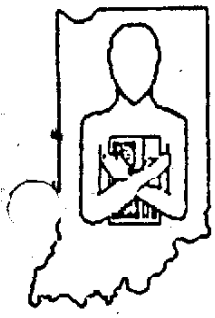

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NOVEMBER 1992 The HUGgers Newsletter Volume 11, Number 11

CHICAGO FAIRE REPORT

The Hoosier User's Group was present with a booth at the 10th annual Chicago TI International World Faire. It was a profitable day for us; and an opportunity to see several new and significant hardware items and software packages. Venders present included: Asgard Software, Bud Mills Services, C.a.D.D. Electronics, Competion Computer Solutions, Crystal Software, our own Delbert Wright (D. Wright Stuff) Harrison Software, L.L. Conner Enterprises (Larry Conner) MICROpendium Magazine, MS Software, 9640NEWS (Beery Miller) Notung Software, among others. Two vendors that were expected but unable to attend at the last minute were OPA from Canada and Berry Traver.

Speakers included: Rich Gilbertson. author of RICH Gram Kraker XBasic; Mike Wright on the project to create an IBM TI-Emulator; Bud Mills on his newest products including the new 4000 Series Horizon Ramdisk and a new HRD operating system; Don O'Neill of Western Horizon Technologies on their SCSI controller card; Beery Miller on the MDOS buyout; Mike Maksimik of Crystal Software on his software for support of tape backup for the Myarc HFDC and Midi Master v.3.0; and Chris Bobbitt of Asgard on his newest products including FIRST DRAFT and his AMS 128/512k Memory System. Also Charles Good of the Lima TI group filled in for Berry Traver and gave a demo of the 40 column version of Funnelweb 4.5. I was only able to sit in on the seminars by Charles Good and Beery Miller. According to Dr. Good, version 4.5 of Funnelweb should be out fairly soon. The major hold-up has been including full hard drive support. While the 40 column editor looks simular to previous versions it apparently has been rewritten in a more efficent manner. New features include being able to save files in a variety of new formats by including prefixes before the disk number and filename. Two of the new formats include IBM PC and UNIX file formats. Hopefully, it will be released soon.

Regarding Beery Miller's MDOS Buyout, as most Geneve owners probley already know, the buyout was successful and Beery has already released two upgraded hard and floppy versions (i.e. versions 1.20 and 1.21). Both are considerably improved over pre-buyout versions. Beery has also released a upgraded GPL file (ver. 1.09) which allows for greater usable memory access. Eventually MyBasic and PSystem files will be upgraded as needed.

NEW SOFTWARE

New software packages were available from several companies including Asgard, Crystal Software, MS Software, Harrison Software and Notung Software. First off, Asgard has released FIRST DRAFT/FINAL COPY - a new word processor that has an number of new features never before offered on a TI99/4a. These include a built-in spell checker, the ability to do multple columns, pull-down menus, ability to use PagePro 99 pictures, a built-in disk manager,

allows documents as large as available disk space, printer drives, and extended formatter with a screen preview function, and also 80-column device support. Asgard also had a number of other new packages including PAGE PRO PAGE COMPOSER, an icon driven page compositon and printing utility for Page Pro 99 users; MUSIC MAKER CONVERTER, which allows manipulation and conversion to free standing programs of Music Maker cartridge music files; and INVOICE MANAGEMENT, a new addition to Asgard's Small Business System series.

Crystall Software will soon have Midi Master Ver. 3.0 available. Harrison Software had several new disks of MIDI music available; a couple of new utilities - STOR-MORE, which allows string variables to be stored in unused 32k memory, and SMART CONNECT for transfering files between TI's and IBM PCs, also some new games were available.

Notung Software had DISK OF THE ANCIENT ONES, a TI-Artist video tutorial and a selection of art, educational and game programs.

