

D.A.U.G.

Newsletter

DuPage Apple Users Group

MARCH 1986

2nd Annual Auction

One of our most popular meetings of 1985 was our March Auction. People sold everything from pushbuttons for the old Apple paddles, to complete Apple systems with many odd(???) assorted inbetweens. Because of its popularity, we will be repeating the auction at our March meeting. Start planning now on what items you want to sell. Items mentioned for auction so far include printers, magazines, music cards, and original Apple programs on cassette tapes. The "ground rules" will be the same as they were last year.

1) All items to be auctioned off should be brought to the meeting room at 7:00pm (1/2 hour before the regular meeting time).

2) All items must be accompanied by a 4x6 index card (again we will have a supply if you don't have any) containing the following information: a) Name and Phone number of the person offering the item. b) An identifying name for the item. c) The condition of the item - e.g. what is wrong with it. d) Desired minimum bid, if any. All items are sold on an AS-IS basis.

3) Ten percent of the final bid for an item rounded up to the nearest 10 cents (but not to exceed \$20) shall be paid to the club treasury. 25 cents will be the minimum accepted bid for items.

4) Payment for an item shall be to the club treasurer at the "Front Desk" immediately after the auction for that item is concluded.

5) Payment to "sellers" will be made by the club treasurer after the entire auction is concluded (about 9:30pm).

6) The auction will end no later than 9:30pm (we must be out by 10pm). Items not auctioned off will be returned to the original owner. The order of items auctioned off will be determined by the auctioneer.

Any questions or comments are welcomed. Contact any club officer.

Ed Danley

MARCH MEETING

When: 7:30 PM, MARCH 11, 1986

Where: Lincoln Center  
935 Maple Ave  
Downers Grove, IL

Topic: 2 nd ANNUAL ACTION

Other Dates to Remember

- Mar 3: Applesoft SIG (Call 968-3897 for details)
- 11: Regular meeting: 2nd Annual Auction
- 25: Appleworks Sig (7PM Wooddale Library)
- 19: Board Meeting (7PM, Downers Grove Library)
- Apr 7: Applesoft SIG (Call 968-3897 for details)
- 8: Regular meeting: Education Software
- 16: Board Meeting (7PM, Downers Grove Library)
- 22: Applesoft SIG (call 968-3897 for details)
- May 13: Regular meeting: Synthesis Boards
- 21: Board meeting (7PM, Downers Grove Library)
- 27: Applesoft SIG (call 968-3897 for details)

OFFICERS

- President: Bob Konikow 968-3897
- VP/Membership: Jim Cormack 960-5691
- Secretary: vacate
- Treasurer: John Sandora 352-3059
- Librarian: Detlef Adolff 766-7741
- Program Ch: Ed Danley 969-4433
- Editor: Don Smith 629-5033
- Directors: Chuck Jonah 985-5497
- Priscilla Walling 964-4894

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## February Meeting

The answer to last months trivia question is four. Now, what was the question again??? The DuPage Apple Users Group has moved their meeting locations three times since the original location. Now for the harder question. What were the four locations? Keep reading and you will find out (if you don't already know).

The business portion of our February meeting opened with the voting on some By-Law amendments. These amendments made the Program Chairman into a Vice President position. The second part of the amendment was giving the President the power, with the approval of the board, to appoint a person to fill in for a vacated officer position. The appointment would fill the position until the next regular election.

Detlef, our DOM salesman, once again presented the club with both a Disk of the Month and a Special DOM. The Disk of the Month was a double sided collection of programs written by members of DAUG. Side A are DOS 3.3 programs, Side B are ProDOS programs. The Special DOM is a utility program that converts regular HiRes pictures into Print Shop Graphics. If you want to see the talents of our own members, or you have a need or desire to create your own Print Shop graphics, you don't want to miss either of these disks!

