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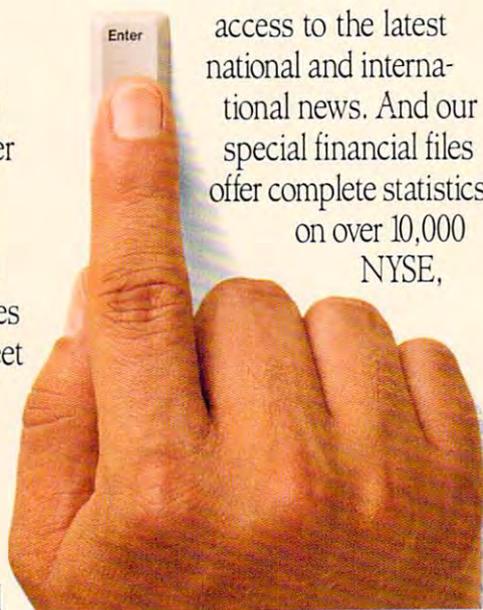


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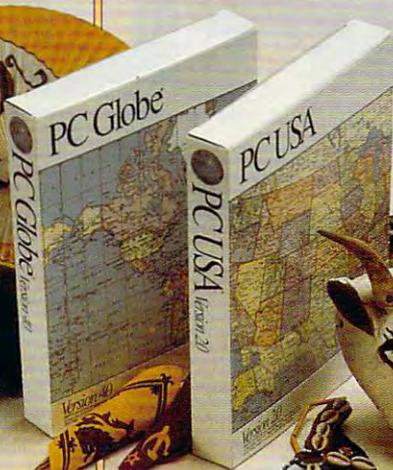
Here, in the efficient space of a few diskettes, is a simple to use "electronic atlas" that provides instant profiles, detailed maps and enhanced graphics for 190 countries and dependencies. What would ordinarily take hours to research becomes accessible in the split second it takes to press a button.

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MARCH 1991

VOLUME 13 • NO. 3 • ISSUE 127

GAZETTE SUBSCRIBER EDITION

Special Coverage Follows Page 88

FEATURES

So You Want to Be a Sysop? G-6

RICK LEMBRÉE
If you've ever called an electronic bulletin board, you may wonder what it takes to set up a system of your own. It takes time, effort, and sometimes money to become a systems operator (sysop), but an expert who should know says the rewards can be many.

DEPARTMENTS

64/128 View G-1

TOM NETSEL
More than 30,000 people attended the eighth-annual World of Commodore held late last year in Toronto. For us at COMPUTE, it was a great opportunity to meet with our Canadian readers and see some new products.

News & Notes G-4

EDITORS
A terminal program and a paint program are two new products that should appeal to 128 owners who have 80-column monitors. For 64 owners there's a new fantasy adventure game and software to help you prepare your 1990 federal income taxes.

Feedback G-16

READERS
Readers want to share information about older Commodore products, learn about starting an electronic bulletin board, and replace the chips in a 64 with faster ones. Another reader has supplied a handy update to our *Electronic Billboard* program.

COLUMNS

D'iversions G-19

FRED D'IGNAZIO
Technology in the near future will be everywhere, but it will also be invisible. It may be under your clothing, inside a tooth filling, or on the tip of your tongue. For heavy-duty computing, though, you can mount a mainframe unit as a chic dog or cat collar.

Beginner BASIC G-20

LARRY COTTON
BASIC is a wonderful language, but what would you like to do with it? Would you like to gather data? Control appliances? Play music? Learn to type? Time reactions? Dial a phone?

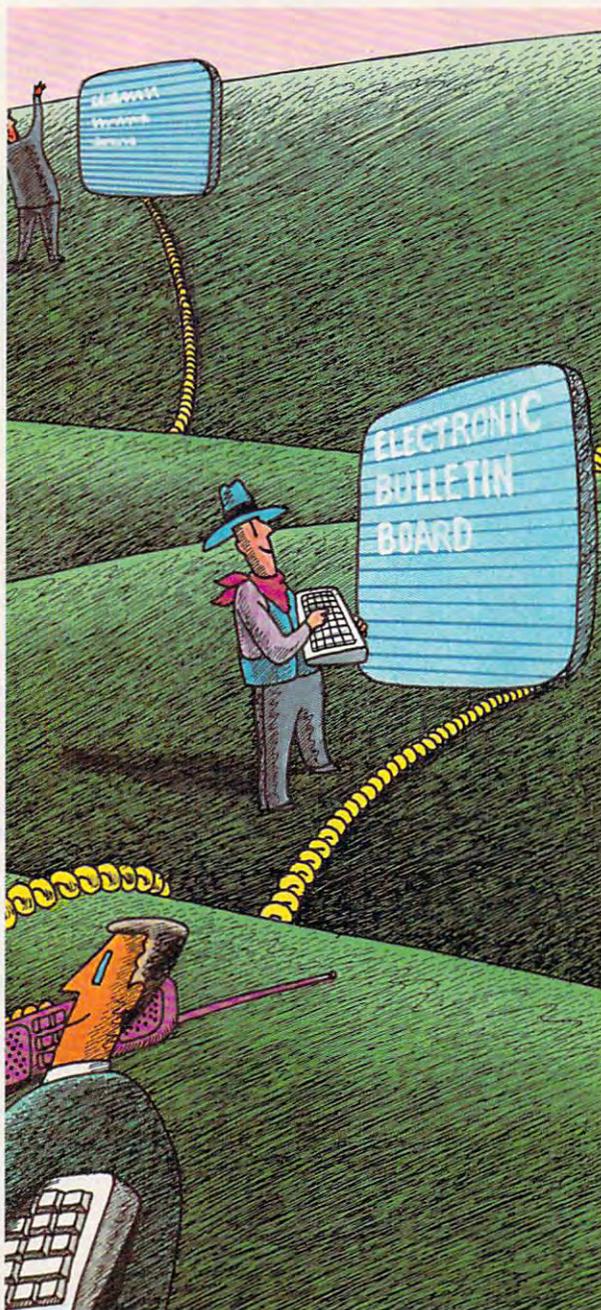


ILLUSTRATION BY DAVID CHEN

Machine Language G-22

JIM BUTTERFIELD
It seems pointless to have code that adds 0 to a number, or for that matter subtracts 0—after all, anything plus 0 gives an unchanged value. Yet there are times when it makes good sense. Here's a neat demonstration.

Programmer's Page G-24

RANDY THOMPSON
You stare at it all the time. BASIC's PRINT statement depends on it. Your software would be useless without it. Here are some tips designed to manipulate your computer's most visual component, the computer screen.

TYPE-IN PROGRAMS

Cross Aid G-25

LYSLE E. SHIELDS III
Many people enjoy spending time solving as well as making crossword puzzles, but finding the appropriate word is not always easy. A program such as *Cross Aid* can help.

Wired G-27

VICTOR BARBEE
On reconnaissance to a bleak and hazardous planet, you fall prey to the vile and loathsome Toiloots. You discover to your horror that the fiends have sabotaged your ship's wiring. The positive and negative terminals on all the circuits are clearly marked, but the connecting cables now resemble an upturned pot of spaghetti.

Termites G-31

GUS VAKALIS
Termites have infested Kelvin's four-story walkup, and the building is starting to collapse. Kelvin can escape this crushing fate if you help him jump over holes that appear in his path.

Graphics Converter G-34

GUSTAVO FELIX HERRERA
If you've ever wanted to use a *Print Master* graphic or a piece of clip art from *The Print Shop* with a GEOS document, then *Graphics Converter* is the conversion program for you.

Metallix G-37

RICHARD PENN
You can only have three colors per character with the 64's multicolor mode, but *Metallix* provides a new graphics mode that displays seven colors per character.



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COMPUTE

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PETER SCISCO

With millions of Americans working at home, it's worth considering what role home computers will play in the new workplace.

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EDITORS

The latest news from the Winter CES in Las Vegas and an electronic games show in Canada.

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EDITORS

Kudos for *COMPUTE*, monitor radiation hazards, interior design on the PC, and more from the mailbag.

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Best-selling software from around the country.

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Dig for Details on Page 40!

IN FOCUS

Home Office in Six Days 14

GREGG KEIZER

Give up that tiresome commute and telecompute instead. It just takes a lot of planning and courage to strike out on your own from home.

COMPUTE's March

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RICHARD C. LEINECKER

Financial and inventory applications for maintaining a grip on your home-based business.

HOME OFFICE

COMPUTE Choice 28

HOWARD MILLMAN

Graphics displays, WYSIWYG, and improved memory management make *Lotus 1-2-3* release 3.1A a contender for the modern home office.

WorkPlace 32

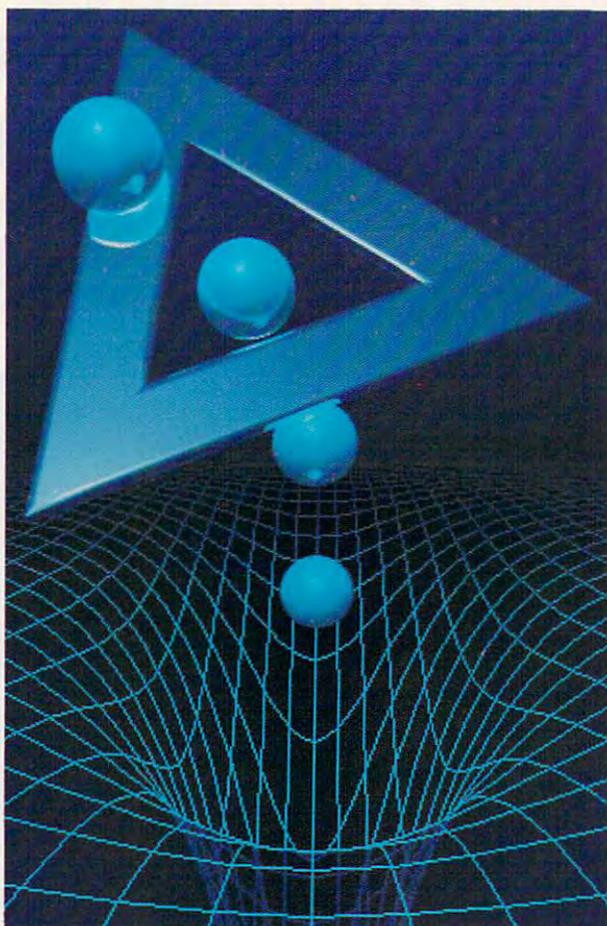
DANIEL JANAL

End the home office paper chase with some planning and the aid of a PC.

PC Promo 34

GREGG KEIZER

Put your best foot forward and make professional presentations and promotions from your home PC.



HIROMASA SUGIURA/WESTLIGHT INTERNATIONAL

ON THE COVER

Hiromasa Sugiura employed ray-tracing techniques on an NEC computer to develop the art featured on our March cover.

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Mondo blendo is the latest computer art movement, bringing sources together in a pastiche of color and style.

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HOWARD MILLMAN

Scientist Rod Farb makes an assault on a Civil War shipwreck in the graveyard of the Atlantic.

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Race at high speed through rain, snow, and dark of night when you belt yourself into *Test Drive III*.

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Many thanks to those of you who mailed in the readership surveys from the November 1990 issue. The results are surprising.

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Learn how to blank the screen from BASIC (it's easier than you think).

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READERS

Manipulate your PATH statement with batch files.

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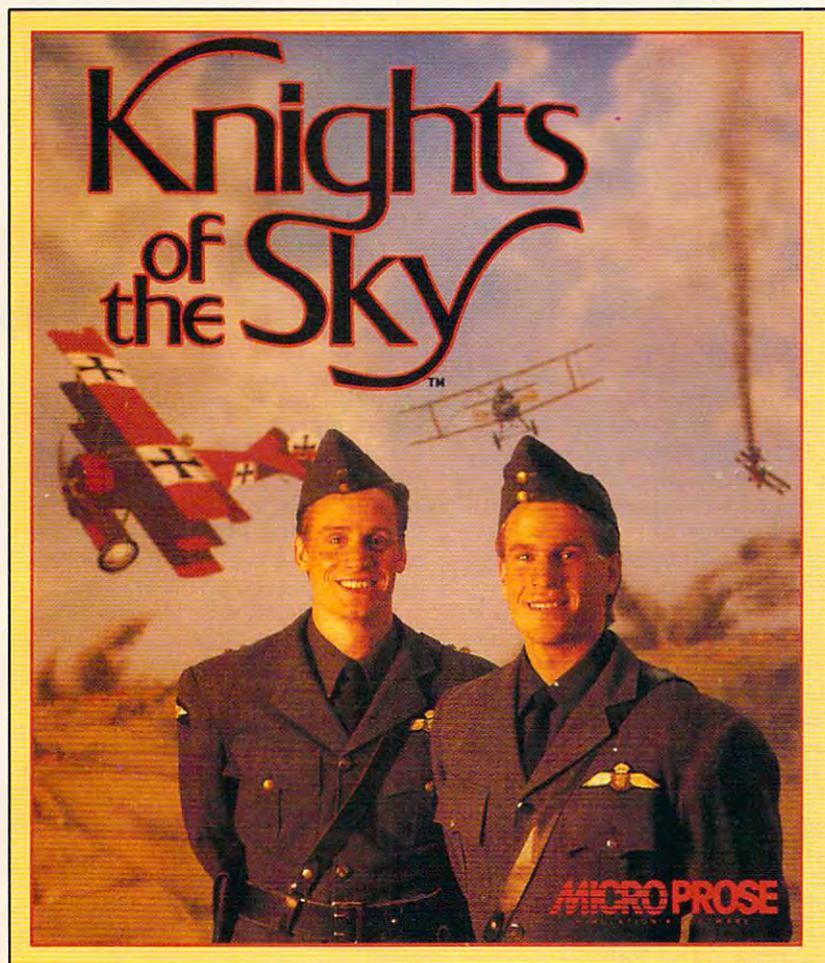
GEORGE CAMPBELL

Calling local or national BBS systems offers an opportunity to expand your horizons and make new friends.

Disk Update 84

JOYCE SIDES

ARGH! finally solved, hot news for SLED users, the latest in CHEX, easy installation for SETRam.



THE BEST OF THE PAST

Step into the past, and into the cockpit of a World War I biplane for thrilling dogfights against the greatest aerial aces of all time. The masters of combat flight simulation present the masters of aerial dogfighting in *Knights of the Sky*.

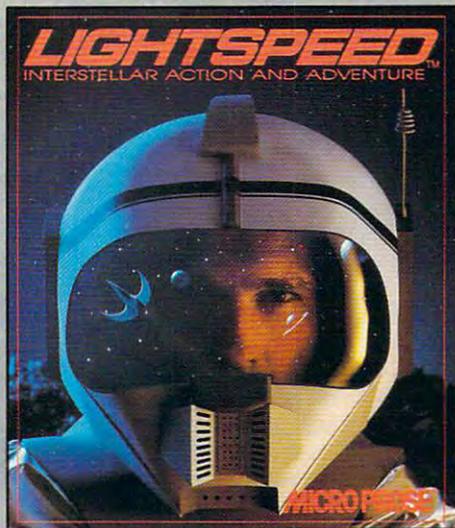
Play against the computer, or challenge a friend via direct link or modem. Dazzling Super 3-D Graphics and realistic sound deliver the action in unprecedented detail. Infantry units, trench lines and natural terrain features below are crystal clear — they'd better be: you have to navigate by them.

Flying without radar and at slightly

less than the speed of sound, your dogfighting skills are more important than ever. Your opponents aren't just specks in the sky — you'll see them close-up, shake your fists at them, perhaps even salute their skill.

But there's more at stake than just reputation. When you're not dueling you'll help the Allies win World War I. Lend support to ground forces during the war's major offensives; take part in legendary bombing raids; penetrate Axis territory on aggressive patrols.

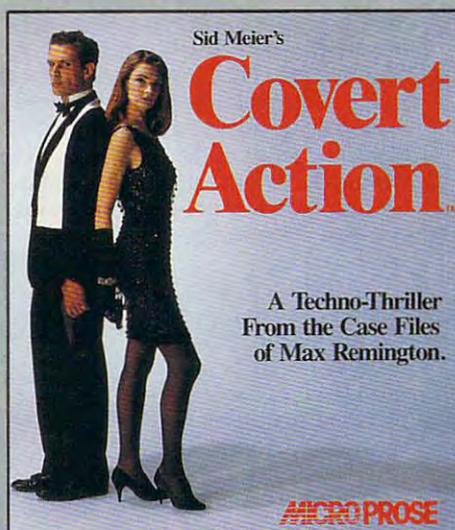
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P E T E R S C I S C O

No matter what study you read or which number you cite, it's clear that millions of Americans are working at home.

According to a study completed by New York-based LINK Resources in August 1990, 34.8 million workers are performing all or part of their jobs at home. Behind the figures is a population of mobile risk takers and anticipatory security seekers, all looking for the means to increase the quality of their lives.

The increasing number of home workers will define thinking along several fronts in the coming decade. Sociologists will examine how the at-home workplace affects families and institutions—schools, businesses, communities. No doubt some bright young anthropology student will write a dissertation about the burgeoning electronic societies that revolve around the phenomenon of the home office and, in particular, the role of the personal computer in those societies.

Apart from the humanities, the so-called *soft sciences*, the pragmatic (if not more practical) fields of urban planning, worker management, and business planning will all feel the effect of an expanding population of home-based workers. How will telecommuting affect traffic plans? How does a company track and motivate employees who are strewn over a wide area? How can home workers map out their personal objectives so that they coexist with and even enhance their economic objectives?

COMPUTE's stake in all of this—one part of its mandate to cover the world of home computing—is to provide information about the

role personal computers play in the home office and to examine the benefits and pitfalls of bringing a computer into your home. More than 200,000 of our readers have a home office, and they're looking for the productivity boosters and strategies that will help them reach their goals.

The phrase *home office* itself seems self-revealing; however, beyond the buzzword lies a multifaceted environment. It's an area of home computing that demands separate but equal doses of business tips, hardware hints, and software strategies.

The LINK study reveals one home worker population commonly associated with the term *extended office*. Over 4 million workers use their home computers for office work. These home workers are *time shifting*—coming home from the office to spend time with growing families, then hitting the PC at night to catch up on the day's business.

IBM has targeted that market with its PS/1. If you fit that description, *COMPUTE* will offer its support by featuring application strategies and tips that will help you get the most from your home PC. Features like this month's "Six Days to Your Home Office" will help you get the job done.

A second category of home office workers includes those who run full- and part-time businesses from their homes.

It's this population, some 3.5 million strong, that we usually mean when we read *home office*. The informational needs for this group are as varied as its members. These home workers need an entire support system at home, one that puts them in touch with the marketplace and keeps them competitive. Our look at computer-based business promotions, "PC Promo," is just one of many stories and articles *COMPUTE* uses to enhance the PC's role as a home-based business tool.

A third group of home office sites, one targeted by Tandy with its 1000RL, comprises what might be called the *home productivity* sector. These users believe that a computer can manage the deluge of information that overwhelms the late twentieth century American home. For these readers, we offer timely productivity tips, surveys of outstanding software packages, and a forum for sharing ideas.

None of these definitions exclude any of the others, a reflection of the power and flexibility of the home computer. *COMPUTE* will retain its own flexibility and expand its own power. Home computing is serious business—in or out of the office. □



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NEWS & NOTES

Flying High with Lucasfilm

At Winter CES, held this past January in Las Vegas, Nevada, Lucasfilm Games previewed its upcoming *Secret Weapons of the Luftwaffe*, the latest—and most complex—of its series of World War II air-combat simulators. The VGA graphics go well beyond Lucasfilm's *Their Finest Hour: The Battle of Britain*. *Luftwaffe* recreates one of the longest and most bizarre air offenses in history—the campaign from 1943 to 1945 by the U.S. Air Force to paralyze the industrial might of Germany. One of the game's authentic German planes, the ME-163 rocket plane, looked like the current space shuttle. It was fast, but highly unstable—it was as dangerous to its own pilots as it was to the Americans.

DAVID ENGLISH

Logitech Takes a New Tack

Logitech is abandoning the one-size-fits-all approach to mice. It has developed the MouseMan in versions specifically designed for use by right- and left-handed computerists. The 400-dpi mice will also be released in sizes to fit small hands and large hands. (No, the large MouseMan is not called the RatMan.) The ergonomic redesign of the mouse illustrates Logitech's concern about the growing incidence of physical injuries from using improperly designed computer equipment. But that's not all. Zappacosta also announced a new cordless mouse technology incorporating low-frequency radio transmissions rather than the infrared technology used by other cordless mice. This means that the mouse need not be in line of sight with the computer to operate.

ROBERT BIXBY

Canadian Games

The first World of Electronic Games will be held at the Metro Toronto Convention Centre in Canada on March 16 and 17. Exhibitors at the show, which is open to the public, will include representatives of major video entertainment system manufacturers such as Nintendo, Sega, Atari, and NEC, along with computer games developers and dozens of electronic games retailers. We will also be exhibiting COMPUTE's line of computer and video entertainment books, magazines, and disks. For further information, contact The Hunter Group at (416) 595-5906.

BILL TYNAN

CES Wrap-Up

Origin announced the sequel to *Wing Commander*. The second installment, called *Vengeance of the Kilrathi*, brings a new assortment of fighting spaceships, new characters, and new missions to the original story line. Expect it on store shelves by mid June.

Electronic Arts hits the road with a new racing simulation—*Mario Andretti's Racing Challenge*—and a top-to-bottom overhaul of its popular *Earl Weaver Baseball*. With the new *EWB*, players can download stats directly from selected online sources and then use them to construct teams and play games. The new version also incorporates varied camera angles and graphical detail unavailable in versions 1 and 1.5.

Sierra On-Line talked about the imminent release of *Space Quest IV* and *Heart of China* (from its Dynamix division). It plans to release one game every two months through the rest of 1991, including *Leisure Suit Larry 5* and *Police Quest III*.

On another note, The Software Toolworks announced plans to bring its Miracle keyboard (an electric piano that hooks up to a Nintendo) to the PC. And you won't have to buy a MIDI card to play it—the company is licensing RealSound technology from Access Software.

PETER SCISCO



Earl Weaver Baseball gets a complete graphic makeover.



The Kilrathi are back in *Wing Commander II*, and they're really ticked off.

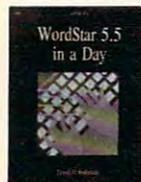
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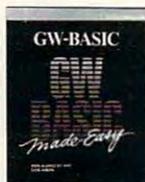
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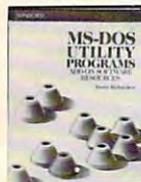
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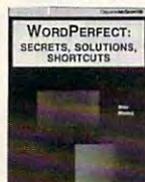
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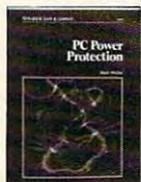
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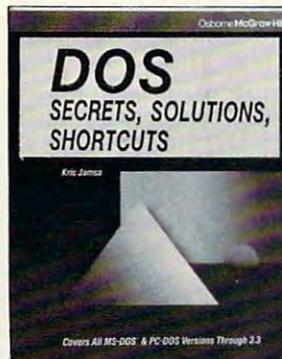
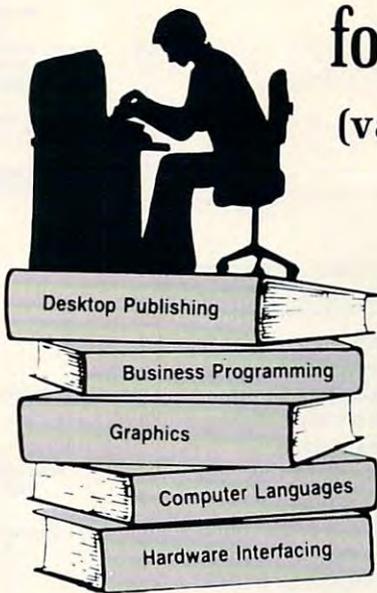
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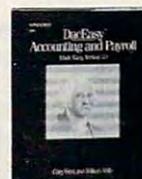
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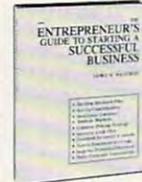
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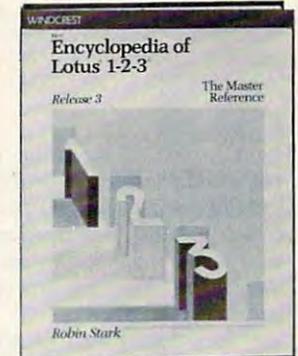
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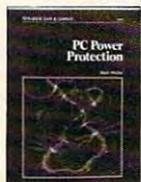
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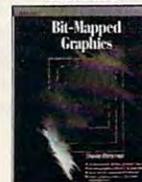
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LETTERS

The Right Stuff

I am a computer professional dealing mostly with IBM PCs, UNIX systems, and mainframes. Over the years I've read your magazine, but at one point I moved and was unable to find your magazine in my new hometown.

I recently bumped into your magazine in a grocery store, and I was very impressed with the quality. Yes, sure there are plenty of magazines out there that dissect computers in every issue, but what makes your magazine stand out is that it is aimed at the general user, who only needs a desire for learning and applying the concepts in your magazine to enjoy it, and not a Bachelor of Science degree.

ALBERTO PEREZ
COLUMBIA, MD

Monitor Risks

I am concerned about the risks which might exist to human health with the use of personal computers with VGA color monitors. Are there any radiation emissions that may cause harm to eyesight? Are there any concerns regarding magnetism?

Please refer me to any information on this subject that has appeared or will appear in your publication.

ROGER RYBARCZYK
KALAMAZOO, MI

Look for a feature article on this important subject in the July COMPUTE.

South African Fan

Thanks for a fantastic magazine, and keep up the good work. I have been reading your magazine since its inception. Even with modern communication, it takes a long time for your magazine, *Scientific American*, *Popular Mechanics*, *Popular Science*, and *National Geographic* to reach my door. However, according to a British Airways ad, I can be anywhere in North America by this time tomorrow—just 14,000 miles to your place from mine.

DAVID W. RUMBELOW
FISH HOOK, SOUTH AFRICA

Fixed Floor Plans

My daughter is interested in interior design. She draws sketches to show how she would correct what she considers to be poor floor plans.

I recall seeing an advertisement for a computer program that was designed to help people in preparing home floor plans. I want to buy it for my daughter, but I can't remember who makes it.

RICHARD G. OVERBY
MISHAWAKA, IN

Virtually any CAD (Computer-Aided Design) software could be used for this purpose. Some software is shipped with the necessary clip art to create architectural drawings, and some allows you to create and store your own clip art.

One route would be to purchase a Microsoft Windows CAD program like Arts & Letters Graphic Editor, Micrografix Designer, or Corel Draw. You would also need to purchase Windows for your daughter, if she doesn't have it already. The combination of CAD software and Windows could range to nearly \$900, so this may not be the best route to take until your daughter becomes a professional designer.

In the interim, you might consider the general-purpose technical sketching tool Autosketch 3.0 (published by Autodesk and distributed by Generic Software, 11911 North Creek Parkway South, Bothell, Washington 98011; 800-223-2521; \$249).

Your daughter will probably want two of the architectural clip-art libraries related to home design: Home Space Planner contains furniture and recreation equipment, and House Designer contains floor plans, steps, appliances, cabinets, fixtures, windows, and doors. These libraries cost \$49.95 each (other libraries are also available).

Your daughter's Autosketch drawings can be printed out from within the program or exported to other CAD products like AutoCAD

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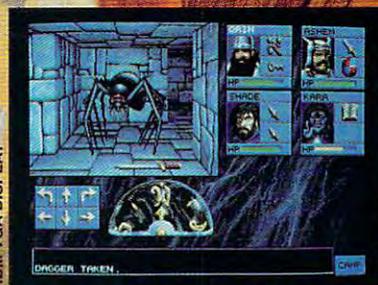
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AD&D®
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game rules



After I struck out with dBASE, Paradox, and nobody, but nobody believe our customer tracking and

...but when I came back that afternoon with a complete, customized Alpha FOUR® application, even Marge was impressed.



At our Monday morning staff meeting, I announced I was going to automate our sales tracking and invoicing system later that day.

Skepticism ran high. "Paul, you promised me an application like that two years ago," said Marge. "You couldn't do it, and neither could that dBASE programmer you hired. It'll never happen!"

On the other side of the room, Tim, a new hire whispered to Richard, "I didn't know the boss was a programmer, too."

"He's not," said Richard. "Couldn't write code to save his life. But he keeps trying because he thinks it's critical to the business."

I'd already tried three times before to program a database: first with dBASE (much too complicated). Then I tried Q&A (not powerful enough). Then I bought Paradox (just like dBASE). All were either too complicated, or not capable enough for our needs.

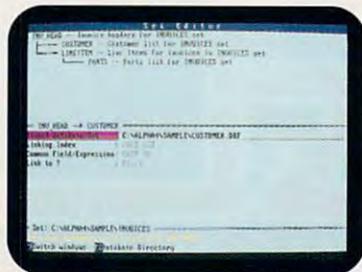
This time, I was confident. Why? Because I just bought Alpha Four, the relational database for non-programmers like me. I spent 45 minutes over the weekend with Alpha Four's audiocassette tour. So I knew how easy application design with Alpha Four would be, even the first time.

I knew within hours, I'd be able to build a fully relational customer tracking and billing system, complete with custom menus, beautiful screens and extensive help messages for error-free data entry.

And that's exactly what I did. You should have seen Marge's face when the first, perfectly formatted invoice came off the printer.

I DEVELOPED MY APPLICATION IN MINUTES!

I designed my application with Alpha Four's unique "application outline." It automatically set



up a system of menus, sub-menus, and procedures based on the outline I laid out.

MY REPORTS LOOK GREAT

Alpha Four's report writer was even more impressive. I "painted" reports and invoices on-screen. They look exactly like I wanted them to—much better than our old paper forms.

I'LL NEVER KEY IN DATA TWICE AGAIN

I always ran out of power with other simple-to-use databases; they weren't relational. With Alpha Four, I created different databases for customers, invoices and inventory and then related them into a "set," just by drawing on-screen, a diagram of the links between the databases.

Now, we never have to enter the same information more than once.

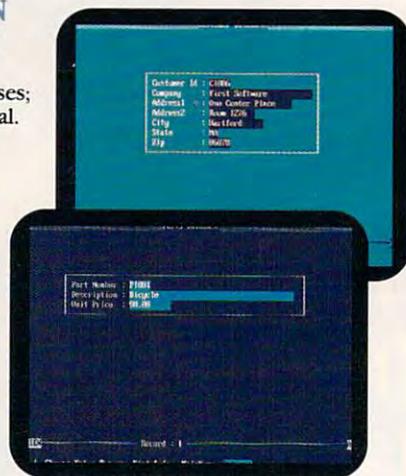
New invoices can be generated for existing customers without having to re-enter their information—we just "look it up" in our customer database.

TOTAL COMPATIBILITY WITH dBASE FILES

And I was delighted that Alpha Four is totally compatible with dBASE.dbf files. Our mailing list went right into the new application without even having to convert the files!

FASTER, MORE ACCURATE DATA ENTRY

Alpha Four has all the features of an advanced database, but they're all simple enough for me to use. When you enter data, you can automatically change the case of letters from lower to upper. You can display data entry templates for formatted fields like phone numbers, or skip over fields when

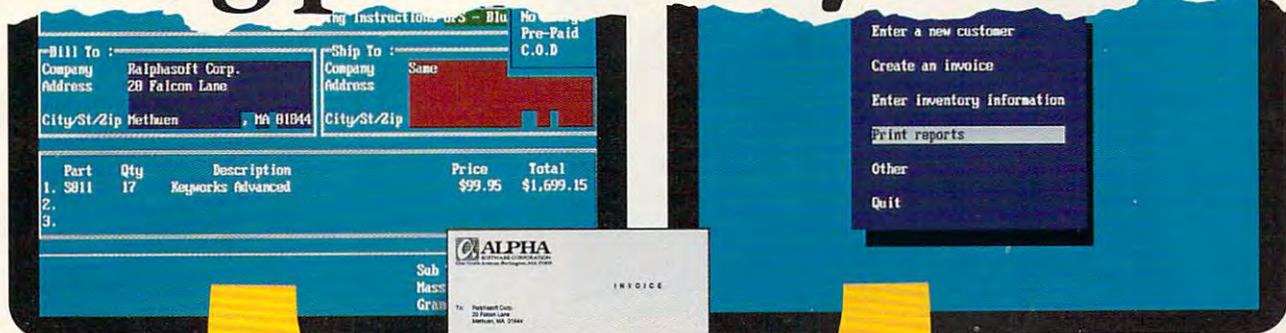




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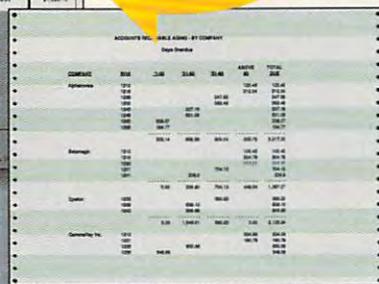
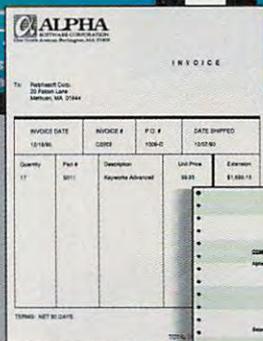
"RATED #1"
WEEK

Q&A, ed I could automate billing process myself...



certain conditions are met. Of course, all calculations are performed automatically.