MS Software of Richmond, Ohio has a variety of games including OLIVER'S TWIST for TI's Adventure Module, some SLIDING BLOCK PUZZLE games (and Hint Books) and for Page Pro 99 users a PAGE PRO CATALOGER which allows printing out of fonts, borders, pictures, pages, etc. in a catalog format.

NEW HARDWARE

New hardware items were available from several sources including Asgard, Bud Mills Services and Western Horizon Technologies. Asgard introduced their AMS 128/512Kk Memory Expansion System card. This appears that it will be card. This appears that it will be directly accessible memory expansion directly accessible memory expansion devices and when Asgard releases their XBasic III it will support the addition memory as direct memory. Also, programs like FIRST DRAFT apparently will be modified to take advantage of the additional memory.

Bud Mills Services had several new products available including the new 4000 Series Horizon Ramdisk. This version is capable of contaning up to 8 megs. on a single layer of chips and has the RAMBO and Phoenix modifications built-in. Other new products include a AVPC Rom fix, the Horizon Mouse, an upgrade for the PGRAM card, and WHT's SCSI Hard and Floppy disk controler card along with the rest of WHT's products.

Western Horizon Technologies has a number of new products available including their new SCSI Hard and Floppy disk controller which will support all will support all floppy disk drive types from SSSD thru IBM style Extended Densities, and up to 2.7 Gigabytes of hard drive space using SCSI type hard drive. Also it will contain the equvalent of PC-Transfer build in including the ability to read PC compatible disks. Also a TURBO VIDEO upgrade is available for the Geneve. Soom to be available is their 4/A MEMEX which can contain up to 16 megabytes of program space.

In terms of new products, and also attracting some new venders, the 10th Annual Chicago Faire was well worth while, and a success; however, attendance appeared to be fairly modest. However, with some of the new products introduced at this year's faire, there is a strong likelyhood of generating renewed interest in the TI/Geneve community.

- B.C.P.

FORMATTER "CRIBSHEET"

Text Dimension commands, as the name lies implies, move or shape the words in the document (margins, linespacing, right justify, etc.).

.FI	FILL	PUTS AS MANY WORDS ON A LINE AS WILL FIT.
.NF	NO FILL	CANCELS FILL.
.AD	ADJUST	ALIGNS THE TEXT TO THE LEFT AND RIGHT MARGINS.
.NA	NO ADJUST	CANCELS ADJUST.
.LM n	LF MARIGN	SETS LEFT MARGIN TO "n".
.RM n	RT MARGIN	SETS RIGHT MARGIN TO "n".
.IN	INDENT	CREATES AN AUTO-INDENT FROM LEFT MARGIN.
.LS n	LINE SP	SETS LINE SPACING TO "n" LINES.
.PL n	PG LENGTH	DEFINES NUMBER OF LINES TO A PAGE.
.BP	BEGIN [illegible]	DEFINES FIRST LINE OF NEW PAGE.

Internal Format commands control the spacing of characters on a line.

.SP n	SPACE	SIMILAR TO TAB FUNCTION.
.CE n	CENTER.	CENTERS NEXT "n" LINES BETWEEN MARGINS.

Highlighting commands control functions such as underline or bold and allow you to redefine characters to use them to send CRTL codes to the printer.

^	REQUIRED	JOINS WORDS TOGETHER WHEN REQUIRED TO PREVENT
.	SPACE	SPLITTING IN REFORMATTING, UNDERLINE, ETC.
&	UNDERLINE	UNDERLINES ALL TEXT FOLLOWING UNTIL NEXT PAGE.
@	BOLD	TYPES FOLLOWING TEXT FOUR TIMES.
.TL xx	TRANS-LITERATE	ALLOWS REASSIGNMENT OF ONE CHARACTER TO REPRESENT A NUMBER OF CHARACTER VALUES TO SEND CODES TO THE PRINTER.
.CO t	COMMENT	SIMILAR TO REM IN BASIC--ALLOWS NOTES THAT DON'T PRINT.

