South Bay Users Group

DYNAMIC MEMORIES

SEPTEMBER

88

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
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11	12	13 MEETING DATE	14	15	16	17

DEAN SEVERNS

on

HARD DISK MANAGEMENT

CONTENTS

LOOK PAY ATTENTION ** The next SBUG meeting will be held at the Saratoga library.
The meeting dates will be as follows: September 13th, October 11th and November
eighth.

The time of our meetings is constant // 19:15, otherwise known as seven fifteen P.M.

COMING EVENTS:: .Chris Oman will present us to Gem. Gem has the possibility of being
the most important of the computer interfaces, so don't miss this if you wish to avoid
computer illiteracy.

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MEMBERSHIP

If you wish to become a member of SBUG and start receiving our newsletter DYNAMIC
MEMORIES then send a $20 check or money order to the following address:

SOUTH BAY USERS' GROUP
P.O. BOX 60116
Sunnyvale, CA 94088

Or come to one of our meetings.. We also. .perpetrate a bulletin board to which you
will have access as a member of SBUG.

COMPUTER HISTORY

SBUG STEERING COMMITTEE

TITLE	NAME	USERNAME	PHONE
Chairman:	Chris Oman	OMAN	(40B) 9B5-9460
Treasurer:	Henry Schulze	HENRY	(40B) B66-5731
Editor:	Joel Lee	EDITOR	(408) 926-3999
Librarian:	Bernie Thompson	BERNIE	(408) 867-7455
Librarian:	Frank Gottschalk	FRANK	(415) 651-2313
Sysops:	Wright Huntley	WRIGHT	
	Jim Gonsalves		(40B) 241-9347
Technik:	Frank Vanslager		(40B) 257-3647

OTHER KEY INDIVIDUALS Cover designer: Wright Huntley

Host computer: SBUG   ALL   (408) 249-8259

If the need arises feel free to give anyone of us a call.
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THE EDITOR'S BYTES AND BITES

Networking continues to be big news in the computer specialized
magazines. Is it really that big a thing?   In certain types of
offices I am sure it is.   On the other hand, how many of the
members of this club have ever had any reason, chance, oportunity
to use a networked computer?

The magazines have a tendency to kowtow to big business even
though it is their millions of readers and not their hundreds of
busineses that permit them to flourish. In my business, and I
suspect in hundreds of others, maybe thousands, we would be much,
but very much more efficient if we had a scanner and could fax
(by computer/modem) information to and from the local here and
the home office.

Alas, the home office doesn't have a computer and is extremely
unlikely to get one. It would be cost effective but they're just
nor interested. As far as busineses go, computers are far from
having made the penetration they will have 20 years from now.

All of this means that computer stocks are still a good
investment. Many of the small and medium sized busineses that
still shy away from computers as something rare and exotic will
be using them as run of the mill tools in the next 20 years. I
can still remember when the yokels guffawed at a car stuck in the
mud and shouted, "Get a horse." The same sort of people now get
a kick out of "computer error" and "The computer is down."

SBUG Financial Statement
August 20, 1988

Receipts:	August	Y-T-Date	% Used	Budget
Members dues	40.00	180.00	22.50%	800.00
Disk Library	0.00	95.00	63.33%	150.00
Load80	0.00	40.00	13.33%	300.00
Documentation	0.00	0.00	0.00%	25.00
Interest	3.00	26.79 *	107.16%	25.00
Miscellaneous	0.00	60.00	30.00%	200.00
Total Receipts	43.00	401.79	26.79%	1500.00

Disbursements:				
Phone	7.58	88.29	58.86%	150.00
Utilities	0.00	0.00	0.00%	120.00
Printing	0.00	0.00	0.00%	100.00
Postage	0.00	72.00	55.38%	130.00
P O Box	0.00	39.00	134.48%	29.00
Bank charges	5.00	5.00	20.83%	24.00
Disk Library	0.00	0.00	0.00%	120.00
Documentation	0.00	0.00	0.00%	50.00
Load80 Subscription	0.00	0.00	0.00%	150.00
SBUG BBS Repairs	0.00	0.00	0.00%	100.00
Misc. Expenses	0.00	69.00	55.20%	125.00
Total Disbursements	12.58	273.29	24.89%	1098.00
Beginning Cash Balance	798.10	700.02	103.86%	674.02
Net Receipts	30.42	128.50	31.97%	402.00
Ending Balance	828.52	828.52	77.00%	1076.02

*This amount includes $2.17 received in 1987 but posted in 1988.

