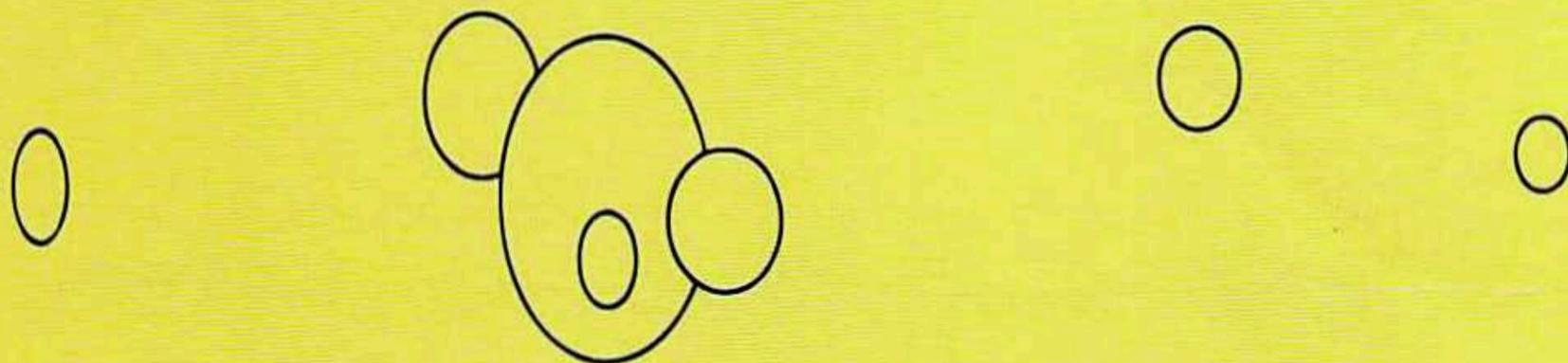


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the flyer for commodore 8biters

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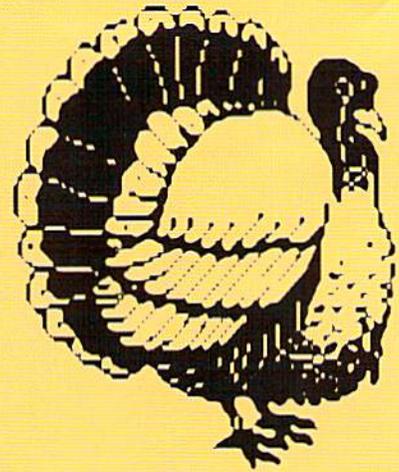
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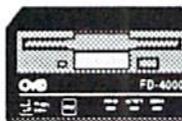
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View From The Underground

by
Brian L Crosthwaite

This has been is one heck of a month. Check out what has gone down. **commodore** decided to liquidate some of it's assets in order to stay a float. The Grapevine Group scored big time. You've probably seen the ads -- check out the one here in **dH**. Note the item called the **commodore C65**. A C64 with 128k of RAM expandable to 8 Megs, runs around 3.54 MHz VGA resolution via the VIC III chip! Top it all off with a 1581 drive built in! Brand new -- no documentation.

More news from the front, **commodore** will still be making the **commodore 64** available in Europe and elsewhere, but not here in the US. Except through Software Hut. I guess they will be piping in C64s and drives as well as possibly some C128s.

Have you heard of the Commodore board of directors ousting plan? It seems as though some people (stock holders, Commodore market place supporters, users, etc.) are not too happy with the present state of Commodore. The word out in the street is to buy Commodore stock and clear out the present board of directors, including you know who. More on this as the story develops...

Gazette moves out of **Compute** and on to it's own disk!

Mean while **geoVision International** is no more. We have the official word and this may not be the end of it all...

The bad news is GeoWorks will

no longer be making **GEOS** available for the **commodore 64/128**. The great news is **CMD** will be! Check out the interview with Charlie Christianson on page 22!

Roger Gouin is back among the pages of **dH** with a furry. His article is not necessarily how I feel about the state of commodoredom, but the article will probably make you take a step back for a moment and think. He's got some interesting insights into industry history. Check it out on page 20.

Scot looks at sequencing on his exploration of **MIDI**! We've got reviews coming out our ears! And Bob travels through gopher holes in the Internet!

Swoooow! Too much excitement for one month!

READY.



dieHard
the Flyer for commodore 8biters

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Layout & Design
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R. Scot Derrer

dieHard, the Flyer for commodore 8biters is published 10 times per year, on a monthly basis except for bi-monthly issues in January/February and July/August by LynnCarthy Industries, Inc. P O Box 392, Boise, Idaho, 83701-0392. Printed in U.S.A.

Subscription Rates: Single copy price \$1.75, \$15.00 for 1 year subscription for U.S. and possessions; Single copy price \$3.00, \$25.00 for 1 year subscription for Canada (in Canadian funds); and \$55.00 for 1 year subscription (in U.S. funds) all other countries. The **Spinner** single copy price \$5.00, \$45.00 for 1 year subscription for U.S. and possessions; Single copy price \$8.00, \$65.00 for 1 year subscription for Canada (in Canadian funds); and \$135.00 for 1 year subscription (in U.S. funds) all other countries.

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News 22

CMD/GEOS
An interview with CMD!

Compute
The new Gazette!

C65
Sea Sixty-WHAT?!?

PRG 32

dieHard Slideshow
Light Bright
Print Note 64
Mailing Jacket
our feature program

Basic BASIC 10

Data Storage
integers, floating-points & strings

Cyberspace
Cowboy 19

In and out of gopher holes!
Bob has more news from the vast
untamed frontier

CAD for
the 64 8

Computer Aided Design
John H. Bounds looks at CAD
on the C64!

MIDI 17

Laying down tracks
Scot covers sequencing!

REVIEW! 13



Perfect Print

Is it really perfect?
Laser Quality print from a 9 pin
printer! Incredible!

geoMakeBoot

Quick and easy...
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GEOS boot disk!

SID Symphony
Stereo
Cartridge
...and more!

on the future
of a new
medium 20

A guest editorial
Roger Gouin speaks his mind

View From The
Underground 4

Trader's
Corner 31

Rarities 7

INPUT;READER\$ 6

Archaic Computer 24

The Computer Store Of The Past
Fleet System 4 24
**Cave of the Word
Wizard** 26

Q&A 27

DOS & Don'ts 29

dieHard

the **Flyer for commodore 8bit**ters is
written and compiled on **commodore 8bit**
equipment. It is then typeset on a C128D
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you hold now is printed by Northwest Printing,
Inc. here in Boise Idaho. Thanks to Douglas
Bober and Doug Cotton, for their technical help
and to Jim Collette who wrote the driver modes.

INPUT ; READER\$

I'm afraid you are mistaken about Radio Shack only carrying only three colors of pens which work in the Commodore 1520 plotter-printer. In the Radio Shacks around here nearly all of them carry both, but they can order either if they are not in stock. They come with a TANDY COMPUTER PRODUCTS label on the package and the catalog number for three black pens is 26-1480A. The catalog number for three

colored pens, one each red, green and blue is 26-1481A. Arche M. Hartley of Colorado Springs, Colorado.

Let me offer a small correction and update to the final question in your September 1993 Q & A dealing with the 1520

printer/plotter. It is very true that you can buy a package of plotter pens having one each of red, blue, and green pens. They also carry packaged black pens. They carry paper the plotter can use, but be careful. They have two different paper types, and only one works. Measure your paper first. Ross Cherednik of Tacoma, Washington.

For a long time I used the programs **Speedscript 64** and **Speedscript 128**. The programs have served me well for a very long time, and still are good ones. It does many of the things a quality word processor should do and it is written for the Commodore printers.

For the past four years I have been using **Pocket Writer II** which offers some things that my old standby, **Speed-script**, does not!

There are so many things the **PW II** can do with a minimum of key strokes. It compares with **WordStar** that we used in CP/M some years ago, which incidentally is still on the market. **Pocket Writer II** does most

everything that I find useful. First of all it offers the use of an optional second screen

(ALT KEY) while you are working IN PROGRAM. The list of all the functions is almost too long to discuss in one writing. One more factor to be considered, if you are working with **DFILE 128** as a second program, you will find the sequential data to be very compatible in **PW II**.

I suppose that I have overlooked other word processors that I have never gotten into since I was busy with my own, but I wanted to point out that **PW II** has many features that **WordStar** offered in other computer modes and systems. Since I have an NX 1000 printer that will not REVERSE PRINT, which is one of

the things that **Speed-script** with Commodore printer could do, I no longer feel that **Speedscript** fits into my schedule of things here. Charles (Bud) Bearby of Clearwater, Florida.

I used Paperback Writer (Pocket Writer's predecessor) for years on the C64 with the 80 column display mode until I wore the disk out!

I was happy to see your review of Gary Labels in the August issue. The C64/128 has lots of good public domain and Shareware still available. Letting users know about currently obtainable resources is where

dieHard can have the most positive impact. One of the best resources of users, particularly those just beginning to seriously use their Commodores, is a user group. Most

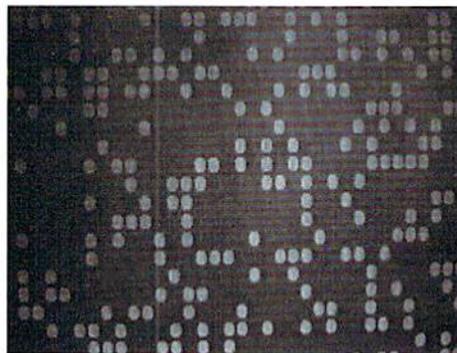
Commodore user groups seem to be dead or dying. I think in many cases the groups have ceased to be a resource to their members and/or ceased to attract new users. What new users? The people who buy the C64s from former users who have now gone to another system. Our group's membership has stayed in the 75-90 range for the last four years because

we have good visibility and work hard to be a valuable resource to our members. Jim McFarland of Gig Harbor, Washington.

One spot lighting factor used by the Treasure Valley/Boise User Group, one local commodore user group here in Boise, is community education classes teaching computer education in one of the local elementary schools. Many of the students don't have computers and are curious about them. They are amazed by what the commodore 64s can do, and many join the club.

It is well known that the **commodore** RANDOM function (RND) generates a pseudorandom number, not a truly random one. As R.C. West explains in his encyclopedia reference guide, **Programming the Commodore 64** (Compute! Books, 1985, p. 56), although RND(0) gives a more nearly random result than RND(1), it "may show repetitiveness" especially in short loops.

The following two-liner demonstrates the superiority of RND(1) over RND(0) in the above regard. In the first time around (A=1) RND's argument, D, is 0. Note a definite pattern in the printout. The second time, D=1, no such pattern emerges.



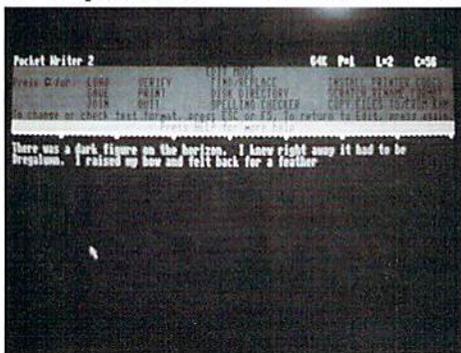
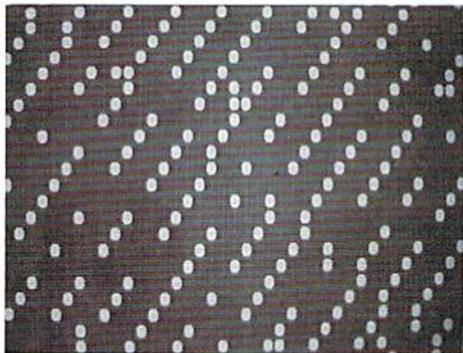
```
0 REM RND(1)
VS. RND(0) --
RICHARD VAN
FRANK
10 FORA=1TO2 :
PRINT CHR$(147)
:FORB=1TO400:
C=INT(RND(D)
*1000)
20 POKE1024+C,81
:NEXT:D=1
```

```
:FORA=1TO1000:NEXT:NEXT
```

I doubt that the different means much in a program like **dieHard LOTTO** (**dieHard**, September 1993, back page, line 50), but where graphics are involved RND(0) may produce unwanted patterns. Richard Van Frank of Montclair, New Jersey.

Another good seed for RND is TI, aka RND(TI). Random numbers are part of a sequence that start at a random point. These sequences are repeatable, RND(TI) allows for a randomization of the random start. Much like the RANDOM function used by computers like the Timex Sinclair 1000.

READY.