Page identification commands print notes in the upper or lower corner of each page, either headers or footers.

.HE t	HEADER	PRINTS TEXT (t) AND PAGE NUMBER AT TOP OF PAGE.
.FO t	FOOTER	PRINTS TEXT (t) AND PAGE NUMBER AT BOTTOM OF PAGE.
.PA	PAGE #	RESET PAGE NUMBER IN .HE AND .FO

File management commands.

.IF f	INCLUDE	MERGES A FILE TO PRINT A DOCUMENT TOO LARGE FOR ONE FILE.

Mail Merge commands are used to supply values to the variables in a letter that has been set up for the mail merge option.

.ML f	MAIL LIST	IDENTIFIES VALUE FILE ((f) FOR MAIL LIST.
n	VARIABLE	INSERTED IN TEXT AS VARIABLE FOR REASSIGNMENT FROM VALUE FILE.
.DP n:t	DISPLAY	PROMPTS YOU USING TEXT "t" TO ASSIGN TO VARIABLE (*n*).
.	PROMPT	

ARTIST CARDSHOP
Review by Deanna Sheridan
NORTHCOAST 99ERS
Reprinted from Cleveland U.G.
6/92

Over the years, you purchased CSGD, Fontwriter, Print Wizard, Page Pro, Jiffy Card, and took advantage of TIPS, so why would you need another card-making program? Just look how each of these incorporated new features and become more sophisticated than the previous. I think that Paul Coleman has finally found the ULTIMATE card-making program for the TI.

As you look at each of the above, you will find that they were difficult to set up, or took only certain size graphics; graphics could only be set in certain areas, only certain built-in fonts could be used, etc. Or else there was no way to save the card, or print multiple copies, or else the printing so excruciatingly slow. Artist Cardshop will make your creative juices flow without frustration if you like to create and print your greeting and note cards.

It consists of three separate programs (in the manner of TI-Artist) which include CARD BUILDER, CARD PRINTER and BORDER MAKER. There is a professionally printed 24-page manual and samples of cards and borders included on the disk.

Both the inside and outside of the card uses two TI-Artist fonts. 1 large (any size) and 1 small (1 char high). Up to 4 TI-Artist instances can be used on a page, and the back of the card will print any TI-Artist instance up to 27 columns wide. Thus, you can use the back for an additional message or your own personal logo.

Each page of the card consist of 40 lines on which to place material (text, or graphics or text and graphics). This can be laid in any combination of the following:

1. Graphic only
2. Text only
3. Graphic (left) with text (right)
4. Text (left) with graphics (right)
5. Graphic, then text, then graphics

If the instance is small enough, the graphic only option allows you to lay multiple copies of the picture across the page. Cards can be saved and loaded for later modification. Up to 99 cards can be printed at one time and they can be printed in single or double density. I accidently discovered that if you have a color printer and set the printer for a certain color before entering CARD MAKER, it will print in that color for you. I have tried this with Page Pro and a couple of other programs, and it doesn't work because evidently the program sends a "reset" command to the printer before printing. Card Maker does not, so if you write a short XB program to say, print in Blue, before entering the print program of Card Maker, you will be able t. print your card in blue ink. This is probably the next best thing to having a color card program.

Once you have chosen the grphic or grahics and fonts you will want to use, enter the Card Builder program. You are first requested for the fonts. I guess the only complaint I might have is that you MUST load both fonts even if you don't plan to use both. It seems it would save some computer memory for the graphics if one didn't have to load a font one wasn't going to use. This must be done for both the inside and outside of the card. Then you are prompted to load your graphic or graphics. As you place them, you chose the line on which you wish to place your data, and the computer tells you how many of the 40 lines are needed, so that you will know where to start the next step. On the example enclosed on the font side, I used the text only option to place the first two lines. The graphic only option printed my instance, and again the text only was used for the last two lines.

