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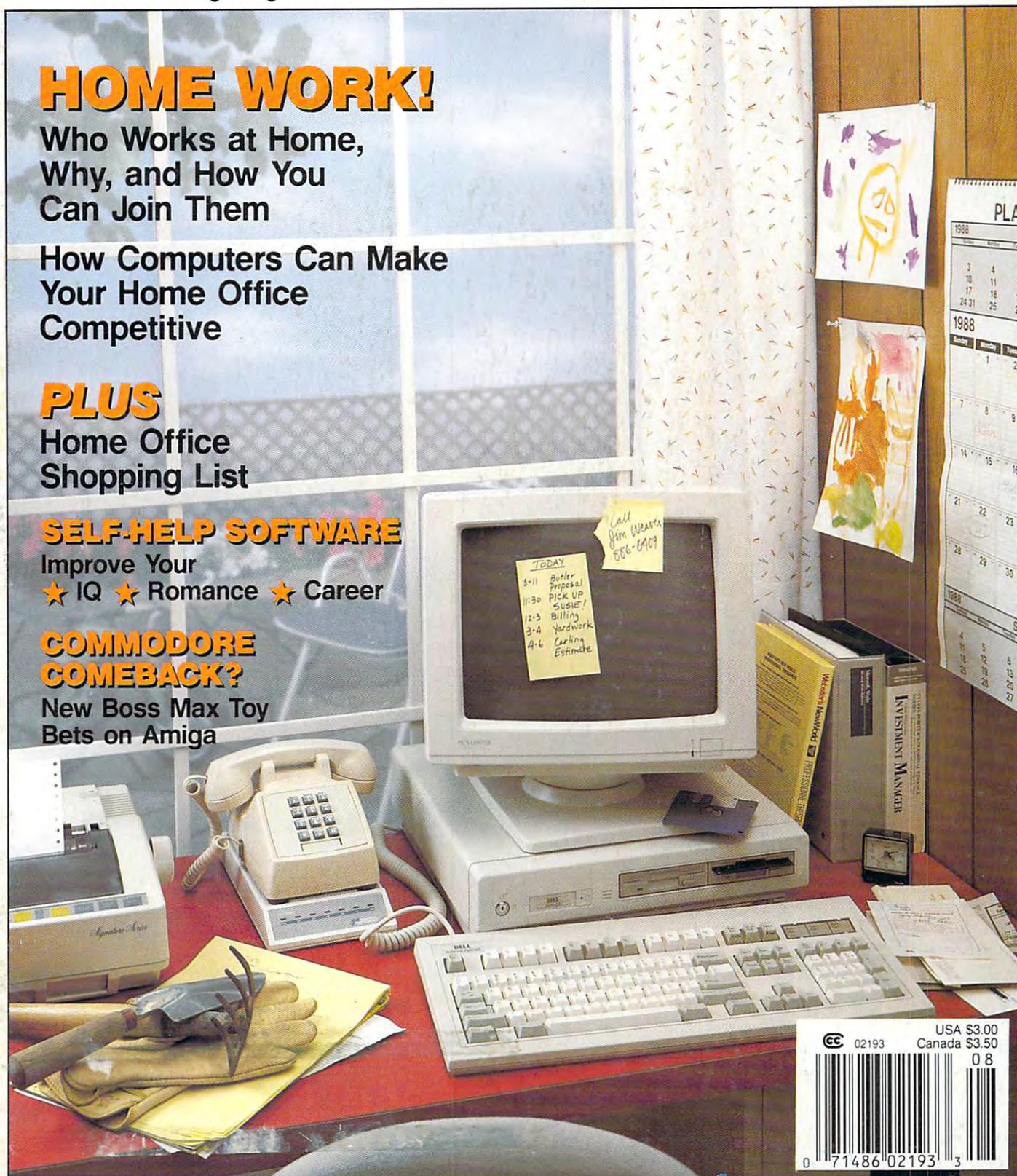
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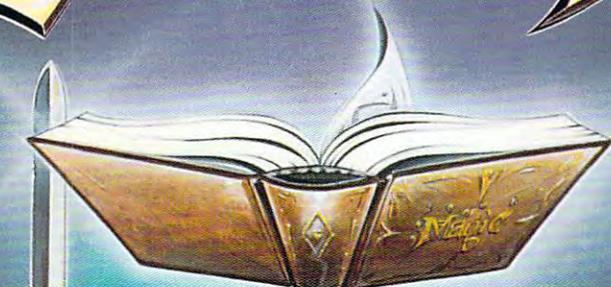
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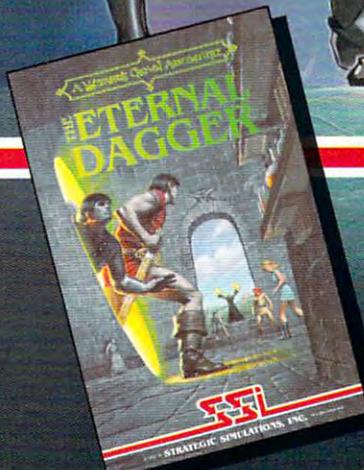
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COMPUTER

AUGUST
1988

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NUMBER 8
ISSUE 99

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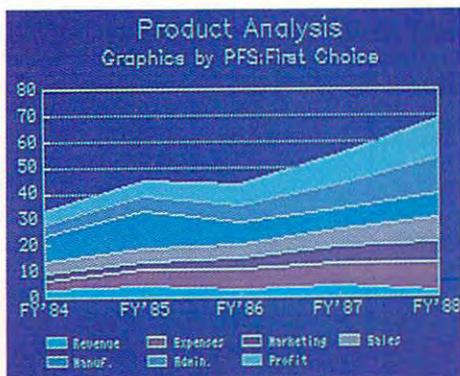
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GREGG KEIZER



Safe Computing—Protecting Your Computer in the Viral Age

Computers are as susceptible to disease as are we. That's recently been made clear, as the computer virus threat has gone from inconsequential to data-threatening.

An electronic virus hides inside a program, waiting to replicate and attach itself to other programs. Its effect varies, and is completely dependent on the insanity of the virus's creator. Perhaps, as in the first reported Macintosh incident, the virus puts a benign message on the screen. Or, more insidiously, the virus reaches into your floppy or hard disk and scrambles files, destroys data. Although there have been similar problems in the past, all under the broad definition of *Trojan Horses*, a virus is different in that it reproduces. And spreads.

No machine is safe. There have been viruses reported in Macintoshes, IBM PCs, and Commodore Amigas. The federal government reportedly has suffered infections. There are tales of infected commercial software. Electronic bulletin boards and commercial information systems, potentially the most fertile ground for viral transmission, have had to take extraordinary steps to ensure that their offerings are healthy.

Fighting a computer virus isn't easy. You can kill it with a vaccine that searches out and destroys the code buried deep within your system software. Trouble is, there are few general-purpose computer vaccines. Each virus can best be fought by a specific vaccine program.

Virus, vaccine, infection, prevention, inoculation—if all this sounds familiar, well, it should. It's hard to imagine a more powerful set of words and images than one that has been bombarding us for years. AIDS words, the modern Black Death words, carry a lot of baggage with them. Introducing them into computer jargon could have only one effect: instant attention.

The similarities are strangely compelling. Infection by a new virus that, once inside the system (whether the body or the machine), changes the natural programming (whether inside a cell or inside code). Unknowingly transmitted, the symptoms of its attack are often disguised in the form of other illnesses (whether pneumonia or random system crashes).

One form of prevention has even crossed the boundary between man and machine. Safe sex, as the Surgeon General keeps stressing, is the best way to avoid AIDS infection. Now there is *safe computing*, a term recently used by Cynthia Macon,

an Apple spokeswoman, in a letter to a Macintosh weekly concerning her company's anti-virus efforts. Safe computing means backing up disks and hard drives so that if infection occurs, virus-free forms of programs and data will be available. Write-protecting original disks is another aspect of safe computing; viruses cannot penetrate physical barriers such as write-protection. Essential to safe computing's success, however, is knowing the source of software. Noncommercial software from strangers is most suspect, while files from friends are less dangerous, at least in theory. Knowing where software comes from, or has been, is going to be increasingly important in these computer viral times.

Of course, the analogy between AIDS and computer virus infection only works on the surface. AIDS is a deadly disease that kills people. Computer viruses, for all their harm, only endanger machines and their data. One is terribly important, the other trivial by comparison.

The bottom line? An awareness, first of all, in the community of computer users. Few compute in total isolation. If you're like most computer users, you share files and information, perhaps even programs, with others. That doesn't have to change as long as you keep these things in mind.

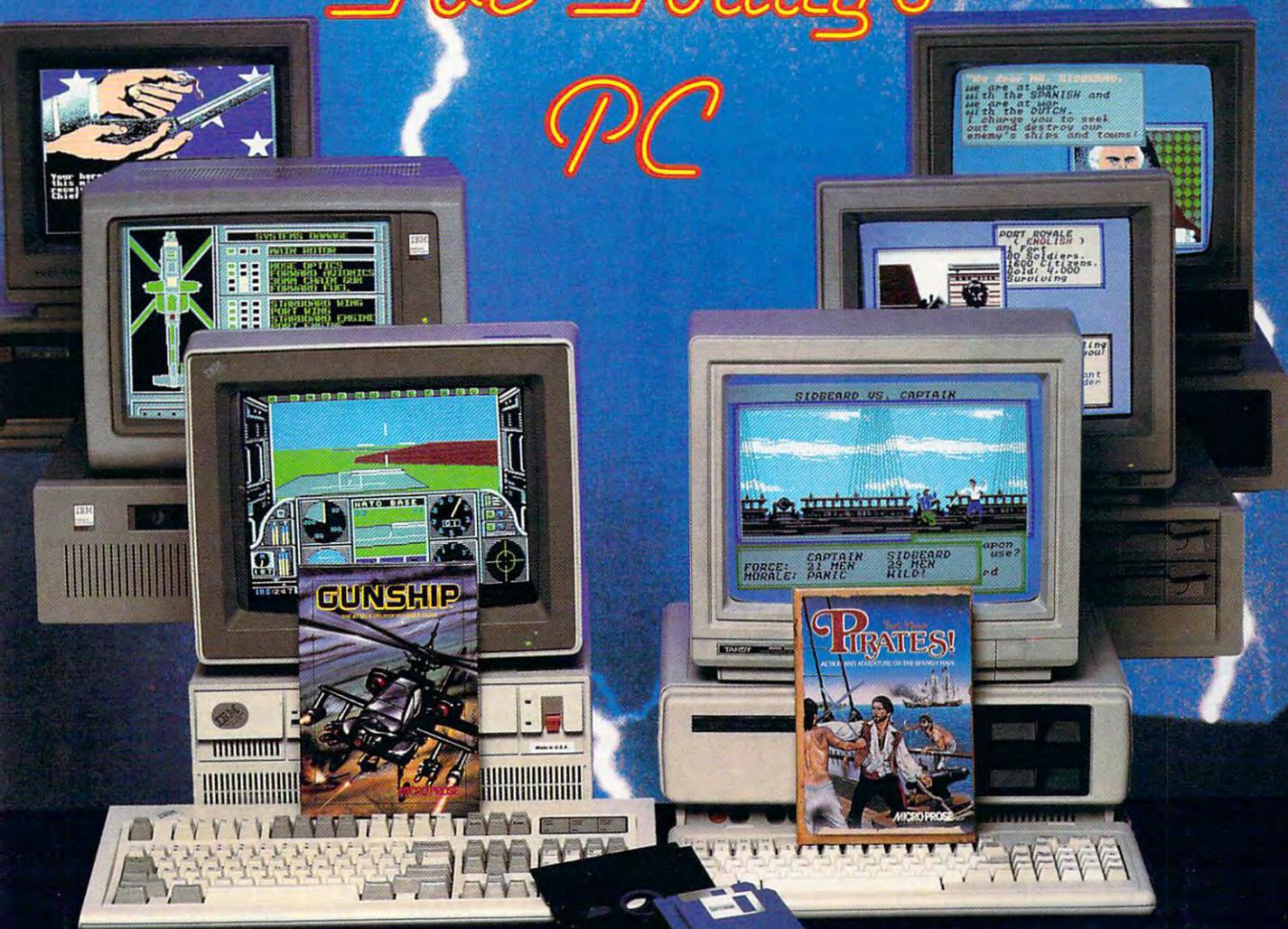
Understand that virus creators are, in fact, criminals. Building a virus doesn't illustrate a programmer's ingenuity—only his or her viciousness.

Understand how viruses are transmitted, and then avoid potentially dangerous software. This doesn't mean never again download a public domain program; it does mean, however, be careful about using such software indiscriminately. Run an unknown program on a disk you can lose. Don't install unknown programs on your hard disk until they've gone through a shaking-out period on a floppy.

Finally, understand that computer viruses are just that—viruses in a computer. If a program is lost because of a virus, it's not the end of the world (or the end of anyone's life). Keep some perspective.

You'll be hearing about computer viruses for some time. They won't go away immediately. But the next time you read about one, or run across one yourself, remember that they're not the end of computing as we know it. Take some common-sense precautions, that's all, and you'll be safe. A safe computer user. □

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news & notes

COMDEX Is Big on Show, Short on Surprises

COMDEX, the nation's largest computer-only trade show, staged its annual spring version May 9-12 and offered few surprises for a computer-hungry country.

Over 60,000 people attended the show to view its more than 800 displays. Ranging from the mammoth to the minuscule, the displays hawked everything from plotters and ribbons to state-of-the-art software and top-of-the-line hardware. Competition for the attendees' attention was fierce, witnessed by the carnival-

Dell clones were there for the viewing, but they only put nice pictures on the screens—you couldn't actually work with them.

Hewlett-Packard was demonstrating its ultraquiet DeskJet, an inkjet printer whose output rivals that of a laser printer. Small crowds around the screen showing *New Wave*, HP's window-style operating system, illustrated the publicity power of Apple's copy infringement

preparation programs) which put electronic versions of 65 common paper forms on the screen was one particularly good example of OS/2 at work.

Although COMDEX has become primarily a business computer show (and thus an MS-DOS dominated show), there was consumer computer software and hardware on parade. Commodore led with its strength, the Amiga. Several small stations filled with Amiga 500 or 2000 computers strutted the graphics-intensive machine's stuff. Some of the goings-on ranged from digitizing microscopic creatures to running *TOPS*, a local area network package, on a Bridge board-equipped Amiga 2000 running MS-DOS. Games, music software, and traditional applications such as databases and word processors rounded out the Amiga's tricks. The Commodore 64 and 128, both steady money-makers for the company, were nowhere to be seen.

Commodore has seen the future and believes it's the Amiga.

Atari, another consumer computer manufacturer, had as many small displays, but fewer crowds. Several software publishers were under the Atari umbrella showing the newest version of *GFA BASIC*, an impressive desktop publishing package out of West Germany, and Microsoft *Write*, a midlevel word processing program. Mega ST computers and Atari's laser printer were there in force, though Atari's big moneymaker, its game system, was not.

Apple didn't come to COMDEX, so Macintosh and Apple II products were hard to

find. With AppleFest hard on COMDEX's heels (May 20-22), new releases for Apple II owners were undoubtedly saved for Boston's AppleFest.

One of the most unusual new computers at COMDEX was Cordata's WPC Bridge, a \$1,695 machine that combines a 512K IBM PC compatible with a 128K Apple II compatible. The computers share a monochrome monitor and two 5¼-inch disk drives. According to the machine's product manager, the computer will find a home in schools which want to run both Apple and IBM software.

— Gregg Keizer

Contests Recognize Computer Learning Innovations

You don't have to be a programmer to need a computer. Accountants use spreadsheets, writers use word processors, librarians use databases, and many children learn their ABC's from singing home computers.

Computer Learning Month, a Software Publishers Association project taking place in October, will feature contests, educational programs, and other events—all directed at exposing the public to computers.

"We want to increase the number of people receiving the benefits of technology," said Computer Learning Month director Sally Bowman.

Computer Learning Month offers prizes for trying new programs. For example, the School Certification Pro-

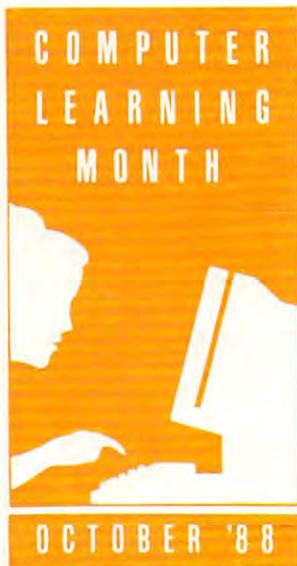


suit against both Microsoft and HP.

On the main software front, giant Microsoft teamed with goliath IBM in a rambling display in one of the three halls (IBM had a company-only booth in another hall). OS/2 applications were what people wanted to show—and to see. By IBM's own count, more than 130 OS/2 applications were demonstrated. Packages with such famous names as Microsoft *Word*, *dBase IV*, *PageMaker*, and *WordPerfect* were up and running. A forms-generation package from Soft-View (makers of the notable *TaxView* and *MacInTax* tax-

like atmosphere around some of the booths. WordPerfect threw miniature political-style rallies as other companies put on small (or not so small) stage shows to get people out of the aisles and into a comfortable chair.

There was a dearth of new hardware, or at least of significant new hardware. Highlights had to be the NEC CD-ROM drive and the Dell and Tandy PS/2 clones. The CD-ROM drive was up, running, and touchable, which was more than you could say for the two PS/2 clones. The Tandy and



gram and Sweepstakes requires every teacher in a school to try three new software packages of any kind. If a school qualifies for certification, Computer

Learning Month will send them a special, official document acknowledging the school's certification and a press release for the local newspaper. All certified schools will be entered in a drawing for a computer system.

Another contest rewards computer-competent people who share their knowledge with computer-novices. "There are people who know less than you, people who know as much as you, and people who know more than you," Bowman said. "You should all work together to make sure that you all have equal knowledge."

Other contests include awards for Computer Learning Month events, college or university faculty papers, and computer tools for children with special needs.

"I'd like to see a tremen-

dous influx of contest entries with innovative ideas and uses of computers," Bowman said. "The whole goal of the contests is to encourage, recognize, and identify innovative uses of technology that are going on around the country. Eventually the goal is to find a way to get that back to the public so they can use it."

Last year's contests provided this year's resources. For example, the best 1987 submissions from teachers were included in this year's collection of computer-oriented lesson plans.

So far, Computer Learning Month has sponsors from businesses, software publishers, hardware companies, publications, and nonprofit organizations. By May, 20 states had endorsed the event.

"I would like to see loads of entries in our Computer

Learning Month event competition and group-sharing competition because that tells me that people were out there helping other people learn about computers," Bowman said.

COMPUTE! Publications is sponsoring a contest to identify creative and innovative educational uses of home computers. To enter, send a description of the way a computer is used at home to enhance or extend the educational process. One-year subscriptions to *COMPUTE!* magazine will be awarded to the top three entries in elementary school, junior/senior high school, and adult education categories. Mail entries to Education Contest, COMPUTE! Publications, 324 West Wendover Avenue, Greensboro, NC 27408.

For more information about contests and other

PART 3

"WESTERN EUROPEAN TOUR"

Scenery Disk is so beautiful to fly, you'll want to make it the centerpiece of your Scenery Disk collection! This is part three of a five-part guided tour from London to Red Square.

This month we say goodbye to Paris, France. Look closely and you can see the Arc de Triomphe to the right of the Eiffel Tower.

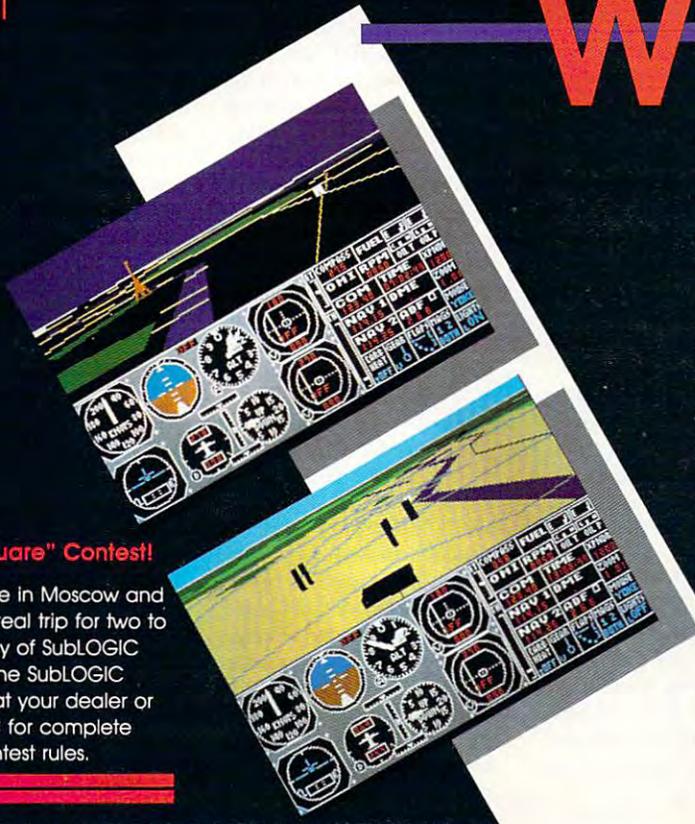
On to Germany! We land first at Frankfurt, one of the most modern German cities. Other areas we'll be visiting include Munich, Nurnberg and Stuttgart.

Next month we'll finish our tour of Germany, and prepare to go on to Moscow!

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events, contact Computer Learning Month, Dept. CPE 8, P.O. Box 60007, Palo Alto, California 94306-6007.

— Heidi E. H. Aycock

lion, it has bounced back to post a net income of \$3.6 million for fiscal '88 (which ended

5000, which is aimed at the

pany's chairman and CEO.

The PS/2 System, IBM's new line of personal computers, uses

MEDIA GENIC

Quick, What's a Mediagenic?

Activision, one of the nation's largest consumer software publishers, is Activision no longer. After some name-change surgery, the company has emerged as Mediagenic.

The new name signifies ex-Activision's expanding product lines and its intent to move beyond the strict definitions of electronic entertainment which the company has demonstrated in its video-games and computer entertainment software. *Mediagenic*, according to a company press release, means "suitable for creation, reproduction, or transformation in various types of media."

Activision president and CEO Bruce Davis has been talking about the convergence of traditional media forms—video, computers, and print—for some time now; Mediagenic hopes to capitalize on the trend with products in such areas as CD-ROM, CD-I, *HyperCard*, video, and innovative personal computer software.

The Activision name hasn't been discarded, however, for it's being retained as the premiere label for the company's action and simulation software and for its videogames. The company's many affiliated labels will continue operating under their present names.

Activision's, ah... Mediagenic's comeback is well documented. After a dismal fiscal year 1987 (the last three calendar quarters of 1986 and the first quarter of 1987), in which the company lost \$14.6 mil-

March 31, 1988).

Software such as *City-to-City* and *Reports*, both *HyperCard* packages, and a strong Apple IIGS line have contributed to the company's coffers.

In a concurrent announcement, Mediagenic said that it had agreed in principle to purchase ZSoft Corporation, publishers of the classic *PC Paintbrush*, and had signed Working Software, maker of Macintosh utility software (*Findswell* and *Spellswell*) as its newest affiliated publisher.

— Gregg Keizer

PS/2 Clones Coming from Tandy, Dell

Tandy and Dell, two Texas-based computer makers, will be the first to bring PS/2 clones to the marketplace. Tandy announced its PS/2 Model 80 clone, the 5000 MC, last April with a full-page ad in the *Wall Street Journal*. Dell, with a lower profile, is offering two PS/2-compatible machines which should be available by August.

Tandy's 5000 MC is the most powerful—and most expensive—computer the company has ever designed. In addition to its Micro Channel Architecture, the 5000 MC boasts a 20 MHz 80386 microprocessor; built-in CGA, EGA, MCGA, and VGA graphics; 2 megabytes of RAM (expandable to 16 megabytes); five IBM-compatible Micro Channel expansion slots, plus two proprietary memory expansion slots; and one 1.44-megabyte 3½-inch disk drive with room on the front panel for three additional devices. The

Fortune 500 market, has a base price of \$4,999 for a system without a hard drive. Systems with 40-megabyte and 84-megabyte hard drives sell for \$6,499 and \$6,999, respectively.

John V. Roach, Tandy's president, chairman of the board, and chief executive officer, says that the new machine is more than just a clone: "Not only is the Tandy 5000 MC the most powerful personal computer we've ever offered, it is also a very unique product which contains a combination of features never before offered by a major microcomputer manufacturer all in an unusually compact desktop computer."

Dell's soon-to-be-released PS/2 clones include the System 400, an 80286-based micro aimed at IBM's PS/2 Model 60 market, and the System 500, which uses an 80386 and is Dell's version of IBM's Model 80.

In addition to its 20 MHz 80286 microprocessor, the System 400 comes with 1 megabyte of memory, expandable to 16 megabytes; one 1.44-megabyte 3½-inch disk drive; VGA graphics; parallel and serial ports; and a PS/2-compatible mouse adapter. The high-powered System 500 has roughly the same specifications as Tandy's 5000 MC.

Although the Micro Channel PS/2-compatible market is small now, there is interest in the machines, and Dell believes it will grow. "Although we don't expect a tremendous demand for MCA-compatible computers right now, many of our corporate customers have expressed an interest in the new technology and have indicated that they are presently examining its advantages," says Michael S. Dell, the com-

a new patented bus design called the Micro Channel Architecture, or MCA, which at one time was thought to be uncloneable. The legal issues surrounding MCA cloning are still cloudy. "IBM has assured us that a license will be available which grants us license rights under their patents for use in our products," says Dell.

In addition to legal problems, PS/2 clone makers may face a price war with IBM. And unlike the last round—where clone makers beat IBM's PC, XT, and AT—IBM will likely win this battle.

With IBM's first line of personal computers, most of the machines' components were made by third-party manufacturers. Competitors could buy parts from the same manufacturers as IBM, operate with lower overhead, and sell machines for less. With the PS/2, however, IBM makes about 70 percent of the machine itself and, according to reports, production is very cost effective. IBM is on record as planning to slash prices dramatically on its PS/2 line beginning at the end of this year. And since IBM can directly control its costs, it has an edge.

— Clifton Karnes

Apple IIs Talk the AppleTalk Talk

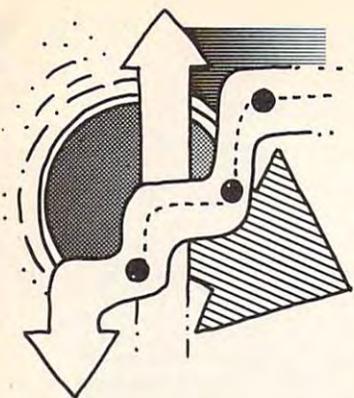
It's been a long time coming, but *AppleTalk*, the network that ties together Macintosh computers and LaserWriter laser printers, has finally come to the Apple II world.

Enhanced Apple IIe computers and IIGS machines can now be connected to hard disk-based file servers for diskless operation and sharing of files. What's needed for each IIe is

continued on page 85

gameplay

ORSON SCOTT CARD



5x cb e0 p9
h9 t0 i5 ar
h9 ti ei pg
x9 c0 i0 av
hu tk ia pa
And Other
Raw, Rude
Nonsense

I'll bet you never thought that etiquette applies to computer games—but it does. So where is Miss Manners when we really need her?

Nobody has more power over game players than the computer game designer. Think of the standard arcade game. The designer decides not only how fast the bad guys come at you, how accurately they aim, and how much damage their shots do, but also how fast *your* character moves, or how easily a mistake will bring you the GAME OVER display. Only a handful of decisions are left up to you. Your invisible opponent controls everything else, and if you don't like it, too bad.

So what do you do if the game designer puts you in some impossibly unfair situation—a thousand bad guys shooting at you with pinpoint accuracy, for instance? You simply look at the screen in disgust and walk away. *The machine gets no more quarters from you.* Soon the game fails and the designer is out of a job. Arcade game designers have to play fair.

With home computer games, however, the creators get all their money up front. If you don't like the way the game plays, *too bad.* Fortunately, most programmers want the game to be fun to play, so they try to make the rules as consistent and fair as possible. When they fail, it usually isn't because of malice. They simply make the classic mistake of people with bad manners—they forget about the needs of the other guy.

Sometimes problems arise out of the limitations of the game. Take, for instance, *Computer Jeopardy*. By using actual questions from the television game, the designer was able to keep the features that make "Jeopardy" the best TV quiz game. Unfortunately, players have to type in their answers, so you can lose even when you know the right answer, either because you type too slowly or because you don't spell perfectly.

The *Jeopardy* programmer *tried* to be fair about spelling. I typed *Barrymores* and was credited for having answered *Drew Barrymore* (on TV, Alex Trebek would have said, "Be more specific"). But when I typed the title of the Steinbeck book as *Travels with Charlie*, I was counted wrong—because the actual title spelled the dog's name *Charley*. On TV, I would have been right.

These problems are unavoidable in translation from a spoken to a written medium. But one *Computer Jeopardy* error is sheer thoughtlessness: In Final Jeopardy, when you're making your all-or-nothing bet

on the final question, the computer doesn't show you the other players' scores. Since knowing their scores is vital to making an intelligent bet, this can kill you. *Computer Jeopardy* is still a terrific game, but the game designer's negligence is annoying.

Another example is the file handling of Electronic Arts' *Deluxe Paint II*. This paint program is full of thoughtful extras. Yet the designers carelessly allowed the program to forget which directory your pictures and paintbrushes are in, so you have to move from directory to directory each time you load and save. So unnecessary. So rude. It's still my favorite paint program—but I mutter each time I have to change directories.

These are minor, forgivable lapses. Rudeness *can* make a game utterly worthless—to me, at least. At first glance, *The Guild of Thieves* (Rainbird) looks promising, with its gorgeous EGA pictures. Imagine my astonishment, then, when I sat there looking at a picture of a room with chairs in it, typed *Look under chair*, and was told that there weren't any chairs present! Other absurdities make it clear that the text of the game was prepared without any reference to the pictures. Why? It would have been a simple task to have the programmer look at each picture and make the text agree with it.

But the rudeness that made me throw the box across the room and wipe the game off my hard disk is the way *Guild of Thieves* handles hints. Instead of online helps or hidden-writing cluebooks, the gamewright makes you type code into the computer, which the program then translates. Here's a sample (by no means the longest):

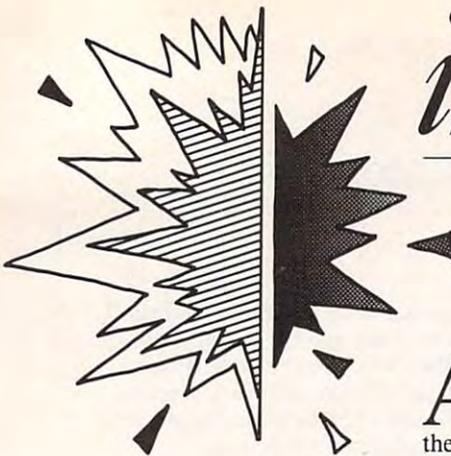
```
5x cb e0 p9 h9 t0 i5 ar h9 ti ei pg  
x9 c0 i0 av hu tk ia pa xm ch ey ay  
h1 tz it ax hn ts es pb xl c8 eq px  
xq tq ii an hu cu eb pm xa cu iu av
```

I'm not joking. That's what they expect us to type. Even the best touch typists stumble over typing such raw nonsense. And is the clue, when we finally get it, *helpful*? Sometimes. But sometimes it's just a joke.

I wish I could promise you that *Guild of Thieves* is the only worthlessly rude game on the market. But I can't—not in a world where people smoke in the grocery store checkout line or speed up on the freeway to keep you from merging.

Game designers, please, don't get so caught up in the fun of designing and programming that you forget the needs of the players.

We're not your enemy; we're your audience. □



impact

DAVID D. THORNBURG

Personal Computers Have Changed the World—But Not Enough

As we look at the proliferation of computers in our society, it's amazing to realize that IBM once predicted that the computing needs of our nation could be met with just six computers.

Before laughing at the inaccuracy of this prediction, it's important to realize that there was no way the real impact of these machines could have been predicted. Except for Vannevar Bush's "As We May Think," in the July 1945 *Atlantic Monthly* (reprinted in *CD ROM, The New Papyrus*, Microsoft Press), and science fiction by authors like E. M. Forester, most people thought that computers would be used purely for the computations needed for science and industry.

The advances of the past decade make the situation 20 years ago look like the Dark Ages by comparison. Computers that scientific researchers would have given their eye teeth for are now sitting on the desks of secretaries and school children. Furthermore, the rate of technological development is not slowing down. My first Commodore PET had 8K of RAM—a lot in those days. Now I need at least one megabyte of RAM. What a difference a decade makes.

With the rapid proliferation of computers into our homes, schools, and workplaces, we might ask if this technology has affected our lifestyle. From my vantage point, it seems to have produced very few obvious changes. For example, many authors predicted that widespread computer use would cause a rebirth of cottage industry, allowing information workers to commute by modem instead of by car.

The advantages of working at home seem compelling—reduced wear and tear on your car, more time with your family, and so on. The negative aspects of this arrangement—such as reduced interaction with coworkers—were hoped to be resolved once companies started implementing these programs.

Interestingly, even though there is absolutely no technological reason standing in the way of this scenario, few people are trying this new lifestyle.

This is not to suggest that the computer hasn't changed the workplace—it has. For one thing, many more professionals (especially younger ones) create their own documents now. Secretarial support has expanded to include page layout. Financial data that once had to be explained by an accountant is now available for almost any manager to see and evaluate through spreadsheet programs.

The personal computer has allowed middle managers to get closer to the nuts and bolts of their companies and to chart their progress more closely than ever before.

One could argue that this is an evolutionary, not a revolutionary, change and that the computer is making an essential task easier. The fact remains, however, that it's hard to imagine a business of any size that wouldn't benefit from a computer.

The use of computers in education is increasing. Unfortunately, the bulk of educational computer use perpetuates a curriculum developed for the Industrial, not the Information, Age. There are two reasons for this. First, as large as the educational computer market is, it reaches only a fraction of the students in our schools. Ask yourself what impact the pencil would have on education if the student-to-pencil ratio was 20 to 1. Until we see powerful computers that students carry like notebooks, educational computing won't have come of age. Second, those computers that *are* in the classroom tend to be used for drill or for tasks that could be covered as well with workbooks. Much educational computing seems to be devoted to implementing eighteenth-century curriculum with twentieth-century technology.

Many of us who were enthusiastic about computers in the home saw the computer as a threat to the television (fools that we were!). We thought the home computer would provide a source of interactive (as opposed to passive) entertainment and that it would be an information resource for everything from the latest news and weather to home shopping and electronic mail. While there are a few brave souls using their home computers in these innovative ways, most computers are sitting in closets next to the eight-track tape player.

Technology doesn't drive social change, it only enables it. Changes in our lifestyle have to come from personal motivation. Our society is conservative in many respects, and this conservatism has ensured that technological change will always outstrip social change.

This observation is not a complaint, by the way. Social change has irreversible consequences: It's like opening Pandora's box—once new ideas have been unleashed, they can't be put back again. Those of us whose lifestyle has been changed by computers know the benefits of this technology. We should be patient while waiting for the rest of the world to catch up with us. □

Letters

An Amiga Education

First of all, I love your magazine! Keep up the good work! What attracted me to *COMPUTE!* was your articles on the Amiga. I see a lot of educational software for other computers—*Sesame Street Print Kit* and the other Sesame Street software (Hi Tech Expressions), for example—but what about the Amiga? I feel my child shouldn't have to be left out on educational software just because we own an Amiga. There must be a way we can all pull together and get software companies and Commodore to put out good educational software for our children. Let's not be left out in the cold. As consumers, we have the right to demand quality.

A. Alexander
Vancouver, B.C.

More Plus/4

I just received my copy of May 1988 *COMPUTE!* and would like to comment on the letter by Doug R. Lewis that appeared in "Hints & Tips." Like Mr. Lewis, I am a Plus/4 user, and I have been busy obtaining Plus/4 software from several sources. Three sources are especially useful: Tri Micro (a user group and Plus Exchange publication), Plus/4 Users Group (a California-based user group), and McWare (another source of Plus/4 software). If Mr. Lewis would like the addresses of these groups, I will be glad to furnish them if he will send me a self-addressed, stamped envelope.

I have also gotten some Plus/4 software from Commodore-Direct and will be glad to furnish that address, too. I am a member of both of the user groups mentioned above.

Ronald J. Hardcastle
P.O. Box 178828
San Diego, CA 92117

U.S.A. Games Tops

This letter is in response to A. Blake Davies' letter in the May issue of *COMPUTE!*

Mr. Davies states that he thinks the U.S. game market and the games themselves are appalling. Well, in my

opinion, Britain has only one decent game company: Capcom. I've seen a number of U.K. games recently, many not yet available in the U.S., and I think 99 percent of all U.K. software is junk. Just look at *Paperboy*, *Gauntlet*, *720 Degrees*, *Roadrunner*, *Space Harrier*, and *Outrun*. With the exception of the last two, all these games are horrible.

Space Harrier and *Outrun* have decent graphics, but large portions of the arcade versions are missing. This is because, in Britain, they still use inferior cassettes for almost everything. Therefore, game programmers have to shorten, crunch, and otherwise mutilate an arcade game to get it to fit into a single-loading file. Instead of concentrating on doing a good job on each part, they skimp on *all* the parts to produce a game that bears little resemblance to the arcade version and has *none* of the attraction of it.

Not to mention the fact that every U.K. game ever made is incredibly, impossibly, unbelievably *hard*. How many people have ever actually gotten all the way through *Delta Patrol*, *Uridium*, or *Ghosts & Goblins* without using some kind of cheat mode?

In summary, I'd like to say that on the whole, the U.S. makes better games than the U.K. ever will.

Roger Johnson
Milford, CT

Transformer Kudos

In the May 1988 "*COMPUTE!* Specific" 64 and 128 section, Neil Randall mentions that the *Transformer* software emulator fell on its face. I think there are Amiga owners, like myself, who disagree. I use an IBM compatible at work, and if I need to bring work home, I can use my Amiga 1000 without paying the price of a Sidecar (if I could find one).

I think the *Transformer* is a good piece of software for Amiga 1000 and 500 owners who occasionally need IBM compatibility. For owners of the 1.1 version of *Transformer*, Commodore will upgrade it to the 1.2 version free of charge, if you send them your original 1.1 disk.

Jack Harmon
Aurora, CO

COMPUTE!

The Leading Magazine Of Home, Educational, And Recreational Computing

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New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New York, NY 10019. Tel. (212) 265-8360. Peter T. Johnsmeyer, Group Advertising Director; Bernard J. Theobald, Jr., Advertising Director.
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Address all advertising materials to: Anita Armfield, COMPUTE! Publications, Inc., 324 West Wendover Ave., Suite 200, Greensboro, NC 27408.

Editorial inquiries should be addressed to The Editor, COMPUTE!, 324 West Wendover Ave., Suite 200, Greensboro, NC 27408

PRINTED IN THE U.S.A.

