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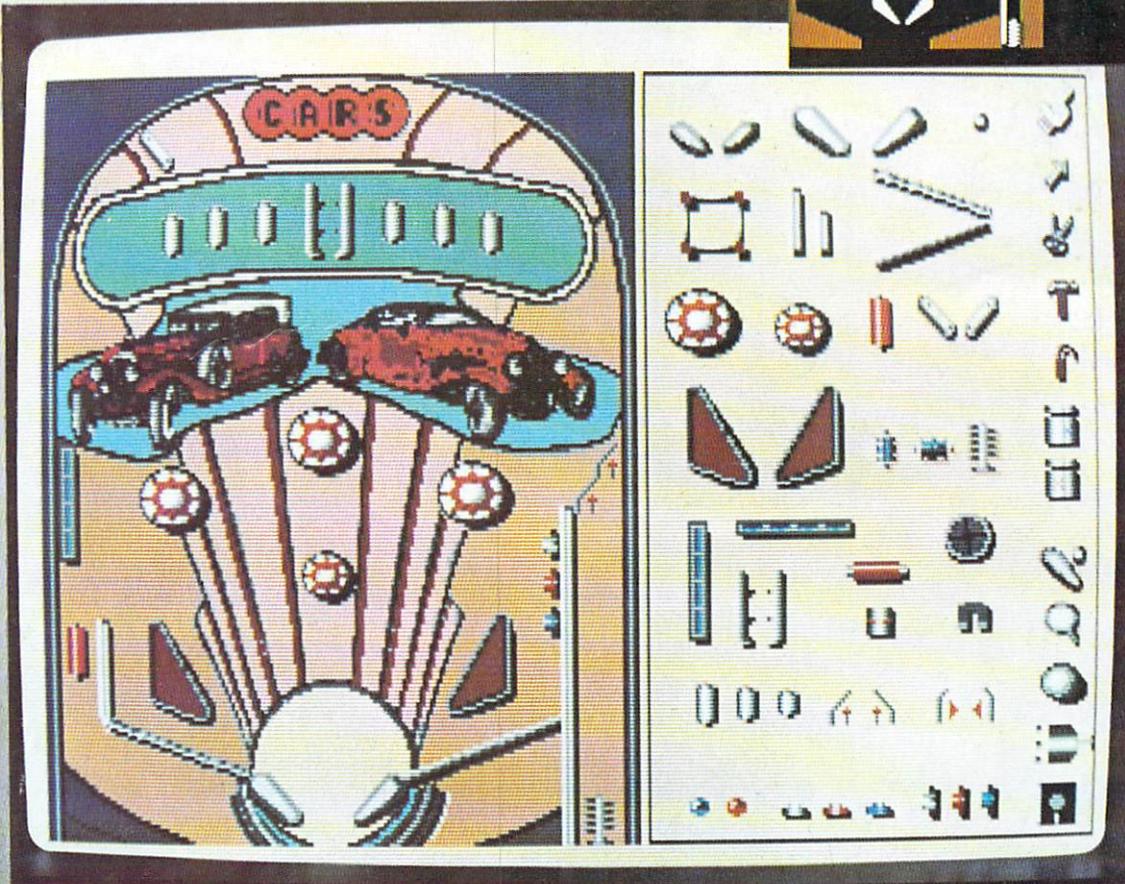
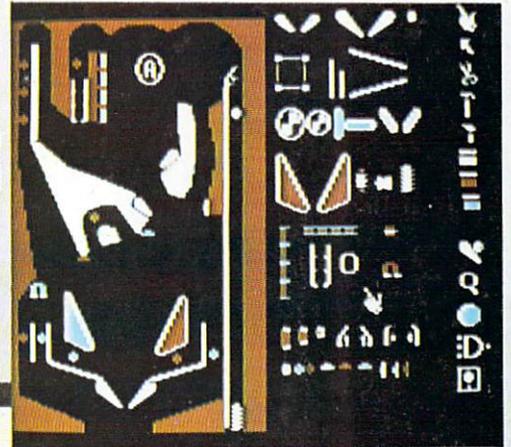
THE **USEFUL** GUIDE TO **COMMODORE** COMPUTING!

The first (and still the only) personal computer magazine produced entirely with personal computers!

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PINBALL CONSTRUCTION SET



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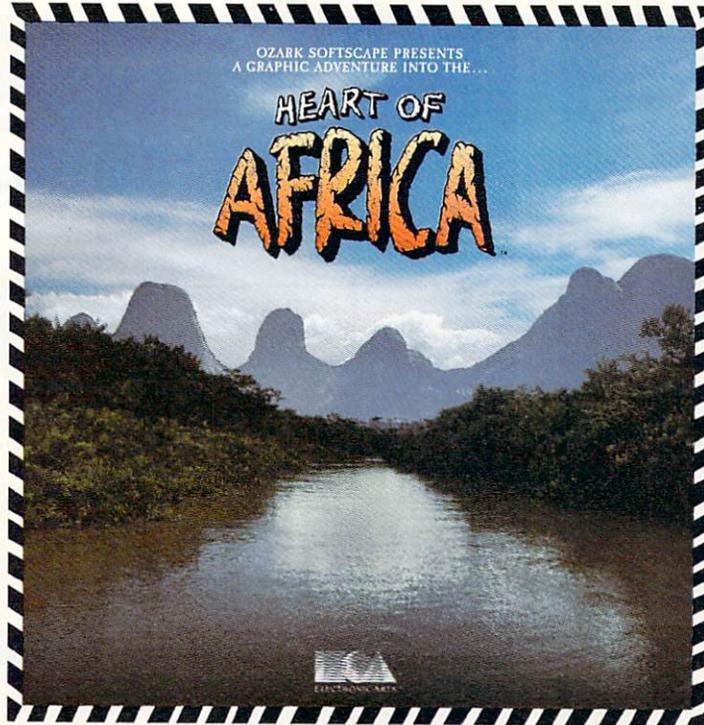
(Hi. I'm from Baltimore. Where's the pharaoh?)

A sequel to the Award-Winning Seven Cities of Gold.

Africa, 1890

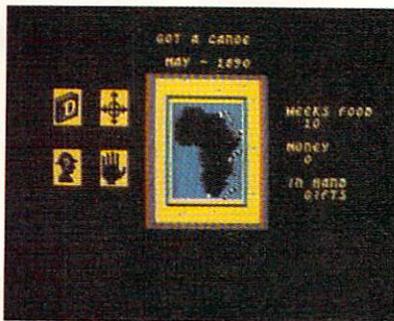
Up that river lies the African Adventure of your imagination.

The mysterious Dark Continent. Where the mighty Kilimanjaro towers over the Source of the Nile. Where the Congo snakes through steaming jungles and the scorching Sahara sun bleaches men's bones. Africa. Where legends of secret treasure drive men mad with desire. And where an adventurer can still find glory and gold...or a lonely death far from home.



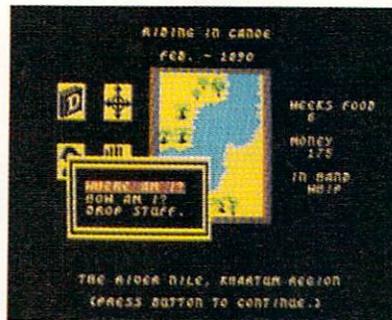
You have inherited a madman's diary ... and his dream to find the tomb of an ancient pharaoh.

Ancient songs still sung by tribal historians contain clues to the hidden tomb of a fabulously wealthy pharaoh. The madman's last feverish words drive you onward: "I now know it does exist. I am so close, but so near death. If you hear no more from me, then warn those that follow: this is not a journey for the weak of spirit or dull of mind. Come prepared."—H. Primm, May 21, 1889



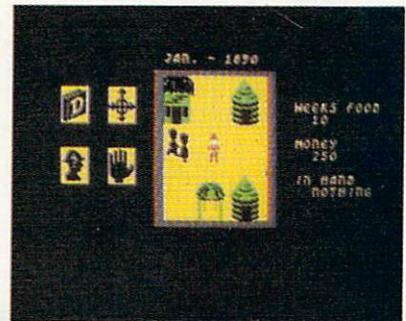
A Living Map of Africa

11 million square miles stuffed into your computer. Navigate 17 rivers. Hack through jungle and swamp. Sail to ten cities. Learn the ways of 22 tribes. Explore savannah, deserts and mountains. It's all geographically accurate.



Follow Your Dreams

Set your course and go for it. The computer automatically maps your progress and keeps your journal. If you get lost, it can tell you "The River Nile." What it won't say is "about to get sucked over the Kabelega Falls."



Decipher Native Clues

Local myths will help, if you can get the natives to talk. Enter their huts. Learn their customs. Pass out some bribes. The chief might tell you, "Look where the sun rises over the Childless Waters." Now try to figure it out.



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Specifications: Available now for Commodore 64 & 128. Infinitely playable because the computer hides the tomb and treasure in new places each time you start. **How to order:** Visit your retailer or call 800-227-6703 for direct VISA or MasterCard orders (in CA call 800-632-7979). The direct price is \$32.95. To buy by mail, send check or money order to Electronic Arts, P.O. Box 306, Half Moon Bay, CA 94019. Add \$4 for shipping and handling. Allow 3-4 weeks for delivery. All E.A. products purchased direct have a 14-day "satisfaction or your money back" guarantee. For a complete catalog, send 50¢ and a self-addressed envelope to Electronic Arts, 2755 Campus Dr., San Mateo CA 94403.



the USEFUL guide to
Commodore Computing



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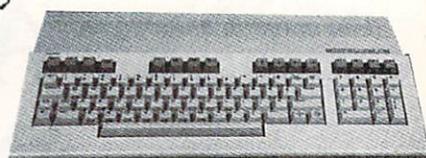
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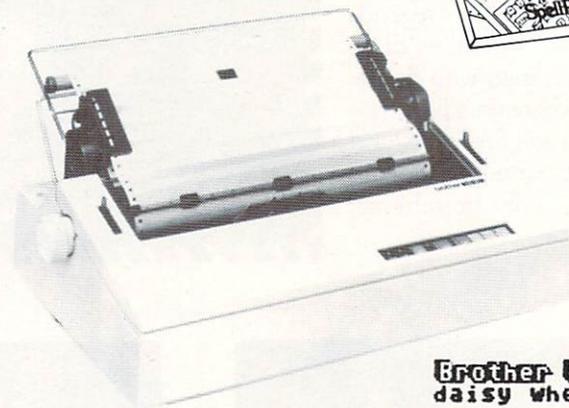
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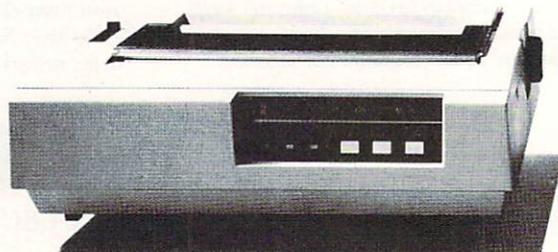
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daisy wheel



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dot matrix

INFO

CONTENTS # 9

DEPARTMENTS

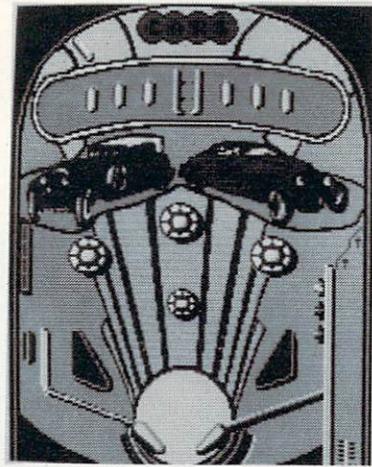
GALLERY (Expanded section covering 24 C64 games).....	4
AMIGA GALLERY (Previewing a half-dozen games in Full Color).....	6
READER MAIL.....	16
NEWS & VIEWS.....	18
MAGAZINE INDEX (Guide to Commodore publications).....	23
CARTOONS by Brian Redman.....	33,58,64,70
SOUND ADVICE (Network Wars) by Peggy Herrington.....	34
DEALER INDEX.....	68
EDITOR'S PAGE.....	70
CONTEST NOTE.....	72
ADVERTISER INDEX.....	95

FEATURES

AMIGA VS. ATARI 520 ST.....	8
WHAT TO EXPECT FROM MULTITASKING.....	24
A NOSTALGIC LOOK BACK AT THE C-128.....	25
C-128 SOFTWARE (A guide to what's available NOW).....	27
THE 1571 SURVIVAL GUIDE.....	31
MAKE AN 80 COLUMN MONOCHROME CABLE FOR THE C-128.....	33
GOING ONLINE by Peggy Herrington.....	39
COMMODORE CAMP (Or, How I Spent My Summer Vacation).....	61
NEUFELD'S THEORY ON THE SAVE WITH REPLACE BUG.....	64
THE LITTLE GUYS by Mindy Skelton.....	65

REVIEWS

B-GRAPH by Ted Salamone.....	40
MIND PROBER by Ted Salamone.....	42
MICRO ASTROLOGER by Ted Salamone.....	44
EVELYN WOOD DYNAMIC READER by Ted Salamone.....	45
PARADROID.....	46
MORE BASIC RAM (S'MORE and RADAR BASIC).....	50
PEEK-A-BYTE.....	51
APSOFT.....	52
EDUCATIONAL SOFTWARE.....	53
CP/M: MTBASIC.....	54
DIGITAL OSCILLOSCOPE PERIPHERAL.....	55
ST10C HARD DISK DRIVE.....	56
ENTREPO DATA DRIVE.....	57
MAGIC MOUSE.....	57
BOOK REVIEWS.....	59



ABOUT THE COVER

The December/January issue of INFO is traditionally our games issue, and certainly one of the all-time great games ever written is Bill Budge's **PINBALL CONSTRUCTION SET**. **Electronic Arts**, who published the original (small cover photo) for the C64, is now working on a version for the **AMIGA** (large photo). How fitting it is that a classic like **PINBALL** should open the new era of computer recreation made possible by the **AMIGA**. It is interesting to note that the **AMIGA** version is only using low resolution (320 x 200) graphics, but that the availability of 32 colors (from 4096) makes a drastic difference. Add to this the **AMIGA**'s ability to digitally sample and re-create realistic sounds, and one can imagine a truly convincing pinball simulation.

Electronic Arts has brought **C-64** users many top-notch titles over the years. Now they are making a huge investment (many call it a gamble) in software development for the **AMIGA**. As of this time, **Electronic Arts** is working on a whole line-up of hot **AMIGA** titles (absolutely **NONE** for the Atari 520ST). From the previews and demos we've seen so far, we predict an instant love affair between **AMIGA** enthusiasts & **Electronic Arts**.

For a free product brochure from **Electronic Arts**, send a self-addressed, stamped #10 envelope to:

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Drawer "I"
2755 Campus Drive
San Mateo, CA 94403

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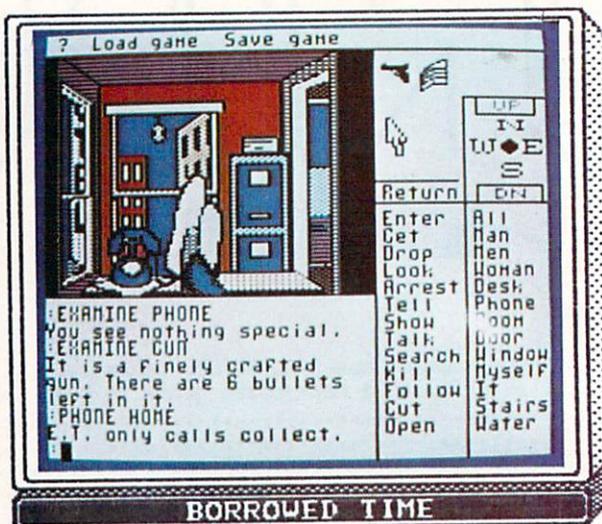
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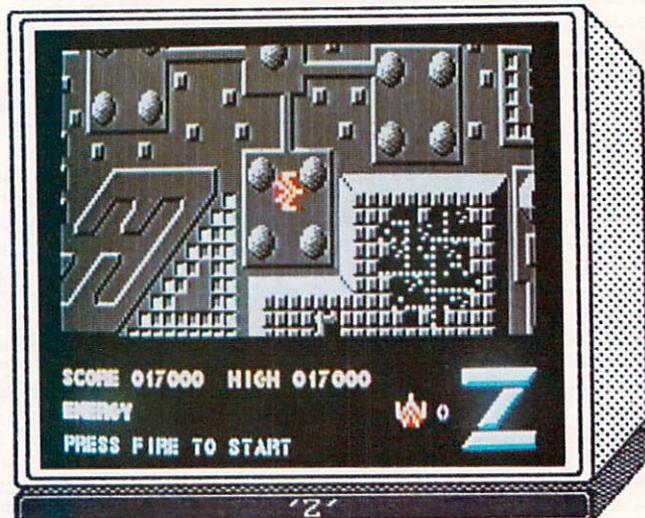
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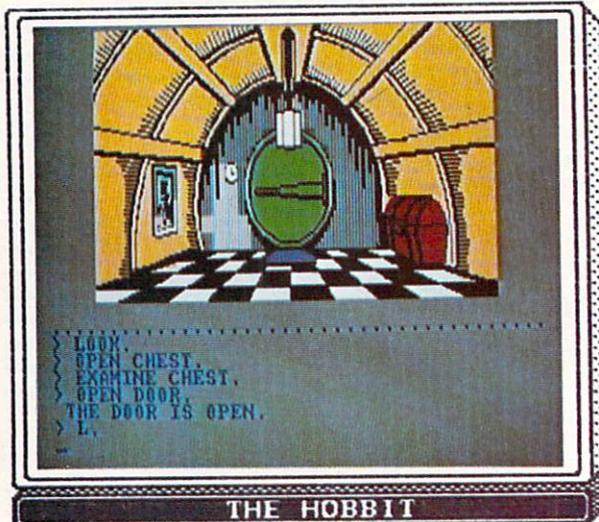
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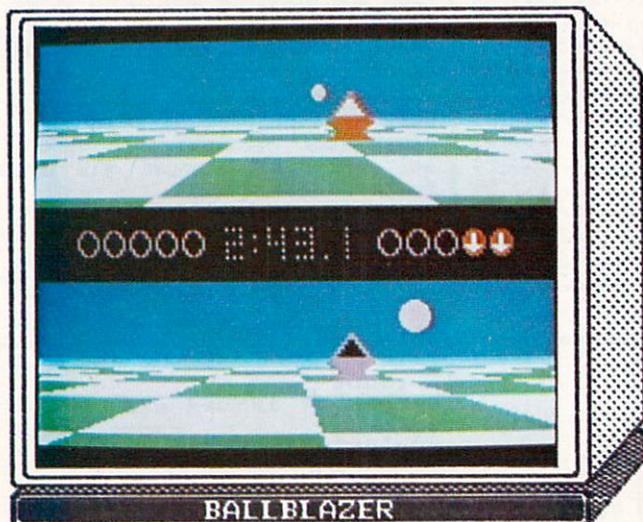
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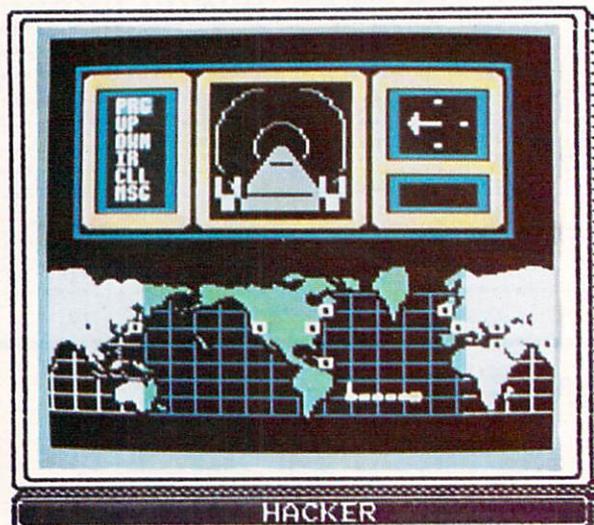
'Z'



THE HOBBIT



BALLBLAZER



HACKER

KORONIS RIFT

|★★★★

EPYX
1043 KIEL COURT
SUNNYVALE, CA 94089

This is my pick of the four Lucasfilm titles currently offered by Epyx. 'Rift' easily has the best graphics (including improved fractal landscapes), & just enough depth (detailed instrumentation, weapons and equipment modules, printed documentation of alien artifacts, and mother-ship laboratory sequences) to ensure prolonged and repeated play. While there is still plenty of 'blast the aliens out of the sky', the main emphasis is on discovery and techno-fascination. -BD

BORROWED TIME

|★★★★

ACTIVISION
DRAWER 7286-I
MOUNTAIN VIEW, CA 94039

A big step forward in the realm of 'Interactive Fiction' (which usually means 'Underactive Frustration'). The small graphics window is super, allowing fast loading of scenes (excellently drawn, some animated), with many scenes possible on a disk. The parser is both fast & smart, and the text is colorful & full of sly humor. Almost everything in sight has meaning (as opposed to being just scenery). Borrowed Time will be a tonic to jaded adventurers. An Amiga version is nearly completed. -BD

'Z'

(by RINO)

|★★★★

EDUCATIONAL SYSTEMS INT'L
1311 PAGE AVE.
SUTHERLIN, OR 97479

'Z' is a fine example of some of the better arcade titles coming out of Britain lately. The graphics and play elements are reminiscent of such arcade favorites as XEVIOUS and TIME PILOT. Your craft moves omnidirectionally over 4 levels of scrolling 3-D landscapes seen from above, zapping various hostile objects and collecting energy capsules. The final level brings you to confront the feared control ship. Good graphics and fast action are the keynotes here. -BD

THE HOBBIT

|★★★★

ADDISON-WESLEY
JACOB WAY
READING, MA 01867

The Hobbit is, of course, J.R.R. Tolkien's famous book brought to electronic life in this semi-graphic adventure game. The graphics (which may be turned off for speed) are pleasant but no show-stoppers. The parser and the puzzles are typical of most adventures today. One nice touch is that the player's input lines appear in a separate area at the bottom of the screen so you can always see what you last typed regardless of responses. Tolkien fans will most likely be pleased with this title. -BD

BALLBLAZER

|★★★★

EPYX
1043 KIEL COURT
SUNNYVALE, CA 94089

Ballblazer is sort of like riding bumper cars at the local amusement park, only with the addition of AFTERBURNERS! How you like it may be proportional to how long it's been since your last meal. This is undoubtedly the FASTEST game available for the 64. It is (surprise!) non-violent, and perhaps the most challenging test yet for gamers with strobe-like reflexes. For one or two players. The pseudo-technical manual (w/ blueprints and galactic player interviews) is at least half the fun! -BD

HACKER

|★★★★

ACTIVISION
DRAWER 7286-I
MOUNTAIN VIEW, CA 94039

An interesting concept, this game includes no instructions, starting the player off instead with a screen reading "LOGON PLEASE:" Don't worry, tho, a security system error sees to it that all players gain access to the "mainframe" computer in the game. From there you will be left to your own devices and investigative abilities to get to the bottom of things. Fair to good graphics and sound. The Amiga version should be shipping by the time you read this. -BD

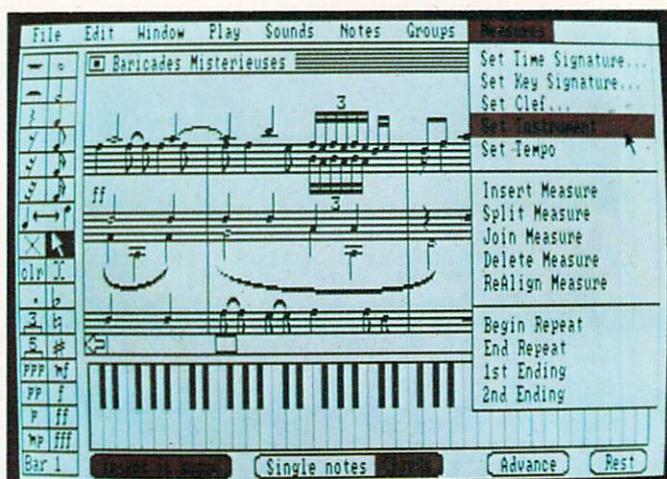


GALLERY continued on page 88...

**INFO**

AMIGA!

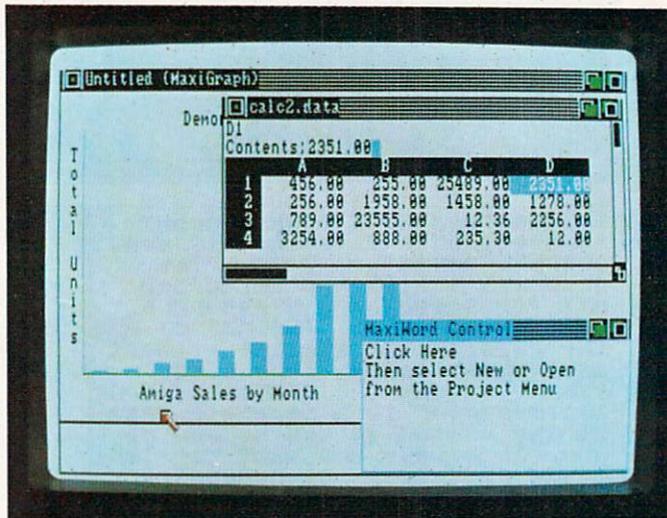
GALLERY



MUSIC CONSTRUCTION SET
Electronic Arts



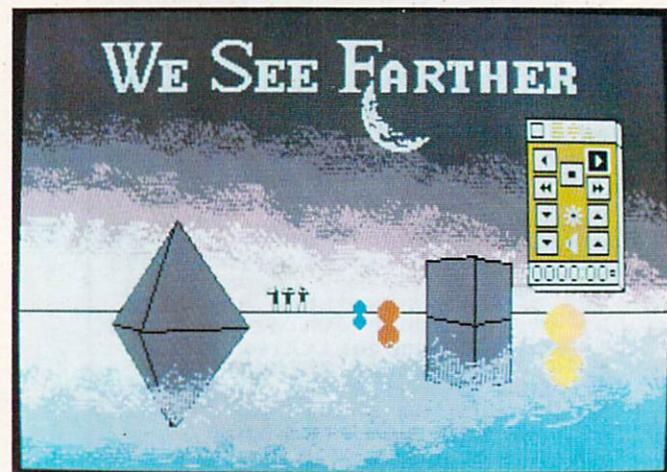
MINDSHADOW / HACKER
Activision



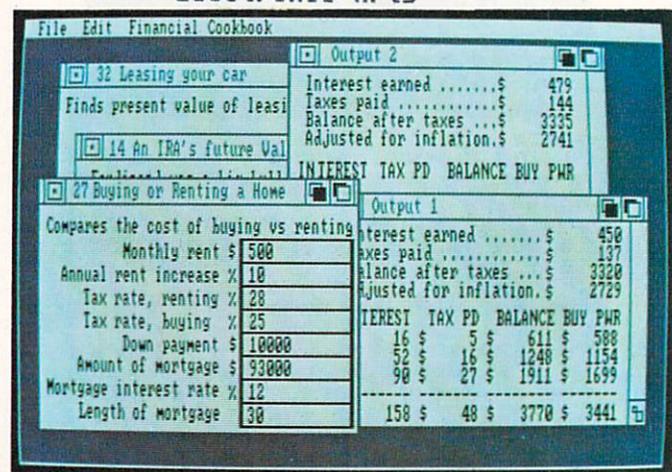
MAXIMILLIAN
MaxiSoft



ARCTICFOX
Electronic Arts



VIDEO CONSTRUCTION SET
Electronic Arts



FINANCIAL COOKBOOK
Electronic Arts

From now on the colorful **AMIGA GALLERY** will be a regular and distinctive feature in **INFO**. Here we will showcase the more visually interesting of the new **AMIGA** products as they are unveiled. You will notice an abundance of titles from Electronic Arts this issue. This is not the result of any favoritism or special preference on the part of **INFO**, but rather results from the simple fact that as of this printing, Electronic Arts is the most prolific provider of demo disks and screen shots for the **AMIGA**. As others step forward with their products, we will make sure the spotlight plays equally on every manufacturer in turn. Electronic Arts also did such a good job of describing their products (none of which we have seen in finished form) that we decided to let their text screens speak for themselves.

Deluxe Music Construction Set

Deluxe Music is the first complete music composition software for personal computers. With DMCS, you can compose professional quality music, play it and print it out as sheet music.

Its complete music notation includes triplets, quintuplets, slurs, trills, ties, beams, octave signs, repeats, up to 8 staves, dynamic markings you can write and hear (crescendos & diminuendos, ppp to fff) and full cut and paste editing. Its complete set of music playback tools includes an on-screen player piano and full stereo output of 16 instruments with multiple sound variations, like vibrato and staccato. You can also hear the notes and chords played as you write them. You can print out professional quality sheet music with lyrics, special music symbols, guitar and chord notations and variable spacing between notes, chords and staves. Mouse required.

MINDSHADOW / HACKER

These two graphic adventures from ACTIVISION are the first examples of what we expect to be **scores** of translations from other machines to the **AMIGA**. We are happy to report that the process has added substantially to the appeal of these two titles (as nice as they are on the 64), and we hope that other manufacturers will also take the time to incorporate the unique capabilities of the **AMIGA** into their translations.

Mindshadow is an adventure which starts you out as an amnesiac stranded on a tropical island. Your main challenge is to discover your own identity, and who did what to you and why.

Hacker (the game that cuts you loose inside a sinister computer complex without instructions) is all the more fun with super graphics & sound.

MAXIMILLIAN

The screens pictured on the opposite page were shot from an early demo disk of two of the four modules which make up **MAXIMILLIAN**. Shown are windows with spreadsheet (including graphics) and wordprocessor (the other modules being database & telecommunications.) All four modules can be run simultaneously under the **AMIGA**'s multitasking operating system. The whole 4-module entry-level package is to be priced at around \$195.00 with the ability to upgrade individual modules to advanced modules (at \$149.00 each). This is a new and welcome concept in 'integrated' software. In addition, **MAXIMILLIAN** supports the capability of multiple **AMIGAs** sharing the same data in real time via modem. For more information, contact: MaxiCorp / 2817 Sloat Road / Dept. I Pebble Beach, CA 93953 / (408) 372-1722

Arcticfox

A tank combat simulation set in the future. You command the Arcticfox - the most advanced and deadly tank ever built.

The object of this strategy-action game is to knock out enemy bases set in the Arctic wastes. It's you against intelligent opponents who co-ordinate their jets, tanks, cannon & mines in ambushes and frontal attacks. Ridges of ice, crevasses, glaciers, blizzards and snowstorms present defenses and obstacles to account for. Your success will depend on stealth, good timing and fast reflexes.

Your Amiga contributes sound as realistic as any tank movie: whistling shells, rumbling tanks, dramatic explosions, even the doppler effect as jets shriek by. There is also a stereo music sound track to add drama. For 1 player. Mouse or joystick required.

Deluxe Video Construction Set

Deluxe Video Construction Set is a new kind of creativity-productivity software.

It allows you to create your own animated videos with high quality graphics and sound effects for business presentations, home productivity or just for fun. It also enables you to create many of the special effects of professional systems, like checkerboard wipes. You can tape any of your videos to videotape with a home or professional VCR, too.

Notice the VCR remote control icon. It lets you fast forward & rewind, raise and lower sound and pause. A script editor lets you arrange timing of effects. A graphics & sound editor lets you customize the built-in library of sounds, fonts, chart graphics and pictures. Mouse or keyboard required.

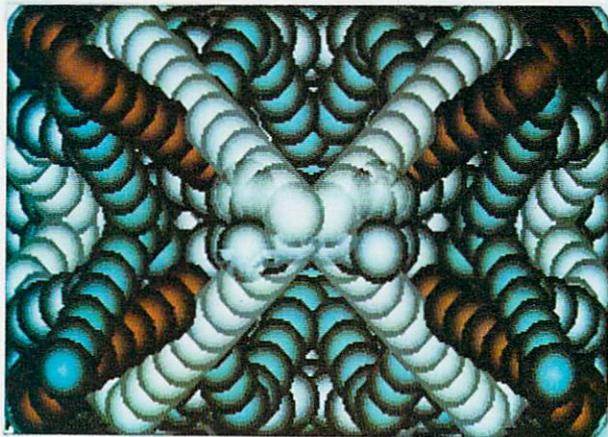
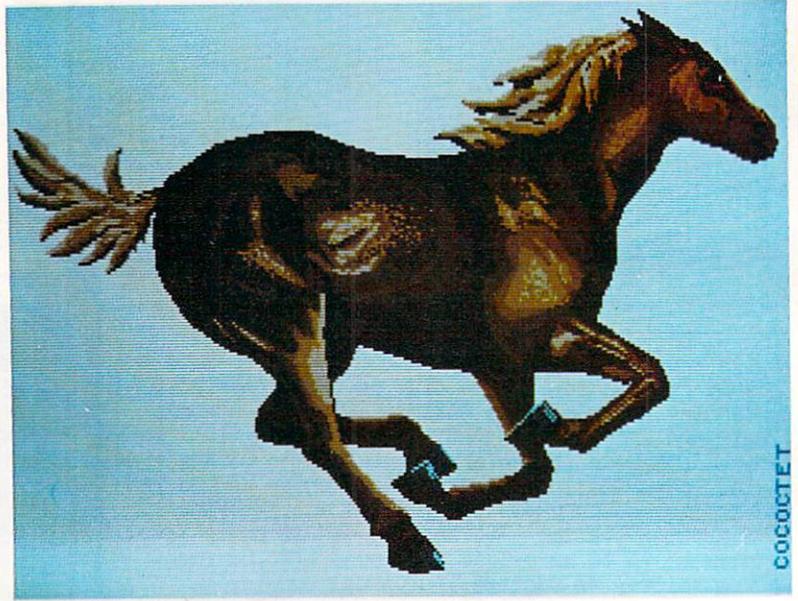
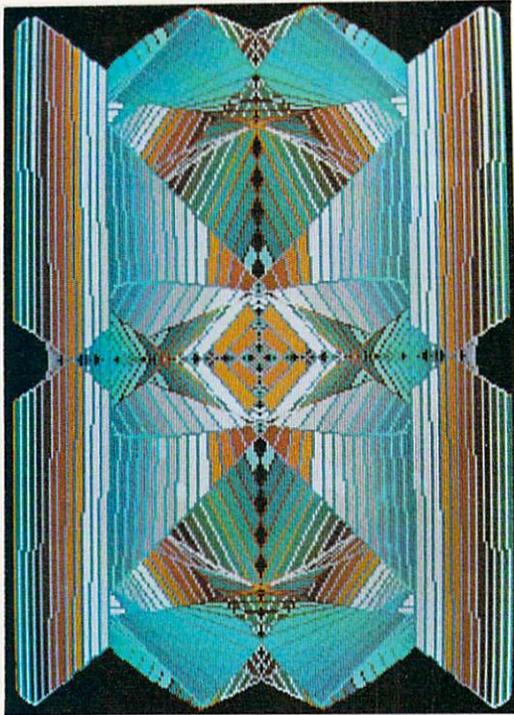
Financial Cookbook

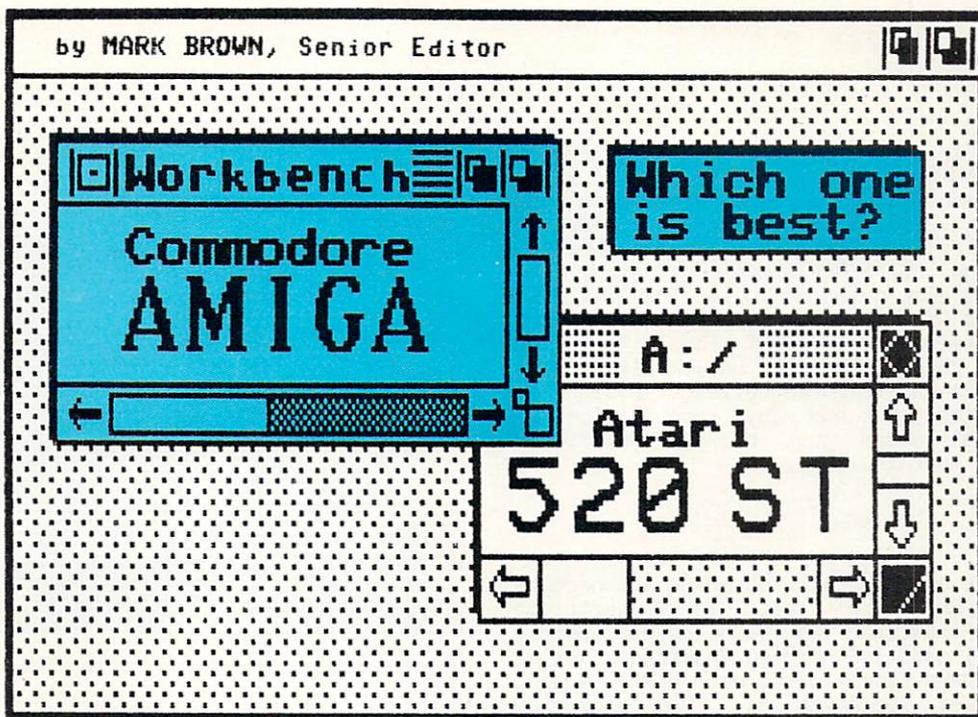
This is a home financial decision maker, with 32 "recipes" to answer a broad range of topics like:

- Buying or leasing a new car or computer.
- Renting versus buying a home.
- The advantages of an IRA account in retirement planning.
- The effects of inflation on savings.
- Amortization and depreciation.

To answer these questions, all you have to do is fill in the blanks. Pull-down menus, multiple windows for comparing alternatives, and a mouse interface make it even easier.

So if you need to make home financial plans, do it with Financial Cookbook.



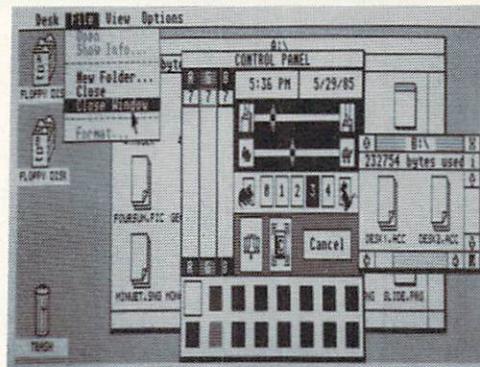
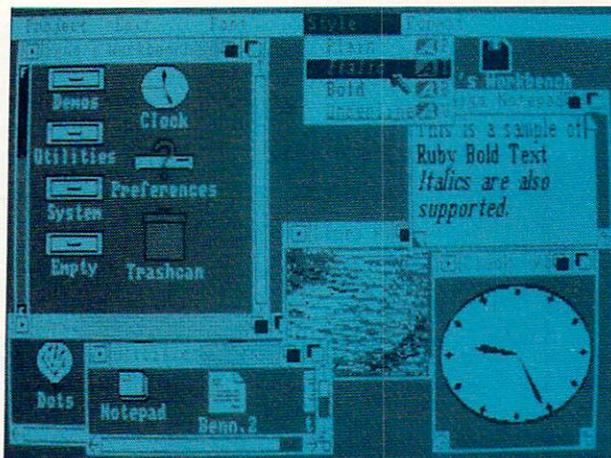


Atari's magazine ads claim that the ST offers more "Power" without the "Price" of an Amiga. They call the Amiga's price a "rip off". They say that the Amiga's highest resolution is "620X200", with a footnote that reads "620X400/interlace mode". At the same time, they gloss over the fact that the ST's 620X400 mode is **monochrome only** and requires a **seperate monitor**. They even compare the price of the ST with a monochrome monitor against the Amiga with an RGB analog monitor! Atari also claims that 1 megabyte floppy drives, 10 meg hard disks, lots of business and productivity software, ad infinitum, are **available now** for the ST, which is plainly not true.

Unfortunately, Commodore seems to be avoiding the issue of the Atari ST, concentrating instead on competing with IBM and Apple. They are apparently content that the ST is not in competition with the Amiga. We think this is overly optimistic, especially since Atari is directly assaulting the Amiga in **their** ad campaign. By default, it falls to **INFO** to illuminate this dark corner of human knowledge: Is the ST competitive with the Amiga?