Recently, when picking my son Kristofer up from a friend's house, I stopped at a local thrift store on an inspired spur-of-the-moment whim. I found three books I didn't know existed, all by David H. Ahl. Mr. Ahl used to be the publisher of **Creative Computing** magazine. The three books are: **The Best of Creative Computing Volumes I & II** and **Basic Computer Games**. The Best-of volumes contain tons of computer related fun: articles, programs, trivia, games, and just weird oddments. The games book has 100 basic type-in programs, all very different programs from different sources that David has edited. Now the kicker, all this is pre-1976 stuff! Since Creative Computing Press was the publisher, I am sure the books are out of print. The bio on the publisher is interesting. David H. Ahl has a BS in Electrical Engineering and an MS in Industrial Administration. He consulted with Management Science Associates, worked at Educational Systems Research Institute, and then joined Digital Equipment Corporation where he originated the concept of 'EduSystem' (Educational Computer System). In 1975 he joined AT&T and published Creative Computing as a hobby.

Keep those newsletters coming. We love 'em. C=HUG and UPCHUG sent us some info. It may be coincidence, but both groups remark how Commodore user groups are dying and fading away. If this is true, and we certainly hope it is not, then it only reinforces why **dieHard** and our friendly competitor magazines, **Random**, **Cee 64 Alive!**, **LOADSTAR**, **LOADSTAR128**, **Compute Gazette**, and **Twin Cities 128/64**, exist -- to service the **commodore** community. This kind of reactive thinking is not necessary nor

does it entice any sort of comraderie. Things change and numbers fluctuate. Don't fret, believe in what you are doing, and most of all, Enjoy It! 8-bit machines are still being widely used and sold worldwide. The clubs who send us newsletters, and you, our readers, indicate that there are a substantial number of cyber-survivalists out there. The fact that there are seven excellent magazines being published and supported says a lot. Anyway, these two clubs are up and running. C=HUG offers a newsletter and a disk of the month.

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Tacoma, Washington 98411

C=.H.U.G.
P.O.Box 404
Fremont, California 94537

This is CYBERNEWS posted by Nymphette on Q-Link (08/13/93). C NET 128 BBS software is now being distributed by RM Software. We're not familiar with this software yet, but Brian's been logging onto a BBS in FLA and he says the logic and user friendliness of this board is second to none (of course, most boards under go a certain amount of customization). If you want further information about it the voice/information line # is (201) 843-3116 and the 24 hr BBS # is (201) 845-8250 or contact RM Software, 16 Maybrook Dr., Maywood, New Jersey, 07607.

Send us your us your info! If you are in a user group and have not yet seen it listed in **Rarities**, send us a copy of your newsletter and we'll put the Spot Light on your group! Commercial developers and computer shops who support the **commodore** realm, send us information!

READY.



Rarities

CAD for the 64

by
John H. Bounds

I have often been asked if COMPUTER AIDED DESIGN (CAD) is possible on a Commodore 64. The answer is *yes* -- if you have the correct equipment. My equipment includes several C64's with 1702 Monitors, and a C128 with a Magnavox RGBI 80 column Monitor. Disk drives include 1541s on the C64s and a 1571 on the C128. No mouse is used, rather, the cursor keys are used because of greater precision. The current hook up is a VIC1520 Printer-Plotter on the C64's and a Hewlett Packard 7475 six pen plotter on the C128 with an Arotek RS-232 Expansion Interface which also works on the C64 and VIC20.

Other Hewlett Packard Plotters will also work on **commodores** with a little interfacing. These include the fairly reasonably priced HP7440 (8 pen) and HP7470 (2 pen) (on the used rebuilt market, see Hewlett Packard ads in want ads of the monthly **COMPUTER SHOPPER magazine**). Both of these use 8.5 by 11 inch paper as does the HP7475 which may use either simple 20lb typing paper or specially made plotter paper.

Transparencies are also possible on HP Plotters using special pens and transparency film. The main thing to keep in mind here is that the Commodore VIC1520 Printer-Plotter works on nearly the same language as the Hewlett Packard (HPGL, Hewlett Packard Graphics Language -- the virtually universal plotter and CAD language). The VIC1520 uses adding machine tape with a width of 4.5 inches and is very similar to the printer-plotters offered by Radio Shack and Texas Instruments and, in fact, uses the same black, red, green, and blue pens. The commonality of these three VIC1520-like plotters makes supplies easy to procure.

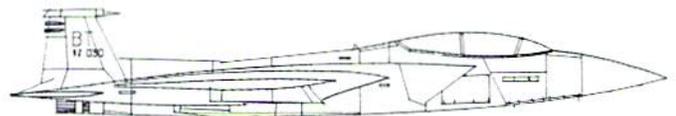
The drawing size of the art on the VIC1520 Plotter is about 3 by 5 inches which can be reduced almost down to

postage stamp size through software instructions.

Enlargements can be readily made on a copying machine. Through the usage of the controls on a copy machine, improvements can be made to VIC1520 artwork.

The pen size (width of line) is a very important topic in CAD. The VIC1520 only accepts the 1mm size while other plotters may use various sizes (although I use mostly 3mm and 7mm sizes). VIC1520 pens are ball points while HP pens come in a variety of point types ranging in price and quality. I use mostly nib tips. Colors available for the HP are more extensive than for the VIC1520 but for CAD usage black is the most common.

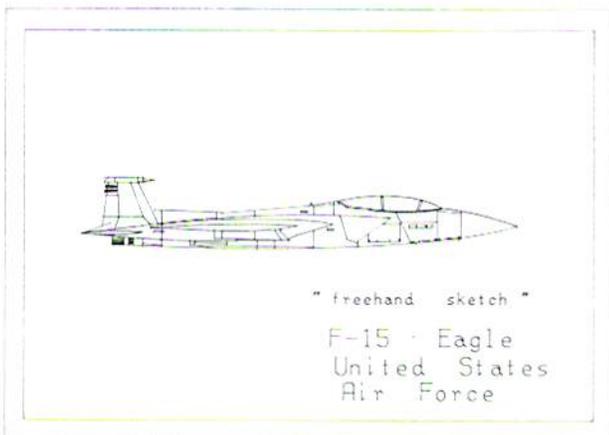
There are very few commercial programs available for the C64 and C128 team that rank in calibre to what is

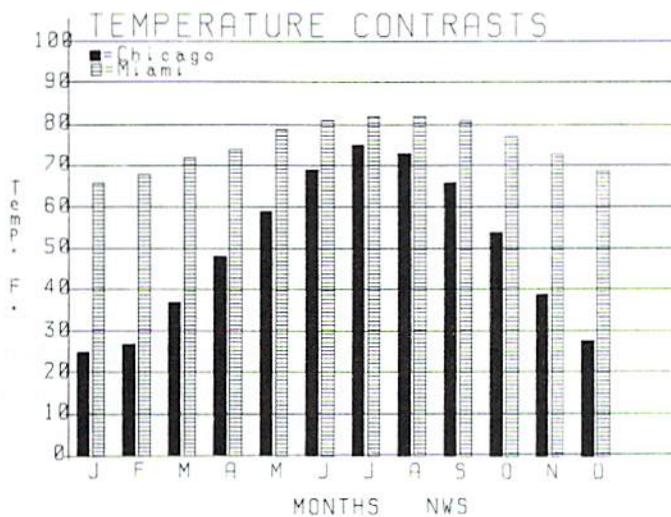


available for the IBM family of computers. The program I use is **CADPAK PROFESSIONAL**, copyright 1986 by R. C. Wainwright. This is the same program writer who wrote **CADPAK C64** and **C128**, **CHARTPAK C64** and **C128**, and **CHARTPLOT** for Abacus Software. Most of these are on the market still because they are all excellent and show good demand.

CADPAK PROFESSIONAL is not on the over-the-counter market and, as far as I can remember, it never was. It can be obtained by contacting R. C. Wainwright (Wrightsoft, P.O. Box 76, Brogue, PA, 17309, Phone: (717) 927-9548.) Another fine program is **FLEXIDRAW** by Inkwell but it is mostly a dotmatrix or inkjet printer type of program. The plotter driver on my copy is not adequate for my usage because it assumes a line printer mode.

The only way to really do CAD is with a plotter which





can do vector graphics (one line at a time -- anywhere on the paper) versus bit mapped images which must do one pixel or group of pixels at a time from the top of the page to the bottom -- one row after another. Inkjets, Bubblejets, possibly some 24 pin dot matrix machines and Laser printers, with their great ability to print one pixel as a very sharp dot, can do as high-quality print outs as a plotter. These other machines also tend to be much faster in printing out a drawing and can cost less than a plotter.

The HP Deskjet results, with the C64 and its programs, are lower quality art with a good many jaggies. If you don't mind jaggies, the results are OK and in very sharp lines. For any computer work with great results there must be harmony between the computer, its peripherals, such as the monitor, the software, the printer drivers, and the printing or plotting device. Perhaps even the operator should be included here, because he or she is the person who must make all these items work in perfect synchronization toward artistic excellence.

The C64 can do great CAD, but it is the artist who makes the drawing. In the making of this artwork, it is the plotter which is the most important tool. The C64 has the ability if the right software and the proper plotter are available to the artist. I have published VIC1520 graphics so I know it is commercially acceptable. Since the VIC 1520 can sometimes be found between \$20 to \$30, cost, should not keep the commodore owner away from CAD. Even rebuilt Hewlett Packard Plotters should not cost much more than \$250-300. Since good computer stores are becoming more difficult to locate, supplies for CAD are not as easy to obtain as regular computer supplies. Drafting supply shops, blueprint stores and mail order are places to look.

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READY.

Basic BASIC

by R. Scot Derrer

This purpose of this monthly column is to continue the education and knowledge of BASIC programming and the digital environment. Before moving on to learning more BASIC keywords, let's stop and take a look at data storage and variables. This data storage business is serious. By this I mean, the computer is very strict about how it handles data. If you write BASIC programs, it is very important to understand exactly what is going on with your data. The following information may be acquired from the Commodore Programmer Reference Guides, but I'd like to think this column is more fun to read.

Data Storage In Memory

The ways to store data in a Commodore BASIC program are with VARIABLES, and ARRAYS. Sometimes variables can be called constants. Constants are essentially the same as variables except the data does not change throughout the life of a program, whereas the contents of *variables* can vary or change. To avoid confusion, all data storage activity should be considered as variables. A very efficient way to store variables is in an *array*. These storage methods can store data in three different formats: INTEGER, FLOATING-POINT, and STRING. *Integers* are whole numbers without decimals. *Floating-point numbers* are in decimal notation representing fractions. Both integer and floating-point data may be signed (positive or negative; + or -). *Strings* contain numbers, letters, and graphic characters and are also called character strings.

A Memory Primer

Computers function by using the *base-two* or *binary* numbering system. Binary is a system of numbers that can be either 0 or 1, on or off. This value of 0 or 1 resides in an area of memory called a *bit* and there are 8 bits in a *byte*. Since a bit can only be a 0 or a 1, two bits offer more combinations: 00,01,10,11. Three bits provide even more combinations: 000,001,010,011, 100,101,110,111. If you follow this methodology up through 8 bits, there are a total of 256 combinations. So a byte can represent numbers from 0 to 255, or 256 total.

The binary counting system is very similar to our common decimal or *base-ten* numbering system. The base-ten system designates the rightmost digit as the one's place and can hold a value from 0 to 9. The next digit to the left is the ten's place and can also hold a value from 0 to 9 which indicates the number of times the one's place has been used. Each successive digit to the left of the ten's place; hundreds, thousands, ten-thousands, etc., indicates the number of times the previous digit to the right has been used.

Being slightly different, the binary system has a one's place, two's place, four's place, etc. counting right to left starting with bit 0. Here are values of the 8 bits in the binary system:

Bit 0:	1	{2 ⁰ =1}
Bit 1:	2	{2 ¹ =2}
Bit 2:	4	{2 ² =4}
Bit 3:	8	{2 ³ =8}
Bit 4:	16	{2 ⁴ =16}
Bit 5:	32	{2 ⁵ =32}
Bit 6:	64	{2 ⁶ =64}
Bit 7:	128	{2 ⁷ =128}

Adding the values of these 8 bits together equals 255, the maximum value of one byte. If you need to count higher than 255, just use two bytes. With two bytes, 65535 binary combinations (255 * 255) are now possible.

The C64 is known to have 64K memory. K is a *kilobyte* which equals 1024 bytes. (64 * 1024) = 65536, so the C64 has 65536 bytes of available memory (0 to 65535). That's why you see "64K RAM SYSTEM" appear when you turn on the C64. I hope this helps in your understanding of computer memory management. So not to blow your circuits with all of this, I'll save the hexadecimal information until a later column.