On the inside of the card I used the text-graphic to place the text next to the graphic and the text only to finish up the last three lines. For the instance on the back page I simply used my initials as my personal logo. But, remember large instance could have been used with an aditional Father's Day message.

When you have all the data placed on the card it is time to save it to a file. You then call in the Card Printer program. All the fonts and instances are loaded before any printing commences. You are then prompted for a border. Twenty-five borders have been included and you can use borders on both the inside and outside if desired. Here is where you are prompted for the instance you might want to use on the back side. And then you can print in single or double density.

Last but not least, if you need more borders, you can use your imagination and make your own. The template for the border is created in TI-Artist. If you are familiar with the grey boxes you could bring in from Graphx to use as a guide in Artist, You will see the area available to make a border pattern. The design must be saved in Instance format and has to be EXACTLY 9 rows by 12 columns. If it is not you will get an error message when returning to Border Maker. If you have saved your border correctly, Border Maker will take your file and make a border with the name you designate.

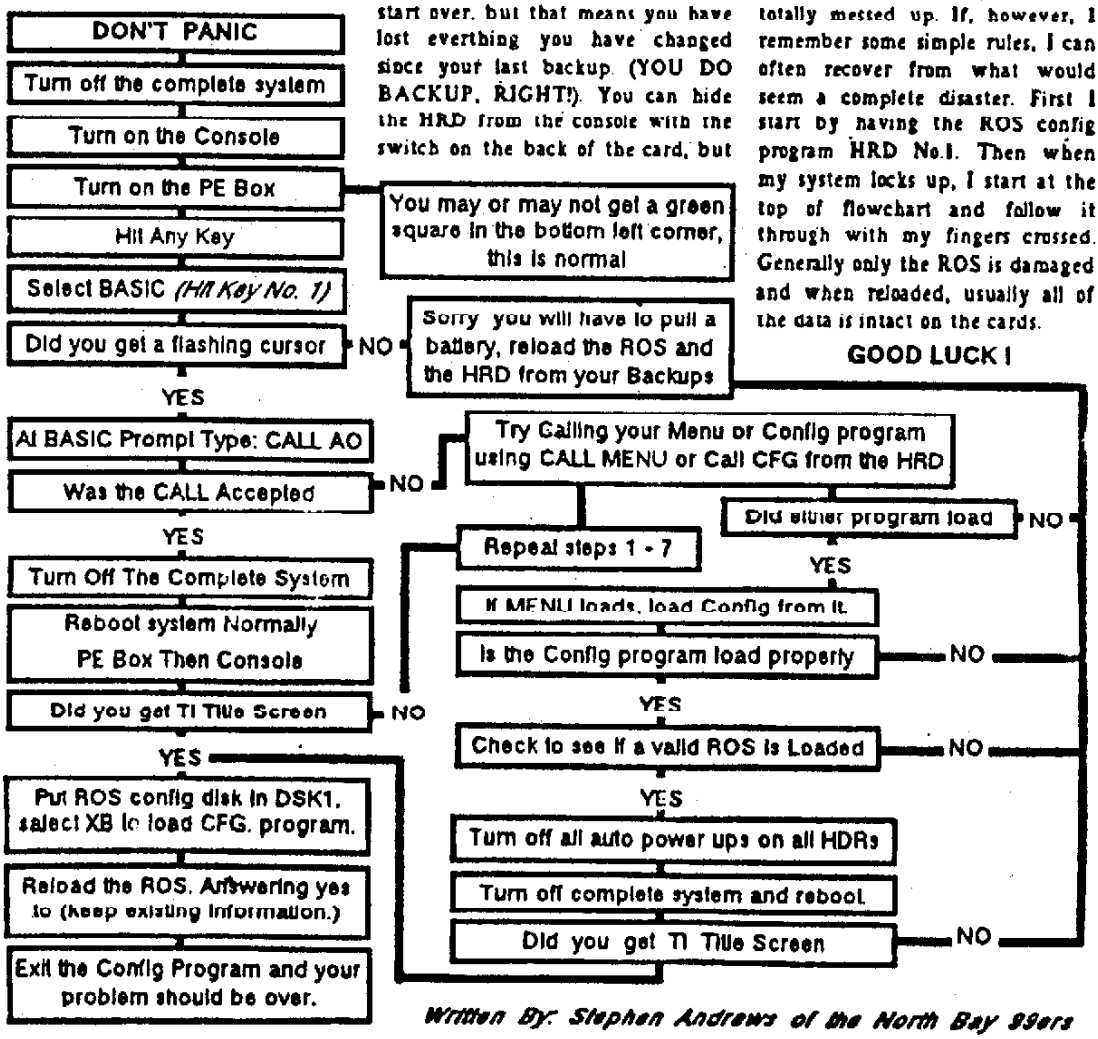
I paid $25 for the program at Lima, and it can be ordered through Comprodine, 1949 Evergreen avenue: Fullerton, CA 92635

