

↑ PRTSC

A newsletter for the Stanford/Palo Alto User's Group for the IBM PC

PRinT SCreen

May 1985

Volume 3 Number 5

NEXT MEETING

Date: Wednesday, May 29
Time: 8:00 p.m.
Place: Polya Hall,
Turing Auditorium (Rm. 111)
Stanford University

AGENDA

8:00 General Club Business
8:30 Speaker: David A. Wilson
Topic: "Using the GEM"
9:00 Discussion and Random Access
10:00 Conclusion

Member Dave Wilson will demonstrate the Graphics Environment Manager (GEM), developed by Digital Research to bring the virtues of the Macintosh to the PC. With an extensive background in electronics and a variety of computers and languages, Dave now works primarily with the PC and Macintosh. Through his own firm, Personal Concepts, he writes, consults, and provides technical training for clients such as Apple, H-P and SRI.

PLANNING MEETING:

All members are welcome to attend the monthly Planning Meeting, where we make decisions on the future of the group (e.g., speakers, topics).

Please call Beverly Altman, 329-8252, for the location of the next meeting, which will be held on Wednesday, June 12 at 8 p.m. If you can't reach Beverly, call any Club Officer.

CALENDAR

May 29.....Group Meeting.....8:00
June 4.....Novice SIG.....7:30
June 5.....Communications SIG.....7:30
June 10.....Lotus SIG.....7:30
June 12.....Planning Meeting.....8:00
June 18.....Hardware SIG.....7:30
June 26.....Group Meeting.....8:00

tm

SlipStick

Calculator Simulation and MUCH. MUCH MORE

For the IBM PC & XT

Copyright 1984 by Jim Serwer

X Y Z

SlipStick (tm) Ctrl/End to Exit

Memory	
)) +) -) *) /
((+ (- (* (/ (
((((/ ^2 Rt +/-
CL	CA PR PA Ab
A	8.890183803445
B	-1.79606976762
C	1.597940645842
D	-5.58163104505
E	-5.42501740869
F	6.514593772092
G	0.
H	0.
I	0.
J	0.

Clear	+	Log	10^X	SAS	Fact1	Goto
ClrX	-	Ln	e^X	AAS	Comb	Exec
ClrM	*	Sin	Asin	SSS	Norm	
PrvX	/	Cos	Acos	ASA	ChiSq	Newton
PrvY	Mod	Tan	Atan	Cross	Gamma	Intgr
PrvZ	X(-)Y	Cot	Acot	Dot	URand	
	1/X	Sec	Asec	R->P	NRand	
ChS	X^2	Csc	Acsc	P->R	PRand	
Abs	SqrtX	Sinh	Asinh	Elip1	RootP	
Int	X^Y	Cosh	Acosh	Elip2	EvalP	
Fract	Up	Tanh	Atanh	en		
Dep	Down			dn		
Read	P1			sn		
Write	Cons					

Screen 1 simulates a scientific calculator, plus it has such advanced features as Cross Products, Normal Distribution Function, Gamma Function, Chi Square and more. At the left is a printout of screen 1 after solving the polynomial equation:

$$0 = x^6 - 4.2x^5 - 85.1x^4 + 167.5x^3 + 2016.1x^2 - 143.3x - 5033.2$$

The roots are to the right of the screen. Solution time, 4.1 seconds.

Screen 2 lets you program the calculator. Programs may be up to 135 instructions long. At the right is a printout of screen 2. The program has just used Newton's method to solve

$$0 = \sin(x) - e^x$$

for x. An answer is in the X register. SlipStick can also perform numerical integration on the function you program.

Copyright 1984 by Jim Serwer

X Y Z

SlipStick (tm) Ctrl/End to Exit

Memory	
)) +) -) *) /
((+ (- (* (/ (
((((/ ^2 Rt +/-
CL	CA PR PA Ab
A	16.
B	30.
C	0.
D	-3.18306301193
E	0.
F	0.
G	0.
H	0.
I	0.
J	0.