Integers

Integers are whole numbers with no decimal or commas. If a comma is used you will see the BASIC error message ?SYNTAX ERROR IN nn (nn = a BASIC program line number) displayed on the screen when the program is executed. The values of an integer range from -32768 to +32767 and is stored in two bytes of memory. This range of 65535 (32768 + 32767) equals the maximum value the computer can handle when storing an integer. If an integer exceeds this range, the BASIC error message ?ILLEGAL QUANTITY ERROR is displayed on the screen. Unless a minus sign is used, the computer assumes a positive number. Leading zeros are ignored since they would waste memory and slow down the execution of a program. Integer variable names are defined by using a percent sign (%). Here are some examples of integer variables.

```

10 A% = 4
20 IN% = 3278
30 C4% = -629
40 INTEGER% = 75
50 VARIABLE% = -3266

```

REMark: In Commodore BASIC, variable names can be single alphabetic letters (A to Z), double letters (XX, SD, ER, etc.) or a combination of a letter and a number (0 to 9) with a letter always followed by a number (X1, S3, V9, etc.). You can use longer names if you want, but only the first two characters of those names will be recognized by the computer. Therefore, two different variables called THIS and THAT will be TH to the computer and considered the same variable. This can cause problems in data integrity so be careful when defining your data storage variables. Also, do not use BASIC keywords as variable names or as part of variable names as this will display **?SYNTAX ERROR IN nn** when the program is executed.

Floating-point Numbers

The main difference between floating-point numbers and integers is that floating-point numbers have a defined or implied decimal. The decimal designates fractional parts of whole numbers. Again, no commas are allowed here either. As with integers, leading zeros are ignored and unless a minus sign is used, the computer assumes a positive number. The computer will display up to 9 digits of a floating-point number on the screen. The values of floating-point numbers range from -999999999. to +999999999. (notice the decimal points). This range is determined by the fact that there are nine displayable digits and that + or - 999999999 is the maximum value the nine digits can hold.

Internally, the computer handles 10 digits of a floating-point number

with the tenth digit being used to make rounding decisions. If the tenth digit is greater than or equal to 5 then the floating-point number is rounded upward and if less than 5, the number is rounded downward. If you're expecting truly accurate results of large calculations, this rounding factor is important to consider.

Floating-point numbers are represented in two ways; *Simple Number Notation* and *Scientific Notation*. If the value of a floating-point number is greater than 9 digits then Scientific Notation is the default display on the screen. Floating-point numbers are defined just like integers except without the percent sign. Here are some examples of floating-point numbers in Simple Number Notation.

```

10 A = 12.67
20 IN = 3278.314
30 C4 = -.629
40 NUMBER = 1.23456789
50 VARIABLE = -3266.58243

```

Floating-point Numbers & Scientific Notation

Don't be afraid. We're just dipping in the mathematical pool for a quick swim. If the value of a floating-point number is smaller

than .01 or larger than 999999999., then that number will be displayed in Scientific Notation. Scientific Notation is just an easy way to deal with large numbers and consists of three parts: the MANTISSA, the letter E, and the EXPONENT (see Fig. 1). The *mantissa* looks exactly like a number in Simple Number Notation. It is the left number and can have a decimal. The letter E is displayed to inform you that the number is in exponential form (Scientific Notation) and literally means *10 (times 10). Following the letter E is the exponent number and represents the

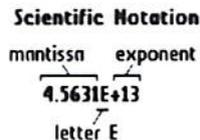


Fig. 1

number of places the decimal point needs to move right (+) or left (-).

Both the mantissa and exponent are signed numbers. The exponent number on the C64 has a value range of +38 to -39. That's a lot of decimal places, more than I really want to know about. As with integers, there is also a value range for floating-point numbers in Scientific Notation form. The largest number allowed is +1.70141183E+38 and the smallest number allowed is +2.93873588E-39. When exceeding this range, if a smaller number is calculated, then that number becomes zero and there is no error message. Should a larger number than allowed be calculated, the error message **?OVERFLOW ERROR** will be displayed.

Strings

String variables are used to store alphanumeric characters such as numbers, letters, words, sentences, punctuation, and graphics. Any numbers in a string will be considered alpha characters. String names follow

the naming conventions described earlier but are followed by a dollar sign (\$). Upon program execution, all string variables are set to null if no value is designated. Null is the equivalent to an empty string which looks like this: NU\$ = "". Here are some examples of strings.

```

10 A$ = "STRING"
20 Q$ = "NUMBERS 12345"
30 SV$ = "LETTERS ABCDE"
40 E6$ = "GRAPHICS"
50 NULL$ = ""

```

REMark: Since strings are delimited (surrounded) by quotes ("), the only way to PRINT the quote symbol is by using CHR\$(34). CHR\$ is a BASIC

keyword that will return the string character equal to the ASCII code in parentheses. ASCII is the acronym for American Standard Code for Information Interchange and references a 7-bit code. All keyboard characters and actions are represented by binary numbers which the computer understands and responds to. This is how the computer understands what you type.

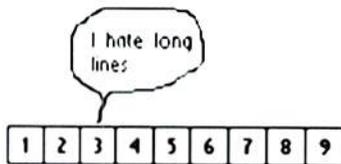
This 7-bit code is a way to interpret these binary numbers into a more universal number set that is transportable from computer to computer. ASCII generally uses 7 of the 8 bits in a byte, with the eighth bit set to zero or used as a parity bit in data transmissions. All the Commodore keyboard characters have an ASCII number and 34 is the ASCII number of the quote symbol. Here are examples of different ways to PRINT the word HELLO surrounded by quotes, "HELLO". Type in the following program and RUN it.

```
10 PRINT CHR$(34) "HELLO" CHR$(34)
20 PRINT CHR$(34); "HELLO";
   CHR$(34)
30 PRINT CHR$(34) + "HELLO" +
   CHR$(34)
40 A$ = CHR$(34) + "HELLO" + CHR$(34)
50 PRINT A$
60 B$ = "HELLO" : PRINT CHR$(34)
   B$CHR$(34)
```

ARRAYS

An array is a block of defined memory used to store a series of related variables. Think of it as a Post Office with P.O.Boxes. The array can be defined as an integer, floating-point, or string array. All elements (P.O.Boxes) within an array (Post Office) have the same data type as the array name implies.

The BASIC keyword for defining an array is the word DIM which means DIMension.



DIM A%(9)

Fig. 2

Arrays are stored sequentially in memory and this is considered to be one dimensional (see Fig.2), like one row of P.O.Boxes. The number of elements in an array is referred to as the *subscript*. Here are examples of one-dimensional arrays with nine elements.

```
10 DIM A%(9) : REM
   integer array
20 DIM A(9) : REM
   floating-point
   array
30 DIM A$(9) : REM
   string array
```

The illusion of multi-dimensional arrays can be achieved by how the array is defined.

Illusion because no matter how many dimensions are implied, the data is stored sequentially in memory. For example, to make a two dimensional array with 9 elements (see Fig. 3), you would then define it like the following examples. Now imagine three rows of three P.O.Boxes.

```
10 DIM A%(3,3) : REM
   integer array
20 DIM A(3,3) : REM
   floating-point
   array
30 DIM A$(3,3) : REM string array
```

Now compare the two dimensional array with the one dimensional array. (Fig. 3 & Fig. 4) They are exactly the same array, just defined differently. Fig. 3 shows three rows down and three columns across whereas Fig. 4 shows 9 columns across. Fig. 4 is how the computer really stores the array data in memory.

To access and store information in an array is easy. Simply refer to the element you want to display by using the subscript. If there were no subscripts, in order to access the elements of an array, every element would have to be defined with a unique name. Defining and subscripting an array saves space in a program. Here are examples of a subscript equal to 15 and 6.

```
10 DIM A%(15) : REM
   integer array
   with 15 elements
20 A%(6) = 24 : REM loads 24 into the
   6th element
30 PRINT A%(6) : REM prints the 6th
   element
```

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A three dimensional array is larger yet. Imagine three rows of P.O.Boxes with three boxes across and three boxes deep (see Fig. 5). Here are some arrays with 27 elements. Notice that line 10 is a three dimensional array, line 20 is two dimensional, line 30 is one dimensional, and that they all have 27 elements.



1,1	1,2	1,3
2,1	2,2	2,3
3,1	3,2	3,3

DIM A%(3,3)

Fig. 3

```
10 DIM A%(3,3,3) : REM
   integer array
20 DIM A(3,9) : REM
   floating-point
   array
```

```
30 DIM A$(27) : REM string array
```

Fig. 5 The figure to the left shows an array with three rows down, three columns across, with three depth positions or levels. $3 * 3 * 3 = 27$ so there are 27 elements in this array. You can dimension arrays further (DIM a (b,c,d,e,f,etc.)) and theoretically indicate the array has more than three

dimensions.

To be continued...

If you have any questions or comments concerning this or any other BASIC concept, feel free to drop me a line at: dieHard, Basic BASIC, P.O.Box 392, Boise, Idaho, 83701-0392.



DIM A%(3,3,3)

Fig. 5

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REVIEW! REVIEW! REVIEW!

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reviewed by R. Scot Derrer

This is fun. I get to totally control one page of **dieHard**; fonts, format, printing, everything. It's not that Brian isn't a brave and trusting soul, he is. It is because we want to present to you a review of CMD's **Perfect Print LQ Print System for GEOS** that sufficiently demonstrates the power and quality of this product. So, forsaking **GeoPublish** and the laser printer, this review is printed by the **Perfect Print LQ System** on my 9-pin printer so you can see what it can do. Here is software allowing high quality printing for 9 and 24 pin printers using **geoWrite** that rivals laser printers. Two versions of **Perfect Print** are available. The standard package is two disks with 7 fonts. The complete package has four more disks representing **Font Collections 1 and 2**. We received the complete package. **Font Collection 3** and the **Border Font** disk have not arrived at our offices yet, but we'll review them soon.

The manual is thorough, organized, and caters to the need of having to print something immediately. There is no index (sorry Brian), but the Table of Contents is very explicit. The **Perfect Print LQ System** is addressed conceptually in detail. Printer support is impressive and the list of printer drivers covers a wide range of 9 and 24 pin printers. There are examples of all the fonts in one point size printed in the back along with the font ID# and other point sizes available. There's even a **Border Font** for creating boxes around text, which is a neat idea.. All in all, it is a solid manual with everything you need to understand and use this system.

Understanding the concepts of **LQ** (laser quality) and **HQ** (high quality) is the system's foundation and strength. With **HQ** interpolation drivers, **GEOS** applications outside of **geoWrite** (**geoPublish**, **geoPaint**) can have high quality printing. The **HQ** drivers are the only print drivers that use all 24 pins on a 24-pin printer. Printing with **HQ** drivers and 9-pin printers is very fast and high quality. For **geoWrite**, the **LQ Perfect Print System** and **LQ** fonts, without any printer driver, produces even higher quality printing on both 9 and 24 pin printers.

The six disks contain the **LQ Print System**, 100 **HQ** printer drivers, nine font utilities, 4 **HQ** fonts, and 45 **LQ** fonts. The **Font Utilities** are intriguing, but unfortunately only run in 40 column mode. I don't think I would use them that often, but I did get to use the **FontScratch** program which lets you delete unused point sizes from fonts, freeing up a lot of disk space. This was necessary to create this document and store all the necessary files on one 1571 formatted disk. If all you have is a 1541 disk drive, you'll find disk space disappearing quickly using this system. The other font utilities are **FontMove**, **FontCreate**, **FontZoom**, **FontSplice**, **FontHide**, **FontDistance**, **FontAdjust**, and **FontSize**. An older Public Domain version of Jim Collette's **Font Editor** is included with reference in the manual to a newer, more reliable version available from CMD on **Collette Utilities Disk**.

When using **Perfect Print**, the improvement of the print quality is much more noticable for 9-pin printers than for 24-pin printers. CMD recommends using a parallel cable with 24-pin printers to accelerate printing up to 40%. The speed is only about 5% faster when using a parallel cable with 9-pin printers. If you purchase this system and are interested in a parallel cable, it is best to contact CMD Technical Support for more information. I did call with some questions and Charlie Christianson and Doug Cotton treated me very well.

REVIEW! REVIEW!

For intricate control over the LQ system, there are Configuration Files in geoWrite format. These files may be edited and changed affecting the way Perfect Print works and the way the printed output looks. The three types of Configuration Files are connection, printer adaptation, and parameters. Most software purchased these days is not open-ended like this, so the option and opportunity of such control over printed output really impresses me.

The history of this system originates in Germany with a fellow named Thilo Herrmann. For CMD to offer it in the U.S., a lot of translating and conversion was necessary. As you can see, the resulting print quality is amazing for 9-pin printers. The combination of the LQ System, LQ Fonts, HQ printer drivers, and parallel cable breathes another new life into the world of GEOS and commodore. The quality of the complete package at such a low price makes the Perfect Print LQ System for GEOS a very usable and worthwhile purchase.