Our meeting topic was Word Processors. Members brought their own Apples and demonstrated their favorite Word Processing packages. Bob Konikow presented Supertext. Ruben Taylor resented Magic Window II. Hal Morlock presented pfs. Write. Randy Paulin presented MacWrite, other Mac text file editors, and for the Apple //, he presented Wordstar. Bruce Mansfield divided his time between Applewriter and the Appleworks word processor. Chuck Jonah presented Microsoft's The Word on the Mac. Al Hilliger presented Bank Street Writer. The format of the meeting allowed members to visit each word processing station and spend as much time as they wanted with each.

Initial comments indicated that this format was very enjoyable and allow alot of interaction between members. We are tentatively planning on have this style of meeting every 3-4 months. Let any Officer know of your comments on this format (or write an article for the newsletter). Thanks to everyone who brought their systems and their word processors.

As the final answer to our triva question, our meeting locations have been ComputerLand of Downers Grove, Lincoln Center, Faith United Methodist Church and again Lincoln Center.

Our March meeting is our 2nd annual Auction. Be prepared to buy and/or sell almost anything you can image related to computers. This is a personal item sale, no store will be offering merchandise. See your there with your money.

Ed Danley

## -- Coming Events --

Here's what we have planned for the next few months. The DoM for April will be a Disk full of ProDos Utilities. Also next Month we will have a timely Special again. This special is a Golf Handicapper that lets you keep track of everything you need to know for your league.

In the coming months look for DoMs that contain Music programs, Graphics Programs, Data Bases, and Chart & Graph programs.

Specials will include Applewriter //e utilities, more Print Shop Graphics, Epson Utilities, Lode Runner Screens, and a Mini Assembler.

- Detlef Adolff

## Vendor Support

Below are listed the phone numbers of some of the major software vendors. This section will be updated as new software becomes available or goes defunct. If there ate other vendor's which are not on this list, please bring them to my attention.

Vendor	Software	area	Phone #
Apple Computer	Various	408	996-1010
ARTSCI	Magic Series	213	760-4577
Microsoft	Various	800	426-2940
Perfect Software	Perfect Series	800	332-8327
Software Publishing	PFS:Series	800	232-2897
MicroPro	Star Series	800	443-0100
Broderbund	Various	415	479-1170
LJK Enterprises	Perfect Series	314	962-1855
Megahus	Mega Series	900	358-8883
Muse Software	Supertext	301	659-7212
Quark	Word Juggler	800	543-7711
Stoneware	DB Master	415	454-6500
Visicorp	Visi Series	800	583-7762
Ashton Tate	DBASE II	213	204-5570
Peachtree Software	Various	800	554-8900
BPI Systems	Accounting	512	454-2801

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## PASCAL - THE CASE OF THE BLOWN DISK

I've been spending my spare time lately learning my way around the Pascal system on my Apple. After reading through an introductory book on the subject, I thought myself ready to study some actual Pascal programs. Well, after five minutes of fiddling around I succeeded only in obliterating my disk's directory. I still don't know what magical set of keystrokes caused the disaster.

Being a veteran of such DOS catastrophes, my first thought was to get out my Disk ZAP and fix the disk. Pascal lives on the disk in 16 sector format so that my ZAP (track/sector read/write routine) is capable of reading it. After spending a little time looking, I became convinced that my program's textfiles were still intact and that only the directory was messed up.

Now to rebuild the directory. First I needed to discover the layout of the directory. Pascal is not DOS and the Pascal reference manuals are not as complete as the DOS manual either. So scrounging through my old magazines, I turned up an article in Call Apple from March/April 1981 that showed how the directory is formatted on the disk.

All that is needed is a name and the beginning and ending block number. Pascal numbers are stored in consecutive blocks so there is no track/sector list to locate. But since Disk ZAP deals in tracks and sectors the real challenge became to discover how the block numbers are mapped onto the track/sectors. The results of my sleuthing are shown in the following table.

BLOCK #	FIRST TRACK/SECTOR	SECOND TRACK/SECTOR
x0	y/D	y/E
x1	y/D	y/C
x2	y/B	y/A
x3	y/9	y/8
x4	y/7	y/6
x5	y/5	y/4
x6	y/3	y/2
x7	y/1	y/F
x8	z/D	z/E
x9	z/D	z/C
xA	z/B	z/A
xB	z/9	z/8
xC	z/7	z/6
xD	z/5	z/4
xE	z/3	z/2
xF	z/1	z/F

Where  $y = 2 * x$  and  $z = 2 * x + 1$

It turns out that this block number to track/sector mapping is rather twisted. Remember that it takes two sectors for one block.