1	A	16.	16 M) D	31 M) D
2	B	30.	17 e^X	32 e^X
3	X	0.5	18 M((D	33 M((D
4	Radian		19 Sin	34 Cos
5	Newton		20 -	35 -
6	Pause		21 Pause	36 Pause
7	NOP		22 NOP	37 NOP
8	NOP		23 NOP	38 NOP
9	NOP		24 NOP	39 NOP
10	NOP		25 NOP	40 NOP
11	NOP		26 NOP	41 NOP
12	NOP		27 NOP	42 NOP
13	NOP		28 NOP	43 NOP
14	NOP		29 NOP	44 NOP
15	NOP		30 NOP	45 NOP

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SlipStick Screen 3 Ctrl/End to Exit

Rows	3	Cols	3	A	1	2	3
Syn	Prv	*A					
Clr	Trn	B	Diag	1	2.3	5.7	7.9
Idn	A^	C	Eign	2	1.1	4.	3.1
Det:			-79.672	3	8.4	2.9	11.2
Trc:			17.5				

Rows	3	Cols	3	B	1	2	3
Syn	Prv	*B					
Clr	Trn	A	Diag	1	0.633001110634	0.430229194707	1.
Idn	B^	C	Eign	2	0.284530241441	1.	0.160144732053
Det:			-1.40519270482	3	1.	-0.72567673046	-0.66820585467
Trc:			0.964795255956				

A	AB	ABA^	A^E	C	1	2	3
E	BA	BAB^	A-B				
A^	AB^	ABA'		1	-0.44946781805	0.513731298323	0.174891851592
E^	B^A	BAB'		2	-0.17220604478	0.509589316196	-0.01958027914
Det:			-0.01255146099	3	0.381689928708	-0.5172457074	-0.0367757807
Trc:			0.023345717442				

Screen 3 does matrix operations. At the left is a printout of screen 3. Matrix A has a simple 3 X 3 array. The columns of matrix B are the eigenvectors of matrix A (calculated in 2.6 seconds). Matrix C is the inverse of matrix A. Determinants and traces appear. SlipStick can also calculate eigenvalues, products, sums, scalar multiples, and more. SlipStick handles matrices as large as 20 X 20.

Order Information

SlipSticktm simulates a scientific calculator and much, much more. It requires

- 192 KBytes of memory
- 1 double-sided 5.25" disk drive
- PC-DOS or MS-DOS v2.0 or later
- IBM-PC, IBM-XT, and most compatibles.
- (Runs on most IBM-AT's, but may fail on some AT disk drives.)

Please use this form when ordering SlipSticktm program and demonstration disks. SlipStick is copy protected. You may order at most one backup disk for each program disk ordered. The price is \$25 if ordered concurrently or \$30 if ordered later.

All but \$5.00 of the price of the demonstration disk may be applied to future purchase of the program. (Demonstration disks are NOT copy protected.)

When ordering a backup disk for a previously-purchased program or when claiming a partial credit from the purchase of a demonstration disk, do not use this form. Use the special form sent with the previous purchase.

Please send me:	Quantity	X	Price	Total
SlipStick tm program and manual	_____	X	\$200.00	_____
Backup Disk (Limit one per program order)	_____	X	\$25.00	_____
Demonstration disk and manual	_____	X	\$25.00	_____
Sales tax (California residents only)			6%, 6.5% or 7%	_____
			Total:	_____

Ship to: Name: _____

 Company: _____

 Street Address: _____

 City & State: _____ Zip: _____

Full payment must accompany order. Send order and payment to:

Jim Serwer
P.O. Box 116
Campbell, CA 95009

APRIL MEETING:

Member John Van Deman demonstrated IBM's TopView at the April meeting. John discussed the ideal TopView environment: a novice using an IBM AT with a 20 MB hard disk and lots of memory.

Since TopView and DOS together use up 192K of your memory, you are not left with much to run your application programs. Therefore, your PC should be fully-loaded.

John recommends an AT because of its faster processing speed; applications running under TopView are slowed down significantly, especially as you load additional tasks. Your applications would run too slowly on the PC or XT.

A hard disk is recommended in order to take advantage of multi-tasking. You can't run concurrent programs if you need to switch floppy disks.

Novice users will probably appreciate TopView's DOS services which provides a menu-driven shell for DOS commands. However, the menu-driven approach looked more complicated and time-consuming than typing the commands straight into DOS. Experienced users will undoubtedly be frustrated with the DOS Services.

In addition, FORMAT and CHKDSK are not available from the DOS Services. Batch files will not work under TopView, but RAM disks and print spoolers are compatible.

Many existing programs will run under TopView because you can set up the program information on how the screen is addressed and how the keyboard buffer operates. Some programs (e.g., graphics) cannot be windowed and will automatically consume the entire screen.

