DuPage Apple Users Group

daug

NEWSLETTER

DECEMBER 1986

DECEMBER MEETING

When: 7:30 PM, December 09.1986

Where: Lincoln Center
935 Maple Ave
Downers Grove, Ill

Topic: Christmas Programming Contest
SIDER DRAWING

7:30-7:40	Opening remarks
7:40-8:00	Demo of Current DOM
8:00-9:00	Demos of contest entries
9:00-9:30	Break & Novice Corner
	Purchase of SIDER TICKETS
9:30-9:35	Door Prize Drawing
9:35-9:45	SIDER HARD DRIVE DRAWING

Other Dates to Remember

Dec 9: Regular meeting
17: Board Meeting '(--NO MEETING----)
30: Appleworks Sig --NO MEETING-----
Jan 13: Regular meeting- Operating Systems
21: Board Meeting (7PM, Downers Grove Library)
27: Appleworks Sig (7PM, Wood Dale Library)
Feb 10: Regular meeting- Member MONTH
18: Board Meeting (7PM, Downers Grove Library)
24: Appleworks Sig (7PM, Wood Dale Library)

OFFICERS

President:	Ed Danley	969-4433
V/P Program	Randy Paulin	366-3274
V/P Membership	Jim Cormack	960-5691
Secretary	Albert Hilliger	860-2626
Treasurer	John Sandora	352-3059
Librarian	Detlef Adolff	766-7741
Editor	Don Smith	629-5033
Directors	Bob Konikow	968-3897
	Ralph Stein	985-7850

...from the Presidents corner...

Talk about a full meeting, our November meeting had at least 107 people in attendance. That means that D.A.U.G. is the proud owner of a 10M Sider hard disk courtesy of First Class Peripherals/Xebec. This also means that some lucky person will get the hard disk. If you were at one of the past meetings, or show up at the December meeting, you can get raffle tickets. See articles elsewhere in this issue or previous issues for complete details.

First Class Perpherals was at our meeting presenting the Sider Hard Disks and backup systems. The hard disk can be formatted as a combination of DOS 3.3, ProDOS, PASCAL and CPM disks. Also at our meeting was two (thats right 2!) Apple //GS's. Our program chairman, Randy Paulin brought his, and a representative from Farnsworth brought one. We then ran thru some of the dealer demo programs for the GS followed by programs brought in by members. From what I saw, only 1 program would not boot on the GS. Apparently RASTER BLASTER's copy protection prevented it from booting on the GS. We also ran some of the programs side by side on the GS and the //e. The speed of the GS was amazing compared to the IIE.

Our December meeting will again be our annual Christmas contest. See articles elsewhere in this newsletter for more details, or contact Randy Paulin for more details. We also plan on having some new software from Broderbund at the meeting. Broderbund themselves were supposed to attend, but they had to pospone their presence until a later date. They will be sending some software for us to see. One more thing, we planning on having punch and other goodies at the December meeting. If you would like to bring something, please do. Just let myself, or any of the other officers know what you are bringing so we can avoid to much duplication.

Happy Holidays

Ed Danley

SMITH NUMBERS

No, Smith Numbers are in no way related to Don, our Newsletter editor. They are integers with a very special property that you may find interesting.

We all know what Prime numbers are, and many of us are also familiar with Perfect, Defective, Abundant, Amicable and Pythagorean numbers. These and others are integers with special properties which, with a few exceptions, have the attractive attribute of being absolutely useless. Well, not completely useless since they have been studied by many over many centuries and have led to a special topic in mathematics called "The Theory of Numbers." It is believed that interest in number theory (integers only) has its origins in Numerology, the notion that certain numbers have mystical or magic significance. Numerology was mentioned at the September DAUG meeting when Ed Danley summarized for us a letter sent to DAUG asking if members might be interested in starting a business with their computers based on doing "Numerological" calculations for potential customers. That's what gave me the idea to tell you about Smith numbers.