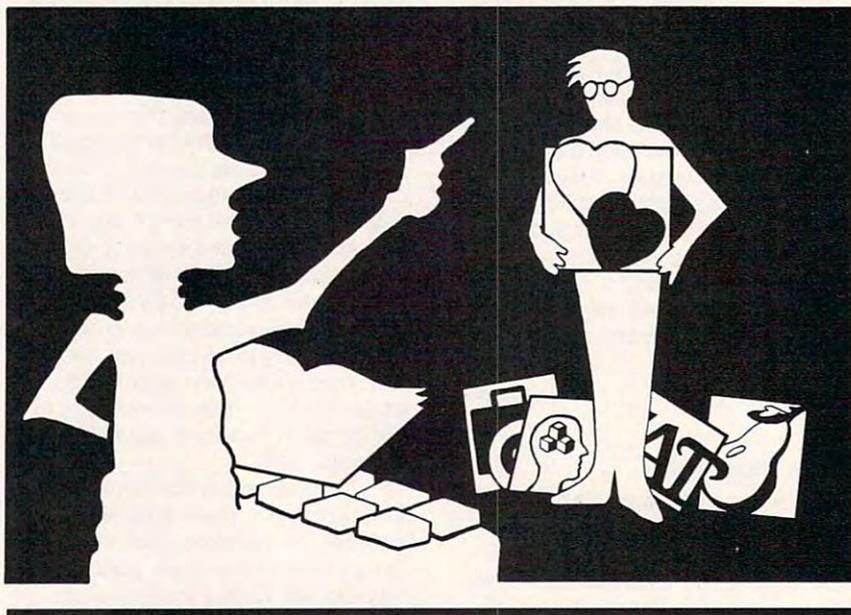
www.commodore.ca



HELP YOURSELF

Beyond the high-powered productivity of word processors, databases, and spreadsheets, there's an exciting world of software that can improve your mind, teach you to cook, help you get a better job, and improve your love life.

Gordon McComb



What's a computer done for you lately? Helped you work faster, better, more efficiently? But what about the *rest* of your life? Has it helped you lose weight? Has it gotten you the dream job you've always wanted? How about improving your love life—any help there from the computer?

One type of software *is* designed to do all these things for you. For lack of a better name, call it *helpware*—software that helps you diet with more determination, cook a better meal, write a dazzling résumé, score higher on the SAT, spice up your romantic life, move up the career ladder faster, and more.

Though examples of helpware have been around for a long time—some of the earliest computer programs fell into this category—the genre is just now catching on with the public and being aggressively marketed by software retailers. Since there are no absolute must-haves in the helpware world—no *Lotus 1-2-3s* or *WordPerfects*, for example—knowing which programs to choose can be a tough decision.

Helpware comes in several categories. Among the most popular are

- *Brainware*—Learn more about yourself and the way you think, or expand your mental capacities.
- *SATware*—Score higher on the SAT (and similar tests) by following computer-guided instruction.
- *Foodware*—Cook and eat better, or learn how to slim down by changing eating and exercise habits.
- *Careerware*—Get a better job, or keep the one you already have.
- *Romanceware*—Live and love better.



Brainware

I hated them as a kid: brain-teasers—those quizzes that made my head hurt and my pride sink below my feet. But as an adult, I find brain games stimulating and helpful. The computer makes an excellent teacher because it's impartial, because it grades your work quickly and accurately, and because it helps you find those areas that need extra effort.

If you feel you've developed cobwebs in your noggin, help is on the way in the shape of *Mentor*, a unique Brainware program from Heuristic Research. This \$49 program for the IBM PC and compatibles includes 58 psychological tests and exercises for honing your mental skills. Included in *Mentor's* repertoire are 25 IQ tests, plus an assortment of exercises that analyze your reasoning and problem-solving skills, your memory, your response time and coordination, and even your perception of the world around you. The large number of IQ tests means that you can routinely evaluate yourself to see if your performance improves as you progress through the program.

Note that the IQ tests should be used as a guide only. They may not always reflect the real you, and the tests aren't recognized by schools, organizations, or businesses. The purpose of *Mentor* is not to condemn you for what you can't figure out, but to exercise the most important part of your body—your brain.

And it works. After using the program for only five hours, I've already increased my IQ by five points! Move over, Albert Einstein.

Brainware

Mentor
\$49.95
IBM PC
Heuristic Research
3112-A W. Cuthbert Ave.
Midland, TX 79701
(800) 443-7380



SATware

Thinking of going to college? If you are, sooner or later you'll run into that unfriendly beast, the Scholastic Aptitude Test. This test, which is administered by the College Entrance Examination Board, is designed to determine how much you know—or in some cases, how much you *don't* know—and how easily you learn. The test results are used by colleges as entrance criteria—generally, the better schools pick those students with the better scores.

Better scores on your SAT don't mean you'll automatically have an easier life at college, but better scores often *do* mean that doors are open for you that might otherwise have been closed. With high SAT scores, for instance, you may have a better chance of obtaining scholarships or special grants, or attending a college that offers the major in which you're interested.

Scoring higher on the SAT doesn't require that you become any smarter, however. You can dramatically increase your score simply by learning how to take tests and by reviewing the types of questions asked on the SAT. Though there are many books on preparing for the SAT, a computer program offers such benefits as automatic scoring and analysis of problem areas.

Computer Preparation for the SAT, from Harcourt, Brace, Jovanovich, consists of a 430-page SAT workbook and several computer disks. The package, which retails for \$39.95, is available for the Apple II series as well as for the IBM PC.

A pretest helps you establish those areas that need the greatest attention. For example, the pretest may help you discover that you have a high aptitude for math, but need a lot of remedial instruction in English. Then you'll know to spend more time on the English sections and speed through the math.

The questions for the five practice tests included with *Computer Preparation for the SAT* are printed in the book, and aren't part of the program. You

can, however, use the computer as a testing aid, turning it into a combination stopwatch and answer sheet. You can take the tests away from the computer, but you have to reenter the answers so that the computer can determine your test results.

One nice feature of *Computer Preparation for the SAT* is that, although each test is timed, you can stop the clock to take a break, answer the phone, or go to work. Of course, you're urged to complete the test in one sitting, but it's nice to know that you won't be penalized because of outside distractions.

The practice tests and review are divided into 15 categories, similar to those found in the actual SAT, and range from antonyms to algebraic expressions. Practices include analogies, sentence completions, reading comprehension, geometry, word problems, and algebra.

The computer scores your test, indicating correct and incorrect answers. You have the option of saving your test results—as a means to review those areas that give you the most trouble—or clearing the results in order to take the test again.

Two powerful features of *Computer Preparation for the SAT* are its drill banks (verbal and math) and its vocabulary flash cards. The drills comprise the 15 areas of study; you can take any drill at any time. They're most helpful immediately after study and as a review on the eve of your real SAT. The vocabulary flash cards are divided into banks of words, prefixes, word roots, and suffixes.

Mastering the SAT from Mindscape isn't as comprehensive as *Computer Preparation for the SAT*, but it can be just as helpful. The program uses three types of tests: pretest, posttest, and skill builder. The pretests help you identify those areas where your score is less than optimum. The skill-builder tests are designed as drills to be used during study. They are divided into the categories of opposites, analogies, sentence completion, reading comprehension, arithmetic, algebra, geometry, quantitative comparison, and TSWE (Test of Standard Written English). The posttests function as checks to make sure you've mastered the material.

Mastering the SAT comes with a 143-page booklet that offers test-taking tips as well as two simulated SAT examinations. The answers are included in an appendix in the booklet. A novel feature of the program is that its built-in

management system can track the tests and performances of as many as seven students.

Unlike the two programs previously mentioned, which contain much information in written form, *Lovejoy's Preparation for the SAT*, available for the IBM PC and PS/2, is almost entirely on disk. The 126-page book that accompanies the \$49 program consists mainly of test procedures and tips. Several chapters are devoted to the review of basic math, verbal, and standard English concepts, but all quizzes are contained on the disk.

The program allows you to move from one mode to another at any time. You can take review tests whenever you like and either review your results or retake the test. The questions and testing instructions appear onscreen. You answer each question by pressing a key. Just as in the real SATs, you can skip questions and come back to them later. A clock provides onscreen timing, showing how many minutes you have left to complete the test. An automatic scorecard shows the total number of right and wrong answers, as well as how well you fared compared to previous exams. A chart quickly reveals whether your test scores are improving.

SATware

Computer Preparation for the SAT

\$39.95
Apple II, IBM PC
Harcourt, Brace, Jovanovich
465 S. Lincoln Dr.
Troy, MO 63379
(800) 543-1918

Lovejoy's Preparation for the SAT

\$49
IBM PC, PS/2
Simon and Schuster
200 Old Tappan Rd.
Old Tappan, NJ 07675
(201) 767-5969
(800) 624-0023

Mastering the SAT

\$99.95
Apple II, Commodore 64/128,
IBM PC
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(800) 221-9884



Foodware

By the time you're 65, you'll have spent more than *four years* chewing your food. And that's without snacking.

If you're going to spend that much time on anything, it makes sense to enjoy it and get the most out of it.

Bon Appétit Electronic Cookbook, from Pinpoint Publishing, borrows the exotic culinary treats from the *Bon Appétit* magazine and presents them as computer-based recipes. Although the first recipe programs date back more than ten years, this one is different, presenting more than 200 unique and fully indexed recipes. You can search for your favorite foods by name, by category (such as bread, fish, beef, and desserts), or by ingredient.

Each recipe is already coded with complete ingredients for one or more servings (usually six or eight). On most recipes, you can select a different number of servings, and the recipe is automatically adjusted for you. Some ingredients, especially herbs and spices, can't be doubled or halved to make twice as many or half as many servings, so some judgment is still required on your part.

Individual tastes and diet requirements sometimes call for special ingredients in recipes. You can edit any recipe to suit your needs. Don't like tarragon? Get it out of that chicken recipe. You can either omit it entirely or replace it with another spice more to your liking.

The changes you make in a recipe are reflected in the shopping lists you can produce with *Bon Appétit Electronic Cookbook*. The shopping list details the basic ingredients, how much of each ingredient you'll need, and which recipe the ingredient is for. You can combine several recipes in one convenient shopping list. The program comes with one database recipe disk, but others are available from Pinpoint.

The recipes in Rubicon Publishing's *Dinner at Eight* are more suitable for the average American palate. You can choose recipes from a wide list of

categories including eggs, poultry, intimate dinners, French specialties, and my favorite—dessert. When the program is used with an IBM PC equipped with a graphics display adapter, the categories appear as icons or drawings of the foods they represent. (When it's used with a monochrome display adapter and monitor, the categories appear as text only.)

The program uses a series of pull-down menus that you operate from the keyboard. If you've used other programs with pull-down menus, the user interface will seem familiar. Their benefit is that you can see all of a menu's options—important features of the program aren't hidden. As with the *Bon Appétit* software, *Dinner at Eight* lets you edit recipes; it also produces shopping lists.

Most recipe programs, *Bon Appétit Electric Cookbook* and *Dinner at Eight* included, don't provide any nutritional information. This information may be important to you. At the other end of the Foodware spectrum are programs that help you carefully choose the foods you eat based on their nutritional or caloric content. Nutrition software generally takes the form of the diet program, although the current crop of diet programs now steer away from pure calorie counting.

Master Control, from Computer-Easy, is designed to help you lose weight by intelligently monitoring the foods you eat—not only the type of food, but also the amount and the timing. The well-written text provided on the disks explains that most weight problems are the result of an eating imbalance that may have been ingrained since childhood. By using the principle of behavior modification, the program guides you through a diet designed to help you train yourself to feel satisfied after you've eaten a well-balanced meal.

Part of the *Master Control* program is its database of 3000 foods, including everything from a McDonald's Big Mac (an incredible 563 calories), to entrées, desserts, breads, and beverages. According to the on-disk text, you are urged to monitor the calories you eat, but careful counting isn't necessary. That's good news for the millions of dieters who are tired of worrying about those extra few calories in that one last carrot. The program was designed by William E. Hogg, Jr., (an unlikely, if not humorous, name for a dietitian).

The Original Boston Computer

Diet, by Scarborough System, available for the IBM PC, Apple II, and Commodore 64, is also based on the principle of behavior modification. In many ways, it's a polished version of *Master Control* with an expertly written 97-page user manual and separate 52-page food-reporting and meal-planning guide.

The Scarborough System computer diet manual includes the obligatory chart for ideal body weight based on sex, height, and age. But I like the fact that the manual indicates that the chart is based on information from a life insurance company, which has different judgment criteria from that used by a doctor or nutritionist. The manual points out that you can weigh considerably more than is recommended and yet be healthy and trim. Muscle is denser than fat.

The *Original Boston Computer Diet* is based on behavior modification—discovering why you eat the way you do, and learning new, healthier methods. The program itself provides a means for keeping track of your weight as well as your regimen of exercise and diet. The *Original Boston Computer Diet* includes a food database that lists calorie content and other important nutritional information about common foods. You can add and delete foods from the database, thereby tailoring the program to your specific requirements and tastes.

Foodware

Bon Appétit Electronic Cookbook

\$59.95
Apple II, IBM PC
Pinpoint Publishing
5865 Doyle St.
Emeryville, CA 94608
(415) 654-3050

Dinner at Eight

\$49.95
IBM PC, Macintosh,
Rubicon Publishing
2111 Dickson Dr.
Suite 30
Austin, TX 78704
(512) 448-4133
(800) 622-2210

Master Control

\$19.95
IBM PC
ComputerEasy
414 E. Southern Rd.

Tempe, AZ 85282
(800) 522-3279

The Original Boston Computer Diet

\$79.95 (Apple II, IBM PC)
\$49.95 (Commodore 64/128)
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(800) 221-9884



Careerware

Do you have the job you want? Are you stuck in a rut, with nowhere to go? Do you dream of driving a new BMW, but can't afford one on your present salary? Look around you: There are a lot of people with less talent than you who have better-paying jobs. Although it may seem outrageous and pessimistic, it's often not what you know that gets you a good job, but how well you present yourself to your prospective and current employer. If you act like a professional who knows how to get things done, you're more likely to get the position and salary commensurate with that view.

Assume you're looking for a new job. Your résumé says a lot about you. If it's sloppy, poorly organized, or fails to point up your special skills, you'll surely be passed over for another candidate. *ReSumé!*, a \$49.95 package from North American InfoNet, helps you build and print a résumé that is specifically designed to get your foot in the door.

While *ReSumé!* won't give you an MBA or add 15 years of experience to your employment record, it does help you pinpoint whatever strengths you already have. The program comes with dozens of skills you can use in the preparation of your résumé. For example, if you were an assistant manager at a McDonald's restaurant one summer, the program would help you identify numerous individual skills—such as supervisory experience and the ability to work with people—that would help you

stand out from other applicants.

ReSumé! leads you through a menu-based process of entering your personal data. You can choose basic résumé styles, including skill or chronological ordering or a combination of both. Because it's so easy to enter your personal data, it's possible to use *ReSumé!* to create custom résumés for each job in which you're interested.

Once the résumé is finished, you have two printing choices: You can either print it directly with *ReSumé!* or capture the formatted data as an ASCII file. You can then load the ASCII file into your own word processor and add whatever embellishments you see fit. This feature is particularly handy if *ReSumé!* doesn't support your printer. A professional version of *ReSumé!* is available for résumé preparers, educators, training instructors, and employment counselors.

ReSumé! is intended primarily to help you get a job interview. *Career Navigator*, from the job counseling firm Drake Beam Morin, helps you maintain your professional appearance during the interview and while on the job. *Career Navigator* is an exhaustive resource that consists of a career handbook and an associated computer program. The handbook provides such diverse information as how to write effective letters, how to select the best type of job based on your interests and skills, how to conduct research on organizations, and how to write résumés that sell you to prospective employers.

The program puts all the pieces together and includes a word processor for writing letters and résumés; a template for mailing your résumés, applications, and letters of inquiry; and a database that stores your personal profile, skills, and career objectives. *Career Navigator* is not the kind of program that you breeze through quickly; it requires diligent study and careful attention to detail. But once you've used it and learned from it, it can be carried with you for life.

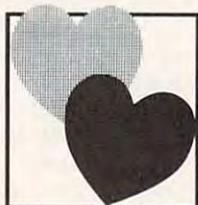
Careerware

Career Navigator

\$129
IBM PC
Drake Beam Morin
100 Park Ave. 4th Floor
New York, NY 10017
(800) 345-JOBS

Re\$ume!

\$49.95
IBM PC
North American InfoNet
P.O. Box 750008
Petaluma, CA 94975
(707) 765-1999



Romance-ware

So you're not interested in becoming smarter, eating better, or finding a more fulfilling job. But your personal life is stalled, and you find it difficult to talk to anyone about it.

The sexual awareness of the 1980s also extends to computer programs; in fact, it's one of the fastest-growing segments of helpware software. Despite their increased popularity, however, many romanceware programs are still lightweight and offer only a little more than a paperback book on the subject.

One exception is *Heart-to-Heart*, an interesting and thought-provoking program from InterActive Software, that's designed to promote communication in couples. You and your companion each spend a few hours behind the computer answering a battery of confidential questions. The program then compares your answers and assembles a suggested dialog for working out differences in opinion and other problem areas.

For example, let's say that you and your partner differ in your assessment of problems. You say problems are easily solved, but your partner says they're difficult to conquer. *Heart-to-Heart* prepares questions on the subject for you and your companion to discuss. Assuming you don't get into fistfights over the questions, the end result should be one of better communication.

Heart-to-Heart is designed for intimate romantic relationships. It's not really suited for improving communication in other types of relationships, such

as one that exists between a father and a troubled teenage son.

Intracorp's *Interaction* is designed to "explore your love and relationships." Its approach is to ask you probing questions about your sexual history and habits, whereby you learn from your answers. The program offers a compatibility analysis of you and your partner. Also included is a dictionary of sexually oriented words, including some of the four-letter ones you're not supposed to use in public (or in print). The dictionary is set up so that you must already know the word to look it up. Words are not cross-referenced.

Though the program box has a picture of Dr. Joyce Brothers on it, she apparently had nothing to do with the development of the software, apart from writing a short foreword to the manual. The authors of the program are not listed, but the manual provides a bibliography of references used during the development of *Interaction*.

As with most self-help programs of its kind, *Interaction* is listed as entertainment software, obviously to ward off possible lawsuits in the event that someone is harmed by its information or suggestions. One program that bills itself strictly as a game is *Dr. Ruth's Computer Game of Good Sex* (Avalon Hill Game Company). The program was supervised by Dr. Ruth Westheimer, the famous television sex therapist known for her outrageous but humane approach to intimate matters.

At its core, *Dr. Ruth's Computer Game of Good Sex* is a type of sexual *Trivial Pursuit* in which 1-7 people are asked a battery of sexually oriented questions. Some are funny, others are thought-provoking; and if you're an average person with an average knowledge of sex, you'll get most of the questions wrong. Of course, it's all in good fun, and the real object is to become more sexually aware. After playing *Dr. Ruth's Computer Game of Good Sex*, I now know more about the subject than I ever cared to know.

Dr. Ruth's Computer Game of Good Sex is intended for adults. *Birds 'n' Bees*, from Intracorp, is designed for teaching young people the facts of life. An important aspect of the program is that it monitors the age and gender of the user and adjusts its answers accordingly. As a parent, you can choose any age group to compensate for the sexual awareness of your particular child. You can also decide whether you want the

program to proceed with the discussions on abortion, birth control, and sexually transmitted diseases. *Birds 'n' Bees* also provides a dictionary of sexual terms and self-help quizzes.

It's important to remember that the effectiveness of the program depends entirely on the willingness and support of the parent. Throwing your kid alone in a room with a program like *Birds 'n' Bees* is a bad idea. But if you're uncomfortable with the subject of sex education and have difficulty explaining it to your children, this program can help break the ice and open up meaningful communication.

Romanceware

Birds 'n' Bees

\$59.95 (Amiga, Apple II, Atari, IBM PC)
\$49.95 (Commodore 64/128)
IntraCorp
14160 S.W. 139th Ct.
Miami, FL 33186
(305) 252-9040

Dr. Ruth's Computer Game of Good Sex

\$29.95
Apple II, Commodore 64/128, IBM PC
The Avalon Hill Game Company
4517 Harford Rd.
Baltimore, MD 21214
(301) 254-9200
(800) 638-9292

Heart-to-Heart

\$49.95
IBM PC
InterActive Software
496 LaGuardia Pl.
Suite 215
New York, NY 10012
(718) 768-1427
(800) 541-0900

Interaction

\$49.95 (Analysis Module or
Compatibility Module)
\$99.95 (Both Modules)
Amiga, Apple II, Atari ST,
Commodore 64/128, IBM PC
IntraCorp
14160 S.W. 139th Ct.
Miami, FL 33186
(305) 252-9040

Gordon McComb has been writing about computers for longer than he'd like to remember. The several computers in his home help him write, among other things.

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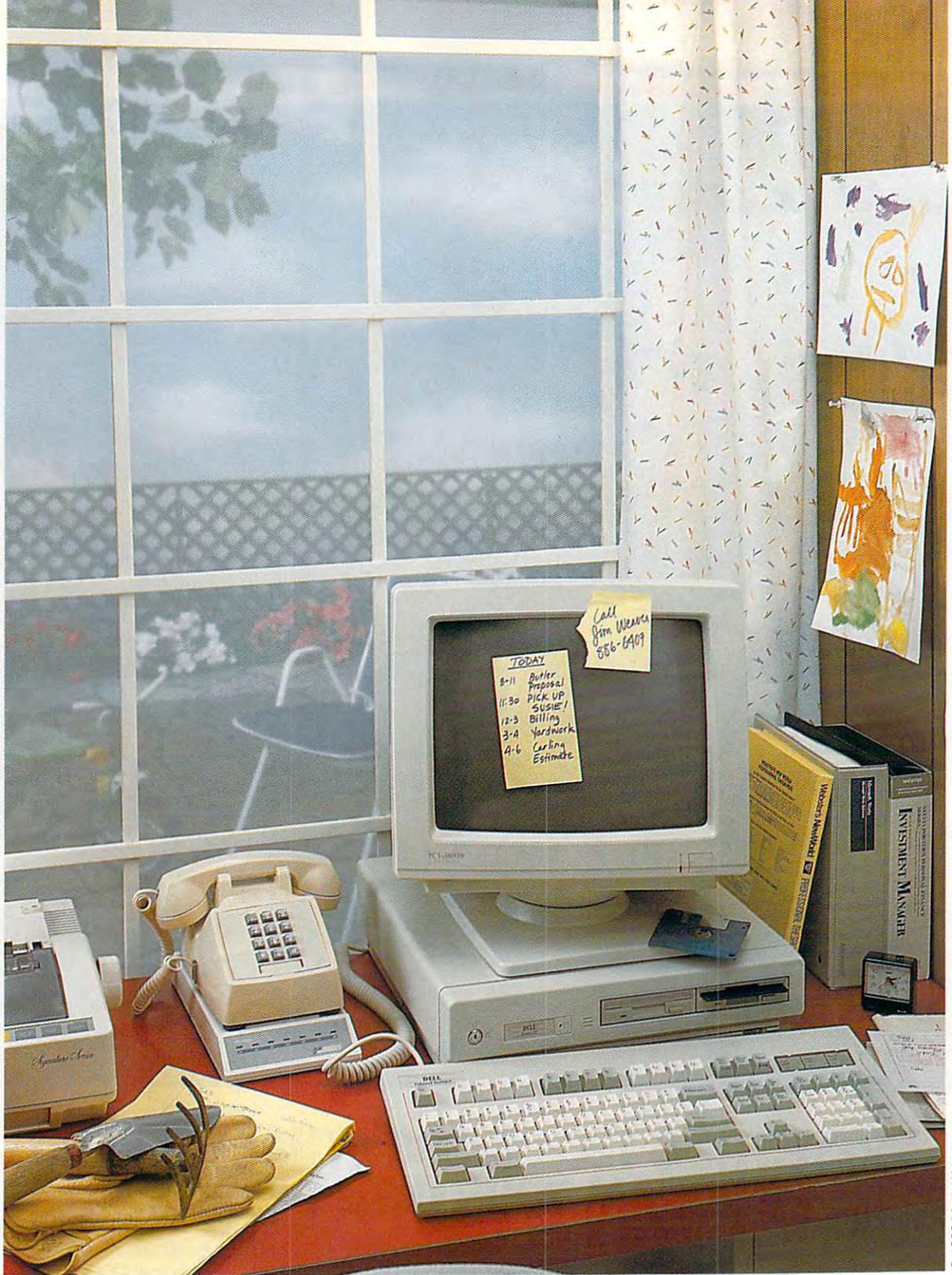
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HOMeward Bound

Dan McNeill and Paul Freiberger



*Working at home, personal computer in front of you, is increasingly common.
Who's working at home, why, and how can you join them?*

Imagine it. You roll out of bed in the morning, pour yourself a mug of coffee, pad 20 feet away, and begin your workday. While others creak along the freeway, listening to frantic disc jockeys and watching for brain-damaged motorists, you are serenely putting in an hour of solid work. You continue in high focus, without interruption. By 5:00, when office workers are sliding behind the wheel and steeling themselves for The Long Ride Home, you've accomplished more than they have. While they're slamming on brake pedals and glaring at other drivers, you're relaxing on your deck, enjoying the warm evening breeze and contemplating which restaurant to honor with your custom.

Working at home seems idyllic, and it's becoming more and more common, thanks to the personal computer. By placing a full spectrum of powers right on your desktop, the computer has made it possible for hundreds of thousands of people to earn their livelihood without even leaving their front door.

"Lifestyle is one of the major reasons people go into it," says Julian Cohen, chairman of the American Home Business Association in Darien, Connecticut. "They feel they're good at what they do, and don't want management."

Of course, working at home has a host of other advantages. What follows covers only a few of them.

Efficiency "Efficiency is the main benefit," says Gene Beisman, president of Beisman Associates, a Malibu engineering firm specializing in construction costs. "I've worked in a variety of environments, from a big city office building to a large construction camp on Bougainville, and the arrangement I've had for the past eight years of working out of my home has proven to be the most efficient one of all. There's just no question in my mind that it's a very good way to work."

Rosalind Gold, policy planner at California Tomorrow, a nonprofit organization in Los Angeles, agrees. "When I have multiple projects going on at once and I really need to focus on one of them, it's easier to do that at home. At work, all your other co-workers are there and there are social distractions, as well as the distractions of phone calls on other projects."

"You have the chance to make optimum use of your time," says Robert Polevoi, a San Francisco at-

torney and legal writer who recently completed the major treatise "Federal Taxation of Oil and Gas" at his home. "At an office, there's a tendency to take as much time on a project as you can get away with."

Longer Work Day Home workers avoid the blank time of commute, as well as twisted nerves and the incredible show of miscreants shouting at each other from behind glass. Says software author Alan Cooper, president of Cooper Software Development, "Not having a commute is a major psychic advantage. I've got it all over people who have to drive across a bridge." Polevoi adds, "Just cutting out the commute saved me 1½-2 hours a day."

Reduced Expenses For the self-employed, a home office saves on rent. Today, most clients no longer find home offices surprising, though occasionally it happens. Gene Beisman once had the experience. "The client was a little upset that someone putting together a \$2 million claim didn't have a formal office," he says. "I told him, 'If you want me to charge you an extra \$40,000, I'll get one.'"

Flexibility Working at home makes you master of your schedule. "Flexibility is very, very important," says Polevoi. "I found I could fit in things when I wanted to do them, such as cultural interests." Sometimes in the evenings, Cooper does a little work during commercials. "So instead of watching TV for a couple of hours, I watch TV for a couple of hours and get 20 minutes of work done. It makes me feel better."

Live Where You Want

Beisman, who lives high atop the mountains with a spectacular view of the Pacific Ocean, says, "Working at home has given me the flexibility to live in Malibu." When you don't have to commute every day, you can live further afield.

Comfort At the office, you must accept the workspace you're given—it can be a small, bare, and cheerless place. At home, you can create your own environment and make it much more comfortable. You can also dress as you please, eat when you want, work to music, or relax with an occasional computer game. *continued on page 22*

Talk Fast and Go Home

Would you like to work at home? It may be easier than you think. Some employers are quite perceptive about the benefits of working at home, and will grant you considerable freedom. But if you're unsure of success, you should prepare carefully. The following may provide the wedge you need.

Plan ahead. Before you broach the suggestion, establish your reliability. Employers naturally worry that the home worker will spend part of the day gazing at the TV, laboring on personal projects, or otherwise exploiting the deal. George Morrow, formerly president of Morrow, Inc., a computer firm, had to make many such decisions, and looked foremost to dependability. "If I had confidence in someone's productivity, I didn't care where the person worked. That was the biggest problem: the person's productivity."

In addition, make sure you possess the tools. "The best lever you can have is to be equipped at home," Morrow says. "If you're going to sell yourself as a work-at-home professional, it helps if the employer doesn't have to pony up the equipment."

Seize the moment. The best time to ask is probably when you have a project with a tight time line. Since working at home saves a commute and yields greater concentration, it bodes well for completing the project. It may also partly relieve the supervisor of responsibility for the arrangement: Necessity can dictate it. Finally, a close deadline is its own time clock. Meeting it proves you've been working hard.

Stress the pragmatics. Though your argument can only succeed if it allays the concerns of your supervisor, whatever they may be, you especially want to emphasize the economic benefits of your longer work day, better focus, and greater efficiency.

If you want to work full-time at home, you might also observe that it will reduce company floor space and electric bills. Ultimately, your strongest argument lies here, and you should keep it before your boss.

Prepare for counterarguments. Employers have concerns other than productivity. Some fret about maintaining *communication*, a term which embraces the circulation of new knowledge, cross-fertilization of ideas, and one's immediate availability for questions or assignments. Others feel that letting employees work at home increases the chance that they will go independent. You can take two tacks to these responses. First, you can counter them. Emphasize that you will remain in constant phone contact with people at work, and suppress or, if necessary, deny any hint of going independent. The second, better approach is to contrast these objections with the profit to the firm from your working at home. Your at-home productivity can have immediate, tangible benefit for the company, and the firm should not sacrifice it to considerations which are subtle, uncertain, and in some cases even unascertainable.

Heed the psychological factors. Some supervisors rate the value of their oversight rather highly and may feel threatened or suspicious when an employee wanders beyond range of the managerial eye. They may also worry about an atomizing effect: *If I let you do it, soon everyone will want to; the company will wind up dispersed in tiny units across town.* Such fears can have you facing the blank wall of company policy or the need to maintain the corporate culture. You stand a better chance if you can make supervisors feel they are showing their shrewdness and enlightenment by letting you work at home—as indeed they are. You can also point out that working at home will spur you to greater efforts since it forces you to prove your good faith, and that if your request truly does provoke an avalanche, the firm can halt or limit the practice at any time.

Don't overreach. Move into this territory step by step. The less you ask of your employer at any one time, the better the chance you'll get it. For instance, if you have already been working on the computer in the evening or on weekends, you have established precedent. You can use it to advance your case for working at home in an emergency. Once that experiment succeeds a few times, you can ask for an explicit trial run to work a few days at home on normal business. From there, you may be set.

— DM & PF



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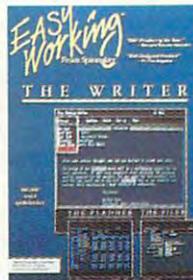
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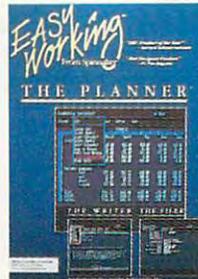
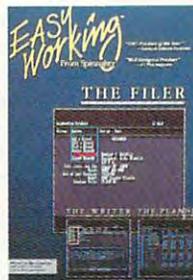
— Survey of Software Reviewers



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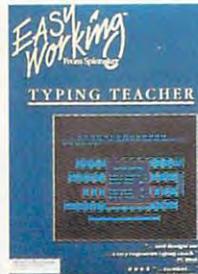
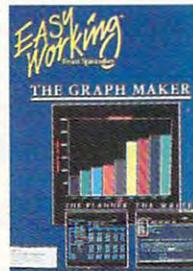
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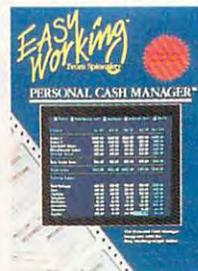
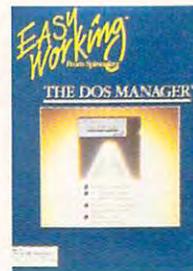
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Lonely Hearts

For some years, the miracle of the modem has led pundits to predict that in the near future vast numbers of citizens would work at home, entering their mental efforts into a computer and, only now and then, sending it electronically to the core office downtown. Such a phenomenon is clearly possible today, yet it hasn't materialized. Why not? Well, though working at home may seem to glisten with overwhelming appeal, many of its boons have an irksome flip side.

The most common complaint is lack of social contact. Though at home you no longer endure the social distractions of the office, you no longer savor them either. In hindsight, the impromptu chats that devoured so much of your time may seem delightful interludes, refreshing to the spirit. Most people miss the social interplay of the office.

In addition, even if you work at home only part-time, you can start to feel that you're only an onlooker. You may miss events, find the talk of these events remote, and come to sense that you're no longer sharing common experiences.

The office is also the main forum for politicking. You simply cannot establish the same influence at home that you can on the job. That's why many individuals who might otherwise enjoy working at home shun it, feeling it will hinder their rise to the top.

Finally, office conversation is not just jabber. It provides an avenue for exchanging informal information, which can sometimes be very important. "Working at home, you can spend a lot of time re-inventing the wheel," says Alan Cooper, president of Cooper Software Development. You can also miss insights into the power structure of the firm, the individuals above you, and imminent or tentative changes in procedure.

Working at home entails other pitfalls:

- **Need for self-discipline.** The very freedom of working at home can become a curse. If you work at home only occasionally, the structure of external control remains intact and you probably need not worry about it. But if you work full-time at home, you quickly discover the need to carefully order your time and thoughts. Working at home is really only for the self-disciplined.
- **Family distractions.** The office isn't the sole source of interruptions. The family can provide them as well. "If the kids are on vacation, they can raise hell with you," says Gene Beisman, president of Beisman Associates, a construction consulting firm.
- **Altered sense of home.** Working at home can change the havenlike atmosphere of the hearth. "You lose a sense of your home as a place where you don't ever have to worry about work," says Rosalind Gold, policy planner at a nonprofit organization.
- **Loss of transition time.** The near-instant commute has at least one drawback. "It can be more difficult to leave the work behind you," says Beisman. "You come downstairs when the day is done, and you've been off work for two minutes."
- **Temptations of the larder.** The very comforts of home can become too enticing, and some people find themselves eating or drinking to excess, unable to resist the call of the refrigerator.

Few of these problems will afflict everyone, but they exist, and anyone contemplating the sparkling cove of work-at-home should be aware of the riptides.

— DM & PF

continued from page 19

Who Are These People?

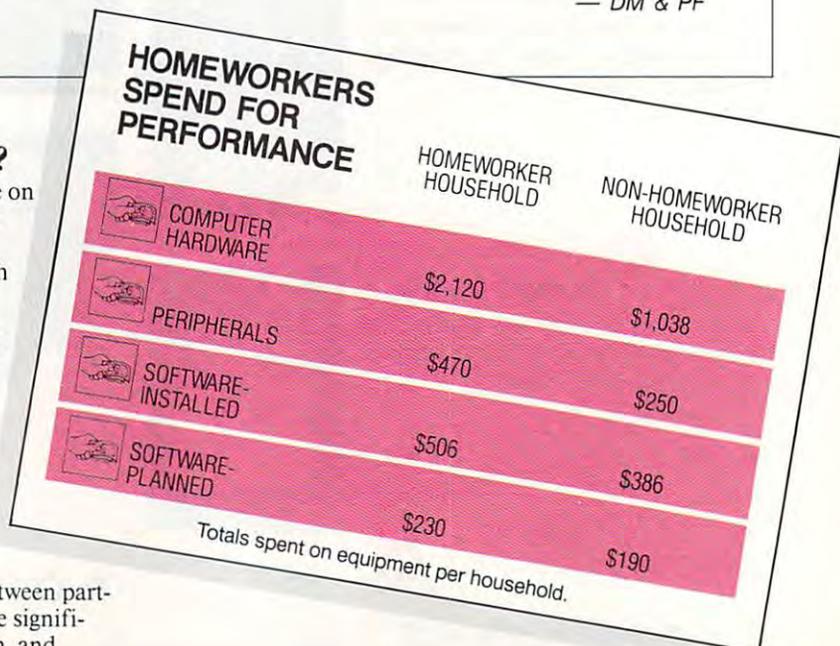
The number of people who work at home on computers is still relatively small, but it's growing rapidly.

Tom Miller of Link Resources, which recently surveyed 850 randomly chosen home-worker households throughout the U.S., estimates that as many as 5 million corporate individuals work at home at least part of the time. About 20 percent of them, or 1 million, do so full-time. Some 536,000 of the latter use computers.

"They could all use them," he says. "It's a \$67 billion market."

So who are these people?

The most obvious distinction lies between part-timers and full-timers. However, there are significant differences between men and women, and



Setting Up at Home

Once you decide to work out of your home, you must set yourself up. Though everyone has different needs, you'll at least require an office and computer equipment.

The office is the soul of your business. Though it should be comfortable, it must also function well as a think-tank whose furnishings you associate with concentration. It should be part den, part cloister.

Software author Alan Cooper has many thoughts about the inviolability of the home office. "I don't think it can be a desk in a corner," he says. "It has to be a serious, dedicated place where you can go and close the door, and you are no longer part of the household. It can be a closet, but it has to be a distinct space for working. And your tools have to be there and they have to be sacred. The family has to understand: Don't touch. It's important that you have the attitude that when you're in your office, you're working. You shouldn't party in your office. You shouldn't sleep in your office."

Second, you must furnish the office. What do you need?

Of course, you require at least basic computer equipment, probably including a modem. Cohen, of the American Home Business Association, says its members spend an average of \$2,500 on hardware

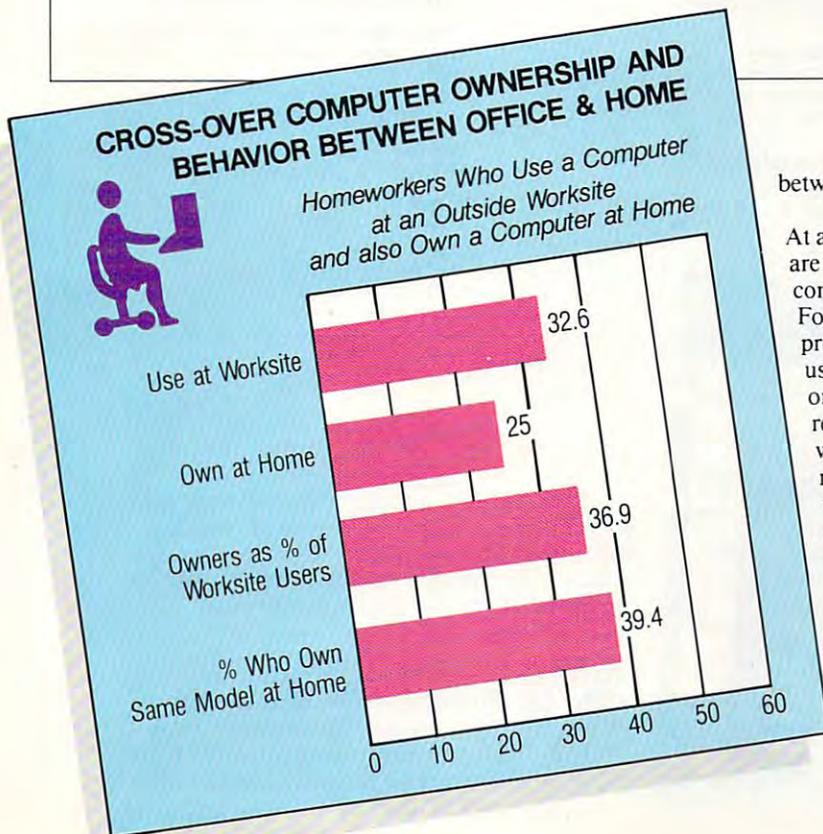
and software, and that figure "is growing at an incredible rate." Time is precious for home-based workers, he notes, "so anything that comes along that will increase productivity—a faster printer, a faster scanner—becomes an immediate purchase."