Now to explain this document. The following LQ fonts were used in the text: Stalk 42 pt., Trek 24 pt., Future I 18 pt., Rustic 18 pt., Roma III 14 pt., Paprika 45 pt., Roma 9,12 pts., Shadow A BLQ 5,13 pts., BSW 128 9 pt., Cory 12 pt. and the following 10 point LQ fonts: Roma, University, California, Barrows, University, and Peignot. At the bottom of these two pages are dieHard's page number boxes, both of which are geoPaint graphics imported into geoWrite. On page 13, the text in the box is Roma and on page 14, the text in the box is LW_Roma. On the bottom of this page is the Perfect Print price list and the Border Font. Notice the side-by-side tests of HQ printing to unenhanced geoPaint printing. Quite a contrast.

The system used to create and print this review is a C128-D with internal 1571, 1750 REU, STAR NX-1000 Rainbow 9-pin printer, Pelikan ribbons, and Xetec Super Crafix interface. These two pages were printed using a new ribbon and the highest density possible in the Perfect Print LQ Print System. Print time for both pages totaled 54 minutes.

Example of the
Border Font wrapped
around text

Using border fonts is a challenging and rewarding process. The manual explains it well. All it takes is following the instructions and a little experimentation.

CMD's Perfect Print LQ Print System for GEOS

Standard Package	\$ 34.95 (2 disks)
Complete Package	\$ 49.95 (includes Font Collection 1 and 2)
Font Collection 1, 2, and 3	\$ 19.95 (2 disks each)
Border Font Collection	\$ 19.95 (1 disk)
Parallel Printer Cable	call CMD for information

Shipping costs must accompany all orders.

Be sure to see CMD's complete ad on page 3 of dieHard.

This graphic and text was printed with
the NX1000 driver and geoPaint.



AWARDS CMD A

***** FANTASTIC!
***** GREAT
***** GOOD
***** POOR
***** REALLY BAD



This graphic and text was printed with
the Epson HQ driver and geoPaint.



AWARDS CMD A

***** FANTASTIC!
***** GREAT
***** GOOD
***** POOR
***** REALLY BAD



geoMakeBoot

\$12.95 (Plus Postage.
Creative Micro Designs,
P.O.Box 646, E. Longmeadow,
MA 01028 (phone orders:
(800) 638-3263))

Reviewed by R. Scot Derrer

Wonerful, wonerful,
wonerful

CMD is a wonderfully supportive company to C64/C128 and GEOS users as their product line indicates. With **geoMakeBoot** available for a mere \$12.95, you can easily create back-up **GEOS64/128** boot disks. The instructions are short, concise, and easy to follow. A boot disk can be created for the following devices: 1541 (all models), 1571, 1581, CMD HD Series hard drives, CMD RAMLink, and PPI RAMDrive. Disk drives have to be device 8 or 9.

My setup consists of a C128D, 1541, and 1581. CMD recommends using only one side of a 1571 disk to avoid booting problems so I chose to create a 1541 boot disk. The first step is to boot your own version of **GEOS** and format a blank disk. You then copy **DESKTOP**, **Configure**, and your printer driver files to the blank disk. From the CMD **geoMakeBoot** disk, copy the **GEOS128** and **geoMakeBoot128** files (or the C64 versions) to this same disk. On the new disk, double-click on the **geoMakeBoot** file and within 20 seconds, the back-up boot disk is ready to use.

REVIEW!

Testing my new boot disk was exciting. It was almost too simple to create and would it work? After typing **RUN "GEOS128"** and pressing RETURN, I was quickly presented with 9 screens of garbage, a slight pause, and then VOILA!, **GEOS**. A nice change is the display of 03/23/92 01:00 PM in the **GEOS** Menu date-time field instead of the all too familiar 08/22/88 01:00 PM. Everything in my **GEOS** system works fine and I can sleep better knowing I have reliable back-up **GEOS** boot disks. My only loss is having **GEOS** autoboot and my attempts to make this disk an autoboot disk failed. The trade-off of having reliable back-ups greatly diminishes that loss. This one rates:

* * * * *

HP LaserJet 4ML

1993 Hewlett Packard
\$999.99 (Office Depot and other office super markets)

reviewed by
Brian L Crosthwaite

This printer was set up on a commodore 128D with CMD's GeoCable compatible cable.

Escape codes do not come with the printer, however if you have access to a fax machine (I used the print shop's where we have our copies printed), HP will fax the codes to you. The codes for this printer are short and sweet (sounds like we are going to be doing some tech-know-how articles on accessing both PostScript *and* PJI fonts from word processors other than **geoWrite**).

This printer has both parallel and serial ports. The Bi-Tronics interface is Centronics compatible. It can communicate both ways, providing the software you use can listen as well as talk. The serial interface is the 8 pin AppleTalk network plug. This port is adaptable to the 9 pin DB sub, so if you want to use it with **GEOPUBLASER** all you need is a serial interface and the adapter.

Well, the serial interface for the **commodore** user port may be very hard to find. Back to the **geoCable**. CMD also has a disk that can be very valuable. **Collette Utilities**. This is a collection of some of the best utilities for **GEOS** ever created, from the mind of Jim Collette. One of which is **Patch.GC** for use with

geoCable. This program will patch **GEOPUBLASER** to send the information for the PostScript output of **GEOPUBLASER** to the **geoCable** as a parallel signal. You will need the right version of **GEOPUBLASER** and **geoPublish** to make it work. The one that comes with your **geoPublish** disk is not the right one. Don't ask me, it may have been a choice to make it the most compatible for all. The two disk set of **geoPublish** needs **GEOPUBLASER1.8** and the older one disk version needs **GEOPUBLASER3.10.88**. Both are available on Q-Link, and hopefully soon to be available From CMD. Patching with **geoLaser** is easy. You can use the one found on **GEOS2.0**

The 4ML is small, with a foot print of 14 inches by 14 inches. It stands about 7.5 inches high. When the printer has not been in use for 20 minutes it will automatically shut off. When you send it a document it will automatically turn on.

The control panel is very simple -- one button. This button does different things depending upon the state the printer is in. If there is data left in the printer it will send it out via printout or purge, depending upon what the data is. It will test the printer when the printer is on and ready. If you hold it down for more than 10 seconds it will print out PJI and PostScript font and information sheets. If there is paper in the paper path

it will send it out.

The control button does not allow font selection, landscape selection or an other conventional control over the printer. These are all done via the interface ports. The software you use will initialize the printer accordingly. If your software does not allow this type of communication, you may not be able to use it with this printer. Accompanying the printer are two disks with print drivers and mods for those 90s computer systems -- MS-DOS & Mac. Who'd of thought that just about any computer that could talk via a Centronics or RS-232C path would ever be used with this printer. Oh, say, a C128D used to produce a magazine. It could happen!

Many word processors allow you to set up print drivers via a text file that the word processor gets it's information from upon boot up. This is why I highly recommend getting the fax of escape codes, you will need them. There are no codes, however for bold, underline et cetera. The printer looks at bold Helvetica as an actual font rather than an enhanced font, at least in PostScript mode. There is no cartridge port for font or emulation cartridges. Other HP LaserJets can take third party as well as HP cartridges. These allow for emulation of Epson FX-80 and other printers as well as fonts other than those resident in the printer. This may be a major set back if you had planned to

REVIEW!

use these capabilities.

There are four status lights. READY, DATA, PAPER, and ERROR. Different light combinations signify different printer states. If it confuses you, there is a sticker that you can place inside the toner cartridge door.

For a sample of the print out from this printer see the magazine you now hold. **dieHard** is printed using this printer.

There are two paper paths, one for conventional copy/laser type paper and one for heavier materials like transparencys and the like.

With 4 megabytes of memory, 4 pages per minute and being one of the lowest costing PostScript printers available, this one rates:

* * * * *

HP DeskJet 500

1993 Hewlett Packard
\$299.99 (Office Depot and other office super markets)

reviewed by
Brian L Crosthwaite

I have been using this printer since March of this year. We printed the March and April issues of **dieHard** on it. If you want to get great graphics print outs, with no

lines, and truly black print out, this printer will do it. You can use it out of the box as a 75 dpi printer (it really prints 300 dpi) or you can get third party emulator cartridges and simply use it as you would any other printer. With an Epson FX80 card you can have 80 cpi and use it with just about any graphics and word processing package.

The printer was setup with a CardCo B interface, all dip switches off, and used with **GEOS**, mainly **geoPublish**. The print driver is the LaserJet Parallel, for use via the Centronics port. This printer also has a 25 pin DB sub for RS-232 communications.

This printer is very quite, stores its own paper in its self-feeder and is a dream to use, giving it a rating of:

* * * * *

SID Symphony Stereo Cartridge

Dr Evil Laboratories
1988 CMD
\$39.95 (Plus Postage. Creative Micro Designs, P.O.Box 646, E. Longmeadow, MA 01028 (phone orders: (800) 638-3263))

reviewed by
Brian L Crosthwaite

This is something that has to be experienced with the ear. You read the name right, it is a second SID chip to allow your C64 or C128 to fill a room up with stereo sound. A simple cartridge that plugs into you cartridge port with a jack to run a patch cord to your stereo. Simply run your normal sound out to the other channel and you're set. The software for this cartridge may all ready be in your collection. **The Stereo SID Player v10.3** by Mark A. Dickenson comes with it along with some of the best SID files I have ever heard.

Compute!'s Music System for C64/128 by Craig Chamberlain set the standard for SID files and that is what the **Stereo SID Player** plays. The program will load a .MUS and a .STR file to play two SID files at once to create stereo (pictures and words are often added to enhance the experience). If you only have one (.MUS) file it can be played in stereo as well.

Since it uses an industry standard, you can find many of these files in the Public Domain. Check your local user group or any **commodore** area on many BBSs. Q-Link, for example, is loaded with hundreds of files to delight your ears.

There is no soldering, clipping or crimping. Just plug it in and you have two SID chips installed:

* * * * *

READY.



MIDI

Welcome to the world of MIDI. This is the second of a series of articles about Musical Instrument Digital Interface technology and what you can accomplish with it. Last month, several aspects of MIDI technology were briefly presented. This month we'll take a close look at sequencing. Sequencing is considered by many to be the most important function that MIDI offers. The ability to create quality, marketable music at home is a growing technology that has consumers excited and some Music Recording Industry executives fearful.

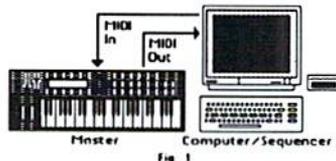
Sequencing - Recording Music On A Computer

For years, audio recording technology has been (and still is) accomplished by recording music to audio tape. This is usually done in recording studios over periods of days to months or 'live' in a concert hall during a performance. Sequencing is the same process except it done digitally in computer memory instead of on audio tape.

With a personal computer, multi-timbral synthesizer, MIDI interface, MIDI software, and external sound system, you can have a very powerful multi-track recording studio in your own home. Connecting the system configuration requires only two MIDI cables from the synthesizer to the MIDI interface and computer (see Fig. 1). Since the synthesizer has an internal MIDI interface, the external MIDI interface connected to the computer translates MIDI data into a format the computer can understand. It should be mentioned that in place of a synthesizer, any MIDI instrument, such as a MIDI guitar, bass, violin, or accordion with a sound source, will suffice.

To Multi-Timbral Or Not

Almost all of the synthesizers manufactured in the last ten years have MIDI connections. It is now considered a standard. What isn't a standard though, is multi-timbral capability. A multi-timbral synthesizer has the ability to send and receive information through the MIDI cable for more than one voice or



sound. Synthesizers that are not multi-timbral can only send and receive information for one sound. If the synthesizer is not multi-timbral, you can only record, manipulate, and play-back one sound on one track. This is rather limiting and, except for MIDI event editing capabilities, a simple tape recorder does the same thing.

As you might expect, synthesizers with multi-timbral capability cost more than those without it. Fortunately, companies like Casio manufacture some adequate, multi-timbral synthesizers that cost under \$1,000. I am not suggesting that the inexpensive route is the way to go. You usually get what you pay for. Your own requirements, needs, and what you are willing to afford should dictate what you

purchase. Just know that multi-timbral capability is much more versatile. With it you can record drums, bass, piano, strings, etc. on different tracks and then play-back all the tracks at once to hear your 'ensemble'.

Sequencing Environment

There are three ways to sequence your

music. Sequencing software for your computer, some synthesizers have built in sequencers, and there are sequencers like the ones built into synthesizers, that have no keyboard (see Fig. 2). Despite the different machines you can choose to sequence on, the sequencing process is usually the same. The sequencing environment is similar to a recording studio, like a word processor is similar to a typewriter, only more versatile and software driven. The main function of sequencing is sound manipulation which includes recording, editing, and play-back. It's almost like programming where you have input-processing-output. There might be some extra capabilities available like score printing and sample (raw sound) processing. Again, it depends on what you purchase.

