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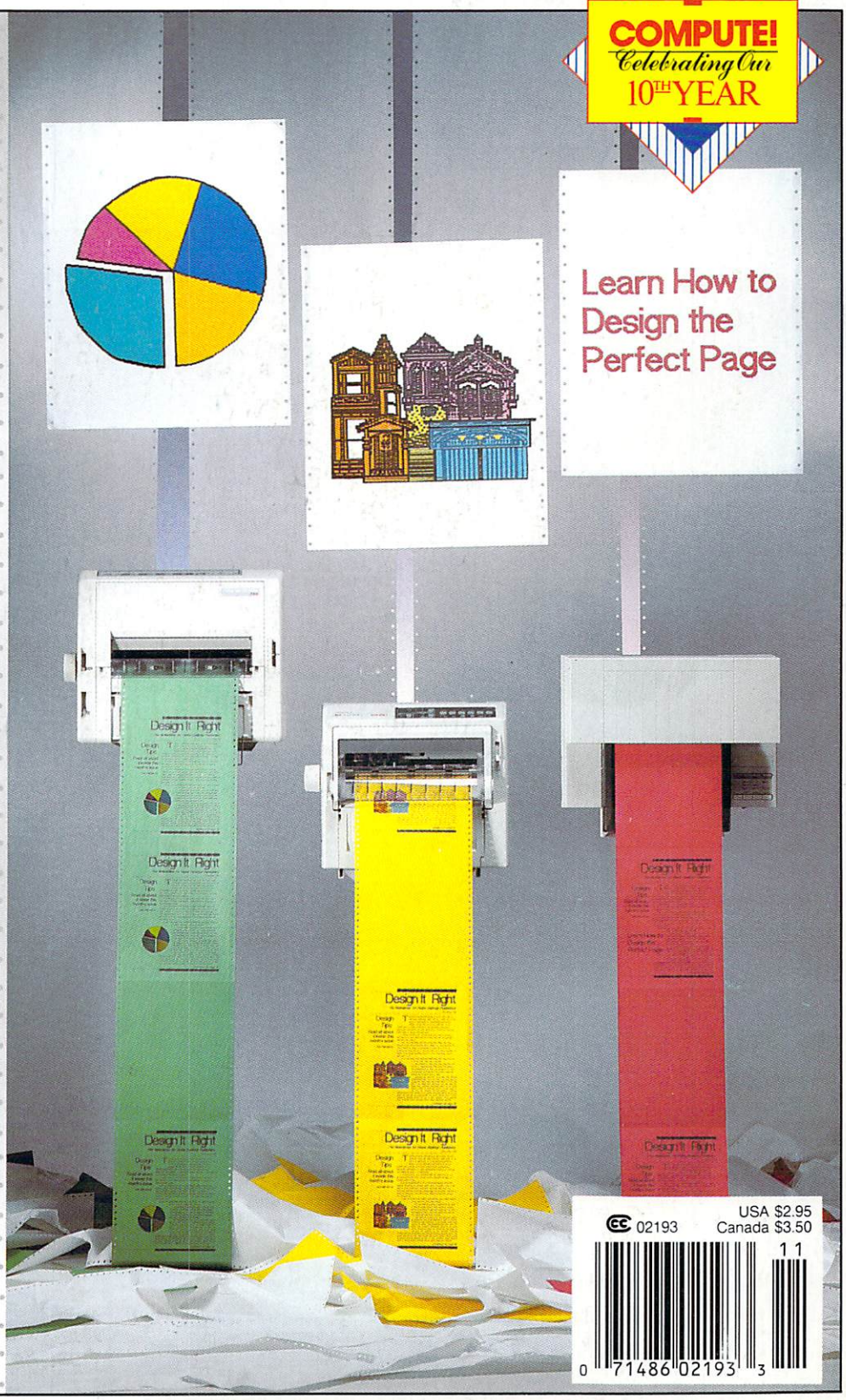

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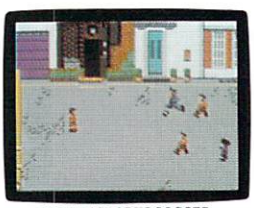

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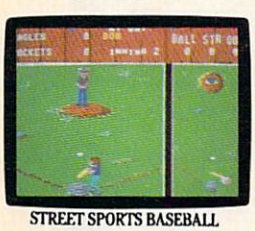

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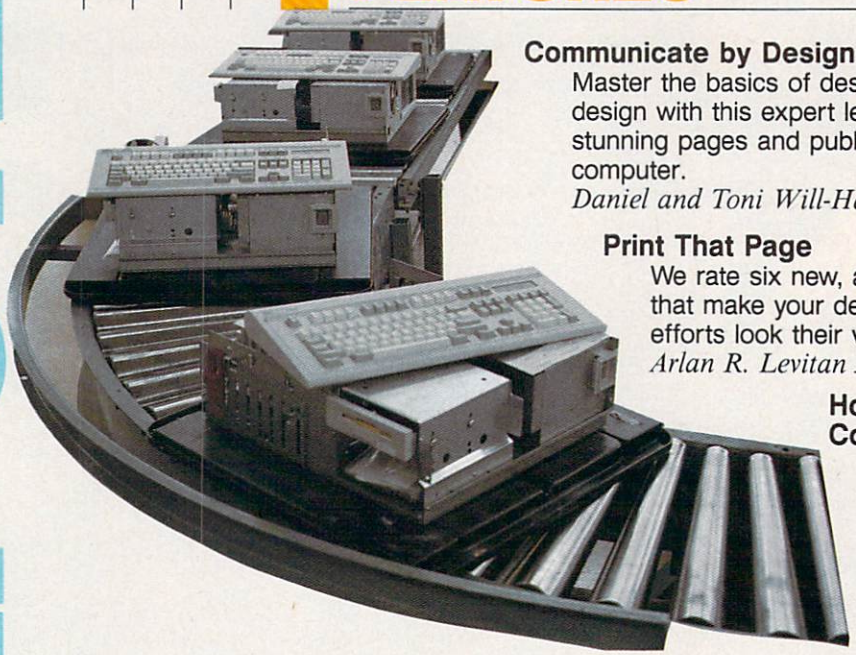
FEATURES



Communicate by Design
Master the basics of desktop publishing design with this expert lesson; then create stunning pages and publications with your computer.
Daniel and Toni Will-Harris ____ **30**

Print That Page
We rate six new, affordable printers that make your desktop publishing efforts look their very best.
Arlan R. Levitan ____ **44**

How Are Computers Made?
It's more than Part A in Slot B. This photo trip to the factory floor shows how a personal computer is built.
Keith Ferrell ____ **19**

Conversations
Going to War with Tom Clancy. America's favorite high-tech novelist talks about computers, computer games, and combat.
Keith Ferrell ____ **14**

REVIEWS

Fast Looks ____ **71**

NewsMaster II
Thomas Cox ____ **72**

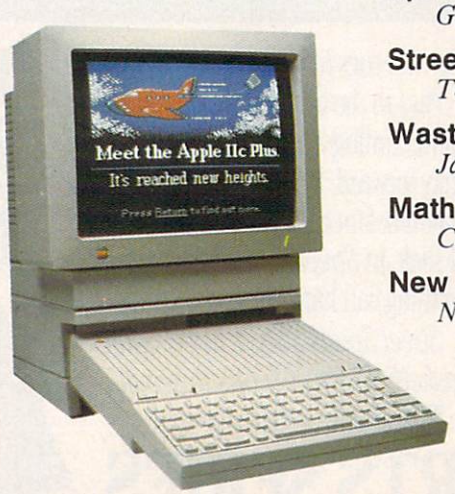
Springboard Publisher
Gregg Keizer ____ **74**

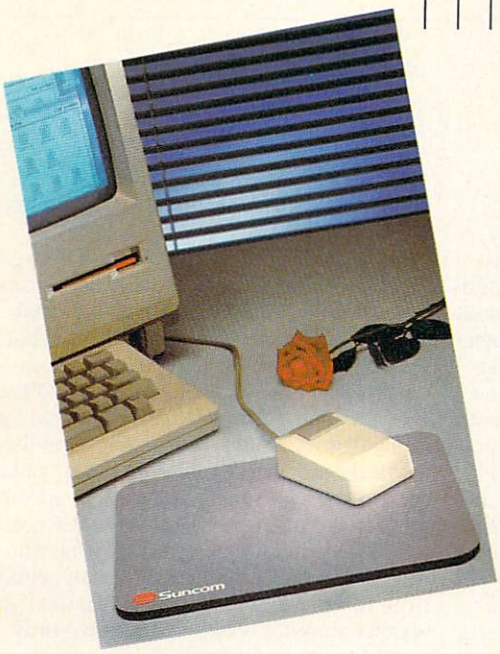
Street Sports Soccer
Tom Netsel ____ **76**

Wasteland
James V. Trunzo ____ **78**

Math Blaster Plus
Carol S. Holzberg ____ **82**

New World Writer
Neil Randall ____ **86**





COLUMNS

Editorial License
Enjoy the computer you have instead of finding fault with those you don't./*Gregg Keizer* ____ **4**

News & Notes
Apple hits back with the IIc Plus, MS-DOS 4.0 strikes at DeskMate, and Japan punches into U.S. software market./*Editors* ____ **5**

Gameplay
Play one of the best-designed simulations this columnist has ever seen./*Orson Scott Card* ____ **12**

Impact
Our love affair with the printed page is the reason behind the attraction to desktop publishing.
David D. Thornburg ____ **16**

Discoveries
Computers don't get old—they just get used in schools.
David Stanton ____ **104**

Levitations
For some *real* fun, cruise the closeout tables at your local computer store./*Arlan Levitan* ____ **112**

Letters
Our readers respond./*Editors* ____ **13**

New Products!
Zork back to 0, Unicorn helps the disabled, Viking sees clearly, and more new products.
Mickey McLean ____ **52**

COMPUTE! SPECIFIC

MS-DOS
Clifton Karnes ____ **62**

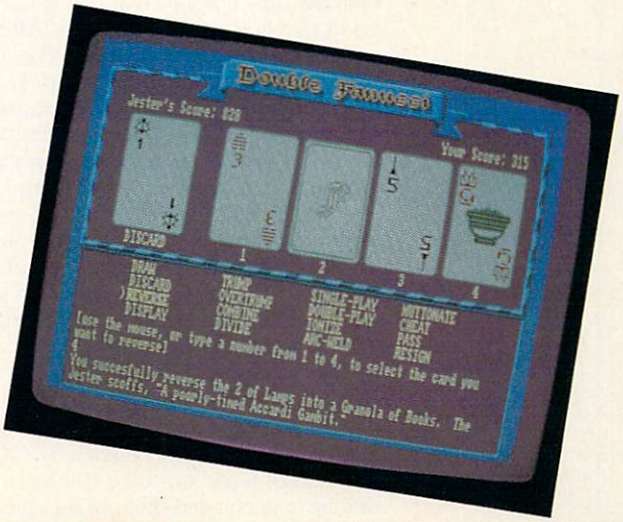
64 & 128
Neil Randall ____ **65**

Apple II
Gregg Keizer ____ **66**

Amiga
Rhett Anderson ____ **67**

Macintosh
Sharon Zardetto Aker ____ **68**

Atari ST
David Plotkin ____ **70**



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editorial license

GREGG KEIZER

Personal Computer Provincialism Doesn't Do Anyone Any Good

You'd think that it was the Thirty Years War or something, the way computer owners slam, roast, and otherwise deride machines they think inferior or superior to the model on their own desktop. Commodore Amiga owners look down on Atari STs, Apple IIe owners feel threatened by the IIGS, and everyone detests the mighty MS-DOS compatible for its strength in numbers and dominance of the market.

There are plenty of forums for such bickering. Like kids taunting each other at the playground, machine-specific magazines denigrate the opposition. Macintosh magazines find fault with the PC, PC readers laugh at the Macintosh, and the Apple II and Commodore 64 get about as much respect as Rodney Dangerfield.

Another place to hear the babel of competing computer voices is on telecommunication services and electronic bulletin boards—where, if buying advice is sought, the response can verge on the fanatic. Buy anything but a PC and you're a fool, say some PC users; consider a Macintosh, say some Amiga and Atari ST owners, and you'll pay dearly for what came to them cheaply. That kind of thing.

Even computer shows exhibit this electronic xenophobia. At a recent AppleFest, I lost count of the number of times Apple II owners berated the Macintosh or bemoaned the fact that the show even included the machine.

The cause of all this? Computer envy, perhaps, as owners of older machines look down the feature list of the newest models, then literally look down at the new computers in psychological self-defense. After all, who wants to be reminded that they may not have what it takes to keep up? Or maybe it's a misplaced sense of technical superiority, as owners of the hottest models defend their purchase by claiming that only *their* computer can calculate, process, and create.

As a magazine that speaks to, and sometimes for, the home computer user regardless of the computer that user uses, *COMPUTE!* is in a unique position to hear these voices. Our readers own everything from ten-year-old Commodore PETs to fresh-off-the-shelf IBM PS/2s. Some tell us about the troubles they have in keeping old machines running and in finding productive software for computers passed by. Others relate tales of too-good-to-be-true sales pitches that have persuaded them to buy the newest and sexiest personal computer, only to find it's more than they need or can handle. Still others take us to task for perceived slights on their machine.

We're trying to bridge this gap between computer camps. Our feature articles concentrate on the broad sweeps of personal computing, their themes taken from what we see as concerns specific to every computer owner and user. This issue's lead feature is a good example: "Communicate by Design" doesn't list every desktop publishing package for every computer, but instead concentrates on something often overlooked by personal publishers—the absolute need for good document design. Everyone who wants to try desktop publishing can benefit from this piece, then; it doesn't matter much which computer is on the desktop—only that there *is* one there.

But *COMPUTE!* can't curb this peculiar computer cattiness all alone. We need your help, too. "So," you might ask yourself, "what can *I* do?" A lot.

First, recognize that not all computers are created equal (thank goodness). Some are better at certain jobs than others. If you spend most of your time with your computer playing games, for instance, don't complain that you have a Commodore 64. If you want a computer primarily for desktop video, take pride in the Amiga you own. Studies say that the majority of a computer's time is spent on only one task. Even at home, where there's usually one computer and several users, it's likely that the computer fills a limited number of roles. Who says your personal computer has to do everything imaginable?

Second, if the urge to snipe strikes, snipe at the manufacturers and developers, not at other computer owners. Make sure the manufacturers and publishers understand that true transparency—where it doesn't matter what machine you own—is the best way to sell more machines and more software. Demand that computers use similar interfaces, that programs moved from one system to another be written to take advantage of each computer's native capabilities. Then support those companies that bring productivity, entertainment, and educational software to multiple systems.

Third, stop complaining about other computers. No matter how old or how new, how feeble or how powerful your computer is, there will always be machines newer or older, more powerful or less sophisticated, than yours. Enjoy the computer you have; the time you take talking down others' machines could be spent using yours. ⊡

news & notes

Apple Loves the Plus

Apple has something going with the word *Plus*—Apple II Plus, Macintosh Plus, and now the Apple IIc Plus, the company's newest Apple II personal computer.

Personally unveiled by John Sculley, president and CEO of Apple, at AppleFest on September 16, the machine is all its name implies—a new and improved version of the 1984-vintage IIc.

The IIc Plus comes packed in a case almost identical to the IIc's, though the color scheme has gone to gray to fall in step with the rest of the Apple II line. From the front, the differences are minor—the volume control has been moved to just above the top row of keys. Turning the machine around, however, shows more substantial changes. The ports remain: printer, modem, external disk drive, and mouse/joystick. The connectors for printer and modem have been altered, however, to the now-standard mini 9-pin DIN connectors familiar to Apple IIGS and Macintosh owners.