Look-ups are super flexible. Display information from a look-up database in a multi-column window anywhere on the screen. Select from the window and Alpha Four automatically fills in the related information. For example, enter a part number, and have Alpha Four automatically enter the correct description and price.



SAVE \$450 WITH THIS AD! SPECIAL OFFER: \$99 UPGRADE FROM YOUR EXISTING DATA MANAGER*

If you already have any database software, integrated package or mail list manager, or if you are currently using your spreadsheet to manage data, you can upgrade to Alpha Four for just \$99.

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*Qualifying packages include: programming databases (dBASE® II, III, and IV, Paradox, Clipper®, Foxbase®, Fox Pro®, Revelation, etc.), flat-file databases (Q&A®, PFS:Professional File®,

Rapid File®, etc.), integrated packages (Microsoft Works®, PFS:First Choice®, Lotus Works®, etc.), and mailing list managers (Fastpack Mail, etc.) or spreadsheets with databases (Lotus 1-2-3®, Quattro Pro®).

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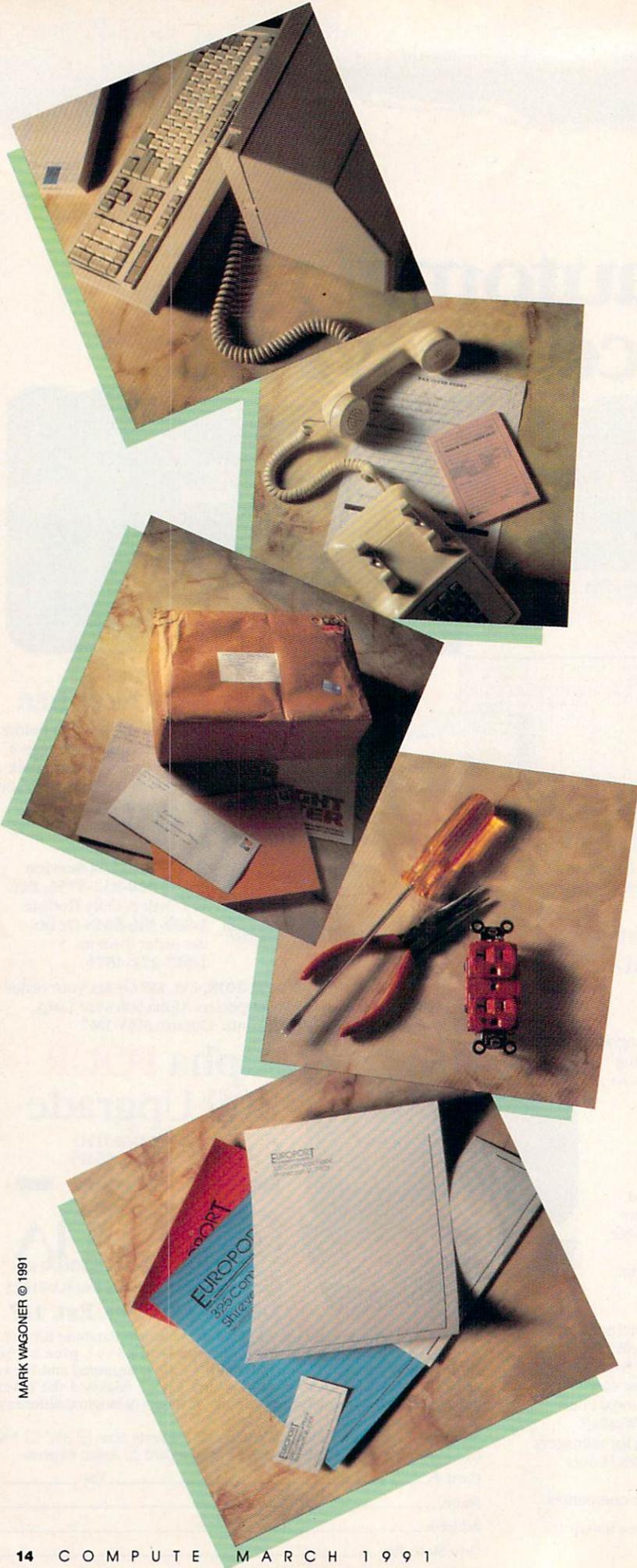
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INTEGRATING TECHNOLOGY INTO YOUR WORKSPACE

Dreams don't come cheap. But they can come true. You can give up that tiresome commute and telecommute instead, you can go into business for yourself, and you can work where most people relax. It just takes a lot of planning, a wealth of patience, and an enormous amount of courage to strike out on your own from home.

The ideal home office is a warm, secure space near the hearth that has everything corporate America depends on to communicate and compute. In the mind's eye, it's a high-tech island just a few feet from the kitchen and the kids, where you interact with customers and clients, make management decisions, and work hard at bringing in business.

Unfortunately, when it comes to setting up your own office, realities intrude. Your home office may be where you hang your hat, but it's probably not comparable to the efficient, productive workplace you've come to expect when working for others. Does it make sense that your home office won't live up to the standards of the corporate floor? After all, you don't have the resources—money, time, and people—that companies command.

Nonsense. Your home office can easily integrate the complete suite of modern business tools in a space tucked away behind the garage, up in the attic, or in a corner of your family room. Not just your computer, not just your phone, but everything else you need to match your downtown competition.

How long will it take to put together an efficient, integrated home office? Six days or six years. You can spend now (keep the bottom line fiercely in mind, but you'll have to face the fact that technology costs money), or you can spread it out and let your office grow as your income grows. Whatever direction and timetable you choose, assembling the integrated home office can be as simple as turning the pages of the calendar.>

G R E G G K E I Z E R

MON 1



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There Was the Computer

You have a computer in the house, so you're ahead of many home working beginners. In fact, it's probably working hard in your home office already. No need to add anything here, right?

Maybe. If you've got an IBM PC-compatible 286 or 386, your home office is perfectly able to handle most of today's chores. Working with a slower, older PC computer or any non-MS-DOS machine (Macintosh excepted—see "Macs Out?") means you're wasting time and probably missing out on software that would be perfect for your business.

For future home office expansion and integration, move to a 386 as soon as it's economically feasible. Sooner or later, you'll need a piece of software that won't take anything less than a 386. To save space in the typically confining home office, buy a small-footprint PC in a slimline case or a tower-style system that squats on the floor. Northgate makes both and backs them up with 24-hour technical support and overnight parts replacement—crucial criteria when you're working from home. An almost unknown company called EPS builds outstanding PCs, too. Its tower 386 25-MHz machine is a speed demon with name-brand components and should keep you computer-current for the next three years.

But don't toss out that old PC or even hand it down to the kids. Use it in your office to free your main machine from time-consuming chores like printing form letters and invoices or sorting mailing lists. Connect your two computers with DeskLink, a simple two-computer network that lets you access files on either machine from either system. DeskLink's perfect for the home office, since it uses inexpensive telephone cable to connect the PCs; it also gets you ready for the day when you'll have help in your

home office—a part-time clerk or assistant—since you can send short messages between the computers.

A laptop computer is indispensable if you work outside your office or want to make money when you're on vacation. Integrating on-the-road work with office-bound duties requires a portable computer nearly as powerful as the one at home. You can't do much better than the ZEOS Notebook 286, a seven-pound laptop that doesn't force you to compromise your work habits while on the road. Connecting the laptop to your desktop is another job for DeskLink, though the less-expensive LapLink III works fine for simply sending files from the laptop to the desktop and back.

Home office computer integration should start *inside* the machine, so invest in a graphical interface: *Windows* 3.0 works best on a 386 with a lot of RAM and has the backing of almost every name in the PC software community. *GeoWorks Ensemble* runs on even the oldest, slowest PC and does a lot of things *Windows* hasn't yet figured out, but for the moment it lacks support from other developers.

TUE 2



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And the Lines Were Open

Strip your home office of communications, and it's just another spare bedroom with a computer. To reach your customers, to take orders and buy products, to sell your clients on the quality of your services and then see the projects through, you must have the same lines of communications at home as you did in your pinstripe days.

Start with your phone. One line is enough for most home offices and many home-based businesses, what with the high-tech options now available from the phone company and others. Unless your business requires a listing in the Yellow Pages, stick with a residential line—its monthly fee costs roughly half as much as a

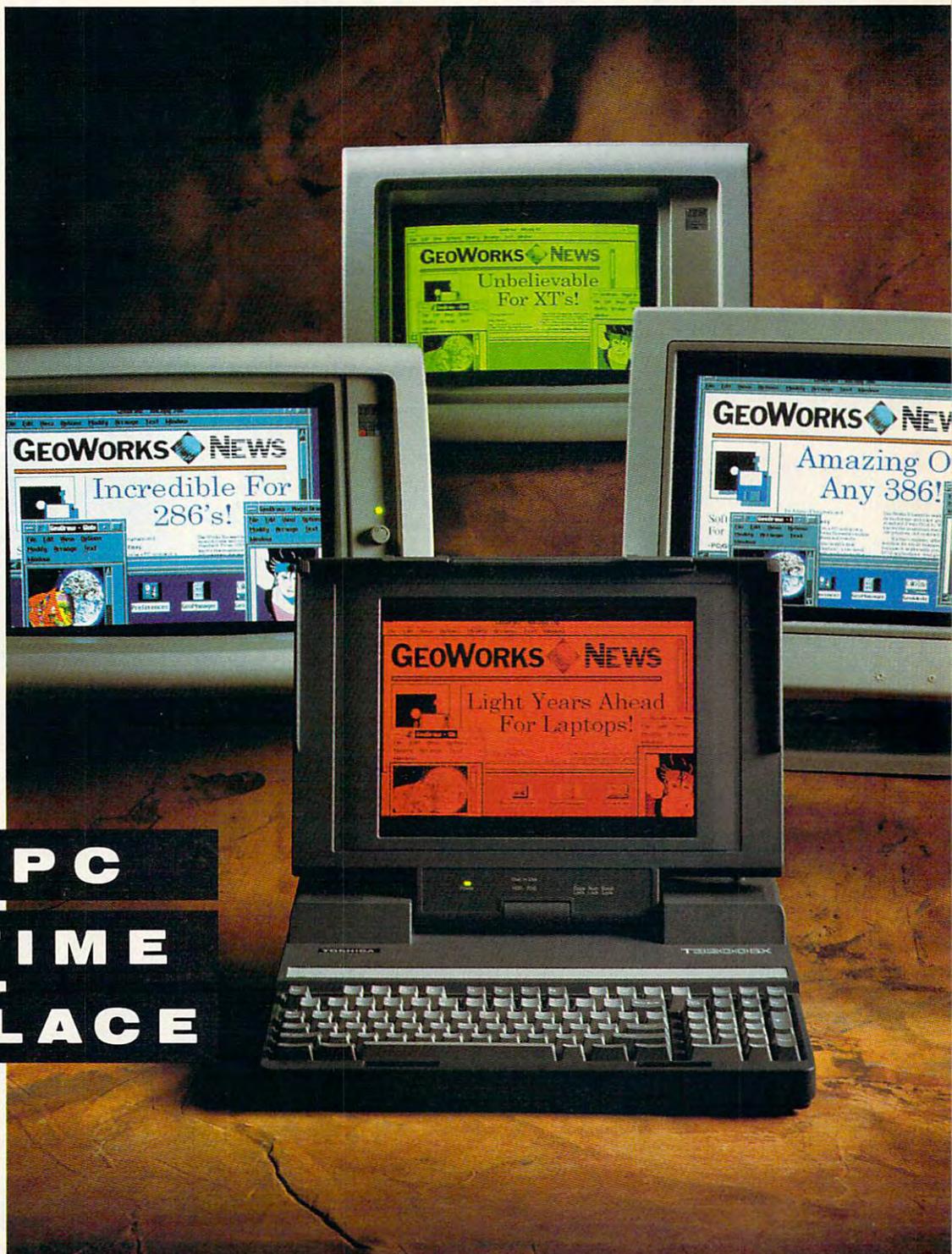
business line. The telephone company service called *call waiting* effectively doubles your single line, telling you when you've got another incoming call; most call-waiting services can be temporarily turned off so that your telecommunications calls aren't disrupted. Another service, one that goes by the names *ring alert*, *distinctive ring*, and similar names, actually adds another phone number to your line and then rings different sequences for each number. Use it to separate your business and personal calls with only a moderate increase in your monthly bill. To separate incoming calls to phone, fax, and modem try the Switch Model A5.

If your business depends on the phone, buy a reliable, single-line phone like Radio Shack's DuoPhone-183. Its speaker phone comes in handy when you're on hold—just listen in while you keep working. And though memory-dialing phone features are important, don't bother with them if your computer dials numbers for you from a contact-manager program like *Act!* 2.0. Partner your phone line and phone with a quality answering machine to make sure business doesn't slip through your fingers. A machine like the AT & T 1323 Answering System has it all, from message time-and-date stamping to remote message retrieval from any touch-tone phone.

You may be able to get along without a fax machine temporarily and make do by sending and receiving faxes from your local copy shop (for \$2-\$5 per page), but that time-consuming and expensive process will soon convince you to buy your own fax. For the ultimate in-home office fax integration, install Intel's new SatisFAXtion fax board in your PC. It turns your computer into a fast fax machine that sends and receives fax messages in the background, without slowing down your other PC work (the board also includes a 2400-bps modem for telecomputing).

The new line on communication—electronic mail—beats using an express service or even the fax machine if you're sending long documents created on your PC. For just \$10 a month, you can send 40 electronic messages (or even faxes) on MCI Mail, the leading electronic mail service. Don't worry if the people you want to contact don't have an MCI Mail mailbox; you can reach any of the over half-million CompuServe subscribers through MCI Mail, too. All you need is a modem and your PC. The ZOOM 2400 modem is one of the least expensive and most widely available from mail-order companies.

continued on page 21 ▶



ANY PC
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ANY PLACE

Introducing Geo

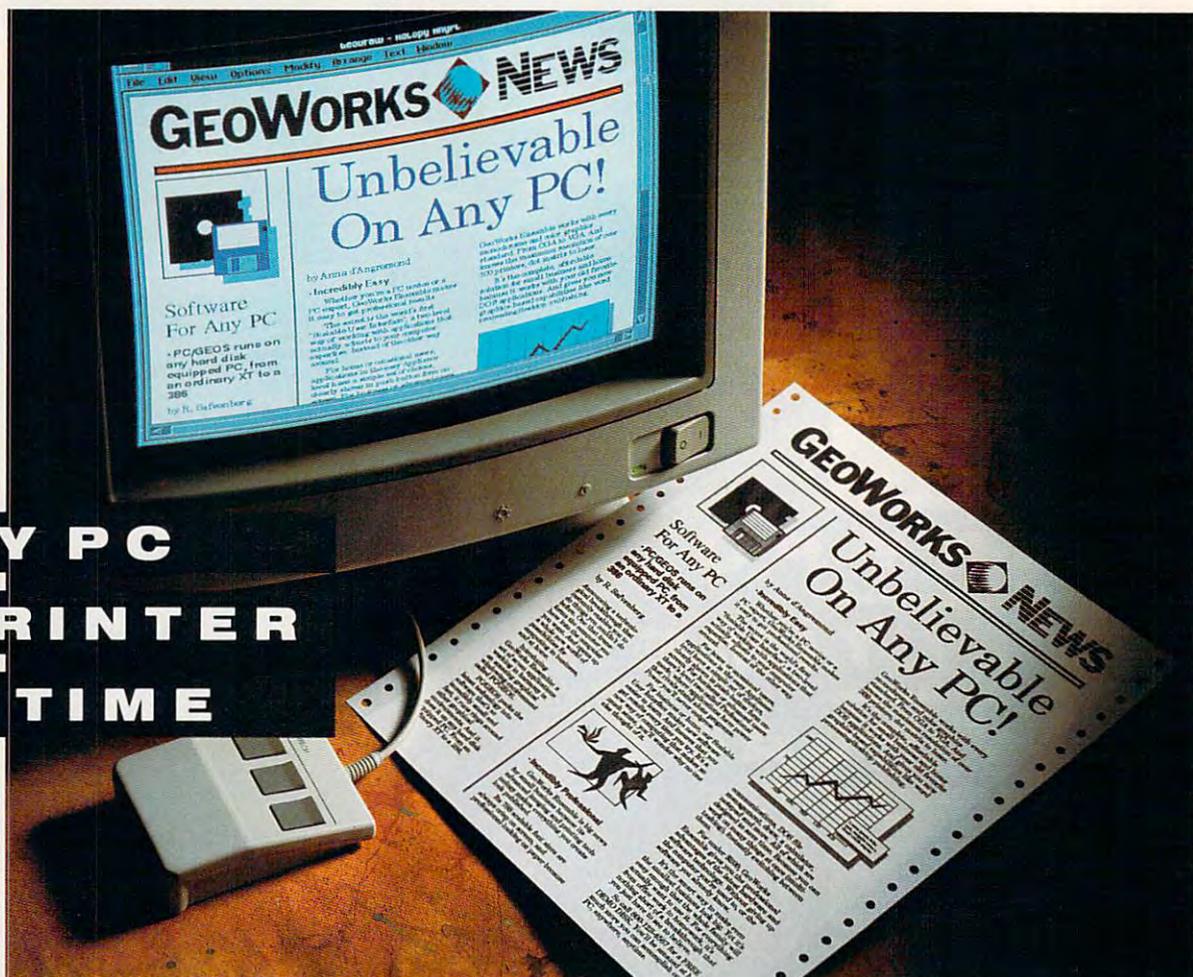
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ANY PC

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For under \$200, GeoWorks Ensemble helps you get more done faster by giving you the capabilities of the most expensive graphical workstations. Without giving up the DOS software you already know. And without adding expensive hardware to the PC you already own.

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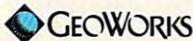
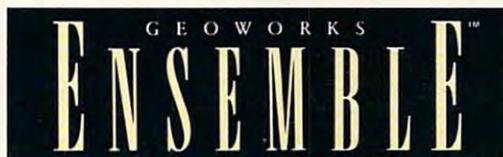
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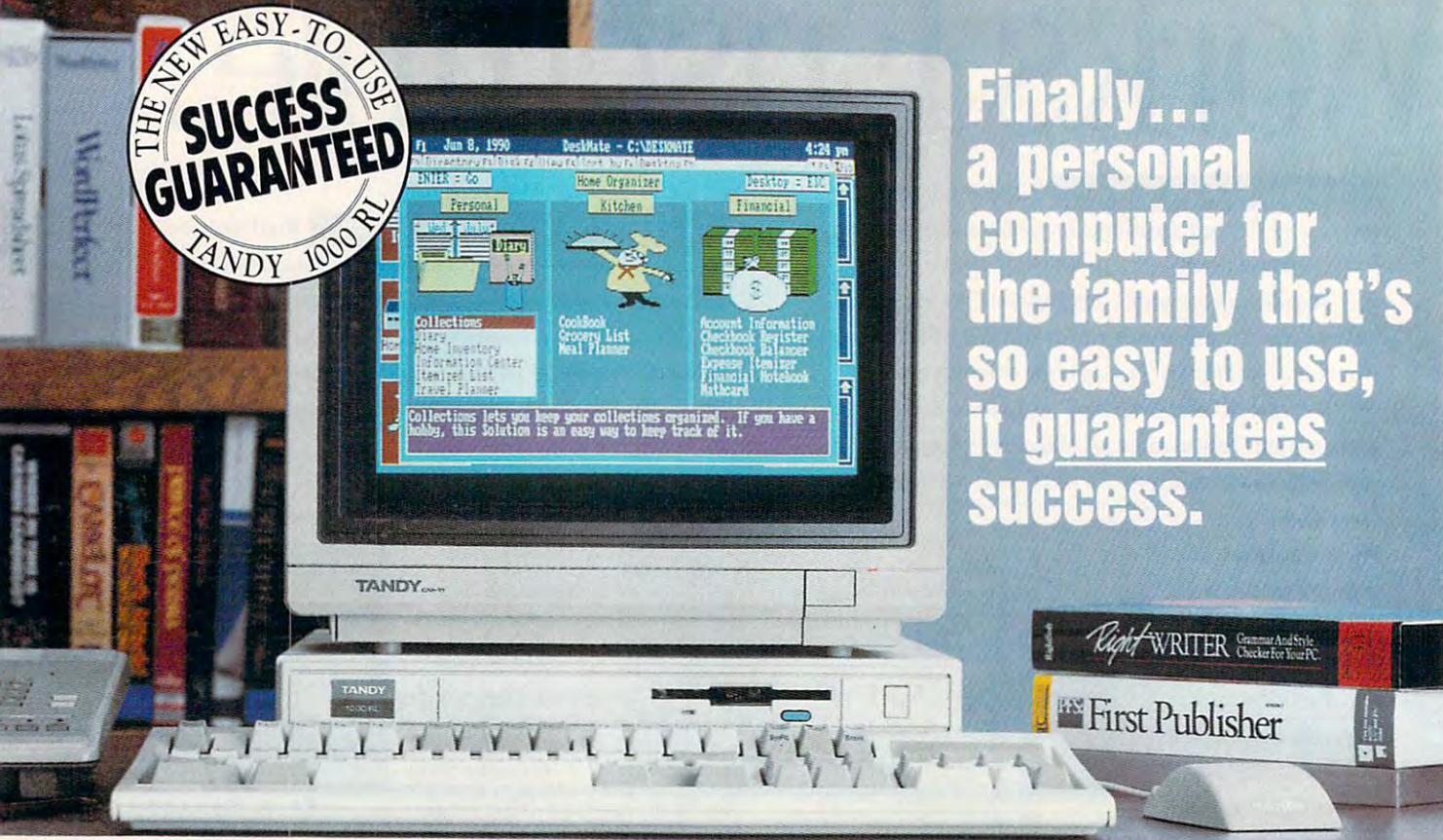
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Let It Go Out Good

You can easily fool people into thinking that your home office is as professional as anything in a corporate tower simply by paying attention to what leaves your desk and how it arrives on your customers' desks.

Start with your business cards and stationery. For around \$500 you can have professionally designed two-color cards, letterhead, and envelopes. The cost may seem steep, but the long-term benefit—higher rates for your services because you attract higher quality clients—makes it an excellent investment. First impressions are always important.

Back up that good-looking letterhead with laser-printed correspondence. It's a buyer's market right now, so shop around for a perfect laser printer. Though the HP LaserJet IIP is the most affordable and available personal printer, often going for as little as \$800, if you're doing any desktop

Macs Out?

Macs do home offices, too. Though most home businesses survive on PC compatibles, a Macintosh makes an excellent, albeit expensive, partner in the home office. Last year's introduction of three lower-priced models—the Classic, LC, and IIsi—means that more home offices than ever can afford a Macintosh.

Macintosh software rivals that of the PC in almost every home office area, from inexpensive utilities to powerful applications. Macintosh peripherals, on the other hand, are often more expensive than their PC counterparts, while some home office computer hardware—a light and inexpensive laptop computer, for instance—has no Macintosh equivalent.

Yet the Mac makes sense as a home office computer. If computer time is but a fraction of your home office hours, you'll find Mac software easier to learn and simpler to use, especially if you turn to the computer infrequently and thus never become completely familiar with your software's intricacies. The Macintosh is still the champ if your home business relies on visual results, such as desktop publishing, presentations, or graphic design. And with more ways to connect Macs and PCs to share files and peripherals, you can make a case for mixed-computer home offices, with each machine working at what it does best.

Home offices on a budget should turn to the Classic, a black-and-white system that runs about \$1,300 for a hard drive-equipped model. For speedier performance and color, the Mac LC is the most economical Apple. That's relative, though, since you'll have to look hard to find a complete LC for less than \$2,500—roughly the price you'd pay for a well-equipped 386 with VGA.

Advertorial

Face to Face With Graphical User Interfaces

Power users are turning to graphical user interfaces (GUIs) for the ease of use they provide. But what about those of us *without* 386 VGA systems? Fortunately, there are GUIs designed to make computing easier on 8088, 8086 and 80286-based systems, and one of the most important decisions you'll make is choosing which GUI to work with.

Can We Talk?

First, you'll want to choose a GUI that "speaks" your language—English, plain and simple. That way you won't have to learn how to communicate with your computer before you start to use it—you'll already be on speaking terms.

Easy Operation

Second, your GUI should have neat, organized displays that present your options clearly and concisely. Easy-to-follow graphics make it simple for you to see exactly where you are in a program. Handy pull-down menus keep your options tucked away and out of sight until you call for them. And pop-up dialog boxes guide you through tasks, making sure that your computer does what you want it to.

Something in Common

GUIs provide a uniform operating environment, which alleviates the frustration and confusion of switching from one task to the next. Programs based on the same GUI have the same look and feel to them, making each new application easier to learn. Of course, you'll also want to choose a GUI supported by many of the leading software publishers. That way you'll be sure to find readily available software for home, school or business.

Those Little Extras

Another feature to look for in a GUI is a help function that's *context sensitive*—one that's able to "sense" which task you're currently running and provide help for that specific task.

For true convenience, your GUI should operate with just the point and click of a mouse cursor controller. The mouse makes it quick and easy for you to select your choices from menus and dialog boxes, taking the maze out of getting around the many computing options your GUI offers.

Fortunately, there is just such a user-friendly GUI: Tandy's DeskMate® Graphical User Interface. It's affordable, too—the proven format of DeskMate gives you instant convenience without having to upgrade your system memory beyond 384K. And it's available from over 7000 Radio Shack stores across the country. So take a scroll through DeskMate and discover for yourself just how easy computing can be.

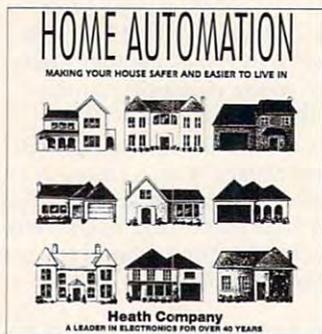
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publishing (or think you may be in the future), pick up a Texas Instruments microLaser PS35 or a QMS-PS 410 PostScript printer instead. Both not only emulate the HP LaserJet series, but they also pump out PostScript output from such top-ranking software as *Aldus PageMaker* and *Ventura Publisher*.

A budget-minded alternative, the Citizen GSX-140 24-pin dot-matrix printer, handles home office documents and correspondence nearly as well as a laser printer. Its color option is interesting, but you'll be hard-pressed to find many applications for color printing unless your business offers design or presentation services. Still, it makes an acceptable stopgap while you're saving up for a laser.

If you have more than one PC in your office, hook up your printer to each computer. That's easy—and inexpensive—with something like SimpLAN SNAP, a printer network that uses snap-in modules and telephone-like cable to connect everything. You print normally from any PC (up to 16 computers can be linked to a single printer). You don't get any extras like print spooling with Snap, but for most home offices, it's a great way to save money by using one printer with several PCs.

It would be nice if that expensive laser printer, which shares many components with a copier, could serve double duty. Though you can jury-rig a system that uses a scanner to scan in art or text and then print it on the laser printer using a special double-ended cable, you're much better off with a

stand-alone copier. Small-sized, limited-function personal copiers—the heavily discounted Canon PC-1 is a great example—keep you in your office, not in the car heading for the copy shop. Remember, too, that the modern office often pairs the fax and copy machines. You duplicate pages you want to fax (rather than rip them out of the newspaper or magazine) and copy faxes you receive for permanent filing on plain paper (because fax paper fades rapidly).

THU 4



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Perfect Incoming, Too

Your home office can communicate all it wants, but if it's just one-way conversation, you'll get nowhere. You must have competitive, inexpensive ways for people to send messages and parcels to you and your business.

My Way

I love my home office. I'd better, since I spend more time in it than I ever did in any corporate office I inhabited.

Like many home office workers, I started out with what I had. In my case that meant a 286 PC, a five-year-old Macintosh, a 9-pin dot-matrix printer, and a desk squeezed into the corner of an upstairs family room. I didn't have enough space to spread out papers. A phone line rippled across the floor from the nearest jack to my modem, and I constantly had to apologize for the annoying buzz that clients heard from my decrepit portable telephone.

I considered leasing office space—it goes for a song in the Southern city where I live—but I didn't want to pay the overhead month in, month out. So I made room.

With the help of an extremely handy father-in-law, I transformed a 13 × 8 foot toolroom into an efficient

home office. I designed on the fly, with just the sketchiest of details in mind: plenty of power for the electronics, air conditioning to fight the Southern climate, a 3-foot-deep desktop along two walls to hold computers and printers, and floor-to-ceiling shelves for software. I didn't skimp on the things I thought vital—a comfortable chair, adjustable task lighting, and a topnotch phone.

My office isn't perfect. I still make trips to the copy shop, and I send most faxes via MCI Mail. Macs and PCs communicate and share printers—but not always effortlessly. Storage space is a problem. But I know where I'm going. I've pinpointed my office needs, and I have a reasonable purchase plan that will upgrade my equipment and make my business more competitive and more productive this year than last.

That's the great thing about my home office—I decide what it is and what it will be.

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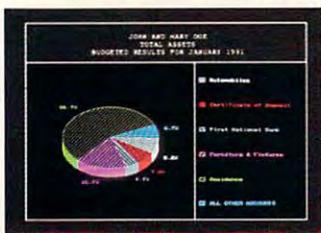
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Many home-based businesses operate by receiving packages, buying products through mail order, and then reselling them locally. A simple way to ensure that you receive everything promptly is to have a post office box. Rent the smallest size to start—packages are retrieved for you, not jammed into the box.

You'll probably send rush letters or packages from time to time, so it makes sense to settle on one express service, if only to simplify your accounting and keep tabs on your costs. All express services let you set up an account and provide you with pre-printed shipping forms, then bill you directly or through a credit card (the former is smarter, since you can track individual shipments on the express service's invoice). Once you have an account, tell your most important customers and clients to charge it to that account when they express material to you. Just remember to figure such costs into your overhead when you set your rates or itemize them on your own invoices.

Make sure you establish a drop-off procedure with every express or shipping service that comes to your home so that packages will be left for you when you're out. Though an at-home neighbor works well, it's best if the driver can leave packages in a protected, covered area, such as a garage or back porch. You'll have to sign an agreement with each service, taking responsibility for any packages left.

Toll-free telephone service is another mark of a major player, but your home office can compete here, too. If you're selling products by mail order from your home office, you may want an 800 service that takes calls, verifies credit cards, and then sends you the

orders (and even mailing labels) daily. Such services don't come cheap—they can cost anywhere from \$1.00–\$2.00 per order—but they're convenient, even necessary, if you don't have the phone and personnel infrastructure. For more limited toll-free service, check out MCI's new Personal 800 plan, which adds \$2.00 a month to your long-distance bill, then tacks on \$0.25/minute for incoming toll-free calls. Callers simply dial the 800 area code, then your number, then the four-digit access code you've provided. This way you restrict who calls in on the 800 number while still making it easy for clients and customers to call you anytime, from anywhere.

FRI 1



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Then There Was Light

Finishing off your office can take years. That's the beauty of working at home—you expand your space only when you need it. Integrating that expansion with the rest of your plans, though, takes some preplanning. Here

are some important points to keep in mind as your home becomes your home office.

Room to grow. Wherever you decide to locate your home office, it won't be big enough six months down the road. If possible, start by occupying a small portion of a larger space; then expand as necessary. Attic, basement, sun porch, or garage space is ideal for this. If your room is limited and you can't physically expand your home office, get more into that limited space by moving things up, down, or out of the way. Accessories such as monitor arms, floor CPU stands, compact workstations, and printer carousels can pack your office with equipment without making it seem crowded. Curtis and MicroComputer Accessories are two accessory makers that have almost everything you'll need. (Curtis offers free of charge a publication full of design ideas. The title is *Design Ideas for Your Home Office*. The address can be found in "Product Information.")