Horizon RAM Disk Lockups

(Don't dump that data yet!)

Certain coincidences this morning have made me decide to write an article, or sort of a quick reference guide for users of Horizon Ram Disks (HRD) of all types. This morning started with a call from our newsletter editor asking questions about a new HRD test program from OPA and problems he was having with one of his HRDs. We disscused his problem, determined that it was most likely the hardware and decided on a course of action. We said our goodbyes and I went to my system to work on something only to find that my own system would not boot. This is where the real story begins. Anyone with a HRD, with any of the new Ram Operating Systems (ROS) installed in memory, as opposed to some of the Eproms that are available has had this problem. (Come on be honest) At this point you have a lot of options. You can shut everything off and walk away, but that will not solve anything. You can pull the batteries on your HRD(s) and start over, but that means you have lost everthing you have changed since your last backup (YOU DO BACKUP, RIGHT!). You can hide the HRD from the console with the switch on the back of the card, but we are not all lucky enough to have that option because the old cards do not have the switch. You could take out the card, put it in the closet and you will never have the problem again. (No, No, that just wouldn't do) These are all options, but not very good ones so let's discuss the alternatives. I am the club librarian and when trying out many new programs, or reviewing older ones, I often have conflicts with the ROS on my cards that make the system appear to be totally messed up. If, however, I remember some simple rules, I can often recover from what would seem a complete disaster. First I start by having the ROS config program HRD No.1. Then when my system locks up, I start at the top of flowchart and follow it through with my fingers crossed. Generally only the ROS is damaged and when reloaded, usually all of the data is intact on the cards.

GOOD LUCK !



Written By: Stephen Andrews of the North Bay 99ers

THE TIsHUG 'AT' MULTIFUNCTION CARD

Having given some thought to the spare parts situation, and wishing to have DSDD disk capacity drove me to dust off my trusty cheque book and order TIsHUG's AT Multifunction Card blank printed circuit board. This card was designed by Peter Shubert of TIsHUG as a Peripheral Expansion Box version of his AT MINI EXPANSION SYSTEM, a Corcomp - type plug - in expansion system

Another of Peter's stated intentions in designing this card was to give members some form of locally - available back - up in the event of your TI or CORCOMP cards biting the dust

With this in mind, I despatched a cheque to Sydney and received, in reasonably short order, the blank PCB and a 3.5" disk drive (the subject of my article in Volume 10, # 3 of this publication)

The board is of high quality, being through - hole plated and solder - masked, and receiving it gave me the incentive to save further pennies and eventually order the DSDD disk controller kit of parts for the card. I then set about dusting off my trusty soldering iron and getting into the serious construction of what I hoped would be a very useful peripheral

Having constructed the card with only a few hiccups (I found the hand - drawn component layout diagrams needed to be carefully studied in order to correctly place a couple of the links on the board) I was faced with the dilemma of aligning the card. With the aid of Steve Wilkinson's CRO (thanks Steve) I set the card up without too many problems following Geoff Trott's excellent instructions without having to return the completed card to Sydney and was then very disapointed to discover that it refused to function