Another noticeable exterior change in the IIc Plus is the missing brick-size external power supply. Apple has replaced it with a power cord, moving the power supply inside the computer's case. Even with this addition, the IIc Plus doesn't seem to weigh any more than the IIc.

It's not until you open the IIc Plus's case (still not an easy job) that you see the full extent of the Plus's pluses. Apple has replaced the old machine's 5¼-inch internal disk drive with an Apple 3½-inch 800K disk drive. The drive is still on the right-hand side of the computer, and, according to Apple, its lower weight and smaller size made it possible to put the power supply inside the case.

The IIc Plus is still a 128K computer; the rumored increase in RAM didn't pan out. But there is a big difference on the motherboard—a faster processor.

The 65C02 microprocessor in the IIc Plus has two selectable speeds—the normal 1 MHz of the IIc and IIe, and a 4-MHz speed new to the Apple II line. At that clock speed, the IIc Plus is more than three times faster than its predecessor. To select speeds, press Control–Open Apple–Escape–Reset, a hand-twisting maneuver that does a warm boot of the computer and toggles the machine to the new speed.

Apple did retain other aspects of the IIc. Applesoft BASIC is still built in; the computer is still the II line's portable (it comes with a locking handle); and it's still the least expensive Apple II model available.

Which brings us to the last change in the IIc Plus—its price. Although Apple isn't pricing the IIc Plus as aggressively as some might want (the company seems determined not to break the $1,000 barrier for a color monitor–equipped computer), it is dropping the price of its entry-level system. A IIc Plus color package—including a color monitor and monitor stand—runs $1,099. Equipped with a green-screen monochrome monitor and stand, the IIc Plus package costs $859. Both prices are full retail, which you may be able to beat at dealers pressured by competition.

It's tempting to shrug off the IIc Plus as another example of Apple's lukewarm support of the II line. The IIc Plus isn't any great leap forward in II technology. The primary enhancements—a 3½-inch disk drive and a faster processor—are nothing new. If anything, they seem reactions to the popularity of the 3½-inch disk format, and perhaps the competition from the Laser, an Apple IIc look-alike computer with a faster clock speed.

But the IIc Plus is an important computer—if not from a technical standpoint, then certainly from a marketing viewpoint. Apple Computer's Apple II line is a $1-billion-a-year business. Four-and-a-half million machines are on desks. According to some studies, Apple maintains a lock on the education market (60 percent, claims Apple) by putting more computers on kids' desks than does any other manufacturer. Over 300 new Apple II products were released in the last 12 months. Apple won't walk away from that market, or from that money.

Apple is pointing the IIc Plus at the first-time home computer buyer. It doesn't expect people who already own an Apple IIc to buy the IIc Plus. Instead, Apple is counting on reaching those people who haven't yet brought a personal computer into their home.

Several things indicate that this strategy makes good sense. First, the IIc Plus is even easier to set up than the IIc. There are no slots to worry about, no interfaces to buy, no disk drives to connect. Just plug in the monitor and power cord, and you're ready.

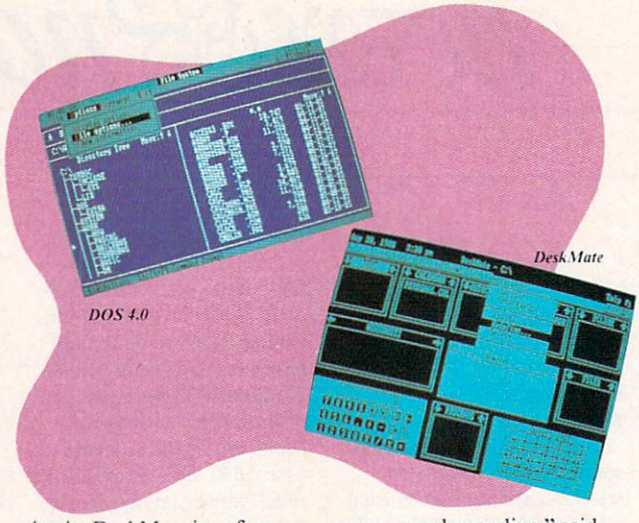
Second, the price is competitive. Tandy has made a lot of money the last two holiday seasons selling a low-end MS-DOS machine and a color monitor for about $1,000 to first-time buyers. Even for $100 more, the IIc Plus may make sense to those same buyers because of Apple's dominance in the classroom. Many parents want their children to use the same computer at home that they use in school.

In fact, if you should have to bet on the two companies that will do the best business during the upcoming holiday season—always a major part of the home computer market—bet on Tandy and Apple. The IIc Plus is sure to add to Apple's Christmas coffers.

For a related new-product announcement for the IIGS, read this month's Apple II column in "COMPUTE! Specific."

— Gregg Keizer ▷

In Your (Inter-) Face



It accesses memory beyond the 640K limit. It leaps the 32-megabyte file-size limit in a single bound. It's DOS 4.0, and it's available at your neighborhood IBM authorized computer dealer for $150—or $95 for current MS-DOS users who buy before April 28, 1989.

One feature of the newest DOS release that's sure to turn heads is its file-management capability, which displays a text-based interface. Instead of the familiar—or to some users, confusing and intimidating—prompt lines, this DOS Shell features pull-down menus and dialog boxes. "It's an ease-of-use feature," IBM spokesman Jim Monahan said. "Our goal is not only to introduce a product, but to make it easier to use that product."

Text-based interfaces aren't new to the MS-DOS world. Tandy has been shipping its DeskMate interface since 1984. The latest incarnation, DeskMate 3.0, is a much more graphical interface than the original Personal DeskMate, said Howard Elias, Tandy's senior director of computer merchandising. It also supports DOS 4.0.

"What IBM and Microsoft have done [with DOS 4.0] is come up with a shell their users were demanding," said Elias. "We've already had it available for our users."

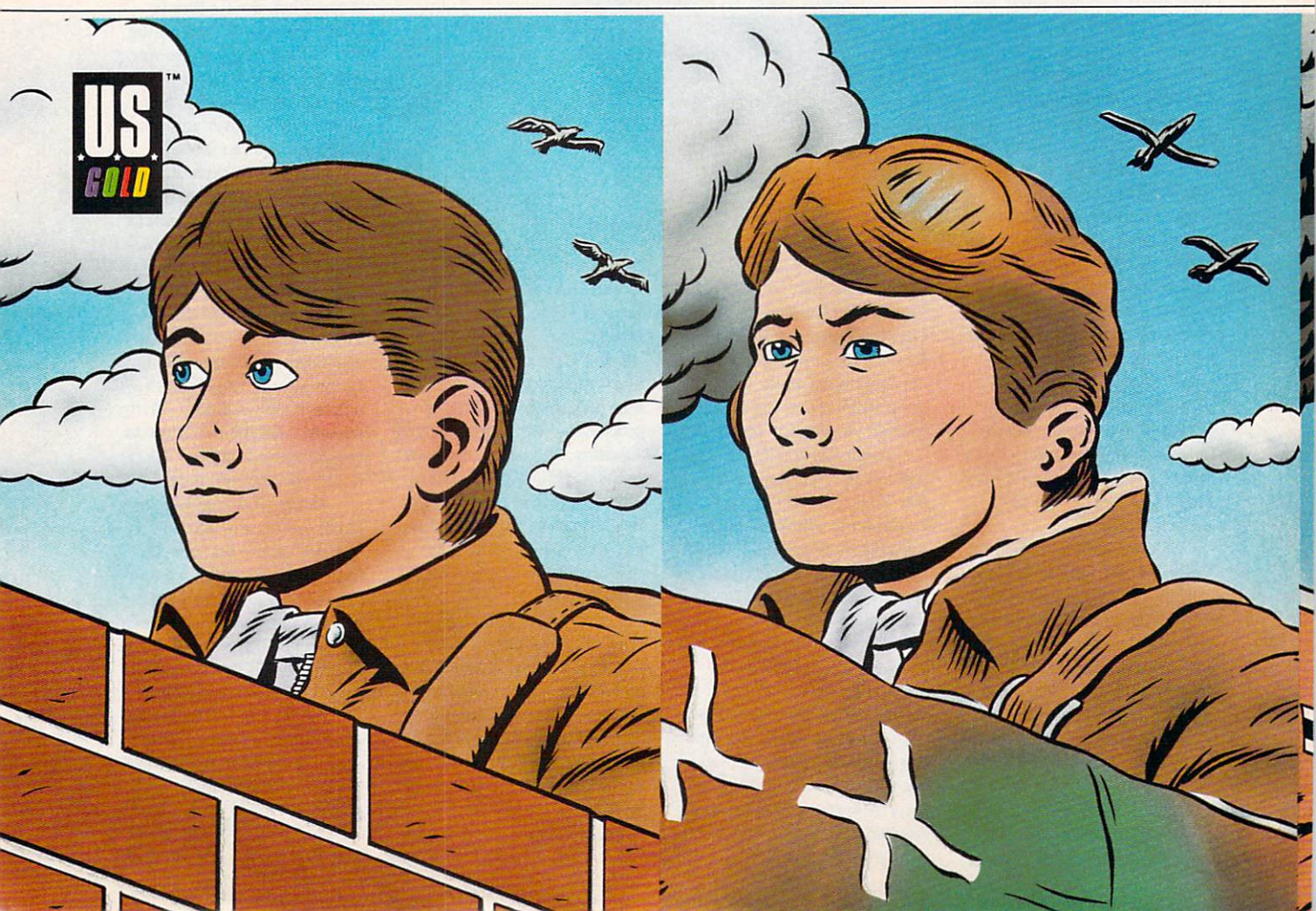
The point of DOS 4.0 is to make DOS easier to access and to use, said Monahan. "We think it will benefit users at home and in the office," he said.

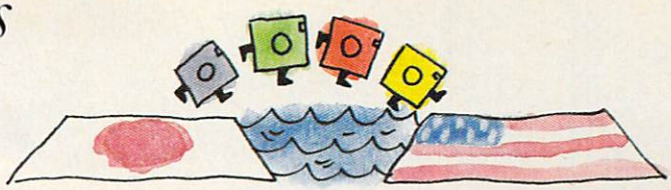
Tandy's Elias conceded that DOS 4.0 would be easier to use than earlier DOS versions, but he questioned the possible benefits. "People don't buy computers to use DOS," he said. "They buy computers to use software applications."

DOS Shell is consistent with IBM's approach to operating systems, Monahan said, indicating that the option is a step toward Presentation Manager's graphics interface, which will be offered with the multitasking OS/2 1.1 operating system.

Though once limited to Tandy machines, the latest DeskMate incarnation runs on any PC compatible, said Elias. Tandy licenses the DeskMate 3.0 interface core to developers at no charge. Fourteen software makers—including Electronic Arts, Symantec, Intuit, and 3Com—intend to release DeskMate-compatible products.

— Peter Scisco





Made in Japan

What do you get when you put Brøderbund and 11 Japanese software companies together? You get Kyodai, a new company that will bring popular Japanese computer games to the United States.

Kyodai is a separate company from Brøderbund, but Doug Carlston, president and CEO of Brøderbund, was one of the key players in forming the joint venture.

"Although they're very peculiarly Japanese, I think the packages will do very well here," he said.

Kyodai will select the software titles, translate them into English, convert them to U.S. machines, and market them. Brøderbund will distribute them. Carlston said Kyodai will be an affiliated label. Brøderbund has similar relationships with MacroMind and Origin software companies.

"Brøderbund serves as a master distributor for Kyodai, but we're a minority share holder," Carlston said. "We're the largest single share holder, but we're considerably less than 50 percent."

In the first year, Kyodai plans to publish and market more than 12 programs, mostly entertainment software in MS-DOS format.

One of Brøderbund's competitors, Bruce L. Davis, president and CEO of Mediagenic, expressed both high regard for Carlston's company and some apprehension. "Brøderbund's plans to enhance its relationship with Japanese software companies is consistent with its strategy to build markets outside of the U.S," he said. "I'm concerned about the increased competition. However, I've always respected Brøderbund."

Davis is also concerned that Japanese companies have already dominated portions of the computer market which American firms controlled in the past.

"I think [Kyodai] is a formidable group," Davis said. "I feel it would be a real shame if in the future we look back and we don't see any of the originators of the computer entertainment market."

Another Brøderbund competitor, Electronic Arts, sees Brøderbund's move as a source of more software in a glutted market and more competition for quality programs. "There are already more products out there than people can pay attention to," said Bing Gordon, vice president of Electronic Arts Studios. "More products will put the burden on developers and publishers to create breakthrough game designs," he added.

The 11 Japanese companies which joined with Brøderbund are Pony Canyon, Mac (Humming Bird), T and E Soft, Xtal Soft, Game Arts, Kogado Studio, Telenet Japan, BPS, Micro Cabin, Riverhill Soft, and Nihon Falcom. Presidents of five of these companies sit on the Kyodai board of directors, including Carlston. Kyodai's headquarters are in San Rafael, California (also Brøderbund's location).

In a related story, Jostens, famous for selling class rings and printing diplomas, bought about 20 percent of Brøderbund's stock in August, paying around $15 million. Jostens owns Prescription Learning, a supplier of computer-based learning labs for the education market.

— Heidi E. H. Aycock

continued on page 105

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Landings	Brace yourself	Limited

Note: Comparisons are based on current Apple, IBM, and Commodore 64/128 versions of the product.
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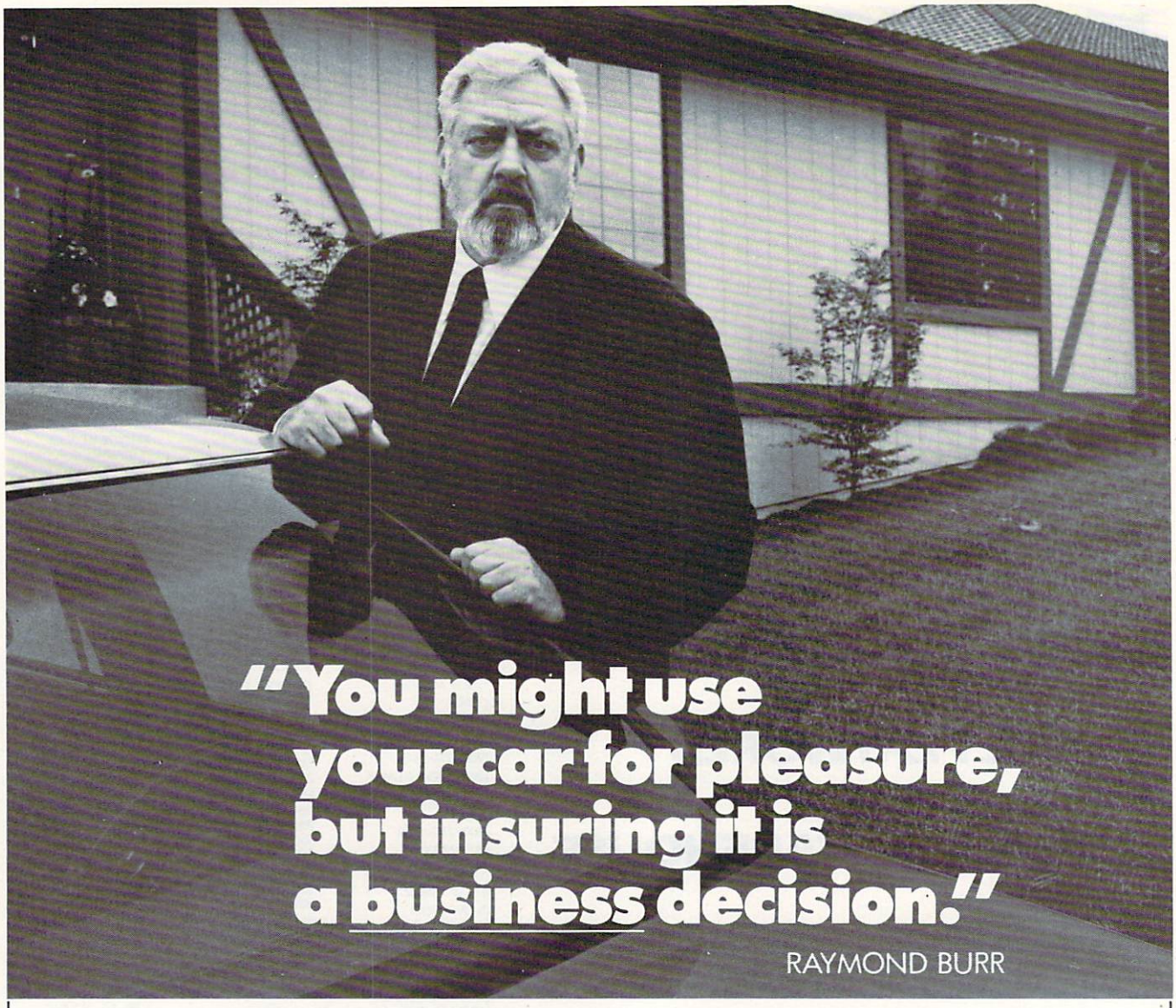