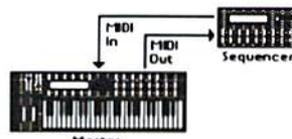
The sequencers with and without keyboards attached are basically a Sequencing Operating System. The sequencing software is internal and stationary, encoded on the ROM memory chips, like Direct Mode in the C64/128. It's there when you turn it on. Sequencing software, on the other hand, has to be loaded into a computer, is quite easy to use and generally more powerful than internal sequencers. Fortunately for us, there are several brands of sequencing software available for the C64/128.

Track Management

Recording music on a sequencer is essentially track management. A track is an area of memory where you record. Sequencers have anywhere from 4 to more than 200 tracks available. To record on one track or many

tracks requires making a few up-front decisions. You need to decide what sound or instrument is on what track, how long the tracks are, what time signature the music is in, and how fast the tempo is. Once you

determine these parameters, you can tell the sequencer to begin recording and enter your music from your MIDI instrument. Most of the sequencer instruction manuals I have seen have fairly-easy-to-understand How To Record



sections.

After recording the first track, it can be listened to, edited, re-recorded, or deleted. Recording successive tracks is easy. Just repeat the above actions for the additional tracks. While you do this, you hear the music play from the previously recorded tracks. It doesn't matter if you are an accomplished musician or not

because you can record at any speed. To assist in recording at a consistent tempo, most sequencers have a 'click track' which is similar to a metronome. I tend to take time to chart or

map out my ideas on paper before I begin my recording project. If you like, create your own specification sheets to suit your specific sequencing needs (see Fig. 3).

Another aspect of this is sequencing with little or no track management. This is where you can use the sequencer as you would a tape recorder to capture musical ideas as you invent them. It is done without previous preparation -- on the fly. Choose the sound, track length, and tempo, activate the sequencer, and improvise, go for it. When you're finished, you can save it, edit it, listen to it for ideas, or erase it and start over. For me, this is a great way to save my musical ideas while I fiddle around on my keyboard. Then I go back and listen to what I've done and see if there is anything that can be developed into a full musical piece. I throw away much more than I keep.

A Pseudo-Recording Session

OK, you've made all the important decisions concerning your pending sequence. Now it is time to begin recording the music track by track. What instrument do you record first? This depends on what you are comfortable with and you'll have to sequence a bit to find out what works best for you. The type of music may also dictate how to do this. For rock-type music I record either the drums or bass part first. Or maybe I'll play the piano part first, add the drums and bass parts, then go back and erase and re-record the piano part. Orchestral music tends not to have consistent drums and bass, so the melody or supporting instruments may be recorded first.

There is no right or wrong way to sequence. It just depends on what works best for the music and you. Whichever order you record in, any of the tracks may be changed later.

Music Processing - Editing the Sequence

Once the sequence is completed, it may be

edited and manipulated in many ways. Here is where the real power of MIDI comes in. Editing your musical piece is very similar to using a word processor. Using cut and paste options, you can add, copy, move, and delete portions of the music. Global changes may be made, such as changing the key of the music, changing the tempo or the time signature. These days, any

you do get serious, or even just semi-serious about it, you might want take the time to educate yourself in composing and performing music so your compositions will sound authentic.

As I mentioned before, there is C64/128 MIDI software, peripherals, and sounds available from a few sources and the good news is, it's not too expensive. MIDI instruments are available

from your local music store or by mail order. You can contact the following vendors for catalogs and prices. Be sure to tell them you read about it in dieHard.

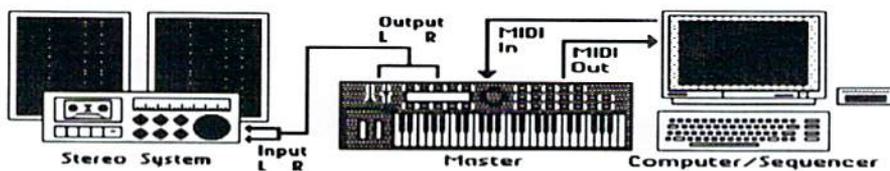


Fig. 4

sound imaginable is available on CD, cassette, or diskette. It's a toy store for sounds. Because of MIDI, you can reassign different sounds to different tracks to see what it sounds like.

It is much easier to perform editing functions on a computer with a large monitor than on the tiny synthesizer display windows. I tend to use the internal sequencer with tiny display on my Peavey DPM3se synthesizer for recording my impromptu musical ideas. For more detailed work on the sequence, a computer and monitor provide a better environment to work in.

Achieving A Final Product

Upon completion of sequencing, editing, and saving the sequence to diskette, it is a simple matter to put your music in a medium that you can share, market, or just listen to. All you do is let the sequence play while you record it on tape via the output channels on the synthesizer. Downloading the sequence to tape involves having the whole system - sequencer, synthesizers, and external sound system connected (see Fig. 4).

MIDI cables carry only performance activity in terms of MIDI data -- no audio information is transmitted. When a sequence is played, the MIDI data is transmitted to the synthesizer to access the sound banks. Your own home stereo system will work beautifully if you have one. If not, then an external sound system

becomes another part of your purchasing decision. Stereo headphones are an invaluable tool throughout the sequencing process. Using them forces you to listen carefully to your music.

Date:	10/5/93	Title:	dieHard Blues
Musures:	64	Tempo:	120
Key:	Bb minor		
Track	Instrument:	Musures:	
0	Drums	1 - 64	
1	Bass	1 - 64	
2	Piano	1 - 64, solo 33 - 48	
3	Brass	1 - 64	
4	Strings	48 - 64	
5	Voices	16, 32, 48, 64	
6	Lead Guitar	41 - 48	

Fig. 3

In Summary

This whole recording process can be as easy or as difficult as you want. The more you use this technology, the better you will get. The goal is to have fun with it. You will no doubt experience some frustration because of the learning curve. Try MIDI sequencing out, even if just for an alternative to using a tape recorder. If

READY.

MIDI Software and Supplies

MIDI Software
P.O.Box 533334
Orlando, FL 32853-3334
(407)856-1244

SOFTpacific
12240 Perris Blvd.
Suite A157
Moreno valley, CA 92557
(714)242-0454

DR. T'S Music Software
100 Crescent Rd.
Needham, MA 02194
(617)455-1454

Soundware
200 Menlo Oaks Dr.
Menlo Park, CA 94025
(800)333-4554 (415)328-5773

Fast Fingers Music Software
P.O.Box 8741
Rockville Centre, NY 11571
(516)536-0298

MIDI Sound Sources

Sound Source Unlimited
2985 E. Hillcrest Dr., Suite A
Westlake Village, California 91362
(800)877-4778

MIDI Related Publications

Electronic Musician
P.O.Box 41525
Nashville, Tennessee 37204
(800)888-5139

Keyboard
P.O.Box 58528
Boulder, Colorado 80322-8528

R. J. Smulkowski
is
Cyberspace Cowboy

Fear and loathing @ Smith's Big Fun...Rupert Murdoch's News Corp. buys Delphi (maybe)...crawling through Gopher holes on the Internet...Novaterm 9.4 makes the bigtime...

Well, yes...and here we go again. Last month we were jumping through Gopher holes on the Internet. A month passes like no time at all.

The big news on Delphi, as of this writing (early September), is the rumored buyout of the entire Delphi system -- VAXen, Internet accesses, and all -- by News Corp., headed by publishing magnate Rupert Murdoch. When the acquisition was first announced, Delphi managers were quick to assure users that services and price structures were not about to change, but now, a few days later, one is hard-pressed to find any mention of the takeover in any area on the system. Just one of those things that make you go "Hmmm".

Well, folks, I don't think I'll ever go through the hassle of entering those cryptic Internet addresses again. Nosirree, not now that I've crawled through a few Gopher holes and popped up across the continent and even halfway around the world! The Gopher system is a completely menu-driven interface which allows the user to access many Internet sites by simply selecting a number from a displayed list. Just last night I found a lot of gems while prowling the Internet via Gopher.

One real beauty, almost guaranteed to provide pleasure to computer hobbyists for quite some time, is "The Hacker's Dictionary". For a brief example, let's look at the verb "tweak".

TWEAK v. To change slightly, usually in reference to a value. Also used synonymously with TWIDDLE. See FROBNICATE and FUDGE FACTOR.

I think you get the idea. This dictionary is a constantly evolving work, tracing its roots back to the Artificial Intelligence Laboratory hackers at MIT in the early 1960s.

Downloading files through a Gopher hole is fast, much faster than a comparable file might be retrieved from a local BBS. Best of all, when downloading via Gopher, the file comes directly to my home computer, rather than going through the extra time and trouble of planting itself in a temporary holding area in my name at Delphi, which I would later have to download and then make sure to erase anything in my workspace (the holding area I just mentioned) so as not to be charged storage fees.

I Shoulda Known Department...

Yep, I should have known better, but the name was so tempting that I just couldn't resist. I mean, what do you do when you are offered a menu option like "Smith's Big Fun List"? Of course I downloaded it, even though I had just finished reading the notice stating that the system had recently been feeling "unwell" and had "lost its marbles". So Smith's Big Fun List of Things to do on the Internet turned out to be 18k plus of nonsense. Jeremy, who appears to be curator of this and other items that looked particularly (peculiarly?) interesting, promises that all the "unwell" files will be restored very soon, and also that they will be available in a variety of formats. You can bet that I'm going to go after this one again.

It doesn't particularly surprise me that some of the Internet's offerings are somewhat less than polished. This is the very nature of the Internet -- it is a constantly growing and expanding network of systems and users. There is no central governing body, or rules committee, or whatever as far as authority figures go. The Internet runs so loose and free and is in such a constant state of flux that some users lovingly refer to it as the "Anarchynet". I think this is part of the Internet's charm -- the fact that it IS a vast and untamed frontier, one which seemingly knows no bounds, and the casual user is a pioneer, a Cyberspace Cowboy venturing into an electronic wild west type atmosphere.

The **commodore** area's Gopher on Internet has been tested and debugged, it just awaits release. The assistant manager of the **commodore** area tells me that it actually should have been released for public use by now, and guesses that the delay is tied in to Murdoch's takeover of Delphi. The Cowboy

says "Whoa boys!". Let's back up for a second to the top of this article, where we were assured by the High Sheriffs of Delphi that there would be no rate increases or changes in services offered. Hmmm...I guess we shall see what we shall see. As it stands, we can always access other **commodore** sites through the Internet area Gopher, it's just that a **commodore** area Gopher hole would be so convenient.

Of course the Internet isn't the only thing happening online. There are tons of local BBSs just waiting for your call. Since it seems to be very much a DOS world these days, I would suggest that C64 users who haven't already obtained their copy of **Novaterm** do so. **Novaterm** will allow you to view ANSI art and animations, greatly adding to your enjoyment during visits to a DOS BBS. On a decent monitor the 80 column is quite pleasing, on a lesser monitor you might have to experiment with the background and text colors and tweak the contrast and brightness controls, but trust the Cowboy, it will be worth it. You should be able to find **Novaterm** on a local C=BBS, in three files, **nova94-1.sfx**, **nova94-2.sfx**, and **nova94-3.sfx**. The first two (-1 and -2) are the terminal program and its related support files and should be dissolved on to one side of a freshly formatted disk, while **nova94-3.sfx** is the documentation package and should be dissolved on to the other side of the disk. If you have any problems I'm sure your favorite Sysop will be happy to help, or at least direct you to a successful **Novaterm** user.

The September issue of **BBS Callers Digest Magazine** features two full pages devoted to a favorite of many C64 users, **Novaterm 9.4**. The article comes under the heading "Commodore Connections" and is authored by Gaelyne R. Moranec. (Nice picture, Gaelyne.) I should note here that Ms. Moranec is Editor of **CEE-64 Alive!** the disk magazine for **commodore** users, and is Co-Sysop of Ancient Heart BBS in Saginaw, Michigan. Her article offers helpful tips on configuring **Novaterm**, and goes on to review offline mail readers for both the C64 and C128.

Until next time, I wish you clean phone lines and no busy signals.

READY.

■

The following is the guest editorial opinion of Roger Gouin. The views expressed do not necessarily reflect the views of dieHard or LynnCarthy Industries, Inc.

I am an engineer by education and profession. Since my engineering school days in Paris, I have always dreamed of operating a computer. I felt early

on the future of a new medium

on that a human being could not be complete without the potential to increase his or her brain capabilities. This feeling must have been in the same vein as the pioneers

of the automobile industry who longed for the ability to move around this world effortlessly. For five years owning a C64 (1982-1987), I felt that my original dream was at least in part

realized. But since the introduction of the Amiga and other 16bit machines the dream seems to have gone astray. The Computer Industry seemed to make a conscious effort to hide

the programming side of the machines by increasing their complexity or by outright denying access to the innards of the machine itself, which is the case of Nintendo.

The question at this point in the development of personal computers is whether the human brain wants only a new form of entertainment or if the brain looks for new genuine "wings." In order to answer this question I will take a cursory look at the computer's history to see the intent, if any, behind the acts.