SIG ALERTS

COMMUNICATIONS SIG:

The COMM SIG will meet on Wednesday June 5 at 7:30 p.m. at Corwin Nichols' home. Please call 494-8640 for details.



NOVICE SIG:

Printers were the main topic of discussion at the last Novice SIG meeting. At the next meeting we will discuss advanced DOS functions, and anything else you would like to learn about.



The meeting will be held on Tuesday, June 4th at 7:30 p.m. at 637 Alvarado Row, Stanford. Call Rebecca Bridges for details (326-8605).

HARDWARE/ASSEMBLY SIG:

The next SIG meeting will be held Tuesday June 18, 7:30 p.m. in the bottom of the Terman Engineering Bldg. Call Curt Carlson at 941-5680 for details.

LOTUS SIG:

The next Lotus SIG meeting will be on Monday June 10 at 7:30. 1-2-3 graphics will be the topic. The meeting will be held at 636 Waverly in Palo Alto. Call Nancy Crewdson for details at 328-9270.



Please contact Nancy if you are interested in joining the SIG, but are presently not on the mailing list.

DOS FILE MANAGERS

—Jim Caldwell & Turley Angle

DOS FILE MANAGEMENT

DOS provides a series of commands that serve quite well for managing files on a disk, but for novices and people who like efficiency, there are more pleasing alternatives.

In DOS, one must learn the DOS commands and syntax, be a careful typist, and do a little programming to combine commands. For example, the DIR command gives a list of the files on a disk. It offers some options like /w to get more files on the screen (without statistics) or /p to have the display pause after a screenful.

To get an alphabetical listing of the files that will pause after each screenful one must combine commands with filters: i.e., (DIR A: !SORT !MORE).

If you want to sort by extension you enter: (DIR A: !SORT /+10 !MORE), or by file size: (DIR A: !SORT /+14 !MORE). One can even write these up as batch files or keyboard macros so they can be executed with only a few keystrokes.

These variations in the DIR command will also tell you how many files are on the disk, and how much room is left on the disk, but not how much total space is on the disk or how much you have used. The CHKDSK command is needed for that.

Moreover, unless you have installed BKSCRL (a public domain program) you can't back up to see what has already scrolled by.

Finally, to perform operations like COPY on a series of files you

have to keep referring back to the directory and copying the file names without typos. This is a real headache when you are reorganizing your files.

An auxiliary public domain program like SDIR or SDIR2 (found in our library) will give you a directory sorted by file name in two columns with statistics. If you have more than 46 files on the disk, however, some of them will scroll by.

Again, you can combine it with BKSCRL or use <ctrl>X<num lock> to stop the scrolling. It also gives you options regarding the sort criteria. However, SDIR doesn't read subdirectories, and it does nothing to aid in processing groups of files or remembering a series of file names, much less in preventing typos.

The two programs below, although not public domain, are cheap and valuable supplements to DOS which offer group file processing, prevention of typos, and many other features available simultaneously, by menu, or with a few keystrokes.

I paid \$39 for File Command and 1DIR runs around \$80. I like 1DIR better because it is simpler to use and more flexible, however, it costs twice as much and uses more memory (16K vs. 10K for File Command).

FILE COMMAND BY IBM

The IBM program "File Command: DOS at your Fingertips" is a handy assistant. I've been using it for about a year now and find it especially useful in rearranging files in directories and in managing the library. File Command II is out now, but this is a review of the original program.

DOS UTILITIES

CONTINUED

It may be more difficult for a novice to use than 1DIR but it is cheaper and has some nice features.

File Command displays, in a banner across the top of the screen, your total disk space, space available, free memory, the number of files on the disk and the number of the current file.

Twenty three rows down the screen display file statistics (one row per file): the drive, file name, ext, type of file, size, number of sectors, date, time, and a command area where you can enter the desired command.

You navigate with the cursor pad. Commands like COPY, ERASE, and TYPE can be repeated for several files by pressing the <=> key--you do not need to enter the file name after the command; they are executed serially when you press <cntl><ENTER>.

If the file name is required in the middle of a command, then you represent it with a </>. After execution, the highlighted commands remain on the screen in a non-highlighted mode, so you know what you have done so far, but they will not re-execute when the next set of commands are executed -- unless you so choose. This is especially helpful when copying files to different disks or subdirectories.