Further checking of my handywork located two mis - placed links on the PCB (hence my earlier comments), but the beast still refused to work. A double check of the waveforms, frequencies etc. on the CRO convinced me that the problem was in fact component or (more likely) construction - related. I eventually located the misplaced capacitor that was causing the problems (it is very difficult to check your own work as you just KNOW that you did everything correctly) and the card burst into life to present me with a modified TI title screen emblazoned with the words AT MINI PE SYSTEM 1987 across the top colour bar. 1987 ? - see how advanced those boys in Sydney are, they designed this four years ago.

The card allows you to control 4 floppies (I am currently using 3) in any of the recognised TI capacities - SSSD, DSSD, SSDD and DSDD, and allows you to adjust the head step time of each drive so you can mix and match drives and take advantage of the faster head access times of the newer drives

MORE -> -> ->

There is a well documonted bug in the system that creates problems when copying to RAMdisks from floppies while using the AT card, and although I have carried out the published fix, I am still experiencing minor problems. I have adopted my own method of utilising the RAMdisks however, so the minor inconvenience is well and truly offset by the increased disk storage capacity I now enjoy

In summary I can honestly say that the AT card was a worthwhile investment that has (temporarily) rekindled my interest in electronics. The fact that I can add to the device as needed with PIO, RS232 and MEMORY EXPANSION and therefore have ALL necessary functions on THE ONE CARD is a real bonus. A different EPROM is required, depending on the particular configuration chosen, and the minor hassles of trimming the board to fit in the PEB are again more than offset by making one's system truly universal i.e. you should be able to read any of the current TI disk formats with this card installed

FOOTNOTE : I had some early problems with setting up my #2 drive for any double density operation, but eventually found it to be a disk drive problem....my # 2 drive will format BUT NOT VERIFY a disk in the double density mode. Not a major problem !

Geoff WARNER

TI - 99 USERS OF PERTH (Inc.)
P.O. BOX 8083
PERTH, STIRLING STREET

WESTERN AUSTRALIA 6849

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(This article/item comes from the January 1991 issue of BITS, BYTES PIXELS (Charles Good, editor), the newsletter of the Lima OH 99/4A User Group, P.O. Box 647, Venedocia,OH 45894.)

-----DEFRAGMENTATION-----
by Mark Schafer

In this article I aim to discuss the problem of fragmentation and what you can do about it. First of all, it's only a problem in the way that being messy is a problem; you can live with it, but it would be better if you didn't have it.

Now let's talk about what it is. It exists only on disks. But that's all kinds of disks: floppy disks, hard disks, ramdisks. The disk is divided into 256-byte units called sectors, which is the unit used to express the size of files in disk catalogs. They are numbered 0 to 359 on a single-sided, single density disk.

Each file reserves one whole sector that ggives the computer everything it needs to know about the file. That sector is called the File Descripter Record, or FDR. The items we are concerned with is the part that tells where on the disk the file contents reside. If it is split into more than one piece, it is fragmented.

To illustrate this, look at this newsletter. Think of each page as being a sector, and the articles as being files. If an article starts on page 1 and is continued on page 6, it is fragmented. But if it were continued on page 2 it's contiguous and therefore, not fragmented; it's still in one piece.

How newsletters and disks get to be fragmented are two different things. The TI disk controller reserves the first 32 sectors (after sectors 0 and 1 which are used for disk information) for FDR's. When a new file is added, it looks for the lowest sector available to put its FDR. Then it will put its contents starting at the lowest sector available outside of this area and continue writing until it bumps into a sector being used for another file. Then it keeps looking until it finds unused sectors to continue writing in. If it reaches the end of the disk, then it will look for some space in the FDR area. If there are more than 32 files on a disk, then some of the FDR's will not be in this area, and they could be located many sectors away from the first 32. This is because it is likely that the low sectors are already in use by the time the 33 file is added.