HISTORY OF COMPUTER DEVELOPMENT

Computers were initially developed to facilitate menial calculations, boring tasks that the brain refused to do. Lately it turns out to be a form of entertainment that is no more than pure diversion, the same as watching a soap on TV.

How did the switch happen?

When I was in my engineering school, computers were mysterious beasts that could only be shared by many users at the same time; "time sharing" was the buzz word of the 60's. It took a few days to write and input a program (in FORTRAN) to make the beast do very menial repetitive arithmetic tasks. I recently looked at FORTRAN on my C64 and asked myself how did I deal with such a simple-minded ultra-expensive thing. I also remember my years working at public utilities and wondering about the huge sums of money paid ultimately by the ratepayers for beasts of the kind above ("mainframes" in computerese) in

order to accomplish the tasks that nowadays a \$500 machine can do, and can do with a program written in a few minutes!

The very "mystery" of these piles of expensive junk has

hopefully now evaporated, and the magician behind has shown his real face: the lucky IBM founder and his successors -- they succeeded in selling their wares to the US Government on a non-competitive basis thanks to the demands of World War II and thanks to the ignorance of civil servants of the time. During the 70's it became fashionable to create entire departments within companies devoted to these piles of junk. So much waste was created that by the end of that decade, the US became less productive, contributing to the present downturn in the economy. I still remember engineering companies proudly displaying entire rooms with bay windows for visiting prospective clients to be in awe of the monstrosities they owned.

Thankfully, 23 years ago (1970), something funny happened in the back rooms of small electronic firms such as Texas Instruments; a new device was born, the "microchip." It had the potential to do very easily, all the menial tasks performed so far only by the "beasts". To defend itself against such an invasion, IBM four years later introduced the "PC" as just a curiosity. This had a pretty good success thanks to the hordes of IBM followers (very much like Dracula had devoted followers once they had their blood sucked!) The PC could be casually programmed by the user. Albeit with some difficulty, as the INTEL 8088 chip was a complex monstrosity, even though it was only an 8bit (you have to wish for complexity in order to get it). The PC was not an entertainer. It had no color and no sound.

In the same period, simple electronic games showed up, starting with **Pong** in bars and night-clubs. Atari was born! The 'game' microchip and the 'serious' microchip met in 1982 in the **commodore 64**, and from this marriage a new creature was born. The computer came with a built-in BASIC shell -- casual programming finally arrived (remember that neither Atari nor Apple had that handy).

During the next ten years, a

crucial regressive evolution occurred; competitors of IBM were always far in advance and IBM only responded when at last its followers' faith was being shaken, and usually five years later.

The main events describing that period are as follows:

1982 - **commodore** came up with a new machine, the C64, that had fancy color graphics and sound/music systems built-in, and an easily programmable chip, the MOS technologies 6510. For the first time a true entertainment machine combined with casual user programming. Atari and Apple tried similar feats and failed to a large degree since their machines had less memory, graphics, and sound. The response from IBM only came five years later in 1987 with expensive electronic cards with fancy names as if this was a brand-new technology -- only because by then 70% of Sears shelves were full of **commodore** software. Again you could have similar or better things at close to the tenth of the price five years before, but not with IBM!

1984 - Apple introduced the MacIntosh featuring software that provided a fancy operator interface (much like the Alto introduced in 1973 by Xerox) for 'serious' business users that used features found in 'game' software: aim-and-fire... sorry -- point-and-click (business doesn't want to be seen with a joystick so 'mice' were invented. Lately they are back to trackballs, an arcade parlor feature). Bill Gates of Microsoft claimed having "discovered" windows in 1990 only because, after Nintendo sucked the blood out of the **commodore** market, the only true competitor remaining for IBM and Microsoft was the MacIntosh. Unlike **commodore**, Apple sued Microsoft on copyright grounds and the trial with political overtones is not over yet. This alternative approach in operators interface combined with the use of a complex 16bit

chip made casual programming on that line of machines a real impossibility. Here was the proclaimed intent by Steve Jobs of Apple in 1984: to kill casual programming, that is to provide a machine that is as simple as possible to operate by "sparing the user from the machine inner complications." He felt then that the wish of the public was to give up the programming side of their machine and let only the "professionals" touch it. THIS WAS NOT THE CASE AT ALL!

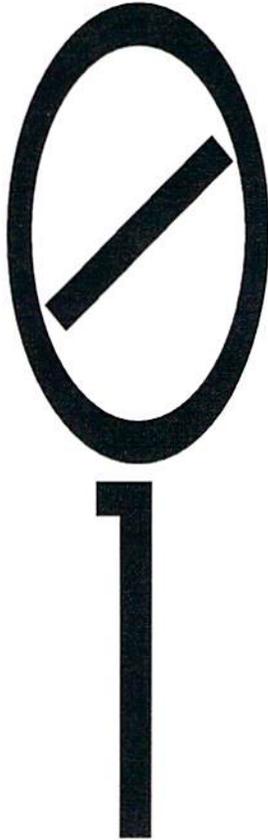
1986 - Jobs seemed to be right as **commodore** itself introduced the Amiga with similar features as the Macintosh. Except that they clumsily added a command line interface as a result of outcry by **commodore** users who could not stand that casual programming was being eliminated. This was an add-on that died

1988 - Jobs also seemed to be right as Nintendo appeared to provide "canned" programs without any access for programming while taking cues from the **commodore's** great success in entertainment software.

1990 - Ironically IBM finally won via Microsoft and its remake of **Windows** to complete the picture of the canned computer.

It is ironic to know that during this entire period of fight for the supremacy of canned computers (called "capsule" computers in Japan- witness **CAPCOM**), the C64 had its own window color interface called **GEOS**. And against the will of the maker of that interface, namely Berkeley Softworks, now GeoWorks baptized from its C64 product, the innards of **GEOS** were obtained by people such as Jim Collette (young ones!) and casual programming was being continued even in a Windows environment! Witness the cottage industry that has sprung up across this country and worldwide in the past five years for **GEOS** products. A miracle of that sort can only be explained by the will of the

people to have casual programming available forever in their machines.



CONCLUSIONS

In this context, it is then no wonder that my interests in computers remained with the C64 by **commodore**: I have not seen yet any machine for home and recreational use that can beat it, be it for technical capabilities vs cost, for the abundance of software at that same low cost and, last, but not least, for its ability to be programmed on a casual basis. The Amiga has been a flop when it came to casual programming thanks to the unnecessary complications brought to the machine by a British PhD bent on applying his multitasking thesis material regardless of the need from people using the machine. Who needs multitasking on a home computer?? 16bit machines are too complex by nature anyway.

Even though I have by now a large logitheque (collection of software) this is not the most important aspect of my personal computer.

In fact, I seldom use my

machine for home applications, except for my word processor which I designed myself. Instead, I use it to find more about programming techniques to reach the limit of *linear* programming and improving existing software as need be. This is where the real challenge and purpose of my computer lies. What imports the most to me is that my machine goes a long way towards providing what I was longing for: an extension of the abilities of my brain. The C64 is an open book and all software can be looked at and modified at will with the minimum of effort at very low cost.

I believe that the future of modern man cannot be without a logitheque as man cannot exist without this form of entertainment. All home computers will be eventually dirt cheap and it is only a matter of time until everybody will have such an entertainment media. The only questions remain: what kind of logitheque and what kind of entertainment?

The Industry is obviously, as Steve Jobs did in 1984, wishing for the canned-type whereby you plug the cartridge or CD in your box and off you go! The latest example is **CMD** of all companies! **CMD** has not understood the fundamental nature of the C64 revolution as they are attempting to sell their new **FD** drives while hoping to keep their **DOS** secret. They textually told me on 5/5/93 that:

"We are not and will not produce any sort of 'ROM Listing' such as found in Inside Commodore DOS. We do this to discourage the practice of using undocumented ROM routines and to allow us to expand the features in our DOS and correct bugs without having to resort to installing a multitude of patches throughout the existing DOS."

BULL! **CMD** just forgot why they exist: because casual programmers kept the C64 alive!

The public at large seemed all these years to follow along, but lately there are signs of a certain strain. The public no longer appreciates the novelty of the machines no matter how hard **IBM** and others try to bring "new" bells and whistles. And when the novelty is gone so is the market. Lately the buzz word is 'multimedia'-watch out!

This is why I am sticking to my machine. It provides me with a fundamentally new tool for my complete enjoyment of this world, a tool that will never become old as once you have driven a car you don't want any more horses around! An extension of the brain cannot be given up without a big fight! Maybe computer designers will rediscover this truth one day.

Software outlets are quietly closing their entertainment sections. For example the **Wherehouse** which sold almost exclusively a **commodore** line of software in the late '80s quit **commodore** in early 1992, and now are quitting **IBM** as well!!! **Software Etc** and **Software City** have a hard time being left with **Nintendo/Sega**. The home entertainment industry is simply in the process of being a dead industry thanks to Steve Jobs, 10 years later.

A successor to the C64 has simply not been invented yet. Only a **RISC** (Reduced Instruction Set Chip) in a 16 or 32bit set-up can permit casual programming together with large data handling and a whole new world for the brain to expand -- maybe finally, to give us the Artificial Intelligence we all are yearning for.

*If you have an opinion in this area, we'd love to hear it. Write to: **DieHard**, Editorials, P.O.Box 392, Boise, ID, 83701-0392.*

READY.



Roger Gouin

News News **Extra!** News News



RUN

GEOS from CMD? CMD Interview Tells All!

dH: I understand that you are taking over the manufacture and distribution of GEOS and GEOS products from GeoWorks. What does that mean to CMD?

CMD: Well, to CMD it is a tremendous opportunity. It gives us a little more security in this market to have such a reputable product in our hands. One of the important reasons for CMD's wanting GEOS is that although our hardware products and software products that we have personally designed and manufactured are not strictly GEOS, a good percentage of our customers are GEOS related. With GEOS becoming harder and harder to find, it came to a point where our products were actually at a loss. It was difficult for our products to remain on the market without software support. And the largest single software package out there is GEOS in terms of numbers.

dH: What does that mean to me as a **commodore** user?

CMD: It's very important, very significant for the **commodore** user. As you know, in general in the computing industry as a whole in recent years, even more so than in the past, people have wanted to go towards the graphical interfaces which can be evidenced simply by the Macintosh and the resounding success of **Windows** on the IBM platform. Granted the **commodore** users have had GEOS much longer than the PC users even thought of having **Windows**. What it does is in the **commodore** market currently there are a lot of people that are wanting to dabble with GEOS for the first time because it is a graphical environment and it is a lot of easier, for the most part, to use. You realize that just as anyone in any other computer platform, you either love or hate the graphical interface. But we're finding a lot more people wanting to try it and in recent months, or even the last year or so, it has become very difficult to get GEOS, especially the GEOS applications. By CMD taking over production of the GEOS products, they [**commodore** users] will have a secure source for the products in years to come. We will be manufacturing it primarily in house or

through subcontractors locally which will give us a lot better supply than Berkely [GeoWorks] has had in recent years.

dH: It's been about five years since GEOS version 2.0 came out. The most pressing question on my mind is, will there be a GEOS version 3.0 from CMD? How about a GEOS chip?

CMD: Well first off, with regards to the GEOS chip, there is a tremendous number of problems in putting that out. Our agreement with Berkely is not of that nature nor we do not have the ability of going just to a chip. The agreement we do have with them is going to be a license agreement which means that we have the right to produce their product as it is. Which leads to your question on version 3.0. The answer to that at this time is no. We do not have any plans for a version 3.0. I would like to dispel any rumors based on that. The reason for that is that the amount of work that has to go into that type of a product, in the amount of testing that has to be done, would result in a product that is so expensive and so limited in terms of the number of people that would actually end up buying the product that we would probably not see a good return to cover the development costs.

dH: Will there be new **DESKTOP** accessories for GEOS from CMD?

CMD: That is entirely possible. We've got Jim Collette who does do some work for us. As well as a number of other developers. We have them working on various projects on the side. If they complete them and they are reasonably professionally done and require just basically a packaging effort on our part we can bring those to market. But as far as products that are sanctioned by Berkely or GeoWorks I don't foresee anything there.

dH: Will you be packaging a pre-patched version of **geoPubLaser** and **geoLaser** for use with the **GeoCable** since serial (RS 232) interfaces off the user port are few and far between? What about the Post Script patch file?

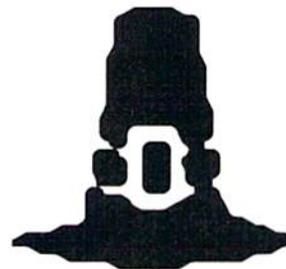
CMD: I'm going to have to ask you to expand on that, Brian. Are you referring to the patches that Jim Collette did?

dH: Yes.