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FOR SALE!

VENTEL 1200 Baud External Modem -- $45.00. With manual.

RACAL-VADIC 1200 Baud Internal Modem. Like new, in original carton,
with software and manual. Hayes-compatible -- $50.00.

HERCULES PLUS Graphics Card. In original box, with software and manual
$150.00. Compare at Fry's for $199.00.

Call HENRY at 379-9474 for further information. Evenings after 5 p.m.
or leave a message on my Answering Machine.

MORE THAN YOU EVER WANTED TO KNOW
ABOUT WORD PERFECT 5.0

As you can see by the elegant columns we (you may take that as an editorial or a royal we, it don't make me no nix-nox-nix) are beginning to take advantage of the possibilities of Word Perfect. Just to let you see how it works, 1 will also include graphics.

1 would like to know what you think of the presentation in columns. If you don't like it, just let out a loud hiss when next you see me at the club meeting. A majority of hisses will convince me to go back to the old style. I'll let you know my opinion in the next issue of DYNAMIC MEMORI-ES.

1 also intend to include some graphics. As a matter of fact if 1 run out of things to say 1 might just put out a newsletter with nothing but graphics.

Aside from getting used to the fancy (and rather difficult to manage) features of Word Perfect 1 have at present one problem that 1've spent quite a bit of time on and haven't yet been able to solve.

Word Perfect has a setup so that one may define different page sizes. (These are listed on the following page.) Unfortunately 1 get a "not available" answer when 1 try to go beyond 8.5" wide. 1 have played a symphony of variations

on this theme and haven't been able to solve it. Of course 1 am writing to my friend Ms. Olsen of Custom Support (I have nothing against letting a woman support me). 1 am sure that she and 1 will be pen pals soon, more than that we will exchange Christmas cards for years to come.

As things stand have to keep Electric Pencils on my hard disk just for those occasions when I have to write something more than 8.5 inches wide.

1 said I had one problem. I wish. For a while 1 was tootling along using 1BM Proprinter in Word Perfect and on my Epson. Suddenly the words-running-together syndrome returned.

1 have found that 1 must first tell the document that it will be printed by Standard Printer and then go to 1BM Proprinter to take advantage of the things that Standard Printer won't do. Word Perfect sent me a fix for this annoying hang up but the fix doesn't work.

1 don't think that's so great and it's something that WP Corporation will certainly have to fix in the future.

Altogether Word Perfect 5.0 is definitely hard to learn even taking into consideration that 1 have worked with it for some time. However, is there anyt-

hing this powerful that is ea-
sy to learn? I doubt it. Po-
wer brings problems, power br-
ings complexity.

The previous page featured ne-
wspaper, or snaking columns

1. Standard
2. Standard Landscape
3. Legal
4. Legal Landscape
5. Envelope
6. Half Sheet
7. US Government
8. A4
9. A4 Landscape
0. Other

The above was set up in paral-
lel columns. Once you've pra-
cticed a time or two it's
easy. There may be as many as
24 columns on a page. The in-
formation given above is about
the page sizes available. But
not to me, as I said earlier.
It really gripes my goiter th-
at there should be so many fa-
cilities and that I have so
much trouble in using them.

Word Perfect made a classic
mistake in setting up its pri-
nter drivers. A sketchy peru-
sal reveals that they are hea-
vily slanted towards the cor-
poration buyers, i.e., the pe-
ople who use laser printers.
I know that Standard Oil buys
2000 copies of a program at a
crack, but I also know that
there are millions of us slobs
out here.

Referring to this WP decision
I may say that I am not always
convinced of corporate wisdom.
If any of us made a boo-boo

I am sure that your cleverness
obviates the necessity of an
explanation now that you have
seen the example. Below we
have an example of parallel
columns. These are very handy
and fairly easy to set up.