To convert from block number to track/sector you must think in hex, or at least convert. For instance, to find block number \$53 on the disk, find X3 in the first column. Then X is \$5 in our case. Now double X to get Y,  $Y = 2 * X = 2 * \$5 = \$A$ . Finally, the next two columns give the track/sector pair, Y/9 and Y/8. In our example  $Y = \$A$ , so sectors 9 and 8 on track \$A are the desired locations. As another example, let's locate block \$3C. First, locate XC in the first column. Using the formula,  $X = 2 * 3 + 1 = 7$  so the block is found on sectors 7 and 6 of track 7.

To go the other way you must decide if the track is even or odd. If the track is even, use the top half of the chart; if odd, use the bottom half.

For an example of this, let's find the block corresponding to track/sector \$0C/\$0F. First \$0C is an even number so use the top half of the table. Next  $X = \$0C/2 = \$6$ . Locating Y/F in the top half and moving over to the first column shows that track/sector \$0C/\$0F is the second half of block number \$67.

There is just one more thing to be remembered. When you find the start of your actual text on the disk, you need to back up 2 blocks to leave room for the header which is at the start of all text files. For more information see the Apple Pascal Reference Manual 3.2.1. The Format of Text Files.

Now to rebuild the directory. First make a backup of your disk. I use COPYA from the DOS System Master for this. Of course, if I would have backed up in the very beginning I would not have had to go through all of this, but that's hindsight. Any direction modification of sectors is considered dangerous so we need to back up now for sure.

The Pascal disk directory is divided into entries that are 26 (decimal) bytes long. The first 26 bytes are for the disk volume name. Each subsequent group of 26 bytes is for an individual file. The directory starts on track \$0, sector \$B and extends downward. There is room for up to 77 file names.

### THE FIRST 26 BYTES

BYTE #  
1,0 START OF DIRECTORY  
3,2 END OF DIRECTORY BLOCKNUMBER

5,4 ALWAYS ZERO  
 6 LENGTH OF DISK VOLUME NAME  
 7-13 DISK VOLUME NAME STRING  
 15,14 NUMBER OF BLOCKS ON DISK  
 17,16 ENTRIES IN THE DIRECTORY  
 19,18 ALWAYS ZERO  
 21,20 CURRENT DATE  
 23,22 ALWAYS ZERO  
 25,26 ALWAYS ZERO

INDIVIDUAL FILES

BYTE #  
 1,0 BLOCK START NUMBER  
 3,2 BLOCK END NUMBER  
 5,4 FILE TYPE:  
     2=CODE, 3=TEXT, 5=DATA  
 6 LENGTH OF FILE NAME  
 7-21 FILENAME STRING  
 23,22 NUMBER OF BYTES IN LAST BLOCK  
 25,24 FILE DATE

As an example, I have included a sector dump of my Apple I diskette. Notice, as usual, the low order byte is first. Also the ending block number is really the beginning of the next file or one block past the actual end of the text file.

Let's look at the initial 26 bytes first. The start of the directory is 0000, or block zero. The end of the directory is 0600, or block six. Next we find two bytes of filler, 00 00. Now 06 is the length of the volume name. The volume name itself appears as shown below.

```
41 50 50 4C 45 31
A P P L E I
```

Next comes three more filler bytes 00 18 01, followed by a 0A00 which shows that there are 10 file entries in my current directory. Two more bytes of filler, 00 00 are followed by the current date in Pascal format, 2C A5. The next four bytes are again filler.