CMD: Ok. We have a licensing deal with Jim for **Collette Utilities** and again we have a licensing deal with Berkely. Those will be carried as separate products. Just the accounting alone would be a nightmare. So we'll continue to have **Collette Utilities** and then again we'll also have **geoPub** which does come through the laser patch.

dH: What is your policy for replacement disks and upgrades? For example, what about users who have recently bought from other sources and find out they have **GeoPaint 128** with the 40 column zoom bug? Will they be able to return it to you for the non-bug version?

CMD: At this time, we have not established a firm policy on that. As of this date, the agreement has not yet been signed by the parties. We do anticipate taking over that aspect of their business. However at this time the details just aren't available. At this point, what I would recommend is that if anyone does have a problem that they certainly give our tech support people a call and ask them about it. And, we'll be able to go from there. I don't have anything in writing as to how we're going to handle it.



dH: What are your thoughts concerning **Compute's Gazette** being a disk only publication?

CMD: It is a terrible tragedy. We feel bad that they couldn't hold it together. However, we do realize that they are a very large company and large companies tend to look bottom lines not service to the users, necessarily. We hope that everybody that did subscribe to the **Gazette** gets us their name and address so that we can get them on our mailing list so that we can include them in any mailings we do. And that they certainly support the magazines that are still available, such as **dieHard**.

CONT

News Ne **Extra!** ws News

Compute's Gazette Going
Disk-Only
by Mia C. Crosthwaite

Beginning with their January 1994 issue, **Compute** will no longer include the **Gazette** in their magazine, Tom Netsel, **Compute's Gazette** Editor, told me. Instead they will be publishing only one version of their magazine (they currently print about four or five different versions) that will not include the **Gazette**. However they will continue the **Gazette** companion disk.

If you're a diehard **Gazette** fan, you won't lose anything in the transition because the new double sided disk will include all the articles, reviews, text, and programs that were printed in the **Gazette**. Unfortunately, it will cost you \$29.95 more.

Netsel said the change was due to the high printing costs **Compute** was incurring printing four or five different versions of **Compute**. In order to cut costs and still provide the **Gazette**, they decided to pull the **Gazette** from the magazine and put it entirely on disk. Netsel still hasn't worked out the format for the new disk but says that it will have all the programs, articles, text, and even advertisements, that were in the **Gazette**.

If you currently subscribe to **Compute's Gazette** you will continue to receive their

magazine, sans **Gazette**. If you want to receive the **Gazette** disk, you can upgrade your subscription for \$29.95. Normally an upgrade to disk is \$49.95 but **Compute** is making this offer to subscribers for the transition.

CONT



Sea Sixty-WHAT?!?

by Brian L. Crosthwaite

Well, for years there was the rumor mill C65, a **commodore 64** with more memory, but no sprites. This was when the whole of commodoredom awaited the 265. This machine was to be released with a feature no other computer on the market offered -- built-in software chosen by the user. Well, we all know how *that* turned out. The Plus/4 was born and the voice version (the 364) was dropped, replaced by an add-on voice cartridge with 256 words built in with more to come and the C16.

Well, while the new voice mods never came about, and CBMs state-side slid into the realm of a dying soul, in denial of the existence of the C64, Europe has been enjoying the

softs like crazy. Once again, however, there is a machine that was going to come that won't -- or has it already?

According to The Grapevine Group, the pre-alpha (made as a possible proto-types to be sent to beta testers once a the bugs were worked out) C65. This machine has 128k expandable to 8 megs! It has a 6502 family chip, CSG65CF02 that runs at 3.54 MHz! 40 and 80 columns of the CSG4567 (VIC III) chip! It has two modes of operation, C65 and C64. This machine supports bit plane graphics, at 2 bits you get resolution of 1280 X 400 pixels (interlaced), 4 bit gives you 640 X 400 (interlaced) as well as 16 color 320 X 200 (Amiga like)!

With stereo output from two SID chips, why was the machine not to be? After all, these machines are well over two years old. Commodore did not want to compete against the low end Amigas. There was also the problems of it not being quite compatible with the C64.

These machines are few and there are simply no parts available anywhere. They are PAL, although Grapevine is converting them to NSTC for use here in the U.S. To use the high resolution one must use a monitor such as the 1084 in analog mode. There are no manuals.

READY.



Archaic Computer

The Computer Store Of The Past

Introduced
by
Brian L Crosthwaite

Do you remember 1979?
1980? 81? 82?
-- the days of **WordPro**?

I remember the ads, a very professional looking model typing on a CBM 8032, a 4040 drive off to the side and a huge daisy wheel printer in the background. The later ads had the same set up sans the CBM and 4040, which were replaced by a **commodore 64** and VIC 1540 disk drive.

Before me sits an issue of **commodore the microcomputer magazine**. The ad on page 5 shows **WordPro Plus 5, 4, 3, 2**, and **1**. 1 came on cassette, 2 on cassette and disk

and the rest on disk.

The company -- Professional Software. Later it became known as PSI. I have never personally used my copy of **WordPro**, but I have heard it was rather a bear to master, making that old Underwood a desirable option. I do, however, on occasion use something that PSI later released -- **Fleet System**. While the manuals for the first three were worse than the **GEOS** manual, the software itself is extraordinary. **Fleet System 1, 2**, and **2+** for the Atari 800 and **commodore 64**, **Fleet System 3** for the C128 and the best of all (including a set of very well organized manuals)

-- **Fleet System 4** for the C128. Our time line is now at 1987.

While you may not be able to find a copy of **Fleet System 1** you can still find **Fleet System 4** as we journey back.

We will trek on back in time further, and eventually land in 1983 for a visit to the **Cave of the Word Wizard**. Even at it's infancy, the **commodore 64** had some amazing software -- including some that could talk! It still does, here, in The Computer Store Of The Past.

READY .



Fleet System 4

1987 Professional Software, Inc.

reviewed by
Noel Plank

Fleet System 4 (C128)

CAT:C04777 \$29.95

Fleet System 2 (C64) CAT:C04960
\$12.97

Fleet System 2 Plus (C64)

CAT:C014031 \$17.97

Software Support International
2700 NE Andresen Road Suite A-10
Vancouver, WA 98661

If you own a Commodore 128, there's a good chance that you previously owned a C64. Many of the same word processors that were available for the C64 are now upgraded for the C128 and include more memory, easier and faster disk operations, and,

of course, true 80 columns for on-screen editing.

Learning a new program, especially a word processor, can become a chore due to different operating commands. Although **Fleet System 4** is for the C128 and has many new and improved features, most of its operating commands are identical to the original C64 version. **Fleet System 4** does, of course, have an 80 column screen

display and features an automatic word-wrap instead of words being arbitrary broken up as in earlier versions. The only drawback of this automatic word-wrap is that it is not adjustable from the default 80 or 120 characters selected after the program has been loaded.

The **Fleet System 4** package comes complete with two well written

easy-to-follow spiral manuals and three operating diskettes. The first manual is for the **Fleet System** word processor which includes a 90,000 word dictionary/spell checker and thesaurus. The second manual contains operating instructions on how to use the additionally supplied **Fleet Filer Database**.

Fleet Filer is menu driven and so easy to use that even without prior



database experience the 39-page manual is hardly needed. The **Fleet Filer** disk includes a C64 version compatible with **Fleet System 2** as well as the C128 80 column program that

can be integrated with the **Fleet System 4** word processor.

Fleet Filer allows up to 5,000 records, 22 text/numeric fields and fields

Cave of the Word Wizard

by Patrick Quinn
1983 Melody Hall

reviewed by
Brian L. Crosthwaite

The manual for this Educational Game introduces you to the game in the guise of a story that you are in. You wander into a mysterious cave... the entrance seals behind you -- that sort of thing. You are greeted by the Word Wizard who tells you that in order to leave his cave you must find four magic crystals...

Like many graphics adventures that I have seen this one has those backgrounds that look the same on very screen. Things like rocks, water holes, ladders, and pits are always in the same spot making the game a true maze game. You traverse the cave as one of two characters, Becky or Mark. The goal is to obtain the four magic crystals. Once you do this you may leave. Things aren't all that easy. You will be confronted many times at any moment by the Word Wizard. He will say "Spell cat." Or some other word. Yes, you read that right -- the Wizard talks. If you need the Wizard to repeat the word you can press <f7>. You will probably need to at some time, like many speaking software packages the voice is good but not very loud, relatively quite when the volume is set so the sound effects don't blast you out. The sound effects are kinda cute walking rhythms and jumping sounds.

With the volume set so I could hear the Wizard, I was nearly knocked out of my seat when the Wizard appeared. Your child will not fall asleep while playing this even though the sound effects of walking may be a bit repetitious.

Game play is smooth and it takes only a couple of screens until you get the hang of things. A joystick in port two controls your character through the maze

of caves. The fire button jumps pits, snakes, scorpions, water, and rocks. Joystick up will allow your character to climb a ladder to the next level. To go down a level, you simply jump into a pit. If you fall into a pit, you will not be hurt. If you run into rocks or any other obstacle you will skin your knee and require a band aid. You start the game with five band aids and lose one every time you skin your knee. If you run out of band aids your game ends.

When you spell a word correctly you get more power to your flashlight (score). If you misspell lots of words and lose all of your flashlight's power, the game ends. You also receive band aids every 3 correct spellings on the easiest level. This is different on different difficulty levels. There are ten word lists to choose from, given in the back of the guide so the student can study up before the game. There are four levels of difficulty, where in the lower levels the frequency of the obstacles is less than the more difficult levels.

Collecting the crystals is easy, you simply walk over to them and you have it.

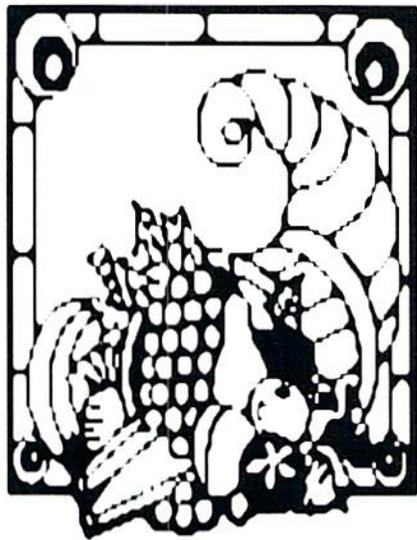
When you conclude the game, one way or another, you get a rating from the Wizard. The total number of words and number of correctly spelled words is displayed.

The game can be adjusted in difficulty to suite the players level -- on the arcade level *and* in the spelling realm.

The graphics, ease of play, speech and sound effects, together with the versatility of the game make for one top rate piece of educational software. This one gets:

* * * *

READY.



Have a very FULL
filling, turkey day!

? ? ? ? ? ? ? ? ! ! ! !

used it to check program listings I have typed in from hard copy. I read the listing off paper while it reads what is in memory.

Q: Does leaving the C64 and 1541 and 1581 disk drives on for 24 hours or longer do harm to the machines and their power supplies? Some users of other makes of computers recommend leaving the machines on all the time. Rev. Odilo Burkhardt, O.S.B. of Marvin, South Dakota.

A: *I leave my C128D, 1581, and printers on for weeks at a time. The 1581 has an external power supply and stays cool. I don't recommend you leave the 1541 on for long stretches since they are notorious for getting warm. The 1541 II also has an external power supply, so this restriction does not apply. On hot days it might not be a good idea to leave anything on in a room that is poorly ventilated or cooled. If you have a newer power supply on a C64 you should not have any problems. Aside from heat, the biggest component killer is turning the power on and off. Although the failings are usually due to a weak spot such as a badly soldered connection or a chip not seated properly. They were doomed to fail since they were good enough to pass a short term test as well as*

an inspection. This is a good reason to have a reset switch installed into you C64, if you don't already have one or a cartridge with one.

Q: I have a "Fastload" cartridge plugged into my C128 that I use in C64 mode. It will display a 1581 drive directory, but will not load or save programs to a 1581 drive. Is there a C64 cartridge that will work with a 1581 drive? Will a "Final Cartridge" support a 1581 drive? Larry Pankey of Fallbrook, California.

A: *The Final Cartridge will not work well with the 1581 drive. It was design from a European stand point of supporting the 1541 and tape drives, which I find to be a major short coming. It's a great utility cartridge (see **Review!** July/Aug 1992). If you need a fast load with versatility, such as file copiers, sequential file readers, etc., I recommend the Super SnapShot. It supports the 1541, 1571, and 1581 drives. The **DOS Wedge** is built right into the cartridge. The only thing I really don't like about the Super SnapShot is when ever you load and run just about anything the **DOS Wedge**, turbos load and save, and the f-keys will need to be manually reenabled.*

READY.