(8.5" x 11")
(11" x 8.5")
(8.5" x 14")
(14: x 8.5")
(9.5" x 4")
(5.5" x 8.5")
(8" x 11")
(210m x 297m)
(297m x 210m)

like the Edsel, we would be
hiking down the road to the
strains of "Hit the Road, Jac-
k". For that trifling error
MacNamara was made head of the
World Bank.

Last month I printed a page
from a Wp. file that was kind
of messy. At the time I pres-
umed that WP was responsible
for the messiness. Well, they
were and they weren't. It can
be printed out properly but it
takes a lot of finagling. Th-
ey don't give you any finagli-
ng information.

Because it shows the power of
Word Perfect, I am printing it
on the following page. It's
really tricky to get right,
but the results are more than
impressive.

Many of the little details may
seem unimportant, but they re-
ally dress a document up and
help to hold the reader.

DYNAMIC MEMORIES   SEPTEMBER

IMPROVED PARALLEL COLUMNS   Parallel columns now extend past a
                                   page break. Script writers and
                                   others will find this feature to be
                                   especially convenient.

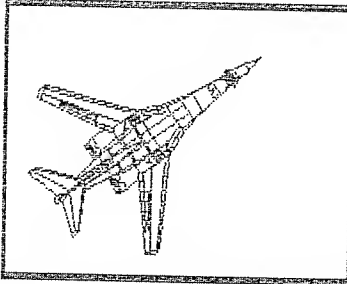MASTER DOCUMENTS   The master document feature
                                   combines files (e.g., chapters in a
                                   book, files on a network) for
                                   generating tables of contents, etc.

This paragraph is printed in 8 LPI. We can place this in eight
lines per inch by going into Shift F8 and using fixed line
height. The rest of the document's line height is fixed at 6
LPI. Already the worlds most powerful word processor[1],
WordPerfect continues its tradition of excellence by adding
several new features.

INTEGRATED TEXT AND GRAPHICS

The smooth integration of text and graphics in WordPerfect 5.0 makes designing newsletters, reports, and professional documents much easier. A graphic image can be scaled, moved, and rotated. You can also indicate the style and thickness of the border, and include a caption. The graphic image can be placed anywhere on the page, inserted in a line, tied to a paragraph, or included in a header of footer. The program also is shipped with a utility that allows you to capture the screen from any graphics program, converting it to a WordPerfect Graphics image file. You can then use the image within WordPerfect. This facilitates the use of various graphics programs to create graphics to be used within WordPerfect.

5.0 TAKES OFF!

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[1] WordPerfect is the number 1 selling word processor in the U.S., in Canada, and in six European countries. Research estimates now show that Wordperfect sales account for approximately 40% of the market share for word processors.

Here is a test of line draw, single, double and mixed:

WordPerfect 5.0 Printer Test Document
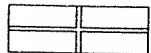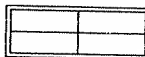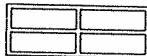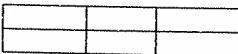
As always I·
am using the
3 manual app-
roach to WP.
While I was
completing my
manual libra-
ry 1 got into
a conversati-
on with the
clerk at Com-
p u t e r
Literacy. He
is a WP user
and very well 2 MONTHS WITH
informed. He WORD PERFECT
told me that
1 am not alo-
ne in my problems, and that
Word Perfect has had some of
the gloss rubbed off its cor-
porate image. I know that it
is because of the graphics th-
at WP 5.0 is so printer
specific. (But many desktop
publishing programs are not
that picky. However, when th-
ey turn the program loose on
an unsuspecting world without
a hint of what will happen to
the poor soul running a Wonky
printer from Swaziland and mo-
re, without taking measures to
communicate with Swaziland and
redress the problem, then they
are looking for trouble.
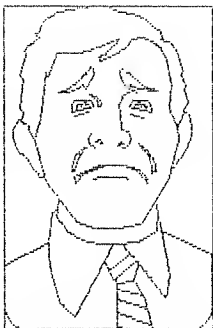
The two manuals I got are ex-
cellent, especially the one
recomended by the clerk at Co-
mputer Literacy, nevertheless
there is a manual coming out
from the same company that pu-
blished my favorite manual for
WP 4.2. 1'll probably buy it.
Don't think that I intend to
make the 4 manual approach a
standard. Word Perfect 5.0 is
a special case.