You also need a desk. It should be deep, because a computer plus keyboard extends farther back than, say, a typewriter. It should also be fairly large, since you'll probably find your desktop blossoming with extras such as a printer, disk drives, and hard disks.

What about computer furniture? It tends to be overpriced and you certainly don't require it, but it can offer certain conveniences. For instance, a desk designed for computers may boast a special platform for the printer, thereby liberating desk space.

A variety of other items can round out the office. Plastic disk trays are handy for organizing disks and keeping dust off them. You may want a couch in your office, to let you stretch out and enjoy the illumination that often comes from briefly diverting the mind. You may also wish to put a bookcase within arm's reach, or to adorn the room with art and foliage. A pleasing office is a delight to enter, and can pervade and uplift your whole work.

— DM & PF



between professionals and nonprofessionals.

The part-timers fall into two categories. At a level of minimum involvement, there are the people who work with a personal computer in the evening and on weekends. For instance, IBM has a Terminal at Home program which issues terminals for work use at home after normal business hours only. The company took the stance that, realistically, many of its employees worked longer than 40 hours per week; rather than have them miss dinner and their families, it would be better if they went home and continued working there.

Other employees of large organizations spend part of the day at home on the computer. "Sometimes when I need to get away from the busyness of the office—when I need some privacy, some quiet working time—I stay home," says Gold.

"It gives people a measure of control as to where and when they'll do the work," says Miller. ▶

Stock Your Home Office

When you're ready to start business, you need a place to *do* business. If you're working out of your home, that means you need a home office.

Consider the ideal layout for your working tools. Where do you want your computer? What kind of light do you need? What reference books do you want at your fingertips? You won't find it hard to come up with an office layout that's perfect for your needs. But now you have to buy the tools to fill that office.

Below is a mid-range price list for some essential equipment and some desirable options. You could probably spend more for a desk and get an antique with character. Or you could find cheaper software because you don't need anything too sophisticated.

For the computer equipment, we've listed suggested retail prices. Sales, discounts, and regional competition could mean lower costs, of course.

We've listed low-end printers, although you might choose a more expensive printer, depending

on your needs. Some 9-pin dot-matrix printers will give near-letter-quality output; that might be sufficient in your case. If you're starting a publishing business, you should think about investing in a laser printer. And if you'll be printing a lot of business correspondence, consider a 24-pin dot-matrix printer.

For beginning home office workers, we recommend an integrated package that includes word processing, database, spreadsheet, and communications capabilities. We've listed *Microsoft Works*, but there are many others.

The price for a business telephone line, separate from a residential telephone line, will depend on the phone company in your area. The price we've listed is just an estimate.

Other prices came from catalogs and retail stores. As you may have guessed, this list offers a researched estimate, not a precise itemization.

— Heidi E. H. Aycock

Computers

IBM PS/2 Model 25

Includes color monitor, space-saving keyboard, one built-in 3½-inch disk drive, one add-on 3½-inch disk drive, PC-DOS, and nine-pin dot-matrix printer \$2,284

Macintosh Plus

Black-and-white monitor, keyboard, mouse, one built-in 3½-inch disk drive, one external 3½-inch disk drive, Image-Writer (nine-pin dot-matrix printer) \$2,823

Tandy 1000TX

Color monitor, keyboard, one built-in 3½-inch disk drive, one add-on 5¼-inch disk drive, MS-DOS, nine-pin dot-matrix printer \$2,064

Software

Microsoft Works

\$195 (MS-DOS)
\$295 (Macintosh)

Communications

Separate telephone line for home

\$105 one-time connection fee; \$32 per month

Answering machine

\$110

Stationery

500 pieces, 500 envelopes, and 1000 business cards \$150

Furniture

Desk \$475

Three-drawer filing cabinet \$225

Two chairs \$250

Bookshelf \$200

Lamp \$45

Miscellaneous Supplies

Disks, disk holders, paper clips, pens, paper, surge protector \$60

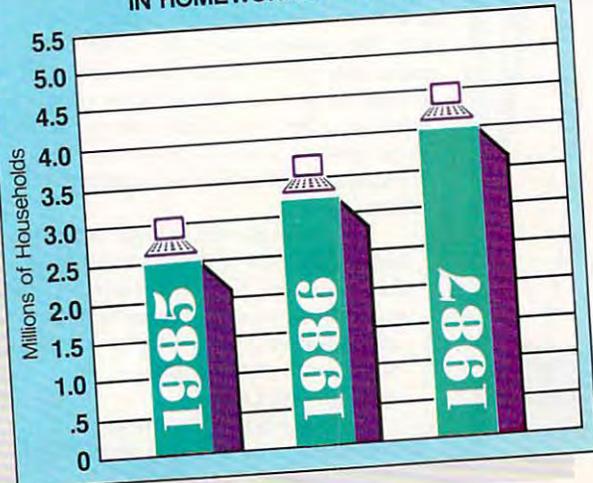
Optional

Modem \$250

Personal copier \$600

Laser printer \$2,700

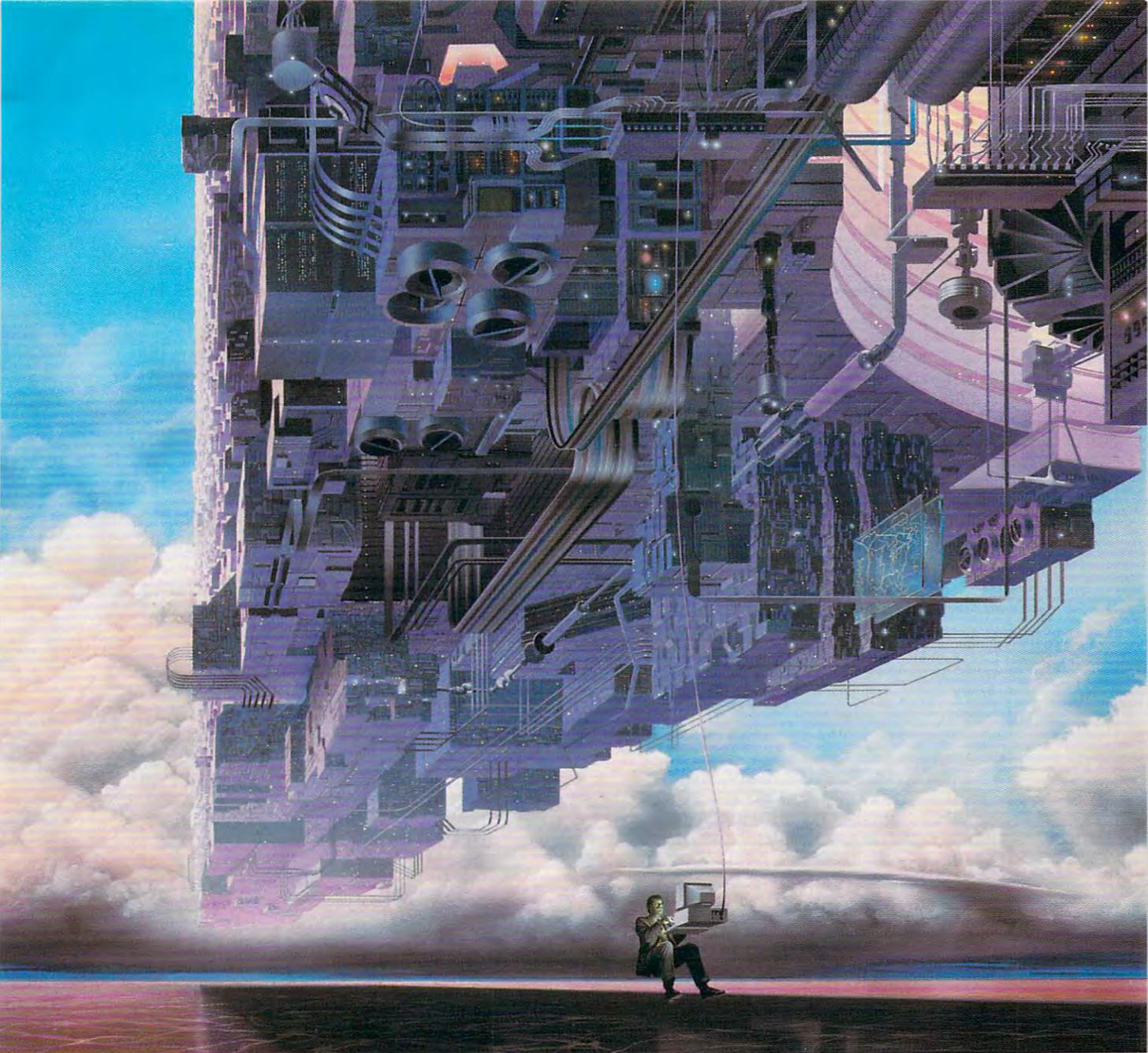
**COMPUTER GROWTH
IN HOMEWORKER HOUSEHOLDS**



Such part-time arrangements eventually lead some individuals down the road to self-employment. They find they already have the office, the computer equipment, and the experience of working at home. All they need is the clientele.

Small-Business Boom

"The usual preconception of corporate work at home is the big Fortune 500 companies," says Miller. "But small businesses have leaped to the fore in discovering the benefits of home workers as a labor pool or lifestyle." ▶



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Computers have proved a boon to these individuals. Miller estimates that about 40 percent of current home-worker computers are in the homes of employees from work sites with less than 25 employees.

The self-employed have particularly taken to the machine. According to Miller's survey, 53.2 percent of those who began working at home in the past 12 months said the computer was *essential* or *very important* to their decision to work at home. "The computer has led some people to go out on their own, using the machine as their primary resource," he said.

Cohen, of the American Home Business Association, agrees. "Home-based businesses today are enabled by the personal computer," he says. "One of the needs is high output, and the computer has enabled consultants—the most typical example—to organize themselves as the one-person businesses that 95 percent of them are."

He notes that a new kind of computer owners is joining his organization. "We've seen in the last year a lot of home-based blue-collar people: construction people, plumbers, people with some kind of inventory who must keep careful records. They're becoming computer-literate."

Working out of the home assists small businesses in a number of ways. First, it lends itself to demanding schedules. The self-employed do not typically work 9 to 5, but often longer and more irregular hours. The home office is always there for them. Second, it's less expensive than an office in a large downtown building.

Third, as Miller says, "Small businesses fluctuate in size and the amount of business they conduct. They may have to staff up to handle a contract." Such ups and downs do not encourage fixed-size offices, but rather decentralized arrangements, with subcontractors who may work at home also.

Intriguingly, more women than men seem to rely on the computer for work at home. Almost 80 percent of the corporate women working at home told Miller's group that the computer was either very or somewhat related to their decision to work at home. Only about 62 percent of the men said that.

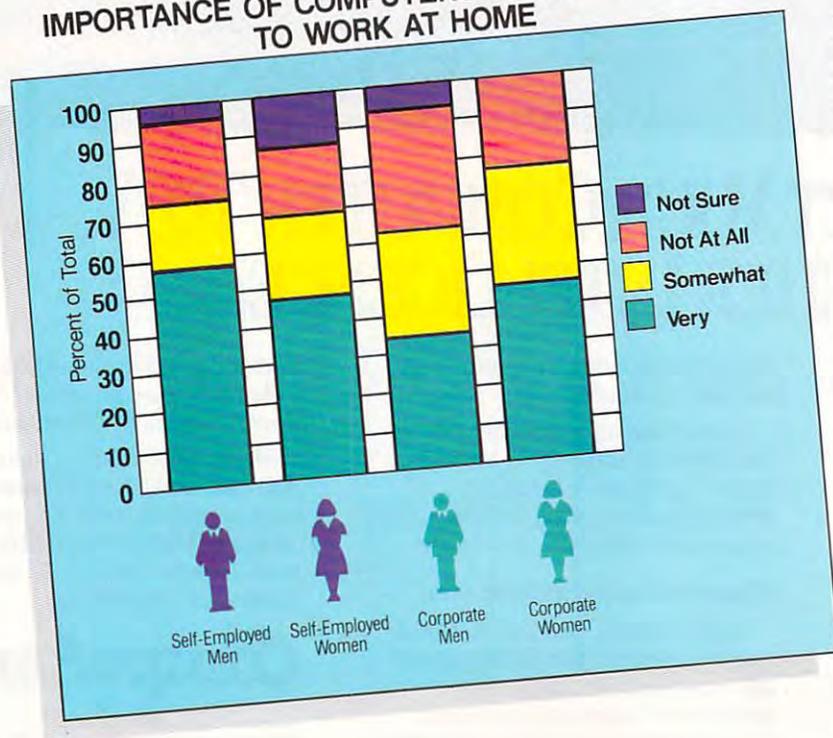
"Often women at home are called on not only to deliver work at home, but to do the household tasks as well," says Miller. "So flexibility in time management is very important to them, probably more so than to men."

The third major distinction is between professional and nonprofessional workers. Professionals aren't the only people to use personal computers while working at home. Another group of home workers? Data-entry telecommunicators. "There are data-entry people for insurance companies, hospitals, and other organizations. It's the so-called *pink-collar ghetto*," says Lenny Siegal, director of the Pacific Studies Center in Mountain View, California.

Data entry is arduous and repetitive, and while doing it at home may work out well for a particular individual, it may also lead to difficulties. "You don't have the protections you have in an office," says Siegal. "For instance, they're often paid by piecework, so there are no benefits, because they're treated as subcontractors."

But, except for such situations, working at home can confer both productivity and peace of mind. It's a happy combination, and it's one that more and more people are learning suits them just fine.

IMPORTANCE OF COMPUTERS TO THE DECISION TO WORK AT HOME



Dan McNeill, who has several books and numerous magazine articles to his credit, works at home as a freelance writer. Paul Freiberger, reporter for the *San Francisco Examiner*, spends more time than he likes to admit in his home office.

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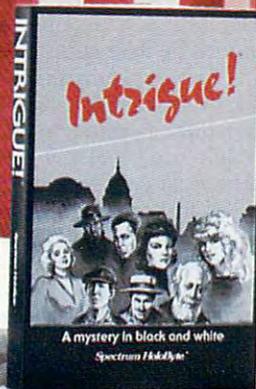
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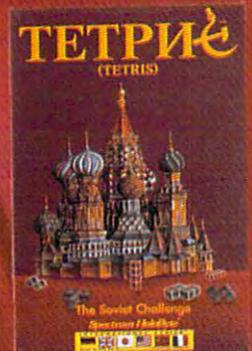
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Maybe the most important thing we've forgotten is our curiosity. Preschoolers have an amazingly deep-seated curiosity that surfaces in the *Why?* question. Why do clouds make rain? Why are there strangers? Why does the sun go away?

It's this curiosity that brings children to the home computer. They see us in front of the machine, working or playing with it, and want to know why it's so fascinating to us. Imitation, they say, is the sincerest form of flattery. If that's true, our children flatter us greatly.

Most of us who use computers generally enjoy the experience. We like the computer's ability to increase our productivity and extend our recreational

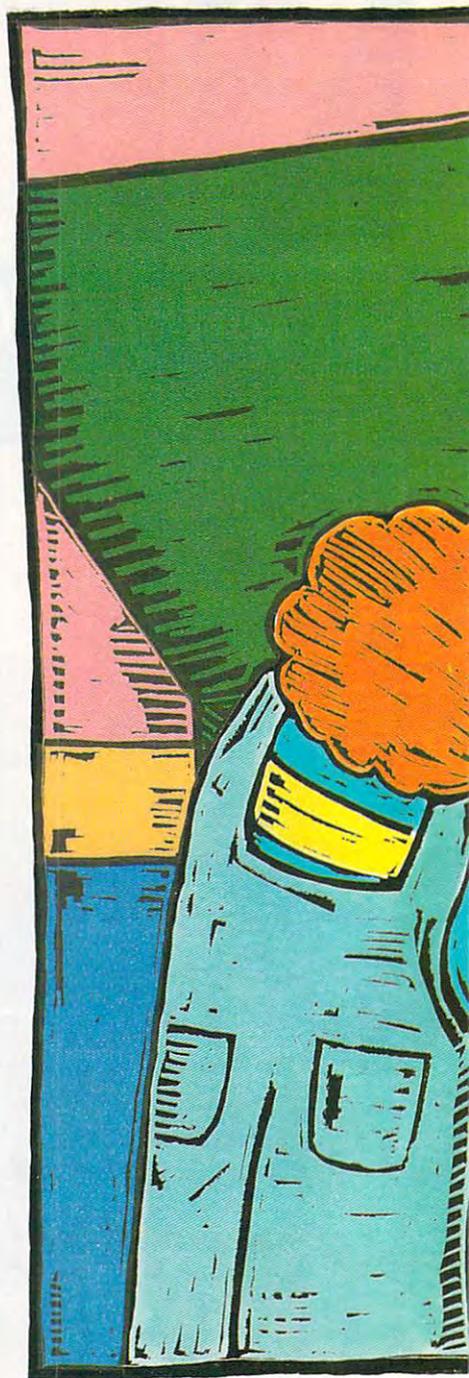
possibilities. Our youngest children, guided by their natural curiosity, eagerly climb onto our laps to see what all the excitement is about. They may even burst into laughter on discovering that holding down a letter key makes the letter appear over and over on the screen.

This sense of joy at learning something new is characteristic of youngsters. As with blocks, paints, or other interactive tools, the computer's ability to respond to the child's actions provides reinforcement for continued exploration.

Properly designed personal computer software can take advantage of this playful activity, and can guide the child toward the acquisition of new skills that may help prepare the child for school.

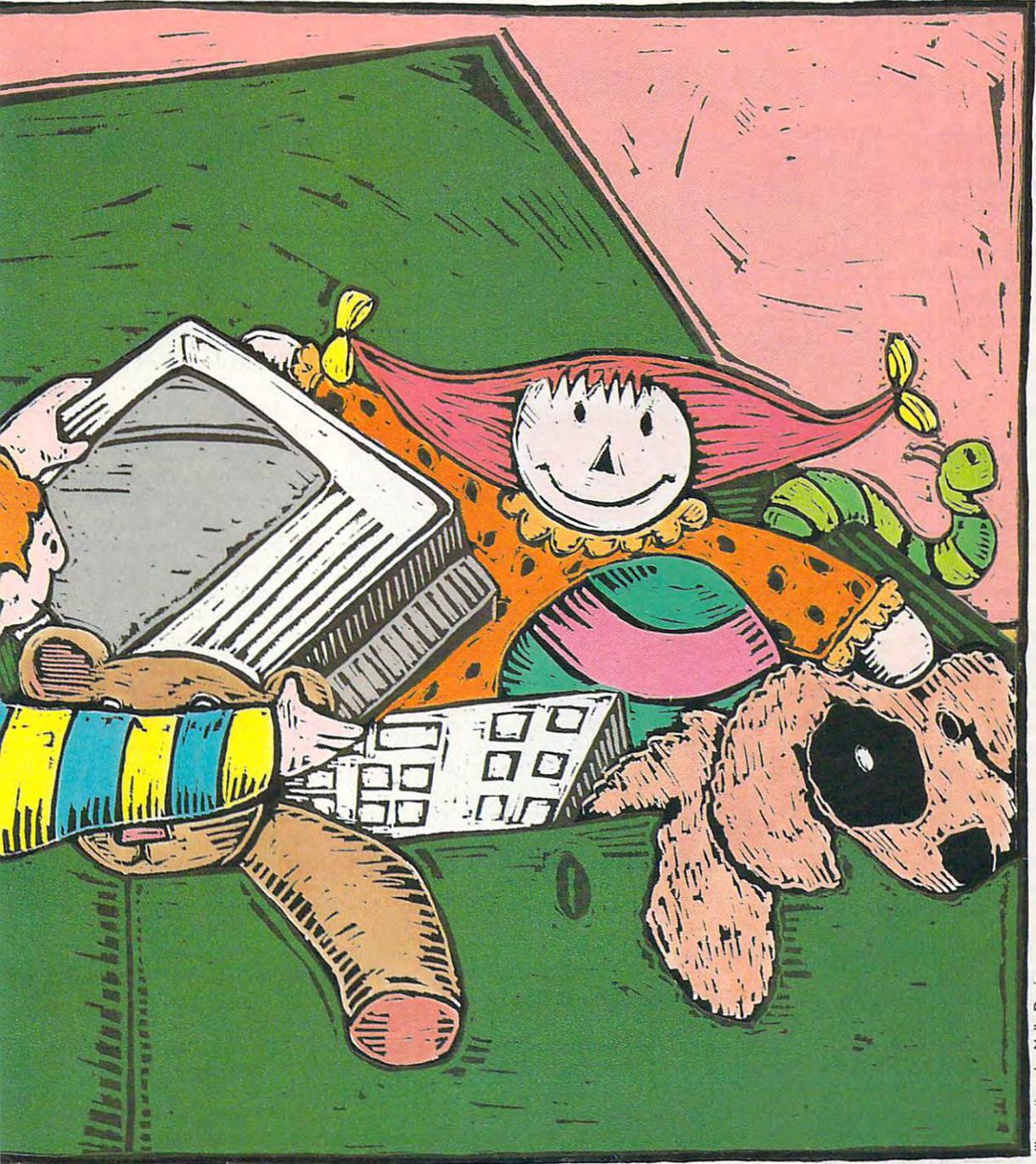
But should the computer join the mobiles, stuffed toys, building blocks, and other things very young children use to learn and develop? It's a question more and more parents are asking.

Let's explore this issue, and along the way describe a few of the many pro-



TIME FOR

David D. Thornburg



Illustrations by Nelle Davis

TODDLERS

grams available for younger children. We'll take a look at the special challenges of early childhood software, establish some criteria for software selection, and then examine a few titles that may be of interest if you have young children at home.

The Special Challenges of Toddlers

While good educational software can be created by anyone who is sensitive to the needs and learning styles of children, good preschool software is harder to develop. You may want to start your search by looking at titles published by companies whose designers include professional educators or people who have worked in the early childhood arena for many years. Some publishers, like MECC (the Minnesota Educational Computer Consortium), Sunburst Communications, and The Learning Company, have well-deserved reputations for excellence. Other publishers are creating good products as well. Even so, remember this: It's harder to write a good program for young children than it is to write one for adults.

A well-balanced program for toddlers and preschoolers has a magical quality. You can seat yourself in front of such a program and find that hours pass without your knowing it. Time seems to stand still because you've entered a state called *flow*. Social scientists who have studied flow have found that not only do people love the experience, but that learning seems to take place without effort.

In the world of computing, I think of flow as our ability to "fall through the looking glass," to go beyond the computer and to be completely engaged with the program as though the computer wasn't there.

As parents, we must be careful to understand that it is the child's flow experience, not ours, that we're trying to facilitate. A program that looks bor-



How Young Is Too Young?

Parents should let children come to the computer. If a child is showing interest in the computer of his or her own accord, then this interest can be supported by the parent.

Computers shouldn't be used as electronic baby-sitters. Young children need to be with other people their own age. Children should be sitting in sandboxes, riding swings, running through fields of grass, throwing rocks into streams, making spaceships out of cardboard boxes, drawing with crayons, and experiencing life with all their senses engaged at once. Viewed from this perspective, the computer doesn't have much to offer. First, it tends to focus on reflective or intellectual activities. The motor skills are associated with the fingers, not with the large muscle groups, and the visual stimulus is highly constrained.

Children learn how to express their own developmental needs. They're great at creating their own games and learning situations. Most reach out to each other to build their own secret worlds whose scope is unknown to adults. Keep in mind that, even without computers, children acquire tremendous vocabularies, social skills, problem-solving skills, and their own sense of identity without any formal teaching at all. With the possible exception of its use for children with special needs, the computer can, at best, be only a tiny supplement to the learning environment that children create for themselves.

I would never buy a computer for a toddler. I would, however, support a toddler's self-expressed interest in computers, just as I would support his or her interest in the piano or books or watercolors.

ing to us may be the most wonderful thing our children have seen. This is easy to forget.

Daddy, Why Does R Come After E?

Have you ever watched a small child struggling with a traditional (QWERTY) keyboard? Not a pretty sight.

The current arrangement of keys on our computers resulted from an attempt to get around mechanical problems in the original typewriter developed during the nineteenth century.

Originally, the typewriter keys were in an alphabetic order. Because of mechanical problems, fast typists would jam the keys too easily. This problem was solved by arranging common letter pairs so they would be as far apart in the type basket as possible. The resulting scramble of keys made the arrangement hard to use.

While there may be historical reasons for perpetuating this

disaster on computer keyboards used by adults, there's no excuse for using it with children. Work by psychologists in the mid-1970s showed that some young children will hum the alphabet song under their breath while looking for the right key on the keyboard. Obviously, this doesn't work very well.

In response to this problem I designed an alphabetic keyboard specifically for young children. The motivation for this layout was *not* to make it good for fast typing, but rather to support the child's intuitions regarding key placement. If you ask a child what letter comes after *E*, he or she will probably say *F*, not *R*. By providing a keyboard that supports children's ideas about letter placement, we can free them to explore a computer program without having to cope with a strange arrangement of keys.

To see how important this is, suppose your child is working with a program that teaches letter sequence (*Alphabet Circus* by DLM has this activity). If the computer asks the child what letter comes after *R* and the child looks at a standard keyboard, he or she will logically type *T*, since this is the next letter on the keyboard. By using a keyboard whose letter order is scrambled, we risk confusing children.

Our work in the mid-1970s resulted in the Muppet Learning Keys, a keyboard for young children that is available from Sunburst Communications for most personal computers. Several of the programs described in this article work with the Muppet Learning Keys, and I've encouraged all software developers to support this keyboard when developing software for young children.

Many people who look at things such as custom keyboards feel that they only prolong a problem, not solve it. After all, these people say, sooner or later our children have to learn how to use the "real" keyboard.

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Thornburg's TOP ToddlerWare

I've already mentioned some spectacular programs such as *Reader Rabbit*, but there are two more that I want to highlight.

The first of these is *Paint with Words*, by MECC, a program with which children can build a picture on a prepared background. The objects for the picture (car, house) are listed as words that can be selected and then moved into place on the background. As each object is moved, its word is replaced by its picture. At any time the child can move the cursor over a picture and see the matching word. Completed pictures can be saved and printed.

The only drawback to this program is that the type size and user interface necessitate parental help.

My favorite program in the preschool collection is *Muppet Slate*, by Sunburst, a word processor for young children that supports both the Muppet Learning Keys and the conventional keyboard. Children can type letters to create words, or they can write with pictures using a built-in picture library. Completed documents can be saved and printed with decorative borders. *Muppet Slate's* user interface is particularly effective—the program can be used for a wide range of activities, from free-form letter play to the creation of letters or posters. Like all Sunburst products, *Muppet Slate* is supported with an extensive manual filled with activities.

This argument misses the point. The function of early childhood software is *not* to make children facile at typing; it's to provide enrichment and opportunities for the exploration of basic skills dealing with memory, letter recognition, the concept of numbers, shape recognition, pattern recognition, and so on. There's plenty of time for typing once the child's small motor skills have reached the point that typing can be properly taught.

Say It, Mom; Say It

While an alphabetical keyboard layout goes far toward solving the young child's needs of giving commands to a computer program, the challenge of providing appropriate output still needs work. Most young children can't read, or if they do read, they do it slowly. As a result, program instructions displayed on the screen are virtually useless unless an adult is with the child.

One possible solution to this problem is to use synthesized speech. Software-based speech synthesizers are available for most personal computers, and several of the programs examined here take advantage of this technology. Unfortunately, many of the programs that use synthesized speech generate a voice that sounds like Donald Duck speaking through a sewer pipe. If you're thinking about purchasing programs that use speech synthesis, have your children listen to the voice with their eyes closed. Can they understand what's said?

There are some wonderful examples of synthesized speech (for example, in The Learning Company's *Reader Rabbit* for the Apple IIGS), but generally the speech quality needs much improvement.

One of the highlights of my journey into toddler software was *Reader Rabbit* from The Learning Company. I looked at the Apple IIGS version, although the program is available for the

mouse. Since they don't automatically load themselves into the computer, adult supervision is required.

First Byte's Bear character is cute. He presents several activities designed to help children recognize and identify basic geometric shapes (square, circle, triangle, and so on). Even though this program was being run on the Fast mode of the IIGS, the delay between activities was too long. Moving from showing a circle to drawing a square, for instance, took the computer 12 seconds.

Like *Reader Rabbit*, *First Shapes* also includes a memory game where children match identical shapes. Since a correct match must be made in both shape *and* color, a color monitor is required.

SmoothTalker is a synthesized speech utility program that includes a talking word processor. I've seen children spend hours playing with simple word processors and speech synthesizers,

taking great delight in making the computer generate speech. As an open-ended activity, it's terrific. While I'm not enthralled with the speech quality, *SmoothTalker* can provide hours of great fun, especially if you're at your child's side as he or she plays with the program.

The way children can make their own toys out of tool programs is very much like the way children can turn a refrigerator box into a spaceship. Open-ended programs that allow the child's imagination to run free are terrific. Word processors are great for this, as are graphics programs. Free-form graphics tools, such as the KoalaPad, are great for kids, as are mouse-based programs such as *Picture Perfect*, by Mindplay. In addition to providing the usual set of graphics tools, *Picture Perfect* also includes a set of 72 prepared picture elements that can be placed anywhere on the screen that the child wishes.

Apple II, Commodore 64, and MS-DOS computers as well.

Reader Rabbit contains several activities to help children ages 5–7 learn to read, including matching patterns to a target word, unscrambling letters to form words, finding words that differ from each other by one letter, and a well-done Concentration-style game to help memory development. *Reader Rabbit* can be used with the standard keyboard, the Muppet Learning Keys, a KoalaPad, or a joystick. With this kind of flexibility, almost any child in almost any setting can use the program.

The Apple IIGS version, which even has a speech synthesizer built-in, produced some of the best generated speech I've ever heard. My 4-year-old tester said it was easy to understand.

The other products I saw that generated speech on the Apple IIGS were *First Shapes* and *SmoothTalker*, both from First Byte. These programs require 768K of RAM and use a

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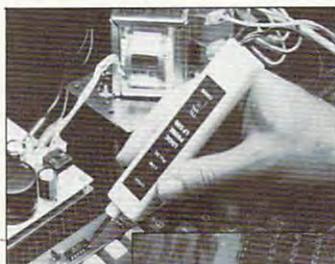
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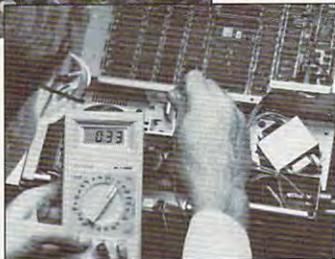
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SOFTWARE FOR THE TODDLER

Free Discovery

Several publishers have created programs designed to be used in the spirit of free discovery.

● **Hodge Podge—The Playful Alphabet**, by Artworx, is one example of free-discovery-style software. Children as young as 18 months can enjoy pressing keys on the keyboard and seeing a picture or animation appear on the screen with musical accompaniment. Each key produces a different result.

● **Muppets on Stage**, from Sunburst, has several activities built around the Muppet Learning Keys, ranging from free-form exploration to more structured activities such as counting and letter recognition. The Sunburst manual is loaded with ideas for this program.

Recognizing Letters

Letter recognition is a popular topic for developers of early childhood software.

● **Stickybear ABC**, from Weekly Reader, a program that focuses on letter recognition activities, is accompanied by a hardbound picture book and includes a parent's manual with many excellent suggestions. For example, pressing the N key brings up a nighttime picture. The manual suggests that if the child says this is a picture of stars, the parent should say, "Yes, there are stars in this picture. Do stars appear in the day? No, stars appear at _____." This is welcome coaching for parents.

● **First Letter Fun**, from MECC, explores the matching of initial sounds with letters (it contains examples for all letters except Q and X). After being shown a picture, the child has to find the key representing the initial sound of the object. The graphics are particularly well done.

● **Stepping Stones**, by CompuTeach, explores letter and word recognition through a variety of activities that familiarize the child with the alphabet, teach the relationship between letters, words, and objects, and reinforce the

concept that words are formed from a series of letters.

● **Alphabet Circus**, by DLM, is another letter-recognition program that explores, among other things, letter sequence. Because of the small type used on the screen and because of its written instructions, this program needs parental involvement when used with young children. Unfortunately, *Alphabet Circus* uses the standard keyboard, which can be confusing for the letter-sequence game.

● **Charlie Brown's ABC's**, by Random House, has wonderful graphics. The child presses any letter, and a picture associated with that letter appears on the screen. When the same letter is pressed again, the picture becomes animated and is accompanied by music.

● **Getting Ready to Read and Add**, by Sunburst, takes advantage of the Muppet Learning Keys, although it can be used with a regular keyboard. The program contains several activities designed to help children recognize letters and patterns, discriminate between different shapes, and develop their memory.

● **The Muppet Word Book**, by Sunburst, includes a number of activities designed to help children learn to complete simple words and discriminate between letters and symbols. This program's graphics are excellent.

Thanks for the Memory

Memory development is featured in many programs for preschoolers.

● **Animal Hotel**, by Learning Technologies, plays memory games with children by hiding a group of animals in several rooms. The child is shown all the animals for up to five seconds; then the doors close. When an animal appears on the screen, the child has to choose the matching room.

● **Memory Building Blocks**, by Sunburst, uses a similar show-and-hide game to get children to pair matching shapes, pictures, words, or musical passages (this program can even be chal-

lenging to adults at some levels).

Another Sunburst product, **Muppetville**, provides more activities of this type, but with greater sensitivity to the needs of young computer users.

● **Math and Me**, by Davidson and Associates, provides lots of activities suitable for children ages 3–6. While this product is well done, it reflects a tendency toward the drill programs for which this company is so well known. My own preference is geared toward less structured activities.

● **The Learning Library, Volume One**, from Sesame Street, is a series of games designed to help children develop their basic counting and pattern recognition skills through activities based on Sesame Street characters. As with the Muppet materials, these programs have a magic touch that makes them quite appealing to young children.

Other Stuff

There are a number of other computer-based activities appropriate to young children. Here's just one example.

● **Stickybear Opposites**, by Weekly Reader, lets children explore opposing word pairs such as *above/below* and *off/on*. This program is very well done, and is accompanied by a copy of *Yes and No*, a hardbound picture book by Richard Hefter.

The Sound of Little Fingers

In homes equipped with personal computers, the patter of little feet is often accompanied by the sound of little fingers on the keyboard. As we explore the use of personal computers by very young children, it's important that we, as parents, don't feel the need to pressure our children for achievement, but instead, that we allow them to develop at their own pace.

The computer, like books, blocks, dolls, and toy trucks, may be a wonderful tool for child development, but nothing can compare with the power of a warm word and a warm hug.

Toddler Software

Alphabet Circus

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Animal Photo Fun

\$32.95—Apple II

DLM

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Allen, TX 75002
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Learning Technologies

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Charlie Brown's ABC's

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First Letter Fun

\$55.00—Apple II

Paint with Words

\$55.00—Apple II

MECC

3490 Lexington Ave. N.
St. Paul, MN 55126
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(800) 782-0032 (Minnesota)
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First Shapes

\$49.95—Amiga, Apple IIGS, Atari ST, Macintosh
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SmoothTalker

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Getting Ready to Read and Add

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Muppets on Stage

\$65.00—Apple II

Muppet Slate

\$75.00—Apple II

Muppet Learning Keys required

Muppetville

\$65.00—Apple II

The Muppet Word Book

\$65.00—Apple II



Quality Time

One of the tragedies of our time is that we've allowed the television set to become an electronic baby-sitter. Many young children spend countless hours watching an array of programming without any parent support or supervision. I remember a friend telling me that his child's first song was "You deserve a break today."

Many parents who are concerned about the passive nature of television look to the interactive nature of the computer as a positive alternative. If this is the only change that's made, it's hard to see how the computer is much better than the television set. What our children need is our physical presence. They need us by their side, sharing their joys and sorrows.

Fortunately, computer time can also be parent time.

Rather than setting your child up with a program and then leaving the room, set your child on your lap so the two of you can work with the program together. Let your child make the decisions and press the keys. You can be a resource for support, encouragement, and guidance.

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Hodge Podge

\$14.95—Apple II, Atari, Commodore 64/128, IBM PC and compatibles

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(716) 385-6120

Math and Me

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Picture Perfect

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MindPlay

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Suite 301
Danvers, MA 01923
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Reader Rabbit

\$39.95—Apple II, Commodore 64/128, IBM PC and compatibles with 256K
\$59.95—Apple IIGS, Macintosh

The Learning Company

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David D. Thornburg, noted computer hardware and software developer, is a nationally known speaker and writer on educational computing issues, as well as a contributing editor to *COMPUTE!* magazine.

new products!

Computer Crayons

Polarware has announced the release of *Holidays and Seasons*, the latest in the Electric Crayon Computer Coloring Book series. This Deluxe version is available for Apple and IBM computers.

The program includes 30 line drawings inspired by major holidays and the seasons. You can point and click on the color palette and then click in an area to be filled. The Apple version has 256 colors, and the IBM version has 16.

Each program in the Deluxe series makes custom banners, calendars, and posters. You can design banners with colored pictures printed at each end and personal messages in the middle. Posters can be made with custom messages printed below artwork. You can also add art to wall calendars. The package includes 64 four-color stickers to mark special occasions.

Holidays and Seasons has a suggested retail price of \$29.95.

Polarware, 1055 Paramount Pkwy., Suite A, Batavia, IL 60510

Circle Reader Service Number 200.

Four Adventures in One

Free Spirit Software has released *Moffatt's Adventure Disk #2*, a collection of four text adventures for the Commodore 64.

In the first game, *Temporal*, the player's character is hit in the head with a brick, sending him into a surrealistic world. The object of the game is to return to reality.

An old western town is the setting for *West*, the second text adventure. The player controls a character that arrives as a stranger in town. The sheriff deputizes the character and then directs him to capture the evil Black Bart.

In *Death Valley*, the player's character is stranded in the desert without food or water. Using survival techniques, the player must return to civilization.

A group of spies have set up headquarters on a remote island in *The Lighthouse*, the fourth adventure on the

disk. The player must complete a mission to capture them.

The suggested retail price for *Moffatt's Adventure Disk #2* is \$19.95.

Free Spirit Software, 905 W. Hillgrove, Suite 6, La Grange, IL 60525

Circle Reader Service Number 201.

Commodore Gallops into PC Market

Commodore Business Machines has introduced an IBM PC XT-compatible system called the Commodore Colt. This expandable personal computer comes bundled with a custom version of Micropro's *WordStar/Colt*, a word processing program.

The Colt features an 8088 microprocessor, 640K of RAM, and two 5¼-inch floppy drives. The computer comes with built-in graphics adapters, video and mouse interfaces, and parallel and serial ports. A full-size keyboard is also included. In addition to *WordStar/Colt*, the computer comes with MS-DOS 3.2 and GW-BASIC.



The Colt is Commodore's first IBM PC XT-compatible system.