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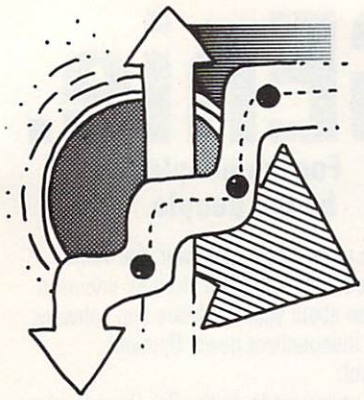

gameplay

ORSON SCOTT CARD

Count on This New Japanese Game—the Best-Designed Simulation I've Seen—to Add to the Trade Imbalance

If any nation has taken the computer game to heart more than the United States, Japan has. And with Japanese hardware streaming onto American shores, it's only natural that a company named Koei should now be bringing us a Japanese computer game that may very well end up on everybody's best-of-the-year list: *Romance of the Three Kingdoms.*

I don't know about you, but I've been so persuaded by Japan's high-tech image in the computer field—not to mention animation and toys—that I expected any cultural import we got from Japan not only to *be* state-of-the-art, but also to be *about* high technology.

Thexder, a Japanese-designed action game distributed in the United States by Sierra, certainly lives up to that image—the player figure moving through a dazzling metal-and-plastic future setting is a robot that transforms into an antigravity flier whenever necessary. My ten-year-old loves it; he still plays it even now that the novelty has worn off.

The game gives a sleek sensory impression, and it plays smoothly. But there's really nothing new in it: It's just another obstacle course. There's also nothing particularly Japanese about *Thexder.* The game is meant only to amuse and be forgotten.

Romance of the Three Kingdoms, on the other hand, takes the genre of historical simulation and virtually reinvents it.

Set in China during the struggle for power after the collapse of the second Han dynasty, the game covers a vast amount of time and territory. As many as eight players can begin the game, though in later scenarios no more than three can play.

You choose a warlord, or master, and then govern your own territories as well as you can, meanwhile conniving, bribing, marrying, tricking, and, occasionally, bludgeoning your way into dominance among the states around you. The goal? To unify China.

China is a marvelous setting for a historical game. There's so much room that, by contrast, all those European-based simulations feel confined—like eating a five-course dinner on a TV tray.

Instead of commanding meaningless regiments or divisions, your master is served by many generals, each of them a real historical figure whose biography in the game book makes fascinating reading. Their individual strengths and weaknesses make a real difference in the game as you send them into battle or on diplomatic missions, or as they govern—and misgovern—your hard-won territories. And if you aren't careful, one of the other masters will win the loyalty of the governor of one of your provinces, and suddenly your little empire isn't quite as big as it used to be.

Telling you the scenario, though, doesn't give you half of what's so good about *The Three Kingdoms.* This is the most intelligently, humanely designed simulation game I've ever seen.

Begin with the fact that you can choose how aggressively and how brilliantly the computer plays. When you're beginning, you don't get crushed; when you're ready for tough competition, the computer is a match for you.

This is *not* a mere war game—you have to govern carefully and well, or your kingdom will slip away from you. Usually I end up hating games which simulate government—it's so *tedious.* Why should I play a game that is indistinguishable from work? But these game designers wisely represent all the work of government with a few simple commands, and you really have to try hard to be so incompetent that you lose territory purely through bad management.

The diplomatic aspects of the game are superb. I loved how simply and smoothly I was able to develop my foreign policy, carefully nurturing friendships with neighbors I didn't want to offend—including arranging a royal marriage with a dangerous rival.

Sometimes, though, you must go to battle, if only to defend yourself. A battle in *Three Kingdoms* is a match for the melees in the best war games I've seen. All of the housekeeping is taken care of by the computer—as it should be.

The battle moves quickly and clearly across the screen, and when the issue is decided—when your supplies are burned, for instance, or your enemy flees, or you capture the enemy's leader—the consequences can be as deadly, or as indecisive, as in real life.

And never, not once, did I get the feeling that I was marching through a scenario controlled by a game designer determined to make me duplicate history. The historical simulation is deep and real; yet the game remains a game, with all your options open.

Computer gaming is no longer an American monopoly, folks. But that's good news—because it also means that playing *Romance of the Three Kingdoms* is no longer a Japanese monopoly. ⊡

letters

No Problem in Europe

In response to a letter in the June 1988 issue about overseas computing: Joel Kornreich knows not whereof he speaks. I have lived in England and Yugoslavia for seven of the past ten years. At no time have I or any of my friends had any difficulty using U.S. versions of computers in these countries. The only concession we have made has been to use step-down transformers to convert European 220V current to the U.S. standard of 120V.

I have used an Atari 800XL and 1040ST, and I have known others who use Commodore 64s, 128s, and Amigas as well as various Apples, Tandys, and IBMs with similar success. The European standard of 50 Hz has made no difference to any U.S. equipment designed to run at 60 Hz.

I hope that Mr. Kornreich's misunderstanding will not deter someone from bringing a computer to foreign countries—my years of complete success with my own systems contradict his statements.

John E. Foote
American Embassy
Belgrade, Yugoslavia

PC Speed-Up Update

The MS-DOS section of "COMPUTE! Specific" in your June 1988 issue mentions that the NEC V20 and V20-2 CPU replacement chips (for $8.75 and $10.75, respectively) are available from Jameco Electronics.

Unfortunately, my check was returned because Jameco seems to require a minimum order of $20.00. I was able to find the chip locally, however. Readers interested in the chip may want to go in with a friend (so they can meet the minimum) or look for the chip at a local electronics store.

W. E. Blosser
Harrisonburg, VA

Home-Business Business

My wife and I read McNeill and Freiberger's "Homeward Bound" (August 1988). Since we are planning to relocate to the San Francisco Bay Area in the next 18–24 months, the home-business possibilities are very appealing.

My wife plans to teach beginning home computer users how to get their new equipment and software up and running. So, we need to know how to get plugged in before we arrive on the scene.

I hope to become part of a faculty in one of the colleges or universities in the area. But I also do consulting in the areas of organization development and wellness from the standpoint of human relations. So, a home business suits both of our needs.

Could you place us in touch with resources which might help us get on with it?

C. Richard Pohl
Oklahoma City, OK

Several books are available about running a home business. One such book, Working from Home: Everything You Need to Know About Living and Working Under the Same Roof *($12.95), written by Paul and Sarah Edwards, is available in softcover from Jeremy P. Tarcher, 9110 Sunset Boulevard, Suite 250, Los Angeles, California 90069; (213) 273-3274. It includes information on marketing, insurance, taxes, and electronic office equipment.*

You could also contact the American Home Business Association, 397 Post Road, Darien, Connecticut 06820; (203) 655-4380. For a $55 membership fee, you get a monthly publication about running a home business, access to an advisory hot-line service, discount prices on equipment, and the option to buy low-cost, comprehensive major medical insurance.

For information specific to the area to which you are moving, look for a chamber of commerce or small-business organization.

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President Robert G. Burton
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Greensboro: COMPUTE! Publications, Suite 200, 324 West Wendover Ave., Greensboro, NC 27408. Tel. (919) 275-9809. Kathleen Ingram.
New England & Mid-Atlantic: Bernard J. Theobald, Jr., (212) 315-1665; Peter Hardy (508) 681-9000; Kathleen Ingram (919) 275-9809.
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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

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Going to War with Tom Clancy

Keith Ferrell

Tom Clancy is a member of that exclusive rank of novelists whose works enter the best-seller list at number 1—and stay there. Beginning with The Hunt for Red October *(1984), Clancy has captured larger and larger numbers of readers with his heroic stories of men and women confronted with the dangers, political and technological, of the modern world. Technology figures highly in the novels—Clancy's work is notable for the depth of his research and the authority with which he writes of weapons systems. He also tells a mean story.* COMPUTE! *caught up with Clancy in Maryland, where he was visiting MicroProse for the debut of its software version of* Red Storm Rising, *Clancy's enormously successful novel about war with the Soviet Union. We talked about the new game, the ways computers have changed his work habits, and, more seriously, the part computers play in the modern military.*

Submarine Games

Q. *Do you play computer games?*
A. Not really, although there's a little Macintosh game called *Stellar Seven* that I play while I ride my exercise bike.

Q. *How does it feel to see* Red Storm Rising *come to life on a computer?*
A. Terrific! I game the books out myself when I write them—I try to live through it. Now other people can share that experience.

Q. *You've played the game.*
A. Yes, and, boy, they've really come a long way since I first saw it.

Q. *It's a very tactical game. It communicates a real sense of the relationships among systems in modern technological warfare.*
A. You want a prediction? They're going to be out playing this on submarines. That's how good it is.

I've already written to OP-02, Assistant Chief of Naval Operations for Undersea Warfare. I told him, "Get a copy of this. I think you're going to like it."

Q. *Are you going to put a Commodore 64 in the house so you can play* Red Storm Rising?
A. You know, I may just do that. Unfortunately they don't have it for the Macintosh yet. I wish they would—it would give me an excuse to buy a Mac II, which I haven't done yet.

Q. Hunt for Red October *was also translated to software. Did you see that package?*
A. No, that was on the IBM [and the Commodore 64], which I don't have.

Q. *Are you impressed with the computer games you have seen?*
A. Yes. The graphics they [MicroProse] have on *F-19: Stealth* are incredible. Two weeks ago, I was at Columbus Air Force Base in Mississippi, and I spent an hour in a T-27 simulator. The graphics on *F-19* are better than what the Air Force has, although this was a fairly primitive simulator by current standards. But even so, what they've got on *F-19* is even better than what the Air Force is using to train pilots. It's astounding.

Q. *Are there plans for other translations of your work into software?*
A. I had a guy call me the other day about *Patriot Games,* and I turned him over to my lawyer. I was talking to Sid [Meier, cofounder of MicroProse] about another type of game. I've seen some tactical simulations that would make some good games.

Writer's Tech

Q. *When you sat down to write your first novel,* The Hunt for Red October, *were you facing a typewriter or a computer?*
A. First draft was on an IBM Selectric typewriter. The second draft was on an Apple IIe. Now I've moved up to a Mac and *Microsoft Word* 3.01.

Q. *Have you used any of the new tools, such as* HyperCard?
A. The Mac's good enough; I don't really *need* applications like that. You don't use a .458 to kill rabbits.

Q. *When you've finished a manuscript, does it go to the publisher on paper or disk?*
A. Paper.

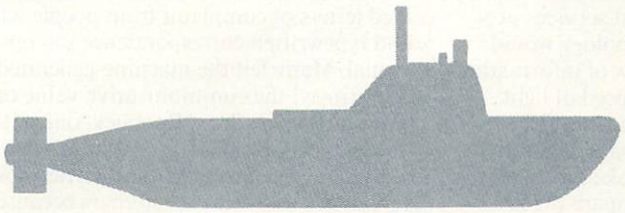
Q. *Do you see that changing?*
A. No, and the reason it won't is that there are too many systems out there. I use a Mac, somebody else uses an IBM, another guy uses a dedicated word processor.

And, actually, the editing process is probably going to stay low-tech for quite a while, because the way they do it now you can tell what the editor is doing. If they do it on a machine, you can't.

Q. *Could you ever move back to a typewriter?*
A. Why not go back to stone tablets and chisels? Of course, they're kind of hard to erase.

Q. *How has the computer affected your work habits?*
A. You work a lot faster, and turn out a better product.

Q. *Does it make it easier for you to get started in the morning?*
A. No, not really. The momentum of the story is the same. But you work at least three times as fast with a computer. You get to the end of a paragraph and you want to change it—you just change it. You don't have to roll a clean sheet of paper into the typewriter. So I'm convinced that not only does a writer work faster on a computer, he also turns out a better product.



"I game the books out myself when I write them—I try to live through it."

Military TAPS

Q. *Microcomputers are everywhere. More and more they're found in every aspect of the military, in the field and in simulators. How computerized are our fighting forces going to become?*
A. Just the "white stuff"—the stuff that's out in the open—has revolutionized things. Some of the "black stuff" that isn't out in the open. . . .

There's a thing that surfaced about five or six years ago called TAPS: Target Analysis and Processing System. The Defense Nuclear Agency, DNA, started it off.

It was an Apple II, five or six years ago, firmed up some so you could bounce it around. But micros are inherently rugged little buggers anyway.

TAPS was designed to analyze Soviet Army tactics. The software was the hard part, it cost about $7 million.

Q. *What was its purpose?*
A. It was programmed to understand and predict what a Soviet battalion or regiment or division was going to do on the basis of the information available. And everybody thought it was a joke. Of course, $7 million is half a day's toilet-paper budget for the Pentagon.

Q. *Did it work?*
A. Well, they took it over to Germany, and they gave it to an American battalion and told them to use it. A German regiment simulated Russian tactics and attacked the American battalion. The Germans got their heads handed to them.

Then the Germans tried it using their own tactics and got their heads handed to them.

And all of a sudden people started taking TAPS real seriously, and it just dropped off the map. All of a sudden it's gone!

Now, whether or not they killed the program or the program just went black, I don't know.

Q. *How was TAPS so effective?*
A. Essentially the computer backs up your battalion S2, the Intelligence Officer, and backs up the battalion S3, the Operations Officer. It tells you what the other guy's up to, tells you what you have available to stop him, and suggests ways of taking action.

Fooling Computers

Q. *And that's just one system.*
A. Right. Computers have gone into tactical engagements. The Aegis weapons system goes to a setting called Special Auto, and the computer takes over the whole engagement. You just sit back and watch.

Q. *Is that dangerous?*
A. Depends. It's not something you do lightly. The computer's likely to shoot the wrong guy. The computer doesn't care who somebody is. If it fits the parameters as a threat, the computer kills it. So you want to make sure you're in a threat environment before you do such a thing.

But it's an important option. In *Red Storm Rising,* there's a chapter called "Dance of the Vampires." You have just a swarm of inbound missiles. The computer is probably better able to diagnose and counter the threat than people are.

Q. *But the computer can be fooled, as you showed in the book.*
A. Yep. That's the problem. If the other side is smart, the other side may win.