There now seems to be a very new special integer described in the August 16, 1986 issue of Science News. The Smith referred to above is the brother-in-law of mathematician Albert Wilansky of Lehigh University. Wilansky discovered that his brother-in-law's phone number (4937775) has the following remarkable property. The sum of its digits (4+9+3+7+7+7+5) is 42. Its prime factors are 3, 5, 5, 65837. The sum of the digits of its prime factors (3+5+5+6+5+8+3+7) is also 42! That makes the number truly special. For example, over the range of all numbers between 1 and 100000 there are only 3294 integers with this property. Wilansky decided to call these special numbers "Smith" numbers. And now others are studying them. Perhaps you would too using the Applesoft routines listed below.

Two routines are needed to determine if an integer is a Smith number: a routine to calculate the sum of the digits of the integer, and a routine to determine the prime factors of the integer. The first, starting at Applesoft line 1000 below, is a subroutine that takes any integer Z and returns the sum of its digits in SD.

```
1000 IF Z<10 THEN SD=Z :RETURN
1010 SD=0 :Z$=STR$(Z)
1020 FOR I=1 TO LEN(Z$)
1030 SD=SD+VAL(MID$(Z$,I,1))
1040 NEXT I :RETURN
```

The second routine is more complicated. It's also a subroutine that takes an integer N and returns the sum of the digits of it's prime factors in SF or returns SF=0 if N is a prime number. (By definition, a prime number is not a Smith number.) The subroutine starts at line 2000 below, tests successively all possible factors F of N in another subroutine starting at line 3000, and if F is a factor sums its digits using the subroutine at line 1000 above.

```
2000 SF=0 :D=N
2010 F=2 :GOSUB 3000 :F=3 :GOSUB 3000 :F=5 :GOSUB 3000
2020 F=F+2 :GOSUB 3000 :IF D<F THEN 2040
2030 F=F+4 :GOSUB 3000 :IF D>F THEN 2020
2040 IF N<>D THEN Z=D :GOSUB 1000 :SF=SF+SD
2050 RETURN

3000 Q=D/F :IF (INT(Q)<>Q) OR (Q=1) THEN RETURN
3010 Z=F :GOSUB 1000 :SF=SF+SD :D=Q :GOTO 3000
```

As an illustration of the use of these routines, here's a "front end" that determines if any assigned integer N is a Smith number.

```
10   HOME
20   INPUT "ENTER NUMBER TO BE TESTED: ";N
30   Z=N :GOSUB 1000 :SN=SD :GOSUB 2000
40   IF SN=SF THEN PRINT "IT'S A SMITH NUMBER!"
50   IF SN<>SF THEN PRINT "IT'S NOT A SMITH NUMBER."
60   PRINT :GOTO 20
```

I've tested all DAUG members' phone numbers from the July '86 membership list; none are Smith numbers. But if we alter the definition of a Smith number to include "1" as a prime factor (e.g. add :SF=SF+1 to the end of line 30), then at least four members have phone numbers that are "altered" Smith numbers. Who are they? I don't think I should reveal such extremely sensitive information.

--- Ralph P. Stein (9/16/86) ---

Treasurers Report	Nov 86
Previous Balance	558.55
Membership	236.00
Monthly Dom's	260.00
Total Revenue	496.00
Expenses	
Operational Expenses	2.00
Capital Expenses	0.00
Newsletter + Stamps	117.70
Diskettes	0.00
Other Club Membership	0.00
Rent	35.00
Prize Fund	20.00
Total Expenses	174.70
Net Income	321.30
Ending Balances	879.85

John W Sandora

Inside the Apple IIgs

by Neil Shapiro

The design of the new Apple IIgs, from a hardware standpoint, was no easy challenge. Apple had to face two tough taskmasters -- their future customers and their present customers. The Apple IIgs had to be designed so as to be at the forefront of hardware possibility and power while still retaining the ability to use almost all of the existing Apple II hardware and software base.

Many other companies have faced similar challenges and have thrown up their hands to opt for one choice over the other. Some manufacturers have deliberately crippled the capability of their new machines in order to remain compatible with their old hardware. Other companies have released machines which, while powerful in their own right, have left their loyal user base holding the short end of the stick of obsolescence.

Apple Computer Inc. has shown for once and for all that a futuristic new design need not neglect either the standards of the past nor the promises of the future.