The first individual file is my SYSTEM.APPLE is broken down like this. The starting block number is six, 06 00. The ending block number is thirty-eight or hex \$26, 26 00. The file type is 05 00 which indicates a data file. The length of the data file is twelve, \$0C. The file name string is:

```
53 59 53 54 45 4D 2E 41 50 50 4C 45
S Y S T E M . A P P L E
```

There are a remaining three bytes of filler 00 24 67. The maximum length for a file name is fifteen bytes. The number of bytes in the last block is 00 02, which says all

the bytes in the last block are used. Remember 00 02 is low order byte first, so it stands for  $2 * 256 = 512$  bytes which is a full block. This was the case for all the text files I have dealt with. Finally there are two bytes for the file date, 9B A0.

These examples will serve as an entrance into the understanding of how Pascal formats information in track/sector blocks. Back up your disks and you will not not to use this information in desperation.

Jim Wrenholt

Reprinted from The Scarlett Letter, published by the Big Apple User Group; (The IAC Compiler)

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Treasurers Report Yr 1985

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Previous Balance 1539.99

Revenue

Membership 1876.00  
 Monthly Don's 1808.50

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 Total Revenue 3763.00

Expenses

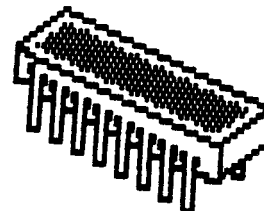
Refreshments 143.69  
 Operational Expenses 349.10  
 Capital Expenses 1227.31  
 Newsletter + Stamps 1672.15  
 Diskettes 569.58  
 Other Club Membership 102.00  
 Rent 609.00  
 Prize Fund 170.00

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 Total Expenses 4842.83

Net Income -1079.83

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 Ending Balance 460.16

John W Sandora



DAUG  
NEEDS  
YOUR  
HELP



The only way to have a good newsletter each month is to get input from members. You don't have to be a HACKER to contribute something. I really cannot write 7 pages each month without your help. Things we can use are:

- !Software reviews-games, business programs, public domain, etc.
- !Article or book reviews- from newspapers, magazines, books, etc. (except Nibble)
- !Short programs or routines-you have written
- !Programming tips & hints
- !Trivia-computer facts, cartoons, questions
- !Anything else of interest

Articles can be given to any of the officers at the regular monthly meeting. They can also be mailed directly to the Newsletter Editor at the following address:

DOM SMITH  
20 S. LODGE LANE  
LOMBARD, ILL 60148

The deadline for submission of these articles is the date of the board meeting (see the schedule on page 1). As an added incentive for you to submit an article, you will be entitled to a free DDM during each month you submit an article.

Please have each submission consist of the following:

- 1) a printed copy of your article
- 2) a diskette containing your article
- 3) the word processor used to create your article
- 4) your name and telephone number

Your cooperation is needed and appreciated.

**In Memory**

Harlan J. Andersen, a long time member and former officer of the DuPage Apple Users Group passed away this past month. Our thoughts are with his family in this time of sorrow.

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Treas Report 1986 Jan Feb  
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previous balance 460.16 508.20

revenue

membership 176.00 120.00  
monthly don's 300.00 220.00

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total revenue 476.00 340.00

expenses

refreshments 0.00 0.00  
operational exp. 11.00 2.00  
capital expenses 0.00 0.00  
newsletter stamps 123.00 95.74  
diskettes 263.96 0.00  
other club mbrship 0.00 0.00  
rent 0.00 75.00  
prize fund 30.00 0.00

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TOTAL EXPENSES 427.96 172.74  
net income 48.04 167.26  
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ending balance 508.20 675.46  
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john w sandora

HELP LINE

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The following members have volunteered to answer questions by phone on the subjects listed. Please be considerate when calling for help. Think through your question; collect all the information; and don't call later than 10 p.m. If you'd like to help, let us know.