The Colt also has three full-length, PC XT-compatible slots for hardware expansion. The Colt features an 8087 math coprocessor socket and enough space and power to accommodate an in-

ternally mounted hard disk drive. The built-in autoconfiguration BIOS automatically recognizes installed add-ons.

The Commodore Colt is available from mass-merchandise outlets at a suggested retail price of \$899.95.

Commodore Business Machines, 1200 Wilson Dr., West Chester, PA 19380

Circle Reader Service Number 202.

Hi Tech Extends Sesame Street

Hi Tech Expressions has released several new titles in its Sesame Street line of educational software for preschoolers.

The *Sesame Street Print Kit* is a print program featuring the Sesame Street characters. You can design and print cards, signs, storybooks, invitations, and banners. Features include a line-by-line text editor and seven typefaces in three sizes with boldface, italics, shadow, and outline effects. Graphics from Hi Tech's *PrintPower* are compatible with the *Sesame Street Print Kit* and provide more printing options.

The program is available on IBM/Apple and Commodore/Atari flip disks and has a suggested retail price of \$14.95.

Volumes 1 and 2 of the *Sesame Street Learning Library* contain three Sesame Street educational software titles currently published by Hi Tech. Volume 1 features *Astro Grover*, *Ernie's Magic Shapes*, and *Big Bird's Special Delivery*. The programs in volume 2 include *Grover's Animal Adventures*, *Ernie's Big Splash*, and *Pals Around Town*. Included with each volume is a 12-page *Learning Guide* for parents and teachers that contains the follow-up activities.

Both volumes are available for the Commodore 64 and for the IBM PC and compatibles. Volume 1 is also offered for the Apple II series. Each volume has a suggested retail price of \$24.95.

Hi Tech also has released *Ernie's Magic Shapes* and *Big Bird's Special Delivery* separately for the Apple II series. The two programs require at least 128K and have a suggested retail price

new products!

of \$9.95 each. Both programs have been released previously for the Commodore 64, Atari eight-bit computers, and the IBM PC and compatibles.

Hi Tech Expressions, 584 Broadway, New York, NY 10012

Circle Reader Service Number 203.

Accolade Hall of Fame

Accolade has introduced a new product line that includes several of the company's most popular software titles at a reduced price. Accolade's All Time Favorites are available at a suggested retail price of \$14.95 each.

The titles include *HardBall!*, a three-dimensional baseball game that is available for the Commodore 64, the Apple II series, and the IBM PC and compatibles, and *Ace of Aces*, an aerial-warfare simulation game that is being offered in IBM and Commodore 64 versions. Other titles include *Fight Night*, a boxing game, and *Dam Busters*, a World War II bombing-mission simulation. Both are available for the Commodore 64 and the Apple II. *Law of the West*, an Old West adventure, is available for the Apple II, and *Psi 5 Trading Co.*, a space adventure, is being offered in an IBM PC version.

Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128

Circle Reader Service Number 204.

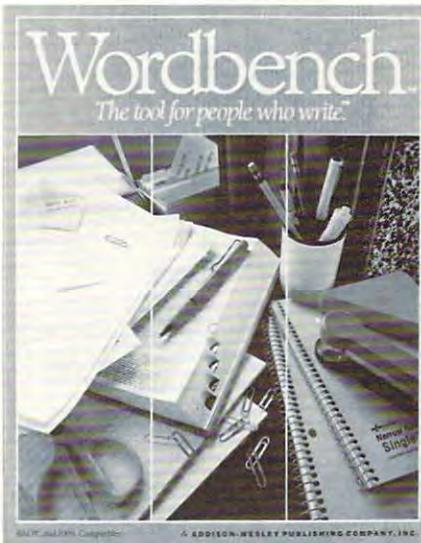
For Writers

Addison-Wesley Publishing has released the *Wordbench* word processor, which is designed to help people through the writing process.

Wordbench consists of six components that help organize notes in a database, develop an outline, generate a first draft, construct reference citations, check spelling, and use a thesaurus. An Add-In Manager incorporates outside writing exercises in the writing project.

Wordbench is available for the IBM PC and requires a minimum of 256K, one or two 3½-inch disk drives or two 5¼-inch disk drives, or a hard disk. It operates under DOS 2.0 or higher and can be used on a monochrome or color monitor. The suggested retail price is \$189.

An Apple II version is also available and requires a minimum of 128K and one disk drive, although two are recommended. The program operates under ProDOS 8 and has a suggested retail price of \$149.



The *WordBench* word processor helps writers organize their information.

The IBM and the Apple versions include 5¼- and 3½-inch disks.

Addison-Wesley, Reading, MA 01867

Circle Reader Service Number 205.

New Education Line

Mindscape has introduced its first home-school education line with six new programs.

Riddle Magic allows children to create and print their own riddle books using an 1800-word riddle dictionary. With *Vocabulary Challenge*, children participate in four activities that reinforce word association, analogy, recognition, classification, and definition for over 3000 words.

In *Drug Alert!*, players must get through a maze and gather information that will help them solve drug-related problems. Parents can take part in this interactive, role-playing game.

Rebus Writer encourages students to increase word power, dictionary skills, and imagination while deciphering pictures and symbols to complete phrases and titles.

Children can learn basic math facts with *Jumping Math Flash*, an arcade-style mathematics drill program. With *Grammar Mechanics*, children earn prizes as they correct grammatical errors while participating in a scavenger hunt.

All six programs are available for the Apple II series of computers and include backup disks. *Drug Alert!* has a

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suggested retail price of \$39.95, and the other five programs sell for \$49.95 each.

Mindscape has also released *Software-Catalog-on-a-Disk*, a list of software programs organized by curriculum, grade level, and computer format. The free disk is available for the Apple II. Send requests to the attention of Joann Pierre at Mindscape.

Mindscape, 3444 Dundee Rd.,
Northbrook, IL 60062

Circle Reader Service Number 206.

To Your Health

Paragon Concepts has released *PC-Fitness*, a software program that monitors aerobic exercise for health and weight loss. The program is designed for professionals in the health and fitness industry.



PC-Fitness is designed to help health and fitness professionals develop programs for their clients.

You can evaluate, analyze, and graph the progress of each participant's fitness program. Each person's individually tailored program is determined by an onscreen questionnaire. *PC-Fitness* then recommends a routine that prescribes how often and how long the person should exercise, the target exercise heart rate, and the exertion necessary to achieve desired results. The software also tracks the caloric consumption of more than 50 exercises.

The program gives appropriate warnings or recommendations for each exercise. Printed progress reports analyze the exercise activity, offer suggestions, list activities with dates and duration, and project weight loss.

PC-Fitness requires an IBM PC XT, AT, or compatible with a least 512K RAM and supports both monochrome and color monitors. The suggested retail price is \$329.

Paragon Concepts, 4954 Sun
Valley Rd., Del Mar, CA 92014

Circle Reader Service Number 207.

Discover Computers

Amstrad is bundling software called *The Discover Kit* with its line of personal computers. The kit is designed for people with little or no computer experience.

A collection of word processing, spreadsheet, and database programs guide you with step-by-step, interactive instructions. A calculator, a weekly planner, and an address file are also a part of the program.

As you become better acquainted with the computer, you can try a collection of additional software demos and samplers that are included with the kit. The package also comes with discount coupons for computer-related products and a can of static guard.

Amstrad, 1915 Westridge Dr.,
Irving, TX 75038

Circle Reader Service Number 208.

ST Hard Drive Update

Supra Corporation has announced the addition of several new features for its SupraDrive hard disk system for Atari ST computers. SupraDrives are external drives that plug directly into the ST's DMA port.

The new features include a 19-pin Atari DMA port, which passes the Atari's DMA signal through the SupraDrive to any attached DMA device such as a laser printer, Atari hard disk drive, or other peripheral. Supra has also added a 25-pin SCSI port that allows additional SCSI devices, such as hard disk drives, tape drives, and CD-ROMs, to be connected.

The system includes a battery backed-up, realtime clock and calendar that remembers the time and date even when the power is off. Supra has also added a cooling fan to handle the additional heat buildup from the new components.

SupraDrives are formatted and ready to use, including all required cables. Also included with the package is utility software that supports autobooting and allows the hard disk to be di-



Supra has added several new features to its line of SupraDrives.

vided into 12 logical drives.

The hard disk drives are compatible with all Atari ST computers, the TOS operating system, all Atari ST applications software, and all DMA bus peripherals and SCSI devices. Capacities range from 20 to 250 megabytes. The suggested retail prices start at \$699 for a 20MB drive.

Supra, 1133 Commercial Way,
Albany, OR 97321

Circle Reader Service Number 209.

64 Desktop Publishing

Electronic Arts has released a desktop publishing program for the Commodore 64. With *PaperClip Publisher*, you can create multiple-column page layouts for many publications, including newsletters, flyers, price lists, menus, greeting cards, résumés, and brochures.

The program supports documents of up to 50 pages and various page sizes. Other features include the ability to work outside a document for temporarily holding text and graphics, an automatic update of any altered part of a document, the ability to move articles from page to page, and What You See Is What You Get display.

The suggested retail price is \$49.95.
Electronic Arts, 1820 Gateway Dr.,
San Mateo, CA 94404

Circle Reader Service Number 210.

Dial Activision

Activision has increased its support on several electronic bulletin board services and has established its own Electronic Support Bulletin Board System.

Subscribers to CompuServe Information Services, The Source, GENie, and QuantumLink can receive information on new products from Activision; selected product demonstrations; technical support for all Activision,

Gamestar, and HyperWare products; updates on product upgrades and availability; and general company news.

The Activision BBS is online 24 hours a day, seven days a week. The BBS menu offers help, product bulletins, product information, product ordering, support for individual products and product lines, conferences, and special interest groups. Modem owners can connect with the Activision BBS by calling (415) 329-7674.

Activision, P.O. Box 7286, Mountain View, CA 94039

Circle Reader Service Number 211.



Jensen's Lap-Top Computer Cases are designed to carry most portables.

Laptops Get Carried Away

Jensen Tools is offering Lap-Top Computer Cases in three models designed to carry NEC, Zenith, Toshiba, Tandy, and other major laptop computers.

The softside cases are made of Pro-pex, a ballistics nylon fabric that is sometimes used in bulletproof vests. The interior of each case is made of diced foam.

Model 363B001 measures 18 x 13 x 4 inches and features an outside pocket. It has a suggested retail price of \$109. Model 363B004 measures the same as the preceding model, but contains a removable, multipocketed portfolio that snaps inside the case cover. It retails for \$129. The third model, 363B005, measures 18 x 13 x 15

inches and has the removable portfolio and an attached zipper-close pocket for a printer. It sells for \$149.

All three models meet airline carry-on luggage requirements.

Jensen Tools, 7815 S. 46th St., Phoenix, AZ 85044

Circle Reader Service Number 212.

Can't Win? Then Cheat!

Alpha Systems has released a program that allows users to alter their Atari eight-bit games. *Cheat!* is a utility program that shows users screens they have never seen, allows them to play with an unlimited number of lives, and displays what happens when they win.

The utility works with over 100 eight-bit Atari game programs. After players master the game, they can change the game back by using the *Un-cheat!* utility.

Cheat! requires a disk drive and has a suggested retail price of \$24.95.

Alpha Systems, 1012 Skyland Dr., Macedonia, OH 44056

Circle Reader Service Number 213. □

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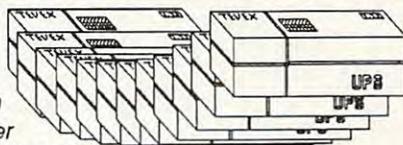
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MS-DOS

The PC community has been buzzing lately with the release of several exciting new products.

For power users, there's *SideKick Plus* from Borland International (4585 Scotts Valley Drive, Scotts Valley, California 95066; 408-438-8400; \$199.95), the company that put TSR (Terminate but Stay Resident) programs on the map with *SideKick*. Even though it bears the *SideKick* name, *SideKick Plus* is not just an enhancement of its namesake but is an entirely new desktop organizer that lets you custom design a version of the program that fits your needs.

The modules you can incorporate into your design include a full-featured telecommunications program complete with background communications; an appointment calendar with alarm; a notepad; an outliner; business, scientific, programmer, and formula calculators; and a file manager. Although this package contains some familiar *SideKick* modules, the power of the new *SideKick* is evident from the new applications.

As you might expect, this power exacts a price. A full working version of *SideKick Plus* uses 384K of RAM. There are two ways to ease this memory burden. First, if you have expanded memory, the program can be configured to use

only about 70K of conventional memory, storing the rest in the expanded memory. If you don't have expanded memory and your conventional memory is limited, you can run *SideKick Plus* as a non-memory-resident application. For those who don't need the power of the new *SideKick*, Borland still sells the tried-and-true *SideKick* for \$84.95.

Power painting is finally here for the PC. To unleash the artist in MS-DOS users, Electronic Arts has released *Deluxe Paint II* (1820 Gateway Drive, San Mateo, California 94404; 415-571-7171; \$99.95), a drawing program with an amazing array of features and excellent video display support that includes Tandy 16-Color, EGA, MCGA, and VGA. *Deluxe Paint II* brings drawing power to the PC that previously had been the exclusive domain of the Apple IIGs and the Commodore Amiga.

What makes *Deluxe Paint II* so impressive is its combination of features and ease of use. The program's toolbox is large, and individual tools are well designed and easy to learn. Included in the toolbox are several built-in brushes (more can be custom designed or loaded from disk), an airbrush with an adjustable nozzle, tools for drawing straight and curved lines, and four flexible shape-drawing tools. Text can be incorporated into drawings with several fonts. Although *Deluxe Paint II* can be used with Hercules black-and-white graphics, it's at its best with a high-resolution color card. If you have an EGA, MCGA, or VGA graphics system and want to put it through its paces, try *Deluxe Paint II*.

Windows for the rest of us is available in the form of *DeskMate*, a desktop interface first introduced by Tandy in 1984 for its own line of computers. Tandy is licensing *DeskMate* to developers and is selling the PC-compatible

product in its 7000 Tandy and Radio Shack stores. Unlike *Windows*, which is cramped on anything less than a 80286-powered AT with one megabyte of expanded memory, *DeskMate* can run on 8088- and 8086-based systems. *Professional DeskMate*, the version currently available for PC compatibles, supports networking and sells for \$119.

New PCs for Old

Drawn by the promise of more speed and power, many IBM PC and XT users are considering upgrading to an 80286-powered AT-class machine. For those who want to move into the fast lane, there are three upgrade paths from PC to AT. The first option is simply to buy a new computer. This is the easiest solution, but it's also the most expensive. The second option is to install a speed-up card like Microsoft's Mach 20. This is attractive, but it's a compromise: Your upgraded PC will be faster, but you won't have the other benefits of an AT—such as the ability to use AT expansion cards, AT-class hard disks, and faster memory.

The third option—one that is becoming more popular all the time—is to install a new motherboard in your current PC. At best, you'll turn your present PC into a bona fide AT; at worst, you'll wind up spending more money for this upgrade than you'd spend on a new machine. For those considering a new motherboard, here are some useful tips and potential traps.

Replacement motherboards—sometimes called baby AT boards—are custom designed to fit into the PC's case, which is smaller than the AT's. The real problem with replacing a motherboard is not fitting it into your present PC, but figuring out just how many of your PC's components will

COMPUTE! *specific*

work with your new system. This isn't always easy.

With memory prices rising daily, the first thing most PC users will want to know about is using their present memory chips in the new board. Whether the chips will work or not depends on their speed. If your PC's chips are 150-nanosecond (ns) chips, you'll be able to use them on your new board. If they're slower (200ns or 250ns), you won't.

Disk drive controller cards for both hard and floppy drives should work without problems, and video and bus mouse cards shouldn't present any problems either. The situation is different with input/output (I/O) cards. Multifunction I/O cards almost certainly won't work. Regular I/O cards—those with one serial and one parallel port—*may* work, but there's no way to tell in advance. You'll just have to install the board and try it. Memory boards almost certainly won't work.

The power supply is the next component to consider. If you have a 135-watt or larger supply, you're in good shape. If not, you'll have to beef up the supply.

As for the case, the standard slide-off PC and XT case won't accommodate AT cards: They're too tall to let the case slide over them. XT flip-top cases will work fine, however. You may not want to use AT cards right away, but someday you will. If you're thinking of buying a new case or a new power supply, or both, the power supply must fit the case—AT and XT power supplies are different sizes—so be sure they match.

If you have a vintage IBM PC, the case may be a special problem. The original IBM PC uses five expansion slots—three less than a typical 286 board. While you'll be able to use the additional three slots, you won't be able to use them for cards with ports; there won't be openings at the back of the case to coincide with the extra three slots. Another problem with IBM PCs is that their keyboard port is located in a different spot from the port on modern motherboards. The solution is to drill a hole in your case for the new connector.

The last component to consider is the keyboard. If your present keyboard is switchable between XT and AT input (look for the switch on the underside of the keyboard at the end nearest the system unit), it will work without problems. If your keyboard is AT-sensing, it may or may not work properly. If it's neither switchable nor AT-sensing, you'll have to buy a new keyboard.

To sum up the upgrade situation, if your present machine is an XT compatible with 640K on the motherboard, 150ns chips, 135-watt or higher power supply, a flip-top case, and an AT/XT-switchable keyboard, your upgrade to a 286 will simply be the cost of the motherboard plus, probably, an I/O card. As your system deviates from this optimum machine, the cost of upgrading will rise. If you find yourself having to buy a new keyboard, power supply, and case, it may be less expensive to sell your present machine and buy a 286.

Tooling Up

One of the hottest-selling disk utilities this year is Central Point Software's *PC Tools Deluxe* (9700 S.W. Capitol Highway, Portland, Oregon 97219; 503-244-5782; \$79). This package includes a DOS Shell, a disk optimizer, a backup utility, and integrated format and data recovery programs.

The DOS Shell makes file and disk management easy. Copying, moving, renaming, viewing, and editing files (including viewing and editing disk sectors) all are accomplished with easy-to-follow menus and prompts.

One of *PC Tools'* outstanding disk-management functions is directory *prune and graft*. This command sequence makes it easy to rearrange a disk's subdirectory structure. For example, let's say you have three subdirectories in your root directory that you've decided you'd like to collect under one new subdirectory. With DOS, this is an afternoon project: You must create new directories, move files, erase files, remove sub-

directories, and so on. With *PC Tools*, it's quick and easy. You simply tell the program which directories you want to move and where you want to move them, and it's done.

COMPRESS, *PC Tools'* disk optimizer, improves disk performance by rearranging each file so it occupies one continuous area on the disk. There are three levels of optimization. Each takes progressively longer to perform, but each is more effective than the last. *COMPRESS* also has a surface scan component that tests every cluster on your disk, detecting disk problems before they can cause trouble.

PC Tools' other options are all solid performers. The *FORMAT* command is especially noteworthy. It replaces MS-DOS's *FORMAT* and allows you to recover any information from a formatted disk, as long as the information has not been overwritten. Most PC users will sleep a little easier at night with the added security *PC Tools'* *FORMAT* provides.

— Clifton Karnes

ested in telecommunications, this is a great deal. Admittedly, 300 baud is slow, and eventually you'll want to upgrade to 1200 baud or higher, but the 1660 modem is designed for the 64 and works just fine.

This offer applies only to new members. For more information, contact QuantumLink at 8619 Westwood Center Drive, Vienna, Virginia 22180, (800) 782-2278.

For those unfamiliar with it, Q-Link is a Commodore-specific communications service. It's easy to use because it successfully eliminates obscure commands and terminology found in non-Commodore-specific services such as CompuServe. In Q-Link, you don't need to know about parity, end-of-line compatibility, capture modes, or any other telecommunications jargon. You simply boot up, enter the service, and choose what you want to do.

The services include an information network, with a hot line to Commodore; an educational section, including tutors and software downloads; a news network; and an entertainment area. Another area concentrates on realtime communications with other people, with various rooms as the arenas for different topics. You might want to visit a discussion on one of Q-Link's games, for instance, or you might want to socialize with someone. During a recent socializing activity in the Over-30 room, I saw a pretty convincing pick-up effort; my only difficulty was figuring out whether the man was trying to pick up the woman, or vice versa. The abbreviated phrases were a bit perplexing.

Desktop Publishing

The latest entry in the C64 Desktop Publishing sweepstakes is Batteries Included's *PaperClip Publisher*. Coming on the heels of BI's *PaperClip III*, *Publisher* is the natural extension of one of the 64's oldest lines of productivity software.

Its major competition is *GeoPublish*, a desktop publishing program from Berkeley Softworks. Choosing one over the other depends on a num-



As I write, there's still time to take advantage of QuantumLink's modem and membership offer. For \$39.80, Q-Link will send you a Commodore 1660, 300-baud modem and the first four months of Q-Link membership, which includes the software you need to get going. Considering that the modem alone usually sells for more than that, and that Q-Link is a very good starting point for 64/128 owners inter-

ber of considerations. First, *GeoPublish* is somewhat more complex. This means it has more options, but it's also more difficult to use. Second, *Publisher* doesn't support laser printers, while *GeoPublish* contains *GeoPubLaser*, designed for use with an Apple LaserWriter.

The major difference is price. Although the two packages are not far apart in price, *GeoPublish* has a hidden cost—it requires *GEOS*. *PaperClip Publisher* does not require *PaperClip III*; in fact, it contains a utility to convert text files from *PaperClip*, *Bank Street Writer*, *Word Writer* (I or III), and *PaperBack Writer*. It will also convert graphics files from *Print Shop*, *Newsroom*, *Print Master*, *Outrageous Pages*, and *Doodle*. Another utility lets you convert fonts from *GEOS* and *Outrageous Pages*.

Like many WYSIWYG (What You See Is What You Get) desktop publishing programs, *Publisher* creates a page through the use of boxes positioned on a screen display. You draw a box, using either a joystick or mouse, and then fill it with either text or graphics. You can change the attributes of each box separately, selecting a font, an ink color, the vertical and horizontal margins, *x* and *y* magnification (to expand or shrink graphics), leading, and tracking. Leading sets the amount of white space between lines, while tracking specifies the number of pixels between characters and words.

Publisher's most impressive feature is its sheer ease of use. You access commands from a Tool display, with options such as Box to Back, Hide Rulers, Hide Box Outlines, Pour Text, Mop, Link, and QuickView. QuickView is especially important, since every time you change something, the entire screen, with all boxes and their contents, must be redrawn. Recognizing this as a potential annoyance, *Publisher* can turn off the contents of all boxes or all but the box you're working with.

Publisher works in 64 mode only; consequently, 128 owners must reckon with reduced disk speed. Also, *Publisher* supports only a single-

disk-drive configuration. If *PaperClip's* record is any indication, BI will continue to upgrade *PaperClip Publisher*, and in time it could well be the premier desktop publishing package for the 64. Right now, it's certainly the program for anyone who does not own *GEOS*.

PaperClip Publisher is available from Batteries Included, a division of Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; 800-245-4525), for \$49.95.

Guns and Sorcery

SSI (Strategic Simulations, Inc., 1046 North Rengstorff Avenue, Mountain View, California 94043; 415-964-1353) has released several new games for the 64/128. Two are of particular note. *Sons of Liberty*, a computer war game based on the Revolutionary War, complements the company's American Civil War game system made popular in *The Battle of Antietam*; *Gettysburg: The Turning Point*; *Rebel Charge at Chickamauga*; and *Shiloh: Grant's Trial in the West*. Another new SSI game of interest is *Questron II*, the fantasy role-playing sequel to *Questron*. *Sons of Liberty* costs \$34.95, and *Questron II* costs \$39.95.

Covering the battles of Bunker Hill, Monmouth, and Saratoga, *Sons of Liberty* is the first SSI software package focusing exclusively on the American Revolution. The smaller Revolutionary War battles make this game easier to learn and play than the Civil War games. In fact, Bunker Hill has all the earmarks of a classic solitaire confrontation that you can play again and again. SSI's packaging, which includes a separate historical book, surpasses the company's usual excellence.

Questron II enhances the graphics and the play of the original *Questron* while maintaining interest. The new game is actually a prequel to the original. Your character lives in the distant past, before the Mad Sorcerers put together the Evil Book of Magic. A cross between *Ultima*, *Wizardry*, and *Bard's Tale*, *Questron II* holds a high degree of fascination.

SSI games are not copy-protected, but on occasion, you have to type in a word from the manual.

Meanwhile, Mindscape (3444 Dundee Road, Northbrook, Illinois 60062; 800-221-9884) has released *Deja Vu* (\$34.95), a conversion of its popular game for the Macintosh and the Amiga. The 64 version of *Deja Vu* uses a joystick instead of a mouse, and some of the graphics detail has been lost, but it's still the same game. It's also a great deal of fun. As with all 64 graphics adventures, the disk access is frustrating, but *Deja Vu's* interface is so good that you can overlook the disk drive speed. If you like it, watch for *Uninvited* and *Shadowgate*, which are also on their way for the 64.

— Neil Randall

APPLE II

Ever since the introduction of the Apple IIGs in 1986, there's been talk about an *AppleWorks*-like program for the computer. Although rumors keep coming out of California about an integrated package for the best-selling Apple II, it seems that the first salvo in the IIGs *Works* battle has been fired from Texas.

StyleWare, publisher of several Apple IIGs programs, has announced its *GSWorks* package, which is tentatively scheduled for release in August (5250 Gulfport, Suite 2E, Houston, Texas, 77081; 713-668-1360; \$249.00). The package will offer six applications—word processing,

database, spreadsheet, page layout, graphics, and communications.

Although the software is far from ready (this is being written in late April), StyleWare says that *GSWorks* will offer true IIGs applications, which means high-quality graphics, mouse support, and the standard IIGs interface. Not only is *GSWorks* scheduled to replace *AppleWorks* in IIGs owners' minds; it will also read all *AppleWorks* file types so that data doesn't have to be abandoned.

In almost every respect, *GSWorks* will be a significant improvement over *AppleWorks*. The word processor, for instance, will feature font and style access, color, mail merge, and an 80,000-word spelling checker and thesaurus. Its database allows for user-definable forms, as well as a spreadsheet-like List display. According to StyleWare, one of the data types will be for graphics, a significant departure from the *AppleWorks's* abilities. *GSWorks's* spreadsheet provides the necessities, but with mouse support and color charting and graphing.

The second tier of applications—those not part of *AppleWorks*—should be even more dazzling. The graphics module promises much: a combination paint and draw program which allows the user to create graphics in an object-oriented drawing environment, then edit the graphics in a bit-mapped paint mode. It's an ambitious undertaking by itself (there is no comparable program available for the Apple IIGs, though there are several for the Macintosh). The page-layout application should be another substantial project for StyleWare's programmers. Although its feature list isn't as complete as those offered by stand-alone applications in the genre, it will offer multiple columns, graphics importation, and built-in tools for drawing simple lines and shapes. The sixth part of *GSWorks* will be the telecommunications module, a welcome addition to any integrated package.

The most amazing claim that StyleWare makes about its *GSWorks*, however, is the way these six applications are inte-

COMPUTE! specific

grated. StyleWare president Kevin Harvey cited the Macintosh's new MultiFinder as an integration method comparable to what *GSWorks* will offer. All six applications within *GSWorks* will be usable at one time; as many as 14 open windows will be supported; and users will be able to switch applications simply by clicking on the appropriate open window.

GSWorks' set price, \$249.00, is close to that of *AppleWorks*. The package's list of features and capabilities is most impressive. The only question is, can StyleWare deliver?

Apple Makes Links

With its announcement May 20 of AppleLink Personal Edition, Apple has plunged into the world of telecommunications, a world that's fraught with troublesome commands and arcane interfaces. Apple hopes to remedy the most common telecommunications problems with AppleLink's graphics-intensive menu selections and mouse-clicking commands.

AppleLink has long been a part of Apple and its dealers, tying together more than 17,000 dealers, developers, Apple employees, and others. Some of that same technical information will be included on AppleLink Personal Edition, but it will only be a small part of what the service will offer.

AppleLink Personal Edition will be available on QuantumLink, a Virginia-based information service which has specialized in Commodore 64/128-specific forums until now. AppleLink, dedicated to both Apple II and Macintosh users, is composed of two large areas—the Apple Community and General Services, the section where standard features that information service users have come to expect can be found.

The Apple Community is subdivided into seven smaller sections, ranging from the Apple University, where users can take classes in such things as *AppleWorks*, to the Industry Connection, where third-party hardware and software companies offer support and infor-

mation on their products. One noteworthy area for Apple addicts is Apple Headquarters, where everything from Apple press releases to Apple Customer Relations can be found. Of course, public domain and shareware software will be on the service for downloading, message centers will be set up for telecomputing conversations, and conferences will be held with Apple luminaries from time to time.

It's not so much what's on AppleLink that makes it so different from other services, however. Rather, it's the way you'll be getting online and spending your time there. Most other computer information services require users to memorize lists of commands to do such things as search for a message or download a file. AppleLink hopes to make it as simple as possible to do everything from sign-on to sign-off. The special AppleLink software, with its screens showing graphic icons, makes moving through the service as easy as clicking a mouse button or pressing an arrow key. Connecting to AppleLink—one of the toughest tasks for a beginner is simply getting online with a service—is particularly simple.

The AppleLink software for the Apple II (there's a separate Apple IIGs version with enhanced screens) can be found at authorized Apple dealers this summer for \$35. The package includes a one-year subscription to AppleLink. Hourly charges for accessing AppleLink Personal Edition are \$6/hour during non-prime time (6 p.m. to 7 a.m. weekdays, all day weekends) or \$15/hour during prime time.

Finally, Publisher

Springboard Publisher has finally made it out of the box and into users' Apple computers. The third desktop publishing program released for the Apple II in the past six months, *Springboard Publisher* (Springboard Software, 7808 Creekridge Circle, Minneapolis, Minnesota 55435; 612-944-3912) was one of the first announced, but delays postponed its release several times.

The program is impressive, though not without faults. The mark of Springboard's bread and butter program, *Newsroom*, can be seen in *Springboard Publisher* from time to time. It uses the same three-pronged approach to desktop publishing, in which users frequently find themselves switching from one mode to another, then back again, to put a document together.

Springboard Publisher bills itself as a package that combines three applications—page layout, word processing, and graphics—in one system. That's true, but the three are not as interactive as one might wish. Although you can do much in the page-layout mode, for example, you still have to move to the word processing area to actually enter text, or move to the graphics area to create or import graphics. This isn't as cumbersome as *Newsroom*, where the modules are far more discrete, but it isn't as intuitive and elegant as anyone familiar with Macintosh page-layout software might expect. In that regard, *Springboard Publisher*'s claim to bringing Mac-like capabilities to the Apple II is an overstatement.

The program does push hard against Apple II constraints, however. It requires only 128K of RAM, and thus works on the largest group of Apple II computers—the millions of IIE and IIC machines. In itself, that's a dazzling achievement for a program of this power.

Some of *Springboard Publisher*'s features include multiple columns (as many as nine per page) that can be individually sized, a full-page display (reduced), text that automatically flows around graphics, various font sizes, various graphics-importation abilities, and a *MacPaint*-like paint environment.

Yet even on an Apple IIGs with 1¼ megabytes of RAM (with 768K used for a ramdisk to hold the complete program), *Springboard Publisher* runs slowly. The IIGs's microprocessor, twice as fast as the one in a IIE, has to do a lot to make a page appear on the screen. You'll spend time waiting for things to happen when you use *Springboard Publisher*.

Besides the program itself, which retails for \$139.95, Springboard is selling three clip-art disks at \$39.95 each, a laser printer driver for \$39.95, and a collection of style sheets for \$29.95.

—Gregg Keizer

AMIGA

Three programs have created a new category of Amiga programs—image processors. The products are *Butcher* (Eagle Tree Software, P.O. Box 164, Hopewell, Virginia 23860; 804-452-0623; \$37.00), *PIX-Mate* (Progressive Peripherals & Software, 464 Kalamath Street, Denver, Colorado 80204, 303-824-4144; \$69.95), and *PhotoSynthesis* (Escape Sequence, P.O. Box 1101, Troy, New York 12180, 518-274-1547; \$150).

Although each of the three image processors is geared toward a slightly different audience, they collectively offer something for almost any Amiga owner interested in graphics.

The idea behind image processing is to take a screen (either digitized or drawn with a paint program) and alter it, either for special effects or to improve the quality of the image. Image processors employ many of the same techniques used by NASA to sharpen details and otherwise manipulate images.

Butcher is the seasoned veteran of the three. It's currently in its second version. Most of the new features are changes and additions suggested by users of the first version.

Butcher is a strange amalgam of image-processing routines, though related functions are grouped into menus. Among the effects you can achieve are toning, complement, false colors, pseudo colors, and edge enhancement. The more unusual features include screening, diffusion, and mosaic. It's really enjoyable to load a digitized picture and try these effects.

Although *Butcher* works with overscan mode (which allows a picture to go beyond the normal edges of the screen), its support of HAM (Hold And Modify) mode is limited. You can convert 32-color images to 4096-color HAM images and back, but the conversion is disappointing, leaving color smears along some edges. And worse, you can't perform very many of the image-processing routines on HAM images. However, future upgrades are planned. The next one is likely to solve this problem.

PhotoSynthesis is the new kid on the block. A nice feature of this package is its programmability: You can write script files to perform a repetitive or complex set of image-processing steps. For those who would rather not program their own image processes, many operations are available, including addition, subtraction, thin, thicken, average, and more.

PhotoSynthesis is powerful, but it's not very easy to use. This program isn't for artists or casual users but is better suited to the professional.

PIXMate sets the standard for future image processors. It's fast, easy to use, and it converts images to all standard Amiga modes, including HAM and EHB (Extra Half Brite). All of its operations can be done in all modes.

PIXMate uses the Amiga's blitter to perform its operations, making the program extremely fast. *PIXMate* supports many color effects, but its real power can be found in its Image Processor window. The full range of logical operations (not, and, or, exclusive-or) is supported. Eight pixel operations are included. These perform four different types of smoothing, two types of image sharpening, and two

operations that remove selected pixels. Two matrix operations are also included. These are the Laplacian and edge-detection operations, two operations that bring out the edges of objects. Three slider controls affect the severity of all operations.

While the manuals for *Butcher* and *PhotoSynthesis* are adequate, *PIXMate*'s is excellent.

Jet Flies High

Jet is a new flight simulator for the Amiga by SubLOGIC (SubLOGIC, 713 Edgebrook Drive, Champaign, Illinois 61820; 217-359-8482; \$49.95). While SubLOGIC's famous *Flight Simulator* demands patience and care, *Jet* appeals to the arcade players who just want to get the plane up in the air and start flying.

Jet was first developed for the IBM PC, but the Amiga version uses the computer's graphics system to make the game look better and feel more responsive.

Jet puts you in the seat of an F-16 Fighting Falcon or an F-18 Hornet. You can choose simply to fly around (a great way to explore the SubLOGIC *Flight Simulator Scenery Disks*) or dogfight computer-controlled MiG fighters. If you have two Amigas, you can connect them via their serial ports and take on a friend in aerial combat.

You can see the action from a variety of viewpoints. One of the best is a missile-eye view, which lets you visually ride along with your missile.

Jet feels realistic. The targets are solid three-dimensional objects, and you even cast a shadow. Jay Miner said that he designed the Amiga to be the perfect flight simulator machine. *Jet* shows that he knew what he was doing.

Fast OS Face Lift

Version 1.3 of the Amiga operating system should be in the stores as you read this. Although it's being touted as a cosmetic change, it makes the Amiga significantly faster and

easier to use. Version 1.4, promised to be a more extensive revision, is expected early next year.

Version 1.3 comes on three disks. It will ship with new Amigas and be available to current owners at a small price (Commodore used this approach when they released Version 1.2).

The first disk is Kickstart 1.3. Since only Amiga 1000s use Kickstart on disk, owners of newer Amigas must replace a ROM chip. Kickstart 1.3 is most useful to those who want to boot from an external device like a hard drive or recoverable ramdisk. If you have an Amiga 500 or 2000, and you aren't interested in booting from an external device, you don't have to replace your Kickstart ROM to be able to use the new Workbench 1.3 and Extras 1.3 disks.

The word that best describes the new Workbench 1.3 disk is *speed*. Workbench 1.3 includes the Fast File System, which speeds up data transfer by a factor of 7 and lists directory contents ten times faster. Unfortunately, the Fast File System speeds up all types of drives *except* the floppies. This will be remedied eventually.

The most obvious change in Workbench 1.3 is its new set of printer drivers, which run about six times faster and perform color correction and smoothing. In addition, many new printers are supported. A new Preferences screen (which can already be found in products like *ProWrite* and *Shakespeare*) allows you to select among several options to fine-tune your printouts.

Workbench 1.3 also contains a new math library. If you have a math coprocessor chip installed, the library will use the chip automatically. If you don't have a coprocessor, the new math library still operates several times faster.

In an effort to accommodate the quickly expanding Amiga desktop publishing market, Commodore has added three official Adobe fonts to better integrate the Amiga with *PostScript*-compatible laser printers.

To speed up text display, Workbench 1.3 includes *FastFonts*, a system that makes

text scrolling and paging several times faster.

Many new commands and utilities have been added to Workbench 1.3, including a text reader and a program that lets you execute batch files from the Workbench (especially useful for running compilers, assemblers, and other programs that were previously CLI-bound). Those who would rather stay in the CLI environment will benefit from command-line history and editing features.

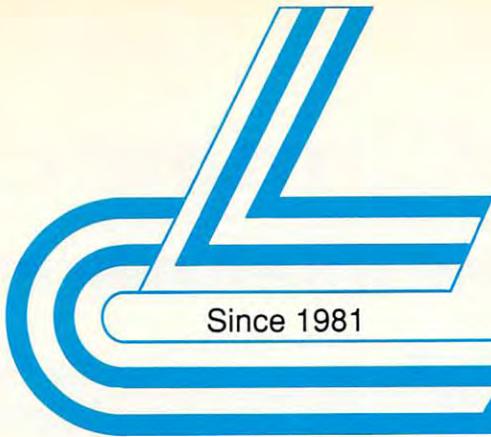
— Rhett Anderson

MAC

If you're used to the black-and-white world of Macintosh, (and even if you're not), you might find questions like *Does it do 24-bit color?* and statements like *a palette of 16 million colors* a little hard to deal with. What do bits have to do with colors, and why in the world do you need 16 million of them?

Maybe you don't need every one of the 16 million, but you need a lot more than you think for true-to-life color renderings on a computer screen. Even if you can't name every color in the 64-count box of Crayolas, your eye can discern minute gradations of color, or lack of those gradations. You need more than 256 colors for good shading, and once you go past 256, you get to 16.7 million or so.

A black-and-white display is really one-bit color. Every dot on the screen is either on or off, black or white. In the binary language of computers,



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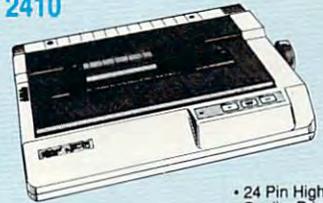
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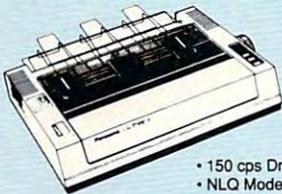


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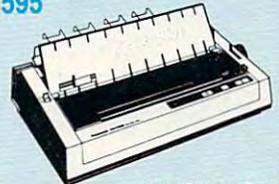
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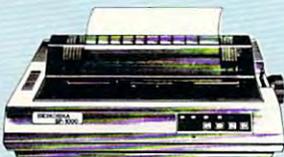


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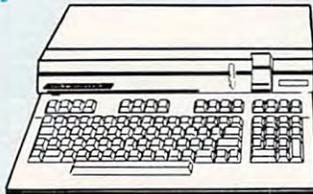
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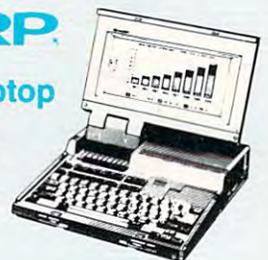
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COMPUTE! *specific*

the dot can be represented by 0 or 1, using a single bit of memory for the representation of a single screen dot.