CHIP RUNDOWN

As you no doubt expected, the new Apple IIgs uses many specially-designed integrated circuits. These ICs include not only the CPU itself but at least nine other specially designed LSI (Large Scale Integration) chips. The 65816 CPU (Western Design Center 65SC816) is a 16-bit chip ancestrally related to the previous 6502 CPU used in Apple II machines. This new CPU features 16-bit accumulator, 16-bit X and Y registers as well as relocatable zero page and stack. The CPU has a 24-bit internal address bus and 8-bit registers for both the data address bank and the program address bank. There are 11 new addressing modes (new from the 6502) and 36 new instructions for a total of 91 along with fast-block move instructions and complete 6502 and 65C02 emulation.

Supporting the functionality and power of the CPU, Apple has designed a complement of new chips in this most powerful new addition to the Apple II family. Here's a very brief rundown on these new silicon additions: The Mega II chip provides for basic Apple II addressing and timing and works in conjunction with the following chip.

The Fast Processor Interface (FPI) handles the synchronization of the CPU processor with the Mega II chip. This is more complex than it may first appear as the Apple IIgs has both "fast" and "slow" RAM memory. Because the Apple IIgs emulates the older machines, it must be able to run at the older speed of 1 MHz. The CPU does have this capability. But what about the fact that such peripherals as Disk II controller cards and firmware with timing loops all expect the older, slower speed? Apple solved this dilemma by delegating 128K of the IIbs's memory as being "slow" memory that would always run at 1 MHz. But keep in mind that even in emulation mode the CPU may be run at 2.8 MHz. (This translates to 2.5 MHz after some internal routines are taken care of.) This means that even older Apple II programs are loaded into the "faster" memory.
The Mega II chip governs the "slower" portions of memory while the FPI chip governs the "faster" part of the memory. "Fast" and "slow" are somewhat misleading. The actual RAM memory chips are all capable of the same speed. But it is the FPI and Mega II chips which determine the speed at which the memory segment in question will run.

The Slotmaker chip is responsible for generating signals that are involved with addressing and controlling the expansion slots.

The Video Generator Circuit (VGC) is the chip which provides the new Super-Res capabilities and so provides both video addressing and signal generation.

The Integrated Woz Machine (IWM) is a chip that was first introduced on the Macintosh and which controls both 5.25" and 3.5" disk drives.

The Digital Oscillator Chip (DOC) and the Sound General Logic Unit (Sound GLU) work together to put the "S" in Apple IIgs. The DOC is a sampling sound generator made by Ensoniq; the Sound GLU connects the DOC to the system bus. Likewise, the Keyboard Microprocessor (a 50740A) and the Keyboard General Logic Unit (Key GLU) work in tandem. The Keyboard Microprocessor runs the new Apple Desktop Bus which allows for the mouse as well as the keyboard and future peripherals while the Key GLU connects that microprocessor to the system bus.

THANKS FOR THE MEMORIES

The Apple IIgs's CPU could address up to 16 megabytes of memory. Apple has chosen to make at least 8 megabytes of this space available for RAM expansion and 1 megabyte for ROM expansion.

Minimum RAM for the IIgs is a respectable 256K. Programs that are written
directly for the Apple IIgs can expect to use about 176K of that space as some space is taken for displays and the system firmware. Programs written for the Apple IIe or IIc, and run on the IIgs in emulation mode, will find home sweet home as, in emulation mode, the bottom 128K of memory is mapped out as one main 64K bank of memory and an auxilliary 64K bank just like old times.

There is a reserved expansion slot in the Apple IIgs for additional RAM. If a program calls the in-ROM Memory Manager then all the memory on the card is available to the application. The program may reside and run in any portion of the expansion memory, given that the Memory Manager routines are used. This means that the RAM is "real" memory and can be used as far more than just a RAM disk.

However, this memory arrangement means that older style memory cards are not going to be fully compatible with the Apple IIgs. An older style memory card will be able to be plugged into a gs slot. Once plugged in it will operate just as if it were in an Apple IIe or IIc when used in emulation mode. But you would not be able to use such a card as fully-utilized Apple IIgs memory.

This means a new round of memory cards and Apple is making one style available now and one in the near future. Available right away is a card that utilizes 256K memory chips and which can grow the IIgs' expansion RAM space to 1 megabyte. When 1 megabit chips become available the card will also be sold in configurations allowing the expnded memory to reach 4 megabytes. (Still not yet up to the full 8 megabytes the machine could recognize).