When a file is deleted, its FDR and contents are then marked as free which could create "holes" of free sectors on the disk. When a file is rewritten to the disk, it will leave its FDR where it is, but it will still to try to move its contents to the earliest sector available even if its size hasn't changed. So it could get moved into a part of the disk vacated by a deleted file.

So all of this can cause fragmentation. So what? Well, when you're reading an article, can you read it faster if it's contiguous or continued on another page? And then continued on another, then another, etc. It's the same with the disk drive. It can read a file faster if it's all together. Also, it can write a file faster if it doesn't get split up. The more pieces a file is in, the longer it will take to read or write it. The drive can find the next sector faster than it can find any other.

And this leads to my next point. All of this file adding and deleting can cause another problem. Unfortunately, I don't know of any single word that describes it. It is even more common than fragmentation. It occurs when the files on a disk are not in the ideal order.

The ideal order is the first FDR is on sector 2, the second FDR is on sector 3, the third FDR is on sector 4, and so on. Whenever the computer searches for a named file, it has to search the disk catalog. Just like newsletters, disks do not have indexes. But it does know where all the FDR's are because that information is stored in sector 1 in alphabetical order.

So it has to read in the first FDR, see if that's the right file, read in the next FDR, see if that's the right one, and so on until it either finds it or reaches the end of the catalog. This process would go MUCH faster if the disk were in the ideal order, which never happens except intentionally. Also cataloging the disk is much faster in ideal order for the same reason.

Luckily, you can take care of both fragmentation and less than ideal order at the same time. The cheapest, easiest to understand way to do this is to copy all the files from a disk onto a blank disk. All file copiers copy the files in alphabetical order, and there are no files on the blank disk to "bump" into.

Unluckily, this is not guaranteed to work. You could still have one problem or the other (but not both). Fragmentation could result if the disk has less than 32 files on it (the lower the worse) and is full (or nearly full, but especially if it's full). One of the latter files could reach the end of the disk while it's being written and have to be continued after its FDR, which is way up near the beginning of the disk. You could get lucky if the file ends right when it reaches the end of the disk which is more likely to happen if there are short files at the end of the catalog. But if it will happen, there's nothing you can do to prevent it. Oh, you could copy all the larger files first, but then the catalog will not be in ideal order.

The other problem will definitely occur if there are more than 32 files on the disk. This is because when it reaches the 33rd file, all of the space reserved for FDR's is filled, and it will have to go all the way to the end of the disk to find the first free sector. Every file thereafter will get even worse. So the catalog will start in ideal order and then reaqlly go awry.

But you can do something to prevent this from happening, and you even

know IF IT will happen, so you can prepare for it. However, it can be time-consuming, especially if there are significantly more than 32 files on the disk. To do this you have to have a sector editor. What you do is mark sectors as being used starting with sector 34 on the blank disk for as many sectors as there files beyond 32. So if there are 38 files, mark sectors 34-39 as used (6 beyond 32). Then only copy the first 32 files. Then mark sector 34 as free. Then copy the next file; mark sector 35 as free; copy the next file, and so on until they're all copied. This method will keep all the FDR's together and in the right order.

You may notice that the problem occurs if there are MORE or FEWER than 32 files. What if there's exactly 32 files? Hooray! If this is the case, you will encounter no problems!

But if you are talking, say, 36 files or more, this process is probably not worth the trouble. Truth be told, you can actually prevent the fragmentation problem by cleverly marking sectors as used beforehand, but it would be difficult for me to tell you HOW to do it, much less do it. Fortunately, there's another way to go.

Use a defragmenting program. Even though their cause is to defragment the disk, they will also put the disk in ideal order. Although there were already some on the market, I wrote my own anyway. I like to do things my way, and I didn't see other defragmenters doing everything I wanted. Yes, friends, even defragmenters have features.