If, however, you assign more memory to take care of the screen, you have more possibilities for every screen dot. With two bits per dot, for instance, you have four possible combinations: 1/0, 1/1, 0/0, and 0/1. Each of those four combinations represents a possible color. If you assign four bits per screen dot, the possibilities jump to 16; with eight bits, there are 256 combinations. You may have noticed that these numbers have not been changing incrementally. The Macintosh can use 24 bits to describe a color, and, with 24-bit color, you jump from 256 possibilities right into more than 16 million combinations.

Knowing you can get more than 16 million combinations and having them are two different things. The Mac can handle 24-bit color representation, but whether or not you can display all those colors depends on the video card and monitor you're using. The current Apple hardware is limited to 8-bit color display, which gives you 256 colors.

By Any Other Name

This month's quick review is of *Word Finder* from Microlytics (Techniplex, 300 Main Street, East Rochester, New York 14445; 716-248-9150; \$59.95), a terrific online thesaurus.

Ever at a loss for words? Or for a specific word? Do you need words with nuances, shades of meaning that carry just the right connotation? You need a thesaurus. And, if you have a Mac and a hard drive, *Word Finder* puts lots of words at your fingertips.

A hard drive isn't strictly necessary, but if you want instant access, that's the only common-sense route. In the time it would take to swap floppies to get to *Word Finder*'s files, you could probably grab Roget's and flip to the page you need.

Word Finder installs as a desk accessory, so it's always there if you need it. When you

open *Word Finder*, its WF menu is added to the menu bar.

When *Word Finder* is on automatic, it's really impressive. You select the word in your document that you'd like to replace with something less common. Press Command-L for Lookup (assuming the WF menu is already on the menu bar), and *Word Finder*'s dialog opens, suggesting replacements. Click on the one you like, hit the Replace button, and *Word Finder*'s dialog goes away. The word you chose is typed in place of the one you started with. You can also open the *Word Finder* dialog and type in the word you'd like to check.

Word Finder doesn't mesh perfectly with Multi-Finder. If you close it while you're in one application, its dimmed menu title still appears in the menu bar elsewhere. This seems to be only a cosmetic blemish, but it makes me a little nervous. (Nervous: anxious, edgy, fidgety, impatient, nervy, queasy, restive, restless, tense, uncomfortable, uneasy, uptight, worried—and that's only the first section of suggestions.)

I'd like to see the *Word Finder* dialog put into a regular window that you let hang around the screen if you want. Right now, it's a modal dialog that doesn't let you get back to your document unless you put the dialog away. But, *Word Finder* is still a terrific utility program.

Using MultiFinder

Here's a few quick Multi-Finder tips:

- To change the amount of memory automatically allocated to an application, Use the Get Info menu selection on the desktop for that application. You'll see the recommended size memory allocation, which MultiFinder uses. Just change the number.
- If you get Out of Memory messages when you try to launch an application, and you know there's lots of memory available, you've got fragmentation problems. An application needs a continuous chunk of memory to live in, not bits and pieces scattered around. If

you start and quit often, you fragment the memory. Just quit all the active applications until you only have the Finder open. Then, start the applications again.

- Click on the little icon in the menu bar to cycle around the active applications.
- On the desktop, you can shift-click to select multiple applications and then use the Open command from the File menu; all the applications will be launched.

Off the MacWire

Apple Reorganizes. In its never-ending quest to woo the suits of corporate America (not to mention other continents), Apple has created three new marketing divisions: Apple USA, Apple Pacific, and Apple Europe. This reorganization is generally seen as a good move, since the three markets are so varied: What's good strategy in one area may not be great in another.

Apple USA, previously the US Sales and Marketing Group, now has three groups: Apple Education, Marketing and Support, and Business Markets. I don't feel as though I fit neatly into any of those categories; do you? They seem to have forgotten the original group: The Rest of Us.

Another new organization within Apple is End User Services, which will offer fee-based support. That means you pay them to answer your questions.

MacViruses. The first famous Mac virus was benign: a World Peace message that popped up on a preset date and then promptly erased itself from the disk. The latest is one dubbed *Scores*, and it's not benign at all. It trashes the Scrapbook and NotePad files, and it can randomly erase data from the disk. It also causes problems with printing and in using desk accessories. The virus outbreaks are centered around Dallas and Washington, D.C.

Obvious symptoms include the transformation of your Scrapbook and NotePad files in the System Folder from mini Mac icons to generic file icons, the paper with the

down-turned corners. Also, it creates resource files named *Scores* in the System Folder.

Apple, which ignored the Peace virus, is reacting to this one by trying to determine the exact effects of the virus and helping to track down the originator.

Lawsuits Abound. In the continuing story of the Clash of the Titans, Microsoft has countersued Apple, citing the expected breach of contract as well as unfair trade practices. Hewlett-Packard has yet to reply with more than a request for a response time extension.

Lest you think the big guys are the only ones keeping lawyers busy... Deneba Systems, whose products include *MacLightning*, *Memorandum*, and *Voila!*, is suing Target Systems, publisher of those products, for failure to pay royalties. Target seems to have closed up shop entirely and isn't answering the telephone. The company also publishes *Scoop*, so the current, and future, status of that page layout program is cloudy.

User Group Gathering. April saw the annual meeting of the National Apple Users Group Conference, sponsored by more than two dozen developers. Speakers included Microsoft's Bill Gates, who showed an early version of *Excel 1.5* and talked about *Word 4.0*.

One thing coming out of the meeting is the National Apple Professional Information Exchange (NAPIE), a coalition of high-end users and developers, including small business and corporate users. Founding member status costs \$15,000 for the first year; rank and file memberships cost only \$100 a year (until October 31, 1988, NAPIE has a special rate of \$75). NAPIE meetings are to be held electronically. For more information, contact NAPIE president Mike Bailey, 1142 Stonylake Court, Sunnyvale, California 94086, (408) 745-0665

Gates's part of the meeting showcased *Excel 1.5* with its improved charting, scrolling, and color capabilities. It's the next version, though, that boasts 3-D charts and better memory management under *Multi-Finder*. Still, this version

COMPUTE! *specific*

includes 48 new functions and 29 new macros. The news about *Word 4.0* (which is not news as much as confirmation of reasonable assumptions) is the ability to use editing features in Page Preview and the use of color.

— Sharon Zardetto Aker

format pictures are not limited by the resolution of the screen, but will print at the highest resolution that your printer can handle. *Supercharger* can import monochrome and color pictures with patterns substituted for colors. You have complete control of the conversion quality because you choose how many patterns are used. More complex patterns take up more memory in the computer and on disk. Combine *Supercharger* with *Easy-Draw*—which can now import, modify, and print pictures in GEM format—and you have a flexible and impressive graphics system.

The latest version of *Easy-Draw* also includes *Outprint*, an efficient printing program that lets you change printer devices without rebooting. *Outprint* requires new printer drivers, however.

The final bit of support from Migraph is a newsletter that is mailed to registered owners. Besides product information, the publication includes a question-and-answer page written by Migraph's lead programmer, Paul Mazurek.

Migraph (720 South 333rd Street, Suite 201, Federal Way, Washington 98003, 206-838-4677) offers *Easy-Draw 2.3* for \$89.95; *Easy-Draw* with *Supercharger*, requiring one megabyte, for \$149.95; *Font Pack #1* for \$39.95; *Personal Draw-Art* and *Technical Draw-Art* for \$29.95 each; an Epson/NEC/Star 24-pin printer driver for \$24.95; a Toshiba 24-pin printer driver for \$24.95; a LaserJet Plus and Series II driver for \$49.95; a Deskjet and driver for \$949 (driver alone, \$49.95); and an H-P plotter driver for \$49.95.

Graphics with Text

Neconcept has shipped *WORDUP*, the first ST word processor that can combine monochrome *DEGAS*- or GEM-format (.IMG) pictures with text. With Migraph's *Supercharger* (see above), you can convert pictures to GEM format—even color *DEGAS* and *NEOchrome* pictures which can't be imported directly into *WORDUP*.

WORDUP features a powerful mail-merge function, footnote capability, true WYSIWYG (What You See Is What You Get—including the variation in fonts) display, and all the standard word processing functions. GDOS output makes it possible to use multiple fonts and get very high quality text and graphics output. The initial release includes a driver for Epson-compatible printers, but Neconcept is working hard on other drivers. Neconcept's *FONTZ* lets you create fonts for GDOS applications and converts Macintosh or Amiga fonts to ST format. With so many Macintosh fonts, the ST should have a large selection soon.

WORDUP is available for \$79.95 from Neconcept, 908 Caminos dos Rios, Thousand Oaks, California 91360. For technical information, call (805) 498-3840; to order, call (800) 666-8766.

BASIC Databases

Despite the power of the popular BASICs, writing a good database application can be quite difficult. The problem is simple—the language packages don't provide the commands necessary for manipulating data on a large-scale basis. If these commands were available, you could build complete, stand-alone applications with BASIC compilers such as *GFA BASIC* from Michtron, *True BASIC* from True BASIC, and *LDW BASIC ST* from LDW.

Regent Software has improved the situation with *SQL Database Add-on*, a package available for *LDW BASIC ST* that makes it far easier to program a database application. *SQL* is a powerful, fully relational database language. Regent Software plans to release versions compatible with *GFA BASIC* and *True BASIC*. Essentially, the *SQL Database Add-on* is a TOS program which installs itself in memory and writes a small file that records its memory location.

You place *SQL* commands in BASIC strings and call the *Add-on* package using the commands as parameters. The program returns results in

string variables which must also be specified in the call. Since information is returned in string variables, the capabilities of BASIC can be used to produce onscreen and printed reports easily.

SQL is a powerful database language that supports creating files and adding, indexing, sorting, deleting, and selecting records. Records can be selected based on a variety of user-specified criteria, including values of fields. String, numeric, and date fields are all supported.

SQL is fully relational, so reports can be produced which use the contents of two related files; a third file can be built using the contents of two related files.

The only real problem with *SQL* is that the documentation is woefully inadequate. It doesn't include any complete examples of how to set up and use the commands; some of the commands have no examples at all. Instead, you must load a sample program and study the listing. It is definitely worth the effort, but the instructions could be better.

SQL Database Add-on is available for \$30 from Regent Software, 2740 Desoto Street #3, Long Beach, California 90814. For information, call (213) 439-9664.

ST News Source

One of the more useful ST information resources is a monthly newsletter called "ST Informer." It contains information, reviews, opinions, and hot tips. Some of the news articles are actually reprints of press releases, but these are marked.

For an extra fee, you can get "ST Informer" with a monthly public domain disk.

Most of the newsletter's writers are volunteers, so a subscription is fairly low: \$15 for 12 issues and one free public domain disk. The Public Domain Club costs \$32 for 12 disks. Back-issue disks are available to subscribers for \$3.

"ST Informer" is available from 909 Northwest Starlite Place, Grants Pass, Oregon 97526; (503) 476-0071.

— David Plotkin □

ST

In its continued support of its page-layout software, Migraph has made its *Easy-Draw* package more powerful and more versatile than ever.

With *Easy-Draw*, Version 2.3, you can draw shapes and type text with multiple fonts on a wide range of paper sizes. You can rotate and move these objects without obscuring objects they overlap. The quality of your printed version is only limited by your printer's capabilities. The involved installment process is the only hard part about using *Easy-Draw*. *Easy-Draw* uses GDOS.

Support products for *Easy-Draw* include *Font Disk #1*, which contains two fonts in a variety of sizes for 9-pin printers; 24-pin printer drivers for such printers as the Epson LQ1500, the NEC P6, and the H-P Rugged Writer; and clip art packages that include pictures constructed with *Easy-Draw* objects. Clip art can be extraordinarily useful, since it's no small task to create complex objects from the circles, squares, and other simple shapes available in *Easy-Draw*.

Migraph has also released *Supercharger*, which converts *DEGAS* and *NEOchrome* pictures to GEM format. GEM-

hints & tips

Q Which Computer?

I am interested in buying a computer. I had been leaning towards the Atari ST, but with the new Amigas and memory expansions for the Commodore 64 and 128, I'm not sure what to buy anymore. I'd like a computer with great screen graphics, at least 128K of memory, and a large selection of software and other hardware. What computer should I buy?

Adam Contoriz

With all the good computers on the market, choosing one can be a difficult decision. Should you buy an 8-bit computer, or a more powerful, 16-bit machine? Should you buy an Apple, an Atari, a Commodore, or an IBM? These questions aren't easy to answer, and we can't answer them for you. We can, however, give you some information on each of these computers that may help you make your decision.

On the 8-bit side, there are the Commodore 64, the Commodore 128, and the Atari 130XE. The Commodore 128 and the Atari 130XE both have 128K of memory. Memory on the 64 and the 128 can be expanded significantly with RAM modules. (Please note that this extra memory can only be used as a ramdisk—you can't have programs larger than 64K.) All three of these computers have good graphics, but their greatest asset is their huge base of inexpensive software. If you want an inexpensive machine with a lot of available software, these computers are well worth considering.

On the 16-bit side, there are the Apple IIgs, the Atari 520 and 1040ST, the Commodore Amiga computers, and the IBM PC and compatibles. The IBM PC and compatibles offer a huge selection of software and good graphics when

equipped with a CGA or EGA card and monitor.

The Amiga computers provide the most stunning graphics. The Amiga is a game player's delight; in fact, an arcade game on an Amiga often looks as good as or better than the original arcade version. The Amiga's graphics potential, combined with its multi-tasking operating system, makes it a powerful computer.

The Atari 520 and 1040ST computers pioneered low-cost 16-bit computing. These computers offer good color graphics, but the high-resolution monochrome monitor is outstanding. For working with text, it's an excellent choice.

Finally, there is the Apple IIgs. While not as fast as an Amiga or an Atari ST, the IIgs offers outstanding graphics and sound. The Amiga, ST, and IIgs all offer a Macintosh-like user interface with icons, windows, and drop-down menus, but the IIgs's desktop may be the best of all. Because the IIgs can run almost all software for the Apple II series of computers, it's a logical choice for anyone who owns an Apple II+, IIc, or IIe and wishes to upgrade to a newer machine.

Q To Print or Not to Print

I am using a Tandy 1000-SX with DOS 3.2 and an Epson FX-80. I have installed a print spooler in my CONFIG.SYS file with DEVICE=SPOOLER.SYS. When I run a BASIC program to print mailing labels, the data is sent to the spooler, but never gets printed. Why not?

J. E. Hardman

To test your problem, we installed the DOS print spooler on several of our own IBM PCs and compatible machines, in-

cluding a Tandy 1000. Unfortunately (or fortunately), the spooler performed flawlessly in all our tests.

There are several problems, however, that could cause the symptoms you describe. Here are two things to check.

First, make sure your printer is online. After making a printout, you usually issue a form-feed command to eject the last printed page so you can remove it from the printer. To give the form-feed command, you must take the printer offline. It's easy to forget to put it back online, so double-check.

Another problem may be that you don't have the printer connected as LPT1. Check your computer and DOS manuals for information on your ports. If your printer's connected to the wrong port, reconnect it and try again.

Q Tracking Tupperware

I have recently become interested in computers and would like your advice. My wife sells Tupperware and we want to keep price and sales information and budgets on our Commodore 128 computer. Is there software for this purpose or would we better off writing a custom program from scratch?

Bruce A. Belflower

A spreadsheet program, which can keep track of prices, sales, and budgets, may be just what you need. When the topic of spreadsheets comes up, you're likely to hear names like Excel from Microsoft or Lotus 1-2-3 from Lotus Development. Unfortunately, these programs aren't available for the Commodore 128.

Fortunately, however, several excellent spreadsheet programs are available for the 128. To get the most from your

128's spreadsheet, you'll want a product that uses the 128's 80-column video. Two packages that use the 80-column mode are SwiftCalc 128 from Timeworks (444 Lake Cook Road, Deerfield, Illinois 60015; \$69.95) and Multiplan, marketed by Epyx (P.O. Box 8020, 600 Galveston Road, Redwood City, California 94063; \$39.95). A good place to look for other spreadsheet titles is COMPUTE!'s Commodore Buyer's Guide.

As far as writing your own programs goes, in most cases it's not the best solution. Several years ago, writing your own applications was a viable alternative because there were very few good commercial programs available. Now the situation is very different—there are excellent programs in most business categories. If you buy a commercial package, you can spend your time and energy finding new customers rather than writing and debugging programs for your business.

Q What's on a Disk?

I have heard that the IBM computer is capable of reading disks from other computers. I own a Commodore 64 and a 1541 disk drive. I was wondering if there is any way to read Apple disks with my drive.

Randy Carter

In general, disk drives for one computer can't read disks formatted for another computer. This is true in your particular case: The 1541 can't read Apple disks. The 1541 uses a storage scheme called Group Code Recoding (GCR), a Commodore-specific disk format, to store information. Apple DOS 3.3 and ProDOS use a completely different encoding scheme. If you were to put an

Apple disk into your 1541, the 1541 wouldn't know where to look for any of the data and thus wouldn't be able to find the first directory sector. The drive would simply return a 74,DRIVE NOT READY,00,00 error message.

The Commodore 1571 is more advanced than the 1541. It has the ability to read another, more universal format than GCR.

Several disk operating systems, including those of IBM PCs and many CP/M machines, use a format called Modified Frequency Modulation (MFM). MFM-formatted disks can have a varying number of tracks per disk, sectors per track, and bytes per sector, but at a fundamental level, they all speak the same language. The 1571 can read from and write to MFM-formatted disks, but it must be programmed to do so. Since Apple drives don't use the MFM format, even the multi-talented 1571 can't read Apple disks.

Q Crash Test

I have recently been looking to buy a new computer. I was thinking about getting the Amiga 500, until I heard that it is prone to crashing without any apparent reason. Is there any truth in this?
Ira Morris

When an Amiga crashes, it always has a good reason. The current version of the Amiga operating system (version 1.2) is very stable. It has no major bugs. And the minor bugs that it does have are well known and easy to avoid.

When the Amiga does crash, it's the fault of the software that you're running. When a program crashes, the reason is usually that the program asked for something, assumed it got it, but really didn't. Let's look at one possible crash that's quite common.

The Amiga is a multitasking machine, which means that you can run several programs at once. Let's say you're running a paint program and illustrating a children's story that you've written. You're drawing

a tree that has a nest full of little birds. You can't remember if there are supposed to be five or six birds, so you load a word processor to take a quick look at your story. Here's what happens.

Word Processor: Amiga, I'd like to have 100K for a text buffer.

Amiga: OK, here it is.

Word Processor: Thanks, I got it.

Word Processor: Now I need 32K for a custom screen.

Amiga: Sorry, I don't have that much.

Word Processor: Thanks, I got it.

The word processor wasn't paying attention. It just assumes that it has gotten the memory for the custom screen. When it tries to use that memory, the computer crashes.

The majority of recent programs for the Amiga are well-behaved, meaning they pay attention to what the Amiga says.

The best way to keep an Amiga from crashing is to buy more RAM. Most Amigas are now sold with one megabyte of memory—enough to run several programs safely at the same time. If you have less memory, consider upgrading.

Q Finding the Screen

I own a Tandy 1000EX, and I have looked in several books for information on the screen locations. Can you help me?

Also, I would like to know if pictures drawn in Micro Illustrator could be used in my BASIC programs.

Paul Breckenridge

The screen memory locations on the Tandy 1000EX correspond to the standard memory locations found in the IBM PC and compatibles. The address for the beginning of screen memory used in a monochrome system is B000H (the H means hexadecimal, or base 16), and the display buffer—the area where the screen information is stored—consumes 4K of memory. The start address for a color system is B800H, with a buffer of 16K.

Please note that these are offset addresses. To get the absolute address, append a zero to the least significant digit. Thus, the absolute address for a monochrome system is B0000H; the color system's address is B8000H.

These addresses are given as offsets because of the way the registers in the 8086 family of microprocessors handle data. These processors can accommodate a four-digit number only. Since the absolute addresses are set up as five-digit numbers, they must be broken into two parts. If you want to place the color screen address into one of the registers, use the offset address, B800H.

If you're interested in learning more about your Tandy 1000, the Tandy Corporation offers a Technical Reference Manual (\$34.95) for each of its computers. Check your local Radio Shack store for details.

Tandy has discontinued the Micro Illustrator software you mentioned and replaced it with Micro Painter. Without knowing Micro Illustrator's file format, it's impossible to say whether a picture created with it could be loaded into a BASIC program.

You can, however, use the following example to find out whether a picture file created with Micro Illustrator will load into BASIC:

```
10 SCREEN 1,1
20 DEF SEG = &HB000
30 BLOAD "PICTURE",0
```

This example loads a picture file into the screen buffer at absolute address B8000H and uses an offset of 0 to make certain the correct address is used.

Q BASIC in Installments

When I'm writing or typing in a BASIC program on the 128 in 64 mode and I only get part of it done and save it to disk, can I save the other half of the program with the first part? If so, how?

Garrett Whidden

There are several programs available which allow BASIC programs to be merged on the 64. Two examples are Program 6-17, "Disk Merge," in Programming the 64, by Raeto West (COMPUTE! Books), and "MetaBASIC," which appeared in the April 1985 issue of COMPUTE!'s Gazette.

The best solution, however, is to avoid the problem. You can almost always load your unfinished program, make the necessary additions, and save the new, appended file to your disk. If you follow this procedure when you enter programs in installments, merging sections of a larger BASIC program can be avoided.

Q Apple ProDOS

I have ProDOS 1.1.1 for the Apple II. How does this differ from version 1.0.1? Also, how does it differ from ProDOS 8 and ProDOS 16?

Also, there is one byte in the system global page of ProDOS called Bubit (backup bit). I have determined that it prevents the Set_File_Info MLI call from setting the backup bit for the particular file. My problem is determining exactly how Bubit works. Specifically, what cancels the effect of Bubit? It seems to turn off whenever it wants.

Morry Veer

To answer your first question, to the casual user, ProDOS 1.1.1 and ProDOS 1.0.1 are the same. In general, a change in the middle number of a version identification indicates a bug fix. A change in the right-most number is usually a minor fix or cosmetic update. When the first, or left-most, number changes, it usually indicates a major upgrade.

When the IIgs appeared, Apple changed the name of ProDOS 1 to ProDOS 8 (for 8-bit) and released ProDOS 16. Version 16 requires the 65816 16-bit microprocessor found in the IIgs; it doesn't work on the IIe or IIc.

As for the Bubit, it's mentioned in the ProDOS Technical Manual, but as of this writing, it's unimplemented by Apple. □

buyer's guide

Preschool Software

If you think your preschooler is too young to use a computer, you have a surprise in store. With the specially designed software listed here, your preschooler can learn essential skills—like counting, color recognition, and memory improvement—and have fun at the same time. No matter what skills you want your child to learn, you'll find just the right package in this buyer's guide.

For other preschool software, see "Time for Toddlers" on page 28.

Alphabet Circus

Neosoft (distributed by DLM)
Apple II, Commodore 64, IBM PC
\$32.95

Six games—Alphabet Circus, Meet the Circus, Alphabet Parade, Secret Letter, Juggler, and Marquee Maker—help children learn letter recognition, alphabetical order, and how to create text. The games vary in difficulty, and some allow the children to add their own information. Scores can also be recorded.

Alphabet Express

Gamco
Apple II, Commodore 64
48K required for Apple
\$44.95

Railroad graphics and sound help youngsters complete the three activities in this program. In Alphabet Line, players must choose the letter that belongs in the sequence. Uppercase letters must be matched with lowercase letters in the second activity. In Picture/Letter Match, the players must match one of three letters with the correct picture. A program-management system allows teachers and parents to adjust the difficulty level and sound. It also can hold records for 200 students.

Alphabet Zoo

Spinnaker
Commodore 64
Joystick required
\$20.95

Children can develop and improve their spelling and vocabulary skills as they make their way through a maze to find letters that fit the picture on the screen. For ages 3-7.

Alphabuild

Fisher-Price (distributed by Spinnaker)
Commodore 64
Joystick required
\$6.95

Alphabuild is a graphics game that helps children develop elementary skills with the alphabet. Skills covered include matching of upper- and lowercase letters, learning alphabetical order, and recognizing simple words.

Body Awareness

Mindscape
Apple II
\$49.95

Students can learn about the parts of the body and the proper clothing for each season with this program. The players can fit body parts to a body and match pictures of body parts to the names for them. For preschool through Kindergarten.

ColorMe: The Computer Coloring Kit

Mindscape
Apple II, Commodore 64
128K required for Apple; joystick or KoalaPad required; printer recommended
\$29.95

Young children in grades K-5 can draw freehand or color the predrawn pictures with *ColorMe*. Text can be added to the pictures. Pictures can be printed, and then the child can cut out his or her drawing. A *ColorMe Picture Disk* is included with the program. Additional disks featuring Rainbow Brite, Muppet Babies, Shirt Tales, and others are available for \$9.95.



Children can draw freehand or color pre-drawn pictures in Mindscape's *ColorMe*.

Cotton Tales

Mindplay
Apple II, IBM PC
CGA card required for IBM
\$49.99

Students just beginning to read and write can use this program to learn word processing and writing skills. Children who cannot read can create messages using the 192 graphics from the picture library. The dictionary contains 616 words, and it allows students to add their own words. Picture menus help users enter text or pictures, insert, erase, copy, scroll, print, clear, save, load, and delete. The cursor is in the form of a bunny called Cotton. With the Challenge Upgrade feature, 168 words can be added, the teacher can select

Caroline D. Hanlon



Dinosaurs uses thunder lizards from eons past in five matching and sorting games for preschoolers.

the skill levels, and the stories can be printed. Supplemental disks are available, and a lab pack is available for \$120. The Complete Cotton Series includes *Cotton Tales*, the supplemental disks, and backup disks; it costs \$99. For grades K-3.

Counters

Sunburst
Apple II
48K required
\$65.00

In this three-part program, students can practice counting, adding, and subtracting colored objects.

Counting

MECC
Commodore 64
\$35.00

Smiley faces, fireworks, wuzzles, and other color graphics can help preschoolers learn to recognize quantities and numbers from 1 to 20. Beginning drills in addition are also included.

Counting Critters

MECC
Apple II, Apple IIgs
64K required
\$55.00

Children can match numbers, count the animals on a safari, supply a pet store with the correct number of puppies, and play other games. Graphics accompany the games to help users learn to work with numbers from 1 to 20. A 3½-inch disk version is available for \$59.00.

Counting Critters

Mindscape
Apple II
\$39.95

Children in prekindergarten through grade 3 can learn to count by counting the critters on the screen and entering that number. The program keeps a record of correct answers. The game features color, sound, and graphics.

Dinosaurs

Advanced Ideas (distributed by Banana, CSS, and Soft-Kat)
Apple II, Commodore 64, IBM PC
256K, CGA required for IBM
\$39.95

Preschoolers ages 2½-5 can learn about dinosaurs and the prehistoric age with this educational game. Ten different beasts parade across the screen in five matching and sorting games. There are also three games to help generate a happy attitude towards learning. The games incorporate Montessori principles.

Early Games for Young Children

Springboard
Apple II, Commodore 64, IBM PC, Macintosh
CGA required for IBM
\$34.95 (Apple, IBM, 64); \$49.95 (Macintosh)

Nine games help children ages 2½-6 learn a variety of skills, such as adding and subtracting numbers, drawing, typing with the computer, saying the alphabet, and spelling their names. A picture menu helps children run the program so no adult supervision is required.

Early Learning Friends

Spinnaker Software
Commodore 64
Joystick required
\$6.95

Alf, Robo-Bird, and Freezy help children learn about shapes, patterns, routing, and planning.

Easy as ABC

Springboard
Apple II, Commodore 64, IBM PC, Macintosh
CGA required for IBM
\$39.95 (Apple, IBM, 64); 49.95 (Macintosh)

Color graphics and animation help children learn the alphabet, including sequence and upper- and lowercase. There are five games—Match Letters, Dot-to-Dot, Leapfrog, Lunar Letters, and Honey Hunt—accessed by a picture menu.

Electric Crayon—ABC's

Polarware
Apple II, IBM PC
256K, CGA required for IBM; printer
\$14.95

This computer coloring book teaches children the alphabet. Pictures can be printed in either color or black-and-white, and a calendar can also be printed with the picture.

Electric Crayon—Dinosaurs Are Forever

Polarware
Apple II, IBM PC
256K, CGA required for IBM
\$29.95

Pictures of dinosaurs can be colored by children in this computer coloring book. The pictures can be printed in either color or black-and-white along with a description of each dinosaur and a calendar for any month. The program also has banner-making capabilities.

Electric Crayon—Fun on the Farm

Polarware
Apple II, IBM PC
256K, CGA required for IBM; printer required
\$14.95

Children can color farm scenes in this computer coloring book. Pictures can be printed in either color or black-and-white. Users can also print any month's calendar with the picture.

Facemaker: Golden Edition

Spinnaker Software
Apple II, IBM PC
DOS 2.1 or higher, 256K required for IBM
\$39.95

This enhanced version of *Facemaker* introduces the computer to young children by teaching them how to perform simple computer tasks. Children can learn the functions of the keyboard while creating funny faces. Programming is introduced with a series of instructions that animate the face. The third activity is designed to improve a child's memory by repeating a sequence.

First Letters & Words

First Byte (distributed by Electronic Arts)
Amiga, Apple IIgs, Atari ST, Macintosh
\$49.95

Children ages 3-8 can learn upper- and lowercase letters with Ted E. Bear, a talking computer character. There are four learning modules, and the activities can be customized. The program uses the computer's built-in speaker.

First Shapes

First Byte (distributed by Electronic Arts)
Amiga, Apple IIgs, Atari ST, Macintosh
\$49.95

Ted E. Bear, a talking computer character, helps children recognize geometric shapes. Using the program, children can make new toys, accompany Ted to the toy fair, or play a matching game. The program can be customized for each child's abilities. For ages 3-8.

Flying Carpet, The

Learning Technologies
Apple II, Commodore 64
\$14.95

A high-flying genie has created a boat along with other objects using triangles, squares, rectangles, and other shapes. Students must determine what shapes make up an object. The program is designed to develop shape recognition, matching one-to-one correspondence, counting, size relationships, and figure-ground relationships.

Fun from A to Z

MECC
Apple II, Apple IIgs
64K required
\$55.00

Connect-the-dots puzzles, animals, and songbirds provide graphics entertainment for children as they learn their ABC's, including upper- and lowercase letters.

Fun with Directions

Mindscape
Apple II
\$49.95

Three activities can help preschoolers learn directions, such as up, down, right, left, above, and below. They must decide whether objects and letters are aligned or are in sequence. Difficulty levels can be adjusted.

Gertrude's Secrets

The Learning Company
Apple II, Commodore 64, IBM PC
48K required for Apple; 128K for IBM; 256K for Tandy; CGA required
\$44.95

Seven games can help children develop basic thinking and problem-solving skills. Along with Gertrude the Goose, the students move colorful playing pieces to learn about classification, grouping, and sequencing. For grades K-4.

Grownup and Small

Mindscape
Apple II
\$39.95

Animation, color sequences, and sound are used to help preschoolers learn the names of adult and baby animals. The students can learn to recognize animals and distinguish between adults and babies.

Hodge Podge

Artworx
Apple II, Atari, Commodore 64, IBM PC
48K required for Apple; 32K for Atari; 128K for IBM
\$14.95

Cartoons, animation, and songs help children ages 18 months to 6 years learn about magnets, numbers, musical notes, animals, and more. An adult can help teach the concepts to the children, or the children can play with the pictures, color, and sound from the program.

How to Weigh an Elephant

Learning Technologies
Apple II, Commodore 64
\$14.95

Students must determine the weight of three animals by watching how low the boat floats as each of them takes a ride. The student can develop concepts of weight/mass/volume, ordering and sequencing, observation/prediction of outcomes, and cause-and-effect relationships.

Introduction to Counting

Eduware (distributed by Britannica Software)
Apple II, IBM PC
64K required for Apple; 128K, CGA for IBM
\$9.95

Eight activities incorporate sound, graphics, and animation to help children ages 4-8 learn basic math concepts such as counting, length, height, weight, and simple addition and subtraction.

Juggles' Rainbow

The Learning Company
Apple II, Commodore 64
48K required for Apple
\$29.95

Juggles' Rainbow can help improve the reading-readiness skills of prereaders by explaining the basic concepts of up and down and right and left. The program features music, spinning windmills, and dancing rainbows.

Kids on Keys

Spinnaker Software
Commodore 64
\$20.95

Three games can introduce children to the keyboard by helping the players learn to recognize letters, numbers, and words from color images appearing on the screen. For ages 4-9.

Kid's Stuff

Stone & Associates
Apple II, IBM PC
128K, CGA required for IBM
\$39.95

Kid's Stuff, for children ages 2-6, helps youngsters practice their letters, counting, and vocabulary skills. The program uses a pictorial menu, and the level of difficulty can be adjusted.

Kinderama

Unicorn Software
Amiga
\$49.95

Five games help preschoolers learn counting and alphabet skills. *Robot Story* introduces subtraction, rhyme, and letter recognition. In *Count the Robots*, the student must count the robots on the screen; in *Robot Addition*, he or she must add them together. Upper- and lowercase letters must be matched in *Robot Letter Match*. Children can practice using the mouse in *Robot Construction*. The programs feature graphics and digitized sound.

Kindercomp: Golden Edition

Spinnaker Software
Apple II, IBM PC
64K, DOS 3.0 required for Apple
\$39.95

Children can play eight games while learning the alphabet, upper- and lowercase letters, spelling, counting, number sequence, and simple addition. Advanced activities include beginning reading and math skills. The program features animated pictures and music that reward successful completion of tasks. Children can also create pictures and patterns with graphics characters that animate on command.

Knowing Numbers

Mindscape
Apple II
\$49.95

Three activities use animated graphics to help students in prekindergarten through third grade improve their number and basic math skills. There is practice in recognizing numbers, comparing numbers, and addition and subtraction. The speed and number of questions can be modified.

Learning to Add & Subtract

Learning Technologies
Apple II, Commodore 64
\$14.95

Students use picture clues to solve simple addition and subtraction problems of single-digit numbers. The program is also designed to develop counting skills.

Learning Your ABC's with Speech

Covox
Commodore 64
\$9.95

Children ages 3-6 can learn their ABC's with this program, which offers hints if the wrong answer is given and plays a melody when the answer is correct. The program utilizes speech developed with the *Voice Master* and *Music Construction Set* from Covox.

Letters and Words

Mindscape
Apple II, IBM PC
\$49.95

Preschoolers can learn prereading skills with this program. Three activities can help the youngsters learn the alphabet, how to match upper- and lowercase letters, and how to group pictures with words. A lab pack is available for \$99.90.

Lion's Workshop

Learning Technologies
Apple II, Commodore 64
\$14.95

Students must help the lion to match objects in his workshop. Objects move on a conveyor belt and must be paired with objects on the lion's workbench. The program is designed to develop visual discrimination skills, pattern recognition, and part-whole relationships.

Mask Parade

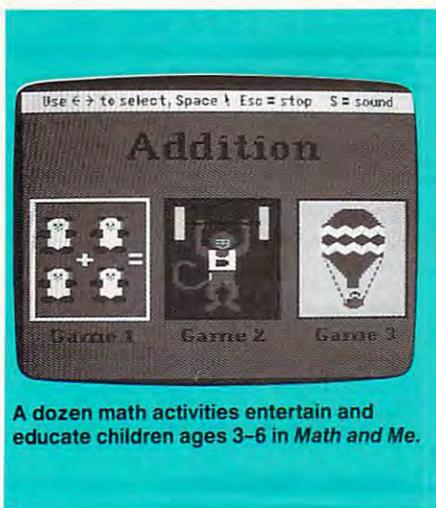
Springboard
IBM PC
CGA, printer required
\$39.95

Using this desktop publishing program, children can design their own masks, hats, glasses, jewelry, badges, and accessories, print them out, and then wear them. The children can use the designs in the program or create their own. After the piece is printed, it can be colored and decorated and then cut out and worn. For ages 4-12.

Match-It

The Other Guys
Amiga
Color monitor
\$39.99

Match-It is designed to teach young children basic colors and shapes through interactive games and tutorials. The program takes advantage of Amiga's speech, helping children who have not yet learned to read. Menus allow the child to choose what he or she would like to learn. Voice, graphics, and music offer positive feedback. Games teach concepts while the child has fun. The program is self-booting and mouse-driven, allowing easy access and operation.



Math and Me

Davidson & Associates
Apple II, IBM PC, Tandy 1000
DOS 2.0 or higher, 256K, CGA required for IBM and Tandy; 128K required for Apple
\$39.95

Children are introduced to math-readiness concepts and beginning math skills in this program. Designed for students ages 3-6, *Math and Me* provides three learning games in each of the following areas: shapes, patterns, numbers, and beginning addition. The Early Learner Interface allows children to use either a mouse or the keyboard to select activities and answers. Children can be rewarded for good work with a printed certificate.

Math Magic

Mindplay
Apple II, IBM PC
CGA required for IBM
\$49.99

Basic counting, addition, and subtraction skills are covered in this program for preschoolers through grade 4. By correctly solving problems, students knock down walls to find monsters. Beginners can practice counting. Custom problems can be entered, and performance records are saved.

Math Rabbit

The Learning Company
Apple II, Apple IIgs, IBM PC, Tandy
48K required for Apple; 128K, CGA or Hercules card for IBM; 256K for Tandy
\$39.95

Four games help children ages 4-7 learn to add and subtract one- and two-digit numbers and to recognize number patterns and relationships. The games can be customized to the child's learning level.

Memory Master

Stone & Associates
Atari ST, IBM PC
128K, CGA required for IBM
\$39.95

Four games can help children improve their pattern and shape recognition, develop visual memory skill, and expand their vocabulary. For ages 2-6.

Monkeymath

Artworx
Apple II, Atari, Commodore 64
48K required for Apple; 32K for Atari
\$17.95

Children can practice their addition, subtraction, multiplication, division, and number sequencing skills with this program. Animation, graphics, and color are included for entertainment. There are three levels of difficulty for children ages 4-10. The package contains a Marc the Monkey coloring book and poster plus a story explaining the program.

Mr. Roger's Neighborhood Many Ways to Say I Love You

Mindscape
Apple II, Commodore 64
\$29.95

Preschoolers through third graders can learn to express their feelings by creating personalized electronic greeting cards with this program. Developed by Fred Rogers, the program features animated graphics, is self-paced, and, at the introductory level, it doesn't require reading skills.

My ABC's

Paperback Software International
IBM PC
DOS 2.0 or higher, 128K, CGA required
\$24.95

Six games can assist children ages 3-7 in learning their ABC's and numbers. The games contain music and nonviolent color graphics. Titles include First Letter, Find a Letter, Letter Pairs, Dancing Letters, Counting, and Hidden Pictures. Music and graphics provide feedback.

My Letters, Numbers and Words

Stone & Associates
Apple II, Atari ST, IBM PC
128K, CGA required for IBM
\$39.95

Graphics, animation, and sound effects help children ages 2-6 learn basic word concepts, the ABC's, and how to count from 1 to 10.