Power up. You never have enough outlets in your office, either. As you create your office space or remodel an existing space, plan for future power consumption—four to six double-outlet boxes on one 20-amp circuit should suffice for the average home office (excluding air conditioning and/or heating), even when it's burdened by a computer, fax, and laser printer. Line protectors for power and fax, such as those in the Brooks Power Systems Surge Stopper series, dissipate surges. This becomes necessary when your office shares power with the rest of the house. Uninterrupted power may mean the difference between business life and death, so think hard about some power insurance—Dakota Microsystems' PowerSave 500 plugs into an empty slot inside your PC and automatically kicks in when the power goes off, saving all your work and shutting down your computer (there's a special model for 386-based machines).

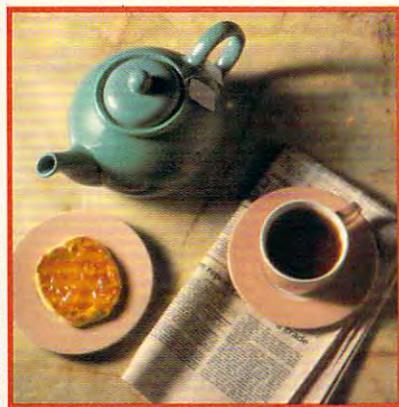
Support yourself. When you work from a home office, you're on your own in more ways than one. Technical support is your responsibility now, so stock up on diagnostic and file/hard disk drive repair software. *PC Tools Deluxe* bundles an excellent backup program with several programs for file recovery and disk drive enhancement. Make technical support a criterion when you shop for computers, printers, telephone, fax, and copier; then use it, even if it's not toll-free. For more general advice, connect with other home office workers, preferably people who have worked at home longer than you. An ideal place to find other work-at-home professionals is

Ten Steps to the Total Home Office

1. Get along with what you've got until profits make it possible to upgrade equipment. Set up wherever you can, use the PC you own, get by with that old printer, and make calls on the family phone.
2. Design and create your home office, stage 1, in what spare space you have. Equip it with desk, file cabinet(s), shelves, and chair.
3. Spring for a 386 PC, buy the best phone and answering machine you can afford, and sign up with an electronic service such as MCI Mail or CompuServe.
4. Migrate to a graphical user interface like *Windows* or *GeoWorks Ensemble*, but only when your critical software demands it.
5. Move up to a personal laser printer; then connect all PCs (and Macs if you have a mix) with each other and with the printer.
6. Install a fax board in your PC, or if your fax load is heavy, purchase a stand-alone fax machine.
7. Install an additional phone line if necessary, and switch to a two-line phone. Alternately, subscribe to such phone company services as call waiting or distinctive ring.
8. Move up to home office, stage 2, by expanding into vacant space or by enhancing existing room with compact workstations, space-saving accessories, and under-the-counter filing and storage areas.
9. Add a personal copier to your office suite.
10. Take your home office with you on the road. Buy a laptop PC and a portable modem and, if you spend more than a third of your workday on the phone, a portable cellular telephone.

on almost any of the online services, from CompuServe to low-cost services like GEnie and Prodigy.

SAT 6



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Little Rest at Home

The advantages of your home office may seem overwhelming to an outsider who sees only the freedom and flexibility of self-employment. You know different, or should. Home workers toil longer weeks—about 25 percent longer on the average.

The reason for the long hours isn't only that home workers are better motivated (though they generally are, since financial survival is at stake), but that they have to do nearly everything from the technical to the menial for themselves.

That's one reason why today's home office has to be as well equipped, if not better equipped, than the typical corporate office. You're spending so much of your time managing the business that any timesaver, any productivity booster, any image enhancer is not so much a luxury as a necessity. You'll find yourself searching for new ideas.

Each new technology, integrated into the base system of computer and phone, must meet only one requirement: It must improve your bottom line. All the tips and technologies in this six-day home office construction kit are designed to meet this requirement.

You *can* create an office in your home that matches anything you had in your 9-to-5 life. The technology is here, and the services are at your disposal to turn any room in your house into an office.

Why not use the technology to get a jump on the rest of the business world and beat a path straight back to your home? You *can* make that dream come true. □

Product Information

ACT! 2.0

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Aldus PageMaker

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Ballwin, MO 63011
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Canon PC-1

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HP LaserJet IIP

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Message/Fax Service

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Office Accessories

MicroComputer Accessories
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microLaser PS35

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PC Tools Deluxe

Central Point Software
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Personal 800

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PowerSave 500

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ZEOS Notebook 286

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ZOOM 2400

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R I C H A R D C. L E I N E C K E R

Times are tough, but smart people use their computers to gain an advantage even in recessions.

This month we're bringing you two packages that use your computer's power to give you the advantage you need.

Just what are we bringing you? A commercial-quality personal finance manager and a terrific home inventory program. Managing your finances effectively gives you greater returns on your investments, lets you pay less interest on loans, and helps you make better decisions when it comes to expenses like insurance.

We've spent a great deal of time choosing these two fine applications. First, we sorted through thousands of online programs. Then, we downloaded hundreds of them and spent countless hours evaluating them. Finally, we selected the very best programs and worked with the authors to get you the very latest versions.

Cash Control

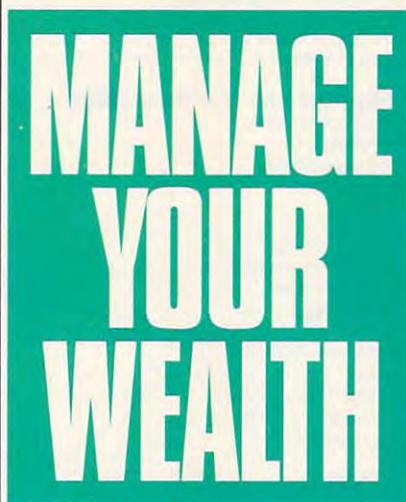
Cash Control simplifies your home financial recordkeeping. Enter transactions for checking, savings, or charge accounts; transfer funds between accounts; print checks on your printer; balance your account with your bank statement; remind yourself when payments are due; and prepare reports and graphics of your recorded transactions.

Cash Control runs on virtually any IBM compatible because all it requires is 256K of RAM. It can use any monitor, so don't worry if you have Hercules or monochrome.

The first thing you'll notice when you run *Cash Control* is the clean, effective, well-planned screens. They display information clearly and logically. Options appear at the top of the screen so that even computer novices can easily understand and use the program.

Entering transactions and information is just as easy as it can be, too. Pop-up windows tell you exactly what to input and make it easy to interact with *Cash Control*.

You'll get a lot of extras, too. A pop-up calculator and calendar serve as useful tools for getting the calculations correct and planning things in advance. Being able to search forward and backward helps you when you can't seem to remember when a transaction took place. You can print checks on your printer for just the right professional look.



And when you've made certain that your accounts are all in order, you can generate a number of reports. Present your financial information in a variety of ways, and use bar graphs and pie charts for maximum effectiveness.

When tax time rolls around, you can satisfy Uncle Sam with special reports. For those of you who suffer from IRS anxiety, these will go a long way toward alleviating some of the fear. And you're less likely to make careless mistakes that will cost you money at tax time or invite an audit.

If you want to ensure that your accounts are balanced or that you've remembered to pay your bills on time, or if you just want to maximize the effectiveness of your dollar, *Cash Control* is definitely for you. It handles many of the jobs that accountants do—at a small fraction of the cost.

Personal Inventory 2.11

This program maintains a record of household items and provides a means of tracking depreciation using four different methods. You can categorize and track items by room or location.

Since *Personal Inventory* supports 43-line EGA/VGA mode, you'll get a lot more information on the screen. That means that you can see and keep track of things more efficiently. Mouse support makes the program's easy-to-use interface even easier and more professional.

Adding, viewing, deleting, and editing items are a snap. Menus with labels that you can understand combined with clear and attractive screens make interacting with *Personal Inventory* intuitive and straightforward.

It's easy to set up your printer just about any way you might want. You can change printer ports, margins, carriage and linefeed specifications, and special escape codes with another menu.

Add categories if the one you need isn't included. So your collection of ancient spider models can be cataloged and tracked, too. And tracking warranties alone justifies the use of this program. No more "Hey, honey, when is our toaster's warranty up? It just went up in smoke."

You don't have to wade through a lot of documentation to use *Personal Inventory*. In addition to its exceptional user interface, it has online help anytime you press F1.

Backups can be created when you exit the program. It's great because you just answer *Yes* or *No* to the prompt, and the program takes care of the rest. And the backups are compressed so they don't take up as much space on your disk.

If you want help keeping track of your household items, maintaining records for the IRS, or keeping up with similar applications, *Personal Inventory 2.11* will be an indispensable addition to your inflation armor. You can protect your belongings by keeping track of them better. And that spells long-term rewards. □

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Personal Inventory 2.11

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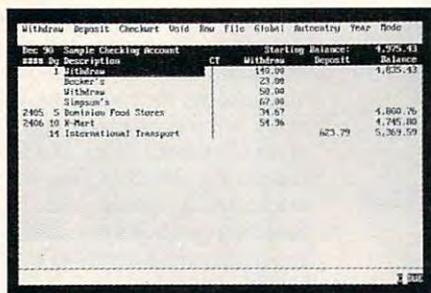
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Cash Control

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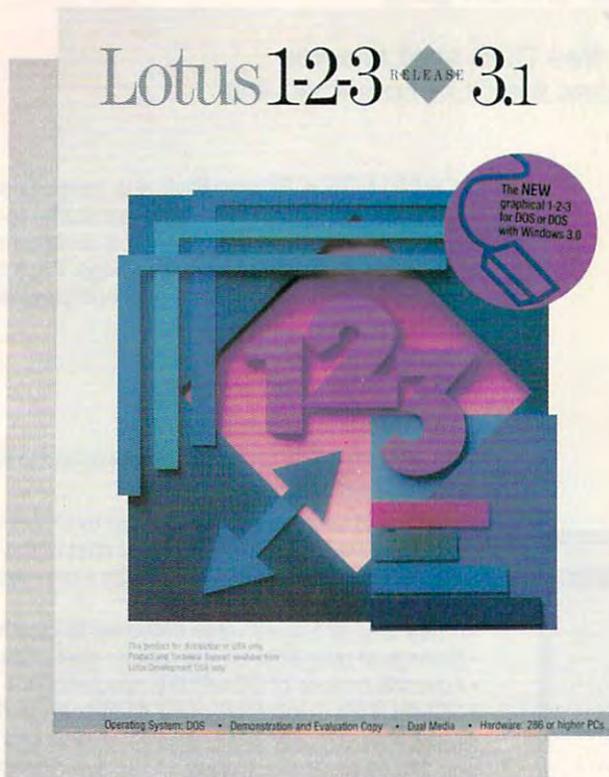
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H O M E

Lotus 1-2-3 RELEASE 3.1



Now there's a Lotus spreadsheet you can enjoy working with at home. *Lotus 1-2-3* release 3.1 puts on a new face so effectively that you will hardly recognize what's underneath the facelift. But the appeal of *1-2-3*'s WYSIWYG screen goes far beyond the surface.

Building a spreadsheet within a graphical environment is much easier because you directly manipulate the work sheet's segments. For instance, you can define ranges by pointing with a mouse. You can also use the mouse to set the point size of text and move cell margins by dragging them to new locations. With WYSIWYG, you see the effects of your changes immediately. By comparison, in text-based spreadsheets you deal with the structural components at arm's length.

Simplified spreadsheet styling along with eye-catching graphics may be reason enough to migrate to a graphical-environment spreadsheet. But WYSIWYG's true *raison d'être* is to streamline the ordinarily time-consuming and error-fraught transition from computer screen to professional-quality output.

In a previous life, what Lotus now calls WYSIWYG was named *Impress* and marketed by PC Publishing as a popular *1-2-3* add-in. Lotus liked *Impress*'s ability to transform *1-2-3*'s bland character-based displays into striking spreadsheet art. The company acquired *Impress*, reworked its menus, and now bundles it with 3.1. In practice, WYSIWYG unquestionably imbues Lotus's flagship application with pizzazz. Lotus hopes that will help revive *1-2-3*'s flagging sales.

COMPUTE CHOICE

HOWARD MILLMAN

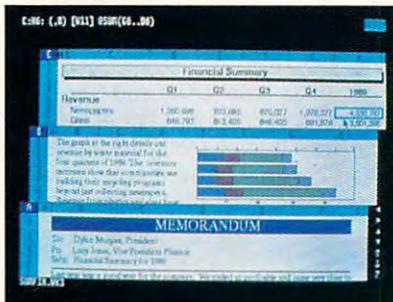
GRAPHICS DISPLAYS, WYSIWYG, AND IMPROVED MEMORY MANAGEMENT MAKE *LOTUS 1-2-3* RELEASE 3.1 A SUBSTANTIAL IMPROVEMENT

FFACE

As an add-in, WYSIWYG loads after you start *1-2-3*. You can load it manually or set it up to load automatically every time *1-2-3* executes. After WYSIWYG loads, both the familiar slash (/) command menu and an additional graphical menu set prefixed by a colon (:) control all spreadsheet operations. The combination of these two menus gives you access to the full arsenal of *1-2-3*'s functions, commands, and features.

The slash commands provide the functions necessary to create a work sheet, such as entering formulas, composing macros, and accessing file-handling functions. The graphical menu mainly provides access to commands that control the appearance of the work sheet such as colors, type sizes, fonts, and text attributes.

The advantages of working within the WYSIWYG environment are so numerous that over time users may forever abandon *1-2-3*'s traditional text-based display. Row width and column height are infinitely adjustable, graphics and text can be mixed in any combination of colors and sizes, and onscreen text can be any of the 224 colors in the palette. WYSIWYG accurately portrays fonts onscreen in a wide range of sizes up to an inch high.



You can display several work sheets at once with 3-D capability.



Displayable font attributes include bold, italic, underline, and color. In addition to Courier (the default), Swiss, and Dutch fonts, 200 additional fonts are available at extra cost from Bitstream.

Release 3.1 moves one step closer to integrating word processing and spreadsheet functions. Using 3.1's elementary yet functional text editor, you can include short memos or other documentation right in your spreadsheet. The text editor includes automatic word wrap, justified text, and the ability to manage multiple fonts within a selected range of text.

The timesaving global formatting codes in Release 3.1 enable you to name as many as eight format styles that include specifications of font, size, shading, colors, and such attributes as bold, italic, underline, and superscript. These named styles can be applied to an entire work sheet, a range of cells, or a single cell. Cell ranges can be highlighted with boxes, various borders, and drop shadows.

You'll find yourself using the mouse to open vertical or horizontal windows, select cell ranges, make menu selections, and scroll within a work sheet or between as many as 256 stacked work sheets. Although you can enter commands with the keyboard, a mouse (or trackball) is easier and certainly more natural.

In addition to dynamic onscreen updates of the work sheet's text and data, WYSIWYG enormously simplifies creating graphs. There's no limit to the graphs you can incorporate in a work sheet, and the graphs are dynamic, immediately reflecting changes made to the data in the spreadsheet.

As in *Lotus 1-2-3* release 3.0, the work sheet's data still controls the relative proportions between a graph's components (bar length, line height, and so forth). You cannot alter this relationship directly with the graphic editor. As an alternative to using the work sheet's data to create a graph, you can import .CGM metafile and .PIC graphic files. Imported graphics

can be readily enhanced with text, geometric shapes, and symbols.

Use the mouse to drag structural elements into the correct orientation and position. You can directly edit individual components or the entire graph until it's perfect.

Release 3.1 queries and imports data from external databases via DataLens drivers. The default driver shipped with 3.1 can query *dBase III* and *dBase III PLUS*. Additional DataLens drivers will soon be available for *Paradox*, *Oracle*, and Novell's Network Structured Query Language.

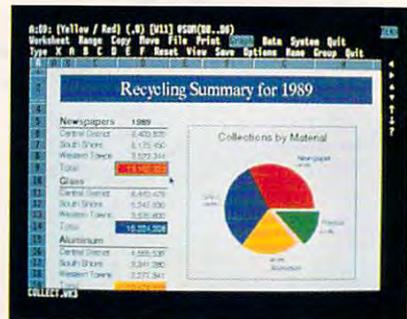
Other behind-the-scenes im-

provements to *1-2-3* include the promised release of an enhanced Add-In Toolkit. Lotus designs these toolkits to help small third-party software publishers create slick add-ins. To date, more than 200 updated add-ins have been rereleased for 3.1. With the new Toolkit now available, you can expect many more in the near future.

Ironically, despite the ease with which 3.1 creates professional-looking copy onscreen, it provides comparatively few printer drivers to translate those work sheets into high-quality output. Supported printers include Hewlett-Packard, Epson, and IBM

printers. Users of other printers may need to use emulation modes which often limit access to some of their printers' advanced features.

Just how important is it that 3.1 is not fully compatible with *Windows*? *Windows*' drop-down menus would prove somewhat easier to use than *1-2-3*'s horizontal menus, if menu orientation were a crucial issue (it isn't). *Lotus 1-2-3* release 3.1 runs full-screen



Onscreen formatting may make you doubt your eyes, but what you see is *1-2-3*.

under *Windows* as a DOS application, but you have to run it in text mode, and you can't resize 3.1's windows unless you load an alternate CGA video driver within *Lotus 1-2-3*.

Release 3.1 makes limited use of *Windows* features. In 386/Enhanced mode, 3.1 exchanges data with other *Windows* applications via the Clipboard, and it will task-switch and multitask.

One benefit of 3.1's tenuous affiliation with *Windows* was that it induced Lotus to answer a longtime criticism of *1-2-3* with an improved memory-management system. Now, when creating large spreadsheets, *1-2-3* will store data in extended or expanded memory and swap data to the hard disk to free up system memory.

It's a truism in the computer industry that software sells hardware. *Lotus 1-2-3* release 3.1 requires a 286 or better system with a minimum of 1MB of RAM (640K base plus 384K extended). If you have a number of large work sheets open, 1MB of RAM may prove inadequate. Also, since graphic screens require longer to refresh than text-based displays, a fast CPU (20-MHz or better) will eliminate frustrating delays in graphics mode.

With determination and time, anyone can eventually learn to use this latest release. Exactly how much time will depend on your prior familiarity with *1-2-3*. Users trading up from 3.0 need to familiarize themselves with the graphical menu's commands. Those upgrading from 2.2 need to learn about 3-D spreadsheets as well as the graphical commands—sort of like double jeopardy. >



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HOME OFFICE

First-time 1-2-3 users face some rough riding. They may feel that release 3.1 requires them to assimilate too much too soon. They should consider making release 2.2 their first stop and trade up to 3.1 when ready.

Release 3.0 introduced the concept of 3-D spreadsheets, and 3.1's graphical interface makes them easier to use. However, unless you need 3-D capability, consider release 2.2 with its milder requirements for processor ability and reduced appetite for RAM.

Release 3.1's comprehensive instructions include multiple manuals, easy-to-use context-sensitive help, and linked on-disk and printed tutorials. Additionally, Lotus's seven-day-a-week, 24-hour technical-support group remains ready to answer any question on its toll-free support line. The support personnel proved courteous and knowledgeable when answering routine questions. Release 3.1 includes six months of free technical support. After six months, continued support costs \$79 per year.

Lotus's unique in-store upgrade policy makes it easy to trade up. To upgrade to either release 2.2 or 3.1,

bring the original title page of the manual of an older release of 1-2-3 to any Egghead, Computerland, or Soft Warehouse store, and the store will immediately furnish the new version. Upgrade costs range from \$35 (for re-



Release 3.1 is compatible with Windows.

cent 3.0 purchasers) to \$150 for versions prior to release 2.2.

Release 3.1's list price of \$595 and street prices ranging from \$410 to \$450 average about 25-percent higher than the price of competing *Excel* and *Quattro Pro*. Currently, that 25-percent premium buys features not of-

fered by the competition. But stay tuned because shortly Microsoft and Borland are certain to rise to the challenge and roll out their own reworked models.

Until then, however, *Lotus 1-2-3* release 3.1's WYSIWYG graphics and 3-D capability entitle Lotus to wear the winner's crown.

- | | |
|---------------|------|
| Ease of Use | ★★★★ |
| Documentation | ★★★★ |
| Features | ★★★★ |
| Innovation | ★★★ |

Lotus 1-2-3 Release 3.1

IBM AT and compatibles, 1MB RAM, DOS 3.0 or higher, hard disk with 5MB free, Hercules, CGA (640 × 200 monochrome), EGA, or VGA for WYSIWYG display—\$595

Package includes five 5¼-inch and eight 3½-inch disks, keyboard templates, a 569-page reference manual, a 142-page tutorial, and a 135-page guide to WYSIWYG.

LOTUS DEVELOPMENT
55 Cambridge Pkwy.
Cambridge, MA 02142
(617) 577-8500

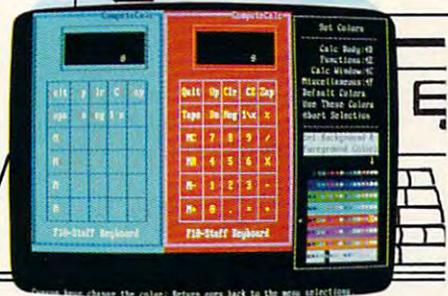
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WORKPLACE

D A N I E L J A N A L

Where is it?! The county registration certificate that proves I'm a business! I need to find it so I can apply for merchant status for a Visa or Mastercard. That way I'll be able to accept charge orders for my new book.

I know it's somewhere in this filing cabinet under my desk. Or maybe it's in the carton of business papers in the closet—under six other cartons of client files.

I know I can find it in 30 seconds—faster than a speeding hard disk—if only I can dig out from 30 pounds of computer magazines that piled up since I went to a computer convention for a week.

That's when I decided to accept the guru's prophecy and use my computer to create the paperless office.

You remember that computers promised us an office without paper. That's the worst lie since *this program is so easy to use you don't need a manual*. Computers made it so easy to create paper that we created more paper rather than less.

That's why I spent the better part of Thanksgiving weekend deciding what to keep.

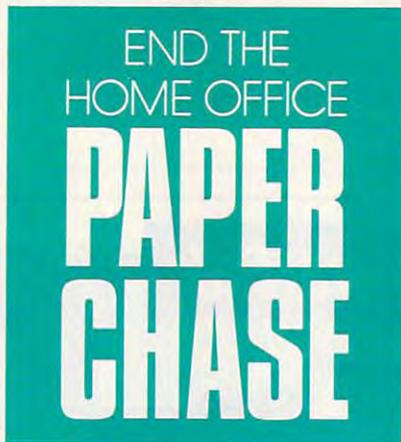
The first thing I realized is that I need paper. I need originals of tax-related information, copies of client invoices and checks, my checks and bank statements, creative material, and important client correspondence, such as agreements and orders.

I don't need voluminous printed versions of CYB (Cover Your Behind) memos, interim reports, and minor correspondence, which were all created on the computer years ago with my word processor, spreadsheet, and database programs and since safely stored on wafer-thin floppy disks.

Then I got down to the nitty-gritty. I asked myself these questions: Do I need 500 press releases for a company that no longer exists? Will I use 100 copies of my company newsletter, circa 1986? I devised Janal's Two-Year Test for Throwing Out Junk. Ask yourself, Have I looked at this document in the past two years?

If the answer is no, then ask yourself, If I get sued, will I need this? If the answer is still no, then toss it.

Two hours later, I had reduced the contents of six huge cartons of files to half of a filing cabinet of material. Besides the financial and tax material stored elsewhere, I saved copies of initial letters of agreements, letters of praise, and two copies of each creative piece on the assumption that my biographer and the Smithsonian Institution will want to store those documents in *their* files.



I also became one of the largest single donors to the Dominican College of Blauvelt when I shipped it six milk crates full of complimentary computer software that I was never going to use. Then I went through my desk and read the labels on files.

Let's see. . . Résumés from People I'm Not Going to Hire. I can get rid of that one.

Then there's News Articles I Should Read but Don't Have the Time and Never Will. And, of course, Weak-Willed Warranties and Incomprehensible Instructions for Every Electronic Gadget I Own. Well, that one might be useful.

My favorite file was from a computer company that printed this message in inch-high type: "How to be prepared for that inevitable day when your boss asks you for everything you know about DCA." I thought it was a

cute promotion. But since I'm my own boss and I don't have any clients interested in this company, I don't need to know everything about it. Toss it.

Why is it I can't find files for Hot Business Prospects I Should Call in Six Months, Mentors Who Will Tell Me Their Secrets If I Buy Them Lunch at Denny's, and Clients Who Owe Me Scads of Money? Those files are *impossible* to find—even with color-coded tabs.

I finally found the business license. It was in a file with no label.

Here's what I do now.

Make a commitment to rely on the computer for the documentation. No paper backups, except revenue-producing invoices, orders, and reports. Everything else is stored on disk. I back up disks monthly, and I store them in my safety deposit box at the bank. This helps me save even more space.

Every month after I've sent out invoices, I copy files from hard disk to floppies—one for each client. Each disk has these same subdirectories: letters, reports, publications (creative), invoices. This consistency makes the job easy and manageable. A year's worth of work for one client fits onto one disk. Work for a client with a larger account might spill onto a second disk around July or August.

With color-coded disks for each client, I can find the right disk easily.

Color-coded disk boxes help me categorize the disks: my clients, my company (reports, spreadsheets, marketing materials), and my book.

I went through thousands of business cards, throwing out those for companies that were bankrupt, useless to my business, or unknown.

Then I typed the remaining ones into *Hotline*, an autodialer that sits on my hard disk. *Hotline* has a notepad, so I can record the reminder message I scribbled on the back of the card.

I still don't have a paperless office. I have a less-paper office. You can, too, if you adapt these steps to meet your business needs. □

How To Save Your PROPOSAL FROM DISPOSAL.

RESTAURANT FRANCHISE OPPORTUNITY

Mrs. Hooper's High Performance Pies



Mrs. Hooper's High Performance Pies was founded in 1987, in Eminence, Kentucky. Mrs. Dolores M. Hooper serves as chief executive officer and president for life.

The History of High Performance Pie

The concept of high-performance pie was created by Mrs. Hooper in the early 1970's. She was inspired by her family's love of pie and her strong belief in sound nutrition. Secretly, she modified her prize-winning pie recipes to include nutritious ingredients, such as protein powder and beta carotene.

Fortified by these healthy pies, Mrs. Hooper's children prospered in all their endeavors. Her two sons, Max and Brutus, are now professional athletes. Her daughter Christine is a United States Senator.

The first Mrs. Hooper's restaurant opened in 1987. Unit sales and revenues have grown 100% annually. In 1990, sales totaled \$7.5 million, including \$3 million in express mail orders to 43 different states. This tremendous national popularity demonstrates that cutting your own slice of Mrs. Hooper's represents an outstanding new national franchise opportunity.



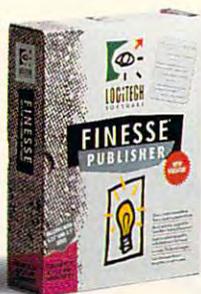
Total Annual Sales 1990
\$7.5 Million

Get A Piece of the Pie

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PC PROM

If you're not a marketing maven, you'll have to learn fast, or you'll have trouble putting black ink on the balance books. Home business success depends on your ability to learn new skills, and marketing may be the most valuable skill you could learn. No doubt about it—selling is tough. Marketing your services and products isn't much easier. Fortunately, help is handy, even if you *are* the only breathing employee in your business. While many people look to their PCs for promotional help, all they envision is print—newsletters, mass mailings, and fliers. Why not unleash the potential of your PC in a more imaginative way? Your computer becomes a powerful marketer when you let loose its graphical talents.

G R E G G K E I Z E R

DAVID R. STREET



Software Self-Promotion

The business world spends millions of dollars and thousands of hours preparing presentations and pitches with PCs. You can take a tip from the downtown pinstripes and use your personal computer to produce spiffy presentations for new work and promotions for new customers. With a few software tools, your PC can become a miniature movie theater, an electronic slide projector, or even a computerized banner.

There are two broad categories of presentation programs:

- Slide-show makers take electronic snapshots of the computer screen and then enhance, organize, and display those pictures.
- Presentation makers are art-oriented packages that let you create static images or animated productions from scratch.

If you're an at-home architect, for example, and you're already using a PC program to draft remodeling jobs, you can use old work to get new work. Simply run a slide-show maker, grab some sample screens of your best computer designs, and show them to prospective clients who want a sample of your abilities.

If your business takes you to trade fairs, craft shows, or any other place where there's a lot of walk-by traffic, producing a short animated or graphics presentation from scratch can turn some heads and get people thinking about your company.

Though a tremendous amount of PC promotion and presentation software is available, here's a small sampling across the price and performance spectrum.

PC Screen Presenter. One of the most inexpensive slide-show makers around, *PC Screen Presenter* takes snapshots of your computer screen and lets you assemble them in any order, add captions and arrows to highlight parts of the snapshot, and call on special effects called *wipes* and *fades* that shift from one slide to the next in an eye-catching way.

PC Screen Presenter is easy enough for beginners to use, though its three separate modules and the lack of preprinted documentation make the program less than perfect. It also works best as a text-screen picture taker, since it won't snap EGA or VGA graphics screens. Showing slides is just as easy—all you do is put the Project program and the desired slides on a disk.

Pick *PC Screen Presenter* if you're in the market for an affordable, simple slide-show maker.



Collage Plus. Another slide-show maker, *Collage Plus* picks up where *PC Screen Presenter* leaves off. You can capture any screen, including VGA and EGA graphics screens (a Windows-specific version is in the works), with *Collage Plus* by calling up its pop-up window and pressing a few keys. Once you've taken your snapshots, you can organize and display them. *Collage Plus* is fast, and it gives you plenty of options, from showing reduced images in full color to zooming in on any section of a screen. The package's Show module puts your slides back on the screen, though it's not for the beginner—you must write a batch file to produce an on-disk presentation. *Collage Plus* gives you a lot of advanced features.



DeluxePaint Animation's full motion

DeluxePaint Animation. If you're artistic or simply adventurous, you can jump into *DeluxePaint Animation*, a topnotch PC animation package. This is no simple snapshot taker (though it includes a screen-capture utility) but a full-blown paint program with loads of features to set those images in motion once you've drawn and colored them. Simple animations—titles that move, for instance—are within the capabilities of almost anyone, but to really take advantage of *Animation*, you'd better have a healthy dose of artistic talent. A playback feature lets you rerun (with surprisingly tight control) animations for moving (literally) presentations and promotions.

Microsoft PowerPoint for Windows. For traditional business presentations based on overhead transparencies or 35mm slides and with a heavy emphasis on charts, graphs, and bullet lists, try *PowerPoint*. This package's point-and-shoot Windows graphical interface lets you grasp powerful features quickly. *PowerPoint* offers nearly 50 chart styles, automatically recommends color combinations so your charts don't clash, and includes a way to get your slides made fast, no matter where you live. You'll need at least a 286 system (preferably a 386) with 1MB of RAM (2MB recommended) to use *PowerPoint*, but the results—very slick, very businesslike, very corporate—may be just the thing when you want clients to think your business is big, not in the back bedroom.



PowerPoint is Microsoft's offering

Tools and How to Use Them

These programs are just four of the tools you can call on to make that perfect presentation or expand your business with a timely promotion. Just having the tool doesn't guarantee success. You've got to know how to apply the tool for the right result.

PC promotional strategies. You want to boost your business. You want to stand out from the competition. That's why you're thinking about PC promotions and presentations. If done right, they can make your small business seem bigger, smarter, and more creative. Rather than a flier or business card pinned to a bulletin board at the laundromat, why not have an animated advertisement at a kiosk in the mall?

Onscreen presentations. Certainly the most common way to turn the PC into a promotions specialist, onscreen presentations are also the easiest to produce.

When you head to your banker for a startup loan or for money to expand your existing business, show an onscreen presentation rather than simply tossing a business plan on the desk. As a foundation for your presentation, you can use spreadsheet screens illustrating your financial pro-

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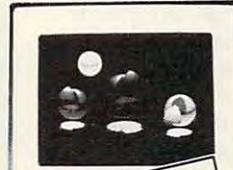
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MAGNAVOX 13" VGA COLOR MONITOR



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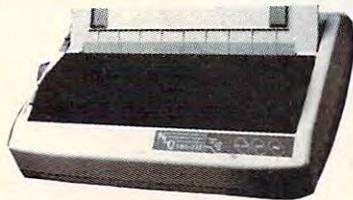
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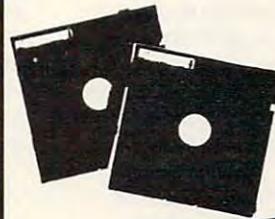
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jections, then add charts and graphs that show your expected revenues, expenses, and profits. They're easy to generate with a spreadsheet like *Quattro Pro*. Then insert screens from your word processor as transitions or to explain the special problems that your business faces. Compiling this presentation is fast with a program like *PC Screen Presenter*.