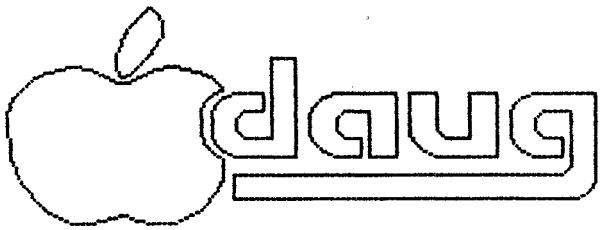
SO SHOW ME SOMETHING!

Anything the older Apple II's can do in the realm of text and display, the Apple IIgs can do also. All of the older display modes will work and almost all graphic-oriented software written for the older II line will run on the new machine. But the Apple IIgs adds Super-Res graphics and analog RGB to the list of video delights.

Note that we are now speaking of analog RGB and not digital RGB. A digital RGB monitor (such as Apple's older RGB monitor or an IBM PC color monitor) will not work on the Apple IIgs. The digital RGB monitors, by their design, are not capable of producing nearly the wealth of glorious colors possible on the Apple IIgs. So, for full enjoyment of the IIgs, sooner or later most people will have to purchase a new color monitor. But, in the meantime, the IIgs will work with inexpensive NTSC color monitors and deliver almost all of the graphic features with somewhat less visual acuity.

All of the Apple IIgs' various video modes take place on a display that is mapped out as three areas: colored text, colored background and colored border.
Any of sixteen colors may be selected for these areas in any combination. The only proviso is that the user may not select the same color for both the text and the text background -- shades of the Invisible Man if he could! The colored text, however, only works with the analog RGB output. NTSC users will have to be content with text displays of black and white and shades of grey. This is due to the fact that color fringing would otherwise result on NTSC monitors.

CONTINUED NEXT MONTH



Christmas Programming Contest

Once again this December, DAUG will present... **YOU** when you enter your greatest brainchild in our annual members programming contest!

Don't get worried, you don't have to be a programmer to enter! If you can draw, you can be a winner too!

The Categories:

One Liners:

This category allows a complete program in one line of BASIC or 256 bytes of machine code

One Pagers:

One Page programs come in several flavors:

1) BASIC- must list to a 40 by 24 screen without scrolling.
2) 6502 machine code less than $400 bytes.
3) Grafix- must be one 8192 byte HI-RES picture.

Full applications:

These are fully finished programs that do not fit into any of the above categories. This includes short BASIC programs that use Applesoft expanders (like DAUG vol. 21 'CAT grafix')

Your entry doesn't need to be a complete program, you can submit a subroutine which does something useful. Everyone can benefit from useful or unusual programs!

Have you got a question? Do you have a special case program? Give one of the club officers a call to find out!

NEW OWNERS CORNER

The question of how to randomly select numbers without duplications in Applesoft came up again during the November meeting. As a result we thought it would be of value to offer an alternate to the program given in the November Newsletter's "New Owners Get Help" article. The alternate is a subroutine that takes a previously defined array A(I), I = 1 to N, and reorders the elements randomly. Saying it another way, the subroutine "shuffles" the array elements in a manner similar to shuffling a deck of cards. The subroutine starts at line 1000 below. It's preceded with a main program to serve as an example of how one can use the subroutine. There are, of course, a variety of other ways of using the same subprogram.

```
10 HOME
20 INPUT "ASSIGN N: ";N
30 DIM A(N)
40 FOR I=1 TO N: A(I)=I: NEXT I
50 NS=N: GOSUB 1000
60 PRINT "SHUFFLED A(I) ---"
70 FOR I=1 TO N: PRINT A(I);" ";: NEXT I
80 PRINT: PRINT
90 PRINT "SHUFFLE AGAIN (Y/N)? "
100 GET Q$: IF Q$="Y" THEN 50
110 END
999 REM ================================
1000 FOR I=1 TO N-1
1010 J=INT(NS*RND(1)+1)
1020 Z=A(NS): A(NS)=A(J): A(J)=Z
1030 NS=NS-1: NEXT I
1040 RETURN
```

R.B.Konikow & R.P.Stein

DOOR PRIZE !