INSIDE THE ST AND AMIGA

The Atari ST and the Amiga appear at first glance to be brothers under the skin. There's the temptation to call them both "color Macintoshes" and let that describe them. But it doesn't take much of an examination to discover that they are from completely different generations of the computer family, driven by different technologies.



There is the temptation to call them both "color Macs"...



AMIGA vs. 520ST cont'd

Each of these computers incorporates a 16/32-bit Motorola 68000 cpu chip. That is the only thing they have in common with each other and with the Mac. The ST is the Mac's heir; its design philosophy is to do everything in software. The cpu chip is in charge of I/O, graphics, sound, and almost everything else going on inside the ST. Only disk I/O is under DMA control. The Amiga, on the other hand, is assisted in all of these tasks by three custom LSI chips. They not only relieve the cpu of most of its maintenance duties, leaving it free to run programs, but add many capabilities to the machine that would just be too difficult otherwise. More on this later.

INPUT AND OUTPUT

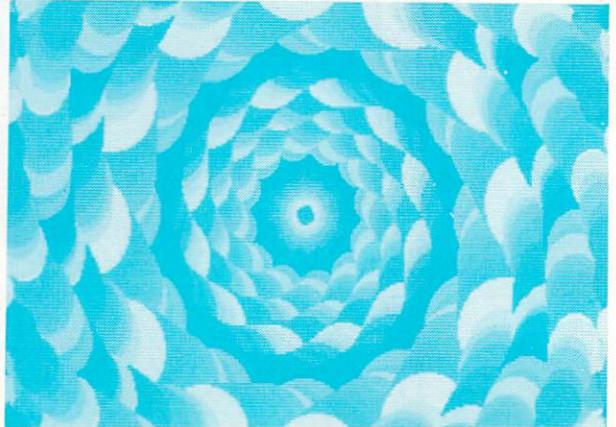
Both machines are equipped with outboard connectors in good number. On the ST there is a cartridge slot, MIDI music interface input and output ports, RGB monitor jack, parallel printer interface, serial modem interface, and floppy disk, hard disk, mouse, and joystick ports. The Amiga has a RAM expansion slot, parallel printer interface, serial interface, and ports to connect a floppy disk, two joysticks, stereo audio, keyboard, RGB monitor, TV set, composite video monitor, and chassis expander.

The Amiga's highly recommended RAM expander brings its 256K internal memory up to 512K (which is what the Atari is supplied with, and what the Amiga probably should have been supplied with). The ST, like the Mac, is limited to its on-board 512K of memory. Currently, the ST's operating system loads into the 512K of system RAM, taking up 201K of memory. Later versions will have the operating system in ROM, but for now ST owners will be limited to applications that will run in 311K. The Amiga operating system is also currently RAM-loaded, and

will probably stay that way. It loads into an additional 256K of RAM that is write-protected; you are really getting 512K of RAM, with the option of adding another 256K on-board. The Amiga is also designed to directly address up to 8 megabytes of outboard expansion RAM.

In general, the Amiga's ports tend to be more generic, the ST's more specific. For example, the parallel and serial ports on the Amiga are programmable for flexibility, and its expansion port brings out all the essential control lines from the main board for connection to almost anything you can think of. The Amiga's parallel port connector includes all the lines that the ST splits into separate dedicated parallel printer and hard disk ports and then some. The Amiga's serial port also includes many lines not brought out to the connector on the ST's serial modem port. The ST's major outboard connector, the cartridge slot, is intended for ROM cartridges. It can probably be used for some expansion, but does not bring out all the control and address lines you need for full expandibility. The ST also has additional ports specifically configured for MIDI musical instruments.

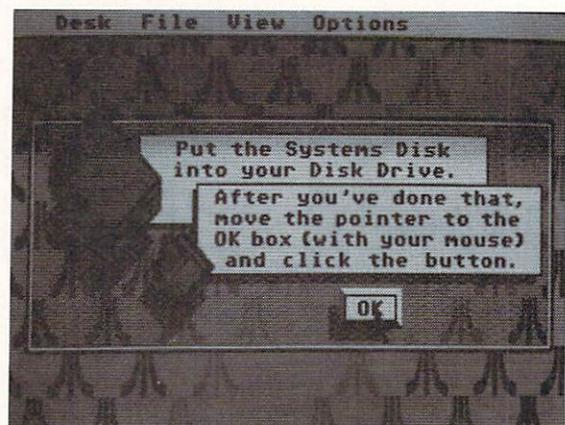
Graphics is the native tongue of the Amiga...



Electronic Arts' AMIGA graphics demo, "POLYSCOPE".

"We support the Amiga because it meets our criteria, and because it is the best designed, best supported, and most powerful new personal computer, by a wide margin. We would like to see it become an industry standard. The Atari ST is a non-compatible machine from a company which we believe lacks the resources to support it fully."

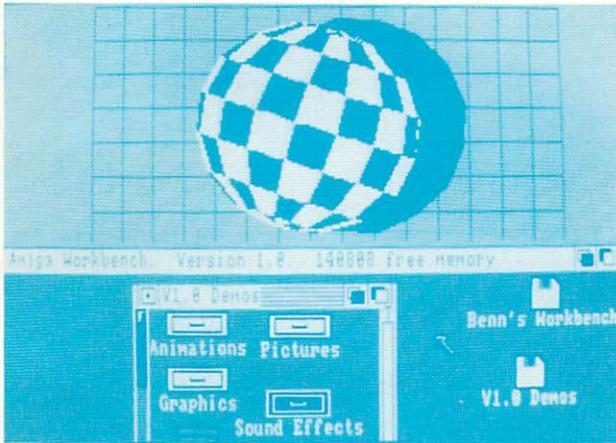
—quote from form letter currently being sent out by Electronic Arts in response to requests for Atari ST software



Nicely done opening screen on Atari ST.



AMIGA vs. 520ST cont'd



Even the video outputs are different; the Amiga allows a TV or composite, RGB analog, and RGBI monitors to be hooked up simultaneously, while the ST has custom plugs that will connect only to an Atari brand RGB analog or monochrome monitor. The Atari RGB monitor is required equipment for low-to-medium-res multicolor graphics, while the Atari monochrome monitor is required for 640X400 maximum resolution monochrome output. You can't get both in one monitor. If you have applications for both color and hires monochrome, you will have to buy both monitors and swap the plug back and forth when you switch programs. (And speaking of plugs, the short cords supplied with the monitor and disk drive for the ST are really annoying, especially because they are special cables and you can't buy longer versions of them.)

The ST and the Amiga both have an IBM Selectric style keyboard with numeric keypad, 10 function keys, and cursor control keys. The Atari's numeric keypad shows more forethought in including the / * and () keys that are unfortunately absent from the Amiga. The Amiga's keyboard is detachable like the IBM's, however, and has a much more solid feel than the ST's. We also prefer its normal function keys to the clumsy slanted function keys on the Atari; it's too easy to hit two at once on the ST.

Both computers use 3.5" disk drives with DMA controllers. The standard ST drive is single-sided with a storage capacity of 360K (same as the Mac), while the Amiga's is double-sided with 880K of storage. A quick calculation will tell you that a 360K drive will not hold as much information as a 520K computer. Just to save the full memory of the ST will require two disks using its 360K drive. (The ST will have a double-sided 800K 3.5" drive available as an add-on for an additional \$300.) The Amiga's standard 880K disks can safely store much more information than even a 512K Amiga can hold. Load times for the two machines seem comparable; in our tests each loaded a sample 30K program in about 11 seconds. It's reported that the Amiga's drive is capable of accessing data twice as fast under program control with an internal routine called XLOAD, a capability that third-party developers are taking advantage of in their programs.

On the Amiga, numerous animated playfields may be active simultaneously.

The ST allows only 4 windows... The Amiga can have an almost unlimited number of windows...



The ST is capable of good graphics in 16 colors at low and medium resolutions, or 2 colors in hi-res... The Amiga uses 32 colors in low and medium resolution modes, and 16 colors in hi-res for unrivaled graphics.

AMIGA vs. 520ST cont'd

Having seen the graphics on the Amiga, I have to smile when I hear people lump it together with the Atari ST. ...Little wonder, then, that a friend of mine, a game developer with several programs on the market, came back from the Amiga development seminar with plans to return the Atari ST development system at his house and to turn his attention to the Amiga instead.

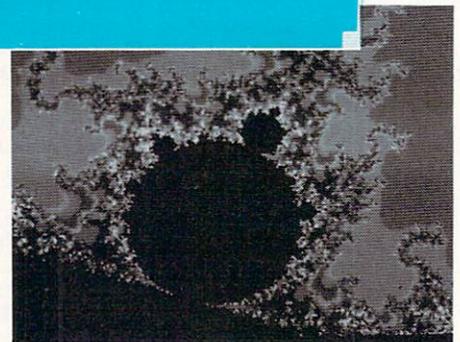
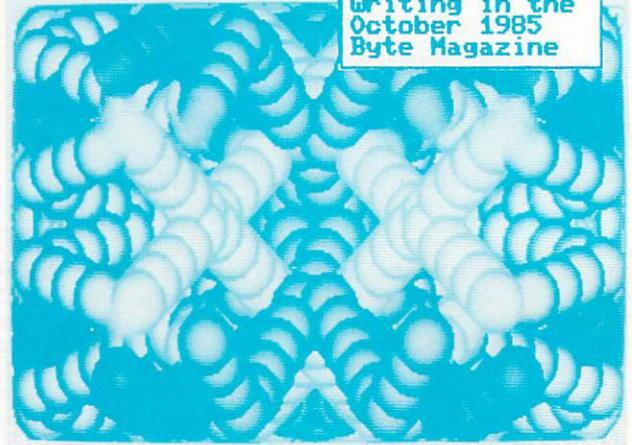
--Bruce Webster
writing in the
October 1985
Byte Magazine

GRAPHICS

Graphics is the native tongue of the Amiga. Two of its custom LSI chips are devoted exclusively to graphics and animation, and one even includes a graphics co-processor microcomputer chip for additional speed and capabilities. While both machines claim the same high-resolution definition of 640X400 pixels, the Amiga can handle 16 colors at this resolution while the Atari's output is monochrome. At this resolution, the Amiga's image shows some flicker on the Amiga monitor; a medium-persistence phosphor monitor is required to smooth it out. At 320X200 (C64-style) resolution, the Amiga can pick 32 of 4096 colors while the ST is restricted to 16 out of 512. The Amiga can also optionally display two overlapping and independent screens (or playfields), and gives you eight multicolor sprites. The Atari has neither capability. Both offer animation through bit-blit techniques, but the Amiga is faster and smoother due to its custom chips.

All it takes is one real-time demonstration of the two computers running any kind of graphics-oriented software side by side to see the difference between them. The static pictures printed here can only give you an inkling of the real advantage the Amiga has; it's a league ahead of the ST in graphics capability.

When you talk graphics, however, you are also talking displays, and the Atari RGBA color monitor has a blacker screen and sharper colors than the Amiga display. The Amiga RGBA monitor is bigger by an inch, and provides adequate color and resolution, but the Atari's display beats the Amiga's hands-down for sheer clarity, contrast, and intensity. Unfortunately, the ST monitor is equipped with Atari's own unique connector, which makes it impossible to use with the Amiga, except maybe with custom cables. It is also impossible to use anyone else's monitor with the ST. The ST video interface includes a line which the computer senses to automatically determine whether it is connected to the Atari RGB or the Atari monochrome monitor. They are symbiotic and inseparable; you won't buy an ST without one monitor or the other. On the other hand, if you don't like the Amiga's monitor, you can buy somebody else's. There is reportedly a new Amiga monitor with a sharper image and stereo sound in the works. It might be wise to use your existing 1702 or other composite or RGB monitor for the time being and wait for this one. The 1702 works pretty well with the Amiga's composite output for all but 80-column text displays, with only a little variation of the display colors; if you already own one, you can definitely get by "for now". We'll feature a full third-party monitor report next issue.



Here, both machines graphically display portions of the Mandelbrot set--the most complicated number set ever discovered.



The Amiga may cost more, but it delivers many times the performance of the ST...

SOUND

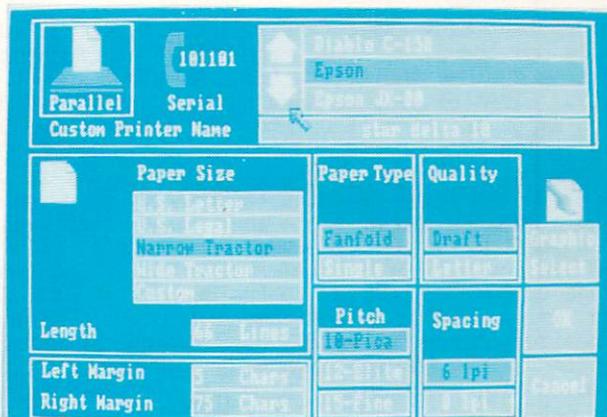
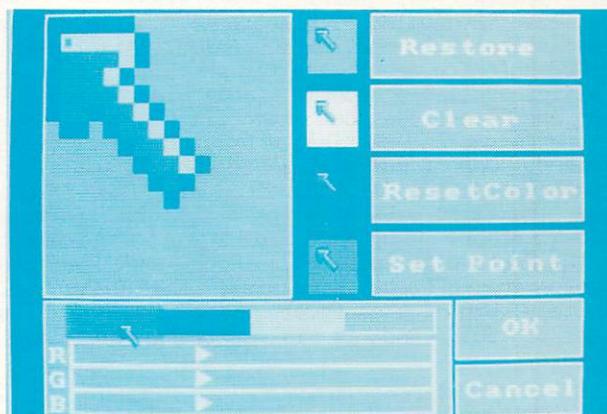
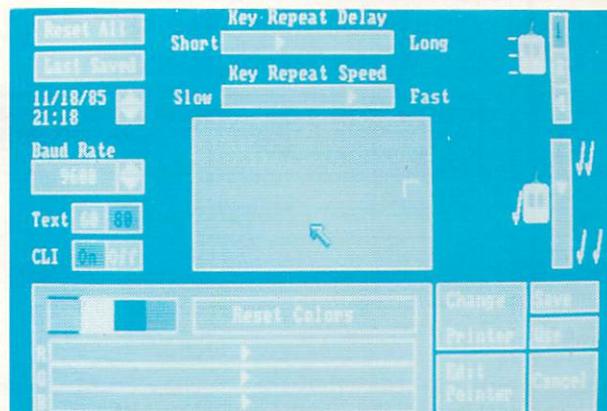
Atari did not attempt to break new ground when it came to the ST's sound output. The ST uses the same sound chip found in the IBM PCjr, and the Texas Instruments TI99/4A before that. The result is uninspiring.

The Amiga incorporates a custom LSI chip for audio that is based on an entirely new technology: DMA sound reproduction. With this technique, a DMA (Direct Memory Access) controller accesses the computer's memory thousands of times a second to pull out and reproduce the sound characteristics of the waveform you want to reproduce. This can be a digitized waveform produced by actually sampling a real instrument or sound source, or can be programmed in. It can even be the sound of human speech. The Amiga is the first personal computer with speech capabilities built-in. It can control four channels of DMA sound, mixing them into stereo audio outputs. The result is similar to the best digital audio stereo equipment, both in sound and technology.

OPERATING SYSTEMS

The ST and the Amiga both use a Mac-like icon-and-mouse operating system. The ST's is GEM from Digital Research, the Amiga's is Intuition, written for them by MetaComCo in Great Britain. They are similar environments in that they both let you select disk directories, programs, system options, etc., by manipulating a pointer on-screen with a mouse, clicking on icons to select functions. GEM is a generic operating system and is also available for the IBM PC and other MS-DOS machines. It takes about 48 seconds to boot up GEM on the ST, and it must be rebooted after some applications. ST GEM only takes about 4 seconds to query a disk and display its directory in a screen window. Intuition is slightly slower at both of these tasks, taking about 67 seconds to boot up (including a disk swap; the AmigaDOS and WorkBench components of Intuition are, for some strange reason, supplied separately on two disks, and each can only be loaded from drive 0), and 9 seconds or more for a directory. There are still some bugs in the 1.0 version of Intuition we received with our Amiga, so it occasionally needed to be rebooted after a crash. The updated version available by the time you read this should be impervious to crashes.

One somewhat annoying feature of ST GEM is that the menus at the top of the screen are not pull-down, but drop-down. Whenever your mouse pointer gets near one, it drops down over the screen, whether you really wanted it or not. The Amiga, like the Mac, waits politely until you click the mouse to select a menu before it pulls down; much less aggravating.



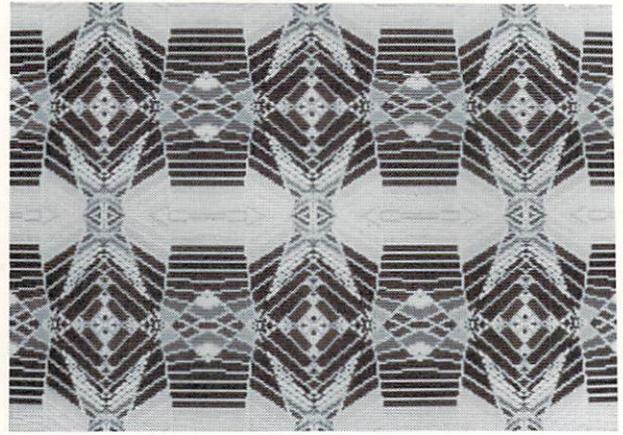
Three of the Amiga Workbench "Preferences" screens, which allow a wide range of user-selectable settings.



AMIGA vs. 520ST cont'd

At 640X400 resolution, the ST is monochrome....

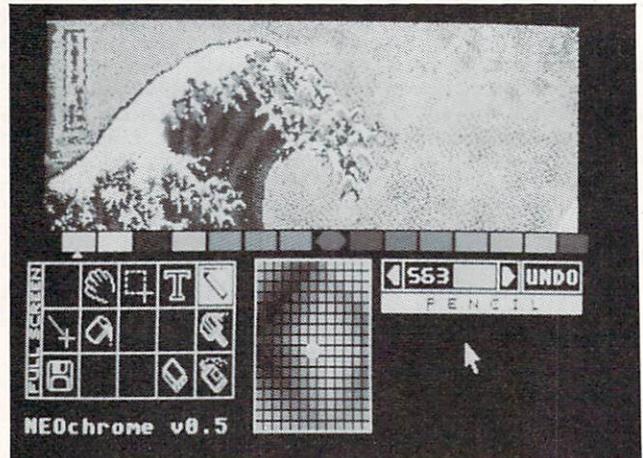
Atari did not attempt to break new ground when it came to the ST's sound output...



Amiga "Polyscope"

SOFTWARE

Of course, one of the driving forces behind any computer is the quality and quantity of software available for it. Many third-party software companies, including Electronic Arts, are enthusiastically supporting the Amiga. Atari claims over 900 software developers for the ST, with over 200 titles available "soon"! This is obvious PR hype. The ST has been out for six months longer than the Amiga, and is finally seeing some titles delivered. One of our dealers reports 28 titles on his shelves for the ST, including all the Infocom games. The first wave of Amiga titles was released in mid-November. Many more are under development. (See the Roundup in issue #8.) From what we hear back from the software companies, the Amiga will definitely win the software race in the first quarter of 1986. And it is software that sells computers.



"NEOchrome" paint package for the Atari 520 ST.

PRICE COMPARISON

I'm sure that many Atari fans will cry "Foul!", but this is how the ST's Power and Price performance stacks up against the Amiga (follow along on the chart). First of all, we have to add another 256K to the Amiga to bring it up to 512K like the ST (\$200). The ST needs an RGB monitor in addition to the monochrome monitor we got with it in order to do both hires and lores graphics (\$400). We also need to add a monitor stand, since the Amiga case will hold a monitor for us but the ST's won't (\$20). We'll add another 360K disk drive to bring our storage up to 720K, closer to the 880K of a single Amiga drive (\$200). Now we need a speech synthesizer, since the Amiga has speech synthesis built in (\$265). We are also adding a Casio CZ101 six-voice MIDI synthesizer so we can get some decent music out of the ST (\$500). (It still won't be as versatile as the Amiga's DMA sound, however.) Since we also get a keyboard with the CZ101, we'll add a generic keyboard to the Amiga, too (\$100).

It looks like the ST at \$2184 has cost us a little more than a \$2090 Amiga system, and it still is unexpandable and won't do multitasking. Of course, we realize that most people won't add this much stuff to an Atari ST. What we are trying to point out is what you would have to add to even start to try to bring it up to the capabilities already built into the Amiga.

AMIGA vs. 520ST

Atari 520 ST	\$ 799
w/360K 3.5" drive & monochrome monitor	
Atari RGB color monitor	\$ 400
2nd 360K drive	\$ 200
Votrax Type'n'Talk speech synthesizer	\$ 265
Casio CZ101 synthesizer	\$ 500
Monitor Stand	\$ 20
Total	\$2184
Amiga by Commodore	
w/880K 3.5" drive	\$1295
256K expansion memory	\$ 200
Amiga RGB color monitor	\$ 495
Generic music keyboard	\$ 100
Total	\$2090



AMIGA vs. 520ST cont'd

We just wish the Amiga had been provided with a full-function numeric keypad.



CONCLUSION

Does the Atari ST really offer "Power Without the Price"? The price looks good, but then you have to consider what you're getting. Its power is lacking compared to the Amiga. The Amiga is initially costlier, but delivers many times the performance.

The ST compares favorably to a computer like the older Macintosh. We think many people will probably buy one and be perfectly content, at least until support for it dries up; it will probably be the TI 99/4A of the mid-eighties. The Amiga, on the other hand, sets new standards of power and flexibility that will, we think, carry it on well into the 1990s.

Here are some additional observations: (1) The Amiga is much faster at manipulating the screen than GEM is. Objects glide when moved, whereas the ST flutters. (2) The mouse is also slicker and has a better feel, with a software fine speed adjustment that the ST doesn't have. (3) The desktop environment is dichrome on the ST and multi-colorful on the Amiga. (4) The trashcan icon on the Amiga works like a trashcan. You can dig files you've thrown away back out of the trash, at least until you empty the trashcan icon. On the ST, the trashcan is more like an incinerator; anything tossed out is gone forever. (5) If you don't like the icon-and-mouse environment on the Amiga, you can switch over to the command line interface, which allows you to type in commands and get all your information in text form. You can even have it running alongside WorkBench! From what we've heard the Atari is supposed to let you slip into CP/M 68K as an alternative to their desktop, but if so it is completely undocumented.

Of course, the major difference between the two operating systems is that the Amiga is multitasking while the ST can only handle one application at a time. The ST allows you only four windows at any one time, with only one active. The Amiga can theoretically handle almost unlimited windows, each actively and concurrently running an application. Once you have used this capability of the Amiga, you will find it very hard to go back to only being able to run one thing at a time.

The ST is limited to 512K...
The Amiga can address 8 megs

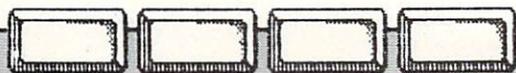
Disk load times seemed
comparable...each loaded
30K in about 11 seconds

The Amiga's ports are generic,
while the ST's are specific...

The ST compares favorably to
the older Macintosh....



Here, a skilled artist has
gotten good results from the
ST's static graphics in this
re-creation of a popular
music-video scene.



INFO





COPYRIGHTS AND COPIES

The letter regarding copyrights and software backups in your recent issue (#7) is **wrong!** Federal Copyright law **preempts** local law with regard to copies. Also, a license sealed inside shrink-wrap disk packages may be binding if there is a special law (ala California) but in most cases is not regarded as sufficient notice. Even if it is, I would argue Contract of Adhesion, because if you are dealing with an exclusive source of software it leads to this situation: "You have to take it on our terms if you want to be able to use this software and therefore have limited or no bargaining power."

An Attorney (unsigned)

NOTE FROM A FORMER ST OWNER

Your Sept/Oct issue foretold of an upcoming ST/Amiga hands on comparison. I hope you will remain objective, since I detected a strong anti-Atari/Tramiel undertone in your last issue. As a former ST owner and present proud owner of an Amiga, I'd like to express my opinion that both machines have strong selling points. For the price, an Atari ST is a fantastic value. The color unit costs little more than a 128 system, but boasts much greater power, speed, and graphics. This is the reason I was persuaded to buy one, though I owned a C-64 already. However, when I saw an Amiga a couple of months later, it was love at first sight. Fickle computer owner that I am, I immediately turned around and sold the ST, then bought an Amiga. For me, performance was the final consideration, not price. The point I am trying to make is this: the Atari is a very good computer at a terrific price, while the Amiga is a terrific computer at a very good price. Please keep this perspective in mind during the review. Amiga is far and away the superior system. But the ST has a number of strengths. Consumers must decide what they need a computer for and how much they are willing to spend in selecting between the two.

Timothy K. Doherty

* Once again, we see how muddled the whole copyright/backup issue is. Until there are some definitive court cases or new laws passed, it appears to us that there really is no set policy on the legality of software backup. However, we remind you once again that there is a very definite law covering **copying and selling** software. Piracy is illegal!

If it means anything, preliminary results from the reader survey last issue indicates that most of you **do** regularly backup your legally acquired software, regardless of the stated policies of the software companies. You are also against piracy for profit, though many of you (especially younger readers) consider copying a program and giving it to a friend forgivable, which might be hard to justify under any current interpretation of copyright law.
--MB

* Thanks for saying essentially what we've been trying to say, Timothy. The ST is a pretty good computer, especially when you compare it to an older machine like the Macintosh, but it is simply not as powerful as an Amiga. Our beef with Atari is that they have been saying that the ST is **better** than the Amiga, which is not even close to the truth. In fact, our greatest concern is that Atari will probably not be around to support the STs that **are** sold. We think that many people will buy STs and be perfectly happy with them (at least until support disappears). But the Amiga is simply a better computer from a more stable company, and a much better deal in the long run.

By the way, the 520 ST **does** look very good against the C128 if you compare price and specs, but not if you compare software base and support. If it becomes an orphan, the ST will be no bargain; ask one million Texas Instruments TI99/4A owners.



November 25, 1985
Dear Mr. Dunnington:

Since I have not directly heard from you after your last look at the ST10C Hard Drive, I am confirming to you, in writing, our position with respect to your magazine review of our ST10C Hard Drive.

1. We support the right of free speech which we in the U.S. are fortunate to enjoy. We support the great free press that we also have in the U.S.
2. The media has great power and we believe those responsible for the media have a moral and ethical responsibility to see that the power is properly used.
3. Free speech does not give an individual the right to shout "fire" in a crowded theatre when there is none.
4. The media does not have the right to damage a firm's reputation nor to impact its profits by erroneously reporting.

Mr. Dunnington, your brief reports on some of our products, particularly the ST10C, and your subsequent comments to me are not in keeping with responsible journalism. One obtains the impression in talking with you that you deliberately attempt to adopt a combative stance. Perhaps you want to become The National Enquirer of computer publications.

Enclosed are two recent non-solicited reports on the ST10C Hard Drive. One from RUN Magazine, whom you stated only publish favorable articles not to offend Advertisers, and one from an independent writer for Family Computing magazine.

I would expect you to print this letter along with the appropriate corrections/retraction by you of your erroneous reporting.

At the direction of our Board of Directors, we returned Issue #8 of INFO 64 in which your erroneous comments appeared. Please discontinue our account with you until you have corrected the misinformation you published about our products.

If you care to discuss the subject, please call me at 1-800-523-8275.

Sincerely,
Dallas P. Lutz
Vice President
Finance & Administration
Computer Specialties Incorporated

cc: Mr. John Hume, Attorney
Mr. Mark E. Lutz, Attorney



Mr. Lutz;

You know, everybody pats INFO on the back for having the guts to point out the turkeys...that is, until the turkey is their own.

I am genuinely sorry for the mistake I made regarding the shock-mounting on your drive (the correction is printed with the full review of your hard drive on page 56 of this issue). This error hurts INFO worse than it does you, tho, since it establishes the notion that we can make mistakes, no matter how thorough we try to be. Your hard drive, unfortunately, is only minimally redeemed by the fact that it is shock mounted; the serious problems of speed, backup time, directory management, and price remain unchanged.

As inspirational as your comments on free speech are, I don't see how they apply to our coverage your product. We are dedicated to informing consumers about the value and performance of products. Anyone who studies our past issues will see that INFO (more than any other national Commodore publication) does this without favoritism or regard to advertising implications. Your own exercise of free speech in your product brochure is interesting: the brochure uses phrases like "hi-tech", "affordable", "priced right for everyone!", and "can be utilized with all Commodore computers."- all descriptions which are more than questionable. Nowhere in the brochure do you advise the prospective customer of the actual data transfer rates or backup times, nor do you disclose the incompatibility of your drive with popular database software using relative files. Free speech indeed.

Your retail outlet's return of magazines which you had ordered, as well as the transparent use of copies to attorney speak for themselves.

It is our hope that a sincere company would take advantage of both the criticism and information gained from a negative review, and use it to improve a product to the point where we could truly recommend it. Please contact us when you are ready to take that test: you will find us more than fair.

Benn Dunnington

Better than Sex and most other Commodore magazines. The only one to get into detail about topics covered. Keep up the good work!

Jerry Patalano
Smithtown NY

Dear Jerry;

We're flattered, but not convinced.

-Benn



NEWS & VIEWS

FREWARE

The following three titles are being offered by their authors under the **freeware** concept. This usually means that the software can be copied and shared freely, but if you find it useful, you are asked to send a contribution to the author. This may entitle you to additional documentation, free updates, or other privileges. If you are distributing useful freeware, send **INFO** a review copy. We'll mention the most interesting titles in **News & Views**.

10-FIX

As reported in Issue #7, Broderbund's **Print Shop** program is not compatible with older Star Gemini 10 printers. Raymond L. Zarling has written a software fix that will alleviate this incompatibility. You just load and run his **10-FIX** program before loading in **Print Shop**. He is offering it as freeware if you can find a copy, but will also make a copy and mail it to you for \$12.50. Write him at 245 Wiley Ct., Turlock CA 95380.

JUBILEE

Jubilee is a very unusual program, integrating a screen-oriented color notepad/diary with time-and-date stamping and an "avante-garde" music-composition program. You can get a copy by sending a blank disk (and courteously enclosing return postage) to its author, Monty Lee Stark, at PO Box 1813, Surprise AZ 85374

HAL'S BBS

Hal's BBS is a complete bulletin board system for the Commodore 64. It supports Punter protocol, bulletins, mail & messages, upload/download, and has many other features. The disk also includes terminal programs for HES and CBM modems. Contact: Richard Buchanan, 3621 Wyoming, Kansas City MO 64111

B128 USERS GROUP

B128 USERS GROUP

The **Chicago B128 Users' Group** offers a newsletter, program library, technical manuals, meetings, and user support for the orphaned **Commodore B128** computer. A membership/subscription is just \$10/year. Contact them c/o Norman Deltzke, 4102 N. Odell, Norridge IL 60634.



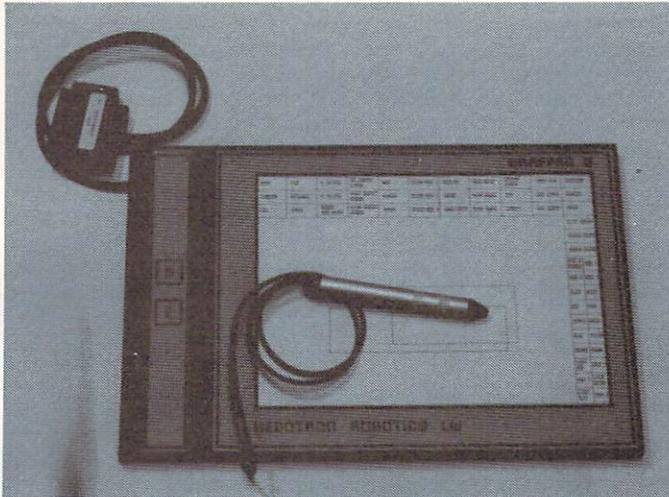
40/80 SWITCH

The C128 produces both C64-style composite 40-column and marvelous 80-column RGB color video outputs. Using them both generally requires two cables and two monitors. To alleviate this problem, Microvations has come up with a switched cable assembly which allows you to select 40-column color or 80-column **monochrome** outputs on a standard composite color monitor. The results on a 1702 or equivalent monitor are more than adequate for most applications. The **40/80 Column Switch** is \$14.95, available from: Microvations, 8920 Arcturus Way, San Diego CA 92126 (619) 291-2722.

MACH 128

MACH 128 is a **Commodore 128**-compatible enhancement of Access' excellent **Mach 5** cartridge for the **Commodore 64**. **Mach 128** gives a C128 or C64 five times faster program loads from a 1541 disk drive, or much faster burst speed loads from a 1571. It provides ROM-resident DOS wedge enhancements in all modes of C128 and C64 operation (except C128 CP/M) and printer screen dumps in both 40 and 80 column modes. Additional support utilities on disk provide for 4K of BASIC 2.0 memory expansion and disk cataloging and organization. Physically, the cartridge gives you a C128/C64 mode select switch and a reset pushbutton. **Mach 128** is \$49.95 from: Access Software, 2561 South 1560 West, Woods Cross UT 84087 (801) 298-9077.





GRAFPAD II

Educational Systems International is importing Great Britain's **Grafpad II** for the Commodore 64. This graphics tablet provides you with an 8.5"x11" active graphics area with a resolution of 1280x1040 pixels, much greater than the C64 screen, and is said to be capable of sensing up to 2000 coordinate pairs per second. It comes with a full-featured drawing program. At \$149.95, **Grafpad II** seems to offer a real price breakthrough in hi-res digitizer tablets. Available from: Educational Systems, 1311 Page Ave., Sutherlin OR 97479.

CARDCO TECH

Our old friends at **Cardco** have come up with a new "phantom cartridge" approach to ROM-based software that they call **StealthTec**. This technique allows utility programs to reside in ROM cartridges virtually invisible to running programs. **StealthTec** cartridges will even have a pass-through connector to allow them to work with other cartridge programs! Cardco's initial application of this technology comes in the form of two utility programs. The first, **Freeze Frame**, is a screen-dump utility that they claim will run undisturbed with virtually all other programs, ready at the press of a key to print out a hard copy of the screen to a wide variety of printer/interface combinations. The second planned **StealthTec** product will be a **Sidekick**-type utility program offering a calculator, memo writer, screen dump utility, DOS functions, telephone directory, database, appointment calendar, and more. (And may we add, it's about time **somebody** did! We hope it works great and makes Cardco a fortune!) If you are a software developer, Cardco plans to offer the **StealthTec** technology for licensing by other firms. If interested in any of these products, contact: Cardco Inc., 300 S. Topeka, Wichita KS 67202 (316) 267-3807.

MSD SERVICE

Now that **MSD** has given up the ghost, many MSD owners (including us) are wondering where they can go for service. HBH Corporation informs us that they carry an extensive stock of MSD parts and plan on providing service for the MSD well into the future. They tell us they charge a very reasonable \$35/hour bench fee for repairs, plus parts. Contact them at 225 W. Main St., Collinsville IL 62234, or call toll-free (800) 448-5819.

COMAL UPDATE

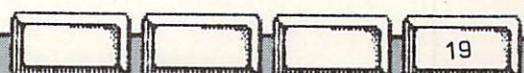
COMAL just keeps getting better. **COMAL TODAY DISK #9** includes a routine for cartridge-based **COMAL 2.0** that will take any **COMAL** program and convert it into a package. This means it will reside concurrently in memory with the **COMAL** system, taking up no additional RAM. It can even be burned into an EPROM. Meanwhile, you can load and run other **COMAL** programs that are even able to call the "packaged" program, and its functions and procedures! For more info, write (note the new address): the **COMAL Users' Group USA, Ltd.**, 6041 Monona Dr., Madison WI 53716.

CBS MAKES MOVE

CBS Software has joined the growing ranks of those bailing out of the home computer software publishing field. They have renamed their software division **CBS INTERACTIVE LEARNING** and will concentrate instead on the school and college educational software market. Since that's where everybody else seems to be moving (at least those that haven't quit outright) we wish them luck.

INFOWORLD AWARDS

Infoworld has named **IBM's Token Ring Network** the **Best Product of 1985** in its latest annual Product of the Year Awards announcement. Bucking the MS-DOS chauvinism that apparently kept it out of the running for that award, the **Amiga** won the **1985 People's Choice Award**, voted that honor by **Infoworld's** readers, not staff. The **Atari 520 ST** got the **Hardware Value of the Year Award** for giving 16-bit power an under-\$1000 price tag. **Apple's Laserwriter** copped the **Hardware Product of the Year Award** for the innovation it is bringing to computer printing and publishing. **Infoworld's** four big hardware awards went to the four biggest personal computer manufacturers. Is that balanced journalism, or what?

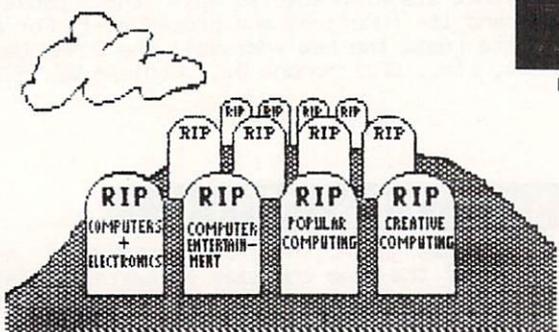


SUBLOGIC STUFF

HEFTY POWER

The C64 power supply is marginally designed, to say the least, and is prone to blowout. Fortunately, several third-party vendors are marketing tougher replacements. The latest is a heavy-duty, surge-and-spike-protected, metal-cased, repairable unit from HBH. It also features a handy on-off switch and two convenience outlets. For more INFO, contact HBH at 225 W. Main St., Collinsville IL 62234, or call toll-free (800) 448-5819.

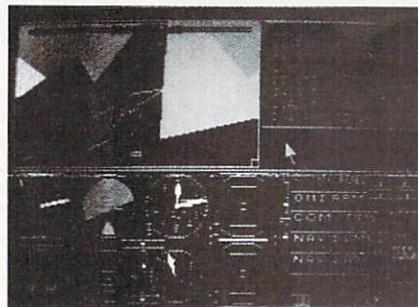
Flight Simulator for the Amiga is slated to be released sometime in January. Sublogic is calling it a "third generation" flight simulator, as the 16-bit versions have many impressive improvements over previous releases. Among the changes is an option to fly the standard **Flight Simulator** Cessna 182 airplane or a 500 mph **Lear Jet!** The display has been vastly modified, too. The Editor Page has been replaced by pull-down menus. Scenery displays now feature solid 3D objects. On the main display you can watch two or more 3D views, including radar and views from the control tower and a "spotter plane". All views can be zoomed from 1x to 4000x magnification. Imagine watching yourself buzz the control tower at 500 mph in a Lear Jet from both the airplane's and tower's point of view at the same time! Amiga **Flight Simulator** should be a spectacular product.



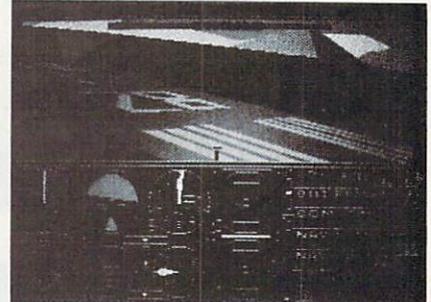
COMPUTER PUBLISHING GRAVEYARD

RIP CREATIVE

We would like to offer our sincere condolences to Dave Ahl and the staff of **Creative Computing** on the unfortunate and untimely demise of their excellent publication. This granddaddy of all personal computer magazines was killed off by publishing giant Ziff-Davis because of declining ad revenues. Throughout its eleven-year run, **Creative** chronicled the home computer industry with insight and honesty; there could be no better history of personal computing than a complete collection of **Creatives**. Though it got thin in its last year, we cannot forget those early days when it was a lone voice in the wilderness, heralding the age of the personal computer against the outcry and objections of short-sighted mainframe pharisees. It will be sorely missed.