SOME ODDS AND ENDS

Bernie Thompson and Chris Oman
installed a 30 meg. hard disk
for me. It gave some problems
and kept Chris up until late
at night getting it in order.
In the process my 20 meg. hard
disk got erased. Foolishly
(sounds nicer than stupidly) I
had not backed it up for some
time. I had 3½ days of work
on the newsletter on the disk.

It will also take me a solid B
hours to get the apartment ho-
use data files up to date.
All this month's data has gon-
e. To top it off 1 have misp-
laced my Fastback disk and ca-
nt recover my backup disks.
It surely looks as though this
were my month to be ~~stupid~~ fo-
olish. Weep for me.

I have an update to First Pub-
lisher. It seems to have a co-
uple of minor but very useful
features that the old one did
not have. $25.00 for the
update. I will be waiting for
the memberships' approval on
this but I do miss the fonts
that First Publisher has. Of
course 1 will give you a revi-
ew of the new First Publisher
in the next newsletter..

It is nice to have 54 meg of
memory available. Of course
when I had four floppies work-
ing with the model 4 I thought
I was hell on wheels and coul-
dn't conceive of anything bet-
ter.

I have also subscribed to Pro-
digy. This is a shopping cum

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information service involving Sears others. Microsoft had a hand in writing the software. This is something else I will be giving you a report on next month. The concept is of a city with the entrance through the lobby of a building. Fol-lowilng I will show you some of the screens with appropria-te comments. (Appropriate to me, that is.)

PRODIGY SERVICE
HIGHLIGHTS

1. Leading Indicators Fall.....and Rise
2. Check 22,000 Movie Titles in Movie Search
3. Your Daily Hello Hartford Column
     (Who could pass a day without saying hello! to Hartford--Ed.)
4. Keep Up-to-Date on Soap Operas (A Must--Ed.)
5. Animal Health Pet Insurance (Fido's long illness could break you--Ed.)
6. What's new at Wooden Spoon? (What indeed?--Ed.)

PRODIGY SERVICE MAINMAP

1. Information   3. Shopping I   5. Shopping   II
2. Lifestyle   4. Finance

One might say that the thrust of the program is mercantile.

INFORMATION

CONSUMER

Product ratings and recomenda-tions including appliances, autos electronics and food.

WEATHER

National weather map, regional forecasts, city fore-casts and more.

SPORTS

Sports, scores, headlines, st-atistics and odds.

NEWSROOM

News headlines, news desk, lo-cal news and winning state lo-ttery numbers.

BUSINESS

Business headlines, industry news, market updates and stock quotes.

LOBBY

news, market updates and stock quotes.
Helpful reference about the Service and about Prodigy Services.

As I said, I will be trying out this program as well this coming month. It has occurred to me that I might try bidding against Trump for any remain

ing New York real estate that he doesn't own. How about the statue of Liberty? I don't <u>think</u> he owns that yet.

SOME GLEANINGS FROM THE MAGAZINES

Shall we start with Computer Shopper? It always surprises me that more members of our club don't read this magazine. It has excellent articles, some of them very much in depth, and as it name would indicate has a lot of bargains. Lately, however they seem to be concentrating on hardware. Software ads are not as common as they once were.

Let us start off with an article entitled Low Cost P.C. Power Computers. The article asks the question, Is Bigger Better? They might have added, --is faster better? The article has a list of 17 XT computers. You may for example purchase from DEALER CONNECTION an XT88 Turbo with memory unspecified, 1 floppy drive, 150 W power supply, 8 slots, parallel and serial ports and monitor unsp-

YOUR EDITOR

ecified, AT keyboard, mono/color graphics card, software unspecified, and a one year warranty. These warranties always remind me of the Ginzu knife and its warranty for the life of the purchaser. A year and a half after they started in business they went into bankruptcy. Then again, think of Dell Computers who started off as a shoe string operation. They're amongst the top ten in the computer business now, and we're talking giants like IBM and Tandy.

The Computer Shopper continues with a list of <u>43</u> AT compatibles. Are you interested in an offering from Surrah Inc.? You're not? What a shame! A story like the success of Compaq or Dell will send men off to bed dreaming not of curvaceous femininity but of going head to head with IBM.