I called my program simply, "Defragmenter", it is written in 100% assembly language and offers the following advantages over using a file copier:

1. It only requires one disk. It defragments the disk itself without having to have another disk to write on.
2. I don't remember what this one is.
3. It's guaranteed to work. File copiers don't always work for reasons discussed above.
4. It takes steps to prevent the problem from recurring.
5. I believe it is even faster.

Number 4, I believe, is a unique feature of Defragmenter. Refragmentation could occur if a file grows, thereby slamming into the file that follows it. But this won't happen if there is no file following it, so Defragmenter puts the file most likely to grow (so designated by the user) at the end of the disk.

If a file shrinks and another file is rewritten that follows it (but not immediately following), it will move into the space vacated by the shrinking file and could be split. This won't happen if only one file follows it, so Defragmenter puts the file most likely to shrink (so says the user) next to last.

If a file is added to a defragmented disk, its FDR will be put all the way at the end of the disk, a long ways away from its ideal position. So Defragmenter has the ability to reserve some space after the FDR's for future files to occupy. They will probably still not be in the best place, but they will be a lot closer, and won't slow down searches quite so much.

One advantage you might think a file copier would have is that after the process, you still have all the data on the original disk, so if there's any information in the unused sectors you want to see (like a deleted file), it's still there for you to look at. But Defragmenter has the ability to preserve the data in unused sectors to combat this advantage. So it will be possible to recover deleted files after the process (but not with an automatic file recoverer).

To be fair, file copiers would still have the following advantages:

1. Risk-free. If the process is interrupted, all the data is still intact and usable. You may lose data with Defragmenter (but no more than one sector), and the data you didn't lose may be hard to recover. Also, it's easier to place your confidence with a file copier even if you didn't write it.
2. You know, at any given moment, where in the process a file copier is. One has no idea how close Defragmenter is to finishing. Part of its speed gain is not having to update the screen as it goes.

I had to dig pretty deep just to come up with these. The risk if using Defragmenter is minimal. How often have you had a power failure or a crash while copying files? Since Defragmenter is so fast, it's even less likely to happen to it. And number 2 is just a trade off. If Defragmenter told you what it was doing, it would be slower.

Notice I didn't put "easier to use" on either list. That's because that is a matter of opinion and may depend on the file copier you use. Personally, I think Defragmenter is a joy to use, but beauty is often in the eye of the author. You tell it which disk to defragment, you answer four simple questions, all of which can be answered with a default answer with no ill effects, and it starts right up. It won't let you answer any of the questions wrong.

One advantage Defragmenter offers over anything else is that it comes with complete source code, as I believe all programs should. I'm offering it as fairware, but you are free to modify the source code to suit your own tastes as long as you don't give it out without my permission. The source code isn't documented, but there are some comments.

If Defragmenter sound like your kind of program, send 6 dollars and a disk or 7 dollars to:

Mark Schafer
539 Whitaker St.

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

APPLICATION FOR MEMBERSHIP

Below you will find an application for membership to the Hoosier Users Group. Active memberships entitles you to the Newsletter, up and download on the HUGbbs, attendance and voting rights at regular club meetings, access to the HUGger Library of Programs, special club activities and special guest speakers for one year.

Make check or money order payable to **Hoosier Users Group**. Send completed application to:

HOOSIER USERS GROUP
P.O. Box 2222
Indianapolis, IN 46206-2222

Please print Cut on line

Check One:

Active Member
New: $20
Renewal: $18
Dues will be due in May of each year. New members subtract $1.50 for each month from May to Oct. New member sum $10.00

Amount
Enclosed
D
S O

TODAY'S DATE

NAME

ADDRESS APT #

CITY STATE ZIP

PHONE ( ) -

INTERESTS/
COMMENTS

May 1993

Dan H. Eicher
P.O.Box 605
Mooresville, IN 46158