Q. *How smart is the other side?*
A. Nobody knows. ⊡

Keith Ferrell is features editor of *COMPUTE!.*

impact

DAVID D. THORNBURG

Computers Turn Our Love Affair with Paper into a Work of Art

In the years just prior to the invention of the personal computer, researchers in the field of office information systems boldly predicted that the paperless office was just around the corner. Desktop computer systems would replace paper with computer display screens. The mail service would be replaced by a much faster (and less expensive) electronic data service. The availability of high-bandwidth broadcast services provided through satellite technology would allow the instantaneous flow of information from point to point at the speed of light. And paper would be used to wrap fish.

The economics of the paperless office are interesting to explore. Take just one example: electronic mail. Compare the price history of phone calls with that of sending a letter. I remember sending first-class letters for 3 cents as a child. Today the same letter requires a 25-cent stamp—an increase of over 700 percent! The cost of a local phone call has remained relatively unchanged. When you compare the rapidity with which information travels through electronic means with the time it takes a paper document to move through the postal service, you might reasonably conclude that paper-based communication is on its last legs. And yet, there's more paper than ever.

Why has paper consumption continued to rise through this period of tremendous growth in the computer industry?

Let's look at writing. Before word processors, a secretary would labor over a document and would then make corrections on the already-typed pages to keep from having to retype an entire page. Writers now use word processors to rearrange ideas and refine their writing without the penalty of retyping the entire document. Many people who have made the transformation from typewriters to word processors comment on the ease with which the word processor allows them to mold their ideas into one form after another until they look and feel just right. Of course, the printer churns out another complete draft for each revision.

Paper is a comfortable medium. The printed page is much easier on the eyes than any computer display I've ever seen. It's portable, doesn't need electrical power, and supports marginal notes. Paper has a flexibility that makes it indispensable. Our use of paper is not born of some inner desire to cling to the past—it's simply the best tool for the job. But this isn't to suggest that there isn't some romantic connection with the past, some comfort zone, perhaps, that causes us to use paper when it isn't absolutely necessary.

Prior to the introduction of the typewriter, all business correspondence was handwritten. One might think that businesses lined up in droves to purchase typewriters, but when the typewriter was introduced, the business community shunned it. Those bold businesses that did use them often received letters of complaint from people who found typewritten correspondence too impersonal. Many felt the machine-generated text destroyed the communicative value of handwriting style. Sears Roebuck, one of the first large corporations to commit to typewriters, continued to send handwritten correspondence to its rural customers because those customers liked it better.

While comfort may contribute to our love affair with the printed page, other forces are also at work, especially in the domain of personal computers. Consider the phenomenal growth of desktop publishing programs. Low-cost laser printers have brought typesetting to the masses. A tremendous number of people are now as concerned with issues of page layout and design as they used to be with spelling. Words like *kerning* and *ligature,* rarely heard outside typesetting studios a few years ago, are now bandied about by secretaries, salespeople, and engineers who use today's technology to create documents that are both letter-perfect and aesthetically pleasing.

The monks who created such works of art as the *Lindisfarne Gospels* would be astounded at the speed and agility with which relatively untrained people are creating polished documents. Rather than bemoan the increased use of paper, we should celebrate the ways computers allow us to redefine the printed page. In the days of hand-illuminated manuscripts, universal literacy wasn't even a dream. In the span of less than 1000 years, we have moved to the point where literacy is within the reach of nearly every person on this planet.

In the last decade, we have advanced to where millions of people are experiencing a new kind of literacy—a literacy that explores the aesthetic value of a printed page as well as the raw expression of written ideas. That blend of the aesthetic with the literal is an ancient tradition in such countries as China, but less so here in the West. Now our master tool of analysis, the computer, has become a vehicle through which we can express our artistic ideas in a form that others can see and enjoy. ⊡

In a Battle Helmet, No One Can Hear You Scream.

You can hear footsteps running on steel. Shouts in a strange language. Echoes.

Where are they you wonder. What is this Battle Station?

Casey clicks off the safety on her Hyper-Uzi. It thrums to life. Tension.

You flip down your helmet. The world goes suddenly quiet. Your temples scream. The radar in your helmet flashes with color. "Here they come..."

You Started as Raw Recruits. Five eager faces who thought Interstellar Patrol was cake. You learned fast.

Then, Disaster. A dispute between colonists. A mysterious vision. Bloody clues pointed to the sky.

Surrounded in Hyperspace. Friendlies in Yellow, Targets in Red. Electronic fireblossoms.

No On-Disk Copy Protection. 16 Colors for EGA.

Sentinel Worlds I: Future Magic

Science Fiction Mystery Role Playing Game Designed by Karl Buiter

To Order: VISIT YOUR RETAILER, or call 800-245-4525 from US or Canada, 8am—5pm PST for VISA/MC orders, or mail check (US$) or VISA/MC #, cardholder name, and exp. date to: Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. Tandy/IBM versions: $49.95 for 5¼"; $54.95 for 5¼" & 3½" dual-pack. Add $3 for shipping/handling. CA residents add 6.5% sales tax. Allow 1-3 weeks for delivery. Thanks.

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F-19 STEALTH FIGHTER will turn your PC into the hottest machine on today's electronic battlefront. The graphics are that vivid ... the animation that smooth ... and the feeling of flight that convincing.

But F-19 is no joy ride. Dramatic game play challenges you with a lifetime of action. Fight your way through hundreds of missions packed into the real-world regions of Libya, the Persian Gulf, the North Cape and Central Europe.

Combat will dazzle you as never before. Steer modular glide bombs with your joystick and follow them all the way to impact. In heart-stopping dogfights, use TrakCam to lock onto enemy MiGs. Engage TactiVue for an outside perspective that *always* keeps you and your target in sight.

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Plus, learn the secrets of stealth flying — maintaining a low electromagnetic profile to evade enemy radar and mastering the tactics that only a stealth pilot dares to try.

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For IBM-PC/XT/AT/PS2/TANDY/compatibles. Supports VGA, MCGA, EGA, CGA and Hercules graphics.

Can't find F-19? Outside MD call 800 645-8632, weekdays 8am to 5pm EST and order by MC/VISA; or mail check/money order for $69.95 for IBM-PC/Tandy (specify disk size). U.S. funds only. MD residents add 5% sales tax. Free shipping in U.S.; $5.00 international. Allow 1-3 weeks for U.S. delivery.

MICROPROSE™
SIMULATION • SOFTWARE

180 Lakefront Drive, Hunt Valley, MD 21030 (301) 771-1151

How Are Computers Made?

What seems like magic may only be wiring, silicon, and circuits. Demystify the machine by taking a personal photographic tour of a computer factory, birthplace of desktop productivity.

Keith Ferrell

What does it take to fill a computer box? Hundreds of thousands of computers are sold every year—which means that hundreds of thousands of boxes have to be filled with assembled computers. (The boxes have to be assembled, too, but that's a simple matter of creasing corners and locking cardboard tabs. Building a computer is somewhat more complex.) To find out what it takes to fill those boxes, we visited the Tandy Business Products plant in Fort Worth, Texas, and followed the creation of a Tandy 4000 from the arrival of its components to the shipment of the completed machine. ▷

Photos by Barksdale

All photos © 1988 Barksdale.

Exam

At the heart of every computer is the circuit board, where the actual processing takes place. To ensure that they're flawless, able to measure up to the demands that business and home users will make, the boards are rigorously tested.

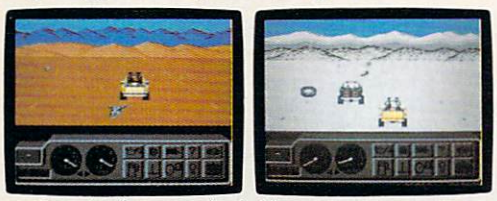
Like a physician examining a patient, the technician probes the board. The Fairchild In-circuit board testing unit is where each board is examined for circuit integrity and functionality. A typical Fairchild test lasts only 45 seconds, yet it reveals potential board problems resulting from production.

Next!

The plant turns out hundreds of finished computers each day. There are always more boards awaiting examination. ▷

FOR THOSE OF YOU WITH AN OFF-TRACK MIND.

Get ready for four of the most challenging, rugged, rump-bumping cross country road racing courses this earth has to offer.



Plenty of thrills guaranteed on the following grounds: gumbo mud, packed snow, skid-sand, and the scrubbiest terrain south of the border.

Fight the torturous terrain of Baja. Rocks, boulders, skid-sand, even a few spikey cactuses. And of course, heat that's hot enough to fillet any forehead. Ever had your hands stuck to the wheel? Permanently. You will when you endure the longest winter of your life in the ice, sleet and slosh of The Michigan Course. The Georgia Red Clay Course has enough mud to keep you a human fossil for 2,000 years. And then there's Death Valley. Get it. D-E-A-T-H Valley.

Start with pre-race strategy. Select and customize your personal vehicle. Your supplies. Your repair equipment. Believe us. You'll need everything. There are boulders, rivers, potholes, and mudbogs to contend with. What are mudbogs? You'll find out. (Just after you find out there's a Demon 4 x 4 chasing you all through the race. A Demon hellbent on your destruction.)

If you win enough races, collect enough points, only then will the Victor's Cup be yours. It's the least we can do. After all, you did go through hell to get there.

4x4 OFF-ROAD RACING BY EPYX

Commodore 64/128, IBM & compatibles, Amiga

Check It Out

Because of the care taken at the surface-mounting stage, few boards fail the Fairchild test. Those that do are immediately moved to a station such as this, where they're closely examined and then repaired. Once the problem is corrected, the board returns to the production cycle at the Fairchild station, where it is once again tested.

The tools used here let the technician isolate and identify any problems.

Temperature's Risin'

It's not enough to test the boards—they have to be tortured. Seriously. How would you like to spend 24 hours being baked at over 100 degrees—while you work? That's what the components go through to make sure that they're up to the temperature variations they'll encounter in offices and homes.

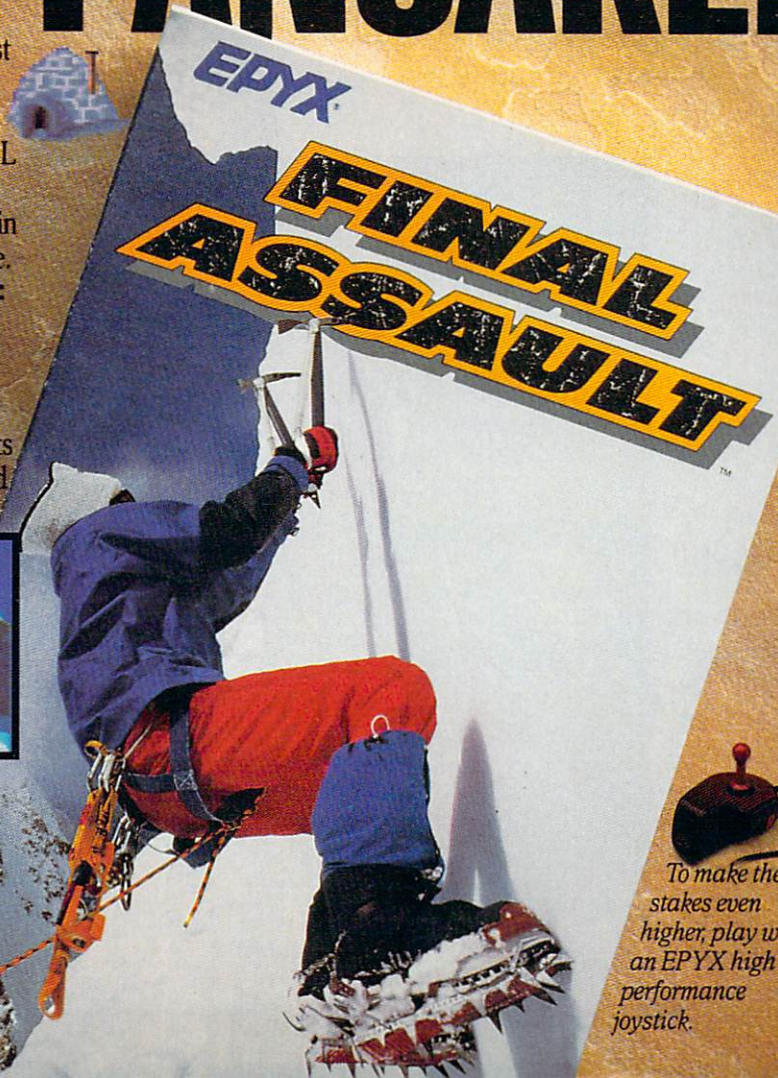
The burn-in lasts 24 hours, with temperatures rising and falling for the first 5 hours or so, followed by 19 hours of operation at 120 degrees. Note the placement of the disk drives under the keyboards. While the components are expected to withstand high temperatures, the floppy disk medium cannot—it must be insulated from the heat. ▷

ONE MISTAKE AND IT'S THE BIG PANCAKE.

You're at the foot of one of the world's highest mountains. And you're not snapping pictures. Because this is the FINAL ASSAULT. The only mountain climbing game in the Alps or anywhere else.

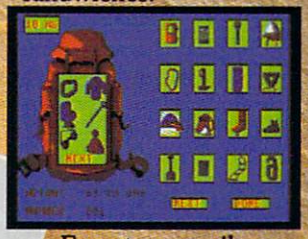
IF YOU'RE AFRAID OF HEIGHTS, FORGET IT.

You'll experience the terror and elation of one of the most grueling sports ever. And you'll be tested every step of the way.



Did you pick the right course? (There are six treacherous possibilities.)

What about supplies? If you run out of soup, you'll be stuck with snow sandwiches.



Forget your spikes or ice picks? You could end up a permanent part of the scenery.

If you have nerves of steel, even when you're dangling 40 feet off a cliff, you might just be one of the lucky few to plant your flag at the peak.

To make the stakes even higher, play with an EPYX high performance joystick.

© 1988 Epyx, Inc.

Commodore 64/128, Amiga, Apple IIGS, Atari ST, IBM & compatibles. Screens from Atari ST.

EPYX®

Classy Chassis

Having beat the heat, the machines move on. Here, components are mounted in the chassis. They're starting to look like computers now, at least to anyone who has ever opened a computer's case. The boards are mounted in the chassis, with disk drive and power supply in place. The colored stickers warn users of the presence of high voltage. The warnings appear in four languages: English, Spanish, French, and German.

Wait State

Like a troop of soldiers at parade, ranks of machines stretch in even lines the width of the production floor. The first stage of hardware assembly has nearly ended. Here, the computers queue up before entering the final legs of their journey. They rest on gravity-feed rollers: When one computer is removed, the next in line moves forward. ▷

CALIFORNIA GAMES.™ BRACE YOURSELF FOR A NEW STATE OF INTENSITY.

Surfing. A sport invented by half-baked Banzais with a fondness for ripping, grinding, and shredding.

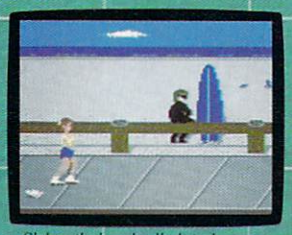
It ain't beach blanket bingo. These are radical games. Games that take the honorable tradition of *Summer Games™ I and II, Winter Games,™* and *World Games,™* wax it down and load it on the roof.

Try shredding the face of a totally tubular wave. Join the airforce in a BMX bike race. Screech around on skates and then rocket off the skateboard ramp.

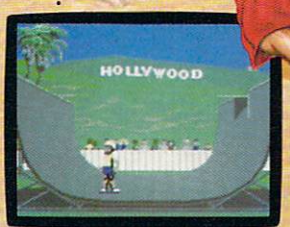
You'll be playing for sponsors like Ocean Pacific, NHS Santa Cruz, CASIO, Costa Del Mar, Kawasaki, and Spinjammer. For trophies and an overall championship.

So get air. Go crazy. Welcome to the state of California.