However, when a command does not take a file name such as CHKDSK or CD, you must preface it with a </o>. In such cases I find it more convenient to exit File Command and enter my commands directly in DOS.

Along the bottom is another banner which displays the F-key assignments. All the <F-x>, <alt><F-x>, <cntl><F-x>, and <alt><letter or number> keys are programmable as macros. Some examples of the ones already programmed are: F-1: KEYS (displays macro definitions), F-2: REFRESH the display, F-3: Drive A, F-4: Drive B, F-7: SORT by NAME, F-8: BASIC, etc. When you are in a subdirectory, File Command displays the name of it just above the F-key banner. <cntl><ENTER> exits from File Command.

Although I find it extremely useful in batch processing and viewing my directories in sorted fashion, it is often simpler in everyday use just to exit File Command and enter DOS commands directly than to remember or look up the macro key assignments-- unless I were using very complex DOS macros. The macros do not work in application programs.

1DIR BY BOURBAKI

1DIR (pronounced "wonder") gives you single column sorted display of a disk directory (which is labelled) and the option of scrolling up or down through it using the cursor pad.

The cursor is also a file selector: you select a file for an operation (or flag several files for COPY OR ERASE) instead of typing the file names. (Selecting a subdirectory name and pressing <ENTER> will open it up and display its contents for selection.)

There are two more columns on the screen. Column two displays full disk and RAM statistics plus the system date and time or, with two keystrokes, it displays the

DOS UTILITIES CONTINUED

date and time statistics for your files. Column three displays the status of your toggle keys (num lock, caps lock, and print echo) and the options for sorting and displaying disk files. A banner across the top of the screen tells you the current directory's name.

Below the display is a command line where (in COMPOSE mode) you may type DOS commands, build batch command files, and collect the names of many files for processing (the first file is transferred with the <ENTER> key; multiple filenames are added to the command line by selecting them and pressing the + key).

Finally, there is a partially programable command menu at the bottom of the screen. There are nine commands on the menu selectable with either the cursor or the F-keys (F-10 toggles the F-keys between DOS functions and 1DIR functions).

ERASE, TYPE and COPY operate directly on the file(s) selected or flagged: as multiple files are flagged with the <+> key or unflagged with the <-> key the total number of files and total number of bytes are tallied on the command line.

The RUN command executes COM AND EXE files when entered. DATE and TIME operate simply as DOS commands when entered (they are reprogrammable). The COMPOSE command is for building complex commands on the command line which are then executed by selecting the EXECUTE command from the menu and pressing <ENTER>.

There are four cursors on the screen to control file selection and display parameters (a toggle), the command line, and the command menu. The first two are controlled with the up and down arrows, the second with the keyboard, the backspace and escape keys, and the last with the left and right arrows or the F-keys.

1DIR can be installed in color, and it allows several install options for advanced users and novices. It also offers a help menu for each DOS2 command and an explanation of its use in 1DIR when that is different from DOS.

Although it does not have a built-in program for defining DOS macros, one can easily create batch files on disk and execute them directly from 1DIR.

1DIR includes a screensave feature that turns off your screen if you do not touch the keyboard for five minutes (the time is adjustable). It uses about 16K of memory. One defect I found is when I switch back to DOS while running Framework and use 1DIR to change directories, it will read the directory all right but hangs up the system when I try to run a DOS program there.

LIBRARY NEWS

--Jim Caldwell

NEW ACQUISITIONS

1. LOTUSGRPHPR--LOTUS Graphics Printer Routines one file 113K.

2. SUPERDIR--A BASIC program that generates an extended directory with file descriptions and a menu to run BASIC programs.



LIBRARY CONTINUED

3. DUMPSCRN--Converts Basic Programs to Machine language using a BLOAD routine.

4. ALIGN--Aligns Disk Drive Heads if you have the equipment and meters.

5. NELIST--Turbo Pascal listing utility program.

6. EXCHANGE--PC EXCHANGE Newsletter from IBM, June 1984. A forum of User Group articles and product announcements collected by IBM and distributed to User Groups.

NEW CATALOG SYSTEM

The new catalog is out. The new cataloging system, written by Ralph Muracca, to our specifications, is simple to use and easier to understand.