Computer Shopper is certainly on the mark with its idea that the average computer user doesn't need a power machine. A turbo XT with a 20 meg. HD and 640 K memory will suit most.

OS/2 IS NOT FOR US?

The following is a letter, quoted in full from Computer Shoppers
"Feedback Forum." As it is a letter from a reader I suppose the
usual copyright laws do not apply. If they do, Computer Shopper
will just have to sue me for everything I earn by editing DYNAMIC
MEMORIES.

Dear Editor

I am writing to disagree with
IBM's claim that OS/2 is the
operating system of the futur-
e. Computer users are becoming
more savvy and sophisticated,
and many recognize OS/2 for
what it really is; a clumsy,
expensive behemoth.

Consider the real cost of OS/-
2. For PC, XT and compatible
owners, an 80286 upgrade is
mandatory. An add-in 80286 bo-
ard is one option, but their
cost and possible compatibili-
ty problems with OS/2 make th-
is a dubious value at best. A
replacement motherboard may
present a more viable alterna-
tive for solving the compatib-
ility problem, but these are
not cheap, and they present
more installation work than an
add-in board.

Then there is the memory requ-
irement. OS/2 requires 1.5MB
of RAM just to run, and at le-
ast double that if you really
want to do anything with it.
This is a grossly unnecessary
requirement for a personal co
mputer operating system. If
you want to multi-task, sever-
al major software packages (r-
ead If You Want To Use OS/2
The Way It Is Supposed To Be
Used) you need at least 4 MB
of RAM and a fast hard disk

for virtual memory swapping.
Alas, this is not a good time
to think about buying lots of
memory, unless you are prepar-
ed to take out a second mortg-
age on the house. This will
be another nail in the coffin
for OS/2.

Of course you will want VGA
graphics if you are going to
take full advantage of all the
wonderful OS/2 applications
which are supposed to appear
someday. (Real soon now? Ed.)
Expect a register-level compa-
tible VGA board and a multi-
scanning monitor to set you
back another $800 or so.

If you don't have a 1.2 MB 5.-
25" floppy drive or a 3.5" dr-
ive then you had better get
one, along with a correspond-
ing controller card because
these are the only two media
formats available for OS/2

One could always junk present
equipment and buy the latest-
and-greatest, but what a waste
it would be. I suspect that
most intelligent people would
not even consider this idea.
It is almost sinful.

Now consider the cost of the
real OS/2. I am talking about
Version 1.1 with the nefarious

Presentation Manager. Accord•-
ing to most sources, it is go-
ing to cost $850; that is, wh-
en it finally does appear. 1
will be surprised if it ships
as scheduled in October or No-
vember of this year.

1 have not discussed the hid-
den costs, such as re-training
and new software which is wri-
tten specifically for OS/2.
Nor have 1 mentioned the prob-
lems with OS/2s DOS compatibi-
lity window which is not as
compatible as 18M and Microso-
ft would have us believe. For
instance, it will use only up
to 512K for running a DOS ap-
plication, as opposed to the
640K recognized by DOS itself.
1t will nor run any DOS-based
communications software. Of
course it will not allow mul-
tiple DOS applications to run
concurrently, although users
can do this now with the mul-
titude of multi-tasking envir-
onments available for DOS.

My principle problem with OS/2
is a personal gripe. 1 cannot
see the value of OS/2s graphi-
cal user interface. 1t is a
tremendous waste of hardware
resources. Why would anyone
want to waste these heavy-duty
hardware upgrades to run an
operating system which gobbles
up speed and memory for pretty
graphics and icons? 1 don't
believe that we are becoming
such a nation of illiterates
that we have to point to a pi-
cture with a mouse in order to
execute an associated operat-
ing system command. A command
line interface isn't really
that bad! Let me stress again-

that this is only a personal
opinion. Some people just love
a graphics interface, icons
and mice. 1 speak for those
who think they are a waste, in
this case a 1.5MB waste.