My Very Own Calendar

Mindscape
Apple II
\$49.95

My Very Own Calendar can help children learn the names and sequence of the days of the week and the months of the year. The program includes a built-in perpetual calendar, a holiday finder, picture menus, 25 individual calendars, and graphics for weather, special events, and holidays. Children can also fill-in, create, and print their own calendars.

Number Farm

Neosoft (distributed by DLM)
Apple II, Commodore 64, IBM PC
DOS 2.1, 128K required for IBM
\$32.95

One or two players can practice their number and counting skills and learn beginning number concepts with this collection of six games. Titles are Number Farm, Old MacDonald, Hen House, Animal Quackers, Horseshoes, and Crop Count. The games feature music, animal sounds, and animated color graphics.

Number Sea Hunt

Gamco
Apple II, Commodore 64
48K required for Apple
\$44.95

Undersea graphics and sound effects help children as they practice their number skills. Four lessons teach youngsters to count, put numbers in the correct order, add, and subtract. Teachers and parents can modify the lessons for individual skill levels. Up to 200 names and scores can be recorded.

Peter Rabbit READING

Fisher-Price (distributed by Spinnaker)
Apple II, Commodore 64
64K required for Apple; joystick required
\$24.95 (Commodore); \$39.95 (Apple)

Peter Rabbit READING can help children ages 3-6 develop fundamental reading skills through a variety of phonetic activities. Topics covered include letter matching, sound and symbol relationships, and the proper use of consonants and vowels. Characters from Beatrix Potter's classic story, *Peter Rabbit*, help guide the students through the program.

Prereading

MECC
Commodore 64
\$35.00

Graphics such as caterpillars and trains lead youngsters through games and drills to help them improve their concentration, practice the initial sounds of simple words, and recognize upper- and lowercase letters.

Puzzle Master

Springboard
Apple II
\$34.95

Children ages 4 and older can design their own pictures with the color drawing tools and then divide each picture into a puzzle of 2-800 pieces. Puzzles can be made as simple or as difficult as necessary. Predesigned pictures are also included.

Rainbow Painter

Springboard
Apple II, Commodore 64
\$34.95

A graphics program for children ages 4-10, *Rainbow Painter* contains 50 different brushes and a variety of color patterns so children can create their own drawings or color in one of the 50 prepared line drawings.

Right of Way

MECC
Apple II, Apple IIgs
48K required
\$45.00

Four programs featuring Rango the monkey can help preschool children learn the concepts of right and left from their own and another person's perspective.

Same or Different

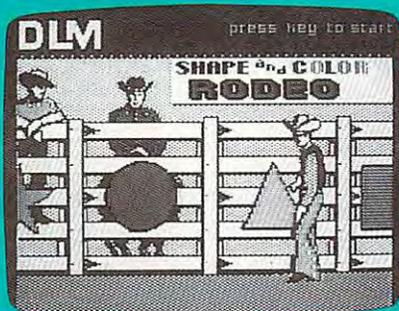
Learning Technologies
Apple II, Commodore 64
\$14.95

Students must select either the like object or the unlike object. The program is designed to develop visual discrimination, matching, observation, and deductive reasoning.

Sesame Street Crayon

Polarware
Apple II, Commodore 64, IBM PC
CGA required for IBM; 128K for Apple
\$14.95 each

Sesame Street Crayon is a series of computer coloring books for children. Each issue contains dozens of pictures that can be colored over and over. The users can point and click to choose the color, point to the area to color, and then click to fill the area with color. The pictures can also be printed out with a printer and then be colored by hand. Titles include Letters for You, Numbers Count, and Opposites Attract. Characters from *Sesame Street* are featured. Each title is sold separately for \$14.95.



Young cowkids can practice shape and color recognition with *Shape and Color Rodeo*.

Shape and Color Rodeo

Neosoft (distributed by DLM)
Apple II, Commodore 64, IBM PC
\$32.95

Young students can practice eye-to-hand coordination and shape and color recognition with this program. The six games increase in difficulty and deal with a special skill. Game titles are Color Mix and Match 1, Color Mix and Match 2, Rope Trick, Shape Roundup, Cowhand Brand, and Rodeo Flags.

Shapes and Patterns

Mindscape
Apple II
\$49.95

With this program, children can learn to distinguish and match patterns and shapes through graphics and animation. Activities can be individualized, and performance summaries can be created with the utilities program.

Shape Starship

Gamco
Apple II, Commodore 64
48K required
\$44.95

Four lessons can help students learn to distinguish and match shapes. Space-like graphics and sound effects accompany the activities. Teachers and parents can customize the lessons to a user's skill level. The program also includes a record-keeping function that holds up to 200 names and scores.

Shutterbug's Pictures

Learning Technologies
Commodore 64, Apple II
\$14.95

Students are shown two nearly identical pictures. The second picture, however, is missing an object. Students must decide what is missing. The program is designed to develop specific recall and visual memory, visual discrimination, and part-whole relationships.

Songs for Kids

Chipmunk
Commodore 64
\$9.95

A menu-driven program for children ages 3-7, *Songs for Kids* is a collection of 25 kids' songs such as *Mary Had a Little Lamb* and *Hickory, Dickory, Dock*. The words are displayed on the screen as the music plays.

Space Waste Race

Sunburst
Apple II, Atari
48K required for Apple
\$65.00

Music and animation help students learn to count, put numbers and letters in order, and understand directions such as up and down, left and right, over and under, and above and below.

Speller Bee

First Byte (distributed by Electronic Arts)
Amiga, Apple IIGs, Atari ST, Macintosh
\$49.95

Students can improve their spelling skills with these three word games and the talking spelling coach. The spelling list contains 150 words, and additional lists can be added. The speech feature uses the computer's built-in speaker. For preschool through junior high.

Spelling & Reading Primer

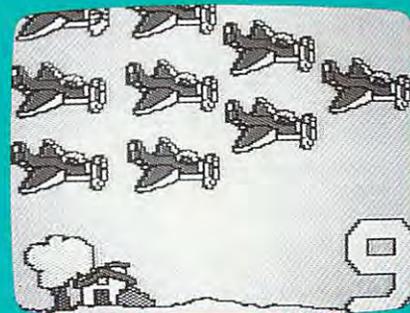
EduWare (distributed by Britannica Software)
Apple II, Commodore 64, IBM PC
64K required for Apple; 128K, CGA for IBM
\$9.95

By matching pictures with words, children ages 4-8 can learn to read and spell. The program includes graphics and sound effects.

Stickers

Springboard
Apple II, IBM PC, Commodore 64
CGA required for IBM
\$34.95

One hundred sticker pictures in ten categories can help children learn to distinguish shapes. In this program, kids select a sticker shape, color it, and combine it with other shapes to create a sticker picture. Children can also create their own stickers. For ages 4-12.



Large objects on the screen make counting easy in *Stickybear Numbers*.

Stickybear Numbers

Weekly Reader Family Software
Apple II, Commodore 64, IBM PC
\$39.95

Children ages 3-6 can learn to count using the groups of trucks, ducks, planes, and more in *Stickybear Numbers*. There are more than 250 possible color-picture combinations to help reinforce number and counting skills. Youngsters can also learn about computers.

Stickybear Typing

Weekly Reader Family Software
Apple II, Commodore 64, IBM PC
64K required for Apple
\$39.95

Graphics help explain the concepts of typing to any age group. The program includes three activity games to sharpen computer and typewriter keyboard skills. There are multiple levels of difficulty, and students' progress and results can be stored on a disk.

Telling Time

Gamco Industries
Apple II, Commodore 64, IBM
48K required for Apple; 256K, CGA for IBM
\$44.95

Students choose from four lessons: type in the digital time when shown a clock face, type in the time when given the time in words, set the clock hands when given the time in numerals, and set the clock hands when given the time in words. The computer randomly generates questions and gives the correct answer after three errors. Students who score a certain percentage may play an arcade game as a reward. A management system is included for the teacher.

Telling Time

Orange Cherry Software
Apple II, Atari, Commodore 64, IBM PC
128K required for IBM
\$39.00

Telling Time can help children learn to tell the time. The two programs cover clock faces, hours, half hours, minute hand, and the number of minutes in an hour.

Publishers of Preschool Software

Advanced Ideas
2902 San Pablo Ave.
Berkeley, CA 94702

AlohaFonts
Box 2661
Fair Oaks, CA 95628-2661

Artworx Software
1844 Penfield Rd.
Penfield, NY 14526

Banana Software
6531 Park Ave.
Kent, OH 44240

Britannica Software
185 Berry St.
San Francisco, CA 94107

Chipmunk Software
Box 463
Battleground, WA 98604

Covox
675D Conger St.
Eugene, OR 97402

CSS
Computer Software Service
2150 Executive Dr.
Addison, IL 60101

Davidson and Associates
3135 Kashiwa St.
Torrance, CA 90505

DLM
One DLM Park
200 E. Bethany Rd.
Allen, TX 75002

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404

Gamco Industries
P.O. Box 1911
Big Spring, TX 79721-1911

The Learning Company
6493 Kaiser Dr.
Fremont, CA 94555

Learning Technologies
13633 Gamma Rd.
Dallas, TX 75244

MECC
Distribution Center
3490 Lexington Ave. N
St. Paul, MN 55126

Mindplay
Methods and Solutions
82 Montvale Ave.
Stoneham, MA 02180

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062

Orange Cherry Software
Westchester Ave.
P.O. Box 390
Pound Ridge, NY 10576

The Other Guys
55 N. Main St.
Suite 301-D
P.O. Box H
Logan, UT 84321

Paperback Software International
2830 9th St.
Berkeley, CA 94710

Polarware
1055 Paramount Pkwy.
Suite A
Batavia, IL 60510

Soft-Kat
16130 Stag St.
Van Nuys, CA 91406

Spinnaker Software
One Kendall Square
Cambridge, MA 02139

Springboard Software
7808 Creekridge Circle
Minneapolis, MN 55435

Stone and Associates
7910 Ivanhoe Ave.
Suite 319
La Jolla, CA 92037

Sunburst Communications
39 Washington Ave.
Pleasantville, NY 10570

Unicorn Software
2950 E. Flamingo Rd., #B
Las Vegas, NV 89121

Weekly Reader Family Software
Optimum Resource
10 Station Pl.
Norfolk, CT 06058

Zephyr Services
1900 Murray Ave.
Pittsburgh, PA 15217

Ten Little Robots

Unicorn Software
Apple II, Atari, Commodore 64, IBM PC
CGA required for IBM
\$49.95

Five different games can help youngsters ages 2-5 learn to use a computer. Little Robot Story is an interactive nursery tale that introduces the concept of subtraction and helps children recognize words. With Count the Robots, the player must count the robots on the screen and enter that number. Players can match upper- and lowercase letters in Robot Letter Match. In Robot Addition, robots appear on the screen with the corresponding number to help children learn to count and add. Robot Sketch is a drawing game. A lab pack is available for \$120, and a teacher's edition is available for \$69.95.

TimeTeacher

Zephyr Services
IBM PC
CGA or EGA required
\$29.95

TimeTeacher features four games that help children learn how to tell time. The program includes color graphics, animation, and music to aid in learning. Each game includes a test mode for the child to play against time or the computer.

Tink Tonk Programs

Mindscape
Apple II, Commodore 64, IBM PC
64K required for Apple
\$9.95

Each program in this series is designed for children ages 4-8 and features color graphics and animation. The activities in the programs can help students learn basic math, spelling, memory, and thinking skills. Titles include *ABC's with the Tink Tonks*, *Being a Smart Thinker with the Tink Tonks*, *Subtraction with the Tink Tonks*, *Count and Add with the Tink Tonks*, *Develop Thinking Skills with the Tink Tonks*, and *Spelling with the Tink Tonks*. Each title is sold separately for \$9.95.

Tink Tonk Series

Mindscape
Apple II, Commodore 64, IBM PC
64K required for Apple
\$50.00

A three-program series for kindergarten through fourth grade, *Tink Tonk* features color graphics and animation to help youngsters improve their learning skills. *Tink's Adventure* offers practice in using the keyboard and alphabet. Students can learn to distinguish shapes with *Tink in the Land of Buddy-Bots*, and *Tuk Goes to Town* provides six different spelling and vocabulary activities with multiple levels of difficulty. Each title is also available separately for \$19.95.

Uncle D's ConSOUNDtration

AlohaFonts
Amiga
512K required
\$39.95

Children ages 4 and up can improve their memory skills while they play this game of concentration. There are four levels of difficulty covering three main categories—ABC's, numbers, and pictures. The player chooses a box on one side of the screen, and the digitized sound pronounces the letter, number, or picture in the box. The child then must choose the corresponding letter, number, or picture in a box on the other side of the screen. One or two students can play the game, and reading skills are not necessary. Additional data disks are available.

Up & Add 'Em

Fisher-Price (distributed by Spinnaker)
Commodore 64
\$6.95

Animated color graphics can help children learn to recognize numbers and quantities. There are four levels of difficulty.

Webster's Numbers

EduWare (distributed by Britannica Software)
Apple II, Commodore 64
64K required
\$9.95

Four activities can help children ages 4-8 learn shape recognition, number recognition, counting skills, spatial relationships, and problem-solving strategies. □

////// fast looks

**Walk Dinosaurs,
Play Hearts, Pin
Wrestlers, Build
Railroads, Paint
Masterpieces,
Integrate Tools,
Fly through the
Future, Fight in
Space, Chase
Carmen, Learn
Typing, See the
Capital, and
Digitize Anything**

Each month, "Fast Looks" offers up snapshots of the newest software and hardware for the Amiga, Apple II, Atari ST, Commodore 64/128, IBM PC, and Macintosh lines of personal computers. These capsule reviews look at notable programs and peripherals, products which have just arrived in our offices and which haven't yet been fully evaluated.

"Fast Looks" gives you glimpses of important and interesting software and hardware *now*, not next month.

Software Carousel

SoftLogic Solutions' *Software Carousel* infuses an MS-DOS IBM PC, XT, or AT with some of the multitasking magic of an 80286 or 80386 machine running OS/2. *Software Carousel* doesn't provide *true* multitasking—the ability to run more than one program at the same time—but it does provide most of multitasking's convenience by letting you keep up to ten programs in memory at once and switch quickly between them.

Imagine, for example, moving back and forth between a word processor and a spreadsheet. You have to save your word processing document, exit the word processor, load and run the spreadsheet, and then load your worksheet. When you want to move back to the word processor, the entire save-exit-run-load cycle must be repeated. With *Software Carousel* installed, you can move back and forth between applications with a simple keypress.

If you use TSR (Terminate but Stay Resident) programs, *Software Carousel* lets you run several at once

without conflicts. You just install each one in its own window and flip to it when it's needed. *Software Carousel* will use expanded or extended memory for storing your inactive programs, making window switching super fast.

Software Carousel uses just 32K of RAM for itself and is compatible with SoftLogic's other DOS-enhancing utilities, *DoubleDOS* and *Magic Mirror*.

— CK

IBM PC with at least 256K RAM and DOS 2.0 or higher—\$79.95

SoftLogic Solutions
One Perimeter Rd.
Manchester, NH 03103
(603) 627-9900, (800) 272-9900

Stepping Out II

If your Macintosh screen is a little cramped, you could buy an expensive big screen. Or you could get *Stepping Out II*, a program that makes your Mac think you've bought an expensive big monitor.

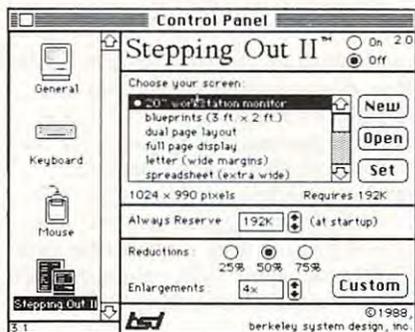
Stepping Out II, from Berkeley Software, is a screen-extender program that makes applications draw to a virtual screen in memory. *Stepping Out II* then copies a portion of the virtual screen to the real Macintosh display.

You can't see the contents of the whole screen, but *Stepping Out II* pans around the large screen as you move. In some ways, this panning is distracting. Using keyboard commands, you can lock parts of the screen so that they never move out of view. You can also lock the whole screen so it won't move when the mouse cursor goes beyond the real screen's boundaries.

By zooming in and out, you can change your view. A magnifying glass gives a detailed view of your work—much like FatBits. The drawback is that the enlarged image also pans as you move within the view.

If you're using public domain memory-resident utilities, such as an early version of the screen saver *Auto-Black*, you may experience system crashes. The documentation says that commercial memory-resident utilities shouldn't conflict with *Stepping Out II*.

One problem I had with the program: When I opened a *MacDraw* file, created before I installed *Stepping Out II*, half of the graphic was absent. The technical staff at Berkeley System De-



Choose a new size for your Macintosh screen from *Stepping Out II*'s dialog box.

sign was very helpful, and the solution, while clumsy, worked. I had to shrink the window to its smallest size, expand it, and then use the scroll box to see the missing portion of the picture.

— HA

Macintosh—\$95
Berkeley System Design
1700 Shattuck Ave.
Berkeley, CA 94709
(415) 540-5536

E-Z Score Plus

Just take the mouse, pull down the notes menu, choose your note value, and paste it onto the score. It's that easy. If you're a musician that needs sheet music in a hurry, you'll find *E-Z Score Plus* an indispensable software tool.

E-Z Score Plus joins *E-Z Track*, *ADAP Soundtrack*, and a host of other MIDI-based software packages published by Hybrid Arts, a company well-known for its Atari ST music software.

E-Z Score Plus includes all the standard MIDI (Musical Instrument Digital Interface) options and such features as pull-down menus, file access, score control, and page layout. What may give even veteran music software users a bit of a shock is the high quality of the program's printouts. Dot-matrix output has never looked better. (Printouts I've done on an Epson printer rival laser printer output in quality.)

It doesn't matter if you don't own a MIDI-compatible device, either. *E-Z Score Plus* works with or without external MIDI devices. If you just want to compose traditional music, the pro-

gram still tops out as a handy addition to your library.

Best of all, you can hear your musical works of genius as soon as you've pasted up the notes.

Hybrid Arts is planning several other projects—scheduled for fall 1988 is *MIDI-Score*, an orchestral-strength scoring program.

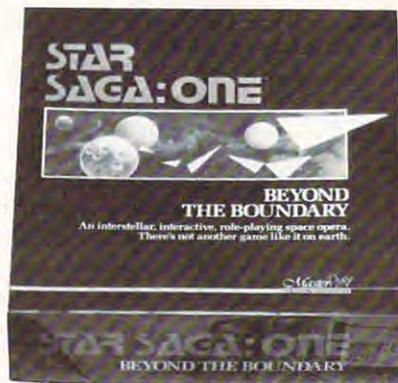
— DF

Atari ST—\$99.95
Hybrid Arts
11920 W. Olympic Blvd.
Los Angeles, CA 90064
(213) 826-3777

Star Saga: One— Beyond the Boundary

Got 80 hours just lying around? If so, and if you're a dedicated role-playing game player, *Star Saga: One—Beyond the Boundary* has enough to keep you and up to five friends occupied.

This multiplayer game has some of the standard elements of science fiction role-playing efforts—exploration, trading, discovery—but it's quite different from most earlier efforts in the genre in its use of the computer. Instead of sitting around the machine, players use tokens, a board, and an immense amount of written material. The computer acts only as game master, albeit a very sophisticated, flexible, and intuitive one.



Star Saga: One combines the social elements of a board game with the sophistication of a computer game.

The game seems far more a social event than a computer game, for much of its entertainment value comes from the interaction between players, not between human and computer. As many as six players compete and cooperate as their characters leave the safety of explored space and head into the

unknown in search of individual glories.

A simple (almost crude by today's standards) menu system is used on the computer to input player decisions and movements. Deep inside the computer, though, is the *Star Saga* referee, which watches every move and adjusts the game as players get better (or worse). The game is even able to adapt to players entering and leaving the game at any time.

Star Saga is an unusual computer game in that the imagery comes from the players, not from the computer screen. But it narrows its potential audience because of its multiplayer format—you have to have others to play (even though you *can* play it solitaire, it's lackluster without interaction).

— GK

Apple II—\$79.95
IBM PC and compatibles—\$79.95
MasterPlay
8417 Sun State St.
Tampa, FL 33614
(813) 888-7773

GRABBIT

GRABBIT is a powerful Amiga utility that can capture any video image and then print it or save it to disk in the popular IFF format. *GRABBIT* runs as a background task, allowing it to coexist with almost any program; it only uses 10K of RAM.

The program is easy to use, and its documentation is clear. You can capture your first screen within minutes. Five hot-key combinations let you print a screen, save a screen, cancel a printing operation, bring another screen to the front, or quit *GRABBIT* and free its memory. Since *GRABBIT* uses the Amiga printer drivers, you can easily make printer changes with the Preferences tool.

GRABBIT is effective with most commercial software, making it ideal for saving screen shots of your high scores, capturing maps from adventure games, or printing your favorite screen image. *GRABBIT*'s one failing is that it does not work with software that disables the Amiga's multitasking ability.

— TT

Amiga with at least 256K—\$29.95
Discovery Software International
903 East Willow Grove Ave.
Wyndmoor, PA 19118
(215) 242-4666

Contributing to "Fast Looks" this month were Heidi Aycock, David Florence, Clifton Karnes, Gregg Keizer, and Troy Tucker.

"An exceptional value."

Tom Badgett, *PC Clones*

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John Dvorak, *PC Magazine*

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Leonard Hyer, *PCM Magazine*

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Designasaurus

Children are invariably fascinated with dinosaurs. What's a herbivore, Daddy? What's a carnivore, Mommy? Concepts, concepts!

Designasaurus creates real interest and fun, and, amid the laughter, there's subtle but unmistakable learning in process.

Designasaurus teaches you to live, eat, and survive as the dinosaurs did long ago. Admittedly, that's not the most essential skill for a twentieth-century child. But it's educational—and fun. The program offers three main activities: Build-A-Dinosaur, Print-A-Dinosaur, and Walk-A-Dinosaur. You select these and other program options by using cursor keys.



Walking a brontosaurus is one of your options in *Designasaurus*.

Most children will want to start with Print-A-Dinosaur, which displays and prints pictures of dinosaurs. The picture library supplied with *Designasaurus* includes detailed drawings of 13 species, each shown in its habitat. Extra print disks are available but were not reviewed.

Depending on your printer, pictures can be 8½ × 11, 11 × 17, or 17 × 22 inches. The program supports IBM, Epson, and Okidata dot-matrix printers, as well as HP LaserJets. You can even print iron-on transfers to make your own dinosaur T-shirts. A piece of transfer paper is included.

After looking at real dinosaurs, you may feel the urge to make up a few of your own. The Build-A-Dinosaur option takes you into a research lab at the Museum of Natural History. A bearded, scholarly-looking paleontologist helps you reassemble fossil bones from his collection to create a designer dinosaur of your own.

In a lab cabinet, you'll find a head drawer, a neck drawer, a body drawer, and a tail drawer. Using the cursor keys, select a drawer. Then browse through skeleton parts from known di-

nosaurus until you find one you like. With a single keypress, you move each choice into the lab, and a dinosaur skeleton takes shape.

Younger children delight in mixing and matching parts of different species. For example, you can combine a brontosaurus neck and tail with a triceratops head and an iguanodon body. You can even name the critter that results (Daddyosaurus seems a favorite) and print a certificate documenting and preserving your discovery.

There's more than merely picking out bones, though. As each bone appears on the screen, it's accompanied by an onscreen summary of the lifestyle and habits of the species it represents. These make fascinating reading and always elicit questions from children. In addition, the printouts tell you whether you've combined incompatible parts—for instance, a carnivore's head with a herbivore's body.

With Walk-A-Dinosaur, you choose one of three dinosaurs and walk it through five different prehistoric ecosystems. When you've negotiated all five ecosystems, the program prints a personalized certificate. Each ecosystem is suitably stocked with a diet of vegetation and other dinosaurs which your dinosaur must eat to avoid starvation. A graph at the top of the screen indicates how many calories your dinosaur has in reserve. Along with prey, the ecosystems also contain predators, which you must avoid. Other onscreen bar graphs rank each ecosystem in terms of how much food and how many herbivores and carnivores it contains.

You control dinosaur movement with cursor keys; joystick control is not offered. You can set playing speed from the keyboard—a useful feature, particularly when your ecosystem includes a hungry tyrannosaurus rex. It doesn't take a 10 MHz tyrannosaurus long to finish off a brontosaurus!

The landscapes in Walk-A-Dinosaur are vivid and realistic. So is the fierceness with which predatory dinosaurs attack. Small children, particularly preschoolers, can quickly become attached to the colorful little dinosaur romping through the primeval landscapes on the screen. They may be disturbed by the rather frenzied predator attack scenes, which leave the hapless victim lying lifeless on the ground. Parents should make sure that this isn't too much realism before introducing the very young to dinosaur walking.

Even with that caveat, *Designasaurus* gets high marks as an entertaining and educational program. *Design-*

asaurus runs and plays smoothly. It's a good example of how much fun a well-designed educational program can be.

— Steve Hudson

Designasaurus

For . . .

Apple II with at least 128K memory—\$49.95
Commodore 64/128—\$34.95
IBM PCs and compatibles with at least 512K—\$39.95

From . . .

Britannica Software
345 Fourth St.
San Francisco, CA 94107
(415) 546-1866

And . . .

Supplied on two 5¼-inch disks and one 3½-inch disk and runs on any 512K PC with a mono, CGA, or EGA card.



Card Sharks

Never insult a tattoo artist—especially if he's plying his trade on your arm at the time—and never play cards with a stranger. My father gave me those gems of advice when I left the family home—stead years ago.



These mild-mannered card sharks may take you for everything you've got.

Those homilies came to mind recently as I booted Accolade's *Card Sharks*, a disk containing interactive versions of three popular card games: poker, hearts, and blackjack. I knew I didn't have to worry about a botched tattoo gracing my bicep, but, with a title like *Card Sharks*, I fully expected to be fleeced of the family farm before I could say "Seven Card Stud."

My apprehension increased somewhat when the title screen appeared. I was greeted by a cigar-chomping gambler who was wearing a black fedora, a black suit, a black shirt, and a white tie.

He had a big stack of chips at his elbow and a smile on his face that would make a snake-oil salesman weep with envy. I was pleased to learn he wasn't one of the card sharks I'd have to face. He just wanted to know which game I preferred.

The opening menu gives you the option of playing poker, hearts, or blackjack. There are hundreds of variations to poker; Accolade includes three of the most popular: Five Card Draw, Seven Card Stud, and Texas Hold 'Em.

Blackjack is popular in casinos the world over, and Sam the Dealer sees that everyone gets a fair shake under the Accolade house rules. In poker and blackjack, you start with \$500, but then you're on your own. If you win more than \$10,000, you bankrupt the house, and the game is over. The game also ends if you lose all your money—this house won't take an I.O.U.

Hearts is a popular family game. No money changes hands, but you do keep score after each round, with the computer doing the counting (and preventing you from playing an illegal card.)

Even if you aren't familiar with the rules of these games, Accolade's clear and concise documentation has you playing like a Las Vegas pro in no time. There is even a slow version to help you through the learning stages.

In *Card Sharks*, you don't simply play a row of cards dealt to the screen by an invisible dealer; you actually play against animated and articulate opponents. You are introduced to six card sharks, if you can call them that, and you pick the ones you want to face across the green felt.

First, there is Luigi, a slightly balding Italian who'd like for you to fix him up with a date after the game. The very proper lady who wears a large hat at the table is Lady Vanderbilt. Then there is Milton, an enthusiastic young man fond of expressions such as "Jeepers." All have unique personalities and playing styles that become evident during play.

These three characters, however, are not your only choices for opponents. How would you like to sit down for a friendly game of Five Card Draw with three world leaders named Gorb, Maggie, and Ronnie?

Gorb likes the poker variation called Texas Hold 'Em, but he's not sure what Texas is. Maggie loves gambling lingo, and Ron says Nancy tells him how much to bet. These snatches of dialogue emerge during play. Characters complain about the hands they're dealt, they keep track of how much money in chips they have, and they toss in personal remarks during the course

of a game. These human qualities and touches of humor boost *Card Sharks* several notches above other computer card games.

In addition to the game itself, I think most card players enjoy the social element that's part of a real game. While most computer card games offer a technically correct hand of cards, they fail to provide the social interaction that adds to a game's enjoyment. *Card Sharks* tries to bridge this gap by providing computer opponents who have vibrant personalities and generous senses of humor.

The card sharks also have different playing skills. It's not always the luck of the draw that determines the winning hand in poker. Psychology also plays a part. If you can convince a player that you hold a superior hand, he or she may fold, leaving you the pot. Sometimes a good bluff is as valuable as an ace in the hole.

In one hand of Seven Card Stud, Maggie showed herself to be a pretty good card player. Gorb and Ron had fair hands showing, but Maggie kept upping the bet and caused them to fold. Then she kept raising my bets, trying to force me out. I thought she must have a pretty strong hand, but I stuck with my three Aces. Turns out she had a King! Period. Talk about a bluff!

To their credit, the characters do play fairly. At least I never caught anyone cheating. I noticed a difference in their dialogue, depending on the game they were playing. Since poker and blackjack can involve serious sums of money, the conversation is somewhat limited. Of course, there was a time when Gorb got excited after winning a hand and said, "I won. Hand over your countries, comrades." But I think he was just kidding.

In hearts the conversation is a little lighter and the characters are more verbose. Maggie did get a little confused once and addressed a remark to Ron, but Ron wasn't in the game. Milton keeps asking about snacks in the refrigerator, Luigi moans about getting stuck with the Queen of Spades, and Lady Vanderbilt tells us how much she enjoyed playing Accolade's *4th & Inches*. The game designers sneak in a few plugs like that, but it's not objectionable.

All in all, there is very little to object to in *Card Sharks*. The technical aspects of the games are well done. You can select and discard any cards you like. You can bet up to the house limit on any hand. Anytime it's your deal, you can quit or change games, selecting either a faster- or a slower-paced game.

I'll have to admit I've never cared for computer card games, but I like sitting down with the zany characters in *Card Sharks*. One night Gorb got in a chatty mood and told us about that mark on his head. It's not really a birthmark, you know. I won't tell you what he said, but that Gorb can be a real card.

— Tom Netsel

Card Sharks

For . . .

Commodore 64/128—\$39.95

From . . .

Accolade
505 S. Winchester Blvd.
Cupertino, CA 95128
(408) 985-1700

Tag Team Wrestling

Why is that computer sweating? Are those grunts and growls coming from the speaker? It might be coming from *Tag Team Wrestling*, one of the latest wrestling games to arrive on the software scene.

The game is Data East's translation of their own arcade hit of the same name. As with television wrestling, *Tag Team* features good guys, *Ricky's Fighters*, and bad guys, *Strong and Bad*. It's up to you to assure the good guys' victory.

Tag Team Wrestling may be played against the computer or against another human player. During a one-player game, you have a choice of joystick or keyboard control. In a two-player contest, both methods must be used to control the onscreen wrestlers. No matter how you maneuver your wrestlers around the ring, the object is the same—beat your opponents by pinning one of them to the mat for the traditional three-count.

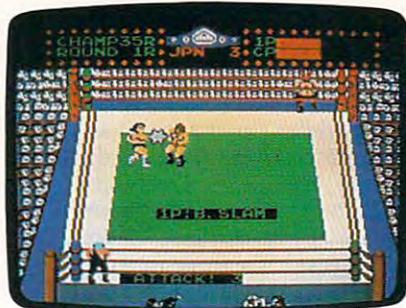
Each round has a five-minute time limit, and warnings appear on the screen with one minute, 30 seconds, and 10 seconds left. During each round, energy meters at the top right of the screen provide a graphic display of both active wrestlers' energy levels. When your wrestler's energy drops too low, you must tag your partner, waiting in the corner. Pressing the joystick button or space bar also summons your partner when you need help freeing yourself from a vicious hold, such as the Back Breaker.

The Back Breaker is one of six

wrestling maneuvers that you may use against your opponents—and your opponents may use against you. Other offensive weapons include the Flying Drop Kick, the Body Bash, the Back Drop, the Body Slam, and the Neck Hanging. In addition, each wrestler has his own secret move that's particularly effective against a specific opponent.

To execute a maneuver, you move close to your opponent and press the joystick button or space bar. If you successfully grab your opponent, you may select the desired maneuver by moving the joystick in the appropriate direction or by selecting the corresponding key on the keyboard. As you do, the name of the move appears onscreen. To finish the maneuver, you must press the joystick button or space bar again. Although this three-step process sounds like a lot of trouble just to slam your opponent to the mat, it lets you see exactly which move you're choosing. This saves you the trouble of memorizing joystick positions or keystrokes.

While *Tag Team Wrestling* will never win any awards for graphic realism or sound, it does a nice job of simulating the action and theatrics of TV



Hulks and goons take to the mat in *Tag Team Wrestling*.

wrestling. Before executing a Drop Kick, for example, your wrestler will hurl himself into the opposite ropes and bounce off to get a running start. Sometimes the action even spills out of the ring, where you may find a folding chair. You can even pick up the chair and use it as a weapon against your opponent if you don't stay out of the ring for more than 20 seconds. Remain out of the ring any longer and you'll be disqualified.

Each time you win a round of *Tag Team Wrestling*, you advance your career and compete with tougher oppo-

nents. Between rounds, a musical victory screen is displayed, showing your winning team with its trophy. Contrary to what the game's brief manual says, a loss while progressing in rank doesn't simply cause you to start the next round one level lower; it ends the game.

You must win 3 consecutive title matches for your team to become the Japanese champion; 9 successful matches wins you the European title; 15 gets you the American tag team championship. Beat your opponents 25 times in a row, and you'll receive the Super Championship belts.

Now, if you only *looked* like Hulk Hogan. . .

— Bob Guerra

Tag Team Wrestling

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Apple II with at least 64K—\$19.95

From . . .
Data East USA
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San Jose, CA 95112
(408) 286-7074

Pure-stat College Basketball

Authorities say that coaching ability makes the difference in college basketball: Can you coach a team to the final 4, or even the National Tournament? Now you can find out! From the authors of PURE-STAT BASEBALL comes PURE-STAT COLLEGE BASKETBALL.

This statistically based program contains 20 great college teams from the past and present. See all the plays animated on the screen with 5 on 5 full court action. Everything from a slam dunk to a fast break. Special features include: Man-to-Man or Zone defenses, the option to SLOW-DOWN the tempo of the game (allowing a weaker team to be competitive with a stronger one), or take a 3 point shot with current teams, fatigue factors are included for each player based on time played.

In PURE-STAT COLLEGE BASKETBALL you can play against an opponent, play against the computer, or let the computer play itself (great for tournament play). This program also includes a stat compiler which saves the results of the games played. This feature allows you to scout the opposition or evaluate your own team. If you feel you're up to the challenge, set up your own tournament and test your coaching skills. Will your team make it to the final 4?

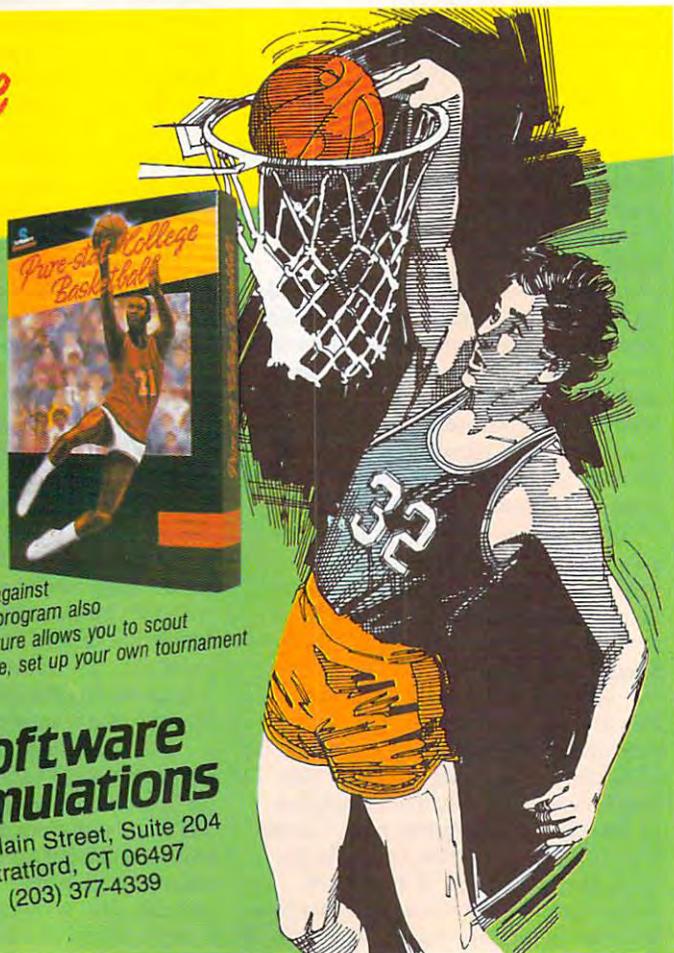
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The Golden Spike

Put on your scare strap, grab your banjo, and become a king snipe on your own railroad construction crew with *The Golden Spike*, from National Geographic. This beautifully illustrated journey uses a filmstrip, an audio cassette, a teacher's guide, and two computer disks to take you back in time to the building of America's first transcontinental railroad.

The software simulates the building of a railroad either from Omaha to Promontory or from Sacramento to Promontory. Regardless of the route chosen, students must solve a variety of problems in order to complete their assignment within the time and budget allotted.

The booklets offer detailed information on the building of the eastern and western sections of the railroad. Maps show latitude and longitude, mountains, rivers, and plains, as well as the railroad's route.

The teacher's guide contains activity sheets that give students even more information about the area. To bring in an economics lesson, a worksheet on gold is even included.

When it's time to hit the ties, you simply choose your route and insert the disk. The Sacramento to Promontory route and the Omaha to Promontory route offer similar problems, but they're different enough to encourage students to play both. As owner of a railroad company, the student must work within the limitations imposed by the project's budget and time line. Some decisions offer interesting alternatives. For example, it costs less to hire Chinese workers on the Central Pacific route than it does to hire Irish workers on the Union Pacific. Another problem involves plotting the railroad's path. Mountainous terrain in the Sierra Nevada makes construction slower and more complicated than the plains between Omaha and Cheyenne. Indians can cause trouble, too. Some Indians are friendly and cooperative; others resent their land being invaded.

Each route has to be surveyed before construction begins. But the railroad owner doesn't have to follow the historical route: He or she can create a completely new one. To give students a feeling for the passage of time, beautiful seasonal graphics accompany the time line for the route. News flashes of current events—such as the invention of dynamite or Indians on the warpath—provide students with an insight into



Tie the country together by rail as you replay history in *The Golden Spike*.

the period and help them make informed decisions.

One feature of this program is that it teaches students to live with the consequences of their decisions. If two men are lost in a snow storm, for example, should ten more go looking for them during the storm? Should a mail-route contract be accepted when it means more incoming money? Choices must be made and the consequences accepted.

The Golden Spike is an excellent tool for educators and a great way to help kids experience history as they travel the rails to the end of the line.

— Nancy Rentschler

The Golden Spike

For . . .
Apple IIe or IIc with 128K—\$109.50

From . . .
National Geographic Society
Educational Services
Washington, DC 20038
(800) 368-2728



Photon Paint

Work with *Photon Paint* and you work at the front edge of Amiga graphics technology. *Photon Paint* is a new professional-quality paint program from MicroIllusions that offers the advanced features you won't find in any other microcomputer paintbox.