Files are listed by category in files named after the categories. You need only look at files in the category of your interest. Of course most of the files remain physically on the original disks for the time being. If you want to copy several files in the same category you may have to go to several disks. Files belonging together, however, are being grouped into subdirectories so as to simplify the catalog and the cataloging system.

There is a simple program in the catalog disk itself called "Output.bas" which you load in basic and run. It has a menu, asking what category/categories you are interested in. It will list programs in that/those category/categories. You may view the list on screen or print it out.

PROGRAM REVIEWS

We have several reviews done already. Anyone wanting to see what has been reviewed can look in the REVIEWS category in the catalog.

Please make your contributions, using the review template on the catalog disk: TEMPLATE.REV

LIBRARY DISTRIBUTION

We are developing a new system for library distribution. This will supplement the old system managed by Les Weil.

1. Dave Casto can take orders at the General Meeting for programs to bring the following month for you.

2. I can send you an individual file over modem if you call me and make arrangements.

3. We are working on setting up a network of people who are willing to share programs from the library over modem. Make yourself a member of this network if you can. Ideally each SIG will take responsibility for getting programs related to its special interest from the librarian and distributing them.

4. We are still working on getting a bulletin board or access to a bulletin board. To put the whole library on a single bulleting board would require 30MB of disk space, however, so that doesn't seem feasible at present. We could put some of the more popular programs there, however, or the ones that are demonstrated at the meeting.

5. Curt Carlson, when selling disks at the meetings, will make some of them available with the "program of the month" on them.

MORE DOS UTILITIES

There are many other utilities available besides the two Jim mentioned in his article. PC Magazine recently published an article entitled "Stalking the Elusive Subdirectory Path" (5/28/85) which lists several programs that provide a PATH-like facility for data and overlay files.

Such utilities are necessary because (1) many programs, such as WordStar, don't allow you to access data files in any directory other than the current one, and (2) the DOS Path command only finds programs (i.e., .EXE, .COM, and .BAT files), not data files, in other subdirectories.

File Facility seemed to be the author's favorite. The program is available from IBM for \$19.95. Though \$19.95 is without a doubt a reasonable price, the big question is: why didn't IBM include this free with DOS?!!

GEM

Digital Research's GEM, which we will be seeing at our next meeting, was reviewed in a recent issue of PC Magazine (6/12/85). In summary, the author states:

"GEM looks like a Mac and offers a few extra gimmicks, but it leaves out any form of data transfer and many of the Mac's other useful features. In operation with DOS, it's an ugly, grafted-on third arm."

Unlike TopView, GEM does not offer concurrency, multi-tasking, windowing, or cutting and pasting between applications. It does provide a DOS shell, however. DOS commands are translated into Mac-like icons and windows.

Stay tuned for more on GEM at the May 29th meeting...

THE GRAY MARKET

An interesting article in the S.F. Examiner (5/12/85) discussed the Silicon Valley's "Gray Market," which brings us more reasonable PC prices.

The gray market refers to any channel of distribution not authorized by a manufacturer. The gray market for IBMs has become so prevalent because (1) IBM is so restrictive with awarding authorized dealerships, and (2) IBM offers substantial discounts for volume purchases, thus encouraging its dealers to place large orders of computers.

The authorized dealers then quietly resell their excess inventory to the gray market. The gray marketeers are not themselves doing anything illegal; it is the dealers who are in violation of their contracts.

Some of the Silicon Valley gray marketeers mentioned were:

PC Support
Tek Computers
Affordable Computers
Discount Computer Center
Advanced Computer Systems

These computer stores offer prices substantially below IBM's suggested retail:

New PC Product Prices

System Units (with keyboard)	New price	Old price
PC 64KB memory/1 floppy drive	\$1,390	\$1,265
PC 64KB memory/2 360KB floppy drives	2,115	2,240
PC 256KB memory/2 360KB floppy drives	2,295	2,420
PC XT 126KB memory/1 360KB floppy drive, 10MB fixed-disk drive, Asynchronous Communications Adapter	3,775	4,275
PC XT 256KB memory/1 360KB floppy drives, 10MB fixed-disk drive, Asynchronous Communications Adapter	3,895	4,395
Portable PC 256KB memory/2 360KB floppy drives	2,895	3,020
IBM Hardware Options		
10MB Fixed Disk Drive	\$1,195	\$1,395
Fixed Disk Adapter	495	590
PC Expansion Unit	2,585	2,880
PC XT Expansion Unit	2,090	2,290

XT PROMO

Anyone who purchases an XT in the next several months will be treated to free software from IBM. A hard disk XT will get you DisplayWrite3 and a choice of TopView or Data Edition. If you purchase a floppy-based XT you are entitled to IBM's Writing Assistant and Planning Assistant.