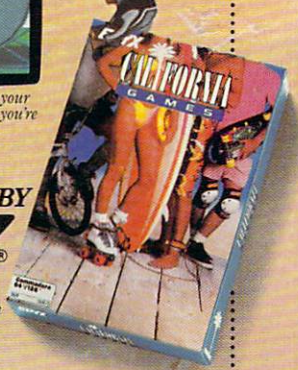
BMX. Where wheelies are the breakfast of champions. And everyone else eats dirt.



Slalom the boardwalk obstacle course on roller skates.



Launch a few feet off-the-lip with your skateboard tucked high. And while you're up there, dance for the crowd.



CALIFORNIA GAMES BY

EPYX®

Commodore 64/128. Apple II & Compatibles, IBM & Compatibles, Amiga

Boot Stop

Each 4000 gets an operational shakedown with software and monitor, as well as a printer test to guarantee that the machines are ready to run once they reach the customer. The full hands-on system diagnostic functional test puts the machine through paces designed to exceed those in even the busiest office.

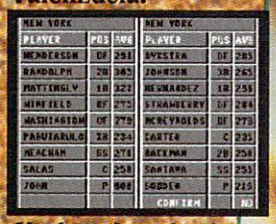
Underwritten

Computers are electrical as well as electronic devices; thus they must bear the Underwriters Laboratories seal of approval. The UL station at the plant performs a High Potential test which looks for potential high-voltage leaks to ground.▷

JUDGE A GAME BY ITS COVER.

Licensed by The Major League Baseball Players Association.

The action-packed statistically enhanced computer game with all 26 major league teams, and all the stars like Dave Winfield, Ozzie Smith, Jose Canseco, Roger Clemens, George Brett, Alan Trammell and Fernando Valenzuela.



NEW YORK			NEW YORK		
PLAYER	POS	AVG	PLAYER	POS	AVG
HENDERSON	DF	291	SYESTRA	DF	285
RANDOLPH	2B	303	JOHNSON	3B	265
MATTINGLY	1B	327	HERNANDEZ	1B	255
WINFIELD	DF	273	STRAWBERRY	DF	284
WASHINGTON	DF	279	MCREYNOLDS	DF	273
PAGUIARULO	1B	234	CARTER	C	235
MEACHAM	SS	271	BACKMAN	2B	258
SALAS	C	258	SANTANA	SS	255
JOHN	P	808	SODDER	P	215
			CONFIRM		NO

Updated roster/ stat disks available every season.

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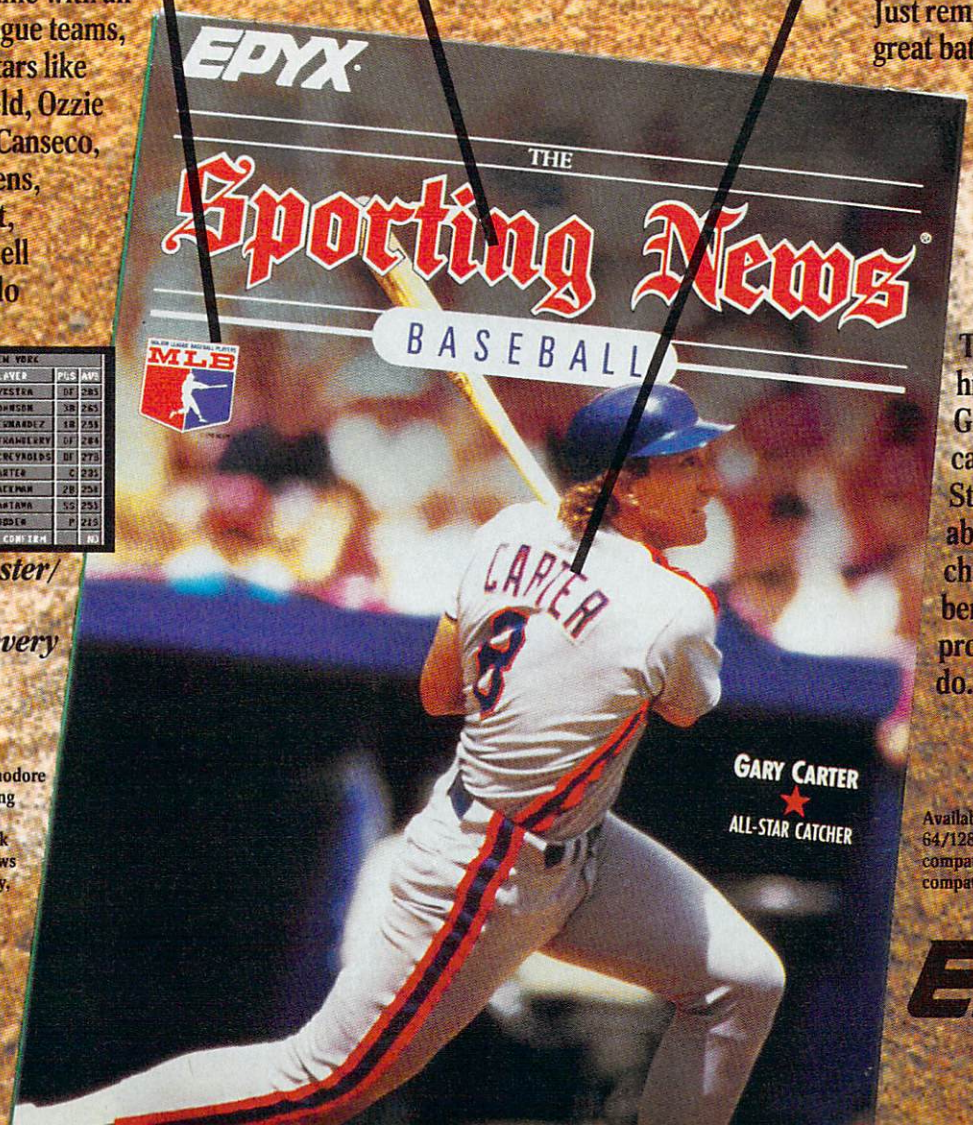


"If it were any more realistic, you'd need a batting helmet."
Gary Carter

As the pitcher, you can throw the batter a curve, a high hard one. Pitch him inside, outside. Even brush him back if he's crowding the plate. Just remember, he's got great bat control. He might even drag a bunt on you.

Throw it home or hit the cutoff man. Go for the great catch or play it safe. Steal a base? How about a pitching change? Just remember. Anything the pros can do, you can do. If you're good.

Available for Commodore 64/128, Apple II & compatibles, IBM & compatibles

EPYX®

Case Goods

Attention has been paid to every detail of the machines' insides. Now it's time to hide that interior. The case goes on. A cosmetic inspection makes certain the computer's appearance is the equal of its performance. The conveyor belt ferries the closed machine on toward boxing, and the production line's work is finished.

Done!

Twenty-four to a palette, the computers are ready to leave the plant—almost. Boxed computers are selected at random and are subjected to the shakes, rattles, and rolls they're likely to encounter in transit. Then the box is opened and the computer removed. Only after successfully passing yet another complete hands-on system diagnostic test does the palette of machines ship. The next person to open the box will be the new owner. ⊡

Keith Ferrell is features editor at *COMPUTE!*.

The Print Shop™

Enter our sweepstakes at Babbages, Egghead, Electronic Boutique, Software Etc., and Wherehouse stores.

THE DIFFERENCE IS MAGIC.

Print Magic™

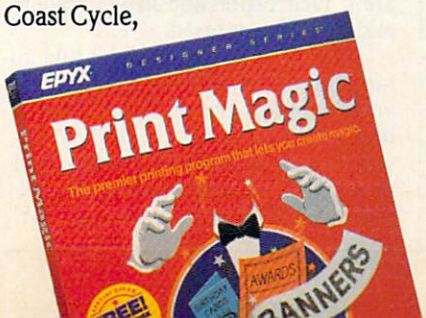
Most print programs don't give you a whole lot of room for creativity. But with Print Magic, you have all sorts of neat tricks up your sleeve.

For instance: you can use as many fonts, graphics, and borders as you want—and put them anywhere. Enlarge borders up to 9 times, and graphics up to 6 times. Draw with a complete set of paint tools, then zoom in close for editing...Or bring in graphics from other software programs.

Cards, flyers, whatever: instead of settling for the run-of-the-mill stuff that less sophisticated print programs produce, try a little...well, magic.

And for those who believe in magic: we might just whisk you off to Palm Springs.

It's true. When you come to see Print Magic before January 31, you can also enter our grand sweepstakes. Get a crack at a roundtrip for two to the Hyatt Grand Champions Resort near Palm Springs...not to mention a bunch of Kenwood CD players, Nishiki® road bikes from West Coast Cycle,



Casio® keyboards, TeleQuest® Memory phones, Memorex® premium paper packs—and a Realistic® VCR from Radio Shack.

So check it out. Whether you win big or simply get acquainted with our print program, something magical is bound to happen.

Apple® IIe/c/GS, IBM & compatibles, and Tandy (featuring the DeskMate™ interface).

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EPYX®

Communicate By Design

Master the basics of desktop publishing design and you can create stunning pages and publications, greeting cards, and great résumés with your computer. Two experts in design give you a complete lesson in putting type and style on paper.

Daniel and Toni Will-Harris

Desktop publishing covers a lot of ground. You may be creating a newsletter for your professional organization or coming up with that job-catching résumé. Maybe you're putting together a killer report for the boss, dazzling stationery for your home office, or a semester-ending term paper. All are, in essence, desktop publishing.

Whatever you're putting on paper, you want it to look the best. You want it to look as if you spent time on it, even if you didn't. And you want it to be noticed.

Desktop publishing, the ability to create near-typeset-quality pages, lets you do all this. Using a personal computer and one of the many desktop publishing or page-layout programs available, you can turn out publications and pages that rival the downtown printshop.

Because of these many capabilities, desktop publishing is all the rage among personal computer users. Yet there's a weak link in the chain of becoming an accomplished publisher: design. All the hardware and software in the world cannot create an effective, attractive page without a working knowledge of design fundamentals.

It doesn't matter how wonderfully you write if you can't get anyone to read what you've written because the page is a disorganized jumble. It doesn't matter how creative your ideas are if their expression leaves readers and viewers confused.

Don't be intimidated by this unfamiliar design territory, though. If you're not artistic, that's OK. You don't have to be able to draw to design a newsletter, flier, greeting card, or report. You won't be drawing pictures; you'll be putting type and artwork together to make an inviting, readable format. That's something anyone can learn to do.

Ground Zero

To get the most from desktop publishing, you need to know a few ground rules about design.

The process of making a page look the way it does is called *layout*. Page layout is simply the arrangement of type and graphics. The best arrangement will attract the reader's attention and make the page easy to read.

All printed material, no matter how simple or elaborate, has to go through a layout process. A specific type style has to be chosen. That type has to be sized: The headlines are one size; the body text, another. Decisions have to be made about where to place an article on the page: at the top, the middle, or the bottom? Column widths have to be chosen—how many columns should be on the page? Should all the type be set the same width? What about graphics? Should photos be one or two columns wide? Should they be boxed with a border? What about captions? Should captions be set in bold, or italic, or a different size from that of the body copy? All these choices have to be made in even the most elementary layout process.

If these kinds of decisions are new to you, don't be afraid. Once you understand the basics, making the right choices will be easier. Print is a highly visual medium, and you must come to notice how words look, not simply what they say.

Typecasting Your Typeface

Desktop publishing programs left and right claim they can mix text and graphics on the same page. Don't let

SERIF

SANS SERIF

this make you lose sight of something else extremely important—type itself.

The type on a page, whether it's *Life* magazine or a *Superman* comic book, is chosen for a definite reason—to do a special job. Type itself conveys more meaning than the mere letters of the alphabet. Typefaces are influential symbols, combining the alphabet with shapes and styles that bring to mind things beyond the definitions of the words.

There are two major categories of type styles: *serif* and *sans serif.*

The typeface you choose makes a statement about what you want to convey. It's important that you choose a typeface that matches the message you want to send. A serious financial newsletter calls for a dependable, trustworthy font, such as Times Roman or Century Schoolbook. It would lose credibility if it were set in a decorative, lush font such as Korinna or Cooper Black.

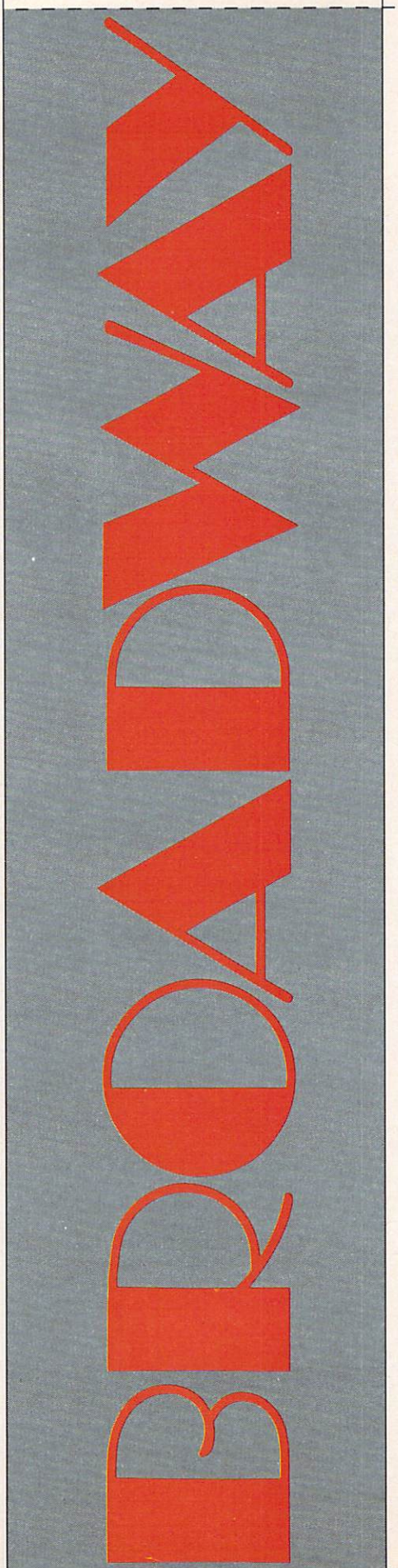
The type style sets the tone and look of your publication. If you're not sure what will look best, study other publications and see what they use. Standard typefaces, such as Times Roman and Bookman, have been used effectively for years as *body copy* (the main text part of a document). These typefaces are easy to read and don't make the reader's eye tired when used for books or newspapers. More flamboyant, attention-getting *display* type styles, such as Broadway and Futura Extra Black, are used for headlines, advertisements, or brochures.

If you're designing a newsletter, choose a single type for the body copy, such as Times Roman, and a contrasting type, such as Helvetica, for headlines and subheadlines. In general, a serif font, such as Times Roman, is easier to read when set in long columns of text than a sans-serif font, such as Helvetica, would be. If you're not sure which two fonts will look good together, don't mix them at all—use one font for both your text settings and your headings.

Measuring Up

Once you've chosen the typeface(s) for your document, you'll need to know some specifics about how to apply the type to the page. *Points* and *picas* are standard forms of measurement used in typesetting. Many page-composition programs offer you the choice of measuring in picas, inches, or millimeters; it's best to use what you're most familiar with. However, type sizes are always measured in points, so you'll need to at least get acquainted with point sizes.

Any type smaller than 10-point is fine print; 10- and 11-point are standard sizes for body copy; 18- to



30-point is standard for headlines; and anything larger than 30-point should be reserved for important headlines.

The amount of white space between the lines of type, called *leading,* should always be at least one point larger than the type size. If you're using 11-point type, for instance, a leading of 12 or 13 is best for maximum readability. Such a combination is written as 11/12 and is referred to as *eleven over twelve.*

Leading can also make an enormous difference in how a page looks. Too little leading makes pages seem gray and hard to read. Too much white space between lines of text makes it hard to follow a sentence from line to line.