It operates in the Amiga's hold-and-modify (HAM) mode, allowing the 4096 colors from the Amiga's palette onscreen at the same time. In HAM mode, you can create images of near-photographic quality—images sharper and more lifelike than those you can create in the Amiga's 32- or 16-color modes.

There are trade-offs for this increased realism. Drawing and filling are slower in HAM because the processor

must perform many complex calculations. HAM pictures also take up a lot of room, both on disk and in memory—you can fit only a dozen or so onto an 880K disk, for instance. Also, pictures look blurry at color transitions because of the way HAM pictures are calculated. To produce clean-edged images, you'll need to drop down to only the base colors provided by an onscreen palette.

Photon Paint first presents its Fast menu, an abbreviated selection of palettes and tools. The upper right of the palette contains *Deluxe Paint II*-style drawing tools, while the upper left holds a 16-color palette for base colors and, just below it, a 48-color palette for transitional colors derived from the base colors. Base colors create fringe-free renderings, just as when HAM is not operational. Transitional colors are best used for subtle color gradations.

With the full range of HAM colors, you can choose from hundreds of shades and use RGB and HSV palette controls to put any of the 64 colors in the upper palettes. Most of the time, you'll want to use an abbreviated menu because the full menu takes up nearly half the screen.

Photon Paint's fine brush handling showcases some of the program's jazziest effects. You can cut out any area of the screen to use as a custom brush, and you can twist, rotate, resize, tilt, and bend any brush. Parts of the brush can be transparent or translucent. Surface mapping, where you wrap the brush around user-defined areas to create the appearance of a 3-D object, is particularly interesting. You can even alter the shading of the object by changing the direction of the light source; backlit effects are also possible. Yet another effect is color blending, in which you add or subtract translucent layers of color, like brushing a watercolor wash over your painting.

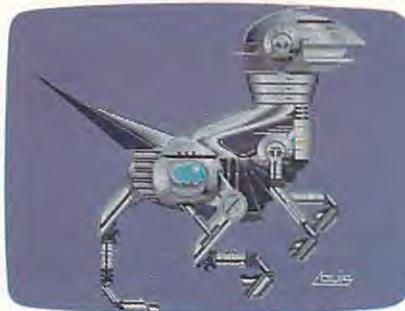
Photon Paint has very flexible gradient-fill tools, with dithering adjustable along both the x- and y-axes simultaneously. A special pix tool lets you create pictures with a pronounced mosaic or pixellated look, currently very fashionable in computer art circles.

Like all other Amiga paint programs, *Photon Paint* saves paintings in the IFF picture file format, making it easy to switch files back and forth among programs. You can, for example, take pictures or brushes from Electronic Arts' *Deluxe Paint II* and load them into *Photon Paint* for HAM enhancement; you can't, however, load HAM pictures back into *Deluxe Paint II*. You

can also work with NewTek's *Digiview* digitizer pictures or any frame-grabber that creates IFF HAM files.

The program supports overscan and the NTSC and PAL video signal standards. MicroIllusions plans to introduce a complete line of desktop video software, including a transport controller, cell animator, and 3-D object editors, that will be completely compatible with *Photon Paint*.

Photon Paint doesn't have everything an Amiga artist could want. It still lags behind *Deluxe Paint II* in providing a wide selection of basic drawing tools. For example, you can't draw with custom brushes using the rectangle, circle, and ellipse tools, and there's no provision for creating quick patterns and filling areas with them. The documentation is clearly written, but it lacks illustrations and an index, making it nearly useless for quick reference.



A Chromesaur illustrates the subtle shading possible with more than 4000 colors at your fingertips in *Photon Paint*.

Photon Paint only works in the lowest two Amiga graphics modes—320 × 200 (lo res) and 320 × 400 (lo-res interlaced). MicroIllusions says that capabilities for the two higher graphics modes, as well as support for pictures larger than the screen size, will be added to an upgrade slated for release in late 1988.

Also, unlike most paint programs, *Photon Paint* doesn't provide any way to change Preferences printer settings from within the program; there's essentially no control over printing your image. MicroIllusions' focus on the video market shouldn't blind it to *Photon Paint*'s desktop publishing capabilities.

Right now, *Photon Paint* represents the state of the art in Amiga paint programs. But several eagerly awaited HAM editors will follow hard on its heels. All will likely be pushing the edge of computer graphics even further. With Amiga graphics software competition heating up fast, MicroIllusions al-

ready needs to be thinking about *Photon Paint II*.

— Steven Anzovin

Photon Paint

For . . .

Amiga with at least 512K; one megabyte RAM recommended; hard disk optional—\$99.95

From . . .

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
(800) 522-2041



Microsoft Works

You want to merge your mailing list database with a form letter. A simple task, perhaps. But you also want to include a chart from a spreadsheet, and you need to connect with a computer bulletin board to get some information for the letter. This process might involve a lot of different programs—saving one, starting another—unless you're using an integrated package such as *Microsoft Works*.

Works combines four applications: word processor, database, spreadsheet, and telecommunications. All include advanced features, are easy to use, and let you move between tasks without rebooting or exiting. As with other all-in-one packages, *Works* lacks some of the highly specialized features of a single-application package, but for most users, this system will be more than enough.

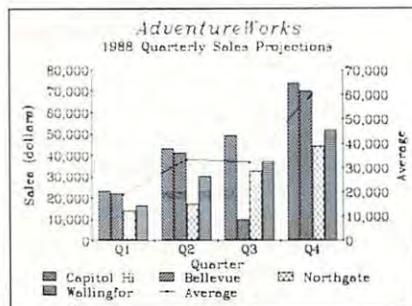
Works costs more than some integrated alternatives, but the content of the package justifies the price. You get a 600-page manual, a 100-page Appendix/Macros booklet, a road map to help you get started, a beginner's guide to computers, a booklet called *SampleWorks* offering ideas of what you can do with *Works*, a guide to keyboard shortcuts, seven 5¼-inch disks, and four 3½-inch disks.

Despite its length, the manual is readable and usable. Each section introduces one of *Works*' components and then offers a reference section outlining specific functions and commands. The Appendix/Macros booklet demonstrates how to set up single-key, multi-function commands and provides information on printers and fonts, modems and communications. The booklet also explains how to use a mouse

with *Works*. Not surprisingly, *Works* fully supports Microsoft's mouse.

You can operate each of *Works*' components with pull-down menus or keyboard commands, and both methods are always available. You can also access the pull-down menus with a mouse or directly from the keyboard.

Each component of *Works* is sophisticated enough for almost all users. The word processor lacks Index and Table of Contents generators and a footnoting feature, while the spelling checker won't bypass all instances of a given word. Apart from these deficiencies, however, *Works* is full-featured and complete. The spreadsheet and database components are similarly functional. Only the telecommunications software needs a significant upgrade. The communications module works fine, but it needs additional protocols and terminal emulations.



This Combination Bar-Line graph was generated with the *Microsoft Works* spreadsheet feature.

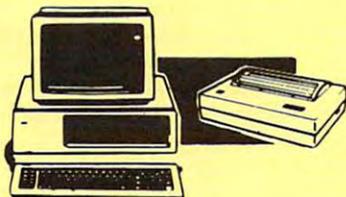
Sophistication shows in each component. The word processor, for example, contains all the standard items you'd expect, such as full cursor commands and the option to save files in the *Works* format or in two ASCII formats. Paragraph formatting includes options for left or right indentation, automatic first-line indentation, line spacing between paragraphs, and forced page breaks. Through one menu, you can choose the font, size, and style—bold, underline, italics, and so on—of individual characters.

A search command lets you easily find and replace characters, even such nonprinting characters as tabs, paragraph marks, manual page breaks, white spaces, and nonbreaking hyphens—very useful when reformatting a document. Split divides the file into two windows, letting you see two parts of the document at once—this is also possible if you load the file into memory twice. Headers and footers can be almost as long and complex as you like,

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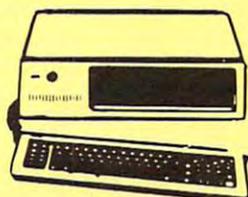
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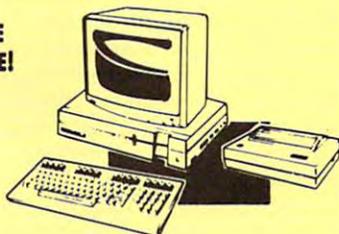
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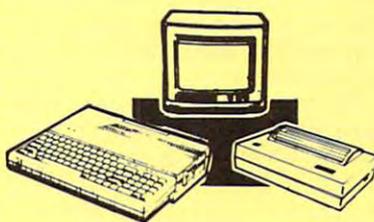
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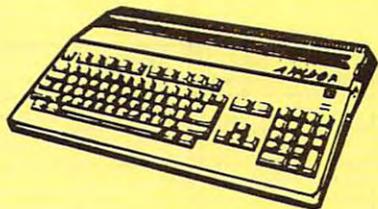
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Echelon

Take command of a Tomahawk Light Cruiser in *Echelon*, a flight simulator from the twenty-first century; but while you're flying, watch for enemy spacecraft—*Echelon* is also a fast-paced arcade game.

You've been assigned to a top-secret military facility called Echelon. It's located on Isis, the recently discovered tenth planet of the solar system. As a commander in the International Space Federation and a top space pilot, you command a C-104 Tomahawk Light Cruiser, the twenty-first century's most advanced spacecraft. Your mission is to protect and explore a quadrant of Isis and to determine the location of the secret pirate base.

Although *Echelon* offers excellent sound and graphics, its most fascinating facet is its depth. Though *Echelon* excels as an arcade-like shoot 'em up, it's more than that. The program's three-in-one flight simulator provides everything from training to trigger-finger relief.



Fly through an eerie landscape in *Echelon's* C-104 Tomahawk Light Cruiser.

The scientific mode includes several flight training exercises and sufficient scenery detail for many extensive and interesting explorations. In the patrol mode, where you guard and explore a zone, you face enemy resistance of varying strengths. As you explore, you'll uncover clues leading to a secret pirate stronghold. That's where the third mode makes its appearance. It's pure combat, with arcade-like, nonstop enemy attacks.

The main screen of the program is the spacecraft's instrument panel with a "heads-up" view looking through the front window and a top view looking down on the Cruiser. The instrument panel provides a wealth of information about the craft's location, speed, altitude, zone coordinates, and the pitch and bank of the ship. While you won't need much of this information in the arcade mode, it is valuable for precision

flight simulation.

The spacecraft comes equipped with an RPV, a remote control probe device that can be launched from the ship. Once launched, the RPV can explore buildings and structures, flying around the zone like the spacecraft itself. You can switch between controls for the craft and the RPV with a key-stroke. You can also use remote control to fly your Light Cruiser by switching to the RPV's view to track the Tomahawk's flight.

You can adjust the play mode at any time by patching into the Data Link, which provides several options, including docking procedures, weapons, and fuel requisition for the spacecraft. You'll also find the game options here: You can adjust the intensity of the enemy strength in the zone from nonexistent to very heavy, save a game in progress, load a previously saved game, format a disk, or restart a game without rebooting. For the complex scientific and patrol modes, the option to save your progress is indispensable.

Along with one 5¼-inch disk that requires a 1541 or compatible disk drive, *Echelon* includes an operations manual, a keyboard overlay, and a voice-activated firing mechanism called Lipstick. Since *Echelon* uses the joystick fire button for acceleration and deceleration, an alternative firing mechanism had to be found. The solution is the Lipstick, which fires your weapons when you speak into a mouthpiece on a headset. The Lipstick feels silly but works well. It can be a problem, however, if you can't keep quiet during a game. Any stray sound could result in the accidental firing of a weapon while the weapon system is armed. The Lipstick doesn't come with the Apple version of *Echelon*.

The documentation provides good explanations of the Light Cruiser's features. In addition to explaining aspects of play, the manual also pulls you into the game's plot and environment. The documentation could have focused on more information for people interested in pure flight simulation, however.

Gameplay is excellent. Screen scrolling and refreshing speeds are adequate. You can further improve screen speed because the program allows you to turn off several options that slow it down. You can control the craft with the joystick or the keyboard, but I found the joystick much more natural and easier to use than the keyboard.

All in all, I was surprisingly pleased with *Echelon*. At a time when space

games are a dime a dozen, *Echelon* has risen above the rest by including the depth of a true flight simulator and nonarcade modes of play.

— Scott Thomas

Echelon

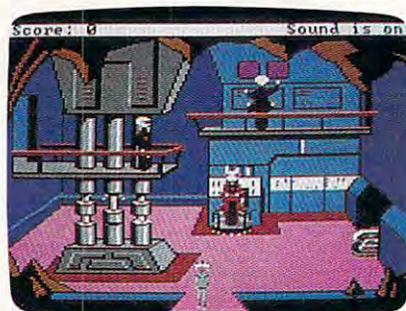
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Space Quest— The Sarien Encounter

One minute you're a lowly janitor aboard the Arcada Research Lab; the next minute evil Sarien raiders attack your ship and steal the priceless Star Generator. As the only survivor of the attack, it's up to you to escape the captured vessel and save the civilized world. So begins *Space Quest—The Sarien Encounter*.



Wander through an enemy-occupied space lab as you save the civilized world in *Space Quest—The Sarien Encounter*.

Space Quest is a science-fiction graphics adventure game in the same vein as previous Sierra On-Line animated adventures. It shares many of the same techniques found in *King's Quest*, such as multiple solutions, variable scoring, and simulated 3-D graphics. All aspects of the game are enhanced by the capabilities of the IIGS, however.

As one would expect, much of the appeal of *Space Quest* hinges on its graphics and sound. At times Apple IIGS users may think they're watching a

cartoon, not playing a computer game. The seamless animation comes complete with colorful and detailed backgrounds, as well as finely drawn characters. Considering the scarcity of descriptive text, excellent graphics are necessary because they hold many of the clues needed to solve the adventure.

The sound effects also greatly enhance *Space Quest*. From the digitized voice that blares *Intruder Alert!* to the wild alien music played in the intergalactic bar, the sounds of the program will delight players.

The adventure itself is not only enjoyable but also solvable for most people. The game's approach is linear, meaning that you must complete all the puzzles in one area before moving to another. Failing to collect all necessary objects or clues can have devastating results later. You should save the game at various points so that you can retrace your steps and pick up an object you've missed. Otherwise, you'll have to start from the beginning of the adventure.

Even though the game says it will accept full-sentence input, *Space Quest's* adequate parser doesn't live up to that claim. Sometimes the game will

not understand a full sentence even though it will understand a simple noun-verb construction. The function keys are a definite plus for nontypists because a keystroke will repeat previous commands or cancel mistyped input.

Space Quest includes several arcade elements. They aren't obtrusive or illogical, and they play an important role in completing the adventure. Some people may resent these contests of manual dexterity in what would otherwise be a cerebral game. On the other hand, for those players who enjoy some variety, flying a skimmer through a meteor storm and shooting Sarienians will prove as exciting as figuring out how to destroy the Star Generator.

The playing mechanics are simple. You manipulate your animated character with a mouse, joystick, or keyboard command. Likewise, broad commands like SAVE, RESTORE, SOUND ON/OFF, and HELP can be accessed through pull-down menus or function keys. No matter what method or combination of methods you choose, *Space Quest's* interface makes playing the game a snap. There isn't any screen mapping, and you'll see that mapping

isn't necessary. In spite of the illusion of size, the entire game takes place in four locations. The program is copy-protected, but you can install it on your hard disk.

An adventure-game programmer must walk a precarious line between writing a challenging game and writing a frustrating one. *Space Quest—The Sarien Encounter*, while occasionally leaning both ways, manages to maintain its equilibrium. The result is one of the better new adventure games to arrive on the software scene.

— James V. Trunzo

Space Quest—The Sarien Encounter

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Executives, small business owners, students, sales people, and beginning computer users will benefit most from *PFS: First Choice*. Its ability to integrate data, text, reports, and graphs into a single document makes *First Choice* useful, and its singular command structure makes it easy to use.

Although *First Choice* is an integrated package, it is not a multitasking program. The program limits user activity to one file at a time. You navigate through *First Choice* by placing Bookmarks in one file before you move to the next. When you finish with the second file, transfer back to the first file and you'll find yourself where you left the Bookmark. You can place up to nine bookmarks.

The individual components of *First*

Choice are satisfactory, but not up to the standards of the kind of stand-alone packages that cost far more than the entire *First Choice* system. If you can live within *First Choice's* restrictions, some of which are outlined here, it should be your first choice in software.

In the word processor, documents must have fewer than 30 pages, and line widths are limited to fewer than 250 characters. The JOIN command combines several files to make longer documents. *First Choice* supports the usual word processing features, such as centered text, bold and underlined text, variable page length, double-spaced text, headers, and footers.

The file management system is a flat-file database that acts like an electronic stack of index cards. A single file contains up to 16,000 records, and a record contains up to 1000 fields. Producing columnar reports from database information is painless.

The spreadsheet has 1024 rows and 768 columns. *First Choice* doesn't support macros, but it does support automatic recalculation, which you also can turn off. A Quick Entry key duplicates what you typed last, making logical

leaps when you type information with an inherent order. For example, if you type the first few months, then use the Quick Entry key, *First Choice* types subsequent months each time you strike the key.

Using the graphics feature, you can link spreadsheet data to a chart or generate a graph from scratch. You can include a chart in a word processing file with a command code, but you won't see the graphic onscreen and you can't resize it. *First Choice* supports color graphics for CGA, EGA, VGA, MCGA, and Hercules cards.

Although the communications component of *First Choice* has no terminal emulators, it does support the X-Modem protocol. You can also create log-on scripts which reproduce sign-on procedures to your favorite remote services. While you're logged on, you have access to all text you receive, even if it has scrolled off the screen.

In this package, integration goes beyond simple file and data sharing to a common command syntax and screen display. The top line of every screen holds the main menu choices: Files, Features, Print, Edit, Style, and, most

COMPUTE!'s Apple Applications Disk is the easy way to enjoy the programs from this issue.

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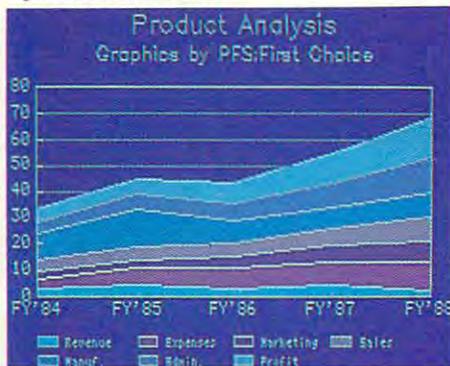
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importantly, Help. You access commands through pull-down menus or through Alt key shortcuts. Novices will be relieved to find many of the menu selections in the same place in each application. This drastically reduces the learning curve. The second line of every screen indicates the active application, filename, remaining memory, and cursor position.

The manual is written for new users, but it isn't condescending. Even the newest computer user should have no trouble installing and running the system with the straightforward instructions. The first chapter is a tutorial demonstrating word processing, file management, and spreadsheet analysis. Following chapters cover each application. PFS encourages you to read the tutorial and then experiment with the program, accessing Help when necessary.

I took PFS at their word and skipped to chapter 9, "Putting It All Together." I was not disappointed. Though I was skeptical that all of the modules would work together, I found I could incorporate spreadsheets, data file reports, and even graphs into word processor documents.



PFS: First Choice lets you produce color business graphics.

Pressing F1 opens a Help window with location-sensitive information. The available commands and options are listed with brief descriptions. Using Help, you can solve most problems without consulting the manual.

Through compatible data files, *First Choice* exports data to other popular programs, such as *Lotus 1-2-3*, *Harvard Graphics*, and other PFS programs. With some restrictions, *PFS: First Choice* can import *Lotus 1-2-3* WKS-format files.

To achieve optimum performance, *First Choice* requires a hard disk drive. If you use two floppy drives, you'll swap between the three program disks. During file saves or spelling checks, the program requires swaps even more frequently.

First Choice is not for everybody. If you need the power of *Lotus 1-2-3*, the capacity for long documents, the muscle of a relational database, or the high-quality output of desktop publishing, look elsewhere. But if you need a general purpose program that produces form letters, calculates expenses for a small business, keeps track of customers in a flat file database, and juggles a little bit of each, *First Choice* deserves your attention.

— James Maki

PFS: First Choice version 2.0

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First Choice supports a mouse and is not copy-protected.



Where in Europe is Carmen Sandiego?

Someone's stolen a national art treasure, and you must find it. Pack your trench coat, grab your *Rand McNally Concise Atlas of Europe*, and hop aboard the next flight to one of 34 European nations.

The treasure could be Attaturk's fez (Turkey), Hans Brinker's skates (Netherlands), Copernicus's telescope (Poland), or some other famous object. The Acme Agency, where you're a detective, has joined forces with Interpol. The Chief has sent you to track down the missing object and round up the masked marauder. You're off on another Brøderbund adventure, this time to the Continent in *Where in Europe is Carmen Sandiego?*

Besides Carmen, who has just escaped from a top-security prison, you'll run into 15 new criminals, including Pete Moss, June Bug, Chuck Roast, Luke Warmwater, Kitty Litter, and Miles Long. Any of these thieves could have committed the crime. You'll have a week to find out who did it.

You investigate by getting information about the city you're visiting

and receiving communiqués about where the thief is headed. According to Brøderbund, there are 1000 clues to help you. Sometimes the Chief sends messages with clues about the suspect's hair and eye color, gender, and favorite movie and book. You must record these in the Crimestopper's Notebook, because the Crime Lab computer issues arrest warrants based on the information you've entered. If you register only some of the character clues, you'll probably get a warrant for the wrong suspect. Without the proper papers, the judge must let the criminal go free, and all your efforts will have been in vain.

Question all the witnesses. Refer to the Detective Guide for more information about each location. Consult the online database about flag colors, currency, and languages. Use it with the atlas included in the package. If clues are still confusing, try calling your tipster for hints.

As the trail unfolds, you'll learn interesting facts about European geography, history, culture, and economy. You might visit the casinos of Monte Carlo, sunbathe on the beaches of Lisbon, cross the Pyrenees, or climb the Matterhorn. You might take in a ballet in Leningrad, a flamenco performance in Madrid, or a gondola ride in Venice.

The more you consult your atlas, the better your map-reading skills become. You'll also improve your research and problem-solving abilities as you pursue the guilty party.



Geographical information, maps, and pictures hold clues to an international crime in *Where in Europe is Carmen Sandiego*.

This game is simple to learn. It's menu-driven and has many of the operating instructions on the screen. Players use the keyboard or joystick. Unfortunately, Apple IIGS users cannot use the mouse.

The Apple version comes on a double-sided, 5¼-inch disk. The IBM version is available in 3½-inch or 5¼-inch format. Apple users with one disk drive must boot side 1 and then flip the

disk for side 2. Since only side 1 of the program is copy-protected, minimize the disk-swapping by copying side 2 on a separate disk to use in a second drive. Brøderbund should offer a 3½-inch version for the Apple to accommodate the increasing number of IIGS machines.

Besides an atlas, the package includes a *User's Manual* and a poster with the suspects on one side and a map with some interesting facts about Europe on the other.

A Save Case option lets you save an unfinished case to a disk. You can return to it the next time you play. You may only save one game for each user name. Sound can be toggled on or off by pressing a key.

Brøderbund has another winner on its hands with *Where in Europe is Carmen Sandiego?*, Brøderbund's sequel to *Where in the World is Carmen Sandiego?* and *Where in the USA is Carmen Sandiego?*. The latest game is as exciting as its predecessors. Educators, parents, and children will enjoy the thrill of the chase. The trails pass through famous European locations, as well as less familiar places, such as Andorra, Liechtenstein, Luxembourg,

and San Marino.

Carmen demonstrates the power of the computer as an educational tool. It challenges children in grades 3 and up to solve a crime, and, in the process, they pick up a wealth of information about people and places in other countries. The graphics are colorful, and the animation is well done.

We can only hope that *Carmen* eludes her captors and escapes to South America, the Caribbean, Africa, Canada or even outer space.

— Carol S. Holzberg

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A Commodore 64/128 version will be available Summer 1988.



IntelliType

I spend a lot of time in front of keyboards. At work, I write columns and reviews, edit articles and features, and otherwise pound on the keyboard until the text sounds right to my ear. I've been doing this day in and day out for almost two years.

At home, I program. Right now, I'm working on an Amiga, but over the years I've used Radio Shack TRS-80s, Atari 8-bits and STs, and Commodore 64s. I've been doing this for over nine years.

You'd think I'd learn to type. While the hands of my friends and co-workers seem to glide over the keys, mine look like knitting needles dancing through the fancy part of a sweater. That's not to say that I'm a hunt-and-peck typist—I'm not; my hands know the keyboard like my tongue knows the back of my teeth. But I've always wanted to be a touch typist.

Well, not *always*. Back in high school, I must not have cared. I was what my typing teacher called an "outlaw," someone who cheated by memorizing the text. My eyes flicked guiltily

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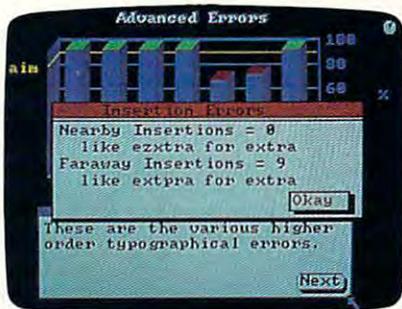
from the book to my hands and back.

With a good solid history of typing failure, I picked up *IntelliType*, a typing tutor designed by Moses Ma and distributed by Electronic Arts. It was a few days before I booted it; the program requires a blank disk, and I never have any of those. Finally I found a disk I could erase. Following the directions, I named the disk Student and booted with the *IntelliType* disk in drive 0 and the Student disk in drive 1.

I've been having a blast ever since then. Every day, I boot up *IntelliType* and work on my typing skills. And I don't cheat.

It's been two weeks since I began my lessons. *IntelliType* promises that in about two more weeks I'll be a touch typist. I've already made great strides. For instance, I've typed this paragraph without looking down at the keyboard, and I've only made three mistakes. You may not be impressed, but it feels great to me.

Of course, unless I think about it, I slip back into being an outlaw. That's what I'm doing now. When I look at the keyboard, I'm much faster and more accurate, but that should change soon.



IntelliType's interactive bar charts help gauge your typing progress.

IntelliType is fun. Every day, I get to type an episode of a story. It's sort of a soap opera. For some reason, typing a soap opera embarrasses me. Whenever my wife walks in, I turn the monitor off. Still, I'm enjoying the story, even though some of it drifts away into a fog as I concentrate on my typing.

After each exercise, *IntelliType* analyzes my work. It has a bar chart for everything. It keeps track of the mistakes I make for every letter on the keyboard. I find that I consistently confuse *m* and *n*. It also keeps track of the speed with which I hit each key. My right pinky has

got to go—you wouldn't believe how long it takes to get up to the P key.

Much to my distress, *IntelliType* also watches for "higher order" mistakes. Hit *k* instead of *d*? You had the right finger, but the wrong hand. *IntelliType* chalks up a Dyslexic Error. Although my errors tend to be Doublers (like typing *bbok* instead of *book*) and Transposition Errors (like *paly* instead of *play*), I live in constant fear of Dyslexic Errors. Although the manual makes it clear that nearly everyone makes a few of these, I don't like the sound of it.

After the analysis, *IntelliType* may decide that I need help in a certain area. It devises a special exercise custom-tailored for whatever may currently be my most severe problem. I've found these exercises appropriate and helpful.

There's one thing that really bugs me about *IntelliType*. The background color is white. Apparently, some people can stand this, but white screens always seem to flicker to me. There is no easy way to change the background color. I could probably find *some* way to do it, but I haven't had time yet.

Except for that point, though, I rec-

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commend *IntelliType* highly. If you want to learn touch typing, there's no reason why this program can't teach you.

— Rhett Anderson

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Dinosaurs Are Forever

Be a little skeptical. Computers can't do everything. They can't cook for you, clean for you, or watch your children. And, as *Dinosaurs Are Forever* illustrates, they don't make good coloring books.

This computerized coloring book, part of Polarware's Electronic Crayon Deluxe series, contains 26 predrawn,

dinosaur-filled scenes. Children can fill in the pictures with a 16-color palette and then print the colored images in several formats.

Since the program bills itself as appropriate for ages 3 and up, I thought my in-house preschool software play-tester would give an honest evaluation. She enjoyed the program for all of five minutes. She preferred the sheet of stickers that came in the box, and spent the next 15 minutes peeling them off and affixing them to a blank piece of paper in some Jackson Pollack-like pattern.

It's not as if *Dinosaurs Are Forever* doesn't do what it says it will do. The Apple II version ran perfectly and was so easy to use that I didn't need the four-page manual to create bright screens with insanely colored dinosaurs.

In the setup menu, you select the input device, printer, printing options, and display mode (some choices are offered only on one of the program's three versions). Once you get past the menu, a gray dinosaur and background appears. You pick from one of the 16 colors at the bottom of the screen by moving a crayon-shaped cursor and pressing Return. Move the cursor to

any part of the screen and press Return again to flood that portion of the scene with color. You can also use the equivalent controls on a mouse, joystick, or Koala Pad.



Dinosaurs Are Forever is an electronic coloring book with a 16-color palette.

That's about it. You move backwards and forwards through the pictures by selecting one of the two arrows at the upper left, quit the program by picking the stop sign, or undo the most recent action by choosing the Oops button. You can also create 16 additional

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colors by mixing the current color with the others. Finally, you can print your coloring-book page.

The first problem with the program is its selection of input devices—keyboard, joystick, mouse, and Koala Pad (the last only with the Apple II). With the exception of the Koala Pad, none of these devices is something a preschooler can comfortably use. The mouse and joystick, though fine instruments in the hands of an adult, are maddening to a young child. Keyboard control of the program might have been satisfactory, but my preschooler's patience wore thin when the cursor moved slowly all the way to the bottom of the screen to choose a new color. A Koala Pad wasn't available for testing, but a handy Muppet Learning Keys keyboard wouldn't work.

The best device I can think of for *Dinosaurs Are Forever* would be the TouchWindow, an overlay that fits across the face of the monitor. With the TouchWindow, a child could simply touch the color to select it and then paint a portion of the image by touching the screen again. *Dinosaurs Are Forever* doesn't work with the TouchWindow.

The input device dilemma won't bother older children who are masters with a mouse or joystick or who have the manual dexterity to use the two-keypress fast movement of the keyboard control. But will school-aged children think coloring in a pre-drawn image is worth their time? Perhaps the first time the program is used, but what about the second or the fifth?

Paint programs for personal computers are fun and usually easy enough for any primary school-aged child. *Dinosaurs Are Forever* is not a paint program, though, since you can't really create a picture; you can only color something already drawn. That isn't nearly as much fun, nor as creative as using a true paint program. Even coloring book pages can be changed by drawing new lines, coloring outside the lines, and writing captions or dialog.

And herein lies the saving grace of *Dinosaurs Are Forever*, or any other electronic coloring book-type program. If you print the dinosaur image to paper and then give it to your child for decorating, it's much more fun than coloring the creature from the keyboard.

Dinosaurs Are Forever offers several printing options, including printing just the picture, printing the picture with a month-long calendar, printing the picture with a short description of the dinosaur, printing the picture with a customized message, and printing a

banner in one of three sizes.

The first option is the most useful. Print a dinosaur scene, black on white, and then give your preschooler the sheet of paper to color with crayons, watercolors, finger paints, or markers. Even the barest crayon box or watercolor tray can blend more colors than the 16 provided by the program.

If you have an older child interested in dinosaurs—and few children are *not* fascinated with the beasts—select the picture and description option for creating informational posters on dinosaurs to hang on walls or refrigerators. The banner option produces dinosaur-related swaths of paper that can be adorned the old-fashioned way with crayons, stickers, or paint.

This all makes even more sense when you remember that *Dinosaurs Are Forever* only prints color on a color printer. No matter how vivid the image on the screen, if all you have is a black ribbon in your printer, you're only going to get a black-on-white image on paper. The program supports only a few color printers—three in the Apple II version (ImageWriter II, Scribe, or Okimate 20), one in the Commodore 64 version (Okimate 20), and none in the IBM PC version.

Is the ability to print obviously computer-generated pictures of dinosaurs worth the ticket price of the program? That depends on how taken your child is with the thunder lizards. *Dinosaurs Are Forever* would be a perfect addition to a classroom software library, for instance, because the images could be produced on demand, perhaps as rewards, and then given to children for customization. For home purchase, however, your child would have to be dinosaur driven before he or she would get your money's worth from printing pictures.

Some things—recipes come to mind and now coloring books do, too—just don't get better simply because they're computerized.

— Gregg Keizer

Dinosaurs Are Forever

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A Commodore 64/128 version is planned, although a release date has not been set.

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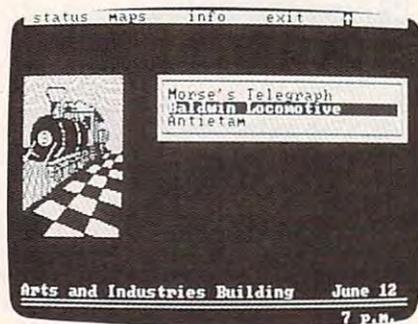
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Ticket to Washington, D.C.

Getting around Washington, D.C., has never been easier. With *Ticket to Washington*, you walk, drive, and ride public transportation around the nation's capital. Along the way, you pick up useless—but interesting—trivia and earn a rank in the city's detective community.

The game drops you in Washington with a set of maps, a seemingly prepaid metro ticket, and two companions who pop up in the landmarks you visit. You have a week to discover the identity of a famous person from U.S. history. Each mystery you solve advances you through the hierarchy of city detectives.



Ticket to Washington, D.C., makes getting around this city easy and fun.

You get two kinds of clues: leads to landmarks and hints at the identity of the famous person. Even if you follow the lead to the wrong place, a tour guide quizzes you on U.S. trivia at all landmarks. You earn points and more leads for correct answers.

When you go from one section of D.C. to another, you choose transportation. You can walk, ride the metro or bus, or drive. Just as it is in the real world, if you drive, you're likely to get a parking ticket. If you take the public transportation, you're likely to miss the bus or get caught breaking the rules on the Metro. Walking is the only transportation method that doesn't cause much trouble, but it costs you at least an hour.

The leads aren't as much fun as the quizzes. After a lead such as "An African Hat," you can easily pick the right object. The quizzes are more challenging, however, even if they are awkwardly worded. The same tour guide shows up at every landmark and asks some obscure questions: "Do you know the direction that states avenues run?" Some questions are amazingly simple: "Do you know where you can find the

fingerprint lab?"

Some quiz questions are surprisingly current. Gary Hart's duel with the press is the subject of one question, and the Iran/Contra Hearings are the subject of another.

While the quizzes were my favorite part of the game, I was disappointed when an answer turned up as the next question. The first time it happened, the tour guide was asking me what Georgia is. The multiple choices didn't include "a state," but the response "Jimmy Carter's home state" was on the list. The next question was "What is Jimmy Carter's home state?"

There are some other annoyances. An information panel for the Capitol lists the hours as 9 a.m. to 10 p.m., but it closes before 6 p.m. After closing time, you can't get into a building to search for clues. Also, the manual says the White House is in section 3, but it's really in section 4 of the city. These are not significant problems because they don't really affect the play of the game. But they are annoying the first time you bump into them.

Learning to play the game doesn't take very long. I read the manual—16 painless pages—and experimented with the cursor and return keys when I didn't get the results I expected. If you exit the game before you solve the mystery, you can resume where you left off at another time. You can also pause if you need to stop for a while without using up precious game time.

You move around the city with the cursor keys, a mouse, or a joystick. I used the cursor keys, and that was a little tedious. A mouse or joystick should make screen navigation easier. But since *Ticket to Washington* is not an action-oriented game, you don't suffer using the keyboard.

Neither the sound nor the graphics are remarkable. The sound is just a series of tones that suggest that you're doing well or poorly. The graphics are fairly sharp, but even in color, they aren't very exciting. But it isn't the graphics or sound that should draw you to the game. It's the puzzle.

As you solve the puzzle, you learn about U.S. history. Some of what you learn is trivial, but most people will find something that interests them. Knowing who designed the Hirshhorn Museum may not seem important if you're not an architecture fan. But you might want to know which Supreme Court case made it legal for individuals to sue states.

You also learn how to get around D.C. After a few hours, you remember

which parts of the city hold most of the museums and which hold government buildings. The first time you choose to walk from Arlington National Cemetery to the Capitol building, you'll learn that it's too far for mortal feet.

After playing *Ticket to Washington, D.C.*, I felt as though I had really been there for a week, and that feeling of immersion and escape is the best prize a game can offer.

— Heidi E. H. Aycock

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REVIEWS

accept video signals from another computer.

Once captured, images can be saved in a variety of formats, suitable for using with many popular graphics programs. Use ComputerEyes to capture real-world images for creating computer art, for spatial measurement applications, or just for having fun.

Hardware installation is easy. Remove the cover of your computer and choose an empty expansion slot; a short slot is fine. Slide in the card, making sure the three video cables pass out the back of your computer. Each of the three cables ends in a standard female jack (RCA-type). Connect one to the graphics card and another to the monitor. Attach the third cable to the video source, and you're ready to take pictures.

Call up the ComputerEyes main menu and select the View Video Input option. This is like looking through the viewfinder and previewing the video source on your computer monitor. Position the video camera while viewing the image on your monitor, or, if you're using a VCR as input, find the frame you want to capture while in the View Video Input mode.

Once you've set up your shot, execute the Capture command. ComputerEyes acquires image data from the video source and displays it on your monitor. It takes about 12 seconds to scan the video source, so your VCR should be in the pause mode; have your subjects remain still if you're using a camera.

When the scan is complete, the captured image is displayed on your monitor. If your first image isn't satisfactory, you can manually adjust the brightness and contrast until it suits your needs. Or you can use the Calibrate command to let ComputerEyes automatically calibrate the brightness and contrast controls necessary for a reasonable image.

With your first picture, you'll see that this is a computerized image, not a photograph. Although the results can be quite acceptable, these are not the sorts of pictures you expect from Kodak. ComputerEyes' black-and-white images are created by manipulating pixels, with the sharpness of the image depending on the pixel resolution your graphics card and monitor can deliver. Even the best high-resolution graphics card can't deliver the sharpness offered by film.

Don't get me wrong: ComputerEyes images provide a good likeness, pleasing on their own merits. Coupled with a graphics program, this package can be a powerful peripheral.

Even a modestly powerful graphics

program lets you manipulate the images you've captured, add text to them, and use an electronic paintbrush to express your creative self, enhancing an image with your own artwork. With ComputerEyes and a good graphics program, you can create electronic postcards, greeting cards, or even customized electronic cartoons. According to Digital Visions, the system can support security and pattern-recognition applications, although those applications will, in my opinion, require high-resolution graphics boards and monitors. Other than the obvious entertainment value of postcards and the like, there is a potential here for educational applications. What about flash cards—how many kittens are in this picture?

A captured image can be displayed in a variety of graphics modes. High Contrast causes all areas of the image to be represented as either black or white. Line drawings and sketches are the best subjects for this graphics mode.

For many types of subjects, the Dithered Intensity Levels mode produces the most acceptable image. Dithering is a technique which represents gray tones as areas of varying dot densities, softening and blending the image.

Solid Intensity Levels mode displays the image with fewer intensity levels than dithering, but the boundaries between levels will be more easily discernible.