We cannot forget that OS/2 was
written to take advantage of
the 80286 microprocessor. Al-
though it runs much better on
an 80386, it does not exploit
any 80386-specific features.
However, Concurrent DOS/386,
PC-MOS/386 and others are ava-
ilable now to take advantage
of the 80386. 1f a user must
have a graphics based interfa-
ce, perhaps the Windows/386
environment would be a better
choice than OS/2. Any of these
options would be more cost-
effective than OS/2.

1t is evident OS/2 is not the
operating system for the per-
sonal computer user. 1n fact,
the OS/2 should have been nam-
ed the "BS/2" for Business Sy-
stem 2 of course. 1t appears
that 18M is trying to take the
personal out of personal com-
puting.

Richard M. Fincham
McMurray, PA

Unless you read the puff piec-
es or the carefully written
articles by editors who don't
wish to sell their souls for a
farthing and at the same time
cannot afford to lose 18M ad-
vertising, all that has been
written about OS/2 has been
adverse. Certainly many people
with $850 to spend will buy an
Atari, not an operating syste-
m.

As for myself, having no adve-
rtising to sell nor any soul

worth bargaining for, I can
go either way.

SOME ODDS-NOT MANY ENDS

Programs are getting cheaper--
and more expensive.   Computer
Shopper has an article on a
full fledged word processor
(Easy Working Writer) for $7.-
50. You   doubt me,   varlet? It
even has a 100.000 word dicti-
onary. As the author of the
article says, this is not a
toy. On the other hand we have
the aforementioned OS/2 at $8--
00+ and now l give you TM/13.-
O, a spreadsheet cum database
integrated program which sells
for $795.   It is represented
in PC World as a Rubik's cube
and sounds like it as well.

I will quote a little bit from
the article about TM/13.0 wri-
tten by Paul Lichtman in PC
World.   "TM/13.0 (the letters
stand for Tables Manager) is a
powerful, multidimensional da-
ta base with a spreadsheet fr-
ont end you use to analyze,
display and update data. Data
is entered or imported into
tables and is labeled by name-
-not by cell address.

"--Although TM/1 is sometimes
perceived as a stacked spread-
sheet a la Boeing Calc it's
closer to--but more powerful
than--a program like VP PLAN-
NER PLUS. You can define up to
eight dimensions for any one
table and work with up to 128
tables in any worksheet. Unli-
ke most spreadsheets, TM/1 em-
ploys a virtual memory scheme
that let s you use a table co-

ntaining up to 4 million cells
or 32MB worth of data.

" For example, if the owners
of a wholesale carpet business
wanted to analyze 12 month's
sales by carpet type--a two
dimensional problem-- they co-
uld easily do it with 1-2-3.
But try to consolidate this
kind of data from ten stores
and you re up to 3 dimensions.
How about cross referencing by
major customers? You're anot-
her dimension. Want to add fo-
recasts versus actuals?   Even
such commonplace business pro-
blems can make 1-2-3 look like
a glorified abacus."

I guess if you need it it's
worth $795.00 I got interest-
ed in this kind of thing beca-
use I'm toying with the idea
of going to an integrated pro-
gram for my apartment house
data. At present I use Reflex
which is excellent but as a
flat file program I have to
keep my data in two separate
programs.   With a relational
data base l could make it just
one program and save a lot of
typing time and key strokes.
Whenever they tell me l have
to learn a language to handle
a program l cringe-- and no
one cringes better than l.

Computer Shopper has an ad for
DBXL a DBase lIl for $119.00
plus (as always) shipping and
handling. Maybe. Maybe not.

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HARD DISK MANAGEMENT
by
Dean Severns

With the low price of hard disks and the size of programs
continually increasing, a hard disk for your 18M or compatible is
almost a required item for your system. In this article I hope to
show how to organize files on a hard disk for easier location and
speed improvement.

I am not an expert on formatting hard disks (HD) so I will
assume you already have a formatted HD with at least the Booting
portion of DOS. This is the best place to start thinking about
managing your HD. You may think that with all that space
available it really doesn't matter how you do things. But, when
that bytes available number starts to dwindle down it gets very
difficult to start moving around those megabytes of files.