The Long and the Short of It

When figuring the width of columns, keep several points in mind: page size, type size, and the size and number of photos or other art you'll be using. Columns should be neither too narrow nor too wide. If you're using 10-point type on a standard letter-sized page, it's best to divide the page into two, three, or even four columns.

When a column is set wider than 42 picas (about 7 inches) it becomes hard to read. Readers easily forget which line they're on and may even get lost starting a new line of text when they're tackling a wide column.

A single-column design can be very effective, however, and can draw readers' attention. If you want to use only one column in your publication, keep the column width at about 24 picas, include a wide expanse of white space on either side of the column, and use a generous amount of leading between the lines, such as 11/14 or 11/15.

Columns with lines shorter than about 10 picas (1½ inches) can also be confusing. The fewer times your eye has to pause, the faster you can read a line. Narrow columns can break up a sentence's structure until it no longer makes sense—the same sentence must be read over and over. For an 8½ × 11 inch page, the optimum line length for normal body copy (10- to 12-point) is between 12 and 36 picas.

Justify Yourself

There are four basic kinds of text alignment:

Justified type is aligned on both the left and right sides, forming even, solid blocks of text.

Flush-left type, also known as *ragged-right,* has the left margin lining up flush, or straight, but the right margin is ragged, with each line of type a slightly different length. The copy in *COMPUTE!* is normally set flush left.

Flush-right type lines up straight on the right side of a column of type. This is not as common as flush-left or justified, but it's used for headlines, pull-quotes, and so on.

Centered type is an equal distance from the margin or column edges. Centered text is not usually set in paragraphs, although individual lines of type may be centered. Headlines are often centered, as are announcements and invitations.

Whether or not you justify copy is a matter of taste. Some people believe justified copy is easier to read, while others believe that it's harder to read.

Ragged margins make a page more informal. The biggest problem with unjustified columns of type is that very uneven line lengths can be created—very long lines can be followed by very short ones. These shapes are hard for the reader's eye to follow and make an undesirable visual impact. However, there's no law against hyphenating ragged-right columns to fix this problem.

If you like the look of vertical *rules* (lines) between columns on a page, then you may be better off with ragged margins where the rules can act as a kind of justification. Using both justified type and rules can be a bit too much unless there's plenty of white space, but, once again, there's no set rule about this.

Justified type is suitable for every type of publishing. The uneven spacing between words that can occur with justified type can be a particularly difficult problem with short lines, but for the most part, justification gives a neat, orderly appearance to a page. When it's done well, justification adds crispness, geometry, and a kind of pleasing formality to a page. ▷

Great holiday savings on this powerful computer with built-in MS-DOS® and DeskMate® software—only $799.

Start computing Christmas morning with the Tandy 1000 SL—now at a terrific low price. Or purchase the 1000 SL complete with a CM-5 color monitor for just $1098.95.

MS-DOS and DeskMate are built into ROM, so you can move quickly from start-up to MS-DOS programs, or go directly into our DeskMate multi-applications software.

With DeskMate, you're ready to start computing right away with ten popular applications to write letters, prepare budgets, file information and even draw colorful pictures. There's also a spell checker, address book, Hangman word game and PC-Link℠ on-line information service.

As an added bonus, there's a Music program as well as a sound-editor program that lets you record and edit music, voice or other sound effects onto your 5¼" diskettes. This latest breakthrough in computer-audio technology delivers outstanding speech and music capabilities which will generate new life into programs.

Come in to Radio Shack today. The Tandy 1000 SL is a gift the whole family will love.

Tandy® Computers: Because there is no better *gift* value.™

Sale ends 12/24/88. Tandy 1000 SL reg. $899. CM-5 monitor reg. $299.95. Prices apply at Radio Shack Computer Centers and participating stores and dealers. DeskMate communications require modem. MS-DOS/Reg. TM Microsoft Corp. PC-Link/SM Quantum Computer Corp.

Radio Shack®
The Technology Store
A DIVISION OF TANDY CORPORATION

Futura Extra Black

Giving Good Type

If you justify the type in your publication, it's an absolute necessity to hyphenate, too. Otherwise, paragraphs will have gaping spaces running through them (these gaps are called *rivers*). Hyphenation breaks up words—by keeping part of a word on a line so that there are fewer oversized gaps. Letter spacing, adjusting the amount of space between each letter in a word, is another way to avoid the gaps.

This brings up an interesting problem for desktop publishers—one you may not be aware of. If you learned to type in school, you were taught to hit the space bar twice after you finished a sentence with a period or other ending punctuation. But when you justify lines of type on a computer, this double space can create holes between the end of one sentence and the beginning of the next. The solution is simple. From within your favorite word processor, use its search-and-replace function to replace the double space after a period or other ending punctuation marks with a single space.

Another ingredient for cooking up good-looking type involves adjusting the space between individual pairs of letters. This feature, called *kerning*, improves the way type looks. Kerning is difficult and time-consuming to do by hand. You would have to go through a document and look for particular pairs of letters and then manually change the spacing between them. For most people, this would be considered an impossible task, or at least an impractical one.

Kerning is most noticeable with larger type sizes. Many programs can perform kerning automatically, a feature you should be aware of when you're choosing a desktop publishing ▷

Training by Design

The latest twist in desktop-publishing training involves lessons on videotape. Video instruction lets users see techniques demonstrated, duplicate designs themselves, compare their work to the tape, and then review the steps.

VideoTutor. Three videotape packages from VideoTutor offer specific design help for users of both *Ventura Publisher* and *PageMaker*, the two leading desktop publishing programs for personal computers. Both basic procedures and advanced techniques are covered in the 90-minute tapes. These tapes can provide in-house training for companies with employees that need to learn desktop publishing basics and graphic design quickly, or they may also be used as classroom instruction. Tapes include color animation and contain clear demonstrations of the steps necessary to create complex documents. A detailed workbook and tutorial disk complete each $199 package. Available from VideoTutor, 219 Ilihau Street, Kailua, Hawaii 96734; (808) 254-6419.

Dynamic Graphics. A maker of electronic clip art, Dynamic Graphics also offers a Step-by-Step Video Series, which includes a tape detailing design strategies and typesetting principles. The VHS tape, called "Desktop Design: Basic Electronic Graphic Techniques," runs 30 minutes and costs $49.95. Available from Dynamic Graphics, 6000 North Forest Park Drive, Peoria, Illinois 61656; (800) 255-8800.

Dynamic Graphics also offers a series of two- or three-day Visual Communication workshops that cover the basics of graphic design, newsletter design, and design for desktop publishing. Workshops cost between $225 and $725, and locations include Anaheim, Atlanta, Boston, Chicago, Denver, Orlando, and Washington, D.C. Call (800) 255-8800 for more information.

Check with your local community colleges and universities for desktop publishing classes—many are offering them, as are most computer training schools.

Style Sheets on Disk

Predesigned style sheets can be a big help, especially for novice desktop publishers. Such style templates contain practical tips about the basics of design and show how to quickly modify a style sheet. You load in your own text and graphics files and then tailor any element of the page layout to fit your publication.

For Ventura Publisher. *Designer Disks* explain and demystify some of *Ventura Publisher*'s more intricate functions and illustrate proven design techniques to help users quickly produce attractive, effective documents. The style sheets serve as templates for newsletters, manuals, catalogs, directories, and many other applications. The *Designer Disk Collection* of 23 style sheets is available by mail order only for $45 from Designer Disks, Box 480265, Department C, Los Angeles, California 90048.

For PageMaker. Aldus's Portfolio Series offers templates of page designs for business applications. Three packages, each with about a dozen style sheets, cover newsletters, manuals, and business documents. Aldus, 411 First Avenue South, Suite 200, Seattle, Washington 98104; (206) 628-2375; $99.

Recommended Reading List

There are several periodicals that deal specifically with desktop publishing, and many books that address both design and electronic publishing techniques. Here are a few of the best.

The Graphics Handbook, by Howard Munce (North Light Publishers). This book aims to take the fright and mystery out of the design and preparation of simple printed pieces, and it really does make the mechanics seem easy. Generously illustrated with hundreds of graphics examples from the most popular applications.

Mastering Graphics, by Jan White (R. R. Bowker). This is an excellent book for those who want to learn more about design and layout. The author spent 22 years as an art director for major magazines, and what he doesn't know about graphic design isn't worth knowing. His book covers all the basics, including type specifications, cropping photos effectively, and numerous design alternatives.

Publishing Power with Ventura, by Martha Lubow and Jesse Berst (New Riders Publishing). This is an in-depth guide to mastering all of *Ventura Publisher*'s desktop publishing features, with an emphasis on the actual production of business documents. Each chapter contains all the step-by-step instructions necessary to produce different applications such as a newsletter, flier, or proposal. This kind of follow-along guide is very helpful for the beginner. The book includes useful shortcuts, design tips, and over 360 screen illustrations.

WordPerfect 5: Desktop Publishing in Style, by Daniel Will-Harris (Peachpit Press). One of the most popular word processing programs has recently added a slew of desktop publishing features, and this book explains them all, offering full-page examples with all the commands needed to reproduce them. Covering basic graphic-design techniques, this book simplifies complicated tasks for the beginner and contains tips and tricks including macros and many undocumented features for the advanced user.

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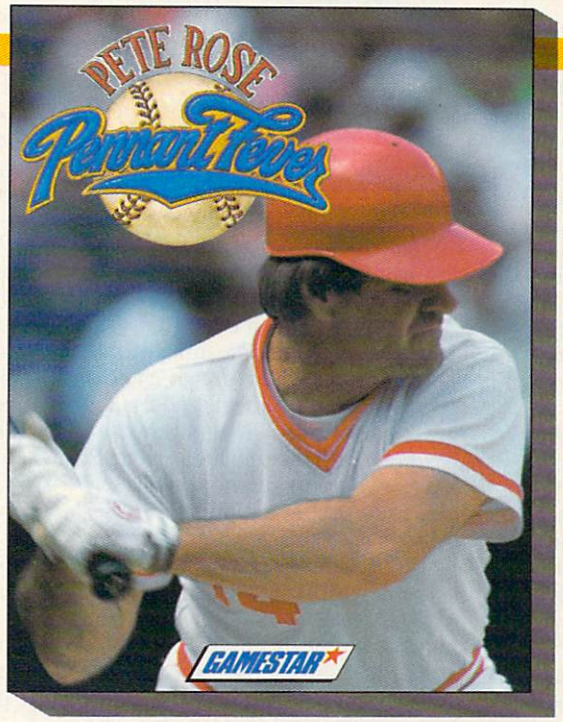

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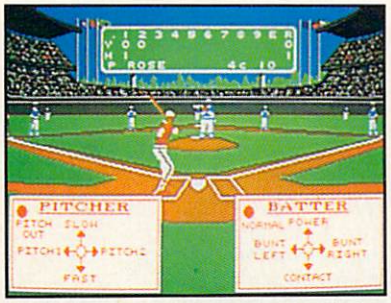

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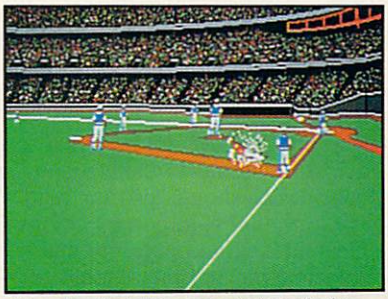

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package. *PageMaker, Ventura Publisher,* and *WordPerfect* all have both automatic and manual kerning capabilities.

You Style Maker, You

Look at some of your favorite magazines and note how, while each page is different, there are obvious similarities in style—a header or footer that ties things together, a certain way of boxing pull-quotes, a different typeface for captions from the one used for regular text. These design elements give a publication its own unique, easily recognized style.

Pull-quote is a magazine term for text set in a larger size and positioned within an article to highlight an intriguing phrase or emphasize a particular point. It's another chance to grab the reader's attention and keep it on the page. Pull-quotes (commonly called *readouts*) are often used on a page to add visual interest when there are no photos or artwork. Pull-quotes, in fact, can be thought of as another type of graphic element.

Developing a standard page structure will help you organize your words and pictures so that they'll be consistent throughout your work. While different page layouts within a single piece can add variety, it's easy to have so much variety that the reader is no longer sure what he or she is reading.

The message you're trying to get across is the most vital element. Your page design should lead the reader's eye to the most important things first. Headlines should not only make the subject clear, but they should be placed so that they sit directly above the article itself; otherwise, the reader—not knowing which article goes with which headline—will be confused, and eventually will find something better to do.

Variety and contrast are instrumental in creating a pleasant texture on a page; they can be achieved by using numerous different graphics techniques. A large capital letter, either raised or dropped, at the beginning of a paragraph will attract attention and serve as an invitation to begin reading. Gray columns of type in long rows can be made more inviting by breaking them up with subheads, or by setting the first few words of a paragraph in boldface. Using different sizes and variations of a single typeface for headlines adds contrast, yet maintains consistency and makes for an interesting page.

Pull-quote *is a magazine term for text set in a larger size and positioned within an article to highlight an intriguing phrase or emphasize a particular point.*

All these elements provide visual clues to amplify the meaning of the words. Some of these design choices have a subliminal effect, and many readers remain largely unaware that they are being manipulated by graphic design. Would-be desktop publishers need to notice and apply these techniques to their own publications.

While computers allow you to have many different typefaces, borders, boxes, graphics, and screens on a single page, using them all at once is the most certain way to make a page unintelligible. In good graphic design, every element is on the page for a reason. If you can't come up with a reason why that 2-point border is going to help the reader notice or understand the material inside it, get rid of it; otherwise, it will just be a distraction.

Thumbs Up for Thumbnails

Careful preparation before you begin will save you a lot of time and aggravation in the long run. Sophisticated page-layout programs such as *Ventura Publisher* and *PageMaker*—and even less complex packages such as *geoPublish, Springboard Publisher, First Publisher,* and others—make it easy to try out many diverse styles on a single document. However, it's easy to get so excited about the program's abilities that you forget about design, forget about content, and just wade into the job. A little homework and planning here will pay off later.

Before you touch the computer, prepare a sketch—that's right, with pencil and paper. Make several fast, small sketches that will help you get the feel of the overall page or publication design. In publishing parlance, these are called *thumbnails.*

Putting the publication together

Rules of the Road

Page composition can become complex as you juggle several unrelated items on the same page. It's important to make it easy for the reader to follow an article from its beginning to its end. Toward that end, here are a few *Don'ts* in publication design.

Don't

- Mix typefaces of body text. Don't set one article in Times Roman and another in Helvetica.
- Mix sizes of body text. Body text should always be the same point size.
- Mix too many different typefaces in one publication.
- Use too many *swash* or special-effects fonts, such as drop caps or raised initial caps. Also avoid the overuse of outline and shadow fonts.
- Set long blocks of text in italic, bold, or all capital letters.
- Begin an article without a headline.
- Place smaller headlines above larger ones. The most important material should be at the top of a page, with the biggest headline. (An exception here is a *kicker*, a small headline placed immediately above a main headline.)
- Have more white space below a headline than above it.
- Use the same font, size, and style (such as Helvetica 24-point bold) for every headline. Headline weights and styles should be varied, such as Helvetica 30-point bold for an article at the top of a page and 24-point italic for one further down the page.
- Place two articles directly next to each other, so that their headlines bump against each other.
- Continue an article on more than one page.
- Place advertisements in the middle of the page (floating among articles as if they were illustrations).
- Box text without enough white space around it so that the border is too close to the type.
- Use a flamboyant typeface for a serious document.