FLIGHT SIMULATOR - Spot Plane View



FLIGHT SIMULATOR - Multiple Solid 3D Objects

Sublogic says that **Jet**, their incredible jet airplane simulator, will be available for the **Commodore 64** by the end of December. **Jet** gives you the option of flying either a land-based F-16 fighter or a carrier-based F-18. At speeds approaching 1300 miles per hour, you maneuver over simulated terrain in a variety of combat missions. Your jet is equipped with a full complement of operational instruments, weapons systems, and controls. All of this combines to make **Jet** a real experience. The retail price is \$39.95.

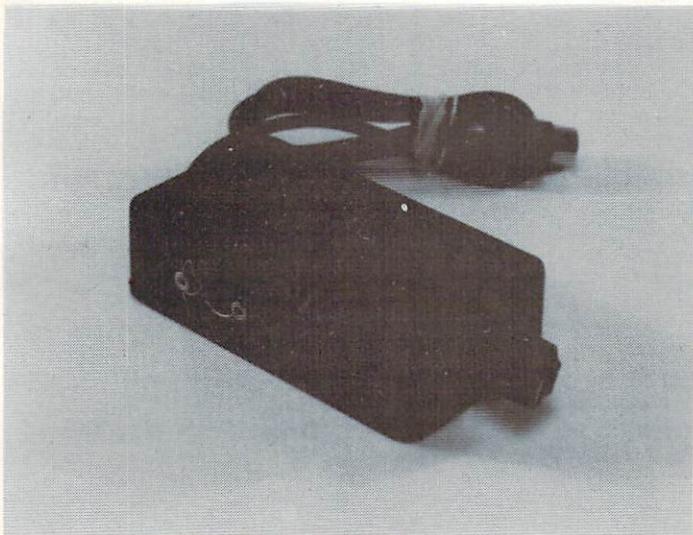
Sublogic has also released twelve scenery disks for **Flight Simulator** and **Jet**. These allow you to "fly" over different geographical areas of the United States. Sublogic's scenery disks give you a view of the highways, waterways, and other major geographic features of an area, including important landmarks and all major airports. Each disk is \$19.95, or you can buy a set of six disks for either the Western United States or the Eastern portion of the country for \$99.95. **Jet** and the **scenery disks** are available from: Sublogic, 713 Edgebrook Dr., Champaign IL 61820 (800) 637-4983.

Sublogic is being very secretive about a new project called **SPACE**. From the hints they've dropped, this program would seem to be a **simulation of an interstellar starship**, complete with **Flight Simulator**-style scenery involving whole star systems! Just the scope of this project, under the leadership of the author of **Flight Simulator**, Bruce Artwick, has us excited! If anyone can do justice to this ambitious a project, we think Sublogic can. Watch for it in '86.



ABS	CSRLIN	FIELD	LLIST
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AND	CVI	FIX	LOC
APPEND	CVL	FN	LOCATE
AREA	CVS	FOR	LOF
AREAFILL		FRE	LOG
AS	DATA	FUNCTION	LPOS
ASC	DATES		LPRINT
ATN	DECLARE	GET	LSET
	DEF	GOSUB	
BASE	DEFDBL	GOTO	MENU
BEEP	DEFINT		MERGE
BREAK	DEFNG	HEX\$	MID\$
	DEFSNG		MK\$
CALL	DEFSTR	IF	MKIS
CDBL	DELETE	IMP	MKLS
CHAIN	DIM	INKEY\$	MKSS
CHDIR		INPUT	MOD
CHR\$	EDIT	INSTR	MOUSE
CINT	ELSE	INT	
CIRCLE	ELSE IF		NAME
CLEAR	END	KILL	NEW
CLNG	EOF		NEX
CLOSE	EQV	LBOUND	NOT
CLS	ERASE	LEFT\$	OBJECT.AX
COLLISION	ERL	LEN	OBJECT.AY
COLOR	ERR	LET	OBJECT.CLI
COMMON	ERROR	LIBRARY	OBJECT.CLOSE
CONT	EXIT	LINE	OBJECT.HI
COS	EXP	LIST	OBJECT.OF

OBJECT.ON	RANDOMIZE	SUB
OBJECT.PLANES	READ	SYSTEM
OBJECT.PRIORITY	REM	TAB
OBJECT.SHAPE	RESET	TAN
OBJECT.START	RESTORE	THEN
OBJECT.STOP	RESUME	TIME
OBJECT.VX	RETURN	TIMER
OBJECT.VY	RIGHT\$	TO
OBJECT.X	RND	TRANSLATES
OBJECT.Y	RSET	TROFFTRO
OCT\$	RUN	TRON
OFF		UBOUND
ON	SADD	UCASE\$
OPEN	SAVE	USING
OPTION	SAY	USR
OR	SCREEN	
OUTPUT	SCROLL	VA
	SGN	VARPTR
PAINT	SHARED	
PALETTE	SIN	WAIT
PATTERN	SLEEP	WAVE
PEEK	SOUND	WEND
PEEKL	SPACES	WHILE
PEEKW	SPC	WIDTH
POINT	SQR	WINDOW
POKE	STATIC	WRITE
POKEL	STEP	
POKEW	STICK	XOR
POS	STOP	
PRESET	STR\$	
PRINT	STRIG	
PSET	STRINGS	
PUT	SWAP	



\$ SAVER

Do you have two computers but only one disk drive? How about one computer but two printers? Or a computer, printer, and plotter? If you are in this unenviable position, you have had to swap serial buss cables more often than you would like to remember. The \$ Saver Switch from Value-Soft was made to remedy the problem of not enough serial ports. It's a box with one serial cable, a two-position switch, and two serial ports. Depending on how you hook it up, it can solve all the problems we mentioned with the flick of a switch. The \$ Saver Switch is \$29.95 from: Value-Soft, 9513 SW Barbur Boulevard, Portland OR 97219 (503) 246-0924

AMIGA BASIC

The BASIC released with the first wave of Amigas is ABASIC and it has problems. ABASIC is a translation of a multitasking BASIC from Arktronics, ported over with minimal translation from a mainframe system, and it has all the attributes of the dinosaur it came down from. Commodore knew this; they included ABASIC only because they wanted to be able to say that BASIC came with the Amiga.

About the time you get this copy of **INFO**, Commodore will start shipping new Amigas with Microsoft BASIC. This version of BASIC is not only better, but the folks at Microsoft consider it the best BASIC they have ever written. Commodore should get a firm pat on the back for 'fessing up to the inadequacies of ABASIC and remedying the problem so quickly with what appears to be such a quality replacement. They could have just ignored the problem and hoped it would go away. I hope they continue to give the Amiga this kind of support.

Since we just got a copy of Microsoft BASIC in at presstime, we obviously can't review it. In the next issue we'll have a side-by-side look at Amiga Microsoft and Atari ST BASICs. But we do have some preliminary information we can share with you, and we think you'll agree it looks like a winner!

A scan down through the keyword list indicates that Amiga Microsoft BASIC directly supports windowing, sound, speech, graphics (including lines, circles, fills, etc.), the mouse, error trapping, blitter objects (bobs), sprites, and machine code library calls. A simple 19-line program in the preliminary documentation is all that is needed to draw a sphere on the hires screen and then move the image anywhere on the screen using the mouse.

This is also a structured language; line numbers are not used or needed. GOTOS and GOSUBS reference labelled lines, much like COMAL. In fact, with its IF..THEN..ELSE and WHILE..WEND structures, this is almost more COMAL than BASIC.

Microsoft BASIC appears to offer easy access to all of the Amiga's special functions. Look for our full review next issue.





AMIGA SOFTWARE

The first big wave of Amiga software is hitting the stores as this is written. These are the titles that really exist: There are Amiga versions of **Hacker** and **Mindshadow**, two graphic action-adventure games from Activision, Drawer 7286, Mountain View CA 94039....The **Rags to Riches** modular accounting package features payroll, ledger, receivables, and payables at under \$200 per module, from Chang Labs, 5300 Stevens Creek Blvd., San Jose CA 95129....There are enough C programmer's support products coming from Lattice to make programmers really feel like Christmas is here. If interested, contact Lattice at PO Box 3072, Glen Ellyn IL 60138 (312) 858-7950. (The **Lattice C Compiler** itself is being marketed by Commodore.) The **Lattice Screen Editor** lets you edit two files concurrently in separate windows while supporting many special features for programmers (\$100). The **Make Utility** (\$120) emulates the Unix make rebuilding utility on the Amiga. The **Lattice MacLibrary** is a \$100 C programmers function library of Macintosh-like routines for the Amiga. **UniCalc** is their \$79.95 full-featured spreadsheet program (no details yet). The **dBC III** C function library provides indexed file-handling support for dBase-compatible files (\$150). Their screen design and management package is \$195, and it's called **Panels**. The Amiga version includes audio help! For \$75 you can also get a library of C **Text Utilities**. Lattice seems to be pricing the Amiga versions of their software at \$50-\$100 less than the IBM PC versions....MaxiCorp has released **MaxiComm** (\$50), which is an elementary terminal program for both telecommunications and file transfer. Its major purpose would seem to be to allow you to transfer your Macintosh and/or IBM PC files to the Amiga (and vice-versa), though it does allow you to work the phone nets, too. They have also introduced a \$70 **SideKick** clone called **MaxiDesk**. For more INFO on these, contact: MaxiCorp, 2817 Sloat Rd., Pebble Beach CA 93953 (408) 625-4104....Electronic Arts says **Deluxe Paint** will be on the shelves by the time you read this, to be followed shortly by **One-On-One**. A fistful of others are in the wings. EA resides at 2755 Campus Dr., San Mateo CA 94403 (301) 366-8138.

New Amiga stuff is being advertised all the time. Among the latest are not one but two Forth language compilers from different companies. UBZ sells their

Forth-83 version w/extensions for \$85 (UBZ Software, 395 St. Albans Ct., Mableton GA 30059 (404) 948-4654). The creators of **MacForth**, Creative Solutions, have come up with (what else?) **AmigaForth**. Get in touch with them at 4701 Randolph Road, Suite 12, Rockville MD 20852....If you are a C developer but prefer Manx C to **Lattice C**, Manx has announced three different versions of their compiler for the Amiga, ranging in price from \$199 to \$499. Their Toll-Free number is (800) 221-0440....Island

Graphics has sold the paint and animation programs they had under development to Aegis Development, 2210 Wilshire Blvd., Suite 277, Santa Monica CA 90403 (213) 306-0735. They are now called **Aegis Images** and **Aegis Animator**, with "a combined price of under \$140". According to Aegis, Universal Studios will be using the **Images/Animator** combination to produce titles and effects for films and music videos. They've also got a 2D professional CAD system coming after the first of the year for \$199 called **Aegis Draw** that supports windows, zoom, layered drawings and more. A later 3D CAD-CAM version in the \$600-\$1000 range is promised for May or so. It will **directly control** a milling machine to **produce actual prototypes** from 3D engineering drawings!...**AmigaTERM** at \$69 and **AmigaMAIL** at \$99 are, respectively, an Amiga terminal program and a bulletin board program (!). The BBS is even configured to run under Workbench, so it can run in the background while you do something else. Contact: Micro-Systems Software Inc., 4301-18 Oak Circle, Boca Raton FL 33431 (800) 327-8724....Par Software of 1053 Seventh Ave., Longview WA 98632 (206) 425-9626, is pushing three financial packages for the Amiga. **ParHome** is a home financial package for \$69, **ParBiz I** a \$129 business program collection, and **ParReal I** at \$129 provides real estate-related functions....Lionheart is translating their line of business and statistical titles for the Amiga, including **PERT Analysis** and **Linear Programming** programs in the \$90-\$150 range. For more INFO, contact Lionheart at PO Box 379, Alburg VT 05440 (514) 933-4918....Every machine needs a good machine code monitor, and that's what **The Explorer** promises to be, plus some. It's \$20 from Interactive Analytic Node, 2345 W. Medicine Lake Dr., Minneapolis MN 55441 (612) 871-6283....Computer Solutions, PO Box 354, Mason, MI 48854 (800) 874-9375 offers a **Sampler Disk** of ten game, business, and utility programs for the Amiga for only \$8. They say they'll have lots of similar disks available for \$9.95 each....**VIP Professional** is a Lotus 1-2-3 clone from Shanner International Corp. that is available for not only the Amiga, but the Atari ST, Macintosh, UNIX computers, Apple][, and IBM PC. At \$199, it's got 1-2-3's price beat, at least! Their Toll-Free number is (800) 828-8637....Two Amiga-compatible graphics tablets are being marketed by Kurta Corporation. The **Series ONE** is available in three sizes, 8.5"x11", 12"x12", and 12"x17". The less expensive **Permouse+** features a cordless pen, and can function as either a graphics tablet or mouse substitute. Their address is: 4610 S. 35th St., Phoenix AZ 85040 (602) 276-5533....One nice-looking set of **GIZMOZ** is coming from Digital Creations. **GIZMOZ** are Workbench-compatible tools like the **NoteBook** that comes on the Workbench disk. For \$49.95 you get 15 tools, from a Rolodex to a set of three (!) calculators, to pop-up reference cards. It's due sometime in January. Contact Digital Creations at 530 Bercut, Suite F, Sacramento CA 95827 (916) 446-0270.

Whew! Of course, the major objection to owning an Amiga is that it has no software available for it, and it's just a game machine anyway.....



Magazine Index

The best articles
in home computer
magazines Oct-Dec

We know you don't have time to read all the computer magazines; WE don't have time to read all the computer magazines (though we try). In the interest of making life a little easier for you, **INFO** will be scanning the periodicals of greatest interest to Commodore owners every month and presenting an index of Stuff You Don't Want To Miss.

The October **AHOY!** has a good article on DOS copy protection schemes, and a type-in shaded hires screendump utility program that looks interesting. The November issue includes a tutorial on machine language graphics and a type-in sprite animation utility. The December issue contains reviews of IEEE interfaces by Morton Kevelson and a file encryptor type-in utility program. All three issues also have some fine stuff from **AHOY!**'s resident guru Dale Rupert.

AMIGA WORLD for Nov-Dec contains an informative look at MIDI by **INFO** contributor Peggy Harrington, and an overview of C on the Amiga by Sheldon Leeman. The Digital Canvas graphics section is, as always, a treat for the eyes.

The November **BYTE** is a graphics hardware issue, and includes an excellent and informative interview with Jay Miner, the designer of the Amiga's custom chips. **BYTE** looks to be committing itself to the Amiga.

Look at the ergonomics article in the October **COMMODORE MICROCOMPUTING** for not one but three pictures of the famous **INFO** Ergboard! There is also a pro-and-con discussion of the AFL-CIO's stand on cottage computing. The Nov-Dec issue has a roundup of the best hardware and software of 1985, a comparison of C64 wordprocessors, and a type-in utility program called Multiscreen.

The October **COMPUTE!** has an introduction to expert systems, as well as the first installments of two-part articles by Jim Butterfield on the dynamic keyboard and Phil Slaymaker on the save-with-replace DOS bug. The November issue finishes these two-parters and has an excellent article by Charles Brannon on how the Amiga graphics system works. The December **COMPUTE!** has a tutorial by Butterfield on programming custom characters on the C128, as well as updates and bug fixes for their MLX loader and Speedscript wordprocessor.

COMPUTE'S GAZETTE continues its emphasis on type-in programs with the X BASIC extension and BASIC syntax checker in the October issue, and Preview-80 for Speedscript in November. The December issue continues with yet another Speedscript support program, this time a spelling checker.

COMPUTER SHOPPER (which is much more than just a "Penny Saver" for computerists) has articles on the Amiga and C128 CP/M in the October issue. A 520ST hands-on report and an article on Commodore service and support are included in the November issue.

The October issue of **THE GUIDE** has an article by Peggy Harrington on the Emmy-award-winning Time Processor program for the Commodore 64.

THE MIDNITE SOFTWARE GAZETTE, though down to 16 pages, is now monthly and still hits out with meaty information. The September issue includes reviews of SM-Kit, On Track, Connections, Hacker, and others, as well as an article outlining the 65C02 instruction set.

The November issue of **PERSONAL COMPUTING** contains an interesting interview with Dennis C. Hayes, of Hayes modem fame, plus the second installment of a series on natural language (AI) systems.

POPULAR COMPUTING is no more; the December issue will be its last. But the November issue has articles of interest by authors of note, including Steve Levy being down on the Amiga, Jerry Pournelle on portable computers, and a couple of articles on publishing with microcomputers that we found very interesting. There is also a review of the Perfect series of software on the IBM, which is still promised but not yet available for the C128.

Commodore's **POWER PLAY** for Oct-Nov has an article on C64 tutorial books and programs.

The November **RUN** contains two type-in utility programs that are of some interest: a hires screendump and a program called Wedgemaker, which will turn specially-written BASIC programs into wedge-type applications.



MULTI

MULTI

MULTI TASKING

There are some practical limitations to multitasking on any computer....

WHAT TO EXPECT FROM MULTITASKING

Multitasking on the Amiga is a wonderful thing. You can have two, three, or many more programs running in different windows at one time. (We've run up to a dozen at once!) It's really great to be able to have a clock in one window, a wordprocessor in another, and a graphics program in a third, all running at the same time. Once you start multitasking, you won't be able to imagine how you got along without it. However, there are some practical limitations to multitasking on any computer; it is not the answer to all problems. Here's a brief overview of the limits to multitasking on the Amiga.

First, a multitasking computer has to have enough memory to be able to load all the programs you want to be able to run. If you have a 256K Amiga, you obviously cannot load in two 256K programs at once. The more memory you have, the more programs you will be able to handle. Fortunately, if you have the need to run several memory-hungry programs concurrently, the Amiga's memory can be expanded to 8 megabytes, more than enough to handle almost anyone's needs.

Second, certain tasks take up quite a lot of the computer's cpu time. Some operations, such as speech synthesis, are very time-intensive. On the Amiga, speech synthesis is given priority by the multitasking environment, and will slow down other applications which are running at the same time. If it didn't, the computer's speech would slow down and sound funny. Other critical operations, such as disk accesses, may also steal some time and slow down program speed at intervals. Much depends on the priority the system allocates to the task. The Amiga's three custom LSI chips take a lot of the load off of the system to minimize these considerations, but they still can slow down your computer under certain conditions.

Third, some applications are very memory-intensive. Graphics are especially so. A full 640X400 hold-and-modify display screen takes up 196K of memory. With windowing, animation, sprites, etc., on a limited memory system you can soon take up enough memory to seriously impact your ability to multitask at all. 512K is our recommendation for a minimum serious multitasking environment on the Amiga. And if you have 1 megabyte or more of outboard RAM, the operating system dedicates the entire 512K of on-board RAM to graphics. This should relieve even the most graphics-intensive applications.

Fourth, the more applications you run, the slower they will go. Your Amiga runs at almost 8 megahertz. Multitasking works by splitting the cpu's time among applications, a few microseconds at a time, to give the illusion of having them all running concurrently. If you have two applications running at once, they will each be running at about half speed, or approximately 4 megahertz. Four applications divides the effective speed down to 2 megahertz. With 8 programs running concurrently, the speed of each is roughly equivalent to running them at 1 megahertz on a Commodore 64. If you are doing word processing, or other non-time-critical things, this is no great concern. But the slowdown on spreadsheet calculations or database sorts can be quite noticeable.

Fifth, not all programs will load and run under WorkBench, the Amiga's multitasking environment. For example, the Electronic Arts **Kaleidoscope** demo supplied with the Amiga does not load in under WorkBench, but **in place of** WorkBench. It will not allow itself to be part of a multitasking system. This is apparently some type of misguided copy protection scheme. I just hope that most software publishers will see how ridiculous it is to write software that doesn't allow multitasking for a computer that does.

Sixth, and finally, the number of input and output devices your computer has is limited. Though you can output to several video windows at once, you can only output to one printer; you cannot have two applications trying to use the printer at once. The same goes for the mouse, the keyboard, the modem, etc. You can have each program query these devices in turn, but you can't have two programs using the same peripheral at once.

Once you understand that multitasking can't do everything for you, you can better appreciate what it can do. It can perform a database sort in the background while you continue editing letters. It can give you access to a notepad, calculator, clock, address book, etc., while you work on a spreadsheet. It can let you keep all your programming tools loaded up and running, accessible at the touch of a key. These are the strengths of a good multitasking environment. And the Amiga does it better than any other personal computer, bar none.



A NOSTALGIC LOOK BACK AT THE

COMMODORE 128

SALES AND STATUS

The C128 looks like it's going to be a good seller for Commodore. Most of the retailers we've talked to are still having trouble keeping them on their shelves; they're in short supply and high demand. Initial results from our reader survey in the last issue indicate that at least a third of our readers are planning to purchase a C128 in the next year. Commodore is projecting a profit next quarter, its first in over a year, based on expected C128 and Amiga sales. (The Amiga seems to be drawing a lot of Commodore's advertising and promotional resources away from the C128, and that may keep Commodore from selling as many C128s as they could have.)

With the C64 being sold right next to it at half the price, we don't expect the C128 to show the total sales the C64 did (5 million units!).

With the C64 still being sold right beside it at half the price and a smaller home market now, we don't expect the C128 to show the total sales the C64 did, though it still should be able to hit the million mark. With capabilities similar, even superior, to the Apple IIc, it should grab a percentage of the Apple market, especially among consumers with a tight budget. (We may do a comparison of the C128 and IIc in a future issue.)

You can find the C128 in the stores now if you are persistent, though we have yet to see them stacked ceiling-high like the unsold Atari 800s at K-Mart. If you want a 1571 disk drive, you will have a tougher time of it. The local K-Marts each have one unit, but most of the stores we've talked to can't seem to get them. The 1572 dual drive has been cancelled; Commodore does not have the inclination or resources to produce it. The 1902 monitor is just beginning to be delivered to retail outlets as we write this (mid-November), though we still haven't received our review unit from Commodore. Commodore has not shipped the RAMdisk, though both the 256K and 512K units are in the Sears Christmas catalog. The 256K unit is supposed to be ready by the time you read this. Also in the Sears catalog but still not delivered is the Commodore mouse.

We are just now seeing C128-specific software coming to market (see the C128 software preview in this issue). We expect to see more productivity titles as time goes by, though the prospect for C128-specific games looks dismal. Developers are not likely to write for the C128 specifically when a C64 game will run on both machines.

The C128 may become the most popular CP/M machine of all time.

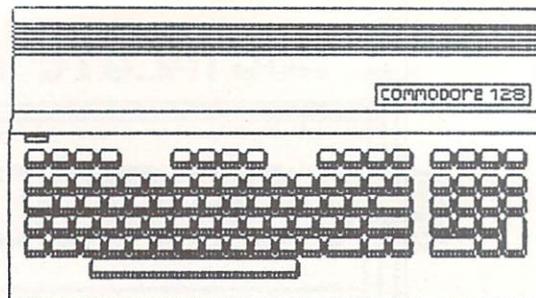
The CP/M market should take notice of the C128; it may, in fact, become the most popular CP/M machine of all time. Whether or not most people actually use C128 CP/M is highly dependent on software availability. Most of the big software companies have moved away from CP/M in favor of IBM-compatible MS-DOS. DBase II, for example, is no longer available in CP/M 5.25" formats. But even if you could find it, the rationale of spending \$700 for a program to run on a \$300 computer is a bit questionable. If Commodore would license and make these titles available at a reasonable cost, they could sell three times as many C128s as they will otherwise. In the meantime, the third-party CP/M developers are already taking notice of the C128, and should be translating and updating their products to take advantage of its color graphics and extra memory.

GUTS AND GLITCHES

Now that we've worked with it awhile and gotten our perspective, here are some observations on the C128:



C128 UPDATE cont'd



The native BASIC 7.0 is really powerful...it is also about 25% slower than 2.0

(1) The CP/M mode is not the supersystem it could have been, though it works fine and is more than adequate for most tasks, especially considering what it costs you (\$0.00). In the first place, only 59K is available for program area. The MMU (Memory Management Unit) is switched in, so you can write programs that use the full 128K, but off-the-shelf applications cannot access more than 59K. Second, CP/M disk I/O transfer rates spec out high, but that is deceiving. I/O is swapped out from the Z-80 chip to the 8510 cpu and back again when disk I/O is performed, a process that steals enough time to make the system run slower. With a 1571 disk drive, it is probably still fast enough. The main problem you'll run into with disk speeds concerns MFM formats. Though the 1571 can work with Kaypro, Osborne, IBM CP/M-86, C64 CP/M, and Epson formats, it slows down to a snail's pace. The only way to achieve full speed is to format a disk for 1571 CP/M and transfer your files onto it. Another factor that affects system speed is the 2 megahertz Z80 chip. Though this is twice as fast as the C64, it is only half as fast as the 4-mhz Z80A systems many users are used to. They will be disappointed in the C128's CP/M speed.

The C128 is ALMOST totally compatible with the C64...

(2) The C128 is almost totally C64 compatible in C64 mode. The cartridge slot behaves just a little differently, which causes a few specialized cartridge-based programs to go to lunch. Specifically, *Isepic* and other cartridges that use "phantom cartridge" techniques won't work. Also, the 1571 disk drive is not totally 1541 compatible, which is the reason that *Fast Hack'em* and some other programs that upload fast disk routines to the drive won't work with it, though they will work with a C128 in C64 mode if it's using a 1541 drive. Another potential source of incompatibility arises from the fact that a security dongle will not fit in joystick port #1, due to the way the plastic case is formed. (This is easily remedied by using an extension cable, however.) The cassette port, often used to supply printer interface power, is positioned so that it interferes with the cartridge port if a wide cartridge, like the *BusCard II*, is inserted. Also, the *BusCard* and other products that require internal connection to the circuit board may not be able to find the spots they need to connect to on the board. *BusCard* works without the internal connection, but it is not as transparent to all software as it is with it hooked up. Besides that, the *BusCard* or any other parallel IEEE interface designed for the Commodore 64 forces the C128 into C64 mode. You can't use an IEEE disk drive or printer in the C128 mode unless you use a slower serial-to-IEEE interface off the serial buss.

(3) The native C128 BASIC 7.0 is really powerful, and includes all the commands from previous Commodore BASICs. It is also about 25% slower than C64 BASIC 2.0. Whenever you expand BASIC, it slows down. Most people don't realize that C64 BASIC is slower than VIC20 BASIC for similar reasons. The argument here is that the added power makes up for the slower execution; drawing a hires circle with the *CIRCLE* command in BASIC 7.0 is still alot faster than *POKE*ing it in BASIC 2.0. It is also mostly *PEEK* and *POKE* compatible with C64 BASIC, so many of your programs will work in C128 40-column mode unchanged.

(4) The keyboard and editor are marvelous. The keypad is a much-appreciated feature (even without * and /), and the *HELP*, *TAB*, *ALT*, *ESC*, etc. keys are really useful in the right program. The editor, with its windowing capability and *CONTROL*-key editing commands, as well as 160-character BASIC lines, is an improvement on the C64's already excellent screen editor. The *RESET* switch is another nice addition. You get used to 80 columns fast, too.

WHAT NEXT?

The C128 is a nice eight-bit machine, and as such it should generate more than adequate funds for Commodore and fun for Commodore users. But Commodore pioneered no new territory with the C128; they just glued together the best of their old stuff. Over the long run, we expect the much more advanced Amiga family to put turkey on the table at West Chester. After an initial flurry of sales, maybe even as many as a million units, we expect Commodore to quit making C128s, perhaps even before they quit making C64s. (But don't let this dire prediction keep you from buying one: you are still getting alot for your money in a C128, not the least of which is C64 compatibility.) We might even predict an inexpensive entry in the Amiga line as the next generation low-end Commodore machine in a year or two. The PET series (which really includes every machine Commodore built from the PET 2001 to the Commodore 128) has been a solid product line, and the C128 is a good machine. But it is the last of its kind.



C128 SOFTWARE

What's Available NOW?

C128 SOFTWARE: WHAT'S AVAILABLE NOW

It has taken a few months, but some software is finally coming to market for the C128. Of course, almost all Commodore 64 titles will run on the C128 in its C64 mode, but they don't take advantage of the C128's 80-column RGB output, extra memory, faster 1571 disk speed, or numeric keypad and other special keys. What we are talking about here are programs that use all of these C128 capabilities. And the good news is that some of the first programs available for the C128 are translations of some of the best tried and proven Commodore 64 productivity titles. What follows is a quick look at the software we've managed to get ahold of so far. We'll be publishing in-depth reviews of some of the more interesting titles in later issues.

BATTERIES INCLUDED

BI has translated its excellent **Paperclip** wordprocessor and **Consultant** database manager titles for the C128. Both retain the features and ease of use that make them favorites on the C64, while adding additional capabilities for the C128 mode. They have taken a unique approach in their marketing of these products; they are including both the C64 and C128 versions in the same package. Since BI uses a security dongle, they can be sure that only one version of the program can be used at one time. On the other hand, if you have a C64 and a C128, you will only have to buy **Paperclip** or the **Consultant** once, and you will be able to run on both machines alternately.

Paperclip 128 lets you switch between 40 and 80 columns without losing your text.

Paperclip 128 is unique among the wordprocessors here in that it allows you to dynamically switch back and forth from 40 to 80 column display without losing your text. Preview mode has been enhanced to allow viewing formats up to 320 columns wide. Text memory is, of course, much greater than the C64 version, allowing up to 499 80-column lines.

Consultant 128 loads up in either a 40-column or an 80-column version; there is no switching back and forth. The only real advantages offered by the C128 mode version are 80-column output and autoboot startup. Other than that, this version is identical to the new version 2.0 **Consultant** for the C64. This database allows multiple keyfields, and up to 9 screens, 99 fields, and 13 disk blocks of data per file. A couple of the utility programs, like **Supersort**, have not yet been translated and must be run in the C64 mode.

PRECISION

Progressive Peripherals, Precision Software's US distributor, has just received the C128 versions of Precision's **Superscript** wordprocessor and **Superbase** database manager. Both are worthy of the names they inherit from their excellent C64 predecessors.

Superscript includes a built-in calculator, spelling checker, and two help screens.

Superscript autoboots in either 40 or 80-column mode, depending on how you have the 40/80 column switch set when you power up. It incorporates a top-of-screen menu bar that can be used to select submenus of operations, from disk utilities to cut-and-paste editing. Once you get familiar with the system, menu selection can be bypassed by using single-keystroke commands. This wordprocessor also includes a built-in calculator, spelling checker, and two help screens. Its best feature is its ability to load **Superbase** into memory at the same time and switch back and forth between the two programs.



Several BASIC 7.0 commands have been added to Superbase.

Superbase is slightly improved over the C64 version. Besides integrating with Superscript, several BASIC 7.0 commands have been added to the program vocabulary. Its other major advantages are, of course, 80 columns in color and autoboot loading. Superbase is the most versatile C64 database manager, and would seem to retain its title (at least so far) on the C128.

TIMWORKS

Timeworks' initial offering on the C128 is a three-program series featuring the Word Writer 128 wordprocessor, Data Manager 128 database manager, and Swift Calc 128 spreadsheet. All are configured to work **only** on an 80-column RGB or monochrome monitor, though this is **not** made perfectly clear in their advertising or packaging; don't buy this series unless you have an 80-column RGB or monochrome display.

The Timeworks titles offer an operating environment that is consistent...from word-processor to database manager to spreadsheet.

These titles offer a user the luxury of a familiar pull-down-menu driven operating environment that is consistent from program to program. Once you learn to use one, the others are almost second-nature. The disadvantage is that you **must** use the menus; there is no command-key shorthand once you have mastered them.

Word Writer 128 offers variable line length, word wrap, cut-and-paste, and all the other standard wordprocessing features, as well as a spelling checker. Its 64K text area should be enough to give you a good start on that Great American Novel. The only really annoying habit Word Writer has is this: when you go into insert mode, the line you are inserting into just gets longer; it never wraps back onto the screen. If you insert until the line is over 250 characters long, you'll have to do a reformat-screen command before you can continue.

Data Manager 128 gives you up to 64 screens (!) in which to define a database of up to 100 fields and 4096 characters. It's too bad your text fields are limited to only 16 characters each; with 64 screens available, you could develop some really nice applications if you could include unlimited text on those screens. DM128 allows you to define some fields as "validate" fields, which must contain exclusive data. It can sort up to 10 fields deep, and includes statistics and bar chart capabilities.

The screenshot shows a menu on the left and a data table on the right. The menu options are: Format, Width, Move, Copy, Search & Replace, Memory Remaining. The data table has columns for 'CLUBBER', 'EUROPE', and 'HAWAII'. The rows list various expenses like 'GAS COST', 'CAR RENTAL', 'AIRFARE/PERSON', and 'TOTAL'.

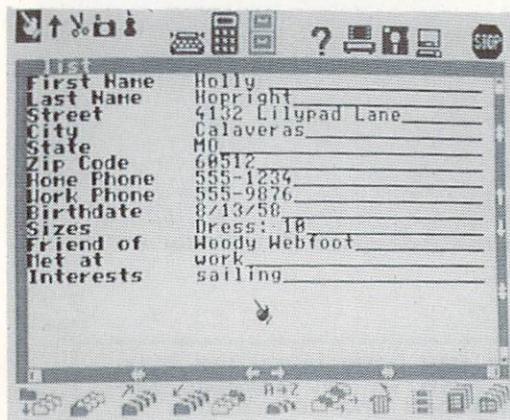
	CLUBBER	EUROPE	HAWAII
GAS COST	24.00	0.00	0.00
CAR RENTAL	0.00	0.00	40.00
AIRFARE/PERSON	0.00	0.00	700.00
AIRFARE TOTAL	0.00	0.00	1400.00
LOADING/CHY/PERSON	0.00	150.00	0.00
LOADING TOTAL	0.00	250.00	1300.00
TOTAL	24.00	250.00	1340.00

Swift Calc 128 from Timeworks is the **only** stand-alone spreadsheet program we've seen so far for the C128 (though Jane includes a very simple spreadsheet and Vizastar 128 is under development). This is a respectable program, offering a 250X250 spreadsheet that uses up to 17-digit math. Formula functions include IF..THEN..ELSE and MIN/MAX/AVG and financial calculations. Its graphics capabilities let you produce bar charts from your data. Sideways, which runs in C64 mode, is included to let you make wide printer dumps of your spreadsheet files.



ARKTRONICS

Commodore's first product for the C128 is **Jane**, developed for them by Arktronics, the same company that developed **Textcraft** for the Amiga. **Jane** is an integrated package, providing wordprocessing, spreadsheet, and database manager functions for one low price. The modules are not co-resident, and load from the systems disk as requested. The user interface is a mouse, joystick or trackball controlled pointer-and-icon environment, which makes operating **Jane** very easy. It also sometimes makes it very slow, but you can use control-key combinations for these functions once you become used to the system. **Jane** only runs in 40 columns.



Most integrated packages seem to sacrifice power for integration, and **Jane** does. None of the modules is as powerful as a stand-alone program would be. **Jane Write** is a pretty good little standard text editor with help screens, cut-and-paste editing, and on-screen display of boldface, italics, and underlining. The text can be shown in 40, 64, or 80 columns on a regular TV or monitor, though the 80-column is difficult to read and best suited only for viewing format.

Jane Calc is a small 26X50 spreadsheet. It has the basic SUM/AVG/MIN/MAX functions, and includes two sample formats. You are not going to be doing a lot of heavy duty work with **Jane Calc**, though it is probably enough to work out your household budget on.

Jane List impressed me as being a nice, functional list manager. Eight sample database formats for everything from recipes to addresses are available from the selection menu, as well as the capability to design your own. You can sort your database alphanumerically on any field. This is a cardfile-emulation type implementation, and you are limited to one screen of up to 15 fields. The icon environment makes it easy to use **Jane List's** find and sort functions. The report function includes mailing label output.

Jane is not heavy-duty, but with its icon environment, 40-column displays, and many help screens it should find some support among home users.

CMS SOFTWARE

CMS's General Accounting System is the first accounting software available for the C128. This package gives you general ledger, accounts receivable, accounts payable, payroll, billing, and job costing all in one nice-looking slipcovered package at one low price. The programs are all menu-driven and seem to be easy to get up and running. There is a sample data disk included to give you something to play with while you get used to the system. The four program disks are not copy-protected and may be backed up to floppies or hard disk. The manual is clear and concise, with a separate tabbed section and table of contents for each program module, but no index. The program produces output formatted for standard preprinted checks and forms, which can be ordered from CMS if you have no other supplier. CMS Accounting works with an 80-column RGB or monochrome monitor only. At first look, it seems to be a good, complete accounting system in one package.

WHAT'S NEXT

Promised soon for the C128 are **Vizastar 128** from Solid State Software, the C128 version of the best integrated package for the C64. They are also working on a **Vizawrite** wordprocessor program. As mentioned, Digital Solutions promises **Paperback Planner 128** (a spreadsheet) and **Paperback Filer 128** later this year, also. M&M Software has under development its **M&M FORTH/C128**, the only news we've had of an alternative language for the C128. A nifty utility package from Aquarian Software called **Matrix** will allow you to fastcopy on the 1571 and use the keypad, 80-column RGB display, and other C128 features from Commodore 64 mode, among other things. There are also a few games rumored to be in the planning stages, but we haven't heard anything solid.

I'm sure there's more software out there, but this is the full list of programs available or under development for the C128 that we are aware of at presstime. As you can see, there is still not much competition (except maybe for wordprocessors) for C128 developers. Since the C128 is selling like iced tea in Hades, maybe we'll see more companies, especially small, innovative companies, jumping on the C128 bandwagon soon. In the meantime, it's gratifying to see some of the "big boys" translating their best stuff to run on this fine machine.



THE 1571 DISK DRIVE SURVIVAL GUIDE

Commodore's new 1571 disk drive is a real improvement on the 1541. It is **8 times faster** (but only with the C128, not with the C64, unless you write some pretty fancy machine language routines) and offers **twice the storage capacity of the 1541** (but again, only on the C128, unless you use one of the tricks we mention later in this article). Some compromises have been made for the sake of 1541 compatibility, like the **limitation of 144 files per disk**. But in general, the 1571 at \$299 is a better deal than the alternative Commodore and third-party drives on the market. (It's our suspicion that the 5.25" IBM-PC compatible drive for the Amiga is nothing more than a reprogrammed 1571 with a parallel interface.)

1541 COMPATIBILITY

The 1571 has some subtle differences that make it **not totally compatible with the 1541**. Specifically, some speedup routines seem to really confuse it; the incompatibilities we've found so far involve speedups, fast disk copiers, and some fancy disk protection schemes. I suppose the companies that make such stuff will have to come up with 1571 compatible versions.

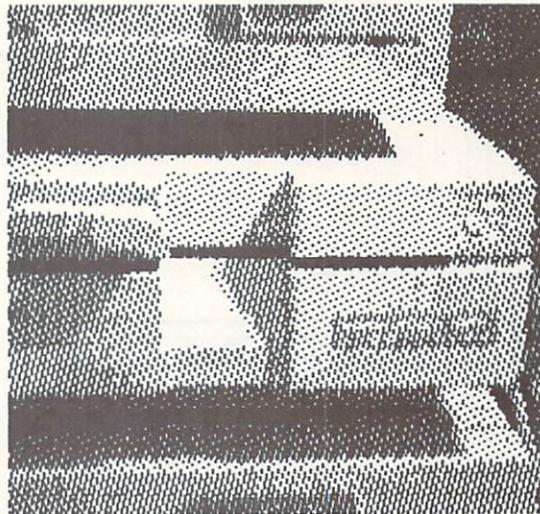
DOCUMENTATION

The 1571 manual tells you a lot. Most of what you need to know is in there, including some tricks that Commodore forgot to tell you in the past. For example, they finally mention the command to disable head knock. The disk that comes with the 1571 is a 1000% improvement over the 1541 TEST/DEMO disk (not hard to do), and even includes a marvelous **C128 DOS SHELL** which gives you menu-control over formatting, file copying, scratching and unscratching files, and other DOS functions. The disk also includes C64 and Plus/4 single-drive disk copy programs and other slick utilities.