If you attended one of the last couple of meetings you may have heard that we changed the way we are handling our door prize. At our October meeting we started to give away CASH!! There was a small catch you had to be there to accept the door prize that was drawn by the computer from the current list of members. If the member's name that was drawn as the winner was not in attendance the amount of the current door prize would be carried over to the next month. So in November at our door prize drawing we gave away October's $10 and November's $10 for a total of $20 (only because lucky member was at the meeting).

Elaine A. Passow was at the November meeting to collect $20.00
Good luck to the rest of you next month!

Al Hilliger

Microzine Review

A Microzine is a disk which contains several programs designed for the education and entertainment of school-age children. It is published by Scholastic Software, Inc., 2931 E. McCarty St., PO Box 7502, Jefferson City, MO 65102. Microzine is offered on a subscription basis, so one disk arrives at our house each month, at a cost of $29.95.

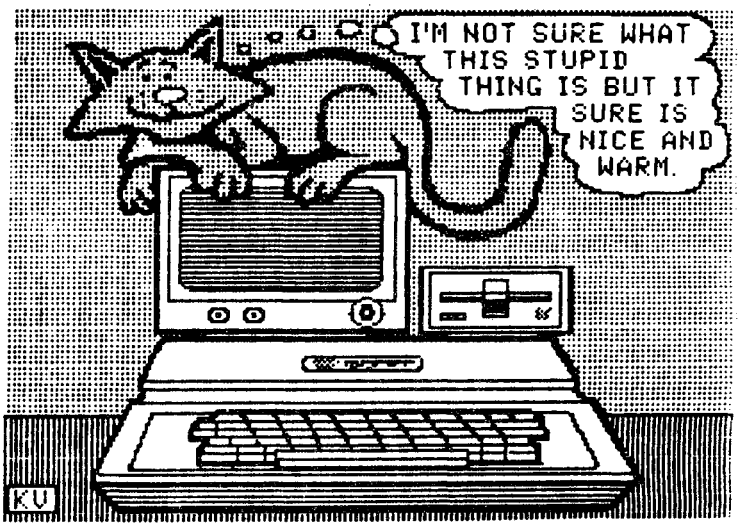
We currently have 10 Microzines. The contents of each disk varies, but generally they have a computer cartoon strip, a logic story puzzle, and a TWISTAPLOT tm adventure. The latter is an adventure story which lets you choose an action from a list at various points of the adventure. In this way the adventurer can choose to follow one of numerous scenarios built into the adventure. Each TWISTAPLOT tm also uses graphics with some animation, some memory recall, some game playing, and logic.

In recent issues, there have been question and answer games which illustrate the use of a data base. Sets of questions are posed and you have to properly search a data base, supplied on the disk, to find the correct answers. The information in the data base is factual and deals with topics such as inventors and their inventions, animals, geography, and space exploration. The most recent Microzine contains an illustrated game which teaches BASIC programming. It is very worthwhile for children who have an interest in learning BASIC and who have no previous knowledge.

While the main audience of Microzine is children, my wife and I have also enjoyed using all the features. I highly recommend Microzine for use by anyone 6 years of age or older.

Dave Dohmeier

REPRINTED FROM PLANE APPLE CLUB APRIL 85



Library Corner

by Detlef Adolff

Blank Diskettes SPECIAL

Remember that blank diskettes are available for purchase from the Librarian at club meetings. Because of an unusually advantageous purchase, the cost is only $4.69 for 10 diskettes plus tax. The diskettes come in multiples of 10 and include sleeves.

Mac DoM's

We now have Public Domain programs available on 3.5" disks for the Macintosh. We have 4 different DoM's with about 400K of useful programs on each one. That's roughly 20 programs per disk. The DoM's are priced at $5 each.

Free DoM's

Lots of good disks are coming up - why not recruit a new member for the club and get your disk for free?!

Reviewers Needed!!

I have a number of disks ready to be included in the club's library, but they need to be reviewed first. If you would like to volunteer your services, I'd be most grateful for your help. I also have a commercial Program available for review.

All you need to do is take the disk home, use it for a month, and write a short review. Just share your experience by telling us what the programs can do and what you liked and/or didn't like about them.

Please turn in your review on disk, so it doesn't have to be retyped. See me at the meeting for more details about what's available.