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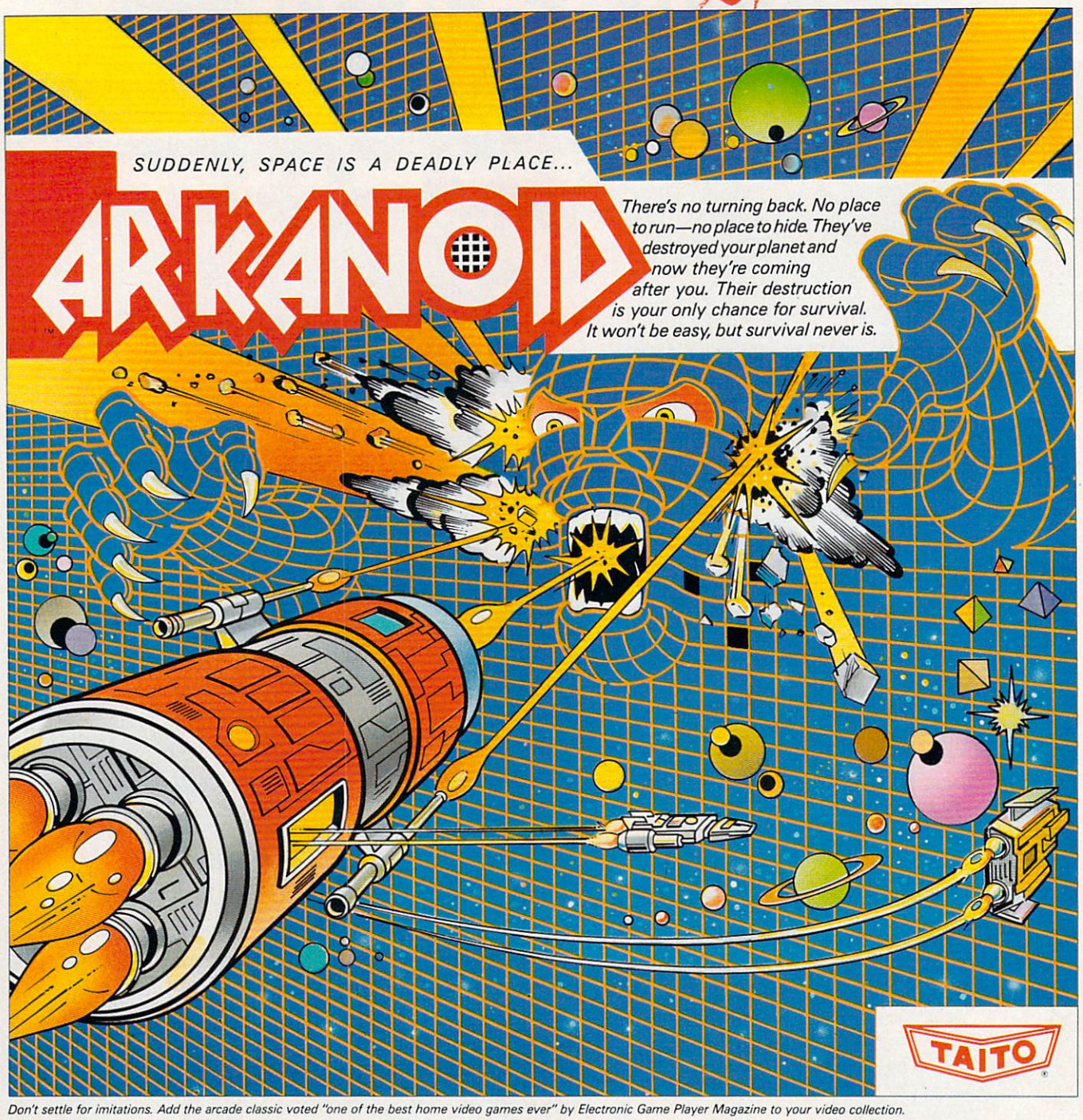

Don't settle for imitations. Add the arcade classic voted "one of the best home video games ever" by Electronic Game Player Magazine to your video collection.

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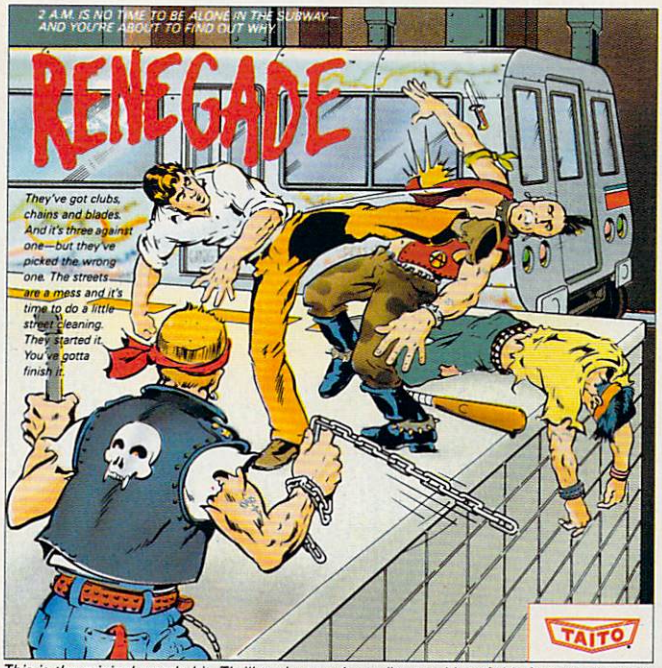

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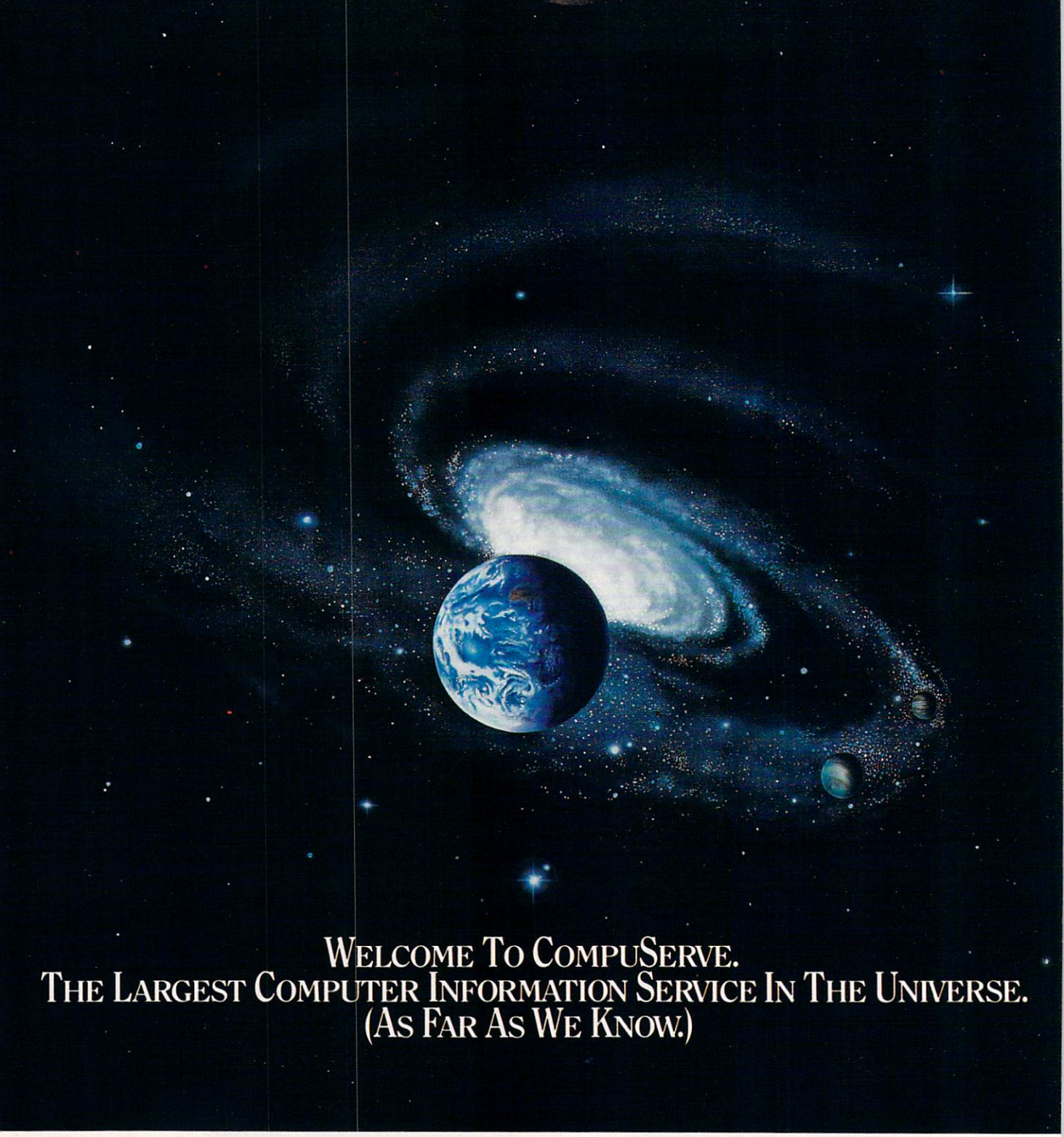

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on the computer can be a breeze once you have an idea of what you want on paper. Making several thumbnails lets you explore the overall design; since they're small, you can draw a lot of them, and draw a lot of comparisons as well.

No matter what software and hardware combination you use, the first time you create any publication, it's going to take longer than you think. Some people get a program, and without really spending the time to learn how it works, they try to produce the company, club, or school newsletter. What looked like an afternoon's or evening's work instead takes days. Frustration comes next, then blame heaped on the software. Both are unnecessary.

Plan ahead—it's that simple. Know how long your material is; write suggested headlines (it's easier and quicker to modify something that already exists than it is to create something from scratch); put subheads in long articles while you're in the word processing program (you can always cut them out if the article runs too long, and it's faster than having to write them while trying to design the page). Use a spell checker on the copy if your word processor offers one; do your copy editing before you start working on the page layout. These are steps you have control over—after all, it's not the fault of the page-layout program if delays caused by spelling errors and grammar mistakes hold up the layout and production.

Try to take the time to make a style sheet for your publication before you have to produce a finished product. If possible, take some old word processing files and try to recreate a previous publication with your new page-layout program.

Less Is More—Really

If you're just starting to explore desktop publishing, keep page composition simple and clean. Don't mix too many different typefaces, and don't use unnecessary rules, which only serve to muddle the reader (see the sidebar "Rules of the Road" for more *don'ts*).

Rules are meant to separate things. They're not merely ornamental. Don't use them to divide material incorrectly. It's almost never a good

A Fount of Fonts

The next time you look through the day's mail, think about how you recognize certain pieces of mail simply by the letterhead type on the return address. You don't really stop and read letters that form the name. You instantly recognize who sent what just by the way the type forms the words. When you look at a magazine and see ads for IBM products, notice that they always have the same typeface; a large part of IBM's corporate identity is the type it chose to represent itself.

If you're going for a modern, slick, up-to-the-minute look for a publication, you may want to choose from the sans-serif family of fonts, such as Helvetica, Futura, and Avant Garde, for headlines. If you want to give your pages an elegant, polished appearance, you'll probably choose a serif typeface such as Galliard, Korinna, or Palatino. These dignified faces are also appropriate for formal invitations and announcements.

Type can be as decorative as any kind of illustration and can communicate feeling as well as words. Here are some examples:

Modern
ITC Avant Garde Gothic

ELEGANT
Palatino Small Caps

Studious
New Century Schoolbook

Elegant
Palatino Shadow

Elegant
Palatino Roman

Elegant
Palatino Outline

Direct!
Futura Extra Black

Elegant
Palatino Italic

Inviting
ITC Galliard Italic

Elegant
Palatino Bold

Versatile
Optima

NUMISMATICS

RemuneraTion

The journal for know-nothing design and money-grubing slime — December, 1988

Inside This Issue

2 Faculty DTP instructor profiled.

4 These listing are too large.

6 And too close together.

8 Who *do* we appreciate?

Kicker over head

This Headline should be bigger

What is desktop publishing? It means different things to different people. To some it simply means setting type with a computer, on any of a variety of printers. To others it means creating the entire finished page on computer: writing the text, laying out the page, merging in the graphics, and finally printing a finished page on a laser printer or digital typesetter.

According to the ABC program "Business Week," by 1991, desktop publishing will be a three billion dollar industry.

Who will Benefit from Desktop Publishing? You will. Yes, you. The one flipping through the pages looking for the funny drawings. You may already be a publisher. Yes, you!

Publishing doesn't mean just books and magazines. If you're part of an office, school, any kind of organization or club, you're probably already creating a newsletter or flyer of events.

If you work in any business, such as a real estate office or travel agency, you need to send out promotional flyers about your hottest listings, or bargain travel packages.

In the past, you've either had to type everything up and stick it on a page, or send it out to a typesetter and have a graphic artist paste up for you, which, before I arrived, cost about $1,000 per issue to produce. After I arrived, the costs dropped to almost nothing (although I must admit the Oreo budget rose dramatically).

The first major expense is typesetting. On a twenty-four page newsletter, if you sent typed pages to a typesetter, you should expect to pay about $500. If you prepared the copy on computer and sent it to the typesetter via modem (over the phone lines), that cost would be lowered to about $300 because the copy would not have to be retyped by the typesetter.

(These typesetting charges included corrections, inevitable, because some

cont'd p. 4

Headline is too big

By Author's name

Either way, an unpretentious little newsletter can quickly become so tedious and time consuming that you'd like to trick someone else into doing it for you.

So, if you're already a publisher, desktop publishing may be for you. It can even be fun, depending on how easily you are entertained.

Where was I?

On the following pages you will find examples of what you can do if you are: a small business, quick-print shop, ad agency, school, theater, fund raiser, restaurant, real estate office, fake estate office, travel agency, mail order catalog, writer, or an unpublished writer

A Word From Our Sponsors

Now you have to measure the type and make a dummy. A dummy is a simple mock-up of a page showing the basic format and where each story, picture, or piece of artwork is going to be placed on the page.

con'd p. 5

Numismatics

REMUNERATION

Good design for fun and profit — *May 1989*

From the President

Publishing Profits Up

By P. Tanner

What is desktop publishing? It means different things to different people. To some it simply means setting type with a computer, on any of a variety of printers. To others it means creating the entire finished page on a computer.

Writing the text, laying out the page, merging in the graphics, and finally printing a finished page on a laser printer or digital typesetter. According to the ABC program "Business Week," by 1991, desktop publishing will be a three billion dollar industry.

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Publishing doesn't mean just books and magazines. If you're part of an office, school, any kind of organization or club, you're probably already creating a newsletter or flyer of events.

If you work in any business, such as a real estate office or travel agency, you need to send out promotional flyers about your hottest listings, or bargain travel packages. In the past, you've either had to type everything up and stick it on a page, or send it out to a typesetter and have a graphic artist paste up for you. Either way, an unpretentious little newsletter can quickly become so tedious and time consuming that you'd like to trick someone else into doing it for you. Doesn't that sound nice?

Continued on page 3

May Events

President's Birthday 5
Design Competiton 19
Tree Planting 23
Wall Street Tour 29

News Briefs

So, if you're already publishing something, desktop publishing may be for you. Here's more news for desktop publishers--it can even be fun, depending on how easily you are entertained and amused.

On the following pages you will find examples of what you can do if you are: a small business, quick-print shop, ad agency, school, theater, fund raiser, restaurant, real estate office, fake estate office, travel agency, mail order catalog, writer, unpublished writer looking for a way to do it yourself, home business, teacher, student, or any generally self-employed type.