ADVERTISING

If you are interested in advertising in PRiNT SCreen, send camera ready copy to P.O. Box 3738, Stanford, CA 94305 before the 8th of the month. All ads are payable by check in advance. Rates per issue are:

Full Page (8.5 X 11)	\$25.
Half Page (7.5 X 4.5)	\$15.
Qtr. Page (4.5 X 3.5)	\$10.

Classified ads are free to paying members.

PC WEEK TOP 10

PRODUCTS OF THE YEAR: 1984

(In Alphabetical Order)

Ashton-Tate Framework
Borland Turbo Pascal
Compaq Deskpro
Data General DG/one
DayFlo
Hayes Smartmodem 2400
HP LaserJet
IBM AT
Lotus Symphony
MicroRim Clout

LOTUS CLONES

Adam Osborne's Paperback Software company has announced a \$99 1-2-3 spreadsheet clone to be shipped in August. The clone will include a database and spreadsheet identical to 1-2-3. Integrated graphics will be available for an extra \$50.

Rumor has it that Borland is also working on an inexpensive Lotus clone.

PRT SC

Please contact me (Rebecca Bridges) if you are interested in writing for PRiNT SCreen. All articles are welcome, including: reviews of our library programs and commercial products; your personal trials and tribulations stories; tips and tricks; etc.

Please submit the articles:

- o In WordStar or ASCII format.
- o Single-spaced.
- o Double-spaced between paragraphs.
- o No paragraph indents.
- o Any right margin.
- o By the 15th of the month.

CLUB OFFICERS:

President:	Jim Caldwell	692-7181
Vice President:	Rebecca Bridges	326-8605
Financial Managers:	Beverly Altman	329-8252
ASSU Representative	Curt Carlson	941-5680
Speaker's Bureau:	Kathy Carroll	325-0824

SIGS:

Novices:	Rebecca Bridges	326-8605
Lotus:	Nancy Crewdson	328-9270
	Nicholas de Paul	493-5342
Communications:	Corwin Nichols	494-8640
Hardware/Assembly:	Curt Carlson	941-5680
Genealogy:	Dave Casto	326-7006

LIBRARY:

Public Domain Software	Les Weil	321-5541
Soft Copy	Jim Caldwell	692-7181
	Ralph Muraca	365-1659
Hard Copy	Joe Wible	497-6831

RESOURCE PEOPLE

Application Packages:

PC Write	Tony Nunez	857-0836
WordStar	Jackie Carr	858-1641
	Jonathan Steibel	494-0122
MicroSoft Word	Jeanie Treichel	851-8828
Word Perfect	Jim Caldwell	692-7181
Lotus 1-2-3	Bruce Coddling	367-8642
MultiPlan	Jim Webster	326-3365
Framework	Jim Caldwell	692-7181
Financial Software	John Van Deman	854-1167
Perfect Series	Stefan Unger	321-7319

Languages/Operating Systems:

Pascal, DOS 2.0	Jeff	321-5930
	Jonathan Steibel	494-0122
"C"	Corwin Nichols	494-8640
	Jonathan Steibel	494-0122
BASIC	Jim Beck	493-7612
APL	Paul	968-8283
	Stefan Unger	321-7319

Hardware:

AST Boards	Greg Tinfow	493-7404
Expansion Boards	Curt Carlson	941-5680
Columbia computer	Stefan Unger	321-7319
Hard disks	Jim Caldwell	692-7181
	Jonathan Steibel	494-0122
Epson printers	Jim Caldwell	692-7181

CLUB INFORMATION

MAILING ADDRESS: P.O. Box 3738
Stanford, CA 94305

MEMBERSHIP: Dave Casto 326-7006
\$25/year fee (bring disk to meeting to copy
library listing)

NEWSLETTER: Rebecca Bridges 326-8605
P.O. Box 982
Palo Alto, CA 94302
Deadline for submissions: 15th of each month

The Stanford/Palo Alto
Users Group for the IBM PC
Box 3738 STANFORD, CA 94305