Steve Jobs on TV

Nine years ago, at the age of 22, Steve Jobs co-founded Apple Computers. Along with astonishingly rapid growth came internal dissent, and in 1985 Jobs lost a power struggle and resigned from Apple. Three months later he was back in the business, creating Next, Inc., a company aimed at transforming the learning process at the college and graduate level.

Steve Jobs is one of five mavericks profiled this month on Entrepreneurs, a new 90 minute documentary airing on Monday, December 22, at 9:00 pm on Channel 11. Treat yourself to an enjoyable and educational program on WTTW, Channel 11!

Special Announcement

Congratulations! You did it!!

Get a FREE 10 Meg Sider Hard Disk for Christmas!

First Class Peripherals/Xebec sent Mike Nalder to our last club meeting to demonstrate their Sider Hard Disk.

Over 100 people attended the meeting (107 to be exact). Congratulations to everyone, and thanks for bringing your friends and relatives to the meeting to introduce them to D.A.U.G. and to the Sider!

Because of the high attendance, First Class Peripherals has donated a 10 Meg Sider to the club! We will, therefore, hold a raffle at the annual Christmas party to give away the Sider, worth over $500!!!

How do you get raffle tickets? BUY them or earn FREE ones! In addition to the tickets you've already earned, you can buy raffle tickets to increase your chance of winning the Sider.

The money raised by the raffle is needed to buy some 80 column monitors for the club. You benefit twice - you can get a free Hard Disk and your money is returned to you in the form of better equipment at the meetings.

So....take a chance, and buy some tickets. Your probability of winning is better than in the Lottery, and the club needs the funds. Be a big spender - no matter what happens, YOU WIN!

Here are the specifics:

Sponsor a new member.....	3 tickets for you
	3 tickets for new member
Attend Dec Meeting.....	1 ticket
Buy tickets:	1 Ticket - $ 1.50
	4 Tickets - 5.00
	10 Tickets - 10.00

Important: Only CLUB MEMBERS can purchase tickets!

DAUG Disk of the Month # 65 - December 1986

This month we are featuring a double-sided DoM loaded with Utilities for two commonly used printers, the Apple Imagewriter, and the Epson MX-80 (and compatibles).

IMAGEWORKS, the improved and expanded ProDos version of DAUG DoM 52 (Nov 85), permits downloading of an alternate font, which can then be used instead of the built-in Font.

Imageworks now provides 45 alternates, which are kept in the Subdirectory FONTS! In addition, there is a demo mode that prints to the screen. Also included is a utility to dump Hi-Res screens to the printer, something that comes in handy when you're using Softgraph (DoM 64), for example!

/IMAGEWORKS/FONTS:

APL, ASCII, BAR, BLIPPO, BLOCK, BROADWAY, BYTE, COLOSSAL, CONTRACT, COUNT, CYRILLIC, DIGITAL, EDUCATIONAL, ESPERANTO, FANCY, FLOW, GAMES, GOTHIC, GRAPHIC, GRAPHICS, GREEK, HEBREW, HEIGHT, KATAKANA, MIRROR, NINETY, NORMAL, OPTICAL, OUTLINE, PINBALL, PINOCCHIO, PUDGY, ROMAN, RUSSIAN, SHADOW, SKINNY, SLANT, SPECIAL, STENCIL, STOP, SUPERSUB, THIN, UPSIDE, WESTERN, WHITE

MX-80 Utilities, reviewed by Scott Swanson

EPSON CATALOG DBL STRIKE: Self-explanatory.

EPSON DRIVER: Used with Apple Writer II for "easier" Epson commands. Personally, I think D.A.U.G. DOM #45 is easier (has glossary file for commands).

EPSON LOWER CASE: Prints the lower case letters of the alphabet. Only problem is, the auther forgot to include "PR#0"...so that becomes the user's job. (I didn't fix it, I just made a note of it.)

CATALOG: Asks you for a catalog heading, and lets you date it if you have a Thunderclock.

DEMO I: Prints characters with different settings.

DEMO II: Demonstrates the combination of widths and strikes.

LABEL MAKER II: Can do compressed, standard, or dbl width 5-line labels.

LABEL MAKER III: Improved Version II, with dbl strike and catalog header capabilities. Quite nice.

LETTERHEAD: Creates a standard letterhead with dbl width name.

PROGRAM LIST: Lists any program on disk, and will stamp it with the date/time from a Thunderclock. Also puts a dbl width header on the listing of the program name.