Do you want to cut costs? Consider the production expenses

President Tanner

"Who will benefit from desktop publishing? You will. Yes, you - the one flipping through these pages looking for the funny pictures."

Inside

2 What's happening. Read all about it.

4 These numbers are not too large.

6 The white space is used correctly.

8 Who do we appreciate?

BEFORE

This is an example of what not to do. As the first page of a newsletter, this has too much material crammed onto the page, and in all the wrong proportions.

The name of the newsletter tries to be artful by capitalizing the *T* and centering *Numismatics* between the two uppercase letters. The publication's motto and dateline are too large and bold, giving the headlines too much competition and making the top of the page much too busy.

The rest of the page is divided into four unequal columns, with trapped white space between the first and second columns. In the first column, blurbs about material on the inside pages are overpowered by enormous numbers inside gray screens. There is no consistency of spacing—some of the blurbs are directly beneath the boxes, but the blurb for page 6 is sitting atop the number 8.

The headlines in the first and second columns are the same size, the same typeface (Helvetica), and, positioned as they are, difficult to read. (These are *bumping heads*.) The kicker over the middle headline is too close to the nameplate of the newsletter; it should be closer to the top of the headline. There is not enough white space under the headline (the descenders run into the first line of the article). The article flows newspaper-style into the next column, but it is too close to the nameplate. The headline should have been one line extending across both columns under the nameplate instead of two lines in the middle column. The article in the third column has a headline that is too big, and the byline has too much space underneath it.

All of the body copy is set block style, with no indention at the beginning of a paragraph, which makes it extremely difficult to tell where paragraphs begin. Also, the body text is Helvetica, the same font used for many of the headlines; using the same font for everything makes the page very monotonous and dull.

Photos and artwork are supposed to enliven and enrich the material around them, but because of the size and poor positioning of this illustration, it doesn't add anything to the page.

AFTER

This design gets almost the same amount of material on the page, but does so in a balanced, inviting way. The nameplate, set in Times Roman, uses two solid black squares to define the corners; the centered motto and dateline are a good size and are surrounded by ample white space.

The large one-line headline extending over two columns is aligned flush left, as is the kicker, *From the President*. The correct amount of white space falls above and below the headline. The author's byline is aligned flush-right because of the raised capital letter of the first paragraph. If the large initial letter had been dropped into the paragraph instead of being raised, the byline could have been centered above the paragraph.

The font for the body text is Times Roman, and the paragraphs are indented, making them easy to follow. The body copy is set ragged-right to achieve an informal and friendly feeling, and a thin rule appears in the gutters between the columns, helping to define the unjustified text. The *News Briefs* headline is the proper size, with the proper spacing above and below it. Notice the white space in the far right column next to the headline.

The illustration is in correct proportion to the other elements on the page, drawing the reader's eye to the pull-quote beneath it. Notice the ample leading between the lines of the pull-quote. This is a good example of type being used as a graphic element to attract the reader's attention.

The *Inside* listings under the pull-quote are also large enough to be highly visible, but they aren't so large that they are overwhelming. Note the even, consistent spacing between the listings and between all the elements on the page. A box containing calendar information anchors the lower left corner and balances the strong visual interest created by the *Inside* listings. All three columns align evenly at the bottom.

The contrast between the bold, sans-serif headlines and the casual, free-flowing body text builds an interesting texture on the page, combining many diverse elements without the page becoming cluttered or crowded.

idea to put a full line under a headline; this separates the title from the material it's supposed to accompany, defeating the purpose of the headline.

This may seem simple, but it's a mistake novices often make. If you feel you need a ruled line to make a deliberate separation of the elements on a page, place the line *below* the end of one article and *above* the headline of the other.

Keeping things simple doesn't mean they have to be Spartan; it just means that you should stress with subtlety. If readers spend too much time oohing and aahing over the lines, typefaces, graphics, and boxes, they're not spending their time reading. What's the point of making something look good if you're making it hard to read at the same time?

Head Hunters

A headline should attract attention, convey a quick message, and persuade readers to read the text that follows. David Ogilvy, of the advertising agency Ogilvy and Mather, says that headlines are read five times more often than the material beneath them. A good headline should compel a reader to want more information.

Headlines can be placed above text either flush left, flush right, or centered, depending on the design style you choose. They should extend across most of the width of the column they occupy, because a short headline leaves a white space that looks like an unintentional hole.

The headline should always be placed close to the beginning of the article, not far above it. Place white space *above* a headline, not below it (except when it's at the top of the page).

Don't place two articles right next to each other, beginning on the same line. This will create *bumping heads:* The headlines will run together, becoming confusing and hard to read (this is also called *tombstoning*). It's usually possible to change the layout, making it more horizontal, or to eliminate the problem by moving artwork around. More often than not, there will be several ways a layout can be rearranged to make it better. Don't be afraid to experiment.

Copy Cats

The current graphic-design trend used by many magazines, tabloids, and videos seems bent on proving that type styles, sizes, angles, lines, images, and text can be mixed together on one page without making the reader dizzy. Some succeed, some don't. This new-wave design is difficult to execute properly and often draws more attention to the design than to the content.

There's nothing wrong with following the latest trend, but you shouldn't bend to the latest fashion at the expense of turning off your readers. Much new-wave layout is in a style that breaks the rules of good design; would-be designers need to remember that. When it's done well, this type of layout can be attractive and attention-getting, but, as with many trends, it is often pushed beyond its effectiveness.

The biggest mistake in new-wave design is that the pages tend to be overdone. There's a fine line between artful and artless, and unless you know what you're doing, it's all too easy to fall into the latter category. Done poorly, this trendy type of layout marks you as a rank amateur and weakens the credibility of whatever you're publishing.

The ease of layout and paste-up with desktop publishing programs makes it very easy to attempt new-wave pages. Even the unadventurous can produce these pages. That's the problem: It's so easy to change column widths, mix typefaces and sizes, and add screens and graphics that you can get carried away before you notice how cluttered and unfocused the page looks. Always keep the reader in mind when you're designing a page. Special effects can add some sparkle to an otherwise gray page, but used incorrectly, they puzzle readers and encourage them to just look at the page rather than actually read it.

Master the basics of good graphic design before trying something more complicated. Graphic design is one field where the phrase *If a little is good, more would be better* doesn't apply. Try adding elements one at a time, rather than all at once, on the same page. If you plan in advance and keep it simple, you can't go wrong. ⊡

Daniel and Toni Will-Harris own a publication consulting firm in Los Angeles and are the authors and editors of several books about computers and desktop publishing.

Newsletter Design

If an article doesn't fill the space you've allotted for it, there are several steps you can take. Don't simply make the type larger or change the leading—that will make the article stand out for the wrong reason.

1. If it fits with the page design, add a few subheads to the piece. If the article is an inch short, adding three or four subheads will fill the blank space and give readers additional information to help them through the article.

2. If the story already has subheads, or you don't want to use them, find a passage that will grab the reader's attention, and make it into a pull-quote. This can be anything from a few words to an entire paragraph—whatever you need to make the article fill the space.

3. If the page composition accommodates it, you can set the entire article two or three picas narrower and box the article with a one-point rule. This will add emphasis to the article.

Headlines

Headlines are usually set in upper- and lowercase letters, since the combination is generally easier to read than headlines set in all caps. Readers recognize words not only by how they're spelled, but by the shapes they form. Words in all caps form rectangular blocks and are harder to recognize as specific words, thus slowing down a fast reader and discouraging a slow one.

All material needs some kind of identification, including stories continued from one page to another. A simple *continued from page 1* in 10-point type is not an acceptable substitute for a headline. When readers looking for the continuation of the "Dolphins Speak to Researcher" article turn to that inside page, they need some kind of help to find it. It may be as little as one or two words from the original headline, such as *Dolphins Speak* or even just *Dolphins* if the story now fits one column.

PRINT THAT PAGE

Arlan R. Levitan

Printers make pages come alive. To really impress, you need to put clean characters and attractive art on paper. Here are six affordable printers that top our list.

Paperless publishing is a myth. Take a look around your computer. More than likely, there's lots of paper lying around. *Lots* of paper.

Paper for letters, for homework, for financial calculations—for almost everything that comes out of your computer. If it appears on your screen, chances are you'll want to put it on paper. And if you're excited about desktop publishing, you'll have stacks and stacks of paper—club newsletters, school newspapers, office reports, and more.

To put words and numbers on paper, you need a printer. You probably already have one somewhere—an old printer under that stack of paper in the corner, perhaps.

But printers, like the rest of the hardware in personal computing, get better and cheaper with each passing year. Laser printers, ink-jet printers, 24-pin printers—today's models produce print that you can be proud of, print that looks professional.

Twenty-four–pin dot-matrix printers, in particular, are becoming the first choice for millions of computer owners. Although they've been on the market nearly four years, it's only recently that 24-pin printers have been affordable to the home user.

In both quality and speed, they run rings around the 9-pin printers everyone associates with ragged type and spotty graphics. Today's models are impressive and powerful peripherals. Their print quality meets or beats that of top-of-the-line daisywheel printers, and they spit out the pages much, much faster. And in some respects, 24-pin printers can even rival a laser printer for clean type and clear graphics.

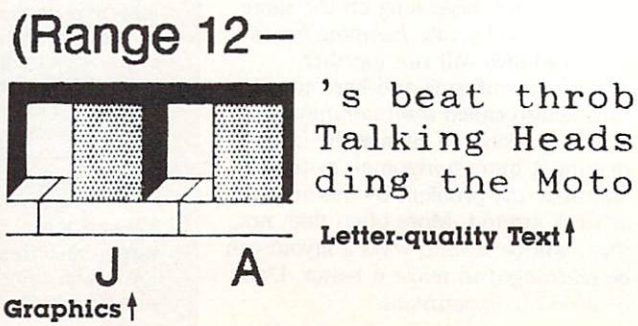
We recently took five midpriced 24-pin printers and one fascinating ink-jet model for a spin. Here's what we found.

Epson LQ-850

The Epson LQ-850 is a worthy addition to Epson's LQ printer line, combining very-good-quality text production with convenient forms handling. Epson rates the LQ-850 at a maximum speed of 73 characters per second (cps) in ten-pitch letter-quality print mode. It took the LQ-850 2:23 (two minutes, 23 seconds) to run through our text test, yielding an effective rate of 58 cps. The LQ-850 has two built-in letter-quality fonts. We preferred Epson's roman font to its stark sans serif. In draft mode, we pegged the LQ-850 at a very respectable 137 cps (versus the company's stated maximum of 220 cps). We judged the draft font to be well formed and easy on the eye.

The LQ-850 ran through our graphics test with jackrabbit speed. It printed our test graph in only 1:43, a full 43 seconds faster than any of the other printers tested. Apparently, that speed carries a small price. The gray areas of the test graph had a slightly smudged, uneven look, and a few straight lines appeared somewhat jagged. At first we attributed the former to a dried-out ribbon, but we got similar results with a fresh ribbon.

Push-button controls with indicator lights located on the top of the printer allow easy print-mode selection. The LQ-850 also lets you switch between fanfold forms and cut sheets without removing the continuous forms from the printer. Plug-in font modules (Courier, Prestige, Script, and OCR-B) and a cut-sheet feeder for up to 150 sheets are optional accessories.

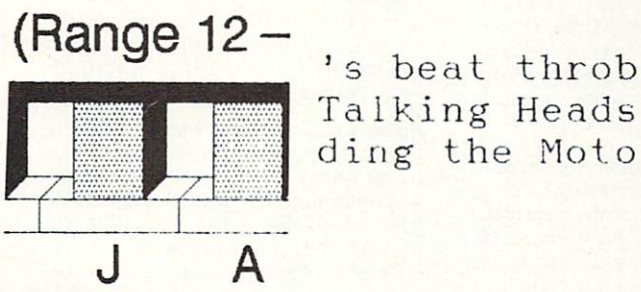


Star NB24-10

The Star NB24-10 is a straightforward printer with reasonable speed and print quality. A year ago we probably would have raved over the NB24-10, but in today's lineup of 24-pin printers, some might argue that there is little, if anything, that distinguishes it from the competition. Speed of the NB24-10 in letter-quality mode was a respectable 46 cps (versus the quoted 60-cps maximum). The Star fared far better in the draft test, chugging along at 91 cps (versus the quoted 180-cps maximum). Text quality was good overall, but it suffered in comparison to most of the other printers we tested.

At 3:10, the Star's graphics performance was also a bit on the slow side, but the NB24-10 produced very uniform gray patterns and good-quality black areas, and it had excellent linearity.

We appreciated the front placement of the Star's control panel, but were irritated by an interlock switch that prevented the printer from operating if we lifted the front printer cover to take a peek at what the printhead was laying down in the midst of a document. The NB24-10 has two cartridge slots that accept optional font cartridges.

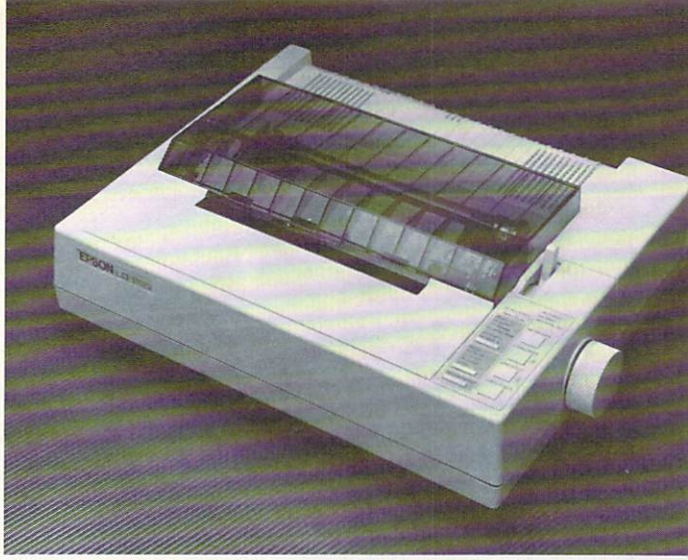


Okidata Microline 390

The Okidata Microline 390 is the most compact unit we tested, making it a good candidate for work areas where desk space and speed are at a premium. The Okidata came in first in both our letter-quality (2:16) and draft (0:59) text tests. The 390's measured letter-quality speed of 62 cps was admirably close to its stated maximum of 75 cps. There was more of a gap in draft mode, where we stacked a measured 142 cps against a claimed maximum of 225 cps.

Text produced on the 390 was strikingly black. The thickness of the internal letter-quality Courier font is a bit on the heavy side, with a slightly closed look that may not appeal to everyone, but it is still quite presentable. The printer's draft font was very good, second only to that of the HP DeskJet in clarity and appearance. The Okidata came in second in our bitmapped graphics test (2:27), exhibiting solid black areas, fairly uniform gray patterns, and very good–to-excellent linearity.

The Microline 390 has an autoloading and dual form-feed system similar to that of the Epson LQ-850 and NEC P5200, features we think both desirable and easy to use. The printer had a solid, rugged feel, and the front-mounted control panel is convenient and well laid out. The 390's internal 23K buffer can hold about eight pages of single-spaced text—the largest standard buffer of the units tested. ▷



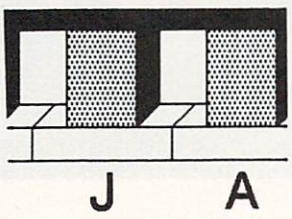
Epson LQ-850

Star NB24-10

Okidata Microline 390

In addition to a cut-sheet feeder, Gothic and Prestige font cartridges are available add-ons.

(Range 12 –



's beat throb
Talking Heads
ding the Moto

J A

NEC Pinwriter P5200

Most 24-pin printers come with one or two letter-quality fonts, with additional character sets typically available as extra-