Onscreen presentations, like any other pitch, should be focused. Don't include a screen for every item on your outline, but hit the highlights. Keep special effects to a minimum: Too much dazzle only obscures the presentation. This same advice applies to color. If you're using something like *DeluxePaint Animation*, for instance, pick three or at most four compatible colors, then stick with them throughout your presentation.

On-disk presentations. You can be two places at once when you have your PC presenting for you. Since all slide-show and most presentation software lets you put your electronic pitch on disk, why not send the disk instead of yourself? Here's how it works.

You've created a standard presentation that shows how your at-home publishing practice saves your clients money and time. The slide show combines charts that focus on your fast turnaround and low rates with sample *Ventura Publisher* screens that show off your best publication designs. You get a call from a prospective client who wants to see what you can do, but you've got deadlines to meet. Don't turn down the chance to land another customer. Instead, find out if the potential client has a PC; if so, simply drop off a disk or pop one in a mailer. The on-disk presentation acts as your stand-in until you get back to the customer in person.

You can even use an on-disk presentation as a way to get more business from established customers. Construct a multiscreen presentation that lists your services and/or products and their prices, as well as your telephone number. Every new customer with a PC gets a copy of the disk, which acts as your electronic catalog.

Point-of-purchase presentations. Retail possibilities for PC promotions are just as impressive. If you have a small retail business, dedicate some counter space to the PC and use it as an always-changing electronic billboard.

Put your PC and keyboard under the counter, its monitor on top, and run slide-show software that puts mini-ads on the screen for your services or for other retail stores in your

PC PROMO PRICES

Collage Plus

IBM PC and compatibles with 256K RAM, DOS 2.0 or higher, and Hercules, MDA, CGA, EGA, MCGA, or VGA
\$89.00

Inner Media

60 Plain Rd.
Hollis, NH 03049
(800) 962-2949

DeluxePaint Animation

IBM PC and compatibles (286 or 386 recommended) with 640K RAM, DOS 2.1 or higher, and MCGA or VGA
\$129.95

Electronic Arts

1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525

Microsoft PowerPoint for Windows

IBM PC and compatibles (286 or 386) with 1MB RAM (2MB recommended), Windows 3.0 or higher, Microsoft or compatible mouse, hard disk drive, and

EGA or VGA.

\$495.00

Microsoft

One Microsoft Way
Redmond, WA 98052
(800) 426-9400

PC Screen Presenter

IBM PC and compatibles with 512K RAM, DOS 2.0 or higher, monochrome, CGA, EGA, or VGA
\$49.95

Disk-Count Software

1751 W. County Rd. B, Ste. 107
Roseville, MN 55113
(800) 333-8776

area. *DeluxePaint Animation* can create dazzling ads with graphics and text, or you could use *PowerPoint* to generate simpler text-only advertisements. You could charge customers for the ads or use them to draw new customers by offering free advertising to businesses that use your center for their packaging and shipping needs.

If your home business is in advertising, design, or promotions, you could add point-of-purchase presentations to your service inventory. Using a PC paint program such as *PC Paintbrush* and a slide-show maker like *Collage Plus*, you can generate colorful ads on the computer for clients.

Toot Your Own Horn

You've got to sell yourself, and your business, every day. No one can sing your praises better than you.

The PC you use to keep books, track customer addresses, and generate correspondence can also help you

sing louder than the competition. PC promotions and presentations are nothing new—major corporations have been producing them for years. But they're an underused and underestimated aid for the home-based business.

For best success, start small, change your presentation to match the targeted customers and clients, and vary the delivery from in-person to through-the-mail for a complete and aggressive marketing plan.

Your home operation may not have the wherewithal to air ads on television, but your PC presentations can give you the same result—new business.

New business is what PC promos are all about. And that's fine with you, isn't it? □

Gregg Keizer is a science-fiction writer, computer journalist, computer-book author, and former editor of *COMPUTE*.

Introducing Total Reality

This 256-color, true-to-life golf simulator gives you unprecedented 3D graphics...so realistic—so advanced—you'll think you're on the course.

It's a beautiful Spring morning as you prepare to tee off. You select your #1 driver (ignoring your caddy's wisecrack)...take a practice swing... adjust your stance...and drive one *right down the middle* for 290 yards. As you approach your second shot, you notice *every* detail of your surroundings... the location of each tree...the contour of each hill and slope...the lay of the ball...

A day on your favorite course? Not quite, but it's the next best thing. *LINKS...The Challenge of Golf* is a totally realistic golf simulator that's a quantum leap ahead of any computer golf game you've ever seen.

You'll control your game to the degree you prefer...from defaulting to the standard swings...to adjusting your stance, backswing, acceleration, power and snap. With every drive and putt, your ball will act according to the *true* laws of physics.

And you'll experience all the sounds of a real tournament...from commentary...to caddy's remarks...to the swoosh of the swing...click of the drive...and bloop of the ball in the water.

LINKS also includes a practice area for driving, chipping and putting.

3D Terrain

LINKS is brought to you by Access Software... the same fanatics for accuracy and realism who gave you World Class Leader Board Golf—and the graphics are *unbelievably realistic*. Gone are square-edged screens that look like Lego blocks. With *LINKS*, hills actually look like hills, trees look like trees, water looks like water. (And, yes, golfers even look like golfers.) In fact, *LINKS* uses graphics technology so advanced that a VGA system is absolutely required for play.

Experience the next generation of golf simulators. Reserve a Tee Time with *LINKS*.

We guarantee you'll absolutely love it—or your money back!

To get on the course with *LINKS*, visit your retailer or call



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TOLL FREE

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LINKS features totally realistic 3D terrain...combining stunning 256-color, 3-dimensional terrain graphics with *Real Sound™*, the revolutionary technology that gives you astonishing digitized sound effects *without hardware*.



Actual 256-Color VGA Screens

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YES! I'm ready to Tee Off with *LINKS*...and experience the astonishing reality of 3D terrain with 256-color graphics and digitized sound effects. Please rush me my copy. *Satisfaction Guaranteed.* (VGA system and hard disk required).

5 1/4-inch Disk 3 1/2-inch Disk

I've enclosed \$59.95 as payment in full.

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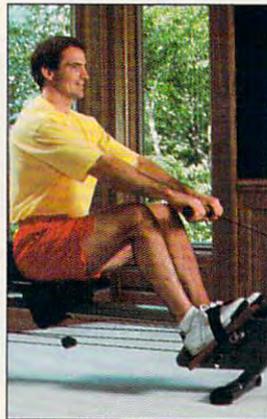
THE GREAT TREASURE HUNT



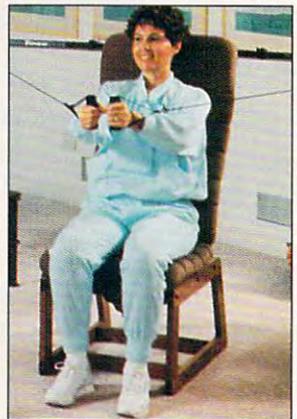
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The following descriptions and values of the prizes in the 1991 Great Treasure Hunt correspond to the numbered photos on these pages. 1) Grand prize: 1991 Jeep Wrangler, including option package of floor carpet, power steering, and rear seat. 2) First prize: Northgate Computer Systems hardware package. 3) Second prize: Casio electronics package, including Executive B.O.S.S. with expansion card, dictionary card, and spell checks for financial and medical terms; Casio TV/VCR; mini hand-held color TV; electronic piano, horn, and keyboard; and two sets each of his-and-



2

hers watches. 4) Third prize: Honda Nighthawk 750 motorcycle. 5) Fourth prize: Okidata laser printer. 6) Fifth prize: Mitsubishi 40-inch big-screen television. 7) Sixth prize: NordicTrack workout equipment, including Track Pro, rowing machine, and Fitness Chair. 8) Seventh prize: Electronics package from Uniden, including LCD Fishfinder, mobile cellular telephone with voice dial, radar detector, and Bearcat scanning radio. 9) Eighth prize: Ad Lib package, including an Ad Lib computer sound card, Acoustic Research speakers, and computer games from Lucasfilm Games, Ac-



9



5



10

One of these prizes could be yours—and you don't even have to rely on the mail carrier. Enter automatically by calling **1-900-288-HUNT**. Turn to the next page for details



6

cess Software, SSI Software, Maxis Software, and Sierra On-Line. 10) Ninth prize: SNK Neo-Geo advanced entertainment system and game cartridges. 11) Tenth prize: Chinon Genesis III camera outfit with 1.4X converter, WA converter, battery, and carrying case.

PRIZE VALUES: The following are the individual retail values of our prizes in the sixth annual Great Treasure Hunt. 1991 Jeep Wrangler: \$11,267, including the base sticker price of \$9,910, plus option package of floor carpet, power steering, and rear seat worth \$892, and destination charge of



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8

\$465. Northgate Computer System with 8MB RAM: \$10,042. Casio electronics package: \$4,346. Honda Nighthawk 750 motorcycle: \$3,998. Okidata laser printer: \$2,999. Mitsubishi 40-inch big-screen television: \$2,399. NordicTrack workout equipment, including Track Pro, rowing machine, and Fitness Chair: \$2,067. Uniden electronics package: \$1,856.85. Ad Lib package: \$1,354.24. SNK Entertainment system: \$1,047. Chinon camera outfit: \$1,029.75.

To find out more about individual prizes, see the Gift Finder's Guide on the next page.



1991 Jeep Wrangler



Now that you know the prizes,
find out what to do next. Determine the solution and
CALL 1-900-288-HUNT or see rules below *

THE GREAT TREASURE HUNT

This month's *Compute* is your map in the 1991 Treasure Hunt; the 12 discs below, your clues. Match the clues with their original sources and you could drive away in a 1991 Jeep Wrangler, including an option package of floor carpet, power steering, and rear seat. Or you could win another treasure—from a Casio electronic products package, an Okidata laser printer, or a Mitsubishi big-screen television, to a Honda Nighthawk motorcycle or Northgate Computer Systems' Dream Productivity System that includes the Northgate 486 with 8MB RAM, 200MB SCSI hard drive, Omniquey Ultra keyboard, NEC 4D monitor, Qume Crystalprint Series II printer, video 7 VRAM card, MS-DOS 4.01, Windows 3.0, and other features.

Each of the dozen picture discs displayed on this page is a portion of a photo or illustration appearing in an advertisement in this issue. Find the advertisements that match the clues; then note the page number for each ad. For clues on the inside or outside of the front or back cover, count that page number as zero. If there is no page number on the clue page, turn to the next numbered page and use that as your answer. Add up the 12 numbers for your solution to the 1991 Great Treasure Hunt in this issue.

***NO PURCHASE OR PHONE CALL NECESSARY.**

To enter automatically from a touch tone phone, call 1-900-288-4868 between February 1, 1991, and May 31, 1991, to give your name, address, and daytime telephone number, and the correct solution to the 1991 Treasure Hunt appearing in this issue of *Compute*. Each call costs \$2.00 the first minute and \$1.00 each additional minute or fraction thereof; average call length is estimated to be two to three minutes. You must be eighteen to call or have a parent's or guardian's permission before calling. Call as often as you wish; each call is a separate entry.

You may also enter by printing your name, address, daytime phone number, and the solution to the Treasure Hunt on a three- by five-inch sheet of paper. Mail your entry to Treasure Hunt, Box 814,

Gibbstown, NJ 08027. Enter as often as you wish; each write-in entry must be mailed separately. All entries must be received by May 31, 1991.

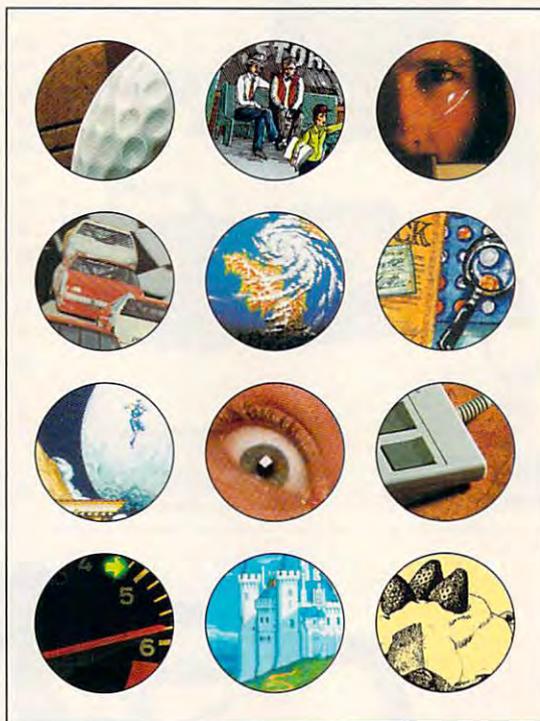
The 1991 Treasure Hunt is sponsored jointly by *Compute* magazine and *Omni* magazine; varying creative presentations may be used. Winners will be selected on or about June 30, 1991, from among all eligible entries in random drawings conducted by Power Group, Inc., an independent judging organization whose decisions are final.

Odds of winning are determined by the number of eligible entries received. For complete rules (including the solution) send a self-addressed, stamped envelope to 1991 Treasure Hunt Rules,

Box 849, Gibbstown, NJ 08027 by May 15, 1991.

GIFT FINDER'S GUIDE: For more information on products and services in the Great Treasure Hunt contact the companies at the following addresses. Access Software Inc., 545 West 500 South, Suite 130, Bountiful, UT 84010; 1-800-800-4880. Acoustic Research, 330 Turnpike Street, Canton, MA 02021; 1-800-969-AR4U. Ad Lib Inc., 50 Staniford St., Suite 800, Boston, MA 02114; 1-800-463-2686. American Honda, Dept. 91, Box 7055, North Hollywood, CA 91609. Casio, Inc., 570 Mt. Pleasant Ave., Dover, NJ 07801. Chinon America, Inc., 1065 Bristol Rd., Box 1248, Mountainside, NJ 07092. Jeep Wrangler,

1-800-JEEP-EAGLE. Lucasfilms Games Division, 3270 Kerner, San Rafael, CA 94912. Maxis, 415-376-6434. Mitsubishi Electronics America, Inc., 557 Plaza Dr., Box 6007, Cypress, CA 90630. Nordic-Track, 141 Jonathan North, Chaska, MN 55318. Northgate Computer Systems, 7075 Flying Cloud Dr., Eden Prairie, MN 55344. Okidata, 532 Fellowship Rd., Mount Laurel, NJ 08054. Sierra On-Line, Inc., Box 485, Coarsegold, CA 93614. SNK Home Entertainment, Inc., 22301 S. Western Ave., Suite 107, Torrance, CA 93614; 1-800-253-6665. Strategic Simulations, Inc., 675 Almanor, Suite 201, Sunnyvale, CA 94086. Uniden, 4700 Amon Carter Blvd., Fort Worth, TX 76155; 817-858-3300.





PATHWAYS

S T E V E N A N Z O V I N

You may not have heard of it, but it's all around you—on TV, in advertisements, in the movies. It's *blendo*, a.k.a. "genre-bending," "digital postmodernism," or "synergistic art," and it may well be the first important—or foolish—aesthetic idea to come out of computer graphics.

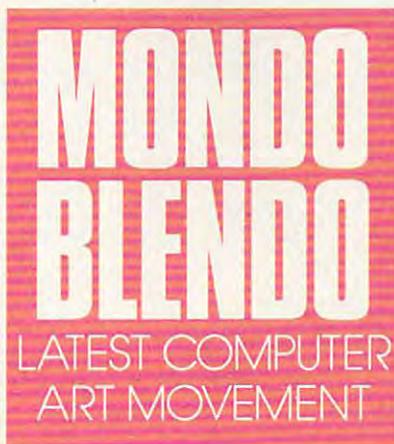
What is blendo? Michael Gosney, publisher/editor of *Verbum, the Journal of Personal Computer Aesthetics*, calls it "the parallel convergence of art forms" combining "anything and everything—type, bitmap paintings, vector graphics, scanned images, animation, 3-D. . . ." School of Visual Arts academic Timothy Binkley describes computer art as the creation of "a prodigious menagerie of things" brought into being "merely by waving a magic wand." It's a fair characterization of the blendo approach. You take whatever elements are relevant (or irrelevant) to your purpose and put them into your picture.

The computer makes it supremely easy to mix and match images, move them around, add and subtract at will—no forethought necessarily required. The typical blendo computer picture has dozens of little images—some scanned, some 3-D, some animated—swirling around the screen, perhaps orbiting one central figure or a big piece of type. (The process of creating blendo art should probably be called *blenderizing* or *Osterizing*, or maybe just *buzzing*. The blendo art scene would be the *blendorama*.)

Because it's both easy and infinitely versatile, blendo is fast becoming the dominant style in computer art. But it does have a history. You can see the precursors of blendo in artworks by the early twentieth-century dadaists Marcel Duchamp and Max Ernst. Duchamp indulged his peculiar sense of humor by offering a toilet as a work of art and combining machine parts, kitchen utensils, painted plate glass, and other materials in his major work *The Large Glass (The Bride Stripped Bare by Her Bachelors, Even)*. In the little-

known classic *La Femme 100 Tetes* (1929), Ernst pasted old commercial engravings and illustrations into a collage novel, making a bizarre narrative out of previously unrelated imagery.

James Joyce's nearly incomprehensible *Finnegans Wake* is still the premier blendo work of literature. It mixes themes from dozens of myths and coins new words from scores of languages to make a goulash so rich it can be sampled only in helpings of a page or two. (*Finnegans Wake* is one of the few novels that would benefit from data decompression.)



Recent blendo artists can blenderize with tools and skills the dadaists and surrealists would envy. Richard W. Maile uses a computer to seamlessly insert a swimsuited Elvis Presley into Botticelli's painting *The Birth of Venus*, creating a "new" work called *The Birth of Elvis*.

Macintosh commercial artists Richie Williamson and Dean Janoff won the most recent SuperMac Pixel-Paint art competition with *Motel Room*, mixing scanned images of retro fabrics, furniture, and interiors from design books with photos of fashion models. The result doesn't look like reality—the models seem to float above the scene—but the fake look is part of the blendo style, too.

Up in dada heaven, Duchamp and Ernst probably wish they'd had

computers, too. Joyce no doubt would be into hypertext. *Finnegans Wake* would make the biggest and most complex HyperCard stack in the world.

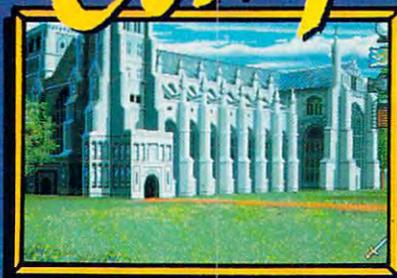
Blendo is creeping into Hollywood films. David Lynch likes to throw in all kinds of basically irrelevant but interesting stuff, like the many visual references in *Wild at Heart* to *The Wizard of Oz*. And into TV commercials, where animated soda-can logos, raisins, and toothpaste tubes cavort with real live actors and moving text, while music, voice, and sound effects blast all at once. Commercial producers seem to think blendo is a style for the underaged and impulsive, since most blendo effects appear in spots for junk food.

But it's on computers that blendo really comes into its own. The sheer ease of digital image manipulation makes it inevitable that every picture and sound is made equal. Assemble a library of scanned pictures and paste them anywhere you like; the computer screen smooths every texture and color into uniformity. Put them all together, and presto—it's blendo!

Make it interactive, and blendo is time-independent, too—you can see any picture any time you like, in any order. The not-so-hidden aesthetic assumption of blendo can be stated as follows: If all things on the screen look the same, maybe they're all of the same informational value, so it doesn't matter what's up there, as long as it looks nice.

Blendo is a democratic style, just right for the age of the triumph of democracy. Unlike heavy-duty multimedia, which requires a fast color PC, video and/or CD-ROM linkages, digital image and sound compression, color scanners, and what-all else, respectable blendo is possible at home with any computer, a cheap hand scanner or video digitizer, a paint/animation program, and a printer. As always, assembling hardware and software is easy; the hard part is opening your mind and letting it all come together in the true blendo style. □

A New Genre in Computer Gaming...



Introducing Spirit of Excalibur, the first-ever Fantasy Epic Game!

A Fantasy Epic Game is a synergistic blend of traditional Fantasy Role-Playing, adventure and combat simulation, for an experience greater than the sum of its parts.

Spirit of Excalibur is set in the richly detailed world of mountains and rivers, townships and cities, castles and ruins of medieval England. More than 2.5 megabytes of dazzling artwork illustrate your journey. With add-on sound boards, powerfully orchestrated music will carry you away on a sea of enjoyment as you search for objects and solve the puzzles.

Roam at will across the 16-screen scrolling map of Arthurian Britain. Use the Icon-based interface to check character status, zoom down to the scene level or up to the map, and give directional commands to parties or forces. You can enter, talk, take, trade, drop, attack, and even use magic at the click of a button – no unwieldy commands to memorize or key words to ferret out.

As in the best FRPs, the knights and lords, wizards and clerics of the court of Camelot are yours to befriend and command. As they undertake their quests, they can interact with the peasants, warriors, maidens, nobles, bandits, and other folk of the time, growing and improving their abilities and skills.

Spirit of Excalibur also provides opportunities for the tactical planning of a combat simulation. Move troops to strategic points to harry or delay invaders while your knights complete their quests, obtaining the allies or weapons needed to successfully defend the realm from attack.

Years of historical research ensure that this, at last, is the definitive game on Arthurian legends. Now playing only on powerful computer systems for discriminating game players.

MS-DOS version supports these fine sound boards:
Roland MT-32, Adlib, Covox, CMS.

Screens taken from IBM VGA and Amiga versions.

For IBM, Amiga, Atari ST, Apple IIGS and Macintosh computers.

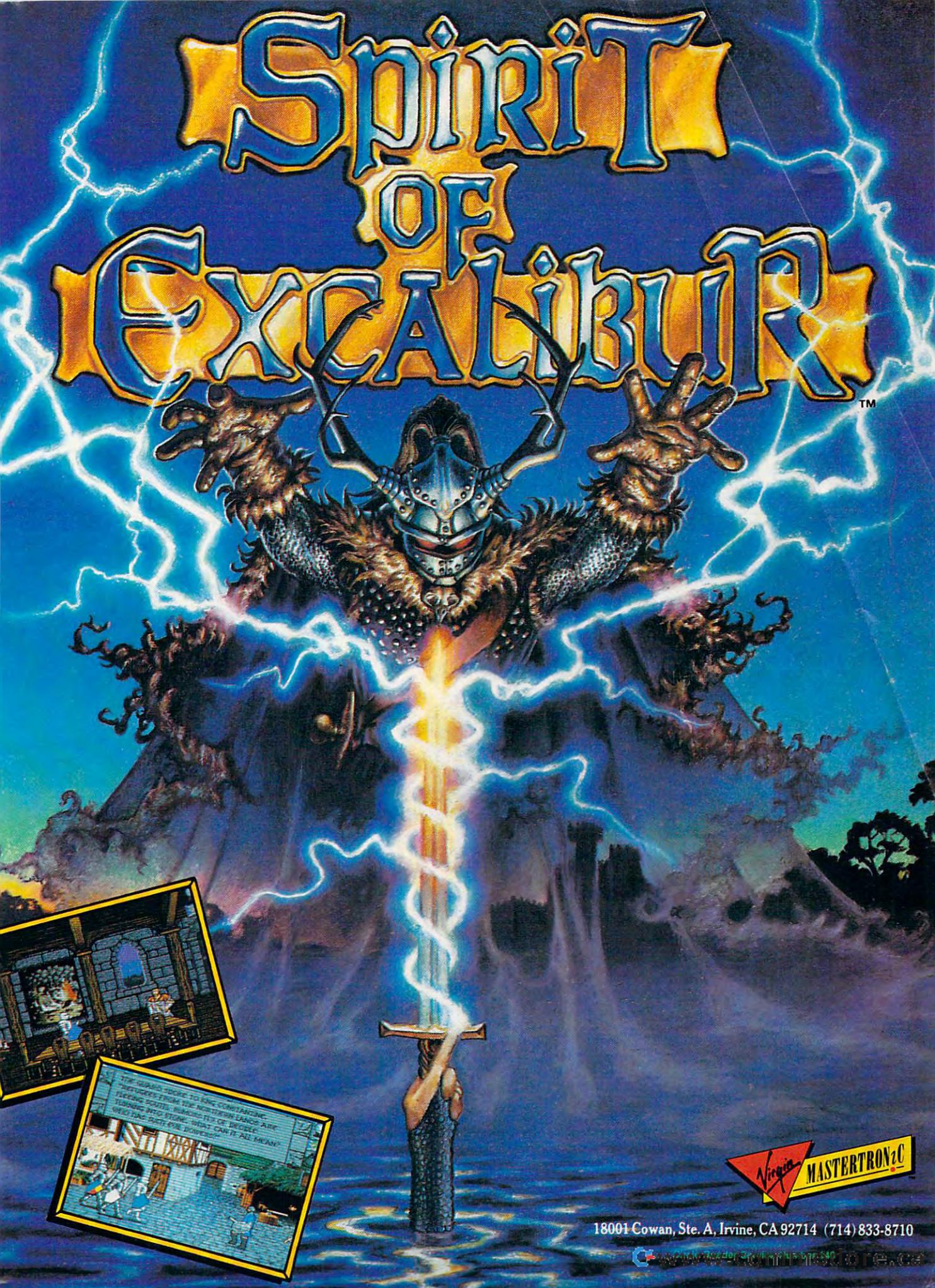
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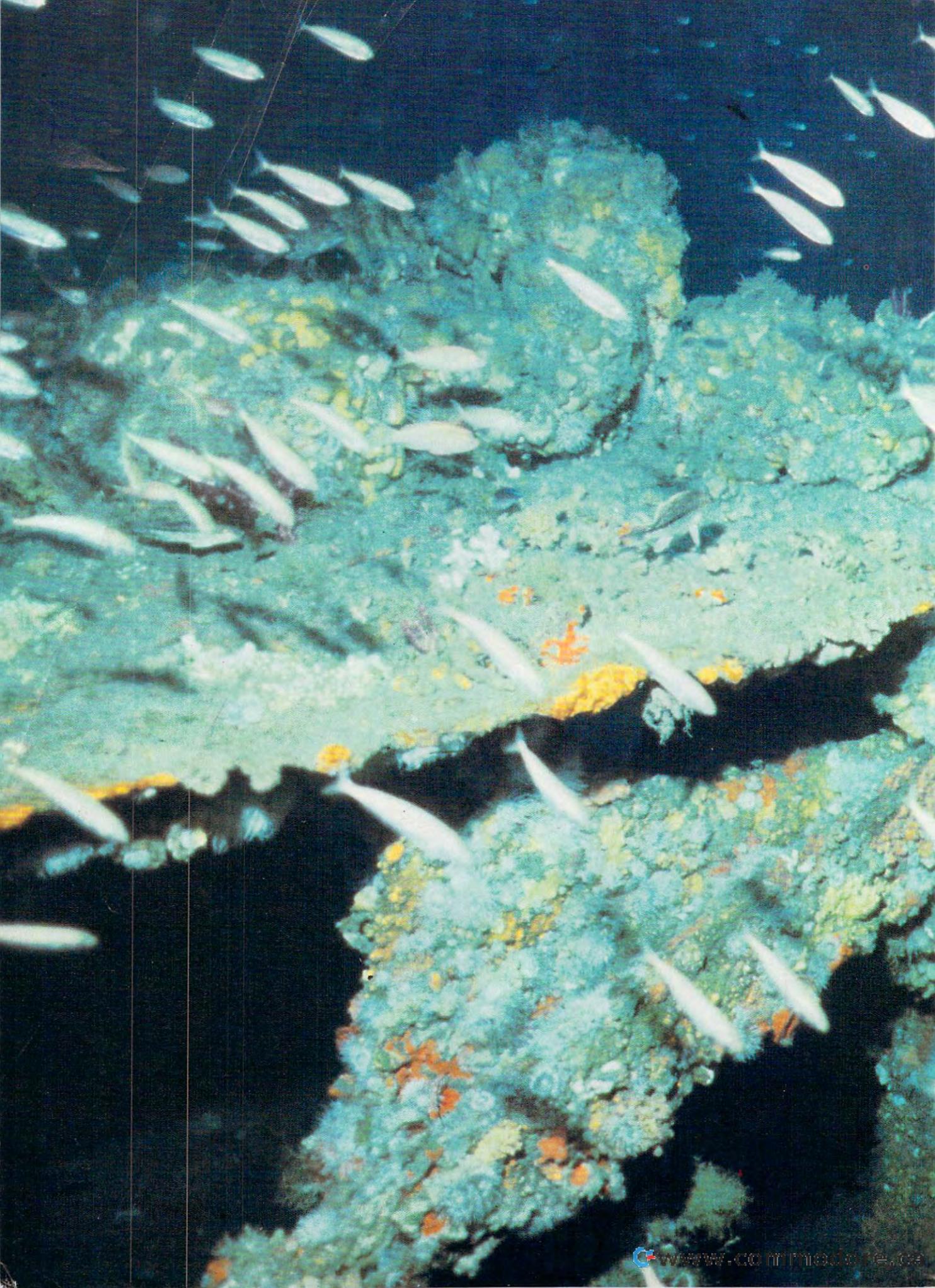
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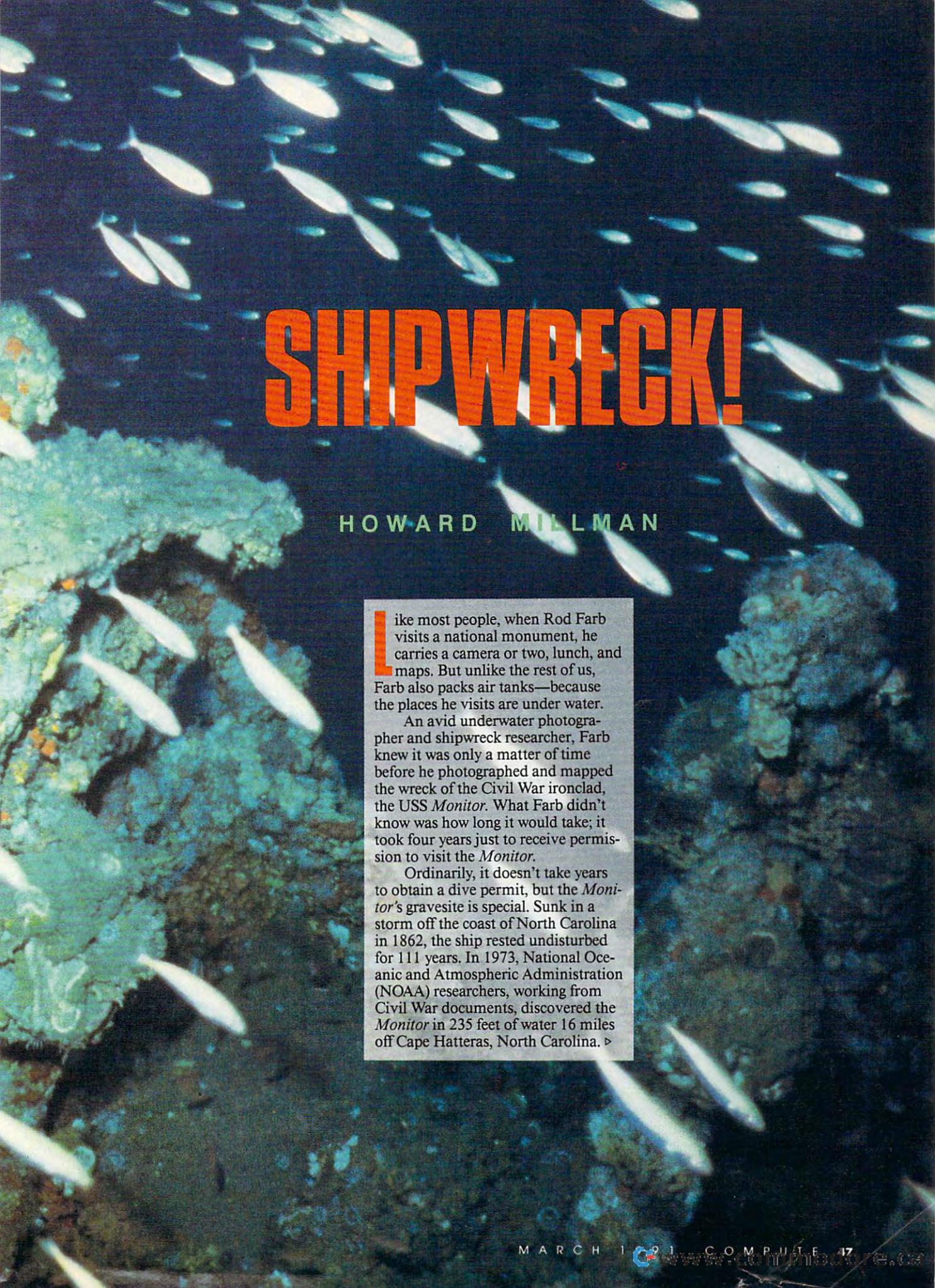
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An underwater photograph showing a vibrant coral reef on the left and a school of small, silvery fish swimming in the dark blue water. The scene is illuminated by a light source from the left, creating a shimmering effect on the coral and fish.