- Apple Writer II: Chuck Jonah, 985-5497
- Applesoft: Chuck Jonah, 985-5497
- Appleworks:
- DDM Info: Detlef Adolff, 766-7741
- DOS: Chuck Jonah, 985-5497
- Interface: Rufus Teesdale, 469-8836
- Mach Lang: Chuck Jonah, 985-5497
- Macintosh: Randy Paulin, 366-3274
- Modems: Rufus Teesdale, 469-8836
- Magic Window: Ed Danley, 969-4433
- Supertext: Dave Dohmeier, 941-1645

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**BOARD BUYS MORE BY-LAW CHANGES**

More changes to the BY-LAWS??? What are those guys doing anyway? What a great spot for a self-serving statement (which I wont bore you with). Right now, we're cleaning up some details. For example, now that we are blessed with TWO vice presidents, references to "the vice president" are ambiguous. Also, we want to be absolutely sure that our Directors dont escape because of some silly loophole regarding elections (fat chance of that!). Bye the bye, when's the last time you read the BY-LAWS, anyway? (Corny, I know, but at least its not borrrring).

RESOLVED that the following changes be made in the BY-LAWS of the DuPage Apple Users Group as last ammended February 11, 1986:

In ARTICLE TWO, under DUES AND FEES, delete "DOS 3.3" and substitute therefor -- currently available --.

In ARTICLE THREE, under ELECTION AND TERMS OF OFFICE, after "The officers" insert -- and the Directors at Large --; and after "Election of officers" insert -- and Directors at Large --.

In ARTICLE THREE, under VACANCY OF OFFICES, after "Vacancies of offices" insert -- and directorates --.

In ARTICLES FOUR AND FIVE change "Vice President" (three occurrences) to --Vice President/Program Chairman--.

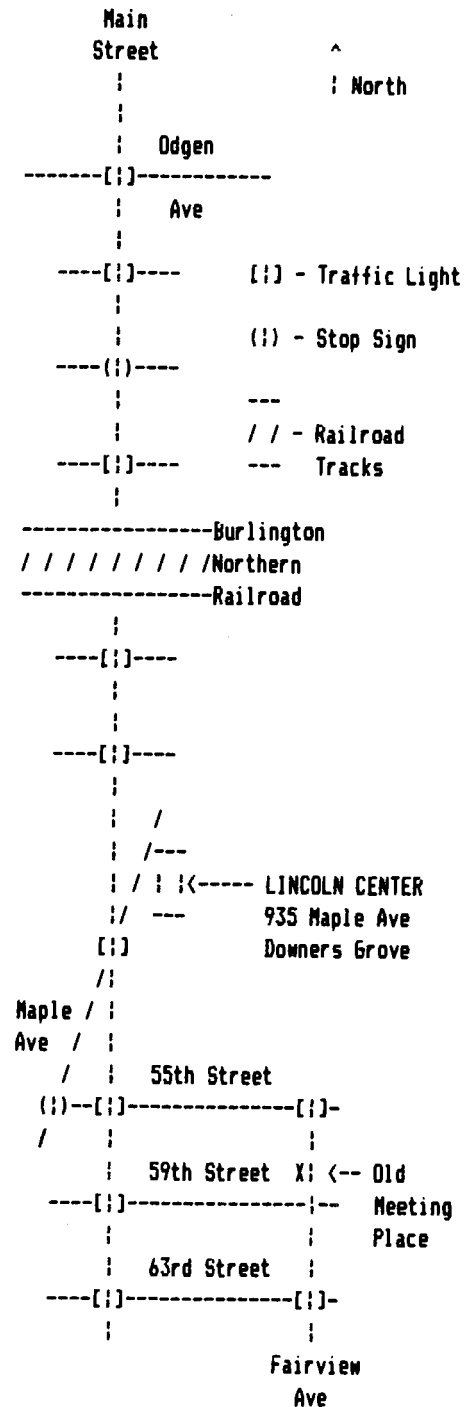
**APPLEWORKS SIG IN PROCESS**

With the increasing number of members using Appleworks, there has been some interest in starting up a special interest group of members (ie a SIG) on this topic. Our librarian Detlef Adolff is has set up an Appleworks Sig in the Wooddale area using a room at the Wooddale Public Library (Foster & Wooddale Rd, Wooddale). Anyone interested in joining this Sig effort please contact him at the next meeting or call him.