The first files we want to put on the HD are the ones we use
the most; DOS. By putting all the DOS files in the DOS sub-
directory before putting anything else on the HD will speed up
access to the DOS command files. Don't forget to put the
statement " PATH C:\DOS " in your AUTOEXEC file. Now the first
rule to HD management is not to fill up the root directory with
file names. When you type "DIR" it is much easier to find what
you are looking for if you see this:

```
                    Volume in drive C is DOCS_SYSTEM
                        Directory of   C:\
        COMMAND   COM    25276    7-24-87   12:00a
        DOS              <DIR>    3-29-88    1:15a
        PROCOMM          <DIR>    7-28-88   12:37a
        WINDOWS          <DIR>    6-28-88    3:16p
        AUTOEXEC BAT       186    6-02-88    9:16p
        TD               <DIR>    6-04-88    9:35p
        HDM              <DIR>    3-29-88    1:36a
        TEMPDIR          <DIR>    4-03-88   12:37a
        CONFIG    SYS      127    7-20-88   11:41p
               11 File(s)    1613824 bytes free
```

instead of the 8 megabytes of files that are stored on my HD. The
effect is even more apparent on a larger HD such as my 20Mbyte.

```
                    Volume in drive D is DRIVE D
                        Directory of   D:\
        GAMES            <DIR>    10-26-87   10:14p
        ASEMBLER         <DIR>     2-27-88    1:34p
        WORKS            <DIR>     6-28-88    3:27p
        QUICKC           <DIR>     5-31-88    6:35p
        SYMPHONY         <DIR>     7-28-88   12:58a
        123              <DIR>    10-27-87   11:40p
        CCOMP            <DIR>     6-16-88    8:24p
        WORDPERF         <DIR>     6-16-88    8:13p
        TURBO            <DIR>    11-04-87    9:20p
        CAD              <DIR>     2-12-88    8:27p
               10 File(s)    3139584 bytes free
```

There is 17Mbytes shown in only ten subdirectories. These are the
'roots' of the directory tree, hence the term root directory. For
example let's take a look at what grows from the CAD subdirectory
on Drive D.

```
         Volume in drive D is DRIVE D
                 Directory of  D:\CAD
.                   <DIR>        2-12-88    8:27p
..                  <DIR>        2-12-88    8:27p
EPROM               <DIR>        7-28-88    1:29a
ORCAD               <DIR>        2-12-88    8:34p
PAINT               <DIR>        2-19-88   12:37a
ORCADVST            <DIR>        2-19-88   11:25p
          6 File(s)    3137536 bytes free
```

Once again we have all subdirectories listed. Thus, if I needed
to copy a file that was created with the program ORCAD, I would
go to the CAD subdirectory that contained all my CAD programs.
Then I would see the ORCAD subdirectory and go to there. Here I
would see the program files, which is shortened to save space,
and more subdirectories. Note that none of the files are named
ORCAD. If the files had not been collected together there would
be no way to tell what software package they belonged to.

```
         Volume in drive D is DRIVE D
                 Directory of  D:\CAD\ORCAD
.                   <DIR>        2-12-88    8:34p
..                  <DIR>        2-12-88    8:34p
ANNOTATE EXE        31488        1-08-88    1:56a
DRAFT    EXE        94208        1-08-88    1:08a
ERC      EXE        46464        1-08-88    1:59a
LIBEDIT  EXE        98816        1-08-88    1:35a
CROSSREF EXE        35616       10-30-87    5:56p
PARTLIST EXE        40320        1-08-88    2:02a
PRINTALL EXE        37248        1-08-88    2:04a
DRIVER              <DIR>        2-12-88    8:36p
LIB                 <DIR>        2-12-88    8:36p
SHEET               <DIR>        2-12-88    8:37p
MACRO               <DIR>        2-15-88   11:19p
         24 File(s)    3137536 bytes free
```

The SHEET subdirectory looks like the most logical of the
four and that is in fact where all my designs are stored
automatically by ORCAD. I could then go to that subdirectory ar
if I have descriptive file names, good computing practice, I
could easily find the file I was looking for. The same
subdirectory tree structure is true for the entire
disk. Any set of programs that fit into a category are placed on

a branch (subdirectory) of the tree all to themselves. This way
anytime you are climbing the tree it is easy to pick which branch
to follow to find the leaf (file) you are looking for. Next month
we will cover a HD Menu program, the AUTOEXEC and CONFIG.SYS
files.

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