SHIPWRECK!

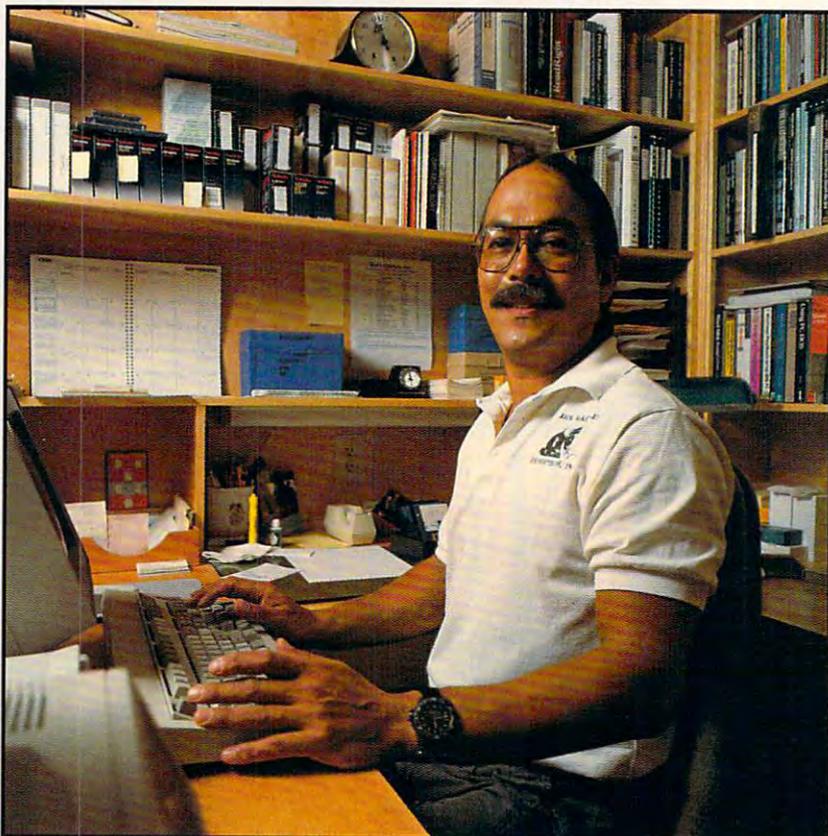
HOWARD MILLMAN

Like most people, when Rod Farb visits a national monument, he carries a camera or two, lunch, and maps. But unlike the rest of us, Farb also packs air tanks—because the places he visits are under water.

An avid underwater photographer and shipwreck researcher, Farb knew it was only a matter of time before he photographed and mapped the wreck of the Civil War ironclad, the USS *Monitor*. What Farb didn't know was how long it would take; it took four years just to receive permission to visit the *Monitor*.

Ordinarily, it doesn't take years to obtain a dive permit, but the *Monitor's* gravesite is special. Sunk in a storm off the coast of North Carolina in 1862, the ship rested undisturbed for 111 years. In 1973, National Oceanic and Atmospheric Administration (NOAA) researchers, working from Civil War documents, discovered the *Monitor* in 235 feet of water 16 miles off Cape Hatteras, North Carolina. ▸

MARK WAGONER © 1991



Rod Farb plots his assault on the *Monitor* from his home office in Chapel Hill, N.C.

Initially, NOAA withheld diving permission, saying an air scuba dive (which doesn't use a mixture of helium and oxygen to prevent nitrogen narcosis) was too dangerous. Farb persevered, and in February 1990 he received approval to photograph the site. The Farb Monitor Expedition 1990 was finally a reality.

Farb knew the *Monitor's* depth would limit the bottom time for an air diver, so he would likely end up with less-than-perfect photographs. He was also concerned by the expedition's escalating costs, so he decided to use video as well as still photos. He could enhance the images later.

"The conditions were almost Caribbean-like," says Farb in describing the 80-degree temperature and 100-foot visibility at the ship's grave-site. But nature cooperates just so much. Even with the unusual water clarity, the *Monitor's* gray-and-black shell against the dark blue color of the water made for poor picture-taking conditions. Photos tended to wash out when taken from more than four feet (the effective range of the floodlights and strobe flashes).

Photographing at greater distances requires powerful, but bulky, floodlights—both a logistical and a financial problem. Farb searched for an affordable solution, and technology supplied one. If he couldn't enhance the site conditions, reasoned Farb, he could enhance the site photographs with a computer.

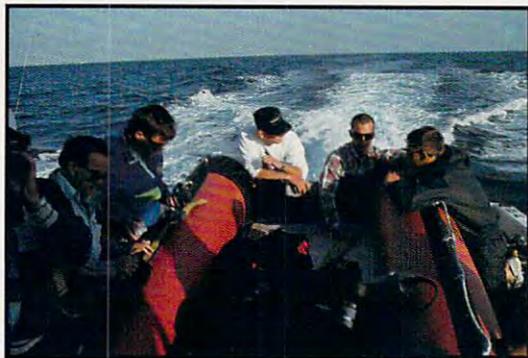
He eventually selected about 350 images from among the 275,000 frames of motion and still video the crew shot at the dive site. Back in his studio, he began to experiment with computer-aided image enhancement.

A PS/2 Model 80 provided the requisite computing muscle for the task. It was lent to the *Monitor* Expedition by IBM and included a 110MB hard disk and a VGA monitor. Data Translation's DT-2953 black-and-white capture card grabbed the images in realtime at a 640 × 480 resolution.

Typical of graphics-capture software, Data Translation's software proved effective for image capture and preliminary contrast adjustments. For more comprehensive enhancing, however, Farb needed dedicated image-editing software. He used two software applications for image enhancement, Bioscan's *Optimas* and Astral Development's *Picture Publisher*. Both *Optimas* and *Picture Publisher* run under *Windows 3.0*, so they were able to use all of the Model 80's 2MB of RAM.

Since he was dealing primarily in gray-scale images, Farb's goal was to generate enough contrast to distinguish the *Monitor's* framework from

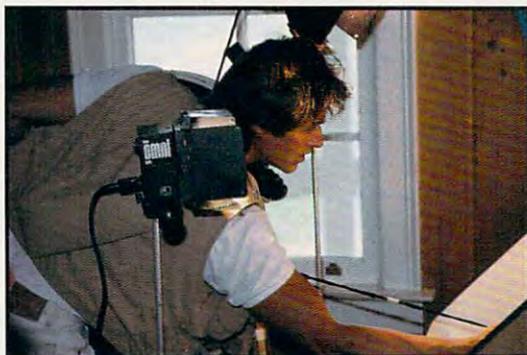
ROD FARB



Divers discussing the dive on the first trip to the *Monitor* site.

McKenney filming *Monitor* artifacts at the Cape Hatteras Lighthouse Visitors Center.

ROD FARB



ROD FARB



McKenney giving directions.

the background of water. With *Picture Publisher*, he was able to accomplish just that. *Optimas* added component measuring and the ability to trace an object. A Hewlett-Packard Series II laser printer provided sharp hardcopies of selected images.

The enhanced images were saved in an 8-bit TIF graphic file format. To avoid running out of hard disk space, Farb compressed the stored TIF images to less than 300K (uncompressed TIF files typically take up about 975K). The compressed images were archived onto high-density 3½-inch disks to leave room on the hard disk to edit new images. *Microsoft Excel* provided the cataloging functions to track the collection.

Eventually, copies of all the maps, photographs, and documents will be given to NOAA for its archives. Farb will also write a book, his third that describes diving and photographing famous American shipwrecks.

When he's not exploring shipwrecks or writing about them, Farb works full time as a research associate in biochemistry at the University of North Carolina at Chapel Hill, "because," he says, "I have a mortgage to pay and occasionally like to eat." In addition to writing

the book, he intends to submit papers to technical journals that detail the cost savings along with other advantages of applying computer-enhanced imaging to underwater and terrestrial site photography. "With high-resolution video technology now available at a comparatively low cost, almost anyone can have access to it," he says.

In addition to Farb's photographs, a film crew (Jack McKenney Film Productions) shot its own 16mm color film. The 16mm film was subsequently copied onto 1-inch video and edited for contrast, brightness, and color correction. Present plans call for the McKenney film to be shown by National Geographic on the Turner Network Television (TNT) in June.

Farb plans to return to the *Monitor* site in 1991 for further research. In the summer of 1992, he intends to photograph a World War II German U-Boat sunk off of Cape Hatteras.

I asked him why he bucks the bureaucracy, carries the cost, and deals with the danger. "I've been a scuba diver for 27 years," he says, "so as far as I'm concerned, it's just the natural thing to do. And North Carolina's coast, 'the graveyard of the Atlantic,' is the place to do it."

With hundreds of shipwrecks lying in North Carolina's coastal waters, Farb and his Model 80 have years of work waiting for them as they

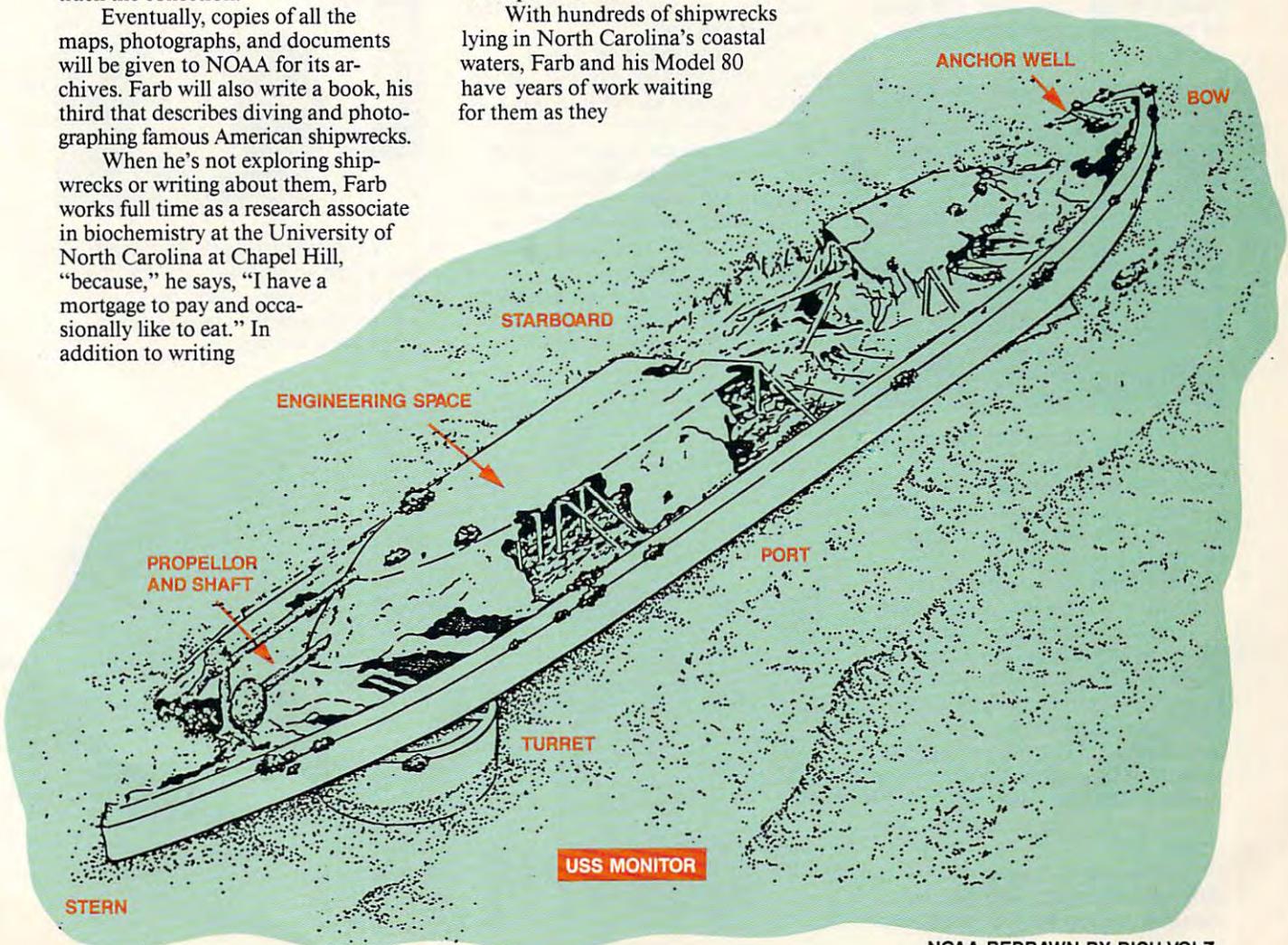
chronicle the final resting places of America's maritime legends. ▸

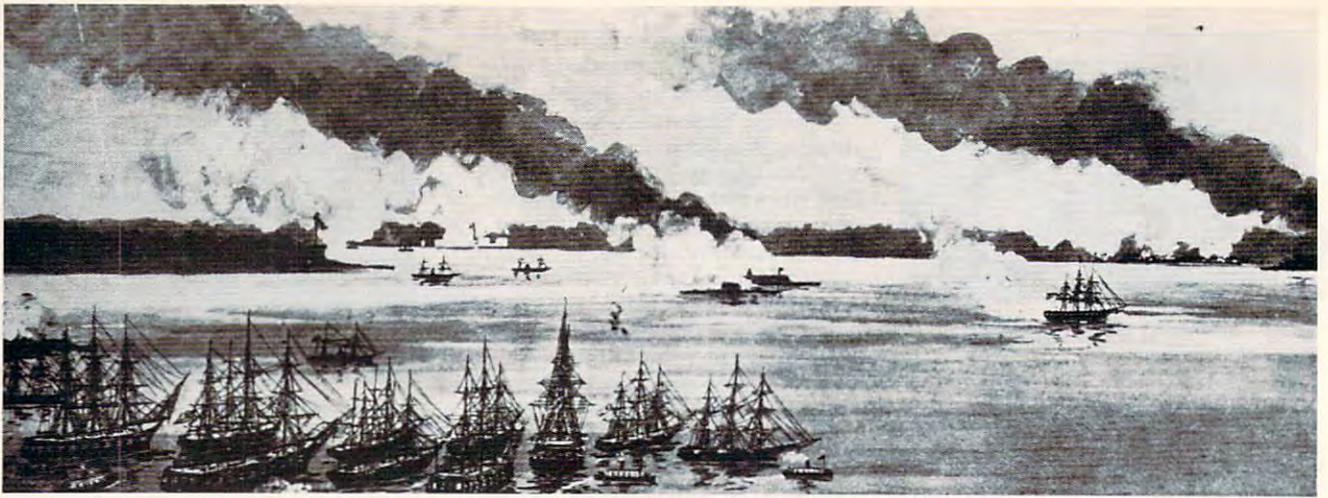


Remains of centrifugal pump on the port side of the engine room of the USS Monitor.



Starboard-side hull ribs and entry into the engine room of the USS Monitor.





DEATH OF A SHIP, BIRTH OF AN ERA

The Union's incentive to construct the *Monitor* began not in the Navy's war room, but thousands of miles away on the Kinburn Spit in the Black Sea. Faced with a heavily defended Russian fort, France's Napoleon constructed three armor-plated floating barges. Towed into an offensive position, the barges' cannons swiftly decimated the once impregnable fortress, killing 175 of its defenders. The news of the *ironclads* quickly spanned the world.



In 1861, with the Civil War raging and rumors of the Confederacy's plans to build an ironclad, Union Naval Secretary Gideon Welles ordered the Union to construct its first ironclad. In a shipbuilding race with the Confederacy, the Union completed both the *Merrimack* and the *Monitor* on March 6, 1862. Unlike the *Monitor*, which was designed and built as an ironclad, the *Merrimack* was a converted steam frigate. Tied up for repairs at the Norfolk shipyard, the *Merrimack* was captured by the Confederacy in April 1861 when Virginia seceded from the Union. The USS *Merrimack* was renamed the CSS *Virginia*, and she became a prize of war.

When they compared it to the 310-foot *Merrimack*, naval warfare experts considered the 173-foot *Monitor*

puny. Still, in the ships' first and only engagement in March 1862, they fought each other to a draw. Sometimes separated by no more than a few yards, they bombarded each other for five hours straight, the cannonballs merely bouncing off the ships' iron plating. So effective was the armor that even when the ships were firing 168-pound solid steel cannonballs at each other, no one was killed, and only a few were injured.

The two ships never dueled again. While the *Merrimack* was at the Norfolk shipyard for minor repairs suffered during the skirmish, General McClellan's troops captured Norfolk. Rather than have the *Merrimack* seized by the Union, the Confederate crew burned it down to the waterline and blew it apart with the gunpowder stored in its magazine.

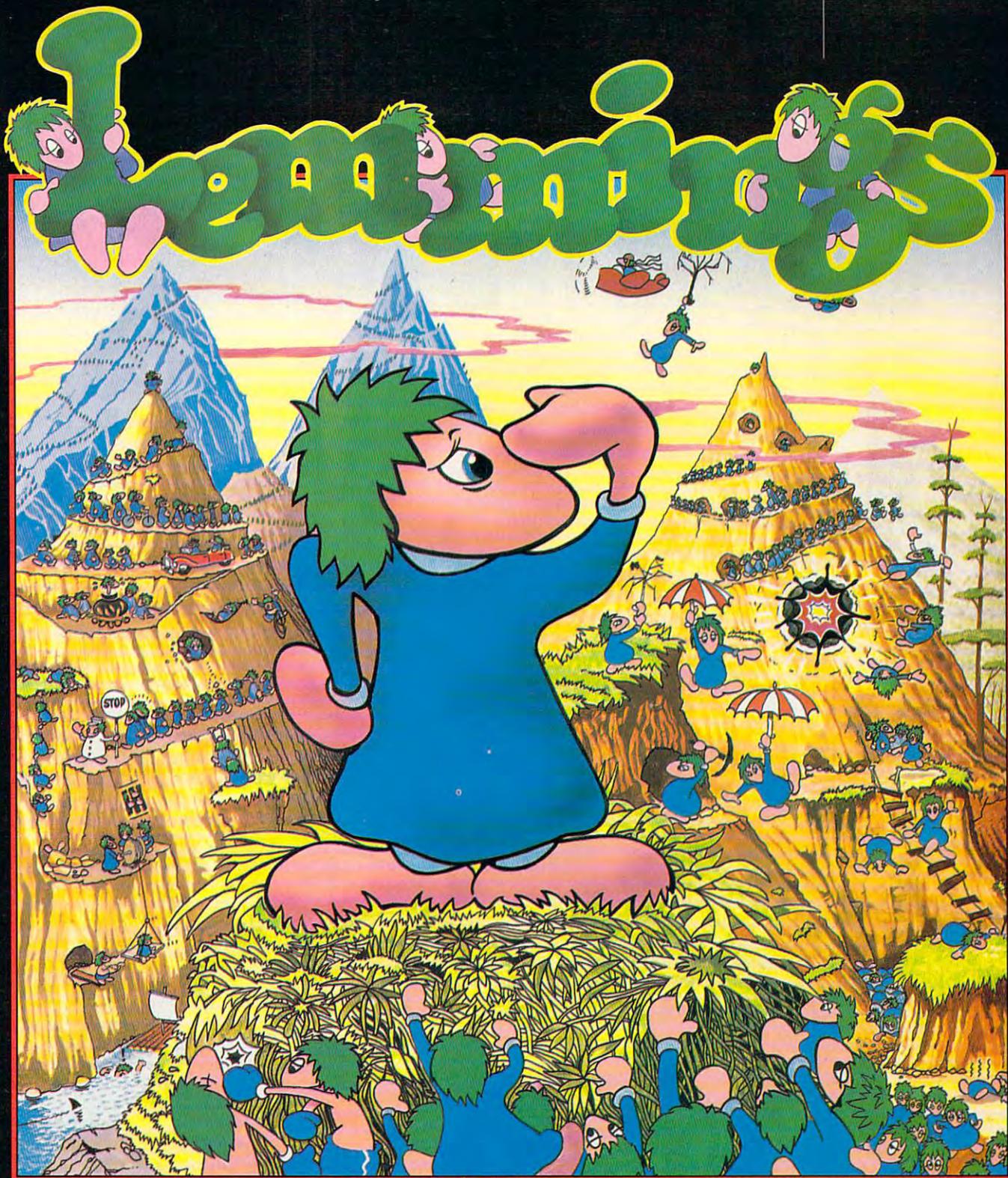
The *Monitor's* fate was equally ignoble. Once the threat from the *Merrimack* was neutralized, the Union

assigned the *Monitor* to picket duty off North Carolina. While being towed to her duty station, she flooded and sank in a fierce storm.



Although both were short-lived, their single engagement signaled the end of oak-timbered wind-driven vessels and ushered in a new, deadlier era of naval warfare. □





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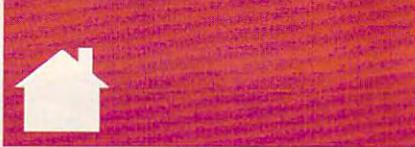
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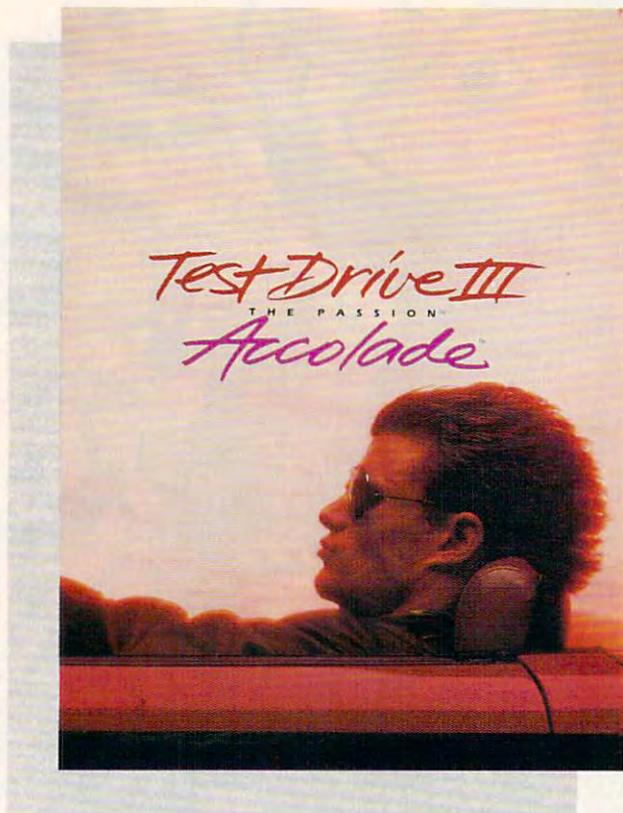
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ENTERTAINMENT



RACE AT HIGH SPEED THROUGH RAIN, SNOW, AND DARK OF NIGHT, FACING REALISTIC HAZARDS WITH UNSURPASSED GRAPHICS AND SOUND

What's the first thing that comes to mind when you hear the name *Lamborghini*? Exquisite styling? Extraordinary handling? Exhilarating performance? Or maybe excruciating insurance bills? Accolade's incredible new driving simulation, *Test Drive III—The Passion*, gives you all of these (except the insurance bills). It transforms your computer into the ultimate driving machine.

At the wheel of a truly exotic sports car, you race to win on northern California's challenging roads. With graphics like those of a high-end flight simulator, *Test Drive III* is the most realistic driving simulation I've played. The game's outstanding animated perspectives and simulation of high-speed car handling give a feeling of driving motion and speed. I developed a real passion for *Test Drive III*.

But those are just the preliminaries. *Test Drive III* generates unprecedented and innovative driving conditions for a simulation. Since your car is equipped with working headlights and windshield wipers, you can find yourself driving through the

COMPUTE CHOICE

WAYNE N. KAWAMOTO

INNOVATION



night or rain- and snowstorms. Watch out for cows in the road, crossing trains, other cars, and—the most hazardous of all—state troopers.

Test Drive III offers a fleet of true dream cars for your driving pleasure: The Lamborghini Diablo, the Chevrolet CERV III, and the Pinfarina Mythos. If these cars are mere transportation, then the Grand Canyon is a big pothole, and Lake Michigan is a puddle in the road.

The Diablo has a 48-valve V-12 with 485 horsepower and a top speed of 202 mph. The Mythos, a definite

looker with an innovative adjustable rear spoiler, can be yours for a mere \$2,516,250. Finally, the Chevrolet CERV III (Corporate Experimental Research Vehicle III) is an exotic and ultrapowerful cousin to the Corvette. Choose your wheels. The other two cars become your race opponents.

Test Drive III offers outstanding graphics. The opening segment has almost photograph-quality images on the VGA screen. The actual racing portion has excellent scenery (roads, mountains, and trees), and the car interiors are dazzling.

The graphic scenery changes from daytime into nighttime. You can use your headlights, but I found I could see just fine at night without them.

The adverse weather conditions are quite impressive. Suddenly rain starts falling. Drops accumulate on your windshield, obstructing your view until you turn on your wipers. In the mountains, it even snows.

As you drive, you can't anticipate what you'll run into next (literally). Cows stand on the roads at the most inopportune times. Trains casually cross your path. Once, far behind the other cars and with an oncoming train, I went for it. I slipped under the cross bars and raced across the tracks, narrowly missing the train engine. It was like a scene from an action movie, a maneuver no sane person would ever attempt in real life.

Although racing in *Test Drive III* is a reckless thrill ride, don't drive too roughly. Speeding over those hills will



Weather is the least of your worries.

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computer-controlled cars also receive tickets.

Sometimes the state troopers just follow you to keep you down to a legal speed. (Driving an exotic car seems to send the subliminal message *Ticket me.*)

To add to the realism, the game has multiple routes to each destination. In fact, you're free to go in any



Instant replay lets you review the action.

direction that you wish. Make U-turns, go off the road—it's up to you. There are typically two main roads to get to any destination, and there is a hidden shortcut in every leg.

Test Drive III provides adequate maps, but if you turn the wrong way, you can become hopelessly lost. Multiple routes and navigation add another dimension of fun to the game.

The game's instant-replay feature is also striking. Instant replay gives you an outside view of your moving vehicle. You can look from any angle—a full 360 degrees. You can also zoom in and out to get as close as you would like. I found it particularly fun to review crashing my car, flying over hills, and bouncing in the dips. I've never actually driven a car at 150 mph, but I thought the realism and detail were remarkable.

Controlling the car isn't difficult. Of course, no one drives a real car with a joystick or keypad (can you imagine typing in commands on the highway?), but you quickly learn the game's controls. Although the game supports a joystick, I found that I preferred the numeric keypad.

The program supports Ad Lib, MIDI, Roland, and CMS sound boards as well as Tandy for nice audio effects. Testing the Ad Lib, I found the rousing rock music made me feel as if I were driving one of those curvy mountain roads in a sports car commercial. You can also change the radio station to listen to pseudoclassical music or country music.

With the sound board, the engine noises, sirens, and crashes were quite good. After you drive a while, the songs can become tiresome. If you use the PC's internal speaker, the engine >

wreck your suspension system, and you can easily knock your front wheels out of alignment. Fortunately, at each checkpoint *Test Drive III* repairs your car.

Each of nine levels offers its unique challenge. You can race against computer-controlled cars, the clock, or two other human opponents.

You have five cars in the beginning, and you get two more for every checkpoint you reach. Although this may sound generous, I found that when I decided to go all-out to win, I often crashed. Fortunately, as in any simulation, you can walk away from the worst crashes and start all over.

The race consists of five separate legs. You start along California's central coast, move toward Monterey, and eventually end up at Yosemite National Park. The terrain subtly changes from oceanfront at the beginning to mountains at the end. Although you hardly have time to look, the scenery includes tunnels, lakes, traffic signals, the ocean, working lighthouses, houses, barns, power wires, trees, and readable signs.

Contrary to what you might think, you and your fellow road warriors don't own the road. You can get stuck behind other drivers poking along within the speed limit on single-lane roads.

Also, the state troopers—who *do* own the road—are watching for you. You have a radar detector to warn you, but the authorities only have to get close enough to take a picture of your license plate, and—click!—(say *cheese!*), you have a ticket. It's fun to try to outrun the authorities. But watch out; these guys will go as far as to set up roadblocks.



Pick from three dream cars.

The game's fine details are impressive. Once, when I was speeding along, a black-and-white passed by in the other direction. Looking in my rearview mirror, I could see the car making a U-turn, and before I knew it, I had a ticket. ("But officer . . . I was only going 182 miles per hour.") By the way, *Test Drive III* is fair—the

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This simulation has one of the most comprehensive instant replays ever. You can play back the action from six camera positions (with zooms) including a never before seen three quarter tower perspective. You'll also view your realistic pit team from a crew chief's perspective as you choose from seven different maintenance options and watch them scramble

to save seconds.

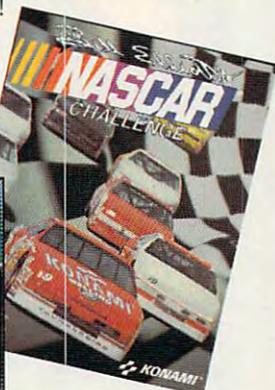
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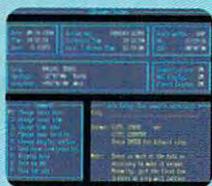


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pressed I was, years ago, with the first *Test Drive*. It let you race the clock on a twisting mountain road and featured a radar detector and cops who would give you tickets. The second in the series, *Test Drive II—The Duel*, improved the graphics and let you race other vehicles. Now, *Test Drive III—The Passion*, with its graphics, sound, and action, just plain blows your doors off.



Shift down before trying to make sharp turns or risk going offroad.

Accolade offers disks with extra cars and scenery to supplement *Test Drive III*. The add-on features the Acura NSX and the Dodge Stealth R/T Turbo in a race through New England in the fall. Starting at Cape Cod, the race ends at Niagara Falls (I can hardly wait to drive my car over the falls to see what happens).

Just keep in mind that it's only a simulation. I found that it was easy to get caught up in the action, and I'm a 55-mile-per-hour kind of guy. There is indeed something very alluring about fast cars. Just don't get any ideas about lead-footing it down the expressway on your next (real world) car outing. It's a hard habit to break.

With excellent graphics, sound, and realistic action, Accolade gives us our minimum daily requirement of excitement and one of the best driving simulations on the market. I highly recommend *Test Drive III—The Passion*, and I wouldn't steer you wrong.

Playability	★★★★★
Documentation	★★★★
Originality	★★★★
Graphics	★★★★★
Sound	★★★★

Test Drive III—The Passion

IBM PC and compatibles; 640K RAM; 8 MHz or faster processor; joystick optional; supports Ad Lib, CMS, Sound Blaster, Roland MT-32/LAPC-1, and Tandy 3-voice—\$59.95

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continued from page 54

sounds are all you'll hear during the race. I think this was a wise decision on the part of the programmers.

You can also adjust the detail of the graphics to the speed of your computer. If you have a slower computer (Accolade recommends that you have at least an 8-MHz computer), you'll want to use less detail to keep the action from becoming ponderous. In high-detail mode, you'll see more trees and mountains, and you'll be able to see objects in the distance sooner.

The game is very easy to learn (you won't spin your wheels). The documentation, written to look like a

trip planner from an automobile club, is clear and explains everything. Also, the program was simple to install.

Copy protection requires that you type in a number from a code wheel. Although software publishers must protect their products, the car keys you have to match on the code wheel aren't always easy to differentiate. Sometimes it took a couple of tries to get it right. Copy protection should not be ambiguous.

Test Drive III is the culmination of an evolution. Unlike movie sequels that get worse with each new number, the *Test Drive* series gets better.