**Want a Free Disk of the Month?**

The way to get your free disk is very simple in DAUG all you have to do is submit an article for the newsletter, which we are always looking for more material or recommend a friend for membership to the membership chairman Jim Cormack. This is simple no hard work or money expended for the disks of the month.

**MAP TO NEW LOCATION**



**Member Advertisements**

By popular request, we provide this service. Listings will be run without charge for any member in good standing. Copy is limited to 6 lines, each 3 1/2", and should be sent to the Editor ready for paste-up. We will run as many ads as space will allow.

DAUG Disk of the Month # 56 - March 1986

The DAUG DoM this month is titled **The Librarian's Disk**, and comes from Stanislaus Apple Group. The following is a brief description of the programs and what they do:

**BELL:** Replaces "CTRL-G" with a mellower sound to retain your sanity.

**CATPRINT:** Simply outputs a catalog of the currently active disk to your printer. Allows you to title the catalog.

**DISK ARRANGER** is a utility which allows you to change the order of files on disk, and will permit you to enter titles (and other 'illegal' file names) into the catalog of a disk.

**DISK CAT:** This is a master catalog utility. I find it highly useful. It will save the catalogs of all your disks in a text file. The file also includes free space on each disk. You assign a number to each disk and can assign a title to each. Non-standard DOS disks can be manually entered. For more info run the program and select "HELP" from the main menu. I have included a sample file with our group's D-O-M's to try. Some warnings: these are text files, they take a while to load. garbage collection will occur occasionally, don't be alarmed when your Apple "lunches out". Generally, 20-25 disks is a good size for a file, then start a new one.

**DISK CHECK** is a short program which does a checksum verification of each sector on each of a disk's tracks. If a bad sector should be found, it will be printed out.

**DISK MAP:** This handy program displays a map of the used and free sectors of a DOS 3.3 disk. This program can be run from an Applesoft program, or accessed by 'CALL 8192' after it has been loaded into memory.

**DISK SORT - VER 3.3:** Sorts the catalog on your disk into alphabetical order. There are fancier commercial products. Nibble magazine 1983 #2 has a program which will allow you to place file names in any desired order.

**DOCUMENTATION:** The program that produces this stuff on screen. It reads a text file called "HELP". If you want a permanent copy do a PR#1 (assuming your printer interface is in SLOT 1) then re-run DOCUMENTATION. This program looks for a standard text file called HELP. HELP can be created with any word processing program that creates text files. Just make your file and call it 'HELP'. It can also be used from within a program. You could also change the name of the textfile easily by changing a couple of lines.

**FID:** Our old favorite from Apple Computer, Inc.

**INVERSE REMS:** Displays all the REMs in program listings (to the monitor) in inverse, so they are highlighted.

**LHS CATALOG:** An enhanced catalog with, among other things, free space, and the address and length of binary files. MENU (SUPER)--see below--will give you binary file statistics.

**THE MENUS--**The following programs turn your catalog into a menu in various ways. SUPER.FP is the one used with the hello on this disk. ABBR--just gives you a few options. SELECTIVE--displays only locked files for you to run. Great where there are a lot of secondary files not directly used. SUPER--vast range of options to be performed on any file. Any of these can be used to good effect as the HELLO program.

**SCREEN WRITE 2.1:** Allows you to produce text screens which can be directly loaded, handy where you want a short instruction screen in a program. More instructions and an example in SCREEN WRITE INSTRUCTIONS and the associated SCR.WRI.INST.

**SCREEN EDIT:** Edit screens produced and saved using SCREEN WRITE 2.1

**SHOW CTRL:** Highlights control characters in inverse. Useful for finding these little devils in the catalog.

**SPCA LABELLER:** Designed to produce return address labels, I find it excellent for library labels, which I run on standard 15/16" labels.

**SUPER LABEL PRINTER II:** This one is specifically for the EPSON and takes advantage of the features of that printer. Lots of options.

**TOM'S DISK MODIFIER:** A good disk zap for the times when you need one.

**TRACK 35:** Allows creation of a disk which has an extra track--#35, giving you 16 extra sectors. Also allows use of tracks 1 and 2 for 32 more sectors of storage--and a non-bootable disk. Has its own instruction program--run it first, this can be a dangerous program to fool with.