DOS & Don'ts

by Jimmy Weiler

DOS and Don'ts is reprinted with permission from LOADSTAR. The Complete DOS and Don'ts is available on 1541 disk for the C64/C128 for \$9.95, plus \$4.50 Shipping for 2nd day delivery from Softdisk, P.O. Box 30008, Shreveport, LA, 71130.

Introduction to REL Files

=====

You should be tired of ordinary SEQ files by now -- we've covered how to open, write, read, and append them. There's not a lot left you can do with them unless you're a lot more sophisticated than we are.

This time let's dig into RELative files. (On most OTHER computers they're called random access... but Commodore uses 'random access' to describe user-controlled sector-by-sector disk I/O's so they had to call this type of file something else.)

SEQUENTIAL files can be thought of as one big chunk of data, like a scroll. Relative files are more like a bunch of little chunks, all the same size, like the index cards in your recipe file, or the pages in a book. The disadvantage of SEQ files is that, just like a scroll, you have to start at the beginning and 'unroll' the contents in the order they were written. Relative files overcome this disadvantage by allowing you to access any individual piece of the file directly, without scanning over the rest of the file.

Graphically the data in a sequential and a random file might be represented like this:

Sequential file:

```
data/more data/even more data/& some more  
data/and the end
```

Relative file:

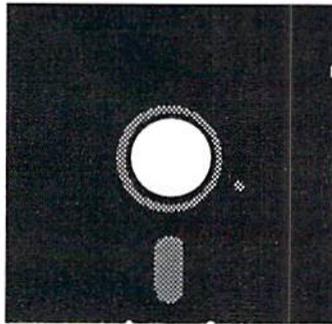
```
/data //more data //even more data  
//& some more data //and the end /
```

As you can see, the data is packed into the SEQ file one bit after another, in five records of unequal sizes. In the REL file, there are still five records, but they are all the same size. Because all the records are equally large, DOS is able to calculate the location on the disk of any piece of data relative to the start of the file and access it directly.

SEQ files are useful when you are dealing with information that will all be read into the computer's memory at one time -- letters, small data files, etc.

REL files are useful when you have too much information to read into memory at once, or when you only want to access a little of it at a time. This makes them useful for business and record keeping applications where small amounts of data are to be kept 'on file' for lots of people.

Enough generalities -- let's get right into using RELative files. We'll cover opening, closing, writing, and reading them.



Opening REL Files (part 1)

=====

The command to open a RELative file is similar to that used for a SEQ file

```
OPEN <file number>,<device number>,  
<channel number>,"<file name>,L,"+  
CHRS(<record length>)
```

That's a bit overwhelming so lets simplify it with an example and then cover it a piece at a time.

```
OPEN 3,8,4,"PHONEFILE,L,"  
+CHRS(89)
```

"OPEN" tells DOS to prepare to use the file. The file will be number "3", so any PRINT# or INPUT# or GET# statements intended for that file will have to use #3. The device number is "8" -- that's just the disk unit number. For most of us it is always 8. "4" is the channel number. That tells DOS which pathway to take to get to the disk. You will have to use the channel number again and again as you access a relative file. "PHONEFILE" is the name of the relative file. It will appear in the disk directory, followed by "REL".

Up to this point, the syntax has been the same as for a SEQUENTIAL type file. The last part of a RELative file open statement is the only distinction. The "L" or length parameter tells DOS how many characters each record of the REL file will hold.

In our example, ",L,"+CHRS(89) establishes each record as 89 characters long. The reason we chose 89 is that INPUT# will accept inputs up to 88 characters in length from a disk file. The extra character is for the carriage return that will mark the end of input when we read the file. You can use any record length from 1 to 254 characters, except 58 -- 58 produces a syntax error. (More on this oddity later.)

When you create REL files, you need to know the maximum amount of data that will ever be written to a record and the number of "fields" each record will have. Let's say we were making a file of the last name and phone number of everybody in our class at school. All their phone numbers are seven digits long, so that's no problem, but the names will vary in length. We have to take the longest name we expect to find and make room for that in each record.

It turns out that Joe Schlabotnik has the longest name in my class, so I have to allow 11 characters for the "name field" in each record.
...to be continued...

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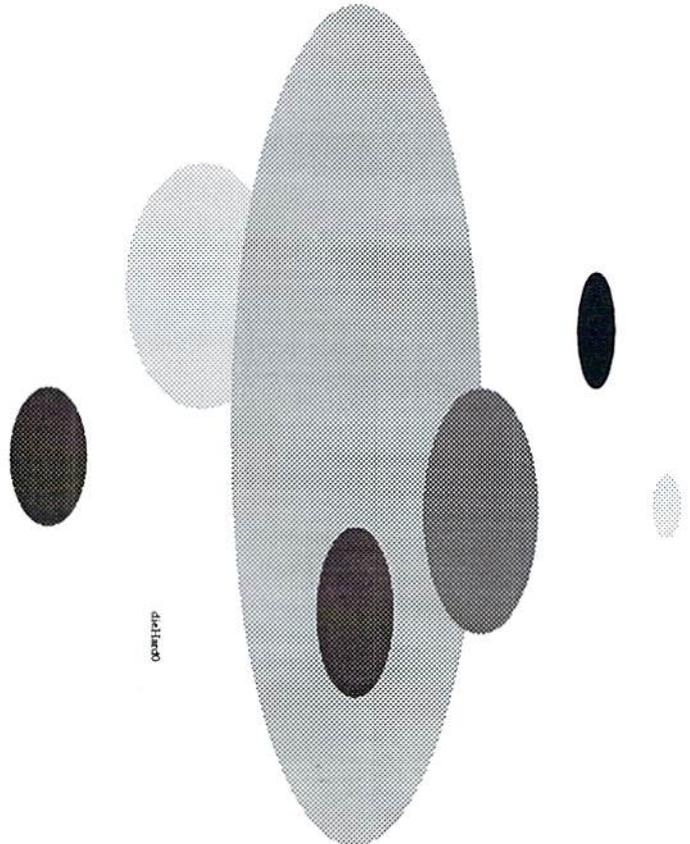
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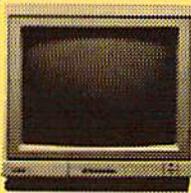


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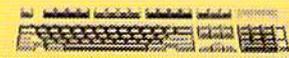
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```

270 CLOSE8
280 POKE53272,23:PRINT"[CLR]"
290 PRINT"[BLU][2 space][C= N][CYN]
[36 C= T][C= H]"
300 PRINT"[BLU][2 space][2 C= N]
[CYN][34 C= T][2 C= H]"
310 PRINT"[BLU][2 space][2 C= N]
[2 space][BLK]*** DIE[shift H]
ARD [shift S]LIDESHOW V1.0
[2 space][CYN][2 C= H]"
320 PRINT"[BLU][2 space][2 C= N]
[34 C= @][CYN][2 C= H]"
330 PRINT"[BLU][2 space][C= N]
[36 C= @][CYN][C= H]":PRINT
340 PRINT"[BLU][3 space][C= N][CYN]
[34 C= T][C= H]"
350 PRINT"[BLU][3 space][C= N][BLK]
[shift K]OALA'S[7 space]***
[7 space][shift D]OODLE'S
[CYN][C= H]"
360 PRINT"[BLU][3 space][C= N]
[34 C= @][CYN][C= H]":PRINT
370 PRINT"[BLU][2 space][C= N][CYN]
[36 C= T][C= H]"
380 PRINT"[BLU][2 space][BLK]
[shift A][CYN]-----
[BLK][shift K][CYN]
-----[C= H]"
390 PRINT"[BLU][2 space][BLK]
[shift B][CYN]-----
[BLK][shift L]
[CYN]-----[C= H]"
400 PRINT"[BLU][2 space][BLK]
[shift C][CYN]-----
[BLK][shift M]
[CYN]-----
[C= H]"
410 PRINT"[BLU][2 space][BLK]
[shift D][CYN]-----
[BLK][shift N][CYN]
-----[C= H]"
420 PRINT"[BLU][2 space][BLK]
[shift E][CYN]-----
[BLK][shift O][CYN]
-----[C= H]"
430 PRINT"[BLU][2 space][BLK]
[shift F][CYN]-----
[BLK][shift P][CYN]
-----[C= H]"
440 PRINT"[BLU][2 space][BLK]
[shift G][CYN]-----
[BLK][shift Q][CYN]
-----[C= H]"
450 PRINT"[BLU][2 space][BLK]
[shift H][CYN]-----
[BLK][shift R][CYN]
-----[C= H]"
460 PRINT"[BLU][2 space][BLK]
[shift I][CYN]-----
[BLK][shift S][CYN]
-----[C= H]"
470 PRINT"[BLU][2 space][BLK]
[shift J][CYN]-----
[BLK][shift T][CYN]
-----[C= H]"
480 PRINT"[BLU][2 space][C= N]
[36 C= @][CYN][C= H]"
490 PRINT:PRINT"[2 space][BLK]F1[BLU]-
[shift N]EW [shift D]ISK
[2 space][BLK]F3[BLU]
-[shift V]IEW [shift A]LL
[2 shift][BLK]F7[BLU]
-[shift Q]UIT";
500 PRINT"[HOME][12 crsr down][CYN]";
510 FORI=1TOQK:PRINT"[3 crsr right]
"KA$(I):NEXT
520 PRINT"[HOME][12 crsr down][CYN]";
530 FORI=1TOQD:PRINT"[22 crsr right]
"DD$(I)
540 NEXT
550 X$="":GETX$:IFX$=""THEN550
560 IFX$=CHR$(133)THEN800
570 IFX$=CHR$(134)THEN830
580 IFX$=CHR$(136)THEN SYS52223
590 IFX$<"A"ORX$>"T"THEN550
600 I=ASC(X$)-64
610 IF I>10 THEN I=I-10:GOTO700
620 F$=KA$(I):IFF$=""THEN550
630 A=2:LOAD F$,8,1
640 SYS49154
650 X$="":GETX$:IFX$=""THEN650
660 PRINT"[CLR]";:POKE53265,PEEK
(53265)AND223
670 POKE53272,(PEEK(53272)AND240)OR4
680 POKE53270,PEEK(53270)AND239
690 POKE53281,14:POKE53280,14:GOTO280
700 F$=DD$(I):IFF$=""THEN550
710 A=3:LOAD F$,8,1
720 POKE53265,59
730 POKE53272,120
740 POKE56576,PEEK(56576)AND254
750 X$="":GETX$:IFX$=""THEN750
760 POKE53265,27
770 POKE53272,21
780 POKE56576,PEEK(56576)OR1
790 GOTO280
800 PRINT"[CLR][12 crsr down]
[4 crsr right][BLU][shift I]
NSERT NEW DISK - [shift P]RESS
ANY KEY"
810 X$="":GETX$:IFX$=""THEN810
820 CLR:RUN
830 W=W+1:F$=KA$(W):IFF$=""THENW=0
:GOTO910
840 A=4:LOAD F$,8,1
850 SYS49154
860 FORT=1TO5000:NEXTT
870 PRINT"[CLR]";:POKE53265,PEEK
(53265)AND223
880 POKE53272,(PEEK(53272)AND240)OR4
890 POKE53270,PEEK(53270)AND239
900 POKE53281,14:POKE53280,14:GOTO830
910 W=W+1:F$=DD$(W):IFF$=""THENW=0
:GOTO760
920 A=5:LOADF$,8,1
930 POKE53265,59
940 POKE53272,120
950 POKE56576,PEEK(56576)AND254
960 FORT=1TO5000:NEXTT
970 POKE53265,27
980 POKE53272,21
990 POKE56576,PEEK(56576)OR1
1000 GOTO910
1010 FORA=49154TO49326
1020 READI:POKEA,I
1030 NEXT
1040 A=1:RETURN
1050 DATA173,17,208,41,239,141,17,208
1060 DATA173,17,208,9,32,141,17,208
1070 DATA173,22,208,41,223,9,16,141
1080 DATA22,208,173,24,208,41,240,9
1090 DATA8,141,24,208,76,49,192,173
1100 DATA17,208,41,239,141,17,208,162
1110 DATA127,160,64,134,252,132
,251,162
1120 DATA4,160,0,134,254,132,253,162
1130 DATA131,160,39,32,133,192
,162,131
1140 DATA160,40,134,252,132,251
,162,216
1150 DATA160,0,134,254,132,253
,162,135
1160 DATA160,15,32,133,192,173,16,135
1170 DATA141,33,208,162,96,160,0,134
1180 DATA252,132,251,162,32,160,0,134
1190 DATA254,132,253,162,127
,160,63,32
1200 DATA133,192,173,17,208,9,16,141
1210 DATA17,208,96,142,1,192,140,0
1220 DATA192,160,0,177,251,145
,253,165
1230 DATA252,205,1,192,208,8,165,251
1240 DATA205,0,192,208,1,96,230,251
1250 DATA208,2,230,252,230,253
,208,227
1260 DATA230,254,76,141,192

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