REMINDER CATALOG: Useful little program that simply involves changing data lines in the program for customization.

SETUP I: Junky version of EPSON MX80 SETUP II.

SETUP II: Still pretty junky, but will format letterheads.

EPSON WORD GAME: Cute little word-search creator.

EPSON.EXEC.MAKER.A3.3: Creates Applesoft commands that can access the printer from BASIC without a PR#1 (I think).

EPSON.EXEC.MAKER.I3.3: Integer verson of above.

EPSON UTILITY 3.3 DEMO: Demo of Exec Maker's end product.

EPSON LABELS I: Worthless junk. 6 lines that can't center correctly when dbl width is used (and it comes out as standard width!). Also, must hit (ctrl-c) to exit.

EPSON LABELS II: Far better than Vers. 1, does four lines centered with line one dbl width and lines two to four compressed. Still must use (ctrl-c) to exit.

EPSON LABELS III: Handy program that is the best of the 3. You can select width and type style for each of the six lines. Quality program. This one does not require (ctrl-c) to exit, just a response to a question (Do you want any more labels?).

EPSON UTILITY 3.3 INFO / EPSON DRIVER INSTR: Self-explanatory

=== DAUG Special # 22 ===

What else, but Print Shop Graphics! Here's a disk with 89 Graphics (A - L), that you can access from Print Shop. In February we will bring you another Special Disk featuring more graphics (M through X), as well as the entries for the DAUG Christmas Contest '86.

Again on this disk you will find the Print Shop Slide Show program that will let you see 9 PS Graphics on screen at the same time.

PS SLIDE SHOW, DAUG.DOG, AIRPLANE, ANCHOR, ANCHOR.1, APPLE, APPLE //E, APPLE ALWAYS, APPLE BYTE, APPLE COMPUTER, APPLE DRIVE, APPLE FLOPPY, APPLE IIE, ARROW DOWN, ARROW LEFT, ARROW RIGHT, ARROW UP, BANANA, BANDIT, BANDITO, BASEBALL, BATTY, BEETLE BAILEY, BROOM HILDA, BURGER, BUSHY BEAR, CACTUS, CADUCEUS, CANDY CANE, CAPITOL, CAR, CARD.JACK, CARD.JOKER, CARD.KING, CAREBEAR.1, CAREBEAR.2, CARROTS, CHESS TILE, CIRCLE-SLASH, COFFEE CUP, COMPUTER2, COOKIE MONSTER, CORNDOG, CRACKPOT, CROCKPOT, CYCLIST, CYCLIST TILE, DAGWOOD, DANCING APPLE, DIAMONDS 1, DIAMONDS 2, DIAMONDS 3, DIAMONDS 4, DINOSAUR, DISH, DISK DRIVE, DRAGON2, EIFFEL 1, EIFFEL 2, ELEPHANT, F16A, FACE, FAT CAT, FISH, FLAG, FRED, FRIED EGG, FUNNY FISH, GARFIELD, GHOSTBUSTER, GLASSES, GLOBE, GO LEFT, GO RIGHT, GOLF, GR4, GRAPES, GYMNAST, HAND, HANDICAP, HANDSHAKE, HAPPY MASK, HAWK, HELICOPTER, HORSE, HORSE1, ICE CREAM, KITTY, LOOK, LOVE

VISIT OUR FRIENDS!
==========

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.CharlesRdandRoute83,Elmhurst(530-1125)-15%
C B M Computer , 7 S LaGrange Rd, LaGrange (352-4700) -- 15%
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
Software City,883 Geneva Rd.,Carol Stream,Ill 60187 (690-0880)- 15%
Expert Computer Solutions, 2015 W Ogden Ave.,Lisle,Ill 60532 (963-6255) --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.
******

DuPage Apple Users Group
daug
P.O. Box 294 ••• Downers Grove, IL 60515

NORTH SUBURBAN, IL PM 3 DEC 1986

WE ARE THE NEW POSTAL SERVICE WE CARE USA 22

APPLE USER GROUP CONNECTION

8707

(The above mailing label is the only notice you will receive that your membership is expiring. Renewal of membership will involve the payment of the initiation fee of $8.00 plus the yearly dues of $12.00 for a total of $20.00)