**TRICK FILE NAME UTILITY:** If you like to do that sort of thing.

Here's a catalog of the important files on this disk. I think you'll find that these utilities will come in very handy in keeping track of your own collection of disks, as well as in sprucing up those disks.

BELL  
CATPRINT  
COPYA  
DISK ARRANGER INSTRUCTIONS  
DISK ARRANGER  
DISK CHECK INSTRUCTIONS  
DISK CHECK  
DISK MAP PROGRAM  
DISK SORT-VER 3.3  
DISK CATALOGER  
HELP.CAT  
DOCUMENTATION  
FID  
HELP  
INVERSE REMS  
LHS CATALOG  
MENU (ABBR.FP)  
MENU (SELECTIVE.FP)  
MENU (SUPER.FP)  
MENU (SUPER.INT)  
PDB COPY PROGRAM  
PDB INSTRUCTIONS  
SCREEN EDIT  
SCREEN WRITE INSTRUCTIONS  
SCREEN WRITE 2.1  
SHOW CTRL  
SPCA LABELLER  
SUPER LABEL PRINTER II  
TOM'S DISK MODIFIER  
TRACK 35.INSTRUCTIONS  
TRICK FILE NAME UTILITY

VISIT OUR FRIENDS!

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A number of local computer stores support our activity by offering the discounts listed below to those who show their membership cards. Stores that sell merchandise to everybody at a discount are not included.

- C B M Computer , St. Charles Rd and Route 83, Elmhurst (530-1125)-15%
  - C B M Computer , 7 S LaGrange Rd, LaGrange (352-4800) -- 15%
  - Computer Workshop, 1626 W Ogden Av, Downers Grove (971-0004) -- 10% on training and rentals; none on consulting or programming
  - Farnsworth Computer Center, 1891 N Farnsworth Av, Aurora (851-3888)--15%
  - Farnsworth Computer Center, 383 E North Av, Villa Park (833-7100) 15%
  - Primetime Computer Services, 9906 Wood Lane, Palos Hills, Ill (598-5200)-10%
  - Save On Software, 111 E Roosevelt Rd., Lombard, Ill 60148 (932-9144) --27% on software & supplies, hardware -good prices
  - Softwaire Center, 1163 Ogden Av, Naperville (355-7515) -- 15%
- Frequently a smaller discount is offered if a credit card is used. If a store would like to be included in this listing, please write the editor and give us your discount schedule for Apple-User Group members.
- \*\*\*\*\*

P O Box 294  
Downers Grove IL 60515  
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The mailing label to the right is the only notice you will get that your membership is expiring. If you let your membership lapse, you will have to pay another initiation fee of \$8, plus your \$12 dues, to get back on our list.

**FIRST CLASS**





VISIT OUR FRIENDS!

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A number of local computer stores support our activity by offering the discounts listed below to those who show their membership cards. Stores that sell merchandise to everybody at a discount are not included.

- Computer Grove, 5223 Main St., Downers Grove (968-0330)--10%
  - Computer Junction, St. Charles Rd and Route 83, Elmhurst (530-1125)-15%
  - Computer Junction, 7 S LaGrange Rd, LaGrange (352-4800) -- 15%
  - Computer Patch, 2775 Maple Av, Lisle (420-8861) -- 20%
  - Computer Workshop, 1626 W Ogden Av, Downers Grove (971-0004) -- 10% on training and rentals; none on consulting or programming
  - Farnsworth Computer Center, 1891 N Farnsworth Av, Aurora (851-3888)--15%
  - Farnsworth Computer Center, 383 E North Av, Villa Park (833-7100) 15%
  - Micro City, 24W500 Maple Av, Naperville (355-9726) -- 2-40%
  - Softwaire Center, 1163 Ogden Av, Naperville (355-7515) -- 15%
- Frequently a smaller discount is offered if a credit card is used. If a store would like to be included in this listing, please write the editor and give us your discount schedule for Apple-User Group members.

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Downers Grove IL 60515

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