PROGRAMMING THE 1571 MODES

In typical Commodore style, there's still a lot of good stuff just glossed over or hidden in the documentation, too. The best of this hidden information concerns **how to program the 1571's three modes of non-CP/M operation**. All are accessed by standard DOS commands which can be sent to the drive through the **OPEN 15,8,15,"command"**, DOS wedge **@command**, or program access (like PaperClip's CTRL/>) methods.

We've seen it reported that connecting 1571 and 1541 drives in tandem will force the 1571 into 1541 mode, but our tests show otherwise; the only things that force a 1571 into 1541 mode are: (1) hooking it up to a C64 or C128 in C64 mode, and (2) sending it a special DOS command.



You can force the 1571 to operate in double-sided mode from a Commodore 64....

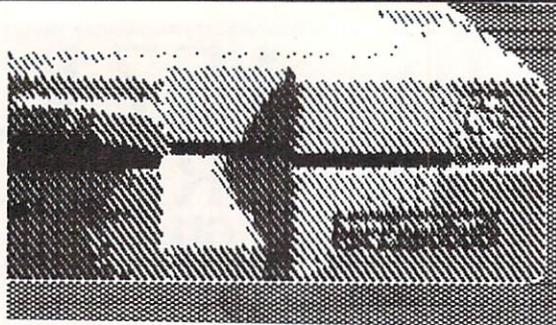
If you are in C64 mode (or using a C64), the drive goes into 1541 mode, and will even report a 1571 double-sided disk as being in 1541 single-sided format. Since this is less than desirable, **you can force the 1571 to operate in double-sided mode**. One method of doing this is for C128 owners only. If you access the 1571 by, for example, pulling a disk directory in C128 mode, and THEN type G064, the 1571 will stay in double-sided mode. If you just type G064 without first accessing the drive, the 1571 will go into 1541 mode as soon as you use it. C128 and C64 owners alike can force the 1571 into double-sided mode by sending it the DOS command "UD>M1" at any time. Likewise, to force it into single-sided 1541 mode, send: "UD>M0". However, there is one other interesting option: **you can use the second side of a 1541 disk**. This is not the same as punching a new write protect notch and flipping the disk over, since the 1571 will keep the disk spinning in the correct direction. A little mental gymnastics will tell you that this is the opposite direction to the top side. So, if you use this method to format and use the second side, you will only be able to read it with a 1571 drive. A 1541 drive won't touch it; but it will double your available storage on a 1571. The "side two" command is: "UD>H1". This has to be issued AFTER giving the "UD>M0" command to tell the drive you want it to be in 1541 mode. You can now format and use side two. To get back to side one, the command is: "UD>H0".

Unfortunately, this technique is NOT the same as having a dual drive. Both sides of the disk are accessed as device 0 alternately; you cannot use one side as drive 0: and the other as drive 1:. You are stuck with using one side at a time when you use the 1571 as "two" 1541s.

I've used these tricks from within PaperClip to format and use the second side of a full 1541 disk, and to format and use new disks in 1571 double-sided format from a Commodore 64. It's too bad the manual is so vague on such an important topic. (See page 104 in Appendix G of the 1571 manual, under BURST COMMANDS: CHGUTL UTILITY.)



1571 DRIVE cont'd



**We have found one major bug
in the 1571's operating system**

VALIDATE BUG

We have found one major bug in the 1571 operating system that could cause you some problems, even to the point of irrevocably corrupting your disks. If you take a disk that was formatted on the 1571 in double-sided format and VALIDATE it in the 1571 drive's 1541 mode, the BAM will be rewritten to indicate that the disk is a 1541 single-sided disk.

The fourth byte on track 18, sector 0, is the **double-sided flag** on a 1571/1541 format disk. Its value is \$00 on a 1541 single-sided disk and \$80 on a 1571 double-sided disk. The VALIDATE in 1541 mode always rewrites this byte as \$00, which the 1571 drive interprets as meaning the disk is single-sided. Interestingly enough, a VALIDATE on a real 1541 drive **does not** corrupt this byte. It is a problem only in 1541 mode on a 1571, so make sure you **never VALIDATE a 1571 disk in 1541 mode.**

Since we all make mistakes, you will eventually end up with a disk that has been corrupted. You can use a track and sector editor to change the double-sided flag byte to \$80 and all will be fine. Or you can use the following **INFO** program, which will make the change for you:

```
01 REM INFO MAGAZINE #9
02 REM MARK R. BROWN
10 PRINT"[CLR][WHT]FIX 1571 DISK AFTER 1541 MODE
VALIDATE"
20 PRINT"[DN]INSERT CRASHED DISK AND HIT [RVS/ON]
RETURN [RVS/OFF]"
30 GET A$ : IF A$="" THEN 30
40 OPEN 15,8,15,"IO"
50 PRINT#15,"UO>M1"
60 GOSUB 170
70 OPEN 1,8,5,"#"
80 PRINT#15,"U1:5 0 18 0"
90 PRINT#15,"B-P:5 3"
100 FX$=CHR$(128)
110 PRINT#1,FX$;
120 PRINT#15,"U2:5 0 18 0"
130 GOSUB 170
140 PRINT#15,"IO"
150 CLOSE 1:CLOSE 15
160 PRINT"DONE":END
170 INPUT#15,EN,EM$,ET,ES
180 IF EN<20 THEN RETURN
190 PRINT" DISK ERROR"
200 PRINT EN;EM$;ET;ES
210 CLOSE 1:CLOSE 15:END
```

DETECTING 1571 FORMAT DISKS

Though 1571 and 1541 disks are format-compatible, and a 1571 drive can make full use of a 1541 diskette, there is generally no way for a 1541 drive to even detect whether or not a diskette is in 1571 format; it will always consider them as single-sided. Fortunately, with the proper program you can read the double-sided flag we mentioned before to see if a disk is single or double-sided. Some of the 1571's BAM information (specifically the bytes-free count) is also stored on side one of the diskette, though it also is not read or detected by a 1541 drive. The following **INFO** program will allow a 1541 drive to read the double-sided byte and report whether a diskette is in 1571 format. If it is, it will go on to total up and display the number of bytes free on the second side. Of course, this will be 664 bytes on most disks that do not already have side one filled completely.

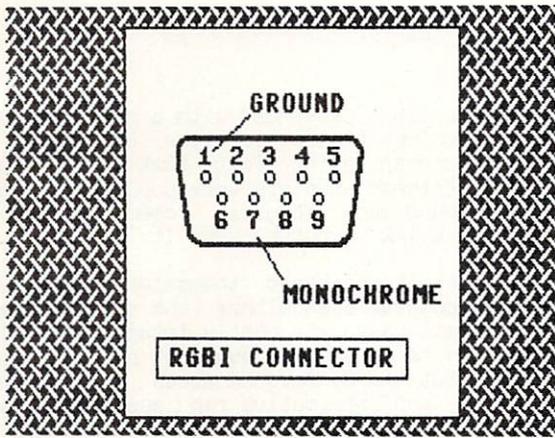
```
01 REM INFO MAGAZINE #9
02 REM MARK R. BROWN
10 REM DETECT 1571 FORMAT DISKETTE & REPORT #
SECTORS FREE ON SIDE TWO
20 PRINT" DETECT 1571 FORMAT DISKETTE"
30 PRINT" INSERT DISKETTE IN DRIVE"
40 PRINT" AND PRESS RETURN WHEN READY
50 GET A$ : IF A$="" THEN 50
60 PRINT:PRINT
70 OPEN 15,8,15,"IO:"
80 OPEN 3,8,4,"#1"
90 TR=18:SE=0:Z$="1571"
100 PRINT#15,"U1:4 0"TR;SE
105 PRINT#15,"B-P:4 3"
106 GET#3,A$
107 IF A$<>CHR$(128) THEN Z$="1541" :GOTO 190
110 PRINT#15,"B-P:4 221"
120 FOR X=221 TO 255
130 GET#3,A$
140 IF A$="" THEN A$=CHR$(0)
150 A=ASC(A$) :PRINT A;
160 TT=TT+A
170 NEXTX
180 PRINT
190 CLOSE 3 : CLOSE 15
200 PRINT Z$;" FORMAT DISKETTE"
210 IF Z$="1541" THEN END
220 PRINT TT" SECTORS FREE ON SIDE TWO"
```

INFO will keep you up to date on the 1571 as time goes by.



Getting 80 Column Monochrome Output From Your C128

GETTING 80 COLUMN MONOCHROME OUTPUT FROM YOUR C128



At under \$100, a monochrome monitor is a much less expensive 80-column companion to the C128 than an RGB monitor at \$350-up, and provides the same advantages for wordprocessing, spreadsheets, and other applications. If all you need is monochrome, it is possible to connect an inexpensive monochrome monitor to the C128's RGBI connector. Here's how:

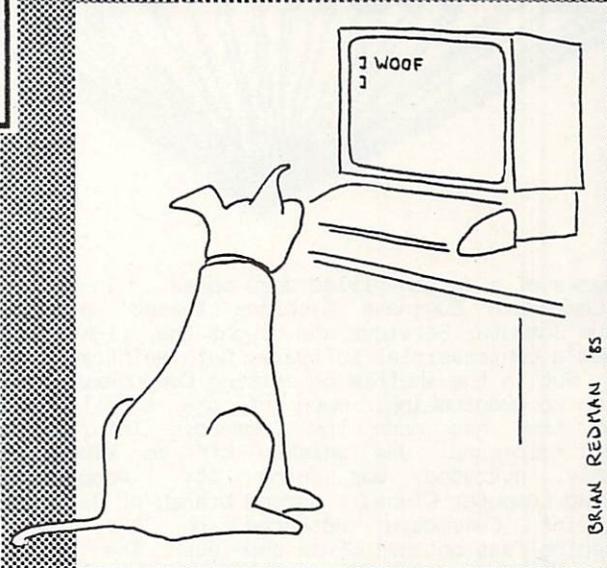
The RGBI connector is at the rear of the C128, between the RF output jack and the user port. It looks just like a 9-pin joystick plug, but the connector on the computer is the female. To make your connecting cable, you'll need a few feet of 300 ohm tv hookup coaxial cable (or similar coax), an appropriate connector for your make and model of monitor (probably an RCA plug or BNC connector), and a male 9-pin D connector with plastic hood from Radio Shack.

Strip about an inch of insulation from both ends of the coax, taking care to strip off only the insulation and not the wire braid. Solder the monitor connector to one end of the coax, connecting the central wire to the center of the connector and the braid to the outside. Twist the other end of the braid and carefully solder it to pin one of the D connector (the pins are numbered.) Then solder the center wire to pin 7. Install the plastic hood to protect your handiwork and hook up and turn on your monitor.

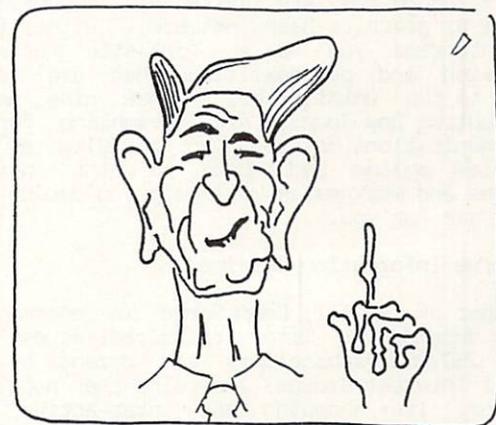
Type in GRAPHIC 5 [RETURN] at the C128's keyboard to kick it into 80-column mode. You should now see anything you type on your monochrome monitor. If not, check your brightness setting, then your wiring.

Brian Redman looks at...

Artificial Intelligence



Voice recognition will enhance computer security by barring entry to unauthorized users.



Artificial Intelligence can facilitate speech recognition

SOFT ADVICE

by Peggy Herrington



NETWORK WARS

It smacks of a jargon-filled soap-opera. In early '85, Commodore Business Machines teamed up with Quantum Computer Services and bought the rights to **PlayNet's** controversial software, both mainframe and user. But in the shuffle of exiting **CompuServe** and setting up **QuantumLink**, much of the intellectual talent that had made the Commodore Information Network successful was whisked off to **ViewTron**. Suddenly, everybody was doing it: **PeopleLink** sprouted Computer Clubs, a second branch of **Delphi's** *FlagShip* Commodore appeared on the new, lightning-fast network **GENie** and even **The Source** announced a Commodore SIG. Only one biggie was missing. **Dow Jones...** where are you?!

Joining a commercial network -- or information provider, as they prefer to be called -- is one of the best ways I know to use your computer, not to mention your intellect. With the advent of several graphics-oriented systems, going online has literally been transformed from a black-and-white excursion to a full color adventure (no, not with games, although they are available). Subscribing to an ASCII or graphics-based network -- either type -- will introduce you to a fantastic array of information and personalities that are all but unknown to the uninitiated. Since nine networks (not counting **Dow Jones**) are scrambling for your telecommunications dollars, an overview of hobby activities online and notes on the networks' strengths and weaknesses will help you decide which of them are for you.

CompuServe Information Service

The father of 'em all, **CompuServe** is enormous and utterly dependable. With its direct-access phone lines, 250,000 subscribers and dozens of SIGs (Special Interest Groups) including the popular CB simulator, its shopping and inter-active games areas, current news and reference data bases, well.. **CServe** nearly defies description.

But for all these advantages, **CompuServe** is having its troubles with Commodore. On August 31st, under contract to **CompuServe**, the Canadian Toronto Pet Users Group (TPUG) inherited the three hotly sought-after Commodore SIGs. This happened because Commodore Business Machines (CBM), founder and former sponsor of the SIGs, had become a principal in a competing network (**QuantumLink**). CBM managed

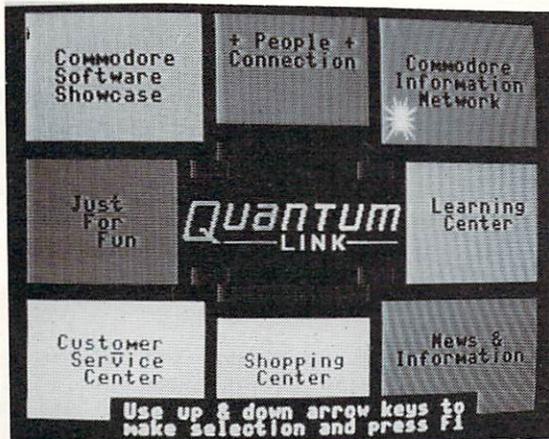
to retain an online "presence" with a new, crippled SIG (no up/download facilities; type GO PCS-44 to get there) and despite the fact that its message bases and COnference area are very popular, I doubt it will be around much longer: Commodore is too involved with **QLink** to bother with it.

So far TPUG hasn't bothered themselves much with their new **CompuServe** SIGs either (the old CBM ones). The program data bases are mostly intact and plans have been made to add TPUG's own vast public domain collection. But the COnference areas that nightly offered lively and informative rap sessions hosted by Commodore SYSOPs (SYSTEM OPERators) are now as quiet as libraries. Users make or break all SIGs and the old Commodore SYSOPs were users par excellence, their only remuneration being free time online. They're all gone now (mostly to **ViewTron**) and the place just ain't the same without them. Long-time-back Commodore SYSOP Betty Knight is valiantly trying to answer questions in the message bases, field criticisms and train TPUG SYSOPS who exhibit microscopic telecommunications or Commodore expertise and even less enthusiasm. New and largely unpublicized SIG page numbers (a fast method of navigating **CompuServe**) have added to the confusion: type GO PCS-116 for the Programming Forum, GO PCS-155 for the Music/Graphics Forum, and GO PCS-156 for Education/Entertainment Forum.

None of this is to say that **CompuServe** isn't a fine resource -- personally, I adore it -- but it is no longer THE place for Commodore-specific telecomputing. There is almost always something new online and almost always somebody around to enjoy it with. Try GO-GAMES (YGI is fun), GO-ROCK, or GO-CB for instance. If you use VIDTEX (CompuServe's proprietary terminal program), GO VID-118 and download the new Commodore version 4.1. Although undocumented as of this writing, it has the RLE protocols that allow downloading of high resolution graphics. With it, you can get the digitized pictures of CB regulars or GO-TEN for mugs of the FBI's 10 Most Wanted Men.



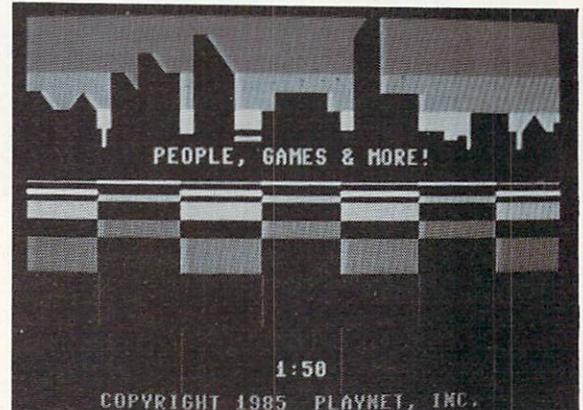
SOFTWARE SERVICE cont'd



QuantumLink

QLink is as different from CompuServe as arcade games are from adventure-types but in ways that may not always delight you. It has many features to recommend it, not the least of which is its pricing (see the comparison chart), but all of them are diluted by accessing QLink at anything less than 1200 bps, especially when downloading files. The colorful graphics you see online are loaded from the double-sided disk you get by joining, and the PlayNet software upon which QLink is based has been extensively speeded, revised and elaborated upon. It is still remarkably easy to use but because there's no advanced structure for the experienced "power users" it has come under heavy criticism from them.

On the brighter side, the limit of 12 people per 'room' is gone, as are the two-minute load times when you change areas, and the Auditorium in the Commodore Information Network area is supposed to hold 600 users at once. You can save 80-or-so lines of text as program files (although only QLink's offline utility program will read them back fully - they even baffle Paperclip) and you can send or receive online messages almost anywhere within the system. Lots of regularly scheduled real-time conferences on a broad range of topics are hosted by knowledgeable SYSOPs (as a member, you get a monthly calendar) and samples of many commercial programs can be downloaded and tried-out before you buy, a really powerful feature. You get unlimited access to QLink's Basic Services for \$9.95 a month -- all live talk and program up/downloading are called Plus Serviced and surcharged at \$3.60 per hour, the first hour of which is included in the monthly fee.



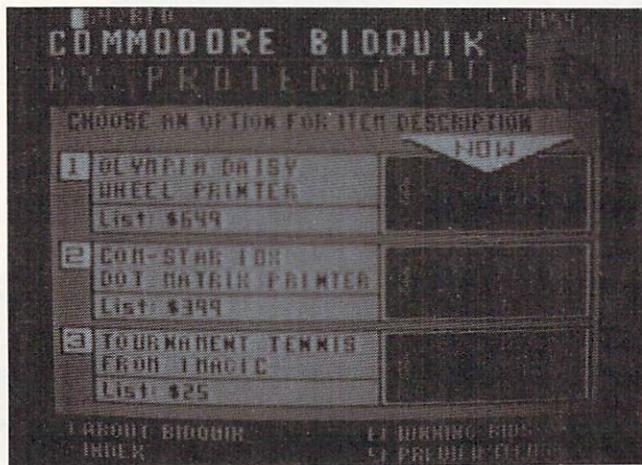
PlayNet

Speculation had it that PlayNet was on its way out earlier this year but the facts simply don't bear that out. It's teeming with activity. A multitude of weekly SIGs -- with new ones coming online daily -- address about every topic imaginable... standard computing fare, animal husbandry, life-styles, music and emergency aid, to name a few. User groups and computer magazines are online, and the shopping area is scheduled to reopen with a spectacular array of merchants: a travel agent and florist, sporting goods, general merchandise and electronic equipment including, of course, computer hardware and software. Free time online is awarded winners of contests, interactive games and tournaments. PlayNet's notoriously slow menu-driven system (which can only be accessed by the programs on the disks provided when you join) is being revitalized, too: members will soon be able to update their disks by downloading new fast-load programs that will reduce section loading times from two minutes to about 45 seconds.

PlayNet exhibits an aggressive marketing stance. Free demonstration accounts are included with several Commodore-compatible modems, and the accounts of members joining by the toll-free PlayNet phone number are credited with the full membership cost (which includes the disks and colorful instruction manual). In essence, they join free. PlayNet offers two ways to go: You pay \$8/month service charge and \$2.75 per hour access, or no service charge and \$3.75 per hour. All program transfers are extra at \$.50 each.

SOUND & ADVICE

cont'd



ViewTron

Unlike **QuantumLink** and **PlayNet** whose graphics originate from your disk drive, the NAPLPS technology used by **ViewTron** allows graphics to be transferred between different kinds of computers over telephone lines; it works much like ASCII does with text. NAPLPS terminal software is provided when you join and is available for Commodore 64 (and 128 in 64 mode), Apple II series, IBM-PCs and compatibles and dedicated Sceptre terminals. A VT-100 emulator can be used as well but with it you only get the text... and you don't want to do that. Watching the colorful graphics screens build as they are received, layer by layer, is beautiful at 300 bps and at 1200 bps it's GR-R-REAT!! (or "gr8" in online lingo). Keywords move you around the system and your own Personal Magazine can be set-up with your favorite pages. Try these for starters: C64, BIDQUICK, FOOTBALL, CB, TRIVIA, HOROSCOPE, and SELF TEST.

The vast **ViewTron** Commodore area (keyword C64) offers hundreds of commercial software reviews, free classified ads to users, and eight SIGs covering topics from novice to techie, managed by some of the most talented Commodore SYSOPs around: Deepak Midha, Kate Kassouf, Cheryl Peterson, Jim Lee, Jim Luftman, Larry Phillips, Jon Hochberg, Dave Schmoltdt, Bryan Gillespie, Libby Morehouse, Joe O'Hara, Marte Brengle and Joe Carra. Each SIG has its own message base and CB simulator and is tied into a huge public domain software library. Like the general BIDQUICK on **ViewTron**, Commodore BIDQUICK is unique to this network: it's an online auction in which the prices of select merchandise are lowered periodically until a user breaks down and buys it before someone else can. Protecto Enterprises sponsors the C64 BIDQUICK (which is going all the time) and you won't believe the fabulous prices that hardware and software go for. Although it has some stiff competition, **ViewTron** could be the sleeper of 1986, provided the system is revised as projected, especially their CB simulator (:::shudder::).

The Source

Speaking of CB simulators and Commodore SIGs, details haven't been announced yet but **The Source** should have both online by the time you read this. A number of other areas are of interest on this older, established network including a FREE online tutorial (nope, not even regular hourly charges apply), the stimulating PARTicipate message bases, several educational areas and the Comp-U-Date match-making service that's free (except for regular online fees) to female members -- due, no doubt, to the 10 to 1 ratio of male to female subscribers... any ideas, ladies?

The Source's real-time one-to-one CHAT is the best on the block. An ONLINE command shows who is online by user ID and you can search the MEMBERS data base (with over 10,000 voluntary descriptions) by ID as well as other parameters, to find someone you'd like to CHAT with (or send S-MAIL to if they're not available). Once in CHAT you can type to your heart's content. There's no remembering to hit return when you approach 80 characters -- but here's the best part: the system automatically sends your text every line or two, so your pal isn't left wondering if you're asleep or waiting for her/him or what. The custom is to hit return a couple of times to indicate you're finished. Once you're used to it, it's slick.

PeopleLink

Until recently, **Plink** was all talk... but it's not anymore. Online Clubs are as active as you'd imagine them to be on the lowest-priced ASCII network around and it doesn't take three guesses to find the most popular one. The Commodore Club is hosted by CBM*CHAIR Harv in California, who works closely with co-chairman Larry in Virginia (isn't that amazing?) and is organized into 15 different sections, each with a message base, program up/download library and CONference line. It's been online only about a month as I write this, but has "a few hundred" members and good-sized program libraries. Organized CONferences with special guests will start in January. Also of Commodore computing interest on **Plink** is the Link.Comal Club.

At last count there were 30 clubs in the **Plink** directory. One, the Naturist Club, features NIFOC telecomputing (Naked In Front Of the Computer, to the uninitiated) and to squelch a rumor before it spreads, that's not where Panda and Azure, the Plinkers who were recently married online, met each other (grin). You can find Plinkers chatting 24-hours a day on the PartyLine, both in groups and privately.



SOUL & DANCE cont'd

Delphi

Specializing in graphics and music, the Micro Artists Network on **Delphi** (aka MANIAC) is hosted by Ellen Kauffman, the talented computer and canvas artist, who, at the flick of a function key in COnference mode, can send you a bubbling glass of champagne. You can also leave messages for (or even chat with) Wayne Schmidt (Doodle and Flexidraw) or Craig Chamberlain (SIDPlayer from "The Second Book of Commodore"), or MANIAC Commodore SYSOPs Rick Sterling, Howard Gazes and Bob Retelle... what a line-up! Hundreds of dazzling Commodore music and graphics programs can be downloaded from MANIAC's databases.

Right next door to MANIAC on **Delphi** is the *FlagShip* Commodore, directed by the inimitable Deb Christianson. Here you'll find the latest scuttle-butt about Commodore, and the latest 64 and 128 public domain games, utility and productivity programs, among others. SYSOPs Chris Kaiser (author of XMOBUF), Steve Plegge (professional mainframe programmer) and Jim Nangano (professional games programmer) assist Deb, not only in the *FlagShip* but in the *StarShip* Amiga, their closely associated SIG. All the networks are establishing Amiga SIGs in one form or another, but the *StarShip* seems to have taken the lead; its Forum holds many informative and helpful dialogs and several Amiga programs are available for downloading.

GENie

With this magic lamp, General Electric hopes to light-up a network that's dark during non-business hours. RoundTables for the five leading personal computers have been set-up, including the second branch of the *FlagShip* Commodore by Deb. GE's direct access telephone lines serve 450 U.S. cities plus Alaska and Hawaii, and rural lines are available for \$2 an hour surcharge. The character echo that lets you see what you type comes from your GE local node (rather than the mainframe) and that makes GENie's response faster than many other ASCII networks -- especially for Commodores. Change to HALF DUPLEX and EVEN PARITY before you sign-on. (Sending Control R just before entering your ID will put GENie into full duplex.)

Although Open Sesame doesn't work, you can navigate GENie by menus or with MOVE commands (MOVE page;menu number) that whisk you directly to the area of your choice, be it a Bob Maples' original online adventure game, electronic mail, the program library of the Commodore RoundTable, a chapter in IRONMAN's CB Mystery (featuring actual CB personalities, murder, and big-time CB addition), or the CB simulator where you can chat in real-time with GENie members from the U.S., the Netherlands, and the United Kingdom. (LADY LUCK! waving to 'ooray 'entry). Certain keywords function too; type BOWEN to read A Networker's Journal by Charles Bowen.

Mnematics

Reputed to be the developer of the Atari-XL line, Greg Squires is the man behind this upper New York state regional network gone national. Mnematics' premise is different. There are no connect-time fees and \$39.95 up-front gets you six-months unlimited access. Renewals are only \$12. A carrier network from 540 U.S. cities provides connection at \$3.49 per hour on evenings, weekends and holidays. Offered online are the obligatory computer-oriented SIGs, including Commodore, along with comics, cats and robotics SIGs, and a host of other offerings: "Electronic Business Review" and "Sex American Style", two online magazines (the latter affording access to a certified sex therapist), discount telex and mailgrams, subscriber publishing, CB simulator, multi-player games, and shopping mall.

Mnematics offers 300, 1200 and 2400 bps access, the latter by request, and an online demo by calling 914 365-0180 (press CTRL-C, RETURN, and enter DEMO at the subscriber ID prompt.)

Dow Jones News/Retrieval

Their ads say this isn't a stuffy network but I can't find anything entertaining to do online. No group or one-to-one chat, no SIGs and no program libraries, of course. I must admit to being impressed with the enormous collection of current and reference information available, the bulk of it financially-oriented. Seems that non-prime time hobby telecomputing hasn't occurred to them yet. Dow Jones... where are you?!

/EXIT

According to a mid-1985 report by Arien Communications of Washington D.C., online subscribers totaled 600,000: CompuServe with 250,000, Dow Jones with 220,000, The Source with 65,000, and all others with 65,000. That study was conducted prior to the boom in off-hours telecomputing as shown by the emergence of almost half of the networks mentioned here. Maybe the ranks of hobby-oriented telecomputers don't add substantially to those figures yet, and maybe they do. The real question is whether those ranks will grow fast enough to support the services trying to live by them. Make no mistake; these networks are fighting for their lives and that usually means casualties.

In the meantime, all we have to do is enjoy ourselves. The variety of services and personalities available online are truly inspiring, whether productivity or fun is your goal. Why not try a little of both? See ya online!

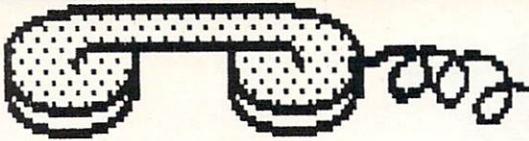


INFORMATION PROVIDERS as of November, 1985

ASCII NETWORKS	Cost to Subscribe	Hourly Rates		Carrier Charges From major Metropolitan Areas	Lowest Cost per HOUR at 300 bps
		Prime Business Access	Non-prime Evenings Weekends		
CompuServe	None	300 bps:		All carriers	
800 848-8199		\$12.50	\$6.00	at \$2/hour OR	\$6.25 or
Ohio: 614 457-8650		1200 bps:		CIS direc lines	\$8.00
		\$15.00	\$12.50	at \$.25/hour	
Delphi	\$49.95	300 or 1200 bps:		Access by Uninet	\$6.00
800 544-4005	includes	\$16.00	\$6.00	or Tymnet	(300 or
Maine: 617 491-3393	2 hrs use			No extra cost	1200 bps)
Dow Jones News/Ret.	\$75.00	300 bps:		All carriers	\$12.00
800 257-5114	plus \$12	\$54.00	\$12.00	No extra cost	
New Jersey:	yearly	1200 bps:			
609 452-1511	svs. chg.	\$108.00	\$24.00		
GEnie	\$18 incs.	300 or 1200 bps:		Local GE lines	\$5.00 or
800 638-9636	3 hrs use	\$35.00	\$5.00	only, some rural	\$7.00 (300
Extension 21				at \$2/hour	or 1200)
Mnematics	\$39.95 6 mo.	300,1200,2400bps:		Carrier from	\$3.49
914 365-0184	No limit use		\$3.49	540 US cities	300 - 2400
PeopleLink	\$14.95	300 bps:		Tymnet or Telenet	\$3.95
800 524-0100	includes	\$10.95	\$3.95	No extra cost	
	3 hrs use	1200 bps:			
		\$12.95	\$4.95		
The Source*	\$49.95	300 bps:		Uninet or Telenet	\$8.40
800 336-3366	\$10/month	\$21.60	\$8.40	No extra cost	
Virginia:	minimum	1200 bps:			
703 734-7500		\$25.80	\$10.80		
		*Source SIGs ONLY: 300 bps:			\$6.00
		\$10.80	\$6.00		SIGs
		1200 bps:			only
		\$13.80	\$9.80		

GRAPHICS NETWORKS

PlayNet	\$19.95	Not up	300 bps	Telenet at	\$2.75 +
800 PLAYNET	+ \$8/month	During	only:	No extra charge	\$2.75 +
	Service	Business	\$2.75		file Xfers
	Charge	Hours			
QuantumLink	\$9.95	Not up	300/1200:	Uninet or Telenet	Maximum
800 392-8200	EACH month	During	\$3.60 for	No extra charge	\$3.60
Virginia:	for "Basic	Business	"Plus		(300 or
703 448-8700	Services"	Hours	"Services"		1200 bps)
ViewTron	\$9.95	300 or 1200 bps:		All carriers	\$5.40
800 543-5500	Includes	\$13.20	\$5.40	No extra charge	(300 or
Dept. 9401	1 hr use				1200 bps)
Fla: 305 674-1444					



GOING ONLINE

by Peggy Herrington

Going online requires a computer, a disk drive, TV or monitor, working telephone (preferably without call waiting service) and a modem. The latter is a small hardware peripheral that connects the phone to the computer through the RS-232 port. Many Commodore-compatible modems are available and it's important to make sure the one you're considering works with all kinds of telecommunications software, not just the program that comes with it. All Commodore Business Machine (CBM) modems will (models 1600, 1650, 1660 and 1670). Remember that terminal software won't make a modem do things it's not capable of in the first place. Although auto-dial software will work with the 1600 for other tasks, for instance, it won't make it dial the phone for you or send data at 1200 bps.

The rate at which data is transferred between computers is governed by the modem (the terminal software must match it, of course) and is measured in bits per second (bps), sometimes called baud rate. 300 bps has been the standard but notice that five of the ten networks mentioned here allow a transfer rate of 1200 bps without penalty or surcharge, a sure indication that The Times They Are A-Changin'. If you don't have a modem, you won't regret investing in one that will transfer data at 1200 bps, even though it is substantially more expensive. You'll save money in the long run because you'll spend less in online charges (networks charge for each and every minute you are connected) and/or long distance fees. Since 1200 bps is four times faster during file transfer, you'll save a bundle if you do much up/downloading.

COMMODORE'S 1670 300/1200 SWITCHABLE MODEM

Using Commodore's new modem, the 1670, is tricky, especially if you're not familiar with Hayes smart-modem commands. It comes up without echo; type ATE1 (from within the terminal program) to see what you're typing. Then type ATDT xxx-xxxx to dial the phone number. All 1670's shipped so far have a garbage problem (characters caused by extraneous noises which corrupt data) because the auto-answer function is enabled. In a **QuantumLink** Conference on November 13th, Jeff Porter, the CBM engineer responsible for designing CBM's recently cancelled lap computer, the LCD, had this to say about that. "The analog loopback switch will be used to disable auto answer in the future. (I'm) not sure when the cut over date is. Next year sometime, I expect." No update is expected to be released for the previous 1670's.

But all is not lost. Two "fixes" are available for current models of the 1670. You can go out and buy a phone silencer from Radio Shack, OR, before you run the terminal program in either C64 or C128 mode, you can type the following BASIC lines:

```
10 OPEN2,2,2,CHR$(6)+CHR$(0)
20 PRINT#2,"ATSO=0":CLOSE2
```

This will disable the auto-answer function of the 1670 and solve the noise problem. Compliments of Bill Pytlovany (BILL P1), the character in charge of the 128th Precinct on **QLink**, here's an enhancement that will put you into C64 operating mode from C128 mode:

```
30 GO 64
```

Add this line to the preceding code and save it as a program file for future use. Turn on your computer in 128 mode, load and run the program, and it will automatically go into C64 mode. If you're going online with the 1670 using C128 mode, use this line instead:

```
30 IF A=0 THEN A=A+1: BLOAD "name of your terminal program"
```

Put this program on the disk with your terminal program and you'll solve the garbage problem and "auto-boot" the terminal program by typing run.

The dip switches on the back of the 1670 are explained in the documentation but if you run into further trouble, put the one on the left (equalization) in the up/on position. Whatever you do, don't give up! I know many SYSOPs on the networks who use 1670s without problem. With a little help from you (which is well worth the effort), it will work.

C128 TELECOMMUNICATIONS FROM CP/M MODE

Many C128 owners have been disappointed that they can't go online in CP/M mode to download runnable CP/M programs. This is due to a non-standard implementation of CP/M which prevents proper communications with the RS-232 port. In the Conference noted above, Jeff Porter announced that Commodore will soon mail -- TO ALL REGISTERED C128 OWNERS -- a FREE disk containing an update of the CP/M operating system (BIOS) along with terminal software for telecomputing in CP/M mode. These programs may be available for downloading from **QuantumLink** and/or **CompuServe** but if you haven't done it already, get that registration card in the mail.

Just in case you aren't convinced that network telecommunication is a valuable resource, here are several other points Jeff made:

Commodore will not produce the 1572 dual disk drive it announced with introduction of the C128. Its demise was included in the same decision that cancelled production of the LCD lap computer.

The C128 MOUSE "just passed FCC testing." It will probably be available in late January, about the same time, Jeff explained, as the "modules that add either 128K or 512K to your C128 in the form of DMA accessed memory. You can talk to the (expansion) memory from BASIC using FETCH, STASH, and SWAP. Also, CP/M will configure the expansion memory as a blindingly fast RAM disk (M:)."

Jeff discussed aspects of the 1571 disk drive, including a tip on getting better compatibility with C64 commercial software that's heavily copy-protected by holding down the Commodore key (C=) when you turn on the system; locking the 1571 into C128 double sided disk mode when using it in C64 mode -- OPEN15,8,15:PRINT#15,"UD>M1":CLOSE15 -- or locking it in 1541 single-sided disk mode by replacing "UD>M1" with "UD>MO"; and confirmed that reading the 1571 error channel is done with PRINT DS\$.

INFO



SOFTWARE

REVIEWS

B-GRAPH



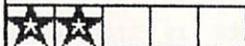
Outstanding! State-of-the-art!
Highly recommended! Bravo!



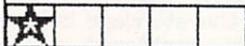
Well-done, worthwhile, solid
product. Recommended.



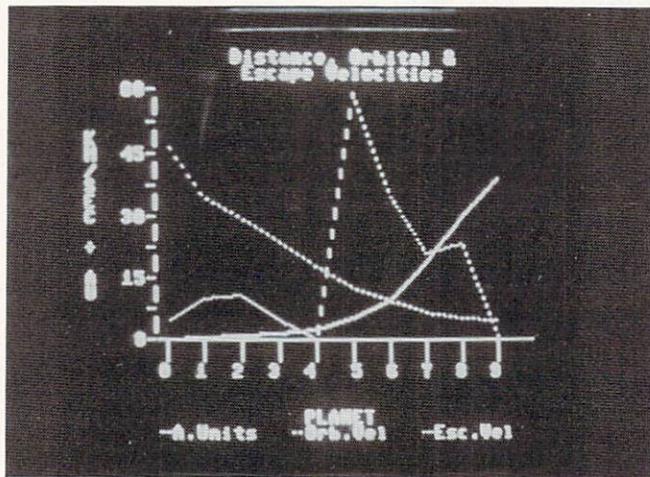
Fair. Works OK, but lacks depth,
utility, features, or imagination.



Poor. Either has serious problem,
or just doesn't measure up. Avoid.



A real Tuna! You would get more
satisfaction BURNING your money.



Computer business graphics are coming, computer business graphics are coming! Read any micro magazine these days and you'll find at least one graphics article in every issue. Whether it concerns colorful presentation materials or hi-res screen dumps for documentation, information dissemination, or straight-out aesthetic purposes makes no never mind. The fact of the matter is, microcomputer users are getting what they demanded, higher resolution graphics at affordable prices.

Speaking of affordability (one of the 64's trademarks), it's only natural that this pixelating revolution has found support in the Commodore quarter too.

Point in case is the remarkable B-Graph application from Commodore Business Machines. This disk based "productivity" program provides users with powerful graphing (business charts) and statistical analysis features, the likes of which are usually found only in programs costing several times as much. Its functionality, easy to comprehend command structure and low list price make B-Graph a near perfect package.

NO MORE MANUAL MADNESS!

The manual, a joy to behold, is even more of a joy to use. Overall the rules of the road are clearly presented, well organized, and properly illustrated with screen shots and sample menus.

First of all there's a foreword about graphs and the various types available in the program. Then tutorials show you the way through every major feature, from pie charts and file manipulation to statistics and regression analysis. And that's only the half of it!

Rounding off the topics are chapters on imaging, correlation analysis, fine tuning graphs and the program's Mini-DOOS utility. Appendices provide tips on photographing screens and a non-technical explanation about artifacting (pattern line fill in laymen's terms). The authors even had the presence of mind to include a statistically skewed bibliography for those who want to learn more about this fascinating subject.

Following the manual step by step I was able to access (and comprehend) 95 percent of the program's functions within 4 or 5 hours. Bear in mind this is not an arcade game; B-Graph is a heavy duty, extremely useful business and educational application. (I have had prior experience with advanced statistics; the terms and methodologies were already known to me. Others with less of a subject background should plan accordingly).