I can vividly recall how im-

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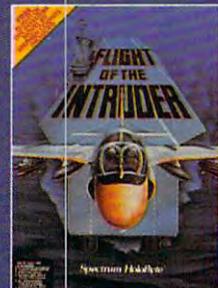
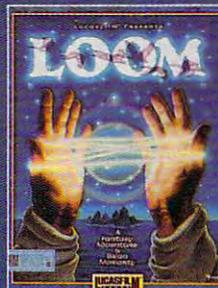
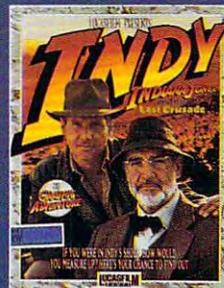
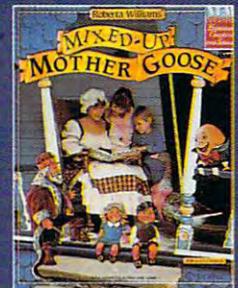
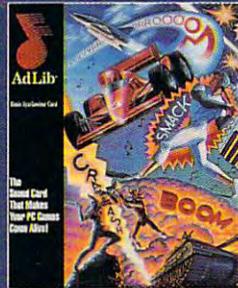
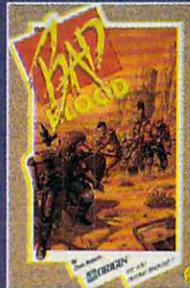
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GAMEPLAY

O R S O N S C O T T C A R D

The original *SimCity* graphics were just fine—I never thought they needed enhancement. So why has Maxis come out with these cityscape disks for *SimCity*? Because after you've spent enough time in it, any computer world is going to seem small. When the new disks arrived, I hadn't played *SimCity* in months. In game after game, I had reached the edges of the gamescape; I had filled the available space. Except for occasional tinkering, my work—and therefore my play—was done.

It was a bit disappointing to learn that the new cityscapes made no difference at all in gameplay. Seeing Ancient Asia made me want to play a game that would simulate ancient Asian community formation. The new disks brought only visual change.

Yet it was amazing how they freshened this beloved old game. At any point in the game, you can switch from one graphics set to another. You can start building a medieval city, then switch it to an ancient Asian one—or a moon colony. In Future Europe, the rail transit system becomes a monorail; in the Future USA cityscape, it's an elegant-looking tube.

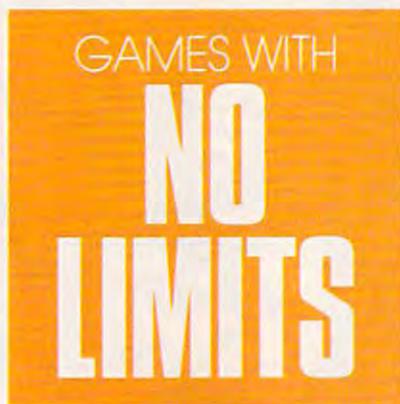
The idea of refreshing an old game by changing the gamescape is not a new one. Flight simulators have been doing it for years; once you've mastered the flying, you have to have somewhere to go. Not long ago, the makers of *Populous* also introduced new landscapes that were every bit as creative and clear and fun to play on as the new *SimCity* graphics. You can get new golf courses for *Mean 18*, and no doubt other game companies have breathed new life into old games by updating the gamescapes.

With flight simulators and golf games, the new landscape means a new game. It isn't just a visual difference—there are new challenges.

With *SimCity* and *Populous*, the new gamescapes make no difference in gameplay—but that's mostly because in both of these games, the player already has enormous power to create (or uncreate) the terrain.

The boundary that really frustrates me is still unchanged: the edge of the map. When you come to the end of the allowable landscape, you can go no farther.

Of course there must be some boundary; neither computer memory nor the gamewrights' time is infinite. Golf games have a natural boundary; you expect no more than 18 holes per course. With *SimCity* and *Populous*, however, the boundary is more arbitrary. In the real world, the landscape goes on and on, but in the game a sim-



plified map of the entire world has to fit inside an information window on a very small screen.

I can't help but wish for more, though. Why couldn't the *SimCity* information windows scroll over a virtually infinite landscape, created on the fly as the city grows? The game could ask you during setup how many megs of hard disk space you're willing to give to the game and let that determine the boundary.

If we game players wanted to have an experience controlled by somebody else, we could rent a videotape. Gamewrights should try to empower us as players, not limit us unnecessarily. Someone at every game design company should have a full-time job of saying, "Why aren't we letting the player decide that?"

Then we wouldn't have useless, annoying, and unnecessary limits. *Railroad Tycoon*, for instance, is a

game that does most things brilliantly, such as the way the geography of North America and Europe is transformed with each new game. Yet the game has frustrating boundaries, too.

The ceiling on the number of stations and trains is a constant and unrealistic annoyance, but the fact that it's set at 32 suggests that they're using a four-byte register for some program manipulations—a reasonable breakpoint in programming. You can work around it somewhat when you take over other railroads and let them handle expansion into some areas.

Another limitation feels like pure meanness on the part of the gamewright, though again, I'm sure someone had a good reason for it. In *Railroad Tycoon*, you're automatically forced to retire from the game after a hundred years—even when your corporation is doing well (or at least as well as can be expected when you can't run more than 32 trains at a time).

Why should the gamewright decide that a game must end after 100 game years? Why can't players choose to go on for another 100 years—or 1000, if we feel like it? The retirement age is simply a device for giving you a final score. So why not have the player be forced to retire every 50 years, save that score on the vanity board, but then let the player be the new president of the same company? That way the vanity board will mean something—and the player can keep developing the same railroad.

When they let such unnecessary limitations creep into a game, gamewrights reveal that they don't yet understand their own art. They've chosen to work with the most liberating of media—and yet they snatch back with their left hand the freedom they offered us with their right.

Remember, gamewrights, the power and beauty of the art of game-making is that you and the player collaborate to create the final story. Every freedom that you can give to the player is an artistic victory. And every needless boundary in your game should feel to you like failure. □

TAKE OVER THE WORLD.



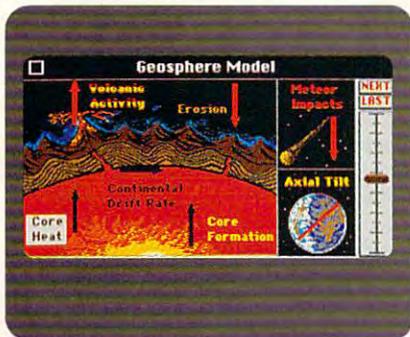
You get seven world scenarios plus unlimited random planets. So you'll never be strictly earthbound.



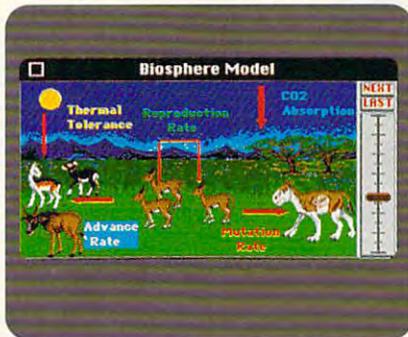
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Use your animal instincts and your planet will thrive, producing a rich abundance of life.



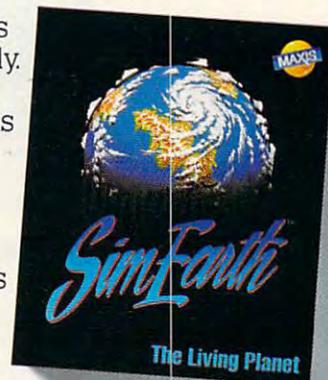
Make the wrong decision and you could wipe out life as you know it. Hey, nobody said the job was going to be easy.



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Play SimEarth to the end of time. About 10 billion years or so, give or take a millenium. Getting raves everywhere, SimEarth is indeed destined to take over the world.



continued from page 10

and to popular word processors and desktop publishing packages. The prices shown are list prices. If you can locate a local discount software store or a mail-order house that carries these programs, you will probably be able to get a better price.

Calling All Modems

Because of GENie and Prodigy's low-cost offers, I'm considering going online for the first time. Prodigy's offer of a low-cost modem sounds attractive, but is \$149 for a Hayes modem really a good price? Are reviews of modems forthcoming in *COMPUTE*?

I have another problem: My NEC 5200 Pinwriter is equipped with the color option kit, but it won't print in color from *WordStar Pro 5.0*, even when colors appear in the page preview. Is color text available from *WordStar Pro*?

HSIN TU
NORTH HOLLYWOOD, CA

We recommend that you buy a 2400-bps modem. Internal modems cost significantly less than external modems. An internal modem requires an open slot in your computer.

Though *COMPUTE* hasn't devoted much space to reviewing modems in the past, telecommunications is now such a burgeoning part of personal computing that we expect to cover them more in the future.

The problem you're having with your printer should be easy to fix. Using a color printer is only half of the battle to get colored ink on paper; you must also configure your software to send color information to the printer.

To get your NEC 5200 Pinwriter to print in color, change your printer driver to the Epson LQ 2500 driver. A black-and-white driver doesn't know how to send the appro-

prate codes to generate color, as you have discovered.

Finding Simulations

Along with the writer in the November "Letters," I am also interested in Civil War simulations. The most recent PBS series on the war has piqued my interest. In your response, you recommended simulations by SSI and SSG. I am having trouble finding the software. Could you help me?

FRANK CARNEVALE
CRANSTON, RI

You'll find SSI games at several software chains, such as Babbages, Software Boutique, and Egghead. To order them by phone, you can call distributor Electronic Arts at (800) 245-4525. To order from SSG, call (415) 932-3019. You can also use the SSG fax number to order products; call (415) 933-4327 and supply your address, phone number, and VISA or Mastercard number and expiration date.

Image Polishing

Your article in "Workplace" (January 1991) reminded me of the trend several years ago to spruce up job titles, such as garbage collector (everybody knows what that is) to Sanitation Engineer (???), or auto mechanic (again, you know what an auto mechanic is) to Mobile Engine Service Technician. Maybe we should return to common-sense job titles rather than making an attempt to glorify our work with a fancy-sounding name.

By the way, I am a Law Enforcement Technician with Limited Constraints (police officer with jurisdiction inside city limit boundaries).

HAROLD NEWBROUGH
SINCLAIR, WY

Do you have questions or comments? Send your letter—with your name, address, and daytime phone number—to *COMPUTE Feedback*, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. Due to the volume of mail received, we can't respond individually to questions. We reserve the right to edit letters for clarity and length. □

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PC VIEW

C L I F T O N K A R N E S

Many thanks to those of you who mailed in the readership surveys from the November 1990 issue. Although a few surveys are trickling in, we have the lion's share, and the results are surprising.

The first thing we look at on each survey is the kind of equipment you're using. This year, there's a notable trend toward higher-end hardware. The surveys show a marked increase in both 286 and 386 machines, and the number of you using laptops has almost doubled, from 6 percent in 1989 to 10 percent in 1990. Because almost half of you have 286 or faster systems, we're looking for more programs that can take advantage of your PC's speed. And because of the rise in laptop use, we're going to test all the programs on each disk to make sure they give good results on laptop systems.

The most dramatic hardware change, however, is in video displays. Last year, CGA was the leading graphics adapter with 46 percent, but this year it's a distant second to VGA, which clocks in at a strong 41 percent (CGA garnered a 27-percent share). Monochrome and Hercules displays are both down two points from last year with 18 and 5 percent respectively, and EGA use has fallen from 25 percent in 1989 to 14 percent in 1990. We'll continue with our strong support for CGA, EGA, monochrome, and Hercules, but be sure to look for more VGA goodies on upcoming disks and more VGA-related features in the magazine.

When it comes to peripherals, we found just what we expected after seeing the high-end CPUs and displays. For

example, hard disks, which just a year or two ago were luxuries, have moved from a 70-percent share last year to 79 percent. Mice are fast becoming the most-used accessory, with a leap from 52 to 58 percent. And 3½-inch drives, which have always lagged far behind 5¼-inch ones, spun their way to a whopping 57 percent, which means that well over half of you have these smaller, higher-capacity drives.

Modem users, always a large group, have climbed from 48 to 52 percent. And laser printers have inched up in popularity from 8 to 11 percent. With recent reductions in laser printer prices, we expect to see a dramatic rise in laser printer use in 1991.

Memory, which used to cost a small fortune, has really come down in price lately, and that fact is reflected in the survey's results. Just over 72 percent of you have 640K or more, and 40 percent indicated that they

have expanded or extended memory. Look for programs and features on memory management in the coming months to help you take advantage of all that RAM.

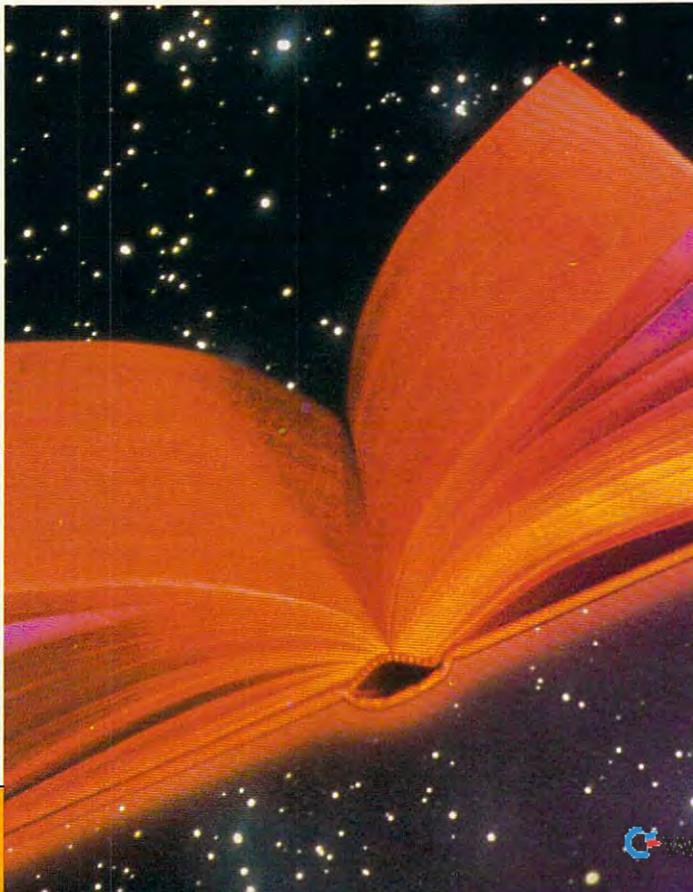
Programmers cast a strong vote for BASIC as their favorite language, the same winner as last year. And just under 15 percent of you stood up as *Windows* users. With *Windows 3.0* looking like such a sure thing, we expect to see a dramatic rise in the number of readers running that operating environment in 1991.

When it came to the magazine's columns, you showed us a clear consensus: Technical tips and news are at the top of your list with "Hot Tips," "Feedback," and "News & Notes" as the top three picks. Close behind these three are "IntroDOS," "PC View," and "Power Up."

As for your favorite PC topics, the ranking is identical to last year. At the head of the list is disk manage-

ment and MS-DOS with upgrading running a close second. Next come new technologies, word processing, and new hardware. Games, graphics, and programming are all tightly packed behind.

As you might guess, this information is more than just casually interesting to us. We use survey results like these almost every day when we choose the programs for a PC disk or when we select features or columns for the magazine. So when you see the next readership survey, fill it out and send it in. It's the best way of ensuring that the magazine and disk continue to have the kind of information and programs that you want most. Stand up and make your voice heard. □



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Whether for travel, business or entertainment, conversing in a foreign language will open up whole new worlds to you. And now there's a method that makes learning a foreign language simpler. Painless. And faster than you ever thought possible. The first 15 tapes of this package are the very same tapes used by the U.S. State Department to train career diplomats.

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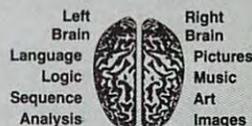
			
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BREAKTHROUGHS in language technology by European learning researcher **Dr. Georgi Lozanov** are the basis of the remarkable

"American managers with language skills open more doors."
Wall Street Journal Editorial
July 25, 1988

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"(the superlearning method is) fascinating... the results are extraordinary."
Prof. Lawrence Hall
Harvard University

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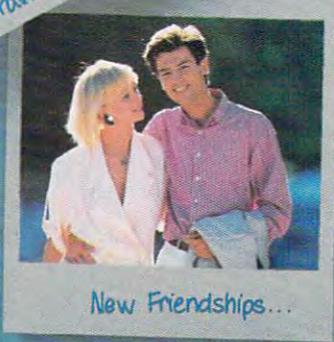
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"American ignorance of other tongues has been hurting American business executives in their competition for (overseas) markets."
The New York Times
September 5, 1988



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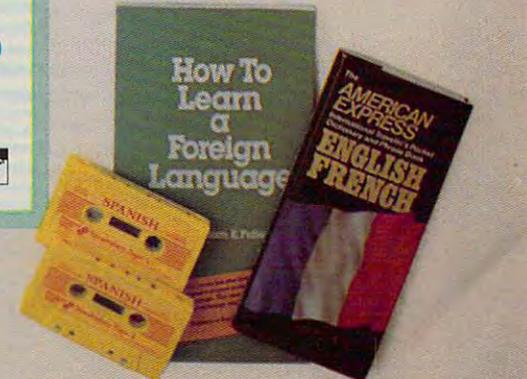
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Industrialist

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NEWS & NOTES

Okidata Throws Out Complexity

The simpler the better. That's the way things should be. Okidata seems to agree. Its new light-emitting diode (LED) printers use an entirely new technology that literally throws out complex old technology such as laser beams, lenses, and rotating optics. Instead, the new printers use LED print elements that have no moving parts, offer a straight paper path, and allow for a much smaller footprint.

Okidata already offers four LED Page Printers: the OL400 LED Page Printer, a \$999 4-page-per-minute (ppm) printer designed for personal and small-business use; the OL800 LED Page Printer, a \$1,500 8-ppm printer designed for office use; the OL820 LED Page Printer, a \$2,000 8-ppm scalable fonts printer that's reportedly 30 percent faster than the LaserJet III; and the OL840 LED Page Printer, a \$3,000 full Adobe PostScript 8-ppm printer for high-end desktop publishing applications in both Apple and IBM computing environments.

These new Okidata printers are available at authorized Okidata dealers. To find the dealer nearest you, call (800) 800-7333.

How Much Is That Videogame in the Window?

Now you can have fun with *Microsoft Windows*. Microsoft has released the *Microsoft Entertainment Pack for Windows*, offering a great diversion from serious work by providing seven popular games. Each game was developed by *Microsoft Windows* programmers in their spare time. They became so popular at Microsoft that the company decided to market the package commercially.

The *Microsoft Entertainment Pack* includes *Tetris*, the *Microsoft Windows* version of the popular Soviet arcade game; *Taipei*, a complex Oriental game of skill and chance that's similar to three-dimensional dominoes; *MineSweeper*, a test of logic skill; *TicTactics*, which pits you against the computer in three-dimensional four-row tic-tac-toe; *Golf*, a solitaire game where winning is tougher than getting a hole-in-one; *Cruel*, a solitaire challenge that easily lives up to its name; and *Pegged*, a version of the traditional peg-jumping game that looks deceptively simple.

Although the primary benefit of the *Microsoft Entertainment Pack* is fun, it also can help new *Windows* users become familiar with the *Windows* environment. And in addition to the seven fun-filled games, there is *IdleWild*, a screen saver that lets you turn your screen into a fireworks display, outer space, random colors, or complete blackness. With all of this going on, you have to wonder—when did Microsoft's programmers have any time for work? But you won't wonder after you give these games a try—you'll be too busy having fun of your own to care.

The *Microsoft Entertainment Pack for Windows* is available for \$39.95; contact Microsoft at 16011 NE 36th Way, Box 97017, Redmond, Washington 98073 for further details.

An Arc Welder for Your PC

System Enhancement Associates' (925 Clifton Avenue, Clifton, New Jersey 07013) latest archive program, *ARC + PLUS 7.1*, acts like an arc welder. It not only joins multiple files into single files and compresses them in the process—it also endears itself to the user of the program with a new *Windows*-like pull-down menu system. Previous versions of *ARC* were available as shareware. This version is not. It is, however, totally compatible with all the previous shareware versions of *ARC* and offers enough added features and ease of use to be well worth your consideration.

Improvements include a user interface with pull-down menus that makes the new *ARC* program work a lot like a hard disk management package, in addition to mouse compatibility, tighter compression, and increased speed. The program allows you to make regular or self-extracting archives of your files and offers password protection if you need it. You can even use *ARC + PLUS 7.1* to back up complete subdirectories and whole disks onto multiple disks. The program can also be run from the DOS command line, so it can be easily invoked from batch files or a SHELL command from within a program.

Typical savings are 53 percent for word processing files, 71 percent for spreadsheets, and 76 percent for databases. Compressing program files is typically less advantageous. The suggested retail price is \$89.95, but registered users of any previous version of *ARC* can upgrade to the new version for only \$34.95. ▶



A NEW WIZARDRY

Ten years ago, Wizardry set the standards in FRP. Now, after two million copies have been sold and 25 international awards have been won, Bane of the Cosmic Forge raises and redefines those standards. This new Wizardry, the truest simulation ever of Fantasy Role Playing, will push your computer, your mind and your sense of adventure to their very limits.

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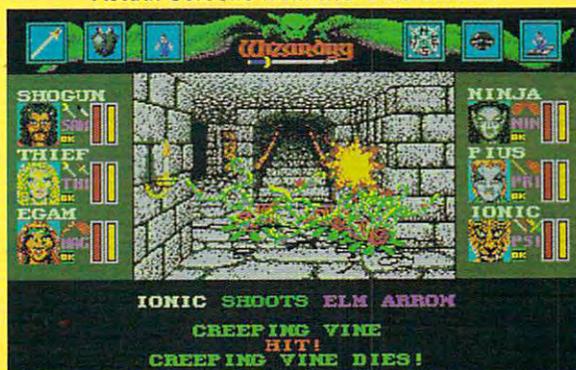
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NEWS & NOTES

Opening Doors for OSF

The race for an advanced, truly open architecture for PCs is still going strong. The latest move by the Open Software Foundation (11 Cambridge Center, Cambridge, Massachusetts 02142) comes closer to enabling large networks of different computer systems to join together through a common operating environment. The nonprofit organization has released OSF/1, a completely new open computer operating system. Hailed as the cornerstone for the industry's first comprehensive open computer operating environment, OSF/1 has already received endorsements from OSF sponsor companies, including Digital Equipment, Group Bull, Hewlett-Packard, Hitachi, IBM, and Siemens Nixdorf Information Systems.

OSF/1 adds a powerful user interface and distributed computing capabilities, allowing you to work from any station on a network of computers as if you were sitting at your own workstation, regardless of what city or country you're in or what type of computer you're using. It's believed OSF/1 will deliver to large organizations capabilities long described as Enterprise-Wide Computing but as yet unseen.

OSF/1's true success, however, will be measured by the acceptance it enjoys in the market, and that will most likely be determined by the number of third-party companies that develop hardware and software products to support it.

No More Rentals

Software rentals are no longer a gray area of the law. It's now in black and white: It is against the law to rent, lease, or loan software if the software's publisher prohibits it. The 101st Congress managed to approve the Software Rental Amendments Act of 1989 just hours before it adjourned. The legislation prohibits "the rental, leasing, or lending of commercial software without the express permission of the copyright holder."

The bill, introduced by Congressman Mike Synar (D-OK) and Senator Orrin Hatch (R-UT), was designed to protect the intellectual property of software publishers. Its passage by the House of Representatives and Senate follows five years of intensive lobbying by the software industry, which adopted the position that software rentals often resulted in software piracy.

Moscow on the PC

More than 1800 Soviet managers attended a three-day Moscow computer seminar held recently at the SOVINGENTR in downtown Moscow. It wasn't COMDEX, but the level of excitement was certainly on a par with any of the big computer shows now held in the U.S. The focus of the exhibition was enhanced productivity, information management, and ease of use for public and privatizing industries.

The Ultimate Corporation and its European subsidiaries based in Paris and London were major participants. Michael J. O'Donnell, Ultimate's chairman, president, and chief executive officer, said his company demonstrated its Pick Operating System and exhibited the Sequoia, Hewlett-Packard, IBM RISC 6000, and Bull 8000 line of hardware products. A Russian version of the Ultimate Operating Environment (an enhanced, user-friendly version of Pick) was received enthusiastically by attendees. The Russian version was translated by the Soviet Institute for Technical Innovation (SITI), an agency of the Soviet government.

Can a COMDEX: Moscow be far behind?

Software and Chewing Gum

What do software and gum have in common? Both are now sold from vending machines. Well . . . sort of. Sellalectek's *InfoMaster* is a PC-based electronic software buyer's guide and merchandising service that's now available at selected retail outlets nationwide. *InfoMaster* allows customers to display and print out product information including product reviews and comparisons, technical specifications, and comprehensive descriptions. Vendors who use the system can highlight their products with the use of full VGA demo slide shows.

New software products from Accolade, Spectrum Holobyte, Sierra On-Line, MicroProse, and Gametek have just been added to the system. *InfoMaster* is currently installed in over 300 stores including Software Etc. and Waldensoftware retail chains as well as selected independent dealers.

A Model Citizen

IBM recently received the Community Involvement Award for supporting the Black Pages and demonstrating commitment to minority business development. IBM has advertised in the Black Pages, a telephone directory for minority businesses, for the past four years. The award was presented to IBM at the Black Pages Annual Awards Ceremony during Minority Enterprise Development Week. Phyllis Sullivan, IBM's equal opportunity program manager, said, "IBM's policy is to provide business opportunities for minority-owned businesses." □

"News & Notes" is by Alan R. Bechtold, editor of *Info-Mat Magazine*, an electronic news weekly published by BBS Press Service.

Magnetic Scrolls has spent the last three years preparing to prove you wrong — with a little help from Lewis Carroll. Gary Whitta goes through the looking glass...

Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, 'it was only a book!' she thought, and she closed it and yawned. Without pictures or conversations, she thought, it was quite a poor thing. She was considering in her own mind (as that day made her) whether she could invent some new pictures or games for herself, when she remembered that her sister's book was the best of all, and she would soon be able to make one just like it, unless she got a book like that first. 'I'll make a book like that,' she thought, 'and I'll give it a name: 'Wonderland' it shall be called. It shall be the best of all, and I'll give it a name: 'Wonderland' it shall be called. It shall be the best of all, and I'll give it a name: 'Wonderland' it shall be called.

WONDERLAND

...in the book, now play the game. John Minson on an adventurous twist to Lewis Carroll

"If Lewis Carroll was alive today, he'd be more interested in adventure games than books. It's a very logical medium." Anita Sinclair has more on her mind than pleasing literary pedants, but she should be safe. Wonderland, Magnetic Scrolls' forthcoming adaptation of Alice in Wonderland, has been crafted with most respect for the original. The game also marries the computer under its own system and it introduces the Sinclair-style graphics that will revolutionize the computer adventure genre. Alice's world is a masterpiece of interactive storytelling.

Magnetic Scrolls' new release, Wonderland, promises to reinvest the adventure game. A totally new games system, Magnetic Windows, has been developed and the results look astonishing. Keith Campbell gives CU an exclusive preview.

Wonderland, based on Alice in Wonderland, is a new adventure due soon from Magnetic Scrolls — their first major release since *Fish*, nearly two years ago. But with 30 man-years of development behind it, *Wonderland*, written by David Bishop, and based



The graphics in Wonderland are stunning



Curiouser and curi...

"From the technical point of view, people simply aren't going to believe what we've done."

Anita Sinclair, Mag...



Magnetic Scrolls have come up with the ultimate multi-windowing game system. Could it introduce a new age of intelligent gaming?

"The flexibility of the system means that anybody can use it with the minimum of practice, and that you can use it anyway you like. You can play it either as a straight text adventure with no windows or graphics, or play it mainly using the windows and icons system."



special Screens taken from IBM VGA version. For IBM, Amiga and Atari ST computers. Suggested price \$59.99

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PROGRAMMING

Whether you're a novice, a power user, or a programmer, books can help you get the most out of your PC. But selecting the right reading material isn't always easy. There are hundreds of good PC books. Which do you choose?

One of the best ways to go about choosing a book is to get recommendations from other readers. If a friend has found a book useful, chances are you'll find it useful, too. That's the approach we recently took at COMPUTE. We asked our editors to vote for their favorite PC books in four categories—DOS, hardware, applications, and programming—and in this article, we share the results with you.

For each of the four categories, we decided to limit ourselves to four choices. This wasn't easy: There are scores of excel-

lent PC books, and choosing just four in any category naturally leaves out many other excellent titles.

We had another problem when selecting books. Since COMPUTE publications has its own book-publishing division—COMPUTE Books—we felt there would be a conflict of interest if we voted for our own titles. For this reason, we excluded COMPUTE Books selections from our list.

But at the same time, we realized that any article on the best PC books would be lopsided without some COMPUTE titles, so we asked COMPUTE Books' editor in chief, Stephen Levy, to round out our coverage by giving us the scoop on four of COMPUTE Books' top PC titles. That added up to 20 books, the best in PC literature. And now, the envelope, please. . . . ▶

DOS

DOS: The Complete Reference, Second Edition

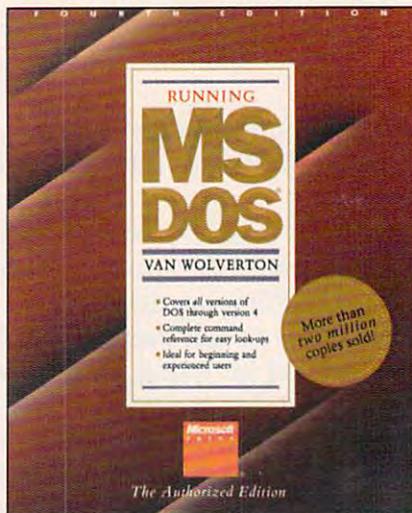
by Kris Jamsa
Osborne McGraw-Hill
\$29.95

If you're an aspiring power user, this may be the book for you. PC wizard Kris Jamsa has jam-packed these pages with everything you need to know to fine-tune your system and master DOS.

Weighing in at more than 1000 pages, *DOS: The Complete Reference* is noteworthy because it not only contains a wealth of information on the usual DOS commands (COPY, DIR, DELETE, and so on), but also has detailed discussions on tremendously useful but tough commands such as BREAK, DRIVPARM, and SHELL.

Additional chapters explain how DOS works, how to program with DEBUG, and how to get the most from *Microsoft Windows*. A thorough reference section on DOS commands is also included, as are appendices on ASCII codes and DOS error messages. For programmers, there's a detailed section of the DOS interrupt 21h functions. A must-have.

— Clifton Karnes



Running MS-DOS, Fourth Edition

by Van Wolverton
Microsoft Press
\$22.95

Power users and beginners both will benefit from the wealth of information offered in Van Wolverton's newest release of *Running MS-DOS*.

This book is divided into three parts. The initial section leads beginners hand-in-hand through their first encounters with DOS. The middle section is a thorough course in DOS basics, and the third section consists of appendices on preparing a hard disk, using DOS 4.0, the international aspects of DOS, a glossary, and a DOS command reference.

This book is a must for learning how to use DOS commands, manage disk files, create batch files, master re-direction of output, and much more.

After studying the examples and throwing in a few tricks of my own, I was able to create the menu that was published on the first *COMPUTE's SharePak* disk in October 1989.

— Joyce Sides

Supercharging MS-DOS, Second Edition

by Van Wolverton
Microsoft Press
\$19.95

Once I had mastered some of the techniques described in *Running MS-DOS*, I was ready to tackle the more

Not only did I discover ways to control screen output, but I also had my first lesson in DEBUG.

technical information in *Supercharging MS-DOS*, also by Van Wolverton.

With this book, not only did I discover ways to control screen output using ANSI.SYS commands, I also had my first lesson in using DOS's DEBUG to write a simple executable file. I was so impressed with the wealth of useful information I derived from this and *Running MS-DOS* that I bought a set to keep on my desk at work. — Joyce Sides

Using PC DOS, Third Edition

by Chris DeVoney
Que
\$24.95

More than just a list of DOS commands, *Using PC DOS* by Chris DeVoney is a step-by-step guide into the intricacies of Microsoft's sometimes confusing operating system. Starting from the very beginning, DeVoney takes you by the hand and leads you through DOS.

Using real-world examples and useful illustrations, this book will help you make sense of everything from hard disk organization and batch files to the complex BACKUP command and version 4.0's SHELL program. The book is easy to read and never misses a trick in showing you exactly what to do and when.

Naturally, there's a complete command reference, but it's special touches like the appendix on setting up a new hard disk and detailed comments on the differences between DOS versions that make this book a must for every DOS user. Its out-

standing index is another plus.

— George Campbell

HARDWARE AND GENERAL Computer Glossary, Fifth Edition

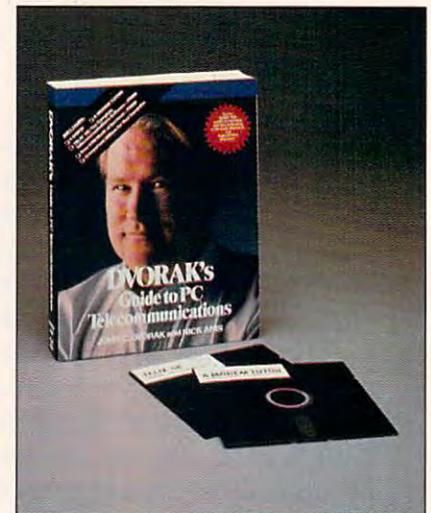
by Alan Freedman
The Computer Language Company
\$24.95

If you're confused by the barrage of computer terms such as LAN, EISA, ISAM, ISO, RLL, MFM, LRC, SQL, SPSS, USRT, and X.25, then run to the nearest bookstore and buy this book.

The Computer Glossary contains more than 4000 terms (including the acronyms listed above), and hundreds of illustrations. I use it everyday. And even when I don't need to look inside for help with a specific piece of information, I find this book is a blast just to browse through.

Although *The Computer Glossary's* strength is PC info, it contains words associated with other micros, most notably Apple, as well as mainframes, primarily IBM, and minicomputers, especially DEC. And for those who'd like to have this information at their fingertips, there's even an electronic edition for \$59.95.

— Clifton Karnes

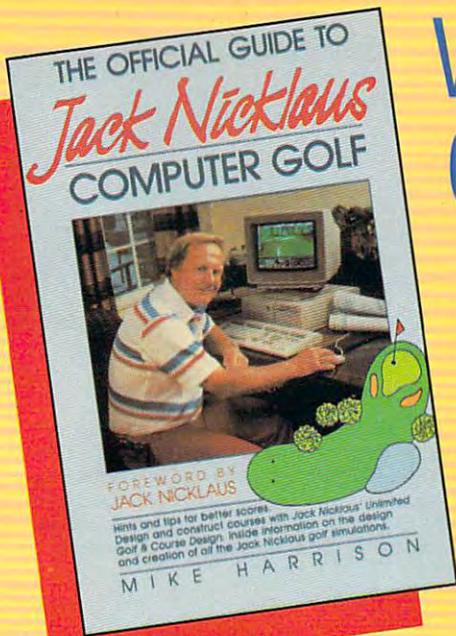


Dvorak's Guide to PC Telecommunications

by John Dvorak and Nick Anis
Osborne McGraw-Hill
\$49.95 (includes two 5 1/4-inch disks)
Everything from installing your first modem to a short history of facsimile machines is included in this huge, thorough volume.

Telecommunications can be a complex subject, but by dividing everything into sections for the layman and for the more technically advanced, Dvorak and Anis cover almost every topic in a way everyone can understand. But the telecommunications narrative, fine though it is, is only half of this book. ▶

WHETHER IT'S GOLF, AIR COMBAT, OR ADVENTURE COMPUTE HAS THE OFFICIAL GUIDE



The Official Guide to Jack Nicklaus Computer Golf

by Mike Harrison
Foreword by Jack Nicklaus
\$12.95

224 pages

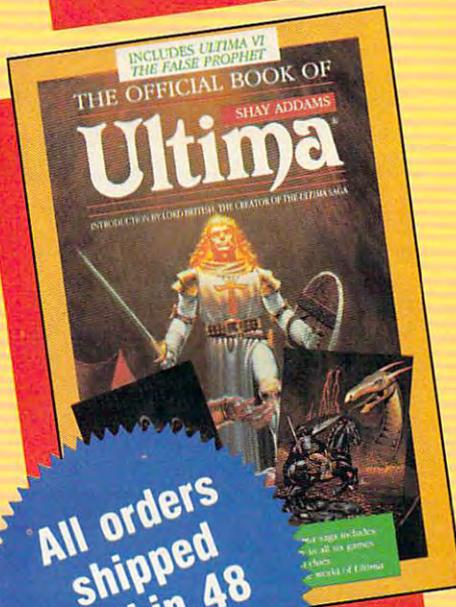
Here's the inside story. Learn how professional course designers decide where to put bunkers, trees, and greens. Also includes tips for all the Jack Nicklaus golf games, including *Jack Nicklaus' Unlimited Golf & Course Design*. This is the only authorized guide to all the Jack Nicklaus computer simulations from Accolade.

The Official F-15 Strike Eagle Handbook

by Richard Sheffield
Foreword by Sid Meier
\$12.95

224 pages

This is the official guide to MicroProse's best-selling F-15 simulators. Covers both *F-15 Strike Eagle* and *F-15 Strike Eagle II*. Filled with step-by-step instructions and clear diagrams.



The Official Book of Ultima

by Shay Addams
Introduction by Lord British
\$14.95

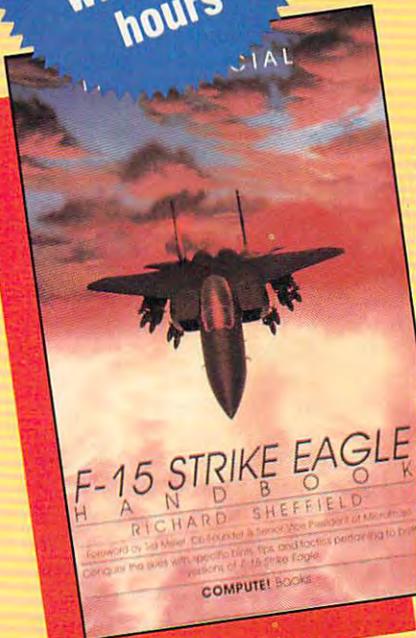
244 pages

Written with the assistance of Lord British, *Ultima's* creator, this official guide includes inside information found nowhere else. Packed full of hints, tips, anecdotes, and never-before-published clues for all six *Ultima* adventures.

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by Mark Minasi
\$18.95

Packed full of charts and diagrams, Mark Minasi has put together a readable guide based on years of experience teaching folks like you and me to service and maintain their own PCs. You'll discover how to service and support your own computer including troubleshooting and installing peripherals.

Quick & Easy Guide to Learning Lotus 1-2-3, Second Edition

by Douglas J. Wolf
\$14.95

This second edition of COMPUTE's popular beginner's guide to Lotus 1-2-3 has been revised to cover versions 2.01, 2.2, and 3.0. If you're an advanced power user of 1-2-3, this is the book for you. And if you're new to spreadsheets or if your boss just handed you the software, you'll appreciate the step-by-step approach of this unintimidating guide.

Releasing the Power of DOS

by Paul S. Klose
\$21.95

This is *the* book for all DOS users: a comprehensive guide to all versions of DOS through version 4. Paul Klose unlocks the hidden secrets of DOS, clarifies confusing commands, and provides solutions to the inherent weaknesses of DOS. You'll appreciate the clear and complete explanations and scores of examples. Numerous tables and charts make this book an excellent reference, too.

Problem Solving with PC Tools

by Lynn Frantz
\$21.95

Filled with extensive charts, tables, and helpful tips found nowhere else, this friendly guide and tutorial to version 5 of *PC Tools* is just right for the novice as well as the experienced user. It covers all aspects of *PC Tools*, including *Desktop*, *PC-Shell*, *PC-Backup*, and more.

— Stephen Levy

The second half of *Dvorak's Guide to Telecommunications* consists of user's guides for the programs included on the disks. Although there are several useful utilities included here, the real gem is a special edition of *Telix* called *Telix SE*, which is arguably the finest telecommunications program around. Other utilities include *CED* (a command line editor), *SHEZ* (a shell for ARCED, ZIPed, and other compressed files), *PKWARE*, *QEDIT*, *LIST*, and more. If computers connected by modems do it, it's covered in this book.

— Clifton Karnes

Inside the IBM PC, Third Edition

by Peter Norton
Brady Books
\$24.95

Peter Norton is the E. F. Hutton of microcomputers: When he talks, people listen.

It's a good thing, because he's worth listening to. Here, in a book that has become as much of a classic as any five-year-old volume can be, Norton talks about both the brains and brawns of PCs, both hardware and software.

Norton's approach is comprehensive, if not encyclopedic, with an emphasis on the ways in which software uses hardware capabilities. To understand that, though, you must have a solid grounding in the hardware. The two go hand-in-hand.

The book is not formally divided into hardware and software sections.

Rather, Norton tends to give a hardware example, then provide a software example to take advantage of it. This is quite an effective approach to difficult material, and one that other writers could benefit from.

Norton has gotten most of his fame from *Utilities*, and rightly so. But he's also one the best writers on the technical side of computers, and this is without doubt his best book.

— Keith Ferrell

The Winn Rosch Hardware Bible

by Winn Rosch
Brady Books
\$29.95

"The computer is nothing to fear, and it need not be a mystery," Winn Rosch writes in the introduction to this substantial and indispensable volume. "It is a machine, and a straightforward one at that."

The success of this book rests upon Rosch's authority—he seems to know everything about PCs—and his sense of organization.

Not being a hardware person, I tend to take such introductory remarks with a grain or ten of salt. Yet

Rosch, in straightforward prose, proves his claims.

The success of this book rests upon Rosch's authority—he seems to know everything about PCs—and his sense of organization. As a writer, he's a born teacher, taking each subject from the ground up, ensuring that you understand foundations before progressing to technical details.

The approach works well, allowing Rosch to cover boards, processors, memory, BIOS considerations and circuitry, floppy and hard disks as well as tape drives, ports, printers, monitors, and more. Each receives a chapter that is thorough, sensible, and clearly written. If Rosch can make *me* understand hardware, he can do it for anyone.

An exemplary book.

— Keith Ferrell

PROGRAMMING

DOS Power Tools, Second Edition

by Paul Somerson
Bantam Books
\$49.95 (includes 5 1/4-inch disk)

If you only buy one DOS book, *DOS Power Tools* is the one to get. Are you a new PC user confused by hard disk organization? This book has step-by-step explanations that will have you navigating directory trees faster than Magellan. Are you an intermediate user baffled by batch files? *DOS Power Tools* will take you from modifying your AUTOEXEC file to creating full-blown applications using only batch commands. True power users will en-

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joy sections examining drivers, DEBUG, and even EDLIN, in addition to tips on how to get your old reliable *WordStar 3.3* (why switch?) to run in 43-line EGA mode.

This 1275-page tome literally has everything. Along with the tutorials, there are complete explanations of all of the DOS 3.3 commands.

This 1275-page tome literally has everything. Along with the tutorials, there are complete explanations of all of the DOS 3.3 commands (better explanations than those in my MS-DOS manual), and interesting historical notes on the development of PC compatibles and MS-DOS.

If all this isn't enough, this book also comes with a disk that includes over 200 handy utilities, ranging from batch-file enhancement commands to pop-up phone dialers and appointment calendars. Is it any wonder this is the only DOS book I own?

— Denny Atkin

DOS Programmer's Reference, Second Edition

by Terry Dettman, revised by Jim Kyle
Que
\$29.95

If you could imagine the perfect reference for the DOS and BIOS interrupts, you'd be thinking of this book. It's more than just that, but I find myself turning to the half of the book that covers interrupts on a daily (if not hourly) basis to recall how the registers must be set when calling the DOS and BIOS interrupts.

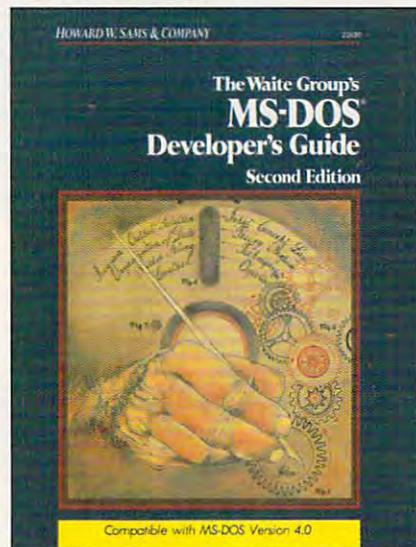
DOS calls are clearly labeled with the earliest DOS version that supports the call.

Each interrupt section is organized into easy-to-read chunks. There's a heading with an icon that quickly identifies the nature of the interrupt. And the DOS calls are clearly labeled with the earliest DOS version that supports the call. An itemized

listing of the calling and returning registers is next. Then come appropriate comments that contain essential information. Explanations are in clear language that even newcomers can understand.

Mouse and EMS interrupts are thoroughly covered. That's not always the case in reference books. The first part of the book is more didactic, with lengthy descriptions of how the operating system actually works.

— Richard C. Leinecker



The Waite Group's MS-DOS Developer's Guide, Second Edition

by John Angermeyer, Kevin Jaeger, Raj Kumar Bapna, Nabajyoti Barkakati, Rajagopalan Dhesikan, Walter Dixon, Andrew Dumke, Jon Fleig, and Michael Goldman
\$24.95

Howard W. Sams & Company
Practical, useful, and hard-to-find describe the information in this book. After learning a programming language, you need to learn MS-DOS. This group of world-renowned authors takes us a giant step closer to that goal with this book. They've compiled their programming experiences into a repository of useful techniques. I have literally saved hundreds of hours by using and adapting these code examples and ideas.

I found some of the EGA tricks especially helpful. Most graphics hardware books tend to be somewhat academic, but the routines I found here were real-life tricks that I immediately applied to my own set of graphics routines.

TSRs and device drivers become clear with the chapters on these subjects. If you want to trap the keyboard or any other interrupt in a memory-resident program, the code's all there. Just type it in, modify it to suit your needs, and you're in business.

— Richard C. Leinecker

The Waite Group's Microsoft Macro Assembler Bible

by Nabajyoti Barkakati
Howard W. Sams & Company
\$26.95

Once you've learned the basics of 8088 assembly language, it becomes an art. With several ways to do almost everything, finding the best one for any situation is a challenge on par with the most intriguing puzzle.

Sometimes the smallest code is the best, and sometimes the fastest code is preferable. This book is a must for helping you make these decisions.

All the timings for each instruction and the variations are listed along with the encoding specifications. That means you can see to the exact machine cycle how long your code will take to execute and how many bytes the object code will be.

An entire chapter is devoted to the details of the *Microsoft Macro Assembler (MASM)* directives and operators. You won't have any trouble writing effective macros after reading through it. Code examples are given, including an interrupt-driven serial port handler I found especially valuable. A short chapter on DOS and BIOS interrupts with the calling and return registers is also included.

— Richard C. Leinecker

APPLICATIONS

dBase III Plus

by Tom Rettig and Debby Moody
Addison-Wesley Publishing
\$22.95

dBase III Plus is an invaluable resource for anyone who programs *dBase III* applications.

The book is an alphabetical reference to all the commands and functions of *dBase*. Information is easy to find, and entries are enhanced by program fragments and screen illustrations where appropriate. The authors, who participated on the *dBase* development team, know their *dBase*.

Programmers will delight in the *Warnings and Tips* sections that accompany every entry.

Their insights have guided me to simple solutions to what I thought would be programming nightmares.

Programmers will delight in the *Warnings and Tips* sections that accompany every entry. *Warnings* identifies the most likely pitfalls of each command and offers advice

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- Lotus Macros 265 Collection of powerful macros for 1-2-3 or compatible programs
- Lotus Templates 269 Lot of useful templates for Lotus compatible programs
- Pivot! 282 Print your spreadsheets sideways. Dot matrix printer needed.

WORD PROCESSING

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- Thesaur 345 Very useful when you are looking for the perfect word to make your point

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UTILITIES

- Baker's Dozen 409 13 handy utilities that every computer system needs
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- HD Backup 424 An easy-to-use program that backs up your hard drive on floppy disks. HD
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- PC-Key Draw 542-545 Powerful CAD design program. Works with keyboard or mouse (4 Disks) HD
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about how to avoid them. *Tips* provides hints on how commands and functions might be used in ways that are not necessarily apparent from the *dBase* documentation.

For *dBase III* users, this book is 600-plus pages of pure gold.
— *Tony Roberts*

Looking Good in Print

by Roger C. Parker
Ventana Press
\$23.95

All dressed up, but nowhere to go. That's how many of us feel when we master a powerful desktop publishing program, but we soon discover that it takes more than pull-down menus

Looking Good in Print is packed with instructive illustrations—which isn't surprising, considering that the book itself was desktop-published.

and dialog boxes to create great-looking documents. *Looking Good in Print* comes to the rescue with hands-on advice for budding desktop publishers.

The book begins with the vocabulary of basic design and moves on to the tools of the trade and common pitfalls. The last half of the book shows you how to produce attractive and effective newsletters, advertisements, brochures, manuals, correspondence, and more. There's even a section of design makeovers with eye-opening before-and-after examples.

The entire book is packed with instructive illustrations—which isn't surprising, considering that the book itself was desktop-published. If you're involved with desktop publishing or you just want to learn a thing or two about graphic design, this is one book you shouldn't be without.

— *David English*

Using 1-2-3: Release 3.1, Second Edition—\$29.95

Using 1-2-3: Release 2.2, Special Edition—\$27.95

Using 1-2-3: Special Edition—\$27.95
by Geoffrey T. LeBlond and Douglas Ford Cobb
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You bought *1-2-3* and thought the manuals were confusing. Or you use the program on your laptop and don't

want to lug the manuals home each night. Or you know the manuals backward and forward, but you're looking for a different perspective and some helpful hints and tips.

If any of these scenarios fits your situation, take a look at *Using 1-2-3*, the unofficial alternate-manual for *1-2-3*. When *1-2-3* became popular in 1985, its manuals were complicated and hard to read. *Using 1-2-3* was the manual that Lotus should have included. It quickly became one of the best-selling computer books of all time.

Today's *1-2-3* manuals are better organized than before, but we can still use a little help. For a comprehensive view of *1-2-3* that's clear and insightful, this is the book to buy.

— *David English*

Word Processing Power with Microsoft Word, Third Edition

by Peter Rinearson
Microsoft Press
\$22.95

This is *the* book on *Microsoft Word* and a model for what books on PC applications should be like.

Pulitzer Prize winner Peter Rinearson is a working journalist who's used *Word* since day one. He

knows every nook and cranny of this highly individual product, and in this book he shares his insights with us.

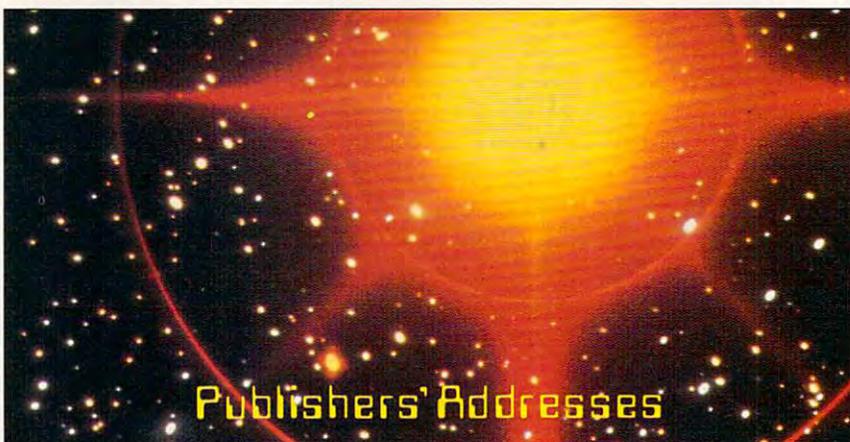
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Almost every *Word* user will find a treasure chest of information in this excellent book.

termediate chapters dig deeper into *Word's* command structure with sections on undoing, copying, deleting, inserting, and searching and replacing; and the final section includes individual chapters on word power topics such as using the mouse, mastering the spelling checker, using hidden text, getting the most from the glossary, using multiple windows, and much more.

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— *Clifton Karnes* □



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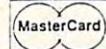
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FEEDBACK

QUESTIONS FROM OUR READERS

BASIC Blanking

Is there any way I can save a screen from inside my BASIC programs?

LELAND MOHAWK II
CLEVELAND, OH

It's very easy to incorporate a text-mode screen saver into a Quick-BASIC program. Since the PC treats the screen just like memory, simply find out where that memory is, save it, and clear the screen. To unblank the screen, just restore the memory.

First, you need to know whether the program is running on a monochrome or color system, because that determines where video memory is located. To do this, you look at byte 449 hexadecimal (abbreviated 449H) in a section of memory called the BIOS data area. If the value is 3 or less, it's a color system; and video memory is located at B800H. If the value is 7, it's a monochrome system; and the video memory is at B000H. If the value at 449H is anything else, then the computer is in graphics mode; so the program should quit.

Each character on your screen occupies 2 bytes in memory. The first byte is for the character itself, and the second is its attribute. Since the screen can hold 2000 characters (80 columns \times 25 rows) and each character uses 2 bytes, you need 4000 bytes to save an entire screen.

This is easy to do with a FOR/NEXT loop. Simply use DEF SEG to set video memory to the correct value and move the 4000 bytes of screen data to an array. The following program illustrates the whole process.

```
DEFINT A-Z
DIM ScreenMap(4000) AS INTEGER
```

```
' Determine display mode
DEF SEG = 0
VideoMode = PEEK(&H449)
ScreenPage = PEEK(&H44E)
SELECT CASE VideoMode
CASE IS <= 3
```

```
ScreenSegment = &HB800
CASE IS = 7
ScreenSegment = &HB000
CASE ELSE
' Screen is in graphics mode, so quit
END
END SELECT
```

```
' Put some stars on the screen
' so we'll have something to blank
CLS
FOR i = 1 TO 1760
PRINT "*";
NEXT i
```

```
PRINT : PRINT "Press any key to
blank the screen"
```

```
DO: LOOP UNTIL INKEY$ <>
""
```

```
' There's been a keypress, so blank
the screen
```

```
DEF SEG = ScreenSegment
' Save the screen info into the
' ScreenMap array
FOR i = 0 TO 3999
ScreenMap(i) = PEEK(i +
ScreenPage)
NEXT i
```

```
' Blank the screen
CLS
```

```
' Wait for another keypress
DO: LOOP UNTIL INKEY$ <>
""
```

```
' Restore the screen
FOR i = 0 TO 3999
POKE i + ScreenPage,
ScreenMap(i)
NEXT i
LOCATE 23, 1
END
```

Fantasy in Motion

I have been looking everywhere for an animation program that supports CGA and Tandy 16-color. I learned about *Fantavision* from a review I read, but when I went to purchase the product, my dealer said it had been discontinued. Why was it reviewed, if it has been discontinued?

SETH WILSON
DE WITT, AR

*Sometimes a distributor will stop carrying a particular product and inform the dealers that it has been discontinued. The distributor has discontinued the item even though it's still manufactured and marketed. That's probably the situation you encountered with *Fantavision*, which is still available from *Brøderbund*. If you want to order the product, call *Brøderbund* at (800) 521-6263 or write to the company at *Brøderbund Software Direct, Customer Service, P.O. Box 12947, San Rafael, California 94913-2947*.*

Our Mistake

In your October 1990 "Feedback," you listed JDR Microdevices as a source for replacement BIOS ROMs for the Kaypro 2861-C. This is not correct. We sell MCT BIOS, a single-chip XT-compatible BIOS; it won't work in any 286-based system that I'm aware of. We do sell EPROM and E²PROM chips that are capable of holding the BIOS code, but we don't sell the BIOS code itself.

If you have any questions in the future concerning the JDR Microdevices product line, feel free to call our technical staff at (800) 538-5002.

VOLKER KIRSTEIN, TECHNICAL SUPPORT
JDR MICRODEVICES

Thanks for the information. There you have it, folks. We goofed for the very first time. We're sorry about the mixup. At least we know you're paying attention.

Readers whose letters appear in "Feedback" will receive a free COMPUTE's PC clock radio while supplies last. Do you have a question about hardware or software? Or have you discovered something that could help other PC users? If so, we want to hear from you. Write to COMPUTE's PC Feedback, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. We regret that we cannot provide personal replies to technical questions. □

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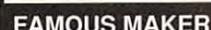
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HOT TIPS

H I N T S A N D T I P S F R O M O U R R E A D E R S

I've found that I need only two batch files to manipulate my path on a daily basis. I call them PATHR.BAT (PATH Restore) and PATHX.BAT (PATH + addition). The PATHR.BAT is basically the path you need 95 percent of the time. (It's the same PATH found in your AUTOEXEC.BAT file.) The PATHX.BAT file contains the following line:

```
PATH=%PATH%;C:\%1
```

To run the batch file, enter PATH *additional path* at the DOS prompt. The PATHX.BAT will set the PATH environment variable to your existing PATH and add the *additional path* typed in as %1 on the command line. For example, entering PATHX WIN at the DOS prompt adds C:\WIN to your PATH.

Kurt Zech
Sugarland, TX

Editor's note: You may encounter a problem with insufficient environment space if your PATH is too long. If you have a lot of subdirectories listed in your PATH, try to place those subdirectories directly under the root directory to keep the length of each entry to a minimum.

Partial Print

Do you ever need to print part of an ASCII text file? A typical example is when the printer jams or runs out of paper while using the COPY *filename* PRN command. In such a case, you don't want to print the whole file again.

A simple way to print part of a file is to use SLED (January 1989 COMPUTE!'s PC Magazine). To do this, load the ASCII file by entering SLED *filename*. Then use the Alt-N key combination to change the name of the file to PRN. Delete the part of the file you don't want to print.

For example, to delete the beginning of the file, use Alt-X to mark the first character of the file. Then go to the line before the first line you want to print and press Alt-L. Press Alt-D

to delete the marked portion.

When you've deleted the parts of the file that you don't want to print, press F4 to save the file. The file will be sent to the printer because you gave it the name PRN. You may get a message like *Ok to overwrite file?* when you try to save it. This is caused by the program's misinterpreting the printer signals when it's expecting a signal from the disk drive. Press the Y key. When the file has finished printing, you may get a message like *Disk full*. Again, this is the program's trying to interpret printer signals when it's expecting disk signals.

None of these actions change the disk file. Once you've changed the name to PRN, SLED treats your printer as if it were a new file. You can also use this technique to print any files you create with SLED. Quit the program by pressing F10.

David Leithauser
New Smyrna Beach, FL

DOS 2.x Batch Files

If you use DOS 2.x, you may have noticed that sometimes when you run your batch files the prompt appears twice when the batch file finishes. To avoid this harmless but annoying phenomenon, enter a carriage return after the last line of the batch file.

Rick Leinecker
Greensboro, NC

Subdirectory Search

While you can use the EXIST batch file command to determine whether or not a file exists, there's no command that allows you to check for the existence of a directory.

To solve this problem, I developed the technique shown in the batch file ISDIR.BAT. The syntax to use when checking for the existence of a directory is ISDIR *d:path*. You must enter the full pathname for the directory. For example, to see if the directory \WORK\BATCH exists, you enter ISDIR C:\WORK\BATCH.

```
ECHO OFF
IF "%1" == "" GOTO NONAME
```

```
IF NOT EXIST %1 \ *.* GOTO MAYBE
ECHO The directory "%1" has files.
GOTO END
:MAYBE
IF NOT EXIST %1 \ NUL GOTO
NOTTHERE
ECHO The directory "%1" is empty.
GOTO END
:NOTTHERE
ECHO The directory "%1" doesn't exist.
GOTO END
:NONAME
ECHO Syntax: ISDIR d:\path
:END
```

The command IF NOT EXIST %1 \ *.* won't detect the presence of an empty directory; therefore, I used the NUL filename. NUL is a device filename reserved by DOS as a dummy filename.

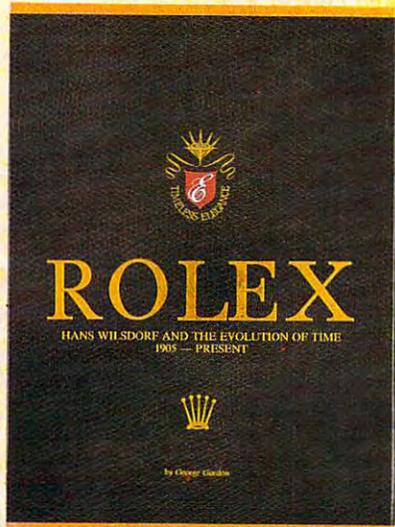
For every directory, there's a NUL, so if the directory exists, NUL will also exist. But even NUL won't detect if a subdirectory contains other subdirectories and no files. You'll get the *directory is empty* message.

In this batch file, a message is displayed according to the condition of the directory. You can substitute your own commands where the messages are located. For instance, if you want to create a directory and copy files to it, you first need to know if the directory exists. If it does exist, you could display a message that tells the user that the directory already exists and asks if he or she wants to continue. If it doesn't exist, you can use the MKDIR command to create it and the COPY or XCOPY commands to copy files to it.

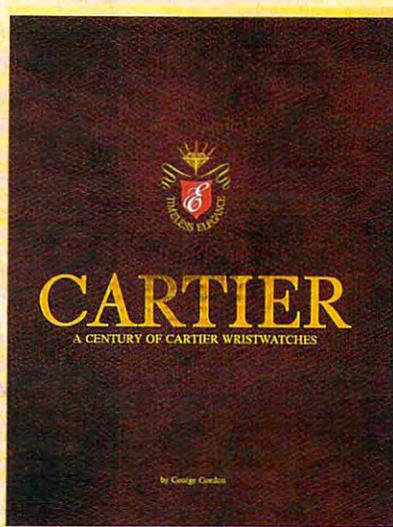
Vincent D. O'Connor
Babbitt, MN

If you have an interesting tip that you think would help other PC users, send it along with your name, address, and Social Security number to COMPUTE!'s PC Hot Tips, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. For each tip we publish, we'll pay you \$25-\$50 and send you a COMPUTE!'s PC LCD clock radio while supplies last. □

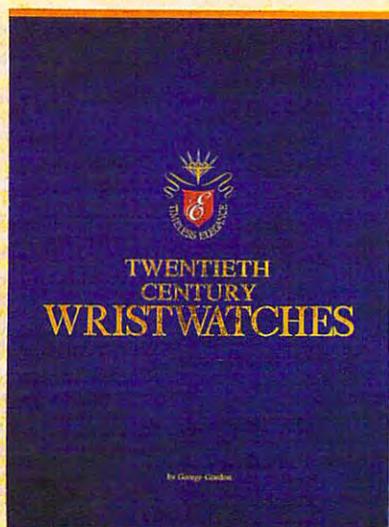
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INTERNATIONAL COLLECTORS OF



A new international club for collectors and dealers of wristwatches is being formed with headquarters in four cities, Milan, London, New York and Hong Kong. Called "International Collectors of "Time Association", the club's purpose is to provide an avenue for the exchange of ideas and information between wristwatch collectors.

Each chapter will have its own Board of Directors to oversee that area's activities.

Four meetings of the International Collectors of Time Association (ICTA) are planned per year. The first meeting will be in May, 1990 in Hong Kong at the Park Lane Radisson. The second meeting is scheduled for September, 1990 in London at the Churchill Hotel, followed by the third conference in New York in December, 1990. More details will be provided later, but the Hong Kong meeting will give collectors an opportunity to meet other collectors and dealers from around the world.

We want to organize meetings in Italy, Japan, France and Germany. If you would like to help organize one of these meetings, or any of the three already scheduled, please contact one of the clubs.

A magazine comes complimentary with your membership. Published in English, bi-monthly, it will contain reviews on what's happening in the wristwatch market around the world with reports on sales and auctions, and news about new products just being designed. There will also be a question and answer column for collectors and dealers, as well as a column where watches can be sold or bought. If you have any interest in writing an article for the magazine, sharing an old catalogue or have stories about yours or others' wristwatches, the editor would like to hear from you. The association plans a new book next year, and your wristwatch could be included if you so desire.

Membership fees are US\$75.00 per year. (If you require your magazine sent airmail, there is an additional US\$25 charge.)

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I might be interested in attending the Hong Kong, London, New York meeting. 'Please send me more information.

I have an interest in writing/contributing information to the magazine.

I want to help organize one of the meetings, Location: _____

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ONLINE

G E O R G E C A M P B E L L

Calling local or national BBS systems offers an opportunity to expand your horizons, make new friends, and interact, sometimes anonymously, with scores of other users. Going online can release your inhibitions, allowing you to take on a new personality and express yourself more freely. This has some real benefits, but it can also lead to lapses of good taste you may later regret.