Most CGA and VGA cards support these three graphics modes, but the fourth mode, False Color, can be used with EGA boards only. False Color is often used in medical imaging, painting the image by representing 16 different intensity levels with 16 different colors chosen from a palette of 64.

When the acquired image is to your liking, you'll want to save it to disk. This is where ComputerEyes' versatility is most evident. Using the Save to Disk feature, you choose from six different formats.

Save an image in the MSP format for use with *Microsoft Windows*. Formats such as PIC and PCX accommodate such graphics programs as *Fontasy* and *PC Paintbrush*. The IMG format, compatible with the GEM desktop environment, is available, as well as the increasingly popular TIFF format.

The final format, Raw Data, is the most flexible way to save your images. This format saves images as the exact data acquired when the Capture command is executed. Every time you load an image saved as raw data, it's as if you had freshly captured the image; you can even load it and save it again in a

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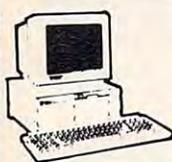
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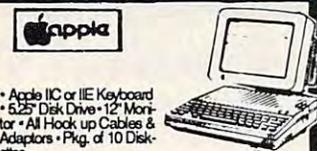
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REVIEWS

different format. You pay a heavy price for this flexibility though, since a picture saved as raw data requires 129K of disk space.

Another ComputerEyes feature is the option of a quick six-second scan speed. This results in somewhat reduced image quality, but it's useful for checking the brightness and contrast of an image or for just checking camera focus. And you can toggle off the sound made during the capture phase (however, I found it a useful guide for holding still while taking a self-portrait). Adaptability is the true feature of this system, from sufficient save formats to support of most of the popular graphics programs to the ease with which most video sources can be utilized. The ComputerEyes adapter card is set at the factory for an NTSC video source, the standard for North America, but by adjusting three trimpots on the adapter card, you can use the European PAL or SECAM video signals.

Digital Visions has made ComputerEyes especially easy to use. The software is built around a logical, menu-driven system so simple to use that you can be taking pictures an hour after unwrapping the package. The brightness and contrast levels are displayed as bar graphs, making the adjustment of those levels quick and efficient. It's also easy to store and call up images after they're captured.

Although practical applications for digitizing are sometimes hard to think of, at the least, it's a lot of fun to create computer images with your video camera or VCR. Once captured, pictures can be used with most graphics software to add text or to manipulate the image in any number of ways to satisfy your creative needs.

ComputerEyes is an inexpensive, quality video digitizer and a fine tool for exploring this increasingly popular PC application.

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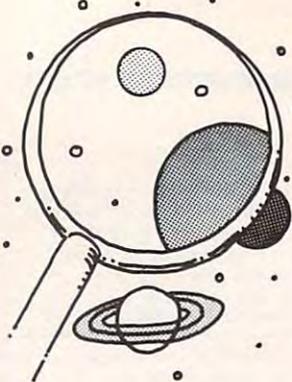
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DAVID STANTON



Logo Does Much More Than Just Teach—It Turns Children into Teachers Who Learn for Themselves

The first-grader who asked “Is Logo a girl or a boy?” probably didn’t intend to puzzle me, though that was exactly what happened.

We didn’t have Logo when we were in school. Most of us got our education the old-fashioned way—we memorized it. From times tables to geometric axioms, from the Gettysburg Address to Mark Antony’s oration in *Julius Caesar*, we memorized. Education as memorization is comfortable education. Teachers know how to present the material. Students know exactly what to learn. Tests are easily and objectively scored. Clean and neat. But what of those with different learning styles?

Enter Logo. We’ve read about it. We’ve heard our children talk of turtle graphics. We’ve listened as enthusiastic educators explained how Logo would transform dull classrooms into exciting learning laboratories. Somehow, though, the logic of Logo as a learning tool too often gets lost amidst the hype.

What exactly is Logo and what should parents know about it? How can manipulating a triangular “turtle” on a computer screen help children learn math—or anything else for that matter?

In its barest description, Logo is a programming language. Like BASIC, it consists of a series of commands that control a computer’s operation. All the popular versions operate in *command* mode or *program* mode. Thus, users can enter commands for immediate execution or write programs to be saved, then run later.

But no home computer comes with Logo built into ROM—you have to buy it separately. It runs a distant last in speed when compared to languages like Pascal and Fortran. And notwithstanding its alleged power, few serious programmers select Logo as their language of choice.

Why bother, then?

A. J. Dawson, a professor at Simon Fraser University in Vancouver, BC, co-chairman of the World Logo Conference in 1985, and author of the “MathWorlds” column in *Logo Exchange*, has put things in perspective. “Logo, the computer language, is not the important aspect of the Logo revolution! The philosophy and psychology behind the language is the crucial thing. The language is a vehicle for the propagation of an approach to education which honors the integrity, power, and creativity of children.”

Exactly. Logo has its origins in the educational philosophy of Jean Piaget and oth-

ers who, above all, recognized the power and creativity of children. Piaget argued that children learn best by discovering realities for themselves through a system of trial and error. Observant parents have known that all along.

How do toddlers manage to creep, crawl, and walk their way into trouble without any physical education instruction? How can five-year-olds chatter continuously before attending a single English class? We learn best what we discover for ourselves.

Education at its most effective harnesses the natural inquisitiveness of children, then nurtures and guides it. When Dr. Seymour Papert and his colleagues at MIT began developing Logo in the 1960s, they envisioned computers as tools for doing just that.

Logo’s turtle graphics environment casts students in the role of teacher. As the dutiful turtle obeys instructions, children discover geometric concepts by teaching their uninformed pet to make squares, circles, and an endless variety of intricate and colorful designs. Perhaps most important of all, watching the turtle learn helps young educators to understand better the teaching/learning process.

Don’t expect the friendly turtle to babysit for hours on end, though. Beginning programmers require guidance and encouragement while they become comfortable with the free-form nature of computer languages. Ideally, the family might work together on joint projects, each person contributing and offering assistance. Done right, they will generate rewarding results. Done wrong, the experience may be disappointing.

Fortunately, there’s no shortage of help. A commercial version of Logo is available for virtually every popular microcomputer. IBM owners may want to begin with Ladybug Logo, a shareware program available from many users’ groups and some electronic bulletin boards. Apple users interested in robotics might enjoy *Logo TC Logo* (call 1-800-527-8339 for more information), a Logo-controlled Lego building kit complete with motors and sensors. Excellent books have been written about the subject; many will be available at your local library.

Whatever you think about Logo software, remember the philosophy behind it. Children who view learning as an exciting adventure cannot go wrong. □

David Stanton can be contacted via CompuServe (72407,102) or by mail at P.O. Box 494, Bolivar, New York 14715.



popular educational software packages run on non-Apple networks and should also operate with *AppleTalk*, *AppleWorks*, the most popular

technology for a maximum of five percent of sales, it's clear that IBM doesn't want to see its work (and computers) becoming copyable commodities again.

It's unclear how many clone manufacturers will be affected or how much money might be involved. Some companies making compatibles may have cross-licensing agreements with IBM, exchanging their patent rights for those of IBM, and so wouldn't be involved in this retroactive payment demand.

A side effect of this patent battle might be to scare away some of the companies planning on bringing out PS/2

functionality.

One possible connection between the retroactive patent stance, an action that could force some clone manufacturers out of business if full payments had to be made, and the urge to stay with the 8086 machines may be IBM's reluctance to completely surrender the low-cost, low-end PC market. By stalling PS/2-clone introductions, IBM may believe it can buy the time necessary to sew up the market, even the low end. IBM's threats may have the same intent as the Apple-Microsoft copyright suit (see "Apple Leans on Microsoft" in the July issue of *COMPUTE!* for details), muddying the legal waters enough to consolidate its position.

— Greg Keizer

continued from page 8

the Apple Workstation card (\$249); the IIGs, which has *AppleTalk* capabilities built in, can use the network with the addition of special system software called *Apple IIGs Workstation Software* (\$99).

To run the network, a Macintosh computer and a hard disk are designated as the file server. *AppleShare 2.0*, the newest version of Apple's file-server software (\$799), is also required. Unfortunately, only a Macintosh can run *AppleShare*; a hard drive-equipped IIe or IIGs won't do.

With the cabling laid down (either Apple's own or third-party equipment such as Farallon's PhoneNet, a clever network that makes use of phone lines to send data), Apple IIe and IIGs users can access software from the Mac's hard disk, share files, and transfer information without floppy disks. LaserWriter and ImageWriter printers can also be shared on the network, as can Apple's new CD-ROM drive.

The biggest market for an Apple II *AppleTalk* network is in the classroom, where Apple computers have always been strong. With *AppleTalk*, school computer labs will be able to link machines, share software, and split expensive peripherals such as printers and CD-ROM drives, which makes them far more attractive to cost-conscious schools.

Some network software for the Apple II is available in limited amounts. Many of the most

Apple II package, will be made available this summer in a network version from Claris, the Apple software spinoff company.

— Greg Keizer

Send Lawyers, Send Lots of Lawyers

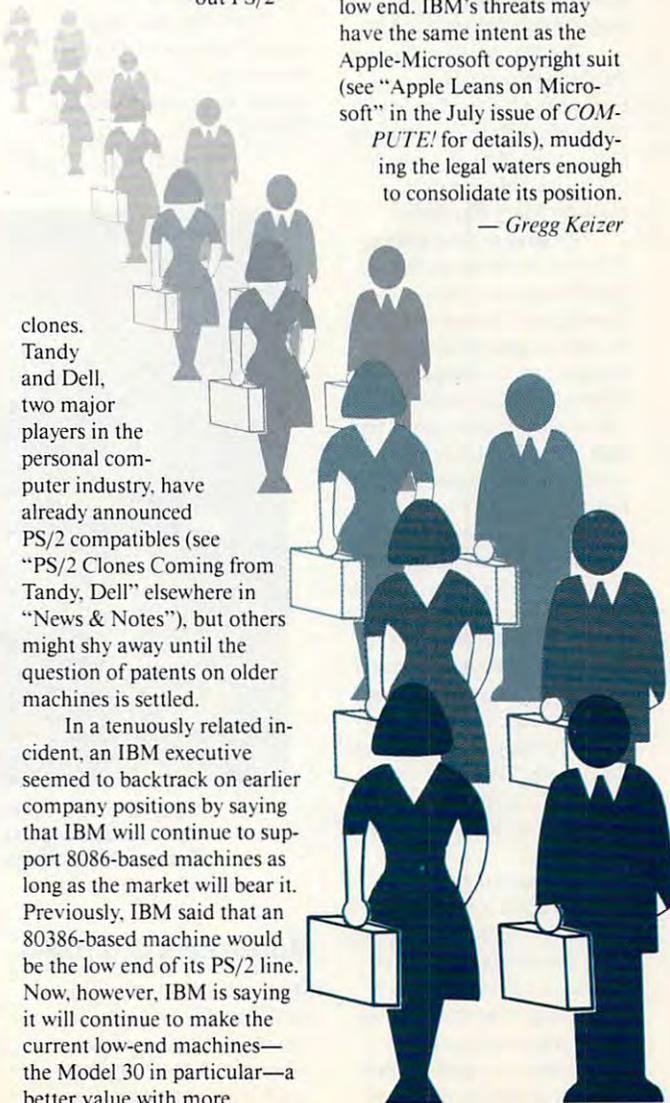
IBM knows how to make people take notice. After running an ad in the *Wall Street Journal* calling for lawyers to pursue "intellectual property matters in specific technical areas," IBM stunned the industry by demanding retroactive payments for patents it claims PC-compatible manufacturers have been using for the past six years.

Clone manufacturers were, to say the least, taken aback. Although IBM has always said it intended to defend its patents, most recently with its PS/2 line of personal computers, it did nothing to challenge the large numbers of IBM PC-, XT-, and AT-compatible makers who have brought in billions of dollars' worth of business since 1982. Now, by asserting that it's due one percent of sales of clones sold before April 1, 1988, IBM has gotten tough.

And it may get tougher, for the resources of the world's largest computer company are enough to overwhelm almost any opponent in the courtroom. In fact, IBM says it will sue to obtain the money it says it's due by rights. Combined with its move to license PS/2

clones. Tandy and Dell, two major players in the personal computer industry, have already announced PS/2 compatibles (see "PS/2 Clones Coming from Tandy, Dell" elsewhere in "News & Notes"), but others might shy away until the question of patents on older machines is settled.

In a tenuously related incident, an IBM executive seemed to backtrack on earlier company positions by saying that IBM will continue to support 8086-based machines as long as the market will bear it. Previously, IBM said that an 80386-based machine would be the low end of its PS/2 line. Now, however, IBM is saying it will continue to make the current low-end machines—the Model 30 in particular—a better value with more



Electronic Snapshots Coming to a Desktop Near You

Remember desktop publishing? Meet desktop image processing from Aldus, the company that brought you *PageMaker* and *FreeHand*.

Aldus's new power tool called *SnapShot* puts more control into the hands of microcomputer users who produce publications. With *SnapShot*, a special camera, a special monitor, and a grabber board, PC owners can capture live images, freeze them in their computer, manipulate them, and include them in documents produced with desktop publishing software.

"It's like another phase in the desktop publishing arena because it adds another whole realm of capabilities to the system—these imaging capabilities," said Aldus product manager Mary Hausladen.

She gave some examples of how it would be useful to small businesses. Real estate agents could capture images of houses for prospective buyers and produce the images in an afternoon. People who compile catalogs could capture images of their products and import them into desktop publishing software.

Captured images can be manipulated with the same kinds of tools found in painting and drawing programs. Images can be mirrored, overlaid, and cropped. Backgrounds can be highlighted, and details can be sharpened.

"It gives you control over the process," Hausladen said. "It speeds up the process. And it's also, over time, more cost effective."

She added that Aldus doesn't suggest *SnapShot* is a replacement for photography or more advanced graphics production. It's a bridge between the inability to produce live images in a document and the more expensive capability provided by professional printers.

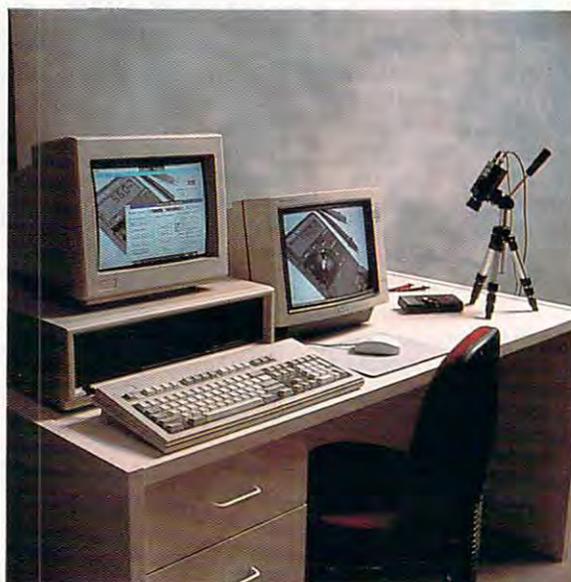
Some distributors will offer a package deal, including *SnapShot* software, a Sony CPD-1310 monitor, an Ikegami ICD-200 for capturing still images, and the PIP512B/22 frame grabber card. The package should cost under \$3,000. The software itself costs \$495.

The kit will work on IBM PC AT computers, 100-percent compatibles, and PS/2 Model 30s. To capture moving images, an RS-170 video camera is necessary.

"I see the capability of imaging in conjunction with desktop publishing as giving consumers and businesses tremendous power in getting their work done and expressing their ideas," Hausladen said.

For more information, contact Aldus at 11 First Avenue South, Suite 200, Seattle, Washington 98104, (206) 622-5500.

— Heidi E. H. Aycock



Aldus' *SnapShot* is a sophisticated program used to capture live images for inclusion in desktop-published documents.

Motorola's Big RISC

Motorola, best known for its 68000 family of microprocessors found in Macintoshes, Amigas, and Atari STs, has dazzled the microcomputer

community recently with the announcement of a new 32-bit, 20 MHz microprocessor, the 88000. The 88000 is a dramatic step forward in microprocessor design. Its most important feature is that it uses a RISC, or Reduced Instruction Set Computer, architecture.

In the ancient computer world—ten years ago—computer designers were faced with a serious problem: Computer memory was expensive. Because of the high price of memory, complex instruction set computers, or CISCs, became popular. This type of computer has a large and powerful instruction set, with each instruction performing several tasks. Since each instruction does a lot of work, programs are shorter—a necessity if memory is expensive—but a complex instruction takes more time to decode, resulting in slower program speed.

instruction does just *one* thing. Because each instruction is simple, it's executed extremely fast. Even though the RISC uses more instructions to do the same task as a CISC, it's usually much faster.

How fast is this chip? The MC88000 is rated by Motorola at 17 MIPs (million instructions per second)—17 times the performance of a DEC VAX 11/780 minicomputer. To get an idea of this speed, that's 20 times faster than an IBM AT and over 40 times faster than an IBM XT.

Another feature of the 88000 may make it possible to use the chip as the brain of a universal computer—that is, one which can run software intended for different microprocessors and different operating systems. The key is that the 88000 is *microcoded* rather than *hard-wired*. Most microprocessors are hard-wired, meaning they use logic circuitry to decode and execute machine language instructions. The MC88000 uses microcode to do the same thing. Microcode is an extremely low-level language—even lower than machine language.

Since the microcode is just a set of instructions, it can be changed just like any other program. This gives a microprocessor tremendous flexibility. A bug in a machine language instruction can be fixed by changing the microcode. New instructions can be added to the machine by adding microcode. In fact, the microprocessor can be given an entirely different machine language instruction set just by changing the microcode.

Because of this flexibility, the MC88000 can emulate another microprocessor—an Intel 80386, a Motorola MC68030, or any other microprocessor—just by changing the microcode. And because of its great speed, it may even be able to execute a program written for another microprocessor faster than the original microprocessor.

— Jim Fuchs

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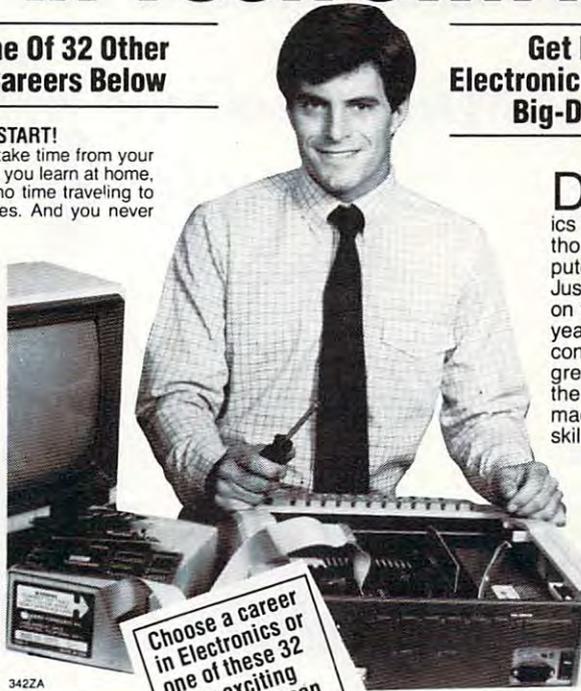
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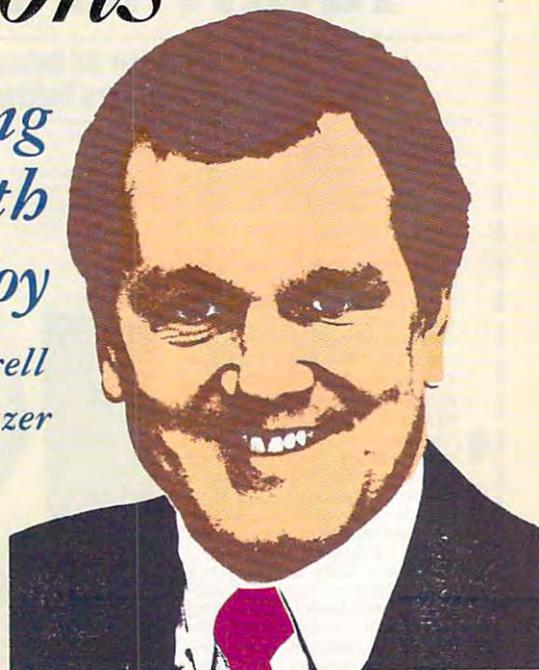
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/// // // // **■** *conversations*

Multitasking with Max Toy

*Keith Ferrell
and Gregg Keizer*



**Max E. Toy, President and CEO of
Commodore Business Machines**

Appointed president and chief operating officer of Commodore Business Machines last October, Max Toy has spent the past few months setting the course the company will pursue as it seeks to reestablish itself among the top domestic computer manufacturers.

Toy came to Commodore with a background that included executive stints at IBM, ITT, and Compaq, where he served as vice president of sales. The varied experience should serve him well—more than any other company except Tandy, Commodore attempts to satisfy a strong consumer market while endeavoring to grow a substantial business and educational presence, all while recovering from a couple of years' poor financial performance in the U.S.

Still, as Max Toy himself is fond of pointing out, Commodore introduced the first true multitasking computer. It's only natural that a natural multitasker take the company's helm.

During a recent conversation with COMPUTE!, it became clear that Max Toy relishes the multiple tasks he's been presented, and that he views every one of those challenges as an opportunity.

Commodore Consumer? Or Commodore Corporate?

Q. You've noted that where Commodore's sales a couple of years ago were 80 percent consumer and 20 percent business, the figures are now 60 percent consumer and 40 percent business. Yet you're still perceived, in America at least, as being primarily a consumer company. Is that frustrating?

A. There are two ways to look at it. One is that, yes, it can be somewhat frustrating. The other way is that it's a tremendous opportunity



ty and if it didn't exist, I wouldn't be here.

Q. How do you keep the two markets separate?

A. Internally, we've structured ourselves so that we have groups of people concentrating on the fact that they [the consumer and corporate marketplaces] are separate businesses. And we are also structuring our products along those lines—so we've got in effect operating units concentrating on the requirements of their industry, their marketplace. Through those kinds of efforts and differentiations, we can maintain the focus to do both.

At the same time, we're concentrating on leveraging our movement into business onto our market strengths today. We have great strength in the home market, but we're also very strong in the small-to-medium-business marketplace. And the Amiga is taking us into the very high end—a much higher end of the corporate marketplace than we've ever been before.

Amiga in Business

Q. How do you persuade corporations to look at Amiga?

A. Amiga is coming into the business environment primarily by offering point solutions. Yes, we can do the functionality of a general PC, but that's not why they're buying our product.

An average IBM PC or compatible in business today runs 1.8 applications per computer. Amiga is running 5.3 different applications per computer. Because it has such a broad spectrum of usage, it's a given that "Yes, you can do a spreadsheet; yes, you can do a database; yes, you can do word processing to begin with."

We start from there. We build onto it with color desktop publishing. We add desktop video, low-cost CAD capability, integrated graphics workstation capabilities. We add those functions on top of what you would buy a traditional PC to do. And that's how we're gaining acceptance in corporate America.

Remember the Mac

Q. Apple's Macintosh found success with a point-solution strategy based on desktop publishing. Can the same thing happen with Amiga, based perhaps on the machine's desktop video capabilities?

A. In some regards, Amiga is already going head-to-head with Macintosh. Apple just announced, I'm told, that they had just sold their millionth Mac. Well, we've sold 600,000 Amigas so far. So I think there are cases where we do overlap. I think the similarities exist more because of the nature of bringing a different operating system, a different operating

environment, a different set of functionalities to the market.

There's only one [computer] company that can go into corporate America on a horizontal basis, and that's IBM. Everybody else has to come in and pick a solution—and provide a solution to a problem.

Q. *What sorts of problems can Amiga solve?*

A. Amigas are being used to control satellite trajectories. They're being used in the CAD-CAM environment to do sophisticated design work. The graphics community is using them. They're being used under the sea, down in mines, at Strategic Air Command bases where the headquarters are buried under mountains.

Warhorses

Q. *Do the 64 and 128 continue to figure in Commodore's plans?*

A. Absolutely. The 64 and 128 still welcome more first-time users to computers than any other product in the world. That's a tremendous opportunity. We've got an installed base for the 64 alone of 5 million customers.

The software community is continuing to write new and better software for the 64. And as long as the software community continues to develop and invest in new software, and as long as there are new users coming into the marketplace, this warhorse still has a significant opportunity, and one that's continuing.

Q. *Commodore is often perceived as an "entertainment" computer company. That's more than a little limiting, but how do you fight it?*

A. We are a computer company first, and we bring computers to the first-time user. One of the attributes of that is the capability to play some of the finest, best-developed games, and the largest selection of games that exists in the world today—and that is on the 64 base.

The entertainment category for the 64 is still exponentially greater—whether quantitatively or qualitatively—than anything that exists in the market today.

And it is a computer, first and foremost. It is still the easiest, best tool to learn programming on of any computer in the market. But it has the plus of being able to have the best entertainment out there. We will continue to position the 64 and 128 as computers first, as an entertainment system second.

IBM, Not IBM

Q. *How do you go about taking on Big Blue? Can it be done? When people speak of PCs, they are speaking of*

IBM, after all.

A. PC entered the market as a product, as a piece of technology that came in looking for something to do.

Products such as Amiga are products that come in with a solution. That's also why you see us doing 5.3 applications per computer. People are buying Amigas for distinct tasks. When they get inside the organization, you see them begin to proliferate as that functionality spreads.

Q. *Does that same versatility extend to the consumer market?*

A. Amigas are being used in the home because Amiga technology brings new reasons for the home to have a computer—more reasons than just entertainment and education.

It's Only Money

Q. *What about the balance sheet? Is Commodore on solid financial footing now?*

A. There was a time when Commodore went through a very flat period of big losses, of using a lot of cash. We have turned that corner and survived that. Now we're in a nice, strong position to go out and concentrate our efforts on again growing a business.

We are a profitable, solid corporation with a very strong balance sheet, yet we have the greatest room to grow in the largest market in the world [the United States]. We run a nice business here in the United States. But it also presents a tremendous opportunity and a tremendous challenge—this is still the biggest market in the world.

We have become a cash generator as opposed to a cash user. Our earnings are higher than expected; our revenues are growing.

Back to School

Q. *Over the last few years, it seems that Commodore has neglected the education market, where it had found much early success.*

A. Commodore didn't just neglect the educational community, it walked away from it. Now we're coming back aggressively.

We're seeing some educational success in all three categories. The 64 continues to represent a very large installed educational base. Replacement and supplements to this base continue to be a nice market opportunity for us.

Where we're putting the majority of our efforts, of course, is into Amiga technology.

There, we're seeing some of the major educational software companies take a different look at our approach, and support our efforts to move back into that marketplace.

Having an MS-DOS product line also provides some opportunities as well. Commodore has a very strong name. We can now offer three distinct products to that education market to satisfy any number of requirements.

Nintendo? Just Say No

Q. *Entertainment is an important market. How do you position Commodore against the onslaught of dedicated game machines such as the Nintendo system?*

A. The entertainment category on all computers, including those stodgy old IBM PCs, is still the largest category, with the largest number of titles, of all the software categories.

So there are people who will be buying game machines to play games. There are people who will be buying computers that can play games and can also grow their kids' skill sets and get them better prepared for the future.

There's nothing wrong with games. But where the learning comes from is when you take that same tool, teach from it, and learn some skills that you're going to be able to use throughout the rest of your life.

Days of Futures Past

Q. *Where will Commodore be at the turn of the century?*

A. In 1987 we were the largest personal computer company in the world, as far as number of units. We sold more PCs than any other company.

I see that continuing through the balance of the century. I see us positioned as one of those very top, solid computer companies. We will continue to keep our focus on the workstation—I don't see us in the mainframes business. I think we're going to stick to our knitting. I think we will continue to concentrate on market segments that range all the way from the home to business.

Q. *You sound like a man who's enjoying himself.*

A. I've never worked so hard in my life, and I've never felt like I've been able to make such a contribution, and to see such immediate gratification. We've got some good people who are doing a good job, and the market, the dealers, and the world are beginning to recognize that.



levitations

PS/2 Model 30 Clones Are Clear Evidence that Mind- Altering Drugs Have Invaded the Industry

continued from page 92

Most attendees are on the hoof, and it's easy to spot old hands by their footwear. Any hard-soled shoe is a dead giveaway that its wearer either has never been to COMDEX before or is really into self-abuse. Staying on your feet for eight hours a day for the better part of a week requires accenting blue pinstripe suits with high-tech walking shoes if you don't want to join the gingerly shuffling hordes of blistered biz-bozos. New Balance and Reebok tied for COMDEX's most popular hoofwear amongst the yupscale types, with Adidas holding its own with the tech-types.

The majority of exhibits are centrally located in the World Congress Center. Exhibitors who sign up too late to get space in the main halls are banished to an endless no man's land in the Atlanta Apparel Mart, booth after booth of Taiwan-made PC cases, motherboards, keyboards, and power supplies stretched down one aisle and up another.

On the show floor, I was genuinely shocked to find evidence that mind-altering drugs have invaded the computer industry. The Acer 1030 and Mitac MPS-1000L both proudly laid claim to being the first clone of IBM's incredibly unpopular PS/2 Model 30. Most onlookers likened the scene to a fight over bragging rights to having been the first on the block to pick up lifetime season tickets for the local World Football League team.

The quality of giveaway items is generally commensurate with the amount of suffering that one must endure to lay claim to the coveted object. Plastic and paper bags for carrying sales literature may be grabbed without acknowledging an exhibitor's presence. Screwdrivers, pens, and key-chain fobs require that you momentarily glance at the providers' wares, but baseball caps and canvas carry-alls can only be acquired by sitting through a 15-minute memorized sales pitch delivered by perky "actors."

The show's most coveted item was a nifty red-and-yellow WINGZ nylon gym bag passed out by Informix. Getting your mitts on one of those babies required a 45-minute wait to climb into a Time Shuttle that subjected its occupants to a multimedia presentation, in which Leonard Nimoy extolled the virtues of the as-yet-unreleased Macintosh spreadsheet. Toss in an electronic light show and a derrière-shaking subsonic sound system, and you have an experience decidedly more unpleasant than most amusement park thrill rides. The only thing missing was a cameo appearance by Carl

Sagan to deliver the "billions of spreadsheet cells" line.

My "East Meets West" award goes to Mannesmann-Tally, a printer manufacturer based in Germany. The Deutschlanders enlisted the talents of first-rate Groucho Marx impersonator Ed Alonzo to help them hawk their wares. I'm a sucker for good Groucho. I liked it so much I stopped by later in the week to catch Alonzo working what must have been his toughest audience of the show. A gaggle of Japanese businessmen sat rigidly stone-faced throughout the Groucho shtick as dozens of terrible puns and awful wisecracks sailed over their heads. As Alonzo concluded, they rose en masse, politely bowed, and marched off.

What can you do when the whole COMDEX gestalt gets to be too much? You can seek spiritual solace from Jeff Armstrong, a.k.a. "Saint Silicon," founder of the Church of Heuristic Information Processing (CHIP). Armstrong has become a fixture in the COMDEX press lounge over the last few years, and although many members of the established press tend to shun him, for my money he's a refreshing breeze in an often stuffy business. It's easy to spot Jeff: He's the one dressed in a white suit (or black robes on alternate days), sporting an EPROM chip embedded in his forehead and a copy of his self-produced Binary Bible in hand. Armstrong is a veritable cornucopia of truly bad puns and good-natured silliness. If you'd like a taste of some bizarre humor, send a buck in stamps to him at 1803 Mission Street #174, Santa Cruz, California 95060 and ask for a copy of the "Saint Silicon for President" press release.

Appealing to more base instincts is Paul Lavistas' Bulletstop. Located in Marietta, Georgia, the Bulletstop is about 20 minutes from downtown Atlanta and provides COMDEX attendees with a unique, albeit somewhat violent, outlet for show-related stress. The firearms store has a shooting range at which customers may blast paper or any other inanimate target of choice with a wide variety of rentable ordnance. According to Lavista, "personal computers are real big" targets with many COMDEXers. While shotguns provide the "most bang for the buck," most out-of-towners opt for renting Kechler/Koch or Uzi machine guns to take down high-powered 80386 machines. □

Drop "Chops" Levitan a line in care of COMPUTE! or via electronic mail on CompuServe (70675,463), Delphi (ARLANL), or GEnie (XMG15546).

Levitations

ARLAN LEVITAN



Our Man at COMDEX Reports on Ping Pong, Machine Guns, and Maybe, Just Maybe, Computers

Chops Levitan peered serenely over the edge of his glasses as he gingerly probed the surface of the 45-millimeter ivory orb held between the thumb and forefinger of his left hand. Any surface imperfection, however tiny, might be used to impart enough capricious English to the sphere to produce the table tennis equivalent of a screwball. This wasn't an ordinary game of ping pong—not with Sean O'Neill of the U.S. Olympic Team as an opponent. O'Neill looked tired and somewhat edgy. At stake was a Brother Intellifax card for IBM PC compatibles. . . .

Where can you pit your prowess against Olympic champions, rub keyboards with beauty pageant winners, party all night, fire more live rounds than Rambo, and, if you're not careful, wind up finding out what's new in the world of personal computing? At one of The Interface Group's semi-annual COMDEX (COMputer Dealer EXposition) trade shows. Twice a year, over 60,000 computer-crazed professionals descend upon one of the two COMDEX sites—Atlanta in May and Las Vegas in November.

Although the Vegas show and its attendant debauchery remains most folks' favorite, there's some song about the South that has kept me coming back to Atlanta. Since rumor also had it that the spring show will relocate to Chicago in 1989, I dropped everything (including the formal deadline for this column) and sashayed down to the land of gregarious goobers and Billy Beer for one last Dixie COMDEX.

There are never any hotel rooms available during COMDEX week, but that rarely deters the experienced COMDEXer. Why reserve a room 20 miles out of town when you can arrive the day before the show and rent a room "for just one night" at a primo hotel within walking distance of the show? As far as I'm concerned, occupancy is nine-tenths of hotel law, and you can always resort to alternately sobbing and screaming if nothing opens up. It usually works. . . . I've only been forcibly ejected under such circumstances three or four times. This year my guardian angel was Valerie Payne, the desk manager at Hotel Ibis who was kind enough to make room in spite of their past experiences with me as a COMDEX lodger.

After acquiring suitable digs, any self-respecting journalist's first stop is the COMDEX press room. The bulletin boards are studded with new product announcement notices, press conference schedules, and most important of all, the official list of

COMDEX parties. With careful planning and attention to one's schedule, it's possible to actually spend more time at parties and hospitality suites than at the show itself. And why not, since that's where most of the business, news, and rumors at COMDEX are actually generated?

If you're really lazy, or are too hung over from the previous evening's parties to make it to the show floor, you don't even have to leave your hotel to cover COMDEX. Every day sees a new edition of the hundred-plus-page *COMDEX Show Daily* outside your room in the morning, affording complete coverage of every product and event, no matter how insignificant or trivial. For my money, the high points of each issue are the abundant computer-related cartoons, dubbed COMDEX COMIX. These are no ordinary cartoons, mind you. It's readily apparent the *Daily's* staff searches high and low for these gems. How can any but the most straight-laced businessperson fail to chortle at the teacher who admonishes a student with *I hope you brought enough software for everyone*, or guffaw as a husband quips to his spouse, *Gee, do you think the computer lost your Meatloaf Surprise recipe on purpose?*

If your vision is too blurred to read the *Daily's* tiny newsprint, you can become a COMDEX couch potato by ordering nachos and beer from room service and tuning in to the round-the-clock show coverage fed by The Interface Group to most hotels' in-house television systems. After about 30 minutes, the nonstop interviews and product announcements tend to take on the flavor of a cross between "The Twilight Zone," "Pee Wee's Playhouse," and a bad "Gomer Pyle" episode.

If you're brave enough to foray over to the exposition hall, forget taking a cab in the early morning or late afternoon at an Atlanta COMDEX. You'll end up in gridlock purgatory, moving more slowly than Atari's desktop publishing system. Besides, you can walk from the World Congress Center to your hotel and back in the time it takes a Mega 4-ST with a SL(ow)M(otion)804 Laser Printer to format and print a full page of 300 dpi graphics. If you must catch a hack, try to get picked up by cabbie Nathaniel Hawkins, who can keep you occupied for a good 30 minutes with detailed life histories of each of the 14 fuzzy-ball "program-bug" figurines that camp on his dashboard. Particularly touching is the story of Pinky, a hand-capped fuzzy that Nat rescued from a sordid life on the streets.

continued on page 90

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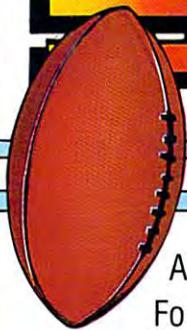
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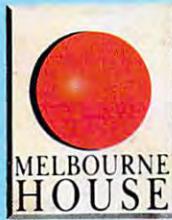
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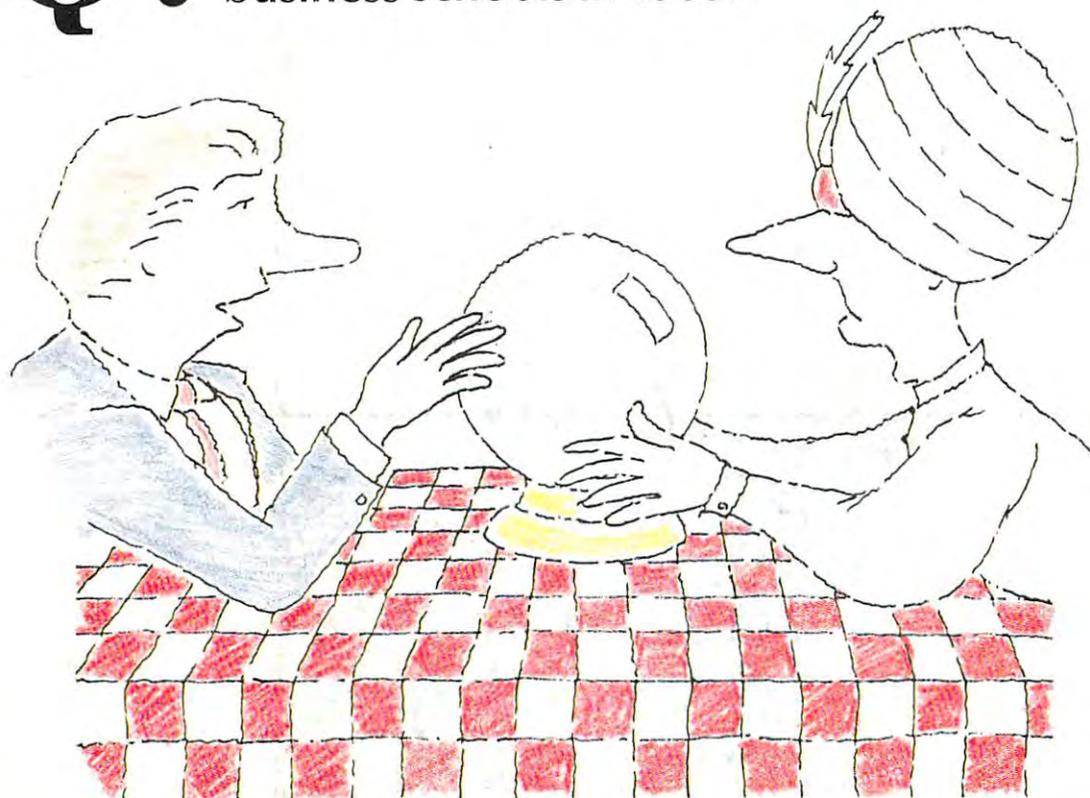
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