INSIDE B-GRAPH

Though the program recommends use of two disk drives, one can adequately handle the workload. Disk swapping is held to a minimum by running menu options sequentially. Single drive owners that hop around from statistics to imaging to graphing, etc., will spend a lot of time waiting for the different modules to load. Clearly, the program is too large to completely reside in the 64's RAM. Keep that in mind.



SOFTWARE REVIEWS

B-GRAPH



cont'd

System configuration (type of printer, number of drives) is the first option on the main menu. Graphing, Graph Imaging/Labeling and File Manipulation make up the next entries.

Four printer menu selections support Commodore's 1525/MPS 801, various Epsoms and Geminis, Okidata's 10 and 92 models, and the C-Itoh/NEC/Prowriter types. They must have graphics capabilities; all but the Commodore machines have to be suitably interfaced to function properly. No mention is made of third party disk drive compatibility; it's best to test B-Graph before making the purchase if you own an Indus, MSD or whatever.

The Graphing module allows you to transform numerical data into line, bar, cumulative (stacked) bar, high-low-close (stock market mavens will be most familiar with this variation) and pie charts and graphs. You can even switch (where layout compatibility permits) between types with just one keystroke!

Imaging spruces up the default typeface and labels. While true font selection is not possible, you can alter text color and size (double width and standard height, double height and standard width, or any combination thereof).

File manipulation makes it easy to reorder the data files used to create graphs. With it users can perform exponential smoothing operations, calculate moving averages, save and load DIF format files, or read ASCII files created by other programs.

STATISTICS, REGRESSION AND CORRELATION

Without delving into the substance behind the capabilities mentioned, B-GRAPH supports T-Tests, F-Tests, CHI-SQUARE Tests, Normal, Poisson, and Binomial distributions as well as mean, median, skewness and kurtosis. Variance, standard deviation, quartiles and range values are also handled. Where applicable (as in the tests) default parameter values can be modified.

Regression allows you to plot data points on a scatter graph; the computer develops the line of "best fit". Increased accuracy can be had (in most instances) merely by selecting the "Very Slow" plotting option. "Very" handy.

Two correlation options are available. One tests the linear correlation between elements, the other analyzes how rankings of the same items (top ten music picks by different deejays for example) actually compare.

MINI-DOS

B-GRAPH's Mini-DOS utility allows you to read a disk directory, format a floppy or rename or delete a file without having to quit the program itself. Though just a convenience, it's an important one nonetheless.

CHARTING A PATH THROUGH B-GRAPH

Okay, those are the program's highlights; but what's it like to use? Well, it's good enough to be the (Commodore 64) business software sleeper of the year.

Graphics resolution is unbelievable. I thought my 1702 monitor had suddenly gone hi-res! While the graphing procedure doesn't set any benchmarks for speed, the results are definitely worth the (relatively) short wait.

As with all software applications there are limits as to what B-GRAPH can accomplish. Some of the more basic include the number of items that can be plotted, label field size, and rescaling limits. The manual is very up front in explaining these caps; fortunately the limits are, for the most part, generous.

Though background and foreground colors can be altered or switched at will, there is a noticeable lack of (color) variety in the graphs themselves. Monotone in nature, differentiation of (graphed) items is made through the use of fill patterns. Diagonal, horizontal, vertical lines etc., are used wherever multiple items are displayed in a single graph.

Module loading is sloooow, so it's best to plan your activities well. After all, there are better things to do than play with your micro all day.

Another accessing problem occurs when moving from one module to another. Direct cross entry is not possible, instead you must load the main menu before loading the new application module. This is B-GRAPHS major fault as far as I'm concerned.

Secondary in nature is a lack of flexibility when dumping graphs to a printer. There's no way to interrupt the output midstream! If you've changed your mind about the hard copy, tough luck! Not even <RUN/STOP-RESTORE> has any effect.

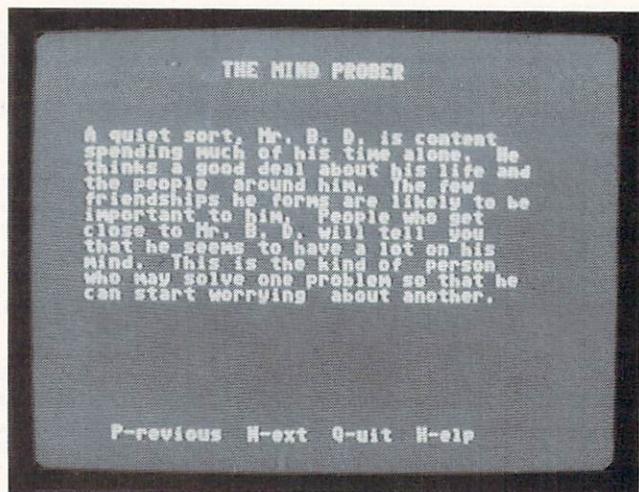
Despite these gripes B-GRAPH (non-statistically speaking) is worth its weight in rare earth compounds. I only wish it was around when I took advanced stat.

B-GRAPH, \$29.95 from:
Commodore Business Machines
1200 Wilson Dr.
West Chester PA 19380



SOFTWARE REVIEWS

MIND-PROBER



Human Edge Software has carved itself quite an unusual software niche - the computer aided analysis of human endeavors and behavior. If you don't believe me just cop a scan of their program titles: The Sales Edge, The Management Edge, The Negotiation Edge and The Communication Edge.

Up till now it's been pretty much the same, like Volume 1, Volume 2, etc. That's the way it was until they released Mind Prober "The Personality Software That Lets You See People As They Really Are". Don't let the name fool you though, this offering has more in common with their other titles than you think. They all delve (in varying degrees and areas) into human relationships, interactions and attitudes. Quite an undertaking for microcomputer based software; quite an undertaking for mainframe based hardware as well.

The subject of this review, Mind Prober for the Commodore 64, is another of the paperback book/floppy disk hybrids that seem to be gaining widespread acceptance and market share. Perhaps consumers perceive a better value for their hard earned money.

On page five of the Mind Prober manual there is a claim, "Now You Can Accurately Assess Someone You've Known For Only Five Minutes". Since that's apparently the crux of the matter I evaluated every aspect of Mind Prober with just that in mind. Based on those guidelines I have doubts that the better value perception applies.

To begin with, the first 90 pages of the book read like watered down college texts discussing behavioral science and Psych 101. I kept on waiting for B.F. Skinner to pop out every time I turned a page!

Chapters One through Six are written the way I used to create my college theses; develop two or three main concepts, then commit them to paper in as many variations as possible. (The printer was probably happy to see this book go to press.)

In the first chapter we learn the importance of reading others; Chapter Two educates us on how to read others; Chapter Three enumerates the ways in which we can read others. Okay so far.

Now comes the creative part. Chapter Four instructs us how to train ourselves to read others. Note the similarity to Chapter Two's topic, how to read others. The authors apparently couldn't find a way to teach us how to train and how to perform the actual task in the same section. Instead, 30 plus pages were dedicated (in 2 chapters) to instructing us in the fine (lost, discarded or never before discovered) art of reading body language and uncovering hidden meaning in interpersonal verbal communications.

Best sharpen a straight edge razor; you'll need it to split some (fine) hairs. Chapters 5 and 6 concern themselves with, you guessed it, how to read friendships and how to read those in professional or business settings. We're supposed to absorb these (supposedly) detailed guidelines and then apply them to people we've known for a mere five minutes. I don't know about you, but five minutes isn't enough time for me to decide whether or not I even want to know anyone as a business associate, never mind as a friend.

Step back a moment and compare Chapters 5 and 6 to the previous ones. They turn out to be reshapes of material previously covered in Chapters Two and Four. In all fairness however, some additional detail is provided. (Not enough to justify two more chapters though).



SOFTWARE REVIEWS

MIND PROBER cont'd

Now that I've put the paperback's background material through the wringer let's move on to the user manual portion. This 50 page section includes the operating instructions for every version of the program from IBM PC and Apple II to the Commodore 64 and the Mac. You have to search for the 64's miniscule segment; it's almost as if Human Edge was embarrassed to have their software running on such a "lowly" machine.

Aside from this slight to 64 owners, the manual is laid out well. Step by step instructions take you through every phase of operation from loading the program to printing the results. Clear screen shots familiarize you with the available options before the disk is even booted. Actually the program is so simple you can run it from the menus, without ever having seen the user manual.

Once up and running, Mind Prober provides HELP screens for the uninitiated. By pressing "H" you can access a list of command keys (A = agree with assessment, D = disagree, Q = quit) and trait definitions. (The command options are also displayed on most screens).

The program runs through a list of personality and behavioral traits as they might apply to the person being scrutinized. If you think the trait applies respond with an "A". If it's not indicative (based on your vast five minute experience with said person) then respond with a "D". Easy enough.

Some of the traits are talkative, wary, tidy, consoling, secretive, yielding, protective and trusting. Appendix B is a Glossary of Terms in case you're unfamiliar with any trait definitions. (Appendix A gives disk handling tips).

The entire process (input, analysis and output) can be done in about fifteen minutes. Unless you dawdle when responding the most time intensive task is the analysis procedure.

Mind Prober stores up to eight analyses on the master disk. There's no need (or way) to store the files separately. This severely limits anyone intending to keep computerized records of every study performed; from number nine on you must delete a previous study. Make sure the filing cabinet's handy, printouts are the only way to keep complete historical records. So much for the paperless office.

The reports run about 1.5 pages in toto. They begin with a brief summary of the person under the looking glass, then continue with topics such as "Attitudes Toward Sex", "Coping With Stress", and "Attitudes Toward Work". What makes them tick wraps up the show.

Though I've listed the symptoms I've only hinted at the reason for Mind Prober's less than stellar performance - lack of memory. This doesn't apply just to the 64, it applies to all micros. Mainframes with hundreds of gigabytes of RAM are needed before programs like Mind Prober can work with any degree of effectiveness.

Actually the subtle interplay of human relationships is much too complicated for any currently available artificial intelligence expert system, regardless of the hardware.

Mind Prober is a noble attempt, but the time isn't right for such far reaching applications. Creation of advanced expert rule procedures and increases in available RAM will be needed first.

MIND PROBER, \$29.95 from:
Human Edge Software
2445 Faber Place
Palo Alto CA 94303

MICRO ASTROLOGER



You've said it before, but now you REALLY mean it. You're through with newspaper horoscopes. First The Daily Blab's "Astrology Today" column predicted that the love of your life would marry you, exactly two days before (s)he eloped with the next door neighbor. Then, the fortune it said you'd inherit turned out to be 1935 Monopoly money. The upshot is you'd spent heavily in anticipation and can't even afford to make the minimum credit card payments.

Yet, you still believe. What are you going to do? The daily rag can't be on target for everyone every day; visiting some seedy astrologist just isn't your cup of tea. After all, you do have a reputation to uphold.



SOFTWARE REVIEWS

ASTROLOGER cont'd



```
Natal Horoscope for Ted salamone
produced by The Micro Astrologer
birthdate: Thu, Mar 31, 1955
time: approx 0115 +5

... General Characteristics ...

Sun-sign: Aries (true character)
Aries individuals are usually direct,
assertive, and quick-witted, with a
pioneering and adventurous spirit.
Their most common faults are:
impulsiveness, impatience, or
selfishness.
(Sun-ruler: Mars)

Moon in Cancer
Lunar traits are emphasized in
Gemini--usually positively. There are
```

What to do, what to do? Well, you could crank up the ole 64 and let fly with Commodore's very own Micro Astrologer. Gather all your birth data, load it into the computer and sit back while the program develops a personal horoscope. It's simplicity itself.

As with most of Commodore's recent manuals, Micro Astrologer's represents quantum qualitative leaps when compared to the schlock passed off for user manuals about 18 months ago.

Besides complete setup and operating instructions, the 45 page softcover guide has a small section covering the basic principles of Astrology. While it won't make you an expert overnight, enough's been included to whet your appetite - if it needs whetting in the first place.

Appendices provide useful information like country, state, provincial, or regional time zones; Daylight Savings Time Dates for the United States, Canada and Great Britain; and a table for converting Julian calendar dates into the currently used Gregorian system. The final section details a method of producing hard copy on non-supported (read other than Commodore's 801, 1520, 1525, 1526 or compatible) printers.

Micro Astrologer is primarily a database accessed with personal statistics. You need only answer a few prompted questions, have some patience while the 64 searches the disk for the proper responses, and then analyze the results. Unless you know what you're doing, the analysis turns out to be the most difficult part. Certainly it's the most subjective, wide open to biases and prejudices as it is.

Remember, (as the manual clearly states) Astrology is not an exact science. (A lot of people feel it's not even an inexact one, but this is not the proper forum for that discussion.)

The program opens with a colorful zodiac ring and a cheery, animated caricature of Old Sol. A mysteriously appropriate three part harmony accompanies the display. Below the image several prompt lines await your input. To begin, aspiring astrologists select the type of horoscope desired by entering an "N" for natal, a "D" for daily or an "M" for monthly.

Next the subject's name, birthdate (from 1800 to 2099), time of birth (unknown, approximate, or exact) and, if exact time was entered, longitude and latitude are keyed in. Unless the latter two are already known you'll have to research them elsewhere, the manual doesn't provide this information anywhere.

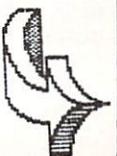
That's all there is to setting up a horoscope. Once developed, up to nine individual readings can be saved to the program disk for future recall or fine tuning sessions. (Saved data can be loaded from the disk by subject name or assigned horoscope number).

Micro Astrologer allows you to independently alter frame, background and text colors, select printout format, designate type of printer connected, and control the amount of detail presented in natal horoscopes. Menu driven, the selections are entered with just a few keystrokes.

Running Micro Astrologer is almost as easy as falling out of bed. The instructions (in the manual and on-screen) are clear and concise. The program, content to just spew out horoscopes, survived several deliberate attempts to make it crash. Therefore, it earns pretty high marks in the error handling category too.

Micro Astrologer appears best suited for light to medium astrological duties. It is more limited, lower priced, and easier to use than professional programs also available for the 64. Take my advice, pick up a copy and bring it to your next party instead of a trivia game. The guests will love you for it.

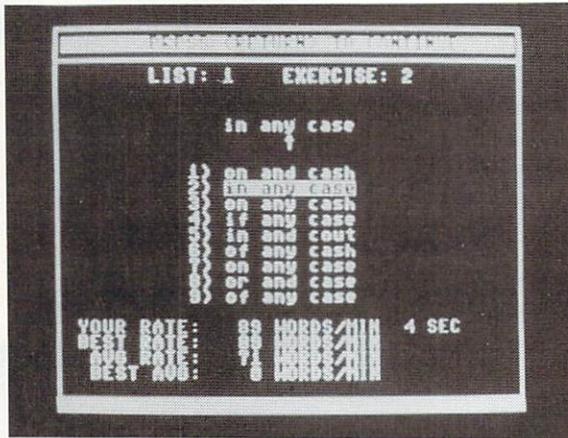
MICRO ASTROLOGER, \$29.95 from:
Commodore Business Machines
1200 Wilson Drive
West Chester PA 19380
(215) 436-4200



SOFTWARE REVIEWS

Evelyn Wood's

DYNAMIC Reader



Timeworks' "The Evelyn Wood Dynamic Reader" program is another installment in their Commodore 64 compatible Personal Improvement series. Bound in a sturdy, snap-tight vinyl binder, EWDR comes complete with a double sided program disk, a 6 inch/15 centimeter ruler, a user's manual, and a user's manual supplement containing non-computerized readings. (In other words, a paperback with 10 two page stories).

If all this sounds like it means business, you're absolutely right! Timeworks has done an excellent job bringing the gist of Evelyn Wood's speed reading and comprehension techniques to your home via the 64.

Just like the spate of typing tutorials that overwhelmed the market a while back, there now seems to be a veritable flood of software titles promising to increase the average person's reading skills (speed and level of understanding).

Both types of personal enrichment software target specific groups of people. One goes after non-typists; the other goes after those wishing to improve upon a skill they already possess.

Whereas typing programs generally meet the user's needs regardless of age or stage of personal development, reading programs are usually tailored to academic standing. Additional materials (primarily extra disk based readings) are available to customize the program so it will more fully meet individual requirements.

Veering somewhat from that unwritten rule, Dynamic Reader holds itself out to a large portion of the populace with just a single set of readings. Despite this "one-size-fits-all attitude, DR cuts the mustard for anyone (aged 12 or over) who currently reads at or above the 6th grade level.

After you've booted Evelyn Wood (no harm intended) be prepared for a surprise. Operationally the program mimics the pull down menu format made famous by Macintosh software. Of course there's no mouse, instead the cursor keys work their magic.

There are only five menu options to choose from. This overall simplicity makes EWDR a snap to use. On-screen instructions aid you every step of the way; detailed information is clearly presented in the user's manual. Why, the Customer Support Plan is located where you can't help but find it, on the inside front cover of the user's manual. Seems you're never alone with a Timeworks title.

In use EWDR requires a certain amount of disk swapping (for those with but a single drive) and disk flipping. The swapping occurs when moving between the prepackaged program disk and the user created data disk. Though dual drives eliminate the swapping, nothing can eliminate the need to flip the floppy. You see, certain training materials are included on the reverse side of the program disk.

First order of business is to determine your current reading speed and level of comprehension. Once that's taken care of, you set (attainable) goals.

Next, the EWDR techniques are explained in some detail. Poor reading habits and how to break them are the main topics here.

A recommended lesson plan follows. It makes use of the first two steps mentioned above, as well as every exercise type included in the program. The plan introduces you to skill builders, on and off-computer readings, push-down, push-up, and power drills. Each makes its contribution.



SOFTWARE REVIEWS

DYNAMIC READER cont'd

Skill builders display characters, words and phrases on-screen. Racing the clock you must select the matching item from a list below the display. This section also includes eye exercise routines.

Push-down drills primarily force you to read and re-read the same material in shorter and shorter periods of time. Push-up drills are similar, except that they make you read more material in shorter and shorter periods of time.

Power drills are eight step exercises which intertwine reading and formal recall sessions. These drills make good use of the off-screen reading materials. Progress is measured (literally) with the provided ruler. (A handy inches to words conversion chart helps you translate length to number of words.)

In addition to the training exercises (words, phrases, etc.) the program disk also contains ten excellent (and varied) short readings.

Your progress over the last ten exercises can be displayed in written or graphic format. Likewise, both types of reports can be dumped to a suitably interfaced printer.

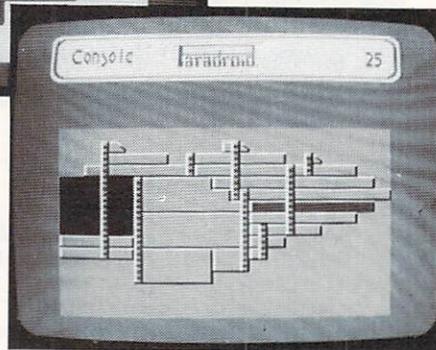
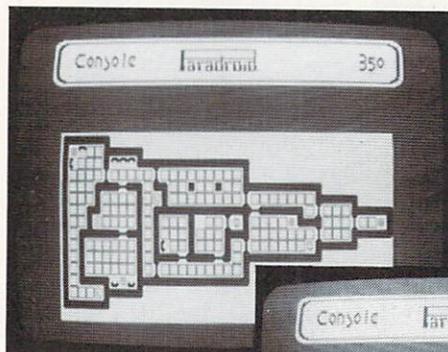
Many of the techniques used in the Evelyn Wood Dynamic Reader program are found elsewhere. Others, however, are unique to it alone. While somewhat different in approach from other Commodore 64 "reading enhancement" programs, EWDR performs admirably. Just goes to show, being different can be good.

(If it took you longer than 30 seconds to read this entire review, YOU need Dynamic Reader!).

DYNAMIC READER available from:
Timeworks
444 Lake Cook Rd.
Deerfield IL 60015
(312) 948-9200

PARADROID

INFO RATED

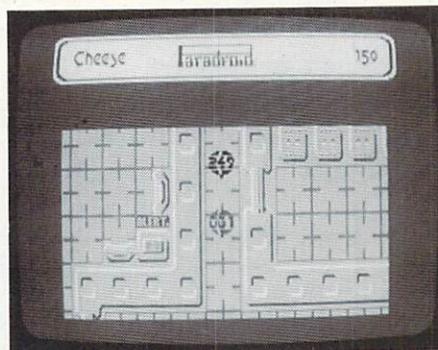


While we don't think we're about to experience a British Invasion like the one the Beatles launched in the Sixties, we do think it's fair to say that some of the best games we've seen lately are British imports. Z, featured in this issue's Gallery section, is an excellent scrolling-playfield saucer shoot-em-up that matches or surpasses most of what we've seen American gamemakers come up with. Even more impressive is a futuristic arcade-action game from the same English company. It's called Paradroid.



SOFTWARE REVIEWS

PARADROID cont'd...

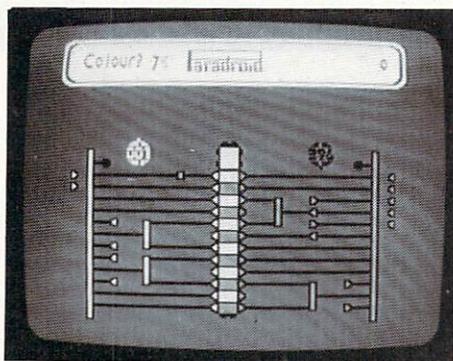


THE SCENARIO

The situation is this: A galactic space freighter loaded with robots has become derelict in space. Worse, all of her robots have mysteriously gone berserk. You are directed to destroy the rebellious Droids and regain control of the ship. The tool you must use to accomplish your goal is a **Droid Influence Device**. With it, you can gain control of any Droid you encounter....if you're good!

GAMEPLAY

The ship layout gives you twenty decks of smooth-scrolling hires playfield action--over 400 screens in all! You manipulate your Droid using the joystick. Each level is divided into many rooms, and as you pass through doors you'll run into Paranoid Droids! When you encounter another Droid (or Droids), you have two options: you can blast it with your twin lasers, or you can try to take it over with the Influence Device. This is a good thing to do, since any Droid you take over becomes your vehicle for further conquests, and you can use its armaments and special features. Computer consoles scattered on each deck let you "plug in" and check out the features of any Droid of a **lower** class than yours; you'll have to guess, using model numbers, which robots have greater capabilities than yours, at least until you have a great deal of experience with Paradroid.



The takeover attempt is a whole sub-game in itself. Once you "tag" a Droid with the Influence Device turned on, you and your opponent meet on a computer logic diagram, shooting pulses down arrays of logic gates and trying to change the color of a majority of squares in a master grid to your color within a set time. If you are successful, you gain control of the robot. If not, you lose a lot of energy and may even be destroyed. The transfer grid requires sharp analytical skills and a fine honing of your familiarity with logic symbols. It's one of my favorite parts of the whole game. With 24 different Droid types in 9 classes, it will take you awhile to work your way through all of them.

Back on the main playfield, you have the strength and armament of the Droid you now control, as well as the capability to check the consoles for new information concerning Droids that are now lower on the scale than the one you inhabit. You can also use the consoles at any time to display a small-scale map of the entire deck you currently occupy, or to view a side elevation of the whole deck plan. Once you have wiped out all the Droids on one deck (no easy task), the lights go dim on your level and you must seek a "lift" (elevator) to move to the next deck.

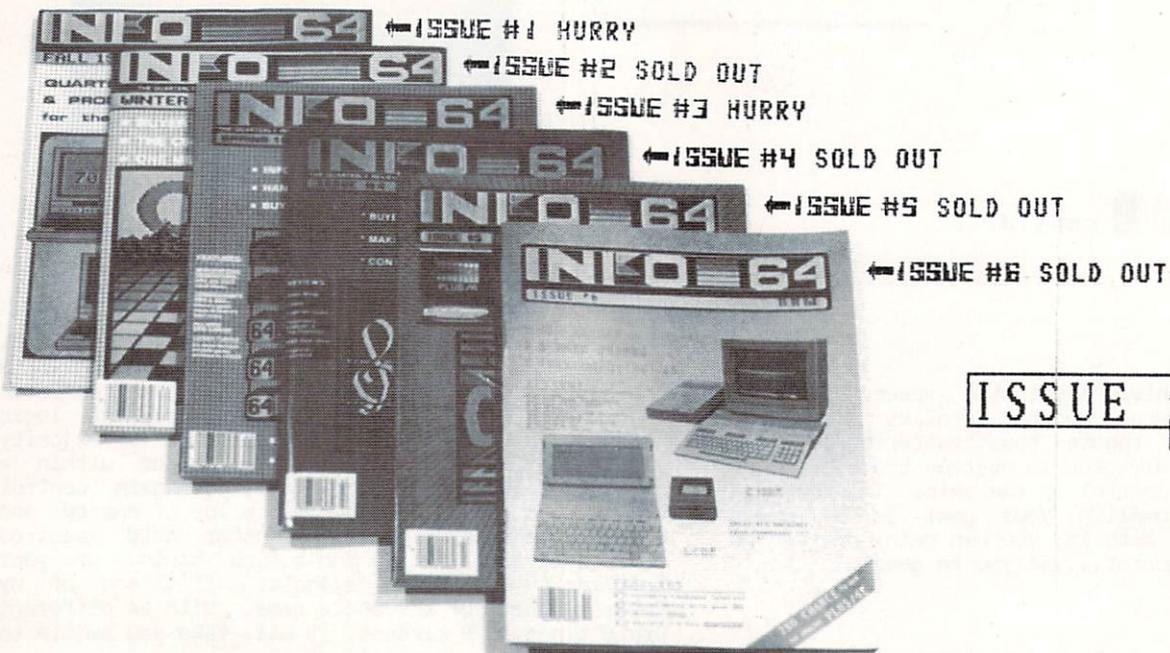
IMPRESSIONS

This game crams more into the Commodore 64's memory at one time than most games we've seen. **Everything** is in there all at once. This includes all the video and gameplay data for the 400 hires screens and the 24 droid types. It includes the Droid Influence Device transfer grid sub-game. It includes a lengthy smooth-scrolling text explanation of the game scenario and a nice hires title screen. It also includes all the computer console information providing maps of all 20 decks and two-to three-screen descriptions of all 24 Droid types including hires illustrations! There are **never** any disk accesses; in fact, the preliminary copy we reviewed came on TAPE. If you like science fiction, arcade games, inspiring graphics, and intricate gameplay, you will LOVE Paradroid!

For more INFO, contact:
Educational Systems International
1311 Page Ave.
Sutherlin OR 97479

GOTO PAGE 58

BACK ISSUES: while supplies last



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ERG-CARD™ REFERENCE CARDS

WELL, BY NOW YOU ALL HAVE YOUR ERGBOARDS, RIGHT? (NO? SEE INSIDE BACK COVER FOR DETAILS ON THE AMAZING ERGBOARD... BE THE FIRST IN YOUR USER GROUP TO OWN ONE... ORDER YOURS TODAY!) ACTUALLY YOU CAN USE THESE REFERENCE CARDS WITHOUT THE ERGBOARD (IT'S JUST

NOT AS HANDY- TAPING THEM TO YOUR MONITOR). INSTRUCTIONS: CAREFULLY REMOVE CENTERFOLD FROM STAPLES, CUT ALONG COLORED BORDERS, POSITION IN ERGBOARD REFERENCE WINDOW, USING THE ORIGINAL CARDS FOR SUPPORT (OR TAPE 'EM TO YOUR MONITOR). USE THE BLANK BACKSIDES FOR MAKING YOUR OWN REFERENCE CARDS. KEEP SENDING YOUR SUGGESTIONS FOR ERG-CARDS YOU'D LIKE TO SEE. -THE EDITOR.



ERG-CARD™ FOR USE WITH

INFOCOM™ ADVENTURES

™ Infocom, Inc.

COMMON VERBS:

ANSWER	ENJOY	LIGHT	SAY
APPROACH	ENTER	LISTEN	SHOOT
ASK	ESCAPE	LOOK	SHOW
BLOCK	EXAMINE	MOVE	SIT
BUY	EXIT	PANIC	SLEEP
CARVE	FILL	PULL	SMELL
CLIMB	FIND	OPEN	STAND
CLOSE	FOLLOW	PICK	TAKE
CONNECT	GIVE	PLUG	TASTE
CONSULT	HANG	POINT	THROW
COVER	HIDE	PUSH	TOUCH
DANGLE	JUMP	PUT	TURN
DESTROY	KILL	READ	TYPE
DRINK	KNOCK	RELAX	WAKE
DROP	LIE	REMOVE	WALK

INFOCOM™ adventures recognize words by their first six letters, so you can type, for example, BULLDOZER as BULLDO.

Each command generally consists of at least two words, a verb and a noun, as in TAKE BREAD.

DIRECTIONS: There are ten, plus IN & OUT. You may use these abbreviations:

N	NORTH	SW	SOUTHWEST
NE	NORTHEAST	W	WEST
E	EAST	NW	NORTHWEST
SE	SOUTHEAST	U	UP
S	SOUTH	D	DOWN

TIPS & TRICKS:

- (1) TAKE almost everything, then DROP what you don't need when overloaded.
- (2) You can carry more if you put stuff into a bag, backpack, or pockets.
- (3) SAVE frequently, especially before dangerous actions, so you can RESTORE instead of RESTARTing.
- (4) Draw detailed maps, including found items, traps, exits, creatures, etc.
- (5) Read CAREFULLY to catch subtle hints about puzzle solutions.

SYSTEM COMMANDS: (Accepted abbreviations in parentheses)

AGAIN (G)	repeats last input
BRIEF	full description only on first encounter
DIAGNOSE	gives physical condition of your player
FOOTNOTE n	displays footnote #n (does not count as turn)
INVENTORY (I)	lists objects in your possession
LOOK (L)	gives description of area

QUIT (Q)	quits game; SAVE first if you want to RESTORE later
SCORE	displays turns taken and score
SCRIPT	sends transcription of dialogue to printer
SUPERBRIEF	gives only the names of places entered
UNSCRIPT	turns off SCRIPT
VERBOSE	gives full description on each entry
VERSION	displays game version number
WAIT (Z)	passes one turn of game time

MULTIPLE OBJECTS: Use Comma or AND, ALL to indicate all objects visible.
Examples: TAKE SCREWDRIVER, BRUSH
TAKE SCREWDRIVER AND BRUSH
TAKE ALL

MULTIPLE ACTIONS: Use Period or THEN.
Examples: TAKE GOWN. GO SOUTH
TAKE GOWN THEN GO SOUTH

CONVERSATION: To talk, use name and separate speech with comma.
Example: FORD, WHAT ABOUT MY HOME?

SPEECH: To speak aloud, use SAY followed by words in quotation marks.
Example: SAY "HELLO"

FILE COMMANDS:
SAVE will prompt for a file name
RESTORE will prompt for a file name
RESTART begins again from the start

ERG-CARD™ FOR USE WITH

ULTIMA III™

™ Origin Systems, Inc.

COMMANDS

W	WEAR ARMOUR:	A	ATTACK WITH READY WEAPONS	T	TRANSACTION (TRADE OR TALK)
A	SKIN	C	CAST A SPELL	G	GET CHEST, OPEN, AND ACQUIRE CONTENTS
B	CLOTH	S	STEAL (ATTEMPT)	L	IDENTIFY OBJECT
C	LEATHER	F	FIRE SHIP'S CANNONS		
D	CHAIN	Y	YELL	J	JOIN GOLD INTO ONE PLAYER'S POSSESSION
E	PLATE			H	EXCHANGE EQUIPMENT BETWEEN PLAYERS
R	READY WEAPON:	E	ENTER A PLACE	M	MODIFY ORDER OF PLAYERS
A	HANDS	U	UNLOCK DOORS (USING KEY)	N	STOP TIME FOR OTHERS (WITH SPECIAL ITEM)
B	DAGGER	B	GET ON SHIP OR HORSE		
C	MACE	X	EXIT SHIP; OFF HORSE	Q	QUIT AND SAVE GAME
D	SLING	K	ASCEND LADDER IN DUNGEON	Z	DISPLAY PLAYER STATUS
E	AXE	D	DESCEND LADDER IN DUNGEON	V	TOGGLE SOUND EFFECTS
F	BOW				
G	SWORD	I	IGNITE A TORCH	<CTRL> S	TOGGLE MUSIC
H	2-H-SWORD	P	PEER AT A GEM FOR A MAP	SPACE	PASS TURN

MOVE PARTY



WIZARD SPELLS

A	USE AGAINST TROLLS, ORCS, GOBLINS	0 pts
B	ISSUE A BLOW OF VARIABLE FORCE	5 pts
C	BRIEF LIGHT FOR CAVES, DUNGEONS	10 pts
D	PASS TO NEXT LOWER LEVEL OF DUNGEON	15 pts
E	PASS TO NEXT HIGHER LEVEL IN DUNGEON	20 pts
F	SURE SHOT FIRE BALL	25 pts
G	TRANSPORTATION TO A RANDOM LOCATION	30 pts
H	ATTACKS MIND OF FOE--PROPORTIONAL	35 pts
I	EXTENDED ILLUMINATION	40 pts
J	CHOOSE ANY CLERIC SPELL TO CAST	45 pts
K	FLAMING, DEVASTATING BLOW	50 pts
L	EXTINGUISH LIFE OF FOE	55 pts
M	STOP TIME FOR ALL OUTSIDE PARTY	60 pts
N	ATTACK MIND OF FOE	65 pts
O	REDUCE FOE TO PUTRIDITY	70 pts
P	DESTROY ALL FOES WITHIN EARSHOT	75 pts

COST

CLERIC SPELLS

A	USE AGAINST THE UNDEAD	
B	USE BEFORE OPENING CHESTS	
C	HEAL WOUNDS OF COMPANIONS	
D	BRIEF ILLUMINATION FROM A STAFF	
E	PASS UP TO NEXT DUNGEON LEVEL	
F	PASS DOWN TO NEXT DUNGEON LEVEL	
G	PASS FROM DUNGEON TO SURFACE	
H	POISON ANTIDOTE	
I	RETURN TO SURFACE	
J	ILLUMINATE WITH "INNER" LIGHT	
K	RESTORE LIFE TO COMPANION	
L	ACQUIRE VISION OF SURROUNDINGS	
M	KILL MIGHTY, EVIL FOE	
N	RAISE DEAD COMPANION	
O	END LIVES OF MOST FOES	
P	RAISE COMPANION FROM ASHES, LOSE 5 WISDOM PTS	

EXODUS™
ULTIMA III
ORIGIN SYSTEMS, INC
PO BOX 99
NORTH ANDOVER, MA
01845

ERG-CARD™ FOR USE WITH

Commodore™ DOS

™ Commodore Electronics, Inc.

GENERAL NOTES

disknames, filenames <=16 characters
Don't use ? : , " or * in names or IDs
Filenames may not begin with @
Disk IDs = 2 characters, each unique
RESET drive: "U:" or "UJ"
SAVE & REPLACE is sometimes unreliable
Dual drive: Use 0: or 1:
BASIC 7.0 NOTES
To COPY with concatenation:
CONCAT "sfn",D# TO "dfn",D#,U#
To COPY whole disk on dual drive:
BACKUP D# TO D#,U#
To SAVE machine language program:
BSAVE "fn",D#,U#,B#,P# TO P#
B#=bank number P#=address range

DIRECTORY OPTIONS

\$:pattern=typ
If no pattern, prints all entries
If pattern not found, will print disk name, id, and bytes free only
typ is file type: P = program
U = user
S = sequential
R = relative

WILDCARDS

Use with directory, COPY or SCRATCH
? matches on any character
* matches on remainder of name
e.g. "\$0:ABC?*" lists all files beginning "ABC" with 2 or more additional characters.

WEDGE NOTES

Disable the DOS wedge: @Q
Reenable the wedge: SYS 52224
> can substitute for @
To speed programs use @Q then RUN
To use DOS commands in BASIC:
put filename in quotes, use @
e.g. 20 @ "\$" : REM LIST DIR
SAVE file with identifier: <-fn[X]

SPECIAL 1571 COMMANDS

"U0>M1" double-sided mode
"U0>M0" single-sided mode
"U0>H0" side one, ss mode
"U0>H1" side two, ss mode
"U0">CHR\$(n) change dev #

COMMANDS

COPY	@C0:dfn=0:sfn
DIRECTORY	@\$:pattern
DEVICE# = n	>#n
ERROR STATUS	@
FORMAT NEW DISK	@N0:dsknm,id
INITIALIZE	@I0
LOAD	/fn
LOAD & RUN	↑fn
LOAD M/L	%fn
PASS DOS COMMAND	@<command>
RENAME FILE	@R0:nfn=ofn
SAVE	<-fn
SAVE & REPLACE	<-@0:fn
SCRATCH	S0:fn
VALIDATE	@V0
VERIFY	=fn (not all)

DOS 5.1

<chn>	"C0:dfn=0:sfn"
<chn>	"\$:pattern",8 <cr> LIST
<chn>	INPUT#15,A,B\$,C,D
<chn>	"N0:dsknm,id"
<chn>	"I0"
<chn>	"0:fn",8
<chn>	"0:fn",8 <cr> RUN
<chn>	"0:fn",8,1
<chn>	"<command>"
<chn>	"R0:nfn=ofn"
<chn>	"0:fn",8
<chn>	"@0:fn",8
<chn>	"S0:fn"
<chn>	"V0"
<chn>	"fn",8

BASIC 2.0

<chn>	"C0:dfn=0:sfn"
<chn>	"\$:pattern",8 <cr> LIST
<chn>	INPUT#15,A,B\$,C,D
<chn>	"N0:dsknm,id"
<chn>	"I0"
<chn>	"0:fn",8
<chn>	"0:fn",8 <cr> RUN
<chn>	"0:fn",8,1
<chn>	"<command>"
<chn>	"R0:nfn=ofn"
<chn>	"0:fn",8
<chn>	"@0:fn",8
<chn>	"S0:fn"
<chn>	"V0"
<chn>	"fn",8

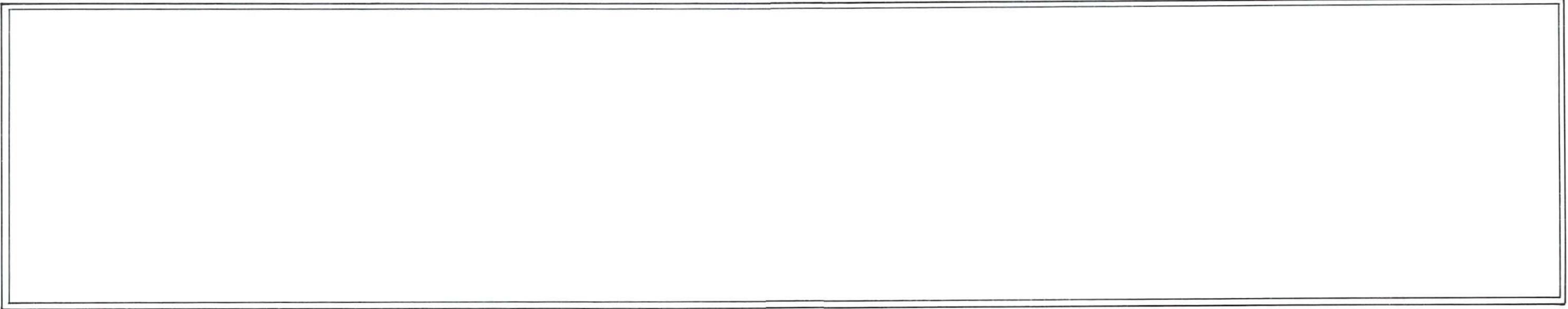
BASIC 7.0

<chn>	COPY"sfn",D#TO"dfn",D#,U#
<chn>	DIRECTORY (or CATALOG) D#,U#,"pattern"
<chn>	specify Un in command
<chn>	PRINT DS\$
<chn>	HEADER "fn",Iid,D#,U#
<chn>	use BASIC 2.0 command
<chn>	DLOAD "fn",D#,U#
<chn>	DLOAD "fn",D#,U# <cr> RUN
<chn>	BLOAD "fn",D#,U#,B<bank#>,P<startadd>
<chn>	use BASIC 2.0 command
<chn>	RENAME "ofn"TO"nfn",D#,U#
<chn>	DSAVE "fn",D#,U#
<chn>	OSAVE "@fn",D#,U#
<chn>	SCRATCH "fn",D#,U#
<chn>	COLLECT D#,U#
<chn>	OVERIFY "fn",D#,U#

KEY:fn=filename/nfn=new filename/ofn=old filename/dsknm=diskname/ sfn=source filename/dfn=dest filename
<chn> means OPEN15,8,15:PRINT#15,"command":CLOSE15
D# = drive number U# = device number

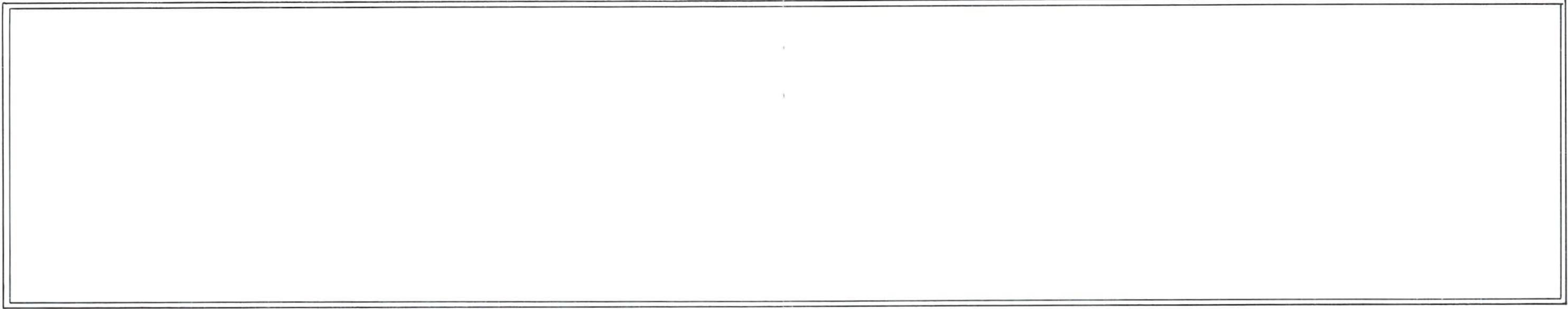
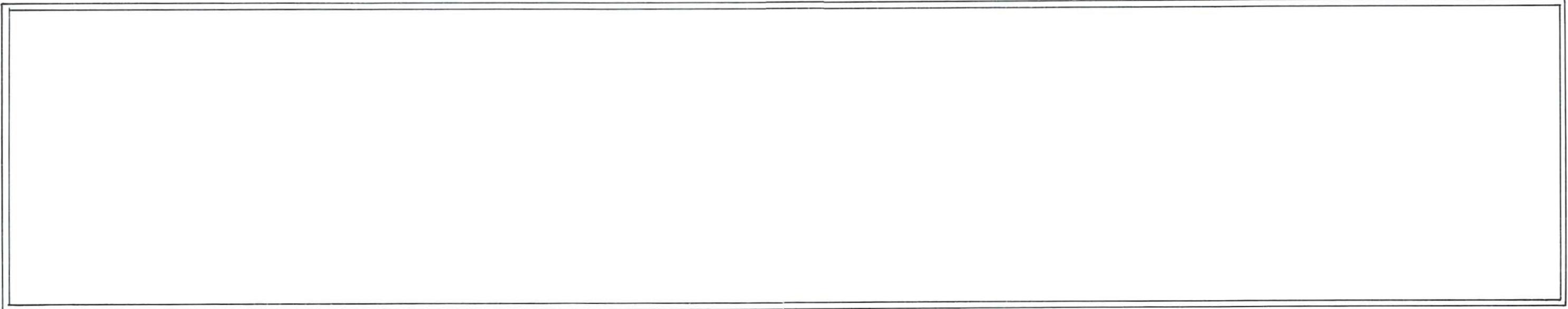
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SOFTWARE REVIEWS

MORE MEMORY FOR BASIC

Two expansion cartridges

Have you ever run out of BASIC RAM on your Commodore 64? I used to run out all the time on my first computer, but then it only had 256 bytes of memory. I've got to be honest and say I've never tackled a problem in BASIC so large that I've needed more than the 38911 bytes my C64 gives me. However, if you're one of the elite few who needs more memory than that, not one but **two** new cartridge-based products can give it to you.

The route that they take is not to actually add more RAM to your system, but to add ROM routines that transparently switch the RAM under BASIC in and out as it is needed. They give you access to phantom RAM just as though it were normal, contiguous program memory.

It should be noted that any time you start adding commands to BASIC, or doing anything as esoteric as bank-switching ROMs and RAMs in and out, you are going to slow down your system. A real rough estimate shows that Radar BASIC may be about 14% slower than resident BASIC 2.0, and S'More about 27% slower. But, then, even the C128's resident BASIC 7.0 is approximately 27% slower than the C64's BASIC 2.0. The argument can be made that the added power of the new capabilities offsets the slowdown of the system.

RADAR BASIC



Radar BASIC from RadarSoft expands your BASIC workspace to 51199 bytes. Your existing C64 BASIC 2.0 programs will all load and run normally under Radar BASIC; you will just have 12K more available memory. There are no hidden tricks or restrictions to using this 50K of program development space. The only potential incompatibilities involve programs that use RAM under BASIC ROM, or the 4K of sacred RAM at location 49152.

Besides expanding the available program workspace, Radar BASIC also adds a couple of system commands. A version of the DOS wedge is included in ROM, as are fast tape load and save routines (a legacy of its European origin, where tape is still the most popular storage medium). There is also a command to kill the cartridge if you should want to load something that might be incompatible.

Radar BASIC provides "plain vanilla" BASIC workspace expansion with complete BASIC 2.0 compatibility.

S'MORE



Cardco's S'More cartridge is much more than a BASIC workspace expander; it also provides a considerable extension to BASIC itself. Unfortunately, it won't work with many of your present BASIC programs.

S'More expands your BASIC workspace to 61183 bytes free, almost a 22K increase, but you lose BASIC 2.0 graphics and sound compatibility in the process. Due to the way the bank-switching is implemented, PEEKs and POKEs to the VIC and SID chips, and to video and color RAM, no longer work; they end up affecting program memory. VIC and SID locations are implemented as array variables by S'More, so to reset, for example, the first SID register you would assign SID(0)=0. Any and all existing programs you have which PEEK or POKE these locations will have to be rewritten in S'More format and then, of course, will not work on a standard C64 without a S'More cartridge.



SOFTWARE REVIEWS

S'More's BASIC extension vocabulary is big, adding 65 new and enhanced commands to BASIC. All are "serious" enhancements to the language. Disk operations, relative files, print using, substring assignment, error trapping, and many more are included. Code has also been added to take care of some of the major annoyances of Commodore BASIC, like the null string ASC() value and garbage collection. Unfortunately, there are no added graphics or sound commands. This is doubly troublesome because of the PEEK and POKE incompatibility mentioned above. Register variable array assignments are the **only** way to use graphics and sound.

The manual is very good; there's a table of contents and an appendix that lists keywords. There is also a good memory map and a section on interfacing machine language to S'More. Each keyword is given a page or more in the manual, and is explained in-depth with programming examples. It should answer most all of your questions about this product and how it operates.

Cardco promises a S'More compiler later this year for \$40 that will speed up S'More programs, though you will still need the cartridge to be able to run them. Its business-oriented BASIC extensions and additional 22K of program memory area would seem to make S'More a pretty good tool for writing custom productivity programs, especially once the compiler becomes available. However, its array-referenced graphics and sound registers and the attendant incompatibility with BASIC 2.0 PEEKs and POKEs may mean trouble if you're into games, music, or graphics. Make sure your application matches its capabilities before you buy S'More.

RADAR BASIC is available from:

Radarsoft/ACK Inc.
655 John Muir Dr. #E411
San Francisco CA 94132

S'More is available from:

Cardco Inc.
300 S. Topeka
Wichita KS 67201

PEEK #A#BYTE



PEEK A BYTE - COPYRIGHT 1984 SLAYBAKER	
DISPLAY	FUNCTIONS
A - HEX/Char	ctrl U - BAM
Z - ASCII/Screen	C - Convert
X - Reverse/Norm	D - Disassem
	E - Edit
PARAMETERS	F - Fill
T - Track	ctrl G - FillB/FF
S - Sector	G - Goto
B - Buffer	J - Jump
ctrl D - Drive	M - Monitor
ctrl U - Unit	shft M - Memdrive
R/S quits command	ctrl P - Printer
Q quits program	ctrl S - Search
Quantum Software	U - Un-new
Serial # 145702	U - Verify1
	ctrl U - Verify2
	shft S - Directry
Command Mode	Press Any Key
More HELP	Press H
Restart PEEK A BYTE	SYS 49152

All right, so this program has one of the worst names you've ever heard: don't let that stop you from running right out and buying it. In my humble opinion, this is probably the **most useful programming tool since the machine code monitor**. What is it? It's a disk track and sector editor.

Disk editors have been around for quite awhile; the big difference with Peek-A-Byte is that it **resides in high memory**, ready to be called any time you need it. This makes it an interactive programming tool like the machine code monitor and the DOS wedge, both of which are compatible with it.

Peek-A-Byte loads into "Sacred RAM" at \$C000 and is invoked with SYS 49152. Two resident **help screens** list the Peek-A-Byte commands, which generally involve a single keystroke or a control-key combination.

SOFTWARE REVIEWS

APSOFT-64

AppleSoft BASIC for the Commodore 64

One of Peek-A-Byte's major strengths is its ability to use the entire BASIC free memory space as block buffers: **you aren't limited to examining one track and sector at a time.** You can read selected or continuous blocks of sectors, the entire disk directory, or a whole file into memory with one command and then scan through the memory buffers that hold the disk block data. You do have to be careful that the memory buffers you've selected don't overlap a program in memory, or you'll overwrite it; Peek-A-Byte automatically keeps you from overwriting low memory or its own code to prevent you from crashing the computer. **You can examine and modify blocks in hexadecimal, ASCII, or screen code form,** and then write your changes back to disk. Besides track blocks, you can also load and examine drive memory, which is handy in examining some disk-protection schemes. You can also disassemble what's in the buffers. Because you are working in the Commodore 64 memory, you can use these commands to examine memory pages in computer ROM or RAM, too.

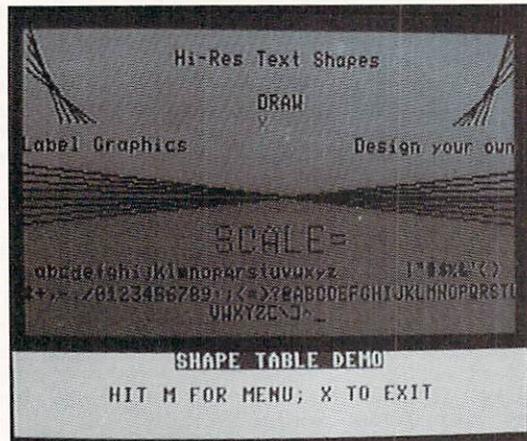
Peek-A-Byte also allows you to search through memory to find a string, compare two disks to see if they're the same, check a disk for errors, do hex to decimal conversion, fill a buffer with specified values, display the disk BAM, and dump the screen to the printer at any time. There is even an "UNNEW" command to recover accidentally NEWed BASIC programs.

The Disk Mechanic, an optional module added to the latest release of Peek-A-Byte, gives you an additional arsenal of commands to examine header blocks and raw GCR code, reformat tracks, read and write half-tracks, etc.

The manual is a full 32-page 8x11 book, punched for a ringbinder. It clearly explains all the program's functions, gives tips for customizing the printer routine for non-Commodore printers, and contains numerous examples. The diagrams of disk sector information are the best I've seen, and correspond exactly to what you see when you display them on screen. There's a two-page summary of keyboard commands, a four-page chart of hex, decimal, screen, BASIC, and ASCII codes, and a memory map of locations used by Peek-A-Byte. **The disk is not copy-protected (YEA!)** and even includes a back-up program so you can make a backup right away.

Peek-A-Byte is an indispensable tool which belongs in the toolbox of every serious Commodore 64 programmer.

Peek-A-Byte, \$35 from:
Quantum Software
PO Box 12716
Lake Park, FL 33403
(305) 840-0249



ApSoft-64 is a unique BASIC extension that adds most of the commands of Applesoft BASIC to Commodore resident BASIC 2.0, leaving you with 34814 bytes of program memory space. This is a really inspired way to add Apple compatibility to your Commodore 64; the BASIC you end up with will run the majority of C64 and Applesoft BASIC and Apple Integer BASIC programs.

Apple programs must be ported over to a 1541 disk before they can be run. This generally involves downloading them via modem. A simple terminal program is even included on the ApSoft disk for this purpose. Then some translation is probably in order, since ApSoft does not implement **all** the Apple BASIC commands. These exclusions and changes are



SOFTWARE REVIEWS

Educational Software

well-documented in the manual, and there are two programs on the disk that will help you to make the changes. CONVERT automatically flags most changes for you, and BADLINES reports potential sources of incompatibility that you may have to rewrite. There are dozens of programs on the ApSoft disk that have already been converted, and FS! Software has several disks full of already translated programs available.

There are four main applications that I can see for ApSoft. One is to make the transition to a Commodore 64 easier for a former Apple owner, or for kids who use Apples at school. Another is to allow teachers, friends, and user groups to share BASIC software between machines with a minimum of effort. The third is to add Apple-style graphics commands to Commodore BASIC to give you graphics capabilities without peeks and pokes. There are some additional commands for sprites and sound that are not part of Applesoft BASIC that have been included just for this purpose. The last application I see is for those involved in telecommunications who regularly run into Apple BASIC programs on the phone networks that they would like to be able to download and run.

ApSoft-64 will not provide you with complete Apple compatibility, but most BASIC programs seem to port over with minimal translation. FS! Software has built a bridge between the Apple and the Commodore 64.

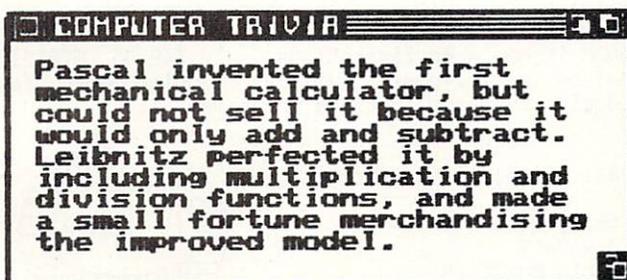
SOME APSOFT-64 APPLE CAPABILITIES:

ONERR GOTO	SHAPE TABLES
HIRES GRAPHICS	SPLITSCREEN
TRACE	SOFTSWITCHES

and many more

ApSoft-64, \$39.95 on disk from:

FS! Software
PO Box 7096
Minneapolis MN 55407



Maps/World

This package includes two programs. The first is a simple world statistics "electronic pamphlet" which allows you to select a country with the joystick from a scrolling menu, and then displays the vital population and economic statistics for that country. The second (and main) program displays a helicopter on an impressive smooth-scrolling hi-res world map. After sitting through a long musical introduction (every time you boot up), you can choose which types of random destinations you want to fly your helicopter to: countries, cities, rivers, etc. You are given one location after another at random, and the more locations you manage to find and fly over in your allotted time, the higher your score. Unfortunately, the world map is colored an overall generic green without political map boundaries. Thus, finding even places you are familiar with becomes a real chore, especially inland locations with no real coastline reference points. With political boundaries, this would become a very fun and educational game. Without them, it sometimes gets pretty frustrating.



Maps/U.S.A.

This USA version of MAPS/WORLD includes political boundaries for the states, and thus overcomes the major objection to MAPS/WORLD. With boundaries drawn and states labelled, it is much easier to find the cities and landmarks on your helicopter flight. There are some surprises (it asked me to go to Hollywood, which it then told me 15 seconds later was in Florida), but they just add spice. Cute but not overwhelmingly innovative, and the long musical introduction and load time are aggravating, but overall an enjoyable and painless edu-game excursion into the realm of geography. (There is a similar program for the European continent called MAPS/EUROPE.)

MAPS programs available from: RadarSoft, ACK Inc.,
655 John Muir Drive #E411, San Francisco CA 94132

SOFTWARE REVIEWS

INFO RATED



Music: Scales & Chords

This package is fourth in a series of music tutorials from the Minnesota Educational Computer Consortium. It consists of a menu and instruction shell which accesses six separately-loaded drills on scales, chords, and intervals. The load times really kill this one. These very simple drills could easily have been integrated into one memory-resident program. The programs themselves play tones and ask students to audibly identify intervals, chords, etc. Each choice seems to require two or three keyboard entries to get to the next problem, since you are continually presented with replay, number of questions, etc., options. There are no graphics, and no real rewards or punishments for correct and incorrect answers. The best thing you can say about this one is that it comes in a nice binder with a free backup disk.

Available from: MECC, 3490 Lexington Ave. N., St. Paul MN 55112

INFO RATED



Bataille de Mots

This is the French language version of Gessler's "Advanced Beginner/Intermediate" foreign language series. Also available are Batalla de Palabras (Spanish) and Wortgefecht (German). It's a nice tutorial package. There is a vocabulary drill module, which gives you nouns, verbs, or adjectives along with their English meanings and sample French sentences using the words. The speed at which these are displayed is variable, to allow for different learning speeds (I found the default speed too fast for me). Another module offers timed French-to-English (or vice versa) multiple choice quizzes, with optional musical reward for correct answers. There is also a fill-in-the-blank sentence completion mode. The final option is a licensed version of WORD ATTACK! in which you fire a little French guy's beret (!) at French words in response to their English definitions. The manual lists the vocabulary lists included, and there is an editor on the disk so you can create your own word lists. Unfortunately, the editor on the review copy I received had a bug in it that prevented it from working at all; I trust it will be OK in its final release. This is a very nice tutorial package that should find good use both in the classroom and at home.

\$49.95 from: Gessler Educational Software, 900 Broadway, New York NY 10003

CP/M

MTBASIC

With BASIC 7.0 available in the C128 mode, why in the world would anyone want to buy a version of BASIC to run in CP/M mode? There are a couple of good reasons. For one, a CP/M BASIC compiler like MTBASIC gives you the ability to write applications in familiar BASIC and compile them down into fast Z80 machine code. It also lets you write custom applications that use data already available in CP/M formats from other machines, including the Osborne, Kaypro, and IBM PC (running CP/M). This includes programs to translate data from one application to work on another.

Don't expect all the bells and whistles of BASIC 7.0, however. Since MTBASIC is a generic BASIC, written to run without hitches on many different CP/M machines, it is without graphics, sound, and other machine-specific functions. Hooks are provided so that ambitious programmers can interface machine language to perform these tasks.

The MTBASIC editor and compiler are co-resident in memory, which means that you can write and RUN a program, make changes and test them all without having to load and swap an editor and compiler from disk. Debugging and polishing a program are almost as easy as with C128 BASIC. Compile times are fast, so fast that typing RUN will make you think this is an interpreter, not a compiler. You can save your program as BASIC source which can be loaded, run, and edited with MTBASIC, or as a stand-alone executable .COM file which can be run on any C128.

All of the normal BASIC commands are included in MTBASIC, plus a couple of surprises. It supports a form of software-interrupt driven multitasking, and also text windows. Windows allow you to designate limited areas of the display for different information or tasks. Multitasking lets you run up to ten independent programs at one time, within limitations; you are limited to relatively simple tasks which won't tax the machine's I/O and processor times too heavily. For example, you can only have one task at a time asking for keyboard input, or accessing the drive. But it can run a sort while you input new information, or display a clock while your disk directory lists, or do other similar multitasking applications. Very handy.

Though it has some limitations, at \$49.95 MTBASIC provides a low-cost, familiar environment for producing CP/M applications programs.

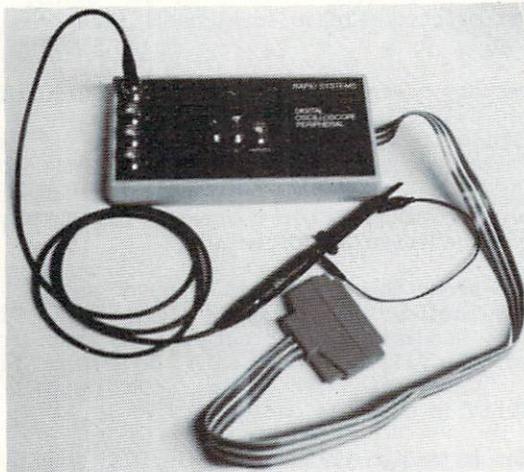
MTBASIC is available from:

Softaid, Inc.
PO Box 2412
Columbia MD 21045



HARDWARE REVIEWS

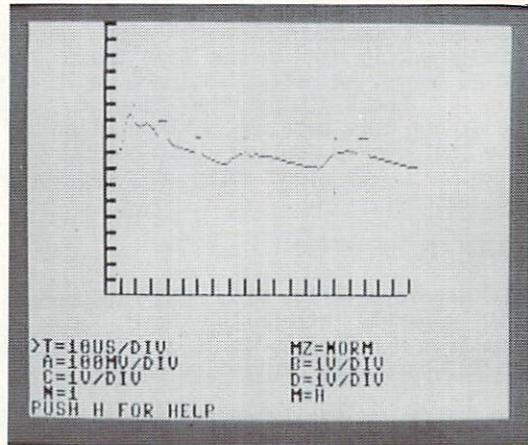
DIGITAL OSCILLOSCOPE PERIPHERAL



A four-channel digital storage oscilloscope can easily cost upwards of a thousand dollars. Rapid Systems offers a peripheral for your Commodore 64 that will do the job for \$649.

The Digital Oscilloscope Peripheral plugs into your C64's user port. It comes with driver software that allows you to operate the device as a 500 KHz four-channel storage oscilloscope. Additional features include autoseek, zoom, and screen print functions. A Fast Fourier Transform package for spectrum analysis is also included.

The device itself is small and compact, about the size of three packs of cigarettes. There are three standard oscilloscope controls, for +/- waveform, external/internal trigger, and trigger level. Five BNC connectors provide inputs for channels A to D and external trigger. Scope probes are not supplied; you will need one to four probes, depending on how many channels you want to use, at \$35 (third-party) to \$59 (from Rapid Systems) each.



All the other standard oscilloscope controls are handled from the computer keyboard with on-screen display of their values. These include channel select, time base, vertical gain, position, and trigger mode. You can also select to save or retrieve a display screen to disk.

Technically, Rapid Systems has squeezed more out of this device that I would have thought possible of a C64 peripheral. Even though the C64 only runs at 1 MHz, the maximum sampling rate of the Digital Oscilloscope is 2 MHz. Resolution at this and the 1MHz sampling rate is only four bits, but it is 8 bits at lower sampling rates, which range down to 100 Hz. The device has diode-protected inputs with an input impedance of .5 megaohms, and a maximum input voltage of +/- 200V. Response covers DC to 500KHz (-3db). It has its own 2K of internal digital storage.

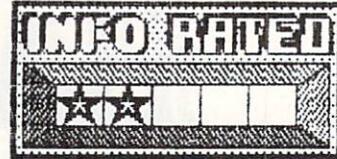
The video display is clear and uncluttered, though it does flicker as it samples data and updates the screen. The controls are simple and intuitive.

Rapid Systems makes versions of the Digital Oscilloscope for the IBM PC, Apple II, and C64, and, though all are selling like the proverbial hotcakes, they claim the C64 version is outselling the other two combined. If you have need to sample and analyze waveforms, the Digital Oscilloscope is a sturdy, reliable, versatile, powerful, proven product.

Digital Oscilloscope Peripheral, \$649 from:

Rapid Systems
659 N. 34th St.
Seattle WA 98103

ST10C 10 MEG HARD DRIVE



First off, we'd like to correct two errors that we made concerning this product as it was listed in the last issue (product roundup, INFO #8): We mistakenly reported that the ST10C was not properly shock-mounted. During our handling of the drive mechanism, we failed to notice a set of alternate shock mounts on the bottom of the drive. The ST10C IS properly shock-mounted. We also mistakenly calculated the full disk backup time to a 1541 at close to 40 hours. A better estimate would seem to be about 12 hours (plus the time to swap 61 diskettes), but this remains a theoretical figure since the 1541 backup routine would not work in our evaluation unit. We stand corrected, and apologize for these errors.

AN OVERVIEW OF THE ST10C

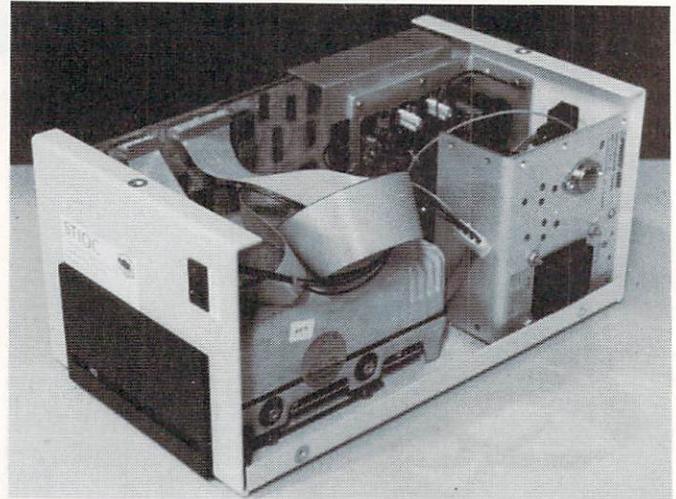
The ST10C hard disk drive from CSI incorporates a 5.25" 10 megabyte Winchester hard disk drive mechanism from MiniScribe, an 8085 microprocessor, and an 82062 hard disk controller chip.

The first thing you really notice about the ST10C is its incredible price tag: \$1595. Since we've seen ten megabyte stand-alone hard disk drives for the IBM PC in the \$700-800 range, and Tecmar's 20 meg hard drive for the Amiga at twice the storage and half the size is priced at about \$1000, it's hard to understand why this drive should be so expensive. (In fact, Tecmar's hard drive plus their 20 megabyte tape backup unit together cost about the same as the 10 megabyte ST10C alone!)

The ST10C has two Commodore 64 compatible serial port jacks, an IEEE-488 port, a switch to select disk device number 8 or 9, and a format-protect switch on the back of the case. On the front is a momentary pushbutton backup switch. You push it to initiate the built-in backup procedure to floppy disk. According to our tests, it would take over three and a half hours to back up a full 10 megabytes to an SFD-1001 one megabyte floppy drive. Our test unit would not back up to a 1541 as advertised; CSI says there was a bug in the ROM, and that it has since been fixed. If it works, you might need as many as 61 floppy disks to back up a full 10 megs with a 1541, which should give you some idea as to why tape-backup units are so popular. It would take at least 12 hours to back up a full hard disk. Unfortunately, those who most need to be able to back up their data, business users, will be the ones least able to afford the lengthy time the ST10C requires for backups.

To fire up the ST10C you just plug in a serial or IEEE cable and turn on the drive. This is fortunate, considering how bad the documentation is: 13 pages of sketchy photocopied information.

The drive is accessed via standard Commodore disk commands. It's DOS is generally Commodore compatible, but there are some incompatibilities that could cause problems. For example, on a



Commodore drive a scratch command with a wildcard, such as "SO:TEST*", will scratch all files that begin with the letters "TEST". On the ST10C, only the first matched file is scratched. COPY does not work at all.

The directory space on this drive is unlimited. We've had over 800 files active on the disk at one time. While it may seem great to be able to store an unlimited number of files, there is a problem: the ST10C has no facilities for directory management. The drive won't create subdirectories, or even alphabetize the directory.

The drive seems to work almost as good as a 1541. It loaded Isepiced versions of Paperclip, Flight Simulator, Doodle!, BASIC programs, and most things we tried. It failed to work with Superbase files, though. CSI claims it does work with some custom-written database managers.

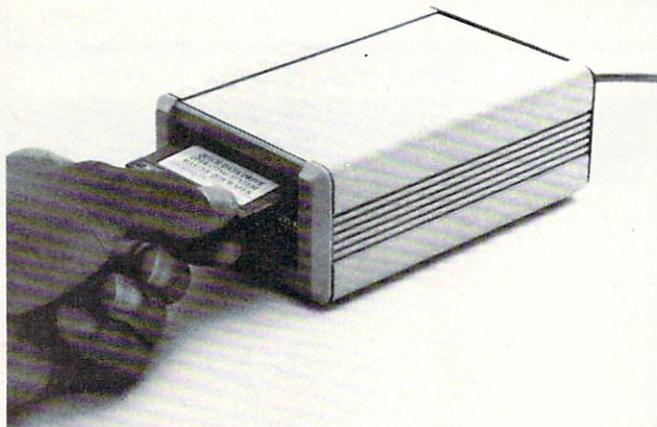
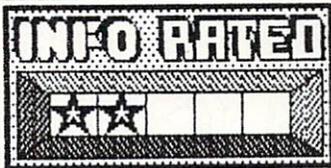
Our major objection to the ST10C is its speed. In our tests, in serial mode it transferred data at the same rate as the 1541 disk drive. The IEEE mode was about twice as fast. For example, the public domain program MONOPOLE loaded in 40 seconds using the IEEE interface, as opposed to 75 seconds from a 1541. In our opinion, a hard disk drive should be at least ten to fifty times faster than a 1541.

Although CSI has technically delivered on its promise of a hard drive for the 64, what they have delivered is too slow, too hard to manage, and costs too much money. If you absolutely, positively, have to have a hard disk drive NOW, you may be tempted to try the ST10C until something better comes along, but we question the wisdom of trusting valuable data to this behemoth. We suggest that CSI to go back to the drawing board with this one.

INFO

HARDWARE REVIEWS

WAFERTAPE DRIVE From Entrepo



The Entrepo Data Drive is a wafertape storage device. Wafertapes are small endless-loop cassette tapes, similar to microcassettes but with a hard shell and sliding protective door reminiscent of 3.5" floppy disks. Similar tape drives were sold in the early days of home computing as "stringy floppies". The same wafertape systems are now used in many high-end stand-alone wordprocessor terminals.

There are many reasons why you probably don't want a wafertape drive. Price is one. A Data Drive costs \$84.95, twice as much as a cassette tape recorder and over half the price of a 5.25" floppy disk drive.

Another reason is the operating system. It has to be loaded from disk into high memory, which instantly makes the Data Drive incompatible with most commercial software. If you buy the operating system on cartridge, your drive is still likely to be incompatible with many titles, and your cost is up to \$99.95 (\$29.95 for the cartridge alone). Entrepo has several software titles, including Epyx games, wordprocessor, file manager, and educational titles, but you are limited to just what they offer. No other commercial manufacturers make their titles available on wafertape format.

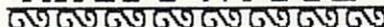
A third reason is speed. Though the actual loading times of the Data Drive are good (maybe even faster than disk), the unidirectional endless-loop tape has to be scanned to find the program or data you are looking for. Depending on the length of the tape, this can take quite awhile. And if you are using the tape-loaded operating system, you must add its load time to the equation.

For just a little more money, a disk drive makes a lot more sense. If you are committed to cheap tape storage, a cassette storage system with one of the magazine or commercial tape-speedup programs would seem a cheaper and more software-compatible solution. If you are still interested, Entrepo offers a very fair 30-day unconditional return policy

Data Drive, \$99.95 including cartridge operating system, from:

Entrepo Inc
1294 Lawrence Station Rd.
Sunnyvale CA 94089

MAGIC MOUSE



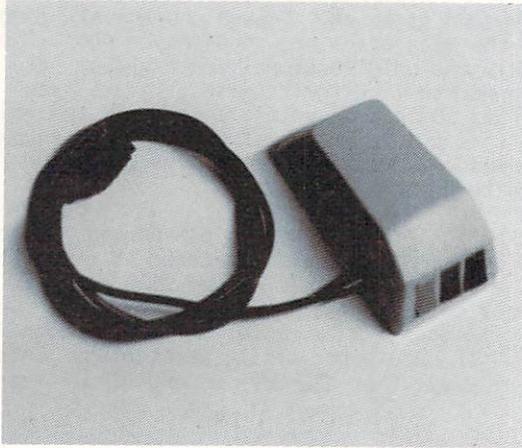
There is finally a mouse available for the C64 and C128, and it's **not** from Commodore. It's the Magic Mouse from Connexions.

Magic Mouse is big. It's almost twice as big as a standard mouse. By "standard" we mean the mice (mouses?) for the Macintosh, Amiga, Atari ST, and Commodore's own promised C64 mouse. This makes it harder to manipulate. The ball rides right under the heel of your hand, much closer to the back than most of the mice we've seen, which lessens your control also; the farther away from your fingertips the ball is, the less control you have. Magic Mouse has not one, not two, but **three** color-coded control buttons, which could be a plus in some programs.



HARDWARE REVIEWS

MAGIC MOUSE cont'd



There are basically three kinds of controller inputs available at the joystick ports of your computer: light pen, paddles, and joystick. Joystick-type controllers are switch or pulse controlled. This category includes trackballs and most mice. Paddle technology includes analog devices like the Koalapad. Magic Mouse, unlike most mice, uses paddle technology. This means it will be incompatible with most programs written for a mouse, though it works admirably well with Koala Painter and other software written for the Koalapad.

Included on the disk supplied with this mouse is a respectable drawing program, as well as sprite and icon design programs. There is also a routine that loads into high memory, callable from BASIC or machine language, which lets you use the mouse to control a sprite pointer. The user guide does a good job of documenting the mouse and the programs, and includes BASIC routines for including these programs' products in your own programs.

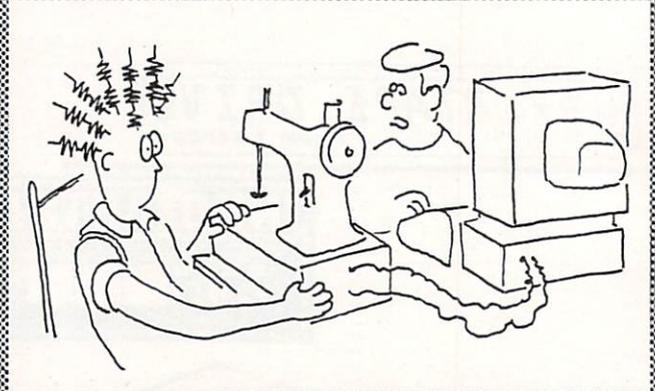
Magic Mouse is kind of big, and faces an incompatibility problem with most mouse software, but could be a lot of fun for you if you write your own software. It's a well-built product with good documentation and support software.

Magic Mouse is \$64.95 from:

TVTRON
4959 Sunset Blvd.
Los Angeles CA 90027



Brian Redman Strikes Again!



"Go ahead Mom, try it now."



"If you're looking for those little records, dear, I stuck them on the fridge with your big magnet."

BOOK REVIEWS

CP/M USER GUIDE

Digital Research, apparently fatally poisoned against its own products by IBM chauvinism, has decided that CP/M 3.0 is dead. They have classified it as a "Class D" product, the lowest rating they can give, the equivalent of completely disowning it. **Digital is not providing any product support at all for CP/M 3.0.** They will not answer phone calls, letters, or other requests for information about CP/M 3.0. This is a real shame when you consider that sales of the C128 are likely to single-handedly make CP/M 3.0 systems outnumber MS-DOS systems within the year.

So where do you go for more information? The C128 manual is good, but the CP/M section is its weakest point. Fortunately, the third edition of **The Osborne/McGraw-Hill CP/M User Guide** by Thom Hogan has been updated to provide excellent in-depth coverage of CP/M 3.0. This book also documents CP/M 2.2, and clearly points out and explains the differences between the two.

This guide explains what CP/M is and where it came from, and gets into different disk formats, BDOS and BIOS calls, configuring a system, and all kinds of other esoteric stuff. There is even a chapter on the MAC assembler. If you want to find out what makes CP/M tick, you will probably learn enough here to get you well on your way.

For the more practical-minded, both resident and transient commands are explained along with all their options. The C128 manual doesn't take the time to get into all the command options, but each is explained in-depth here, and in CP/M 3.0 there are a lot of options!

There are also instructions covering how to operate a CP/M system, from the line editor commands to running application programs. Most everything you will want to know to be able to operate the C128 in CP/M mode is covered.

The book is well-written and very well-organized, with a table of contents, an index, and appendices for everything from error messages to ASCII codes. If you need a reference book for C128 CP/M, **The CP/M User Guide** is it.

The CP/M User Guide (Third Edition) by Thom Hogan, available from:
Osborne/McGraw-Hill
2600 Tenth St.
Berkeley CA 94710

ABACUS BOOKS

The series of Data Becker books offered by Abacus Software consists of translations of West German titles covering a wide range of topics. Despite an occasional awkward "translated-sounding" phrase, they offer some excellent information, much of it unavailable elsewhere.

These books, now numbering over a dozen, each cover a specific narrow topic in-depth, providing examples written exclusively for the Commodore 64. Subjects offered include cassette storage, the 1541 drive, printers, graphics, tricks & tips, adventure gaming, and science & engineering applications, among others. Since they are slanted specifically for the Commodore 64, the information you get is directly applicable to your machine without translation, tweaking, or stomach upset. Several of the titles may have extremely limited audiences (the cassette book comes to mind), but it's good to see this information available for those with the interest and need.

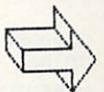
Besides the specialty books, two of the titles in this series are almost indispensable handbooks for all serious programmers. They are **The Anatomy of the Commodore 64** and **The Anatomy of the 1541 Disk Drive**. Each contains information on the internal operation of the machine it covers, but their main feature is a complete, commented disassembly of the device's ROMs. They are well worth the price.

The books in this series are all sparse on production values, but heavy on information; they don't impress you much on just a quick thumb-through. The black covers and plain vanilla computer-printout typestyle combine to convey a "generic" feel. Each has a table of contents, but lacks an index. It is rare for one to contain even a few simple line-drawing illustrations. However, the books are well-organized and clear, and contain lots of useful programming examples and routines which you can use in your own programs. Judged on the basis of the information they contain, the Data Becker series of books from Abacus is a really good deal.

(Abacus has also just announced a similar series of books covering the C128.)

Data Becker Book series available from:

Abacus Software
PO Box 7211
Grand Rapids MI 49510



BOOK REVIEWS

PROGRAMMING THE COMMODORE 64

In 1982, Raeto Colin West wrote the definitive guide to Commodore computing. The book, called **Programming the PET/CBM**, quickly became the bible of serious PET owners. This year, Ray West followed up his classic work with **Programming the Commodore 64** from Compute! Books.

This tome is a 600-page compendium of Everything You Ever Wanted To Know About The Commodore 64. Peeks & pokes, ROMs, sound, graphics, machine language, disks, peripherals, BASIC, ad infinitum, are covered. Of course, in a book this wide in scope some topics are covered more thoroughly than others.

West's book is encyclopedic in nature. That is, you won't generally want to read it straight through from start to finish. Each section covers one topic, with subheadings for specific subtopics. This doesn't mean that the entries are dry and scholarly, however. They are written in a chatty magazine-article style with frequent useful programming examples. In fact, programming examples abound, both in BASIC and machine code.

The only somewhat negative comments I've heard about **Programming the Commodore 64** come from Commodore "old-timers" who say the old PET book had more useful low-level information on interfacing, machine language, and the like. In truth, however, the C64 version seems to me to have as much useful information as the old PET book, if not more. It is definitely a much more readable book. I think these comments stem more from nostalgia than from actual criticism.

A few of the many useful things you'll find within these very useful pages are:

- (1) A dictionary of BASIC keywords with full definitions of how they work, including examples.
- (2) A complete dictionary of 6510 opcodes explained in the same manner.
- (3) RAM and ROM maps documenting the areas a user can plug into and use.
- (4) Complete appendices containing character codes, undocumented 6510 op-codes, chip register locations, etc.

This book is a must for the serious C64 programmer who would like to have 99% of the information he needs close at hand in a single reference book, and also for the novice who needs a painless introduction to the inner workings of his machine. Ray West has once again written an excellent reference book.

Programming the Commodore 64 by Raeto Colin West, \$19.95 from:

Compute! Books
PO Box 5406
Greensboro NC 27403

MAPPING THE COMMODORE 64

There is no more indispensable tool for programming the Commodore 64 than a good memory map. Even if you are just a BASIC programmer, the C64 has so many functions (graphics, sound, etc.) controlled by PEEKs and POKEs that a good memory map is imperative. Some have been published in the magazines, but they usually just consist of a listing of addresses followed by short cryptic descriptions. They give you no real idea of how to use those locations. And there are no clues at all if you want to be able to call BASIC and KERNAL subroutines from your own programs. Even a commented disassembly of the ROMs is not much help in this regard, since you will still have to figure out what needs to be set, stored, or cleared before you can call a routine.

Mapping the Commodore 64, a Compute! book by Sheldon Leeman, addresses all of these problems and more. The book is a sequential byte-by-byte, routine-by-routine analysis of every memory location in the Commodore 64 from \$0000 to \$FFFF. It is divided into sections following the C64's own memory divisions, with the memory locations explained in chunks according to how they are used. For example, the entire 1K video display RAM is covered all at once, while location 646, which single-handedly controls the current text foreground color, has a half page explanation all to itself.

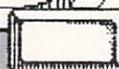
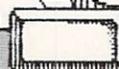
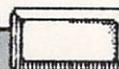
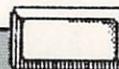
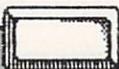
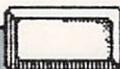
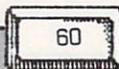
Each location is given its decimal and hexadecimal address, a clear and useful title, and anywhere from a sentence to several pages of text, depending on its relative importance and utility. Callable ROM routines are explained and the calling processes documented. The commentary on many locations even includes sample programs illustrating how to use the capabilities of that location.

This volume also includes appendices covering screen codes, ASCII codes, and other important bits of information. The index is unique, keying information not to page numbers, but to MEMORY LOCATIONS, so that you can often find out what you need to know just by turning to the index itself. Memory addresses are prominently displayed in large type at the top of each page to aid you in tracking down information.

This book is one of only about half a dozen totally indispensable books for the Commodore 64 programmer, and it probably should be the first one you buy.

Mapping the Commodore 64 by Sheldon Leeman, \$14.95 from:

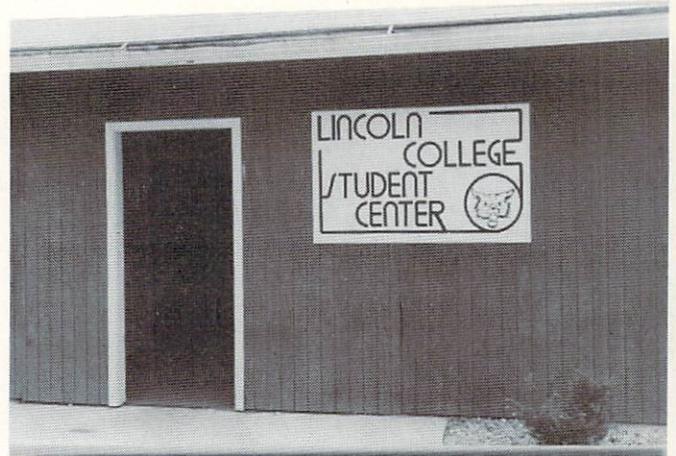
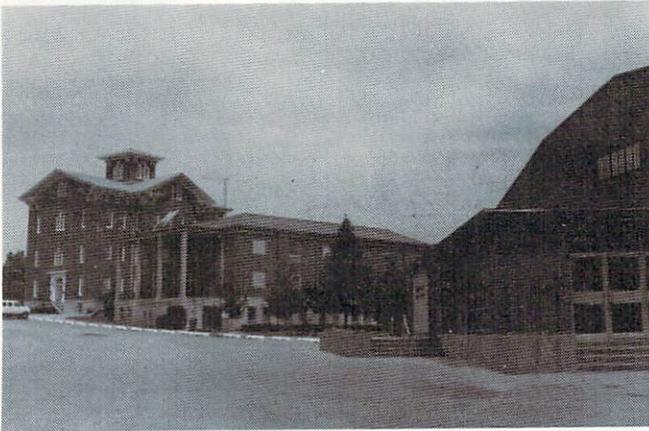
Compute! Books
PO Box 5406
Greensboro NC 27403



COMPUTER CAMP

or...
How I
Spent My
Summer
Vacation

BY MARK R. BROWN



One week every Summer the priesthood of the Commodore religion holds court in the central Illinois community of Lincoln. This week-long retreat on the cozy campus of Lincoln College allows the **Accrued Wisdom of the Masters** to filter down to **Us Lesser Mortals**. This year's gathering included a new acolyte: yours truly.

I had signed up as soon as I'd seen the brochure listing the guest lecturers. **Jim Strasma**, author and Commodore expert, has been the traditional host of the Lincoln College Commodore Computer Camp. Besides Strasma, **Jim Butterfield**, **Len Lindsay** (of COMAL fame), **Dick Immers** (co-author of *Inside Commodore DOS*), and others were lined up to teach this year.

I checked into the dorm Sunday afternoon. The place was alive with Commodore pilgrims setting up at least as much equipment as I'd brought with me. After the initial introductions, we all hustled to the auditorium to see Strasma demonstrate his C128.

Monday morning we all headed off to class. Some students carried shiny discount-priced SX-64's. I decided after the first day that I could look over someone's shoulder rather than lug my C128 system around.



CAMPERS AT EVENING LECTURE



COMPUTER COMP

or....
How I
Spent My
Summer
Vacation

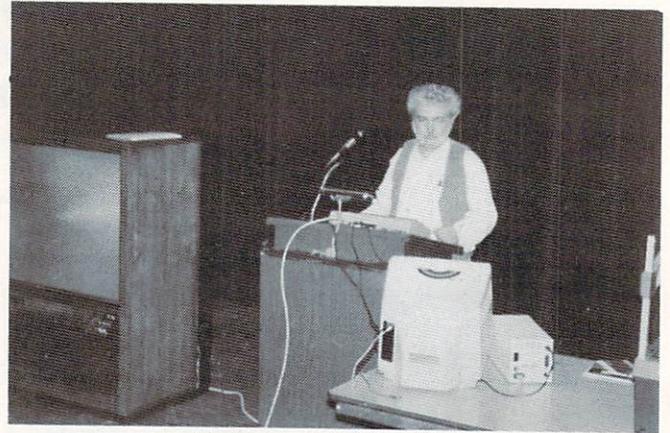
cont'd

My morning class on Commodore disk drives was supposed to have been taught by Dick Immers. The last minute substitution of **Gerry Neufeld** (the OTHER co-author of *Inside Commodore DOS*) was no disappointment! He led us on a merry excursion into the guts of Commodore drives, covering material from *Inside Commodore DOS* and *The 1541 User's Guide*. He also distributed a slick set of software tools for the dissection of disks and drives.

Jim Strasma, Jim Butterfield, Len Lindsay, and Dick Immers were all lined up to teach....

Across the hall, hardware guru **Buck Buchanan** and apprentice guru **Stu Mitchell** directed a group of hardware hackers through the innards of various pieces of Commodore and third-party equipment. Before the week was out they had produced: (1) Several repaired and resurrected drives and computers, (2) An add-on SID chip in a standard cartridge, (3) A 1541 drive with 16K of buffer memory that can read a complete diskette track in one pass, and (4) A Physical Exam disk for the 8050 and 8250 Commodore disk drives, among other things. They also tortured my C128 and 1571 briefly, wringing lots of interesting information out of them.

I smelled the unmistakable bouquet of solder flux....



JIM BUTTERFIELD EXPOUNDS



LEN LINDSAY: COMAL BULL SESSION



COMPUTER CAMP

or....
How I
Spent My
Summer
Vacation

Jim Strasma has been the traditional host of LC³....

My afternoon class in assembly language was taught by Commodore's High Priest, Jim Butterfield. He knows his stuff. We worked with the PAL assembler on SuperPETs. Steve Gast from Champaign, Illinois, made sure that Jim made no mistakes all week; Jim made disparaging comments about Steve's ancestry. A good time was had by all.

The bull sessions in the dorm are The Most Fun Things Going...

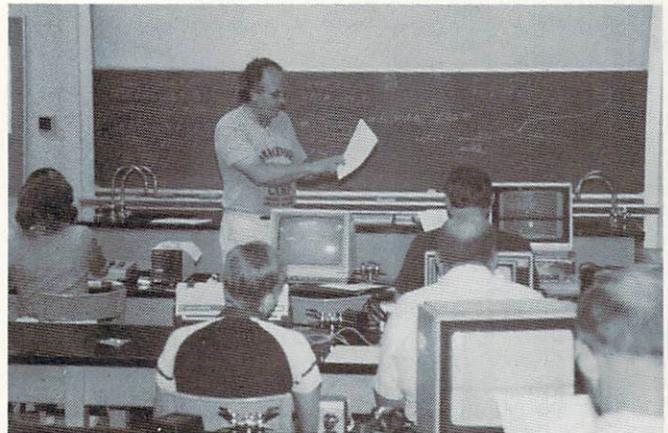
The evening lectures by Butterfield, Neufeld, Lindsay, et al., rounded out the daily program. Then it was back to the dorm rooms for computer bull sessions into the wee hours of the night.

By Friday, we all knew each other, including the experts, pretty well. There was a last minute flurry of copying one another's public domain diskettes, since the entire libraries of four or five clubs, including the COMAL Users' Group, were there.

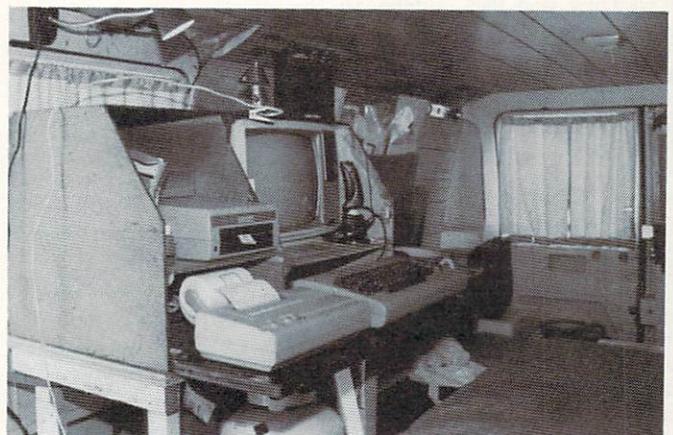
The entire libraries of four or five users' groups, including the COMAL group, were there....

Friday night's lecture was attended by a thinning crowd of red-eyed diehard Campers. Butterfield looked like he hadn't slept all week, but valiantly stuck to his keyboard until the last line was entered, the last point made. Many people headed for home as soon as the lecture was over.

By noon Saturday, there were only a couple of us left. Glenn Blevins, the Terror of Louisiana, took a last minute opportunity to show me the van he drove North in, complete with Commodore 64 computer system. I bought a couple of souvenir T-shirts at the checkout station just before I left for home. Had a wonderful time; wish you'd been there!



GERRY NEUFELD'S CBM DOS CLASS



INTERIOR OF GLENN BLEVINS' VAN

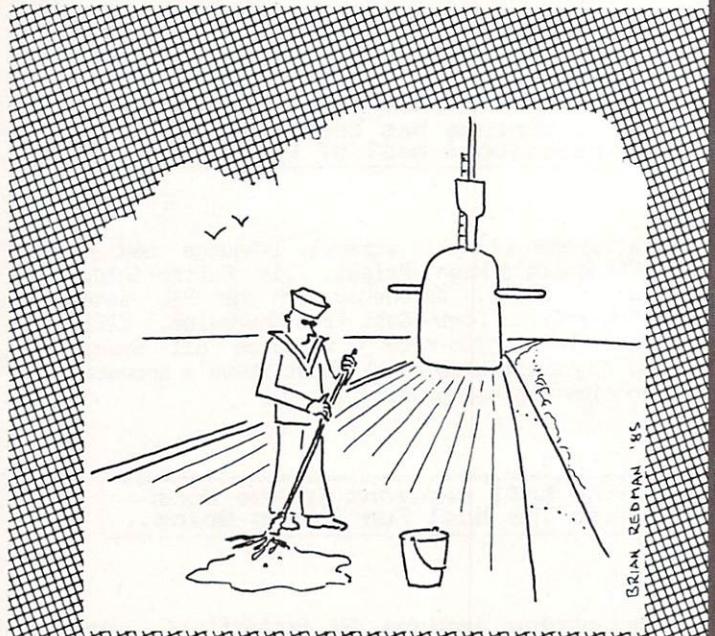


SAVEC: Gerry Neufeld's Theory on an Old Bug

If you've never heard of the save-with-replace bug, here is what it's all about: There is a DOS command that lets you save a file with the same name as one already on the disk. The format is `SAVE"@0:FILENAME",B`. This command needs enough extra space on the disk to put the file into before it will work (eg. if the file is 16 blocks long, you have to have at least 16 blocks free on the disk). The drive then (A) stores the new data on the disk, (B) updates the disk directory to point to the new data, and (C) frees up the disk space used by the previous file. This usually works fine, but sometimes the diskette gets corrupted and allows subsequent saves to overwrite data on the disk. This seems to happen at random, with some users experiencing the problem on a regular basis and others who never see it. There have been several theories advanced concerning this bug. (For one, see Dr. Philip Slaymaker's articles in the October and November COMPUTE!) Gerry Neufeld also seems to think he's got the problem solved; here's his argument: The 1541 disk drive is signalled by the computer over its NMI, or non-maskable interrupt, line when there is a job for it to do. While it is doing a job, it effectively ignores the NMI line so it can't be asked to do anything else. However, when it's done, it listens again to see if the computer has another job for it to do. This is the way it ought to work, since the drive can't do two jobs at once. However, the drive actually starts listening again BEFORE it is totally done with the job before. After it has done a SAVE to disk, it has to do the housekeeping jobs of cleaning up the disk directory and BAM before it can do anything else, but it is already listening to the NMI line to see if the computer has another job for it to do. If the NMI line is active, the drive drops the directory and BAM update in the middle and goes on to the next task without completing the current one. This leaves the directory and BAM corrupted. The secret to using save-with-replace, therefore, is not to allow the computer to ask the drive to do anything else until it is done. If you ask for a directory, for example, before the drive is done, you will corrupt the disk. This explains why some people have problems with save-with-replace and others don't. It all depends on your habits. I've had this bug crop up, but I habitually check the directory right on the heels of any SAVE command. Jim Strasma says he has never seen it, but he always waits for the drive to stop before he asks it to do anything else. Just remember: when using save-with-replace, wait for the drive to stop before you ask it to do anything else! Let's hope this is finally the answer to a long-standing bug!



Brian Redman Strikes Again!



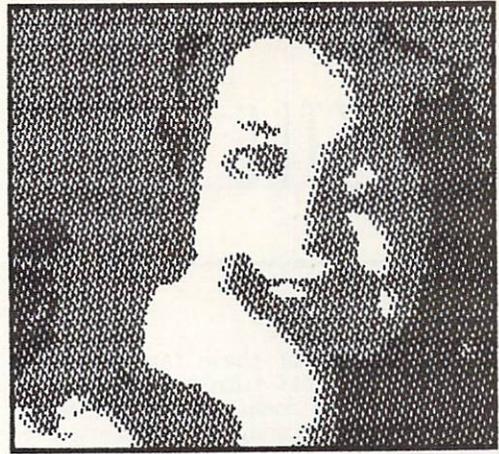
Basic sub routine



"Of course, we have higher resolution dot printers..."

THE LITTLE GUYS

by: Mindy Skelton



BASEMENT BOYS SOFTWARE

There is a mystique in America that bigger is better...taller buildings...bigger cars...the giant economy size...bigger corporations. Haven't you all heard the argument, "The company is so BIG, the product must be great!"? Well folks, I'm here to remind you of something else. Running right along side of our love for bigger and better, is our fascination with and affection for "the little guy", the underdog who comes out on top of the heap even without powerful backing. This column is an opportunity for you to hear about people out there who are doing outstanding jobs on their own. These are not the Bill Budes and Scott Adamses we've all heard about who work with giant corporations and operating budgets to back them...but these are folks who deserve to be known.

**MICHAEL J. HENRY IS SOMETHING
OF AN UNDERGROUND SUPERSTAR...**

This article is devoted to a young man who is something of an underground superstar...Mike J. Henry. Don't be surprised if you don't know the name...you will. And for those of you who DO recognize the name...surprise!! Bet you never thought you'd see Mr. Henry's name in a major magazine did you? Now why should people be surprised to see an article about Henry? Because, gentle readers, Mike J. Henry is able to crack, copy or even duplicate almost any form of software protection on the market, and has written some of the most sophisticated copy programs available. And let's face it; copy programs are the poor stepchildren of the software business. No one seems really comfortable that copy programs exist, and certainly no one wants to appear to condone piracy by reviewing or recommending one. Fine. I'm not condoning anything, but I want to tell you a little about a really successful "little guy" who is a master of his craft.

Most of you probably don't remember the early days of the 64, but for what seemed like years, the only way to copy a disk was a nifty little number called "1541 Backup". This program copied a full, unprotected disk for you in something around 30 minutes. As for protected disks, forget it. You either used your original disk and hoped it never wore out, or you figured out for

**NO ONE SEEMS REALLY COMFORT-
ABLE THAT COPY PROGRAMS EXIST.**

yourself how to circumvent the copy protection (which looking back from today's "starwars mentality" protection was pretty simple protection). As time went by and people began to learn more about the 64 DOS and how to make it do tricks, and how errors were created and how they could be eliminated or duplicated, some other copy programs showed up on the market. One of the best of its time was a copier called Di-Sector co-authored by, you guessed it, Mike J. Henry. Di-Sector was the result of Henry's intimate knowledge of the workings of the DOS and the intricacies of the copy protection schemes in use at the time. No doubt about it, Di-Sector was good, and LOTS faster than clunky ol' "1541 Backup". For those of us who didn't understand how the protection worked, Henry delivered a powerful and yet uncomplicated tool to make our backups. For a while Di-Sector was on the cutting edge of copy work, but disk protection is a fast moving field and new protections come along almost too fast to keep up with.



THE LITTLE GUYS

cont'd.

About a year ago one of those rare programs came along which mark a real turning point...a true departure into a new zone. The three minute copy program came on the scene. True, there were some errors it couldn't deal with, but THREE MINUTES! This one was not written by Henry, but by a very nice young man in Germany named Thomas Tempelmann, who was inadvertently totally denied any credit for his inovative program (maybe more on him another time). The important thing about this program was that it was an entirely new method of copying, and so spawned entirely new methods of protection. That seems to be how things go in this business.

So here we are..it's 1985 and we're looking at disks that record out to track 40, use multiple sync densities (whatever they are), half tracking, or even laser protection for heavens sake! The schemes are getting positively Machiavellian, and the poor users STILL want to make back-ups. Relax. The cavalry (or more accurately Mike J. Henry) to the rescue!

Mr. Henry has left Starpoint, formed his own corporation, Basement Boys Software, and given us FastHack'Em, the most extraordinary copy program I have ever seen for the 64.

FastHack'Em version 1.2 [The program has only been out a short time and Henry has already improved on it. Here is a man in search of excellence] will copy an entire protected disk in

(1) under 2 minutes with a single 1541 drive.

(2) about 1 minute with an MSD dual drive (even faster than the built-in duplicate command which won't do protected disks anyhow)

(3) only 35 SECONDS with two 1541 drives chained together.

35 SECONDS!!! That's not even enough time to fill out the label for the disk. Boy have we ever come a long way from "1541 Backup".

Let me take you on a guided tour of FastHack'Em.

You boot up Fast Hack'Em with LOAD"?*",8,1. Within a few seconds you should see a message saying,"FASTBOOT ENABLED", then the load will continue. FASTBOOT is a program which speeds software loading times (and as an extra bonus can be used by itself). FASTBOOT brings up Fast Hack'Em's copy utilities menu almost instantly (and let me just throw in that the display is beautifully done). Once the menu appears you are presented with a number of options:

**IN THE EARLY DAYS OF THE C64,
A FULL DISK BACKUP TOOK
30 MINUTES...**

A-2 min copy for single 1541
B-35 sec copy for two 1541's
C-56 sec copy w/verify for 2 1541's

Option A is a nice, quick copy program. Six swaps (three passes) and you're done. B and C are not only fast, but they let the user change the device number of one of the two daisy-chained 1541s. In addition, both of these options allow you to choose the starting and ending tracks for the copy -- all the way out to Track 40 (remember I mentioned that form of protection...writing out to track 40 on a disk that normally only holds 35 tracks). All three of these options will easily copy disks that use simple protection schemes.

But what if you don't have a 1541? What if you want to use an MSD? Never fear. Just look at these options.

D-60 sec copy for MSD Dual drive
E-68 sec copy for MSD Dual drive

The difference between option D and option E is that option E verifies the copy as it goes. Both copy protected disks, and both let you choose the starting and ending tracks, again up to 40. I always use D, just to save those extra few seconds.

Remember a few paragraphs ago when I said options A thru C copied most disks with simple protection? Well, what if you have a disk with more complicated protection? Are you out in the cold? Not at all. Just take a look at these options.

F-Fast Nibbler
G-Art's Copier
H-Parameter Copier

For disks with more advanced protection schemes option F can be just the ticket. The user can adjust starting and ending tracks in increments of 0.1 track; the user can also select header and tail gaps, whatever THOSE are, and of course you can select to nibble up to 40 tracks. When used in conjunction with option H, many heavily protected disks can be easily backed up.



THE LITTLE GUYS cont'd.

Option G is for Electronic Arts half-tracked disks. Copy the EA disk with any of the backup options, then use option G to insert the half-tracking. Thanks...those disks were always tricky, but the originals won't run on my MSD.

Option H gives you a library of protection parameters for 40 heavily protected products, including "Beach Head II", "Kwik-Load", "Summer Games II", "VIP Terminal" and, ironically, "Di-Sector", "SuperClone", and several other commercial copy programs which don't copy themselves. (and yes, Fast Hack'Em DOES back itself up.) Mike plans to add even more protection templates to future versions of Fast Hack'Em, and Basement Boys offers cheap updates and a bimonthly update subscription service.

Auto Backup
I-Double (2 1541s)
J-Double V (w/verify)
K-SD2 V2.0
L-SD2 V3.0

**FAST HACK'EM WILL RUN EVEN
IF THE DRIVES AREN'T
CONNECTED TO YOUR C64...**

With 2 1541's or an MSD Dual drive, you can put your drive on automatic and backup disks while using your computer for other purposes. All you have to do is select one of the options, I through L, and from then on copying will proceed independently. You, in the meantime can then go on to use your computer for whatever you need...well almost. All you have to do is insert a new blank disk occasionally and remember not to use the LOAD or SAVE commands until all copying is complete. Now comes the really good part. You can get around this limitation by UNPLUGGING your serial port -- the Auto Backup programs use RAM in the disk drive, not the computer; so as long as the drive is powered up, the backup program will run even if the drive isn't connected to the 64. If you have three 1541's, you could use two for backups and plug the third into your 64 to do anything else! Or let your MSD Dual do the copying while you plug a 1541 into your 64. Once again all you have to do is feed in the new disks and there you go. Do I hear all the club librarians drooling?

Henry doesn't forget about you after you buy the program either. If you wish to avail yourself of the semi-monthly updates that he plans to make available, merely return your original disk, along with \$6.00, and you will get the latest version. Each update will have new parameters (30-50), new utilities, and customer requests. This program just keeps growing.

**...THEY DON'T FORGET YOU
AFTER YOU BUY THEIR PROGRAM...**

In closing, let me say that I've already seen pirated copies of Versions 1.0 and 1.1 floating around, and that bothers me. I realize that a self-duplicating, idiot-proof comprehensive copy program is a real temptation, and both Henry and I realize that anything that can be protected can be broken, but this program is so good, so innovative and so inexpensive (only \$30.00) that I just don't see any moral or financial excuse for pirating. We need to encourage the development of new ways of doing things, and shelling out some of your hard-earned cash is the way to do it here.

For further information on Fast Hack'Em, write:

Basement Boys Software
PO Box 30901
Portland, OR 97230-0901

Well, that's it for this time, but we hope to be back soon with more **INFO** about more people. Folks, if you know of anyone out there who is doing interesting or outstanding work, and who could be considered a "little guy", write and let us know.





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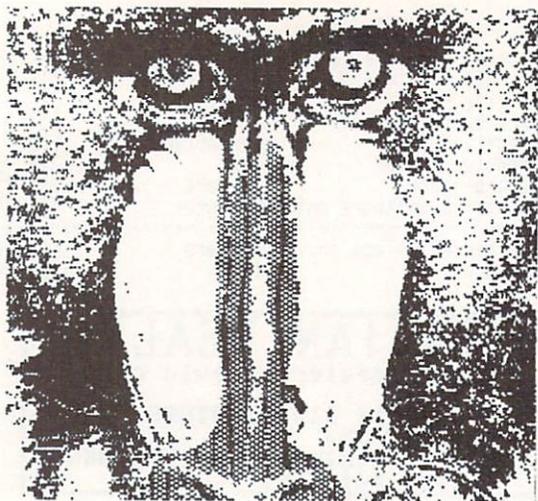
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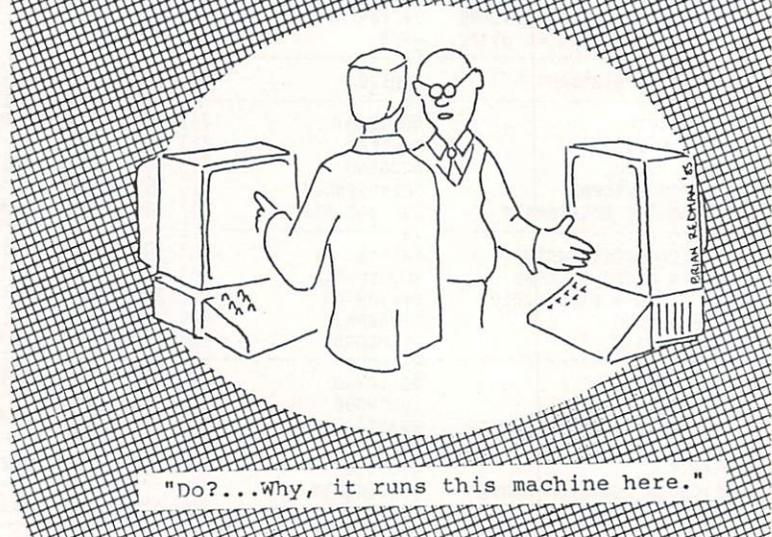


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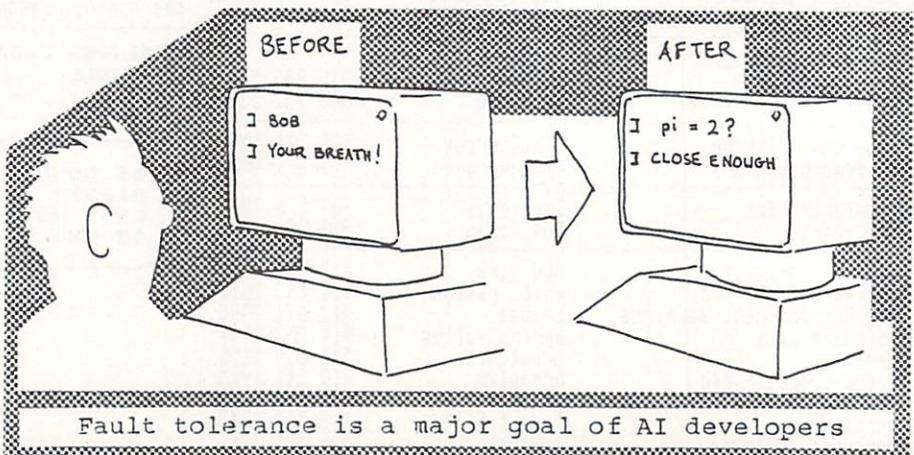
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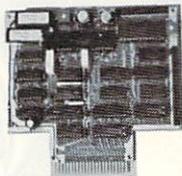
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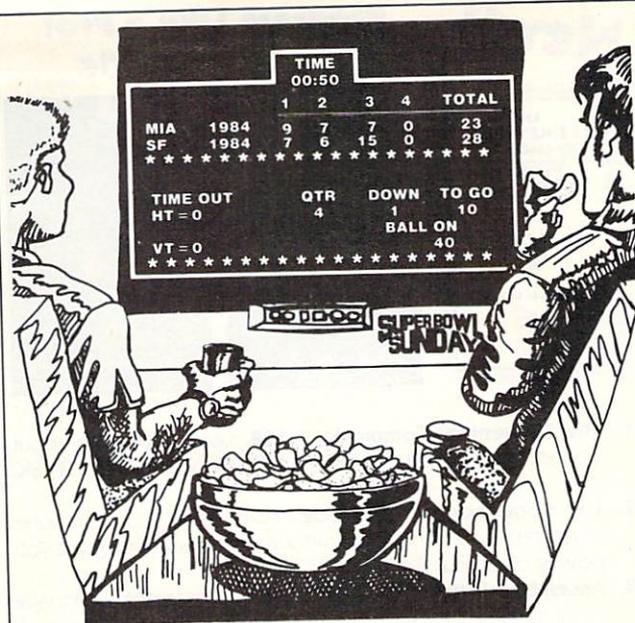
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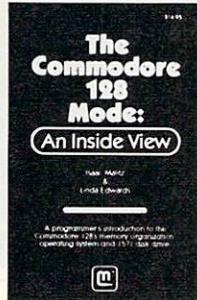
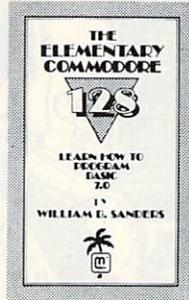
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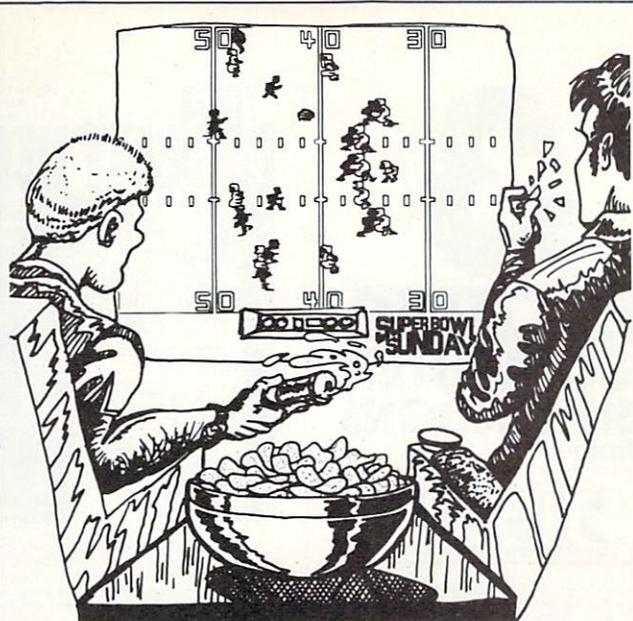
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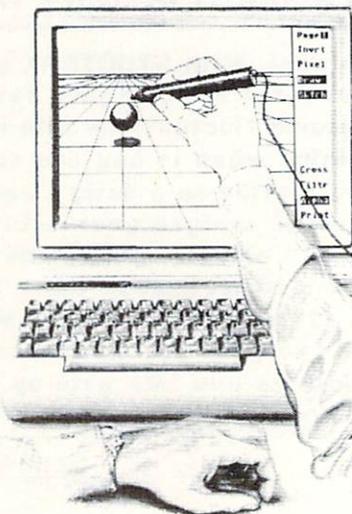
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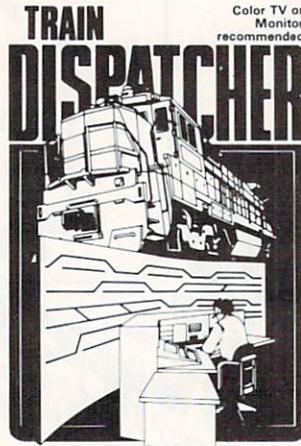
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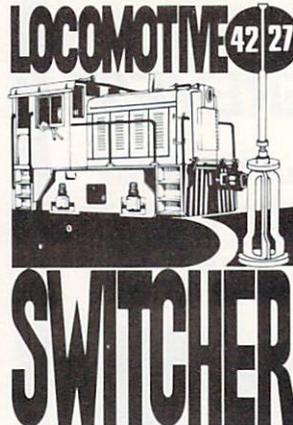
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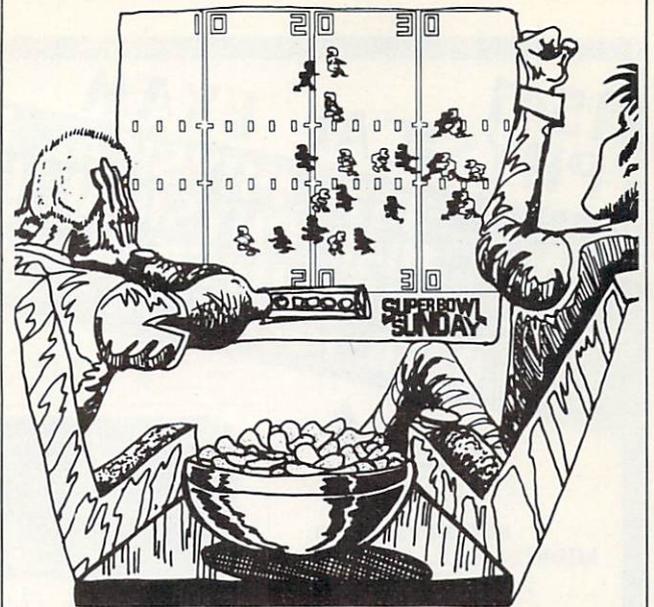
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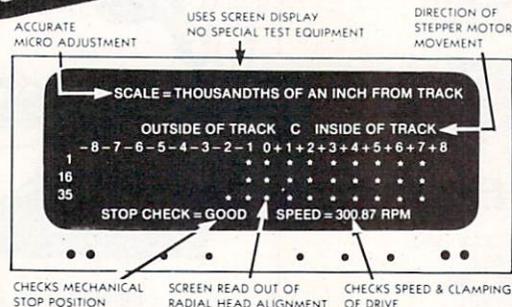


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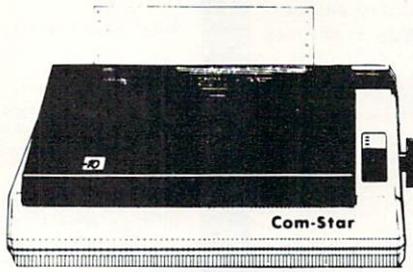
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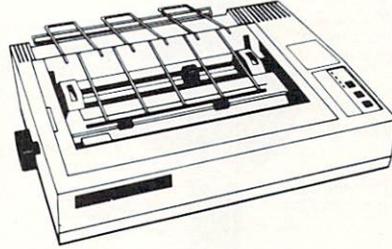
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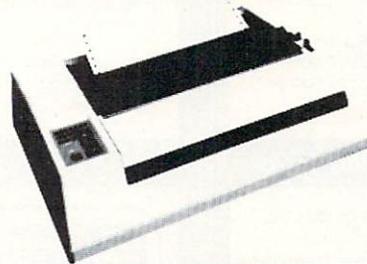
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Superscript

The Intelligent
Word Processor

"If you need a sophisticated and powerful word processor . . . this is the ultimate."
Trevor Doherty, Commodore Horizons July 1985

What is Superscript? -

Superscript combines word processor, spelling checker, calculator and mailmerge facility, all in one package. So Superscript gives you all the tools you need to produce high quality reports, tables, lists, personalized letters and even labels quickly and efficiently. Superscript is a remodeled and vastly enhanced version of the popular **Easy Script** and **Easy Spell** programs that have sold more than 350,000 copies worldwide, so you **know** you can rely on it.

Simple for the beginner

If you are a newcomer to word processing, Superscript's simple command menus put you immediately at ease. Each command is a single word, and for each command there's an extra line of helpful description. To select a command, you simply move the cursor. You don't even have to type the command! Once you are more familiar with Superscript, you can bypass the menus.

Powerful for the experienced user

Superscript also gives you the ability to *cut work down to a minimum* by storing your own command sequences or text on single keys. This means that with a single keystroke you can reproduce commonly used phrases or multi-line addresses from a glossary, load in document formats or execute a pre-programmed sequence of operations. *That's intelligence!*

Editing options

Superscript gives you all the editing options of a business-style word processor, with full block manipulation for cut-and-paste, overtype or text insertion modes, search and replace with pattern matching and optional case discrimination; backward search; case shifts for single words or larger blocks of text. *And much more.*

Good with numbers

Superscript allows you to extend your editing line up to 240 columns for wide documents like financial statements, and with decimal tabs it's easy to enter properly justified tables of numbers. Superscript's complete set of calculator functions can be used interactively, or you can operate on numbers from the text of your document. Apart from the usual mathematical functions like add, subtract, multiply, divide, and percentages, you have the ability to add rows, columns or even whole tables.

Good with spelling, too

The built-in spelling checker goes right through your text, checking the unique words against its dictionaries, and stopping at each one it does not recognize. You have the option to correct the error, learn the new word or ignore it. Superscript has its own 30,000 word dictionary. In addition, it stores new words as it learns them.

Mailings with Superscript

Personalized mailings are easy with Superscript. You can enter the data manually or use data extracted from your spreadsheet or database. Merging can be selective with equal-to/not-equal-to logic. A mailing labels template is included to help you complete your mailing and you can alter the template to suit your own label format.

Attention Easy Script users!

If you're an Easy Script user, then Superscript is the obvious choice. With its enhanced features and more powerful facilities, you'll be able to do so much more. There are no compatibility problems either. You can run your Easy Script data or Easy Spell dictionary disks under Superscript.

Superbase

The Programmable
Database

For sheer quality and professionalism,
Superbase is in a class of its own.

Easy to get started -

The first thing you'll notice about Superbase is the superb 230 page owner's manual. The tutorial section takes both first-time and experienced users right from first steps through accomplished programming, while the reference section is a model of completeness. You'll enjoy the manual's easy style, its plentiful illustrations and comprehensive index.

Easy to use -

You'll soon be ready to set up your own filing system - business information, professional data, records of all kinds. You design your record layout right on the screen, exactly as you wish it to look, with helpful on-screen explanations never more than a step away.

With the layout in place, you can then use Superbase's built-in commands to enter, change or delete individual records. Once you have built up a file of records, you can select, sort and output data exactly as you need it. To begin with, you'll be accessing Superbase commands through menus. The menus lead you step-by-step to the required action. Nothing could be simpler!

The hidden power -

As you become more familiar with Superbase, you'll want faster ways of accessing commands. One way is through the command line. Any sequence of menu options can also be typed directly onto the second line of the screen, known as the command line. *But this is just the beginning.*

The *real* power of Superbase is that you can string any number of these commands together to form complete programs. When writing programs, not only do you have access to the dozens of powerful Superbase commands; you can also use the complete set of ordinary BASIC language commands.

This capability turns a straightforward data management system into a true database of incredible power.

Developing complex applications for yourself becomes a realistic proposition, with your hardware configuration as the only limiting factor.

The integrated office -

Superscript and Superbase will actually load into the computer's memory together.

This means that you can switch between Superbase and Superscript at will passing information between the two and working on your filing system and documents without ever having to reload. *That's integration!*

Buy your copy today, and join the thousands of satisfied Superbase users worldwide. They've proved its power and flexibility, and realized its benefits:

- ★ Entire machine-language program is memory-resident. No need for swapping or reloading.
- ★ Built-in single drive back-up utility.
- ★ State-of-the-art indexing for fast retrieval: any record in less than 0.3 secs.
- ★ Fields may be added, and field specifications altered without the need to restructure the file.
- ★ Data types include calculated result for on-screen field recalculations, including full BASIC math functions.
- ★ Searches may be up to 127 fields deep, sorts up to 34 fields deep.
- ★ Report-writer generates fully formatted reports from responses to simple question-and-answer session.
- ★ Allows linking across separate files.
- ★ Includes free label printing program.
- ★ Supports all standard printer interfaces.

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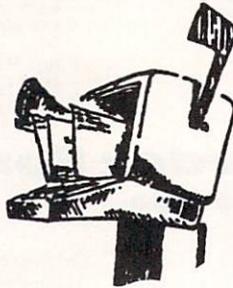
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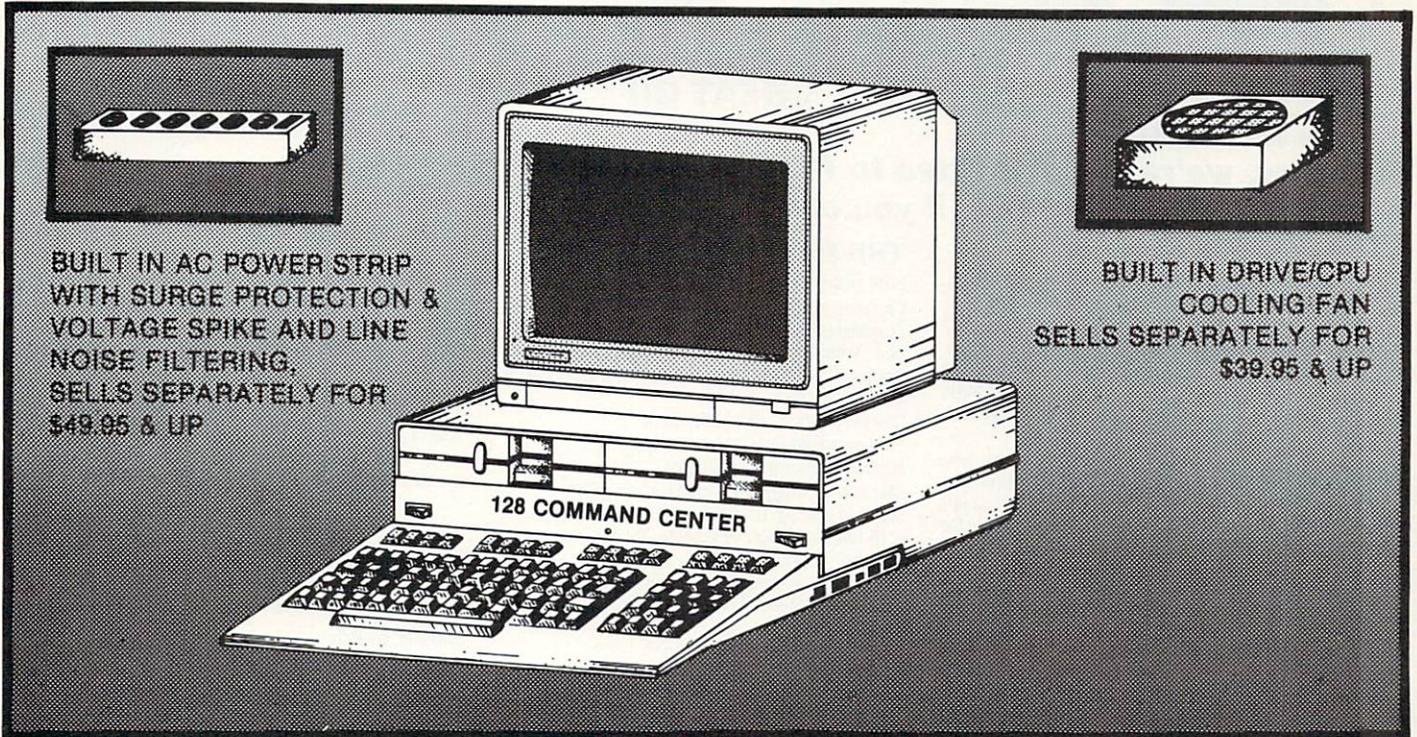
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INTERNATIONAL HOCKEY |****

ARTWORX SOFTWARE
150 N. MAIN ST.
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Hockey fans should really enjoy this battle on the ice. Two players (or just you against a very skilled computer team) face off before the roaring crowd. Joystick action is very natural, with control passing to the nearest player automatically. The screen scrolls smoothly over the length of the rink, with good animation and sounds (the announcer shouts "he scores!" when a goal is made.) You can give bodychecks and control the goalie. There are even fights (just like the real thing!) -BD

WINTER GAMES |****+

EPYX
1043 KIEL COURT
SUNNYVALE, CA 94089

For all you fans of SUMMER GAMES and SUMMER GAMES II, now there is WINTER GAMES, the impressive multi-event simulation of the Winter Olympics. Like its two predecessors, WINTER GAMES is actually several events (each of which is good enough to be sold separately). You will compete in bobsled (great graphics), ski jump, figure skating, free-style skating, hot dog aerials, and biathlon. You also get the opening ceremonies and choice of countries to represent. Sports simulation at its best! -BD

THE WORLD'S GREATEST FOOTBALL GAME |****

EPYX
1043 KIEL COURT
SUNNYVALE, CA 94089

Well I'm not sure about GREATEST but it's pretty good. Actually, I would be more excited about this game if I hadn't seen what Accolade was able to do with baseball (see right). There are tons of plays to chose from (and a play book to explain them), & several nice effects (windows & scrolling playfield) but the player control is a bit tricky getting the hang of, and even with pointers & icons, it seems to take too long to select plays and get them off. 4 stars, but just barely. -BD

HARDBALL |****+

ACCOLADE
20863 STEVENS CREEK BLVD.
CUPERTINO, CA 95014

HARDBALL is easily the best baseball simulation we have seen to date for the 64/128 (and we have reviewed some decent ones in past GALLERIES). The most striking feature of this game is the graphics: 3D perspective views from several angles give the look and feel of watching a game on T.V. You have total control of both players and managers. Inset windows give you extra information. Full of nice effects (the sound of the ball when you connect, and uniforms that even get dirty!) Great! -BD

STAR RANK BOXING |****

GAMESTAR
1302 STATE STREET
SANTA BARBARA, CA 93101

Good fun for boxing fans: this animated fight simulation puts you in the ring against a friend or a computer-coached fighter. You 'build' your boxer by first selecting a number of attributes (including race, hair & trunk color, fighting style, attitude, image, agility, stamina, etc.) Then you go into training to further hone your skills (sounds like ROCKY V to me.) When you think your ready, jump in the ring & duke it out. May the best player win! (Watch out for his right!) -BD

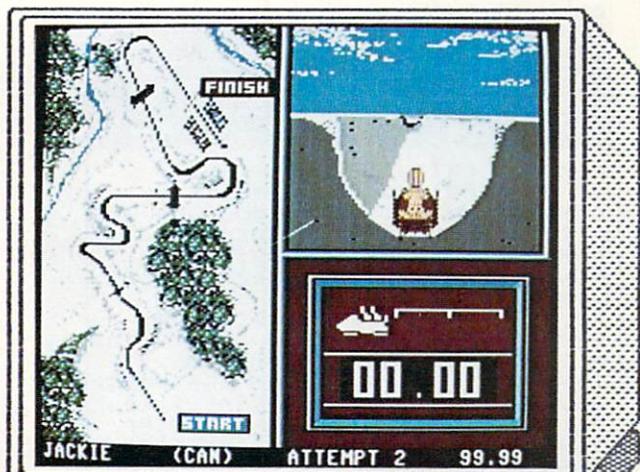
HOLE IN ONE GOLF |****

ARTWORX SOFTWARE
150 N. MAIN ST.
FAIRPORT, NY 14450

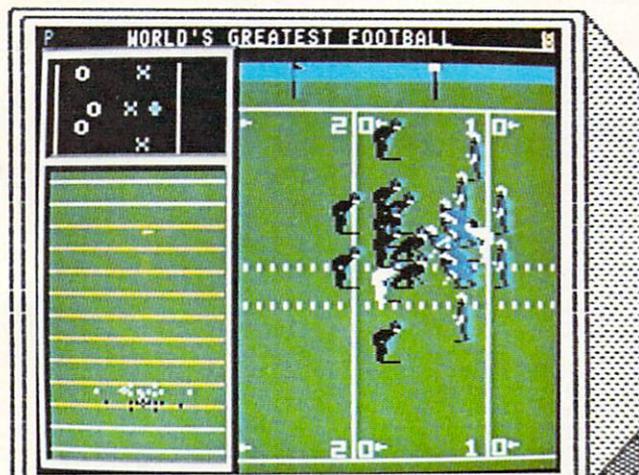
A surprising little treasure on the 'B'-side of an 'economy' game diskette from Artworx (side 'A' is "Hotel Alien"). This is not only an enjoyable 18-hole animated golf simulation, but also a golf course construction set to boot! Choose from a full set of clubs, set your angle with the joystick, pick the your swing force, and time the swing for slice or hook. Once on the green, you zoom in for putting. The construction set mode is practically a game in itself. A real sleeper- great value. -BD



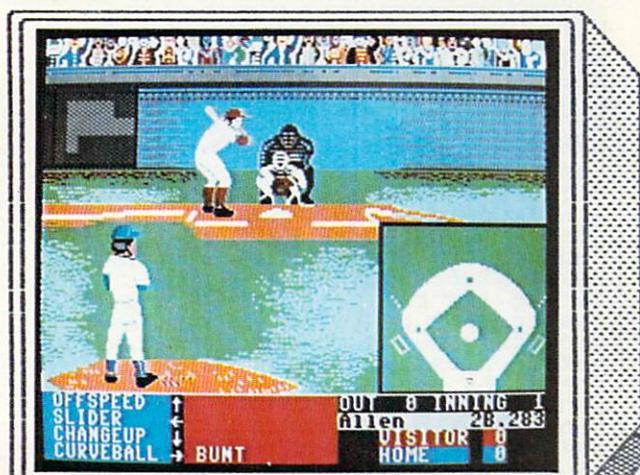
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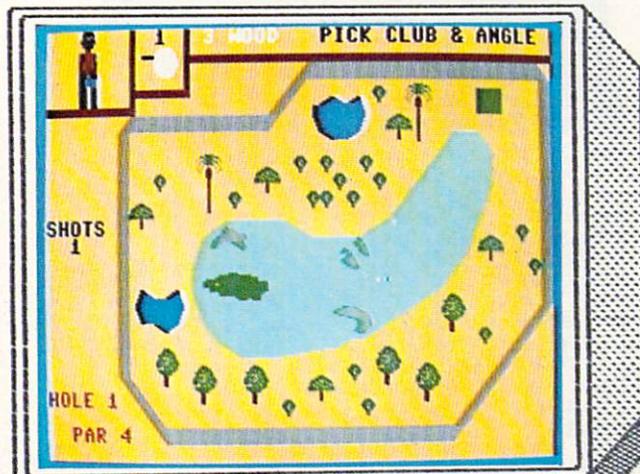
WORLD'S GREATEST FOOTBALL



HARDBALL



STAR RANK BOXING



HOLE IN ONE GOLF

DAM BUSTERS

|***|

ACCOLADE
20863 STEVENS CREEK BLVD.
CUPERTINO, CA 95014

Another entry into the field of multi-viewscreen realistic combat simulations. You are the pilot, navigator, gunner, and bombardier of a 1943 vintage British Lancaster bomber. This simulation (certified by the Royal Air Force) actually re-creates an historical event: the mission against 3 Nazi dams in the Ruhr Valley. Lacks the depth and variability of a game like Silent Service, but has better than average graphics and play features.

-BD

JET COMBAT SIMULATOR

|****|

EPYX
1043 KIEL COURT
SUNNYVALE, CA 94089

JET COMBAT SIMULATOR is one of two very good simulations based on the awesome F-15 Eagle (the other being Microprose's "F-15 Strike Eagle"). Each has its strong points- "Strike Eagle" is more complex and technologically detailed, while "Jet Combat" seems to fly more realistically (especially take-offs and landings.) You should really try both out before buying (or buy them both!) Of course, Sublogic is due to release "JET" for the 64/128 in late December, so you may want to fly all three! -BD

SUPER HUEY

|***|

COSMI
415 N. FIGUEROA STREET
WILMINGTON, CA 90744

Cosmi has taken on the very difficult challenge of creating a helicopter simulation (in this case, an advanced Bell UH-1, or 'Huey'). The main problem with a helicopter simulation is translating the controls from a helicopter to a computer. Cosmi has done this by using the joystick button as a 'shift key', allowing one stick to be used for many functions. Operation is convincing, the instrumentation & detail are good, and the manual is fine. The one real weak spot is the landscape graphics. -BD

SKYFOX

|***|

ELECTRONIC ARTS
2755 CAMPUS DRIVE
SAN MATEO, CA 94403

More of an 'arcade-strategy' game than a simulation, Skyfox is packed with gadgetry and great effects (the zoom-in computer display and dual-mode radar screen are certainly eye-poppers!) Like a lot of techno-toys, (and unlike most other E.A. games), the gizmo fascination eventually wears thin, and the gamer finds a much less involving product lying below the surface glitz (not helped by the lengthy load times between surface & air sequences.) Good fun for a few hours. -BD

SILENT SERVICE

|***|

MICROPROSE SOFTWARE
120 LAKEFRONT DR.
HUNT VALLEY, MD 21030

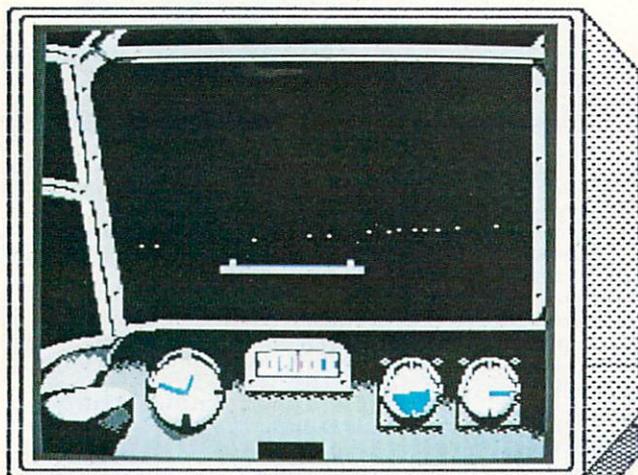
Microprose takes to the deeps with this departure from their usual high-altitude simulations. While the setting has changed, the detail, the depth, the graphics are all unmistakably Microprose. You are at the helm of a typical 1940's U.S. sub in search of Japanese ships to sink. 5 battle station screens, 7 reality levels, 12 scenarios, variable time scale, sound, and extensive historical & technical notes ensure a satisfying level of play for any wargamer who wants to run silent & deep. -BD

KARATEKA

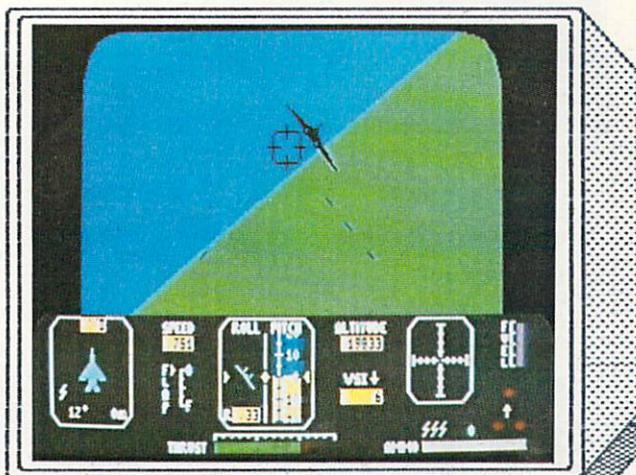
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BRODERBUND
17 PAUL DRIVE
SAN RAFAEL, CA 94903

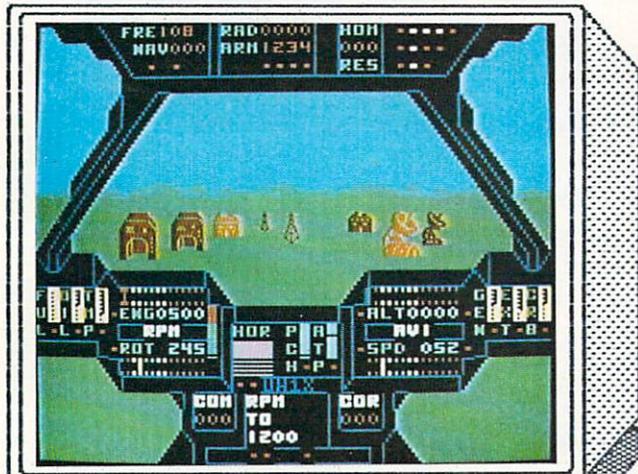
This one-player Karate combat simulation is nicely animated and illustrated. Armed only with your bare but lethal hands and feet, you are trying to rescue a fair princess being held captive in the castle of the evil Akuma. Unfortunately this game is rather simple and 2-dimensional (literally) with your figure travelling left and right with only three punches & three kicks at your disposal (why not add spinning and jumping kicks, ducking, weapons, etcetera?) Needs more depth. -BD



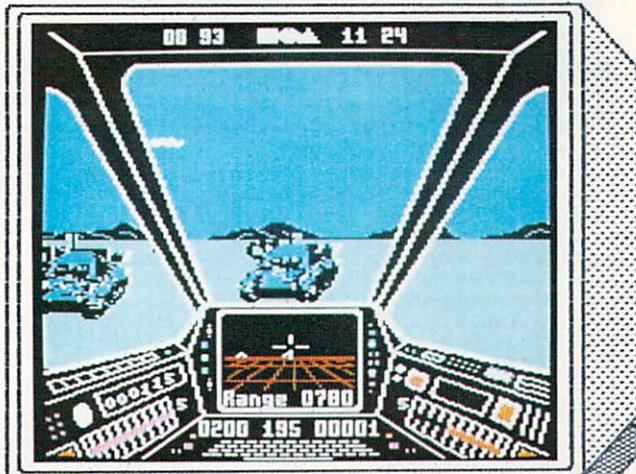
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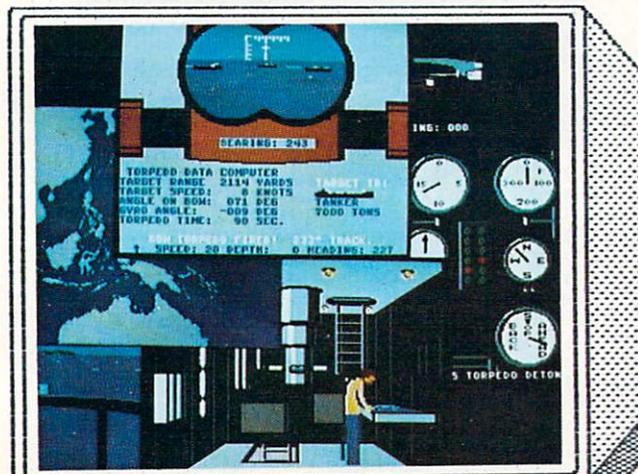
JET COMBAT SIMULATOR



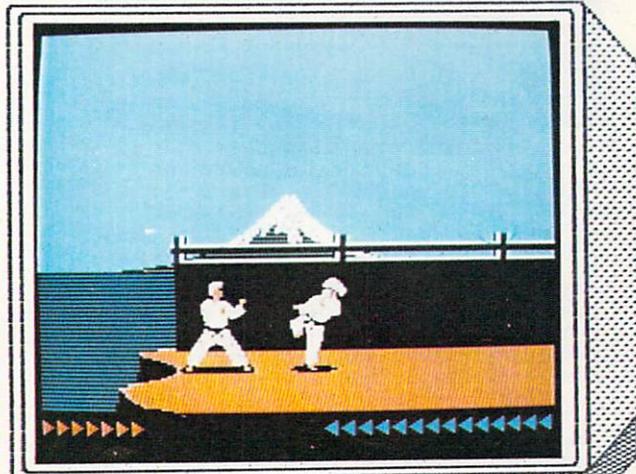
SUPER HUEY



SKYFOX



SILENT SERVICE



KARATEKA

THE RAILROAD WORKS

|★★★

CBS SOFTWARE
ONE FAWCETT PLACE
GREENWICH, CT 06836

Always wanted to set up an electric train set, but don't have the space, the time (or the money)? Railroad Works may be the answer. This is just about as close as you can get without going down to the hobby shop. You can choose between modern & old-fashioned train sets, and construct trains from a choice of several cars. From the keyboard you have control of two engines as well as all switch-tracks. You can design your own layouts or select from several pre-fab layouts on the disk.-BD

LOCOMOTIVE SWITCHER

|★★★★

SIGNAL
PO BOX 18222
PITTSBURGH, PA 15236

Locomotive Switcher simulates the operation of a railroad switchyard. Select a normal or "hump" yard and several train list options. Move your switch engine between industrial sidings and the main line, switching cars until you have your train built up to order. The graphics are the low point of this simulation; the train moves slowly and awkwardly. Nonetheless, Signal has once again shown that they know railroads. This simulation captures the flavor of real railroading. -MB

ON-TRACK RACING

|★★★

GAMESTAR
1302 STATE STREET
SANTA BARBARA, CA 93101

Gamestar has brought us some great simulations in the past (from football to tennis to baseball), but On-Track Racing almost seems to be from another company (or an earlier period of software history). There are a few laughs at first as the 2 tiny cars jitter uncontrollably around the course, but the poor control design soon turns to plain annoyance. The fact that you can select from 3 drivers & automatic or manual transmission does little to salvage this re-tread -BD

**THE GREAT AMERICAN
CROSS-COUNTRY ROAD RACE**

|★★★

ACTIVISION
DRAWER 7287-1
MOUNTAIN VIEW, CA 94039

This driving game feels pretty familiar (the driving action is much like the early arcade game, "Turbo"). The graphics, sound & animation are pretty standard. Basically you are trying to cross the U.S. as fast as you can in your rally car. You choose the best route, watch out for bad weather & speed traps, keep an eye on the gas tank & tachometer, maneuver thru city & country traffic, and just generally drive your buns off. What else can I say. -BD

PROJECT SPACE STATION

|★★★★★

HUMAN ENGINEERED SOFTWARE
150 NORTH HILL DRIVE
BRISBANE, CA 94005

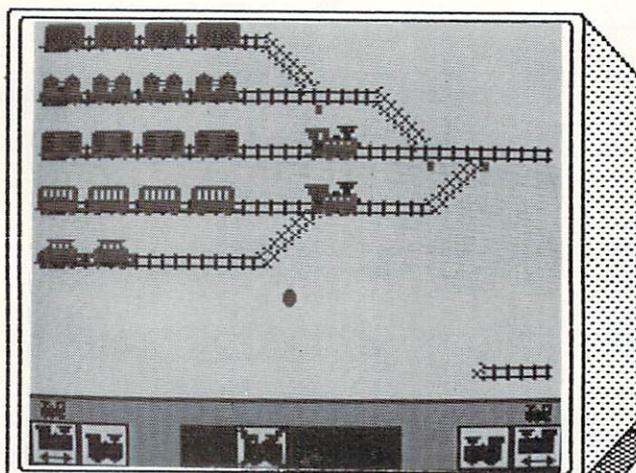
This impressive simulation of a space station construction project is probably one of the most ambitious programs ever developed for the Commodore 64. You not only construct a space station, but you are also in charge of all aspects of the project, from budget to crew hiring to shuttle launch scheduling to running experiments aboard the completed station! This is a fun, complex simulation of the operation of an entire space program of NASA magnitude. More than a game!-MB

TRIVIA PLUS

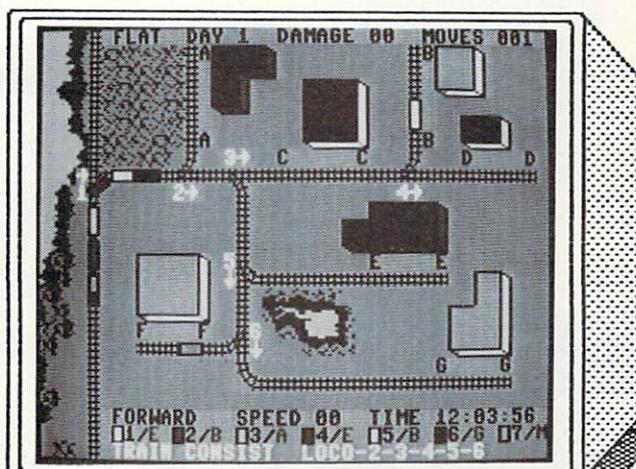
|★★★

ACADEMY SOFTWARE
PO BOX 6227
SAN RAFAEL, CA 94903

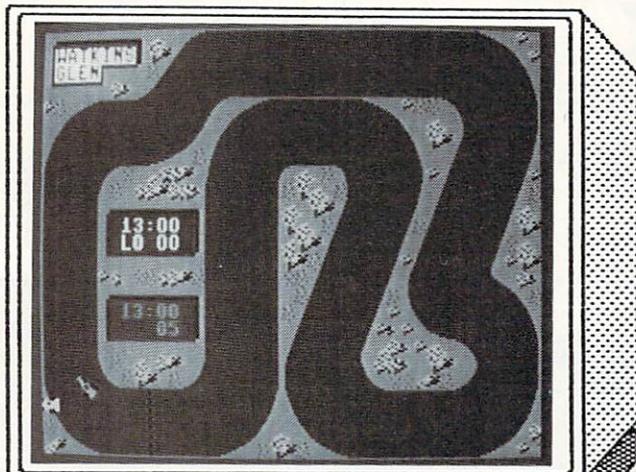
I think the trivia rage has just about run its course by now, but in case you still haven't gotten your fill, here's another program that will ask you obscure questions and then give you the answers if your memory banks don't have them. The structure is very simple: a question is selected from one of eight categories & the player attempts to answer correctly. The computer then reveals the answer and awards points. The challenger option adds an extra strategic element. -BD



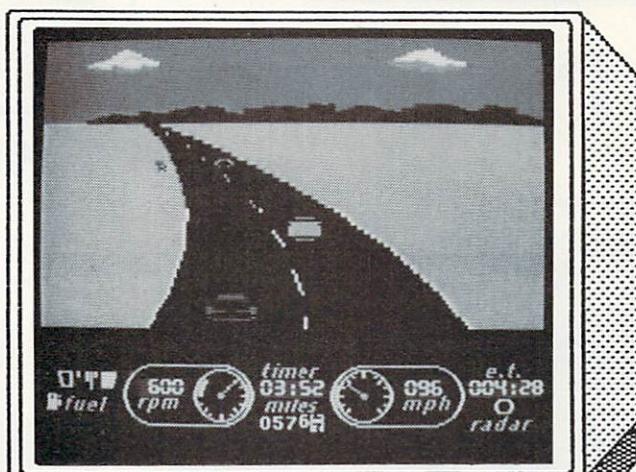
THE RAILROAD WORKS



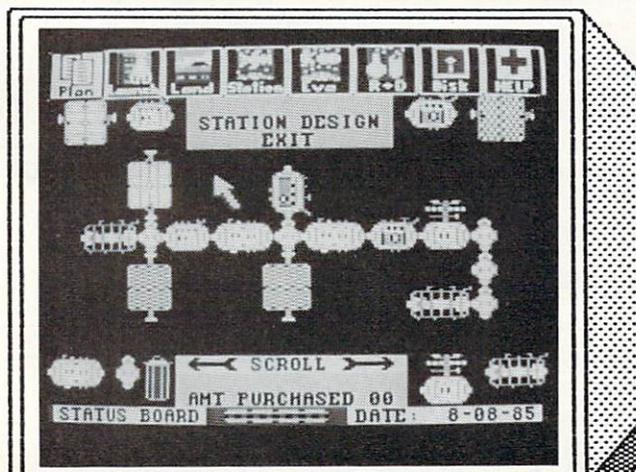
LOCOMOTIVE SWITCHER



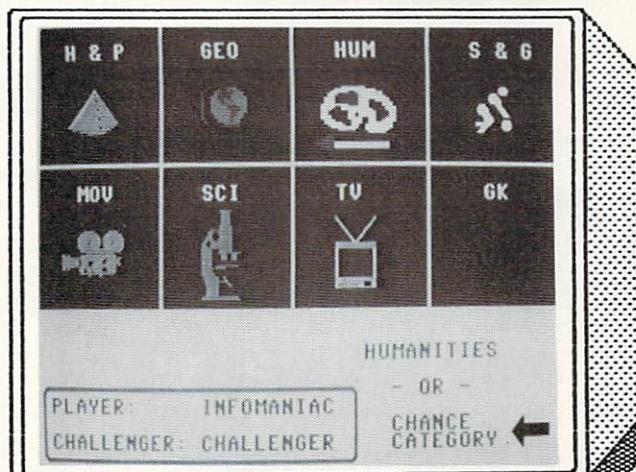
ON-TRACK RACING



CROSS-COUNTRY ROAD RACE



PROJECT SPACE STATION

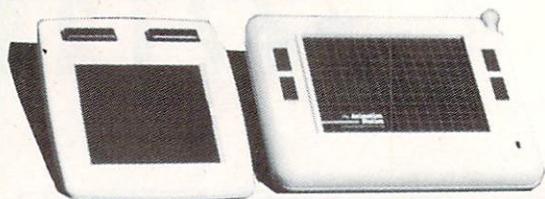


TRIVIA PLUS

YOU'VE GOT GOOD QUESTIONS:



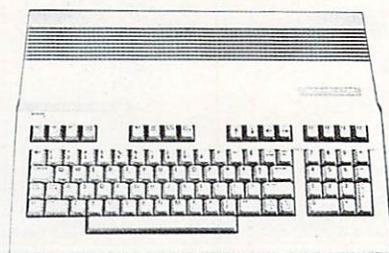
What is it??



Which one is best for me??



What's New??



How good is it??

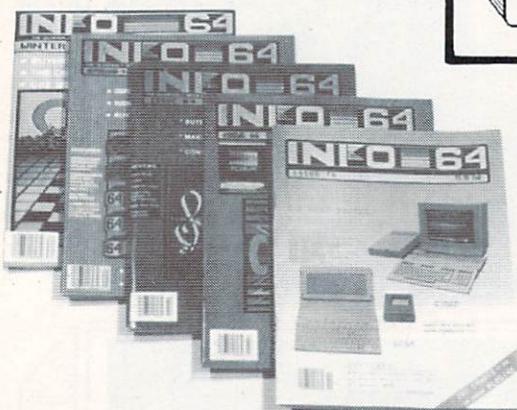


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The Walker

- 1) Insert your COMAL disk in drive*.
- 2) Type LOAD "C64 COMAL*",8
- 3) Type RUN (starts COMAL)
- 4) Type AUTO
(COMAL provides the line numbers)
- 5) Enter the program lines shown below
(COMAL indents lines for you)
- 6) Hit RETURN key twice when done
- 7) Type RUN
Watch an animated sprite hobble across the screen. Change the (99) in line 450 for really fast walking

```

0010 setup
0020 repeat
0030 walking
0040 until key$="q" //Q to Quit
0050 //
0060 proc setup
0070 blue:=14; pink:=10
0080 white:=1; black:=0
0090 define'images
0100 repeat
0110 input "speed (1-10): ": speed
0120 until speed>=1 and speed<=10
0130 background black
0140 setgraphic 0
0150 spriteback blue,pink
0160 spritcolor 1,white
0170 spritesize 1,false,false
0180 plottext 1,1,"press q to quit"
0190 endproc setup
0200 //
0210 proc define'images closed
0220 dim shape$ of 64, c$ of 1
0230 shape$(1:64):=""
0240 shape$(64):=chr$(1)//multicolor
0250 c$:=chr$(0)
0260 for x=22 to 63 do shape$(x):=c$
0270 c$:=chr$(170)
0280 for x=1 to 21 do shape$(x):=c$
0290 define 0,shape$
0300 c$:=chr$(20)
0310 for x=22 to 42 do shape$(x):=c$
0320 define 1,shape$
0330 define 3,shape$
0340 c$:=chr$(60)
0350 for x=43 to 63 do shape$(x):=c$
0360 define 2,shape$
0370 endproc define'images
0380 //
0390 proc walking
0400 for walk:=1 to 319 div speed do
0410 x:=walk*speed
0420 y:=100+walk mod 4
0430 spritpos 1,x,y
0440 identify 1,walk mod 4
0450 pause(99)
0460 endfor walk
0470 endproc walking
0480 //
0490 proc pause(delay) closed
0500 for wait:=1 to delay do null
0510 endproc pause
  
```

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Music Shop (BRÖDERBUND)	?	105 sec	105 sec*	105 sec*	21 sec
Hitchhiker's Guide to the Galaxy (INFOCOM)	?	70 sec	70 sec*	**	68 sec*
On-field Football (GAMESTAR)	?	159 sec	66 sec	63 sec	56 sec
EASY FINANCE I (COMMODORE)	?	58 sec	13 sec	13 sec	11 sec

* = Will not fast load — defaulted back to regular load.

** = Failed to load at all.

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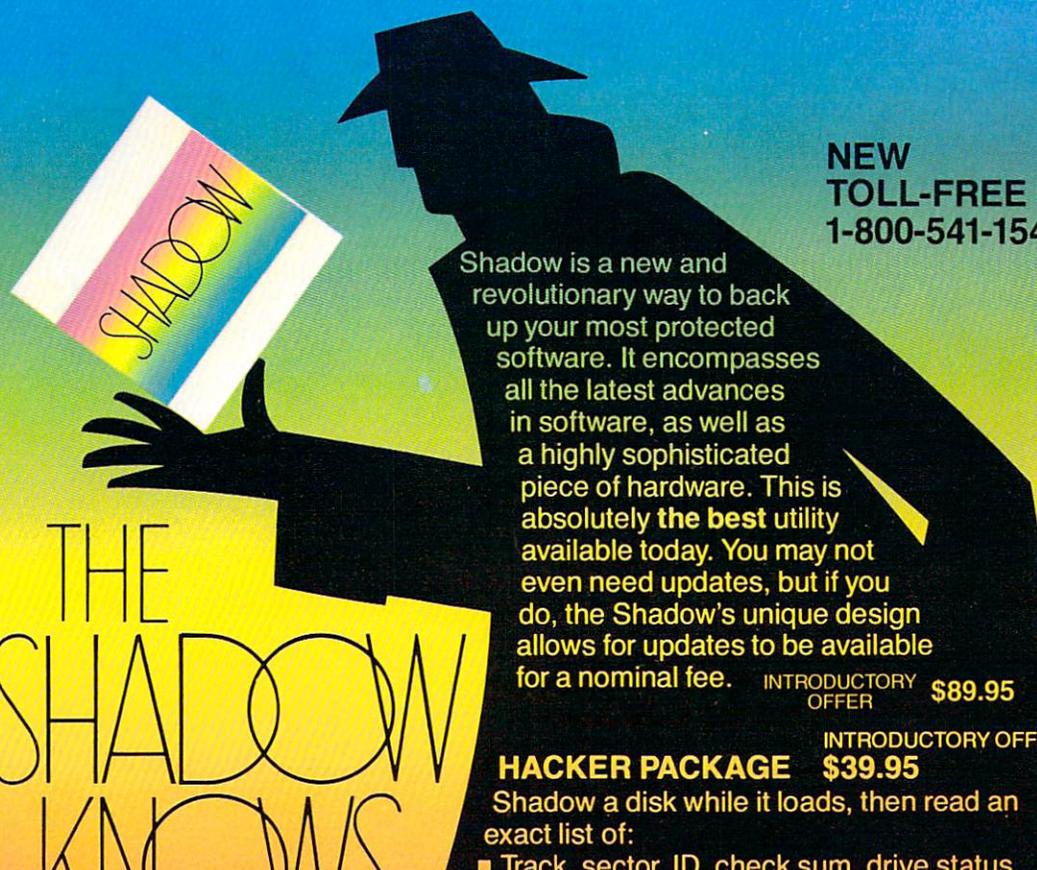
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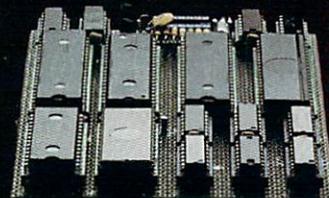
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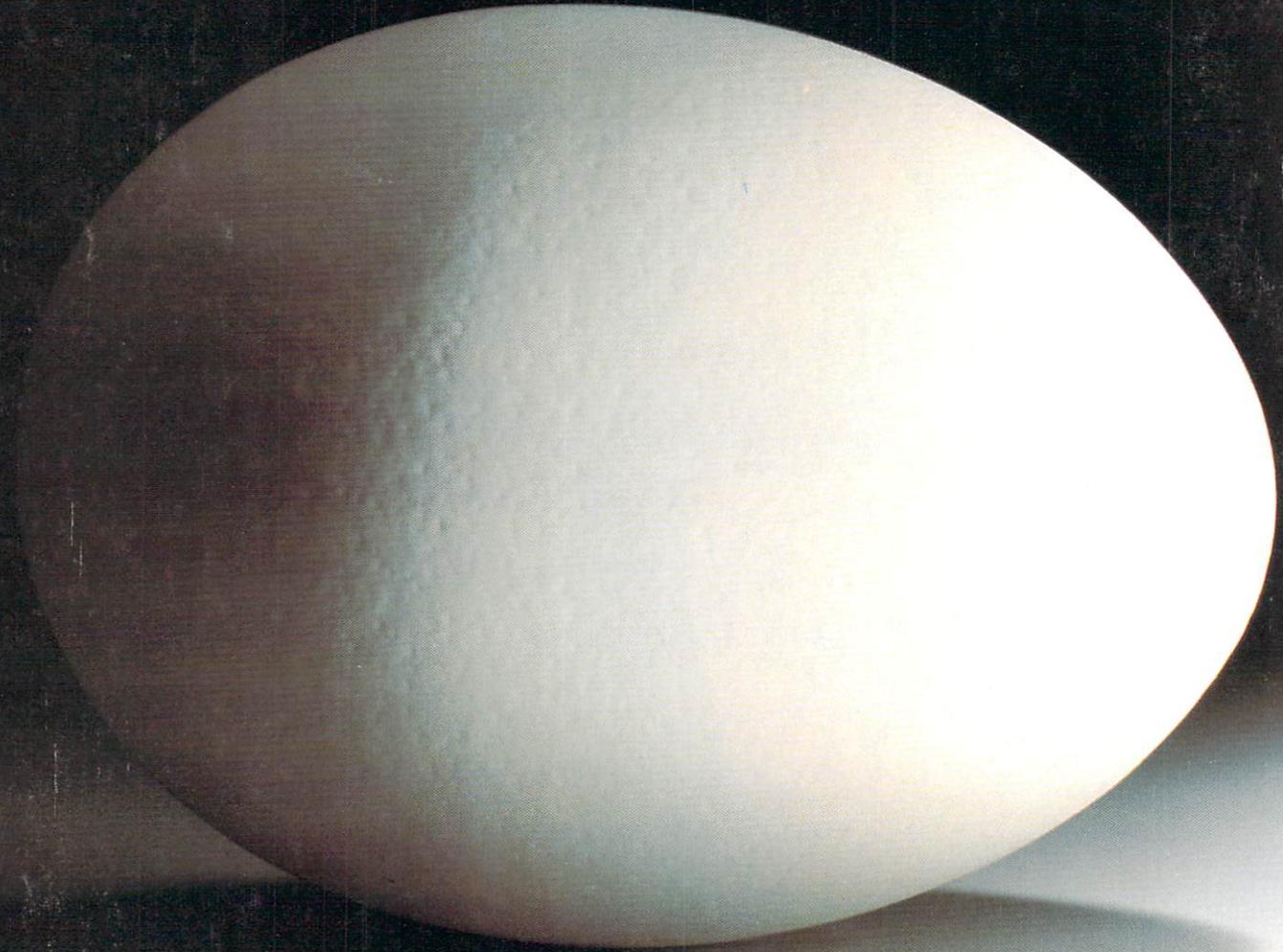
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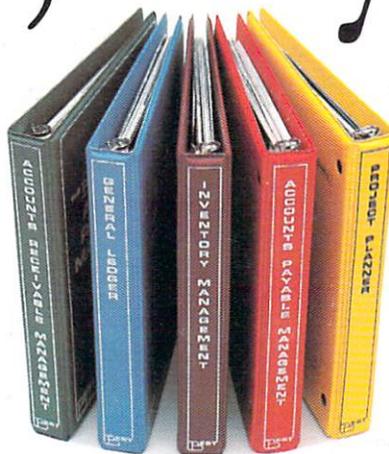


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