Even the way you use the BBS itself can be a source of concern. Do the wrong thing, and you could cause a system crash—an unforgivable sin.

Many sysops find themselves agonizing over what takes place on their systems. They don't want to deny access to users who abuse privileges, but sometimes they have no other option. Recent libel lawsuits have held sysops responsible for their users' actions.

Fortunately, it's easy to avoid the most common online faux pas. Here's a set of basic modem manners that will make you welcome on any BBS.

When leaving messages, public or private, on a BBS, use the same language you would use face-to-face with a friend. Obscenities are strictly bush league; there's always a better way to make your point. Similarly, avoid personal attacks against other users. It's OK to disagree with another user, but don't resort to name-calling or flaming others in your messages.

Watch your private E-mail messages, too. Most BBS software doesn't allow complete privacy. Chances are the sysop can read *all* messages left on the system. Most sysops don't do this, but keep your E-mail within the bounds of decency.

Keep your hormones in check as well. Sexual harassment in E-mail messages is an all-too-common problem in the BBS community. If you've ever wondered why there are so few women online, this is a major reason.

Most systems have an unpopular member or two who use the message areas as forums for interminable diatribes on religious or political issues. Don't be tempted into responding—it only encourages them.

Avoid sloppy spelling, grammar, and punctuation in online messages, too. Take the time to write clear, readable messages. Remember that you're putting your words on hundreds of computer screens.

The sysop is the ruler of the BBS domain. In most cases, the BBS is an expensive and time-consuming hobby. Developing a good relationship with the sysop just makes good sense.

HOW TO BE A GOOD BBS CITIZEN

Every BBS has a set of rules, which are usually spelled out in a bulletin somewhere on the system. In most cases, these rules make sense and are easy to follow. Break them regularly, and you may find yourself without access.

The first time you call most systems, even those that allow nicknames (or "handles"), you'll be asked for your name and phone number. Don't give false information; the sysop will find out and deny you access to the BBS.

Take the time to read bulletins and help screens on the system. Not only will this eliminate confusion, but it will also help you get more from your time online. Before sending a message to the sysop asking for help, try solving problems yourself.

If you do need to ask for help

with a problem, be sure to give all the details. Tell the sysop what communications program you're using and describe the problem completely, including any messages you saw on the screen. Simply saying *I can't download any files* isn't enough.

When using a system's message tools, you have an opportunity to help the sysop. After you've read messages addressed to yourself, especially private ones, delete them.

When it's time to hang up, always use the good-bye command in the BBS's menu. Using your communication program's hang-up command could crash the BBS software.

Take a moment now and then to let the sysop know that you appreciate having access to the BBS.

Exchanging public domain and shareware programs and files is the most popular BBS activity. Here, too, good BBS manners are important.

When downloading files, don't abort the process unnecessarily. If you must stop a transfer in progress, use your software's command to end the transfer and then use the BBS's command (usually Ctrl-X) to signal the canceled transfer. Dropping the connection with your software's hang-up command could cause a fatal crash.

Let the sysop know if there's a problem with a file you've downloaded. It's impossible for most sysops to run every piece of software uploaded. If you like a program, post a review on the BBS as a public message.

Before uploading a file, make sure the program you're going to upload is recent and not already available on the BBS. Upload only those files you've tested and found useful.

Above all, never, never upload a commercial program. In a number of cases, sysops have been prosecuted for software piracy after a user has uploaded a commercial program. If you're not sure of a file, keep it off the phone lines. Also, before uploading any program, use one of the many virus-detection programs, like *Scan*, to make sure you aren't accidentally passing along an infected file. □

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DISK UPDATE

J O Y C E S I D E S

For those of you who own laptop computers, we've changed the disk menu colors on the February 1991 disk so that the text is easier to read on your LCD display. We're sorry for the inconvenience caused by the menu colors on the previous disks.

And the Winner Is . . .

We received a solution for *ARGH!* (October 1990 *COMPUTE*). William Martin from Horseheads, New York, spent 96 hours to come up with the 130 moves to solve the game.

Press the letters in the order shown below. If +, -, ↑, or ↓ appears, move the letter in that direction.

E D C H I G F I H H E D E
D-I G G-H D E D E I C G F
G F H D E I C B B-A I I-C
B G F G F-H H D E D E-C I
I-A G F G F-B I D E D E-H
H I B D D A G F D G F D-B
B-I E E-A G G J C C-A G F
D B I G E G-A C C-J F D B
I I-A F D F D-J C C-D F-H
G E G E A F D F D H E E A

SLEDing News

To enter printer control codes in *SLED* (January 1989 *COMPUTE's PC Magazine*), use the F9 function key. This option allows you to see otherwise undisplayable characters. Most printers accept the code Esc 10 to invoke compressed print. To enter this code in *SLED*, press the F9 key and then press Shift-Alt-27 to display the escape character. Next press Shift-Alt-10. Use the numbers on the numeric keypad.

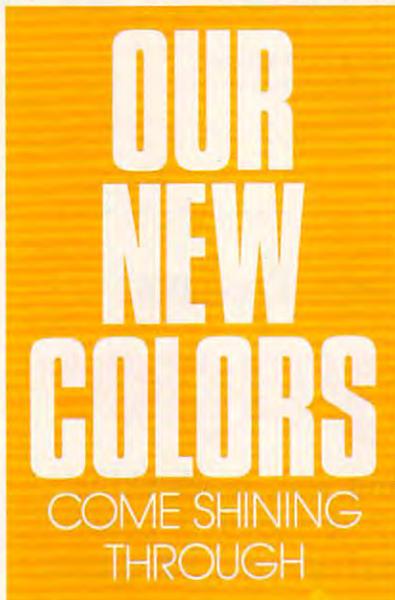
Check your printer manual for the correct printer control codes for your printer. After you've entered the codes and saved your document, you can use the Alt-Y command to bring up the DOS command line. Print your document with the TYPE *filename* > LPT1 command.

CHEXmate

You can't sort the items in the checkbook files in *CHEX* (March 1990 *COMPUTE's PC Magazine*) by cate-

gory. The sort fields for the program are the date and the check number.

You can print the items sorted by category. Enter the category in the CAT field with each item. Press F4 to bring up the Find menu. Enter the CAT string that you want to print and press Enter. Then press P to print the first occurrence of that category and find the next occurrence. Continue to press P until *Search string not found* appears at the bottom of the screen.



You'll get the date, the check number, the amount, the information in the To and Note fields, and the Category for the items. The total and net amounts will also be printed.

RAMifications

Installing *SetRAM* (May 1990 *COMPUTE's PC Magazine*) isn't as hard as you'd think. The first thing you should do is to add the line DEVICE = *drive: \path \RAM.SYS* to your CONFIG.SYS file. This command tells DOS where to find RAM.SYS.

Next enter SETRAM *drive: size* to run the program from the DOS prompt, or add the previous command to your AUTOEXEC.BAT file to run the program automatically

when you boot your computer.

The drive specified should be the next available drive letter. For instance, if you already have drive C, you should specify drive D for the ramdisk. To create a ramdisk with 64K of disk space, enter SETRAM D: 64. To remove the ramdisk, enter SETRAM D: at the DOS prompt.

Dandy Tandys

The shareware version of *TurboPaint* (October 1990 *COMPUTE*) may not run on some Tandy computers. You can register your version of the program and receive *TurboPaint Professional*. It should work on any Tandy.

The four-disk professional version includes a program disk with a screen-grabber program, a slide-show program, a font disk, an art disk, and a clip-art disk. If you register and aren't satisfied with the program, the author has agreed to refund your registration fee.

Please don't call our Greensboro office to register your copy of *TurboPaint*. Either call the author at (919) 342-9299 or send your name, address, and \$20 to Richard C. Leinecker, 309 Irvin Street, Reidsville, North Carolina 27320. Be sure to include information about your system such as video type and available memory. Also include the size disk you prefer, 5/4- or 3/2-inch.

A Day Late, a Disk Short

Many readers received damaged disks when the magazine and disk were shipped together. We've decided to send the disks separately. Since the disks and magazines are shipped from different locations, it's hard to coordinate their ship dates. If your disk doesn't arrive the same day as your magazine, please be patient.

In fact, your disk and magazine may arrive up to two weeks apart. If you don't receive the disk within two weeks of receiving the magazine, call our toll-free subscription number in Harlan, Iowa: (800) 727-6937. If you live in Iowa or outside the U.S., call (515) 247-7500. □

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- KBD**—Control your Caps Lock, Num Lock, and Scroll Lock keys.
- File Hunter**—The last word in *Windows 3.0* text and file search.
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▼ CHOP, CHOP, QUICK, QUICK

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▼ A REMOTE FOR ALL REASONS



Looking for a way to simplify your handling of modern electronic gadgets? Then the One For All Remote Control is for you. Remarkably easy to use, it can replace up to 13 different remotes for your TV, cable, VCR, CD or other infrared appliances. When combined with its command center and X-10 modules (purchased separately) it can control lighting, infrared signal burglar alarms, and a host of small appliances. And, with its computer interface, it can be upgraded to work with the new, more advanced infrared-controlled security and energy management systems. So — simplify your life with the one remote that replaces all the rest. Includes 4 AAA batteries. 90 day limited warranty. 7 1/2" H x 2 3/8" W x 1/2" D. **\$129.98** (\$6.00) #A1907.

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64/128 VIEW

T O M N E T S E L

Before I left for Toronto, I'd heard the World of Commodore held there each year is the biggest Commodore show in the world. So it wasn't too much of a surprise to find out that more than 30,000 people attended the eighth-annual show held late last year. For us at COMPUTE, it was a great opportunity to meet and chat with our Canadian readers, as well as the many American Commodore 64/128 and Amiga owners who crossed the border to attend.

The Hunter Group did an outstanding job organizing the show, signing up exhibitors, arranging for seminars, informing the public, and helping solve the myriad of problems that inevitably crop up at shows this size. Gordon Hunter, Karen Jewel, and the rest of the staff deserve thanks for all the fine work they do to make these shows run so smoothly.

Even the weather cooperated—for the most part. Neither rain nor snow impeded attendees this year as they made their ways to the Toronto International Centre. Some exhibitors had difficulty leaving after the three-day show closed, but more about that later.

Of course, not everything came off without a hitch. I arrived a day early to set up the COMPUTE booth. We had shipped computer books, disks, ball caps, and other items to sell, plus credit card forms, signs, pens, pencils, paper, tape, and other incidental items. They all arrived in good order and on time. There was only one thing missing. Well, actually it was more like 1500 things: our magazines.

We had shipped more than 1000 copies of the Gazette subscrip-

tion edition and 500 copies of the Amiga Resource edition, but they were nowhere to be found. There's nothing like being an exhibitor at a trade show with nothing to exhibit.

After making several telephone calls to Greensboro, New York, and points beyond, we finally located the missing magazines. Despite relaxed trade restrictions between Canada and the United States, we found the magazines had been delayed in customs. The Gazette subscription editions did arrive shortly after the show opened on Friday morning, and we finally had something to offer.

The Amiga Resource editions weren't quite so forthcoming. They were delayed longer but cleared just as the customs office closed for the weekend. We could pick them up first thing Monday morning. Since the show closed Sunday, that didn't do us much good.

As far as I know, the magazines

are still there. If you stop by a customs warehouse in Toronto, you might be able to pick up a copy of the November 1990 issue at a reasonable price. Better yet, tell the officials you're a friend of a COMPUTE editor, and he said you could have one free.

Things went a little smoother for most exhibitors, although new products for the 64 were in short supply. One exception was an exciting GEOS product on display at the Creative Micro Design (CMD) booth.

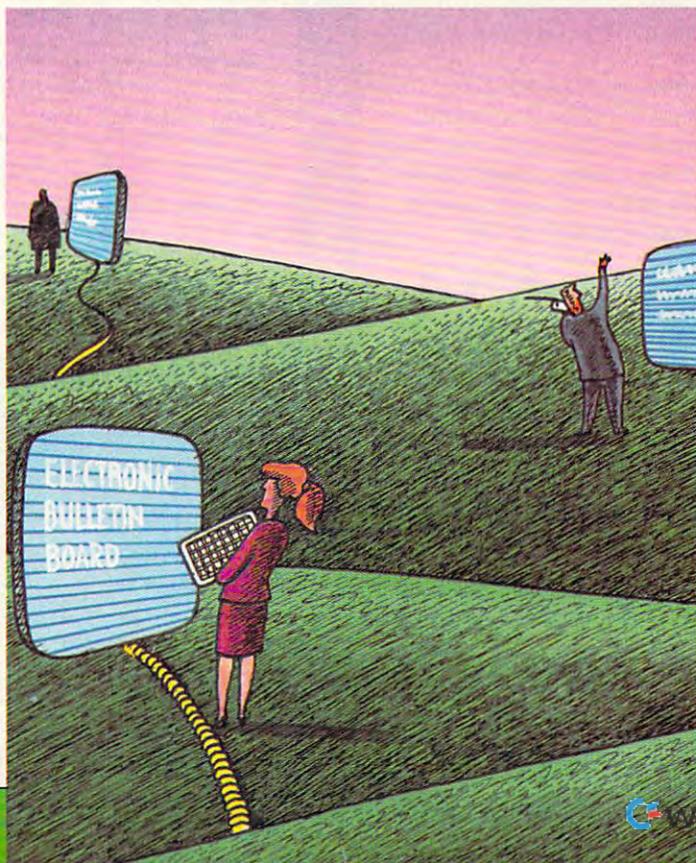
CMD is distributing a program called *gateWay*. It's an improved replacement for the GEOS deskTop. Author Paul Bosacki was on hand to show off some of its features.

For one thing, *gateWay* offers full three-drive support with autoswapping for those applications that recognize only two drives. Now you can launch your favorite applications from drive C and copy to and from drive C without swapping drives.

Other big news at the show was Commodore's first showing to the public of its CDTV interactive compact disc system. CDTV combines audio, video, graphics, and computer interactivity into a single CD-based system that resembles a VCR or CD player.

CDTV had been shown to the press and trade at earlier shows, but this was the first time it was shown to the public. CDTV titles include games, reference material, sports and leisure topics, and self-improvement programs—and more are on the way. The system should be available by now, selling for less than \$1,000.

While there weren't many new 64 products, we still liked the show. ☐





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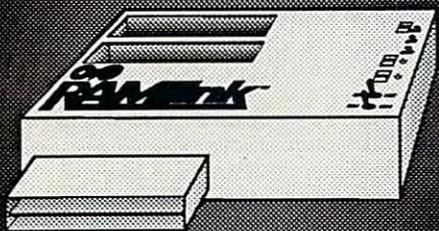
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RAMLink is a multi-purpose hardware interface designed to overcome the limitations of existing RAM expansion units (REUs). RAMLink delivers the performance and compatibility lacking in past REU's by incorporating CMD's proprietary RL-DOS and advanced features into a compact unit which allows most software to utilize Commodore 1700 series REU's, GEORAM, PPI's RAMDrive, and CMD's RAMCard as if it were a disk drive. Optional RAMCard installs internally and can be used alone or in combination with the storage of an external REU for a maximum capacity of 16 Megabytes.

- Supports Commodore 1700, 1764, 1750, Berkeley Softworks GEORAM and PPI's RAMDrive.
- Optional RAMCard allows RAMLink to be used as a RAM Disk with or without a separate REU. User Expandable from 1 Mb to 16 Mb using standard SIMMs.
- Pass-thru connector allows use of cartridge port peripherals such as utility cartridges.
- Reset, Disable, Direct Access mode and SWAP functions are all standard features.
- RAM port provides power back-up to REU's.
- Parallel port provides ultra-fast data transfer when connected to CMD HD series hard drives.
- Includes separate power supply - optional battery available to protect against power failure.

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BOTH RAMLINK AND RAMDRIVE INCLUDE RL-DOS

- Allows vast amounts of commercial software, including GEOS, to access all available RAM as a high-performance RAM Disk.
- RL-DOS performs up to 20 times faster than Commodore RAMDOS, up to 400 times faster than a stock 1541 and provides full DOS command compatibility.
- Up to 32 1541/1571/1581 emulation or Native mode partitions, plus true subdirectories.
- Includes built-in JiffyDOS Kernel for high-speed access to JiffyDOS equipped disk drives.
- Software for copying files (FCOPY) and complete disks (MCPY) included.
- Many other features, including CMD's exclusive device number SWAP functions.

WHICH ONE IS RIGHT FOR YOU?

Both RAMLink and RAMDrive give Commodore users powerful features never before available in a RAM expander. RAMDrive is intended mainly for those who do not require the high RAM capacity of RAMLink (up to 16 Mb), RAMLink's Pass-Thru port or the parallel port for communicating with the CMD HD Series of hard drives. RAMDrive is an excellent choice for those who desire portability since the internal battery pack can keep the contents of RAMDrive intact for several days. RAMLink is the perfect choice for geoRAM owners who want the ability to use that device with programs other than GEOS. RAMLink has a built-in RAM port for easy use with a geoRAM or Commodore REU. No matter which CMD RAM device you select, you'll benefit from fantastic capabilities of having a high speed RAMDisk equipped with RL-DOS and the outstanding value of CMD support.

What is RAMDrive?

RAMDrive is a fresh new approach to RAM expansion for the Commodore 64 and 128. RAMDrive is a self contained battery backed cartridge with capacities of 512K, 1 Mb and 2 Mb. RAMDrive incorporates RL-DOS, an ultra-fast, easy-to-use operating system similar to the HD-DOS found in CMD HD series hard drives. This proprietary DOS allows various types of partitioning along with compatibility and speed unsurpassed by previous RAM Expansion systems.

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- RL-DOS operates up to 20 times faster than Commodore's RAMDOS.
- Power back-up eliminates the loss of files upon powering down the computer while the battery protects data during transportation or power outages.
- Available in 512K, 1 Mb and 2 Mb models at incredibly low prices.
- DOS includes JiffyDOS Kernel routines for high speed disk access with JiffyDOS equipped disk drives.
- Software for copying and GEOS compatibility included.
- Reset switch allows computer reset without losing data in RAMDrive.
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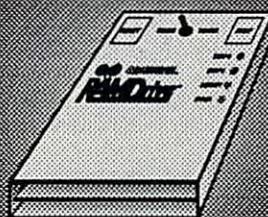
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NEWS & NOTES

Only Two Things Are Certain

It's almost the time of year again when Uncle Sam asks for his piece of your financial pie. Paying your taxes is never easy, but the people at Taxaid Software (800 Middle Road, La Pointe, Wisconsin 54850; 715-747-5862) can make filling out the tax forms a little easier. *Taxaid* (\$49.95), designed for home use, was written by experienced tax accountants and thoroughly tested.

The latest edition of *Taxaid* includes all the current changes in the tax laws for the 1990 tax year. Included are IRS Form 1040; Schedules A, B, C, D, E, and SE; and Form 2441 (Child Care). Calculations are automatic, and all tax tables are built in.

Forms are printed in IRS-approved plain-paper format and can be submitted exactly as they come off your printer. Updates for 1991 will be available for \$18.

Rescue the Princess

You're on a quest to rid your kingdom of an evil demon and his minions. Your quest will lead you through caves, swamps, temples, and castles as you attempt to rescue the lovely princess.

Wrath of the Demon (\$39.95) from ReadySoft (30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9; 416-731-4175) features three megabytes of graphics data, 600 screens of action, and more than 1400 frames of animation.

80-Column Dialogue

If you have a 128 or 128D with an 80-column display, *Dialogue 128* (\$49.95) is advanced terminal communications software that's available from Shining Star Software (#1205-1640 Bayview Avenue, Toronto, Ontario, Canada M4G 4E9).

This terminal program supports 64K video RAM, REUs, all disk drives, burst mode, partitions, joysticks, trackballs, mouse and all serial bus interfaced printers. It also supports CompuServe Quick B, Punter C1, Xmodem checksum, Xmodem CRC, Xmodem 1K, and YModem Batch protocols.

Dialogue 128 also has a 64,000-character capture buffer and a 9,000-character scrollbar review buffer. An autoexecute script language allows unattended and automated operation. All commands are available through hot keys or drop-down menus. The program also supports most popular modems.



Hatteras

Hatteras by Robert Woodall of Rural Hall, North Carolina, is this disk's Picture of the Month.

Welcome to "Gazette Gallery." Each month *Gazette Disk* features a collection of the best 64/128 artwork submitted by our readers. We pay \$50 for each piece of art we accept and an extra \$50 for the one selected as Picture of the Month. Send your original artwork to Gazette Gallery, COMPUTE Publications, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. □

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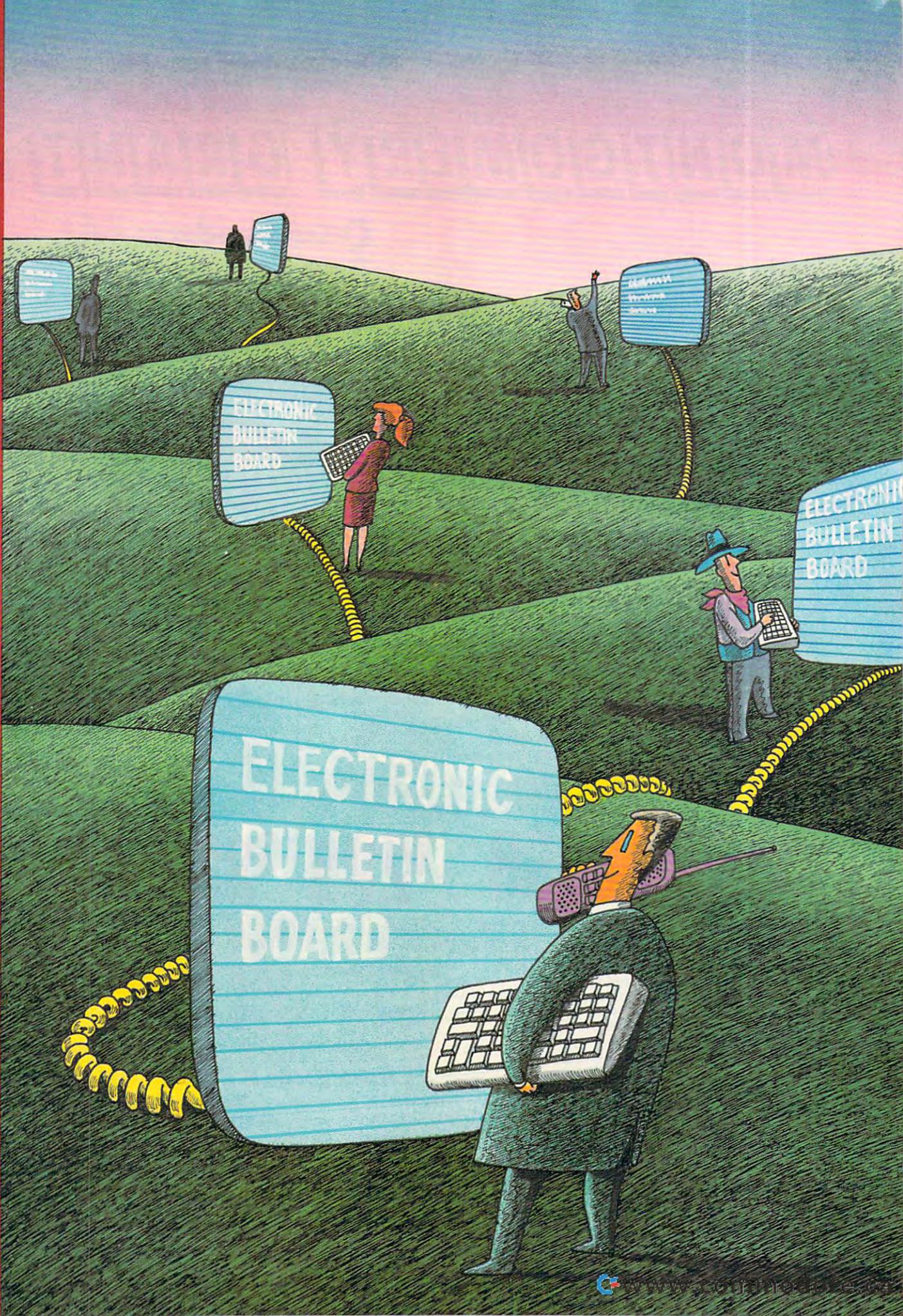
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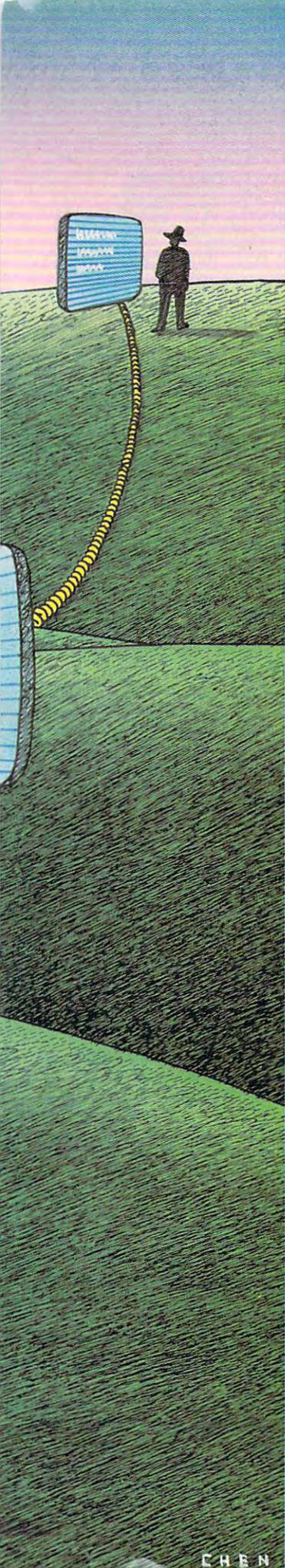
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SO YOU WANT TO BE A SYSOP?

IF YOU'VE EVER
THOUGHT ABOUT SETTING
UP YOUR OWN ELECTRONIC
BULLETIN BOARD, HERE'S
SOME ADVICE
FROM AN EXPERT

Many computer users who call electronic bulletin boards often wonder what it would take to operate their own systems. It takes time, effort, and sometimes money to become a systems operator (sysop), but the rewards can be many. We'll take a look at what it takes to run your own bulletin board system (BBS). ▸

DAVID CHEN

R I C K L E M B R É E

With your computer and a modem, a device that transmits and receives computer signals by telephone, you can call practically any BBS in the country or world for the price of the phone call (see "How to Access a BBS"). Most BBS callers enjoy reading messages from other callers and posting their own comments and questions. They also like to download the free software and play the online games many boards offer. It's easy to understand a BBS's appeal, but what enjoyment does the sysop derive from having his or her computer and telephone tied up for the benefit of others?

With your own BBS, you can literally speak to the computing world via your own little soapbox. You can use it to exchange programs and files, to voice your opinion, or to create your own fantasy world. I've seen some BBSs that are operated like an adventure game, where the users are citizens of a fantasy kingdom. A BBS is merely a form of communication between you, the sysop, and the users. Bear in mind the importance of interaction between users. Without that, you will not have a successful BBS. The spirit of a BBS is in the sharing of knowledge among fellow computer enthusiasts. As in a conversation, both parties must contribute for a bulletin board to be successful.

The First Steps

In this article, I'll attempt to instruct the neophyte sysop on the ins and outs of starting his or her own BBS, describing the minimum requirements for a system run on a 64 and those for a larger 128 system. Before you attempt to start a BBS, however, I can't emphasize enough the importance of joining a user group. A user group is a great place to obtain help with a project like this, and it will most likely have several public domain (PD) or shareware BBS programs available for you to try at little or no cost.

If your user group runs a BBS, you may want to get involved with it to get your feet wet before attempting to start your own. In addition, once you've set up a BBS, you'll want a ready supply of PD software to make available to your callers. A user group is a great place to obtain good PD software.

Before you set up your BBS, ask yourself what you want it to do. Do you want it to be your own private BBS that only your friends can access, or will it be open to the public with restricted or unrestricted use? My suggestion is to do as I did in 1984: Start small and allow only friends online at first. Don't release the telephone num-



Here are sample menus from three bulletin boards available for the 64 (clockwise from upper left): Dragonfire BBS, ARB BBS, and DMBBS.

ber to the public. This way, you can see if you are sysop material. It's also a good way to test how your system will perform on your voice phone before you make a decision to go public and possibly spend money on a separate telephone line. I'll discuss that in further detail later.

Do You Know What Time It Is?

A few words of caution if you do decide to run a board on your only home phone. Do so only during the times you aren't expecting voice calls. Make it a part-time BBS, and don't give your number to the public. Once you've released your number, if you decide that you don't want to be a sysop or if you change to a full-time system on another telephone line, you're liable to be plagued with calls on your voice telephone line at three in the morning. You'll answer the phone only to hear a computer on the other end. I made that mistake in 1984, and I still get calls.

If you do decide to go public, get another phone line and use that one for your BBS. The initial installation may be expensive, but it's worth not having the aggravation of answering your voice line only to have your ear blasted with the high-pitched sound of a caller's modem. The monthly phone bill will be minimal if you have basic

service only. If you can persuade your callers to voluntarily contribute a few dollars, the system could possibly pay for itself.

Some sysops ask for donations to help with the monthly expenses, but don't dive into a BBS with the notion that you will make money. You won't. It's as simple as that. Operating a BBS is a hobby, and trying to make a buck off your users is unrealistic and unfair to them. No one is going to throw money at you for a BBS. People will pay for online services such as QuantumLink, but not for a BBS.

Bare Bones

The second thing to consider is what you'll need in the way of hardware. You can start out with a small but adequate system, consisting of a 64, one disk drive, a monitor, a 300-bps modem, and an optional printer. While you probably already have this much equipment, it would limit the size of the message bases and files available for uploading and downloading. It would, however, give you the experience you need without draining your wallet. Most 64 owners considering a BBS have what is required with the exception of the appropriate software.

Let's discuss bare bones for a second. With a basic system, even with an extra disk drive, you'll be limited

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continued from page G-8

to a small message base and be forced to swap numerous disks to give your users a decent selection of software to download. On my first system, I simply changed disks every day, and my users had to take what was available on a given day.

Uploads are a different story. You want users to upload programs that you can share with other callers, but too many uploads can pose a problem. Users can easily crash a small system like this if they fill your disk space with multiple uploads before you have a chance to change disks. You must constantly watch and tend a small system, or you'll be inviting trouble.

The ideal system would be a 64 or 128 with a 2400-bps modem. Some 8-bit systems use modems with higher baud rates, but there are two reasons to stick to a maximum of 2400 baud. First, few if any software packages for the 64 or 128 support higher baud rates, and these computers have difficulty communicating at speeds above 2400 bps. Second, if your callers are mainly other Commodore users, it's unlikely that they'll be using higher baud rates. So a 4800- or 9600-baud modem is not cost efficient.

Other items in the ideal system

include a high-speed dot-matrix printer and a 20-megabyte or larger hard disk drive. A complete system can be had for under \$1,000 if you can find a good used one. Even new, \$1,500 is a reasonable startup price.

Bigger Is Better

Let's take a quick look at a large system. A large system with a 20MB hard drive is easy to maintain, needs little attention, and can store a vast amount of software for your users as well as yourself. Multiple message bases are possible, online games are a snap, and the sheer speed of a hard drive compared to the sluggish 1541 makes using the system a pleasure.

My last system before changing to my Amiga 2000 was a 128 with a 20MB hard drive. The drive, Xetec's Lt. Kernal, communicated with the computer via a parallel bus instead of a serial bus. My users were amazed at the change in speed between the hard drive and the 1541. If you're serious about a BBS and can afford it, I suggest you get a hard drive. The new hard drives from Creative Micro Design are a bit slower, but the advantage is total CBM-DOS compatibility.

This Board's for You

As for software, call other bulletin

boards to see what they are running. If you find a particular BBS you like, ask the sysop what he or she is using. Most sysops are happy to direct you to a good source of software, whether it's PD, shareware, or commercial.

Before you buy commercial BBS software, send away for literature describing the capabilities of the program. There is nothing worse than plunking down money for a software package you end up not using. So research what you want carefully. Try to find one that is reliable—that is, one that's not prone to frequent crashes. (See "BBS Software" for my recommendations.)

Now that you have the hardware and software to get your BBS up and running, you have to make it work. I can't go into specifics of every possible configuration, but I will touch on a few points I've learned along the way. Start out by considering your BBS's primary purpose. Will it be a system where only messages are exchanged, a file-exchange system, or both? Do you want to have online games; if so, does your software support them?

You'll definitely benefit by sitting down with paper and pencil to map the layout of your BBS, its menu structure according to the documentation

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