cartridge B is set up to work with the Axiom GP-550 and Okidata printers, and C is for the Epson compatibles, which include Star and IBM. The Extended Graphics Package which supports Paint 'N Print contains the routines from all three cartridges. Other printers that can be used with a particular drawing program will be shown later.

Screen dumps vary widely in several important respects, including size, density and placement on the page. All details given here were obtained from screen dumps using the TI Impact printer. They should more or less apply to all screen dumps but there could be differences. A small size screen dump occurs when the screen image is copied exactly as shown, pixel for pixel. A larger dump has more printer dots per pixel - usually either 4 or 16 dots for each pixel.

The size of the printout is also affected by density. On the TI Impact printer there are normally 60 dots printed horizontally per inch. This would make 480 dots per each 8 inch row. Double density prints 120 dots horizontally per inch and some printers have an even higher dot resolution than that. Since the graphic image has the same number of pixels no matter what density is used, it will be only half as wide when printed double density as when printed in normal density mode. Most of the packages handle this factor for you by adjusting the line spacing when double density is used. Because of the difference in printers, and because screen graphics don't match up exactly pixel for dot with printer graphics you may still find some distortion in your printouts. On the whole, though, most paint packages produce a reasonable hard copy of your screen graphics.

Joy Paint gives you a choice of two dump sizes and either size can be single or double density. The small dump is centered on the page and because Joy Paint uses 92% more area for graphics than other programs, it pretty well extends from one side of the page to the other. Three of the dumps will nicely center on a page and using three screens consectively will produce a very good flyer. The large dump produces a horizontal picture 8" x 9" in size.

Bitmac also gives you a choice of a large or small dump. The small dump places exactly one dot on the paper for each dot on the screen and gives a single density printout 4 1/4" wide x 2 5/8" high. You have a choice of centering the graphics, or placing them over to the right or left margin. The large dump is centered and is double density. On the TI Impact printer it is distorted quite badly, as it is the same heighth as the smaller picture, but 6 3/8" wide.

TI Artist gives you the most control over the final output for your hard copy. You have a choice of up to three magnifications and four densities depending on what your printer is capable of doing. You can also control line spacing when the printing is being set up. Using the TI Impact printer you can have a double density printout as small as 1 3/8" x 2 1/8" using a magnification of 1 and a line spacing of 4; or a printout which will fill an 11" x 15" large size paper with a magnification of 3, a line spacing of 8 and single density. And all this from the same screen image! Printing can also be done from the zoom mode.

All TI Artist printouts are centered no matter what the size. A single density printing that has been magnified twice exactly fills one-half of a standard page and two consecutive printings make a very nice flyer.

Graphx gives you a choice of two sizes, single or double density. The smaller 4 1/4" x 2 5/8" is printed at the left margin. The larger is half of a standard page and again two screens make a nice flyer. Draw 'N Plot has one size, 4 1/4" x 2 5/8" single density. Paint 'N Print also has one large size single density printout. Paint 'N Print also gives you a choice of which part of the picture to print - from a very small section up to the whole screen. The drawing will be printed horizontally and in the upper left corner of the paper. (We will conclude this series next and include in Wordplay a special insert comparing the features of 10 of the most popular drawing packages for the TI-99/4A.)

The Kitchen Sink Approach or Flatfile

```
Record #1:
Record #1:
LastName:Priest
Firstname:Terry
Address:20465 SW Francis
City:Aloha
State:OR
Zip:97006
HomePhone:503-000-0000
workPhone:206-000-0000
cellPhone: <───────────────────────────────no cell phone
Computer Club Expires:12/31/94<──────────────only a member here
Area expertise:Databases
Camera Club Expires: ────────────┐
Special talent:                  ├─Not relevant to Terry
Ham Radio Club Expires:          │
License Level:                   │
License Date      ───────────────┘

Record #2:

LastName:Mayer
Firstname:Ronald
Address:4565 SE 13th
City:Portland
State:OR
Zip:97215
HomePhone:503-000-0000
workPhone:206-000-0000
cellPhone:503-800-9000<────────────────Only 5 out of 50 possess
Computer Club Expires:1/31/95
Area expertise:BBS Sysop
Camera Club Expires:06/31/95
Special talent:Portraits
Ham Radio Club Expires:09/31/95
License Level:Class 1 RadioTel
License Date:01/10/51
```

The Kitchen Sink Approach or Flatfile

```
Record #1:
Record #1:
LastName:Priest
Firstname:Terry
Address:20465 SW Francis
City:Aloha
State:OR
Zip:97006
HomePhone:503-000-0000
workPhone:206-000-0000
cellPhone: <───────────────────────────────no cell phone
Computer Club Expires:12/31/94<──────────────only a member here
Area expertise:Databases
Camera Club Expires: ────────────┐
Special talent:                  ├─Not relevant to Terry
Ham Radio Club Expires:          │
License Level:                   │
License Date      ───────────────┘
```

Record #2:

LastName:Mayer
Firstname:Ronald
Address:4565 SE 13th
City:Portland
State:OR
Zip:97215
HomePhone:503-000-0000
workPhone:206-000-0000
cellPhone:503-800-9000←————————————————*Only 5 out of 50 possess*
Computer Club Expires:1/31/95
Area expertise:BBS Sysop
Camera Club Expires:06/31/95
Special talent:Portraits
Ham Radio Club Expires:09/31/95
License Level:Class 1 RadioTel
License Date:01/10/51

The Relational Approach

It would make more sense to set up relational databases as follows.
This would save a lot of typing if you maintained a separate flatfile
database for each club.
Master DataBase:

LastName:_____
FirstName:_____   121 records here due to
Address:_____   multiple memberships
City:_____   IDnumber links Master
State:__
IDNumber:X1234

Computer Club Base
IDNumberX1234   55 records here
Membership Expires:_____
Expertise:_____

Camera Club Base
IDNumber:_____   48 records here
Membership Expires:_____
     Expertise:_____

Cell Phone Numbers Base
     IDNumber:_____   6 records here
     Cell phone Number:_____

Ham Radio Base
     IDNumber:_____   76 records here
     Ham Radio Club Expires:09/31/95
     License Level:Class 1 RadioTel
     License Date:01/10/51

     The database program links up all these pieces of information for
processing and presentation. Statistics can be derived from this
also,eg..How many are members of the computer club and camera club and
not the Ham Radio club and live in WA or OR.

PUNN 1994 ELECTIONS
SAMPLE OFFICIAL BALLOT
DECEMBER 26, 1994

INSTRUCTIONS: MARK THE BOX CORRESPONDING TO THE CANDIDATE OF YOUR CHOICE. IF YOUR SELECTION IS NOT ON THE BALLOT, YOU MAY WRITE IN THE NAME OF A CANDIDATE WHOM YOU WOULD PREFER TO ELECT. CAST YOUR BALLOT FOR ONLY ONE CANDIDATE IN EACH OFFICE.

OFFICE OF PRESIDENT:

[ ] TED PETERSON
[ ] RON MAYER

[ ] _____

THE DUTIES OF THE PRESIDENT ARE TO PRESIDE AT ALL GENERAL AND BOARD MEETINGS OF THD CLUB. WITH THE APPROVAL OF THE BOARD HE IS RESPONSIBLE FOR SETTING THE CLUB'S AGENDA DURING HIS TERM IN OFFICE. WITH THE APPROVAL OF THE BOARD HE APPOINTS ALL REQUIRED STANDING AND SPECIAL COMMITTEES AND IS AN EX-OFFICIO MEMBER OF EACH. IT IS THE PRESIDENTS RESPONSIBILITY TO SEE THAT ALL COMMITTEE AND STAFF ASSIGNMENTS ARE PROPERLY FULLFILLED AND CARRIED OUT.

OFFICE OF VICE-PRESIDENT:

[ ] MYRT CALKINS
[ ] DALE KIRKWOOD

[ ] _____

THE DUTIES OF THE VICE-PRESIDENT ARE TO PRESIDE AT ALL MEETING THAT THE PRESIDENTS IS UNABLE TO ATTEND AND ASSIST THE PRESIDENT AS REQUESTED.

OFFICE OF SECRETARY:

[ ] MIKE KING
[ ] DORMAN BLAZER

[ ] _____

THE SECRETARY RECORDS THE MINUTES OF ALL GENERAL AND BOARD MEETINGS AND KEEPS THE MEMBERSHIP INFORMED OF THE HAPPENINGS AT THOSE MEETINGS. HE READS THE MINUTES AS REQUIRED AND KEEPS A CURRENT RECORD OF THE BYLAWS AND CLUB RULES OF PROCEDURE. THE SECRETARY ALSO CONDUCTS CLUB CORRESPONDENCE AS DIRECTED BY THE PRESIDENT OR BOARD.

OFFICE OF TREASURER:

[ ] CAL OBERG

[ ] _____

THE TREASURER COLLECTS ALL DUES AND FEES OWED PUNN THEN DEPOSITS THESE SUMS TO THE CLUB BANK ACCOUNT. THE TREASURER ALSO KEEPS RECORDS OF ALL RECIEPTS AND DISPURSEMENTS. IT IS THE TREASURERS DUTY TO ISSUE ALL CHECKS AND HAVE THEM PROPERLY CO-SIGNED AND PREPARE A TREASURY SUMMARY FOR EACH MEATING. THE TREASURES ALSO MAINTAINS SUCH RECORDS AS ARE REQUIRED BY THE STATE CORPORATION DIVISION AND IRS.

The PUNN Newsletter
WORDPLAY
P. O. Box 15037 Portland, Oregon 97215

Pointing the way

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*            P U N N               *
* PORTLAND USERS OF NINETY-NINES   *
*   PROUDLY CONTINUES TO SUPPORT   *
* THE TEXAS INSTRUMENTS TI 99/4A   *
*            COMPUTER              *
************************************
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NEXT GENERAL MEETING - MONDAY - DECEMBER 26TH, 1994

NEXT BOARD MEETING - MONDAY - JANUARY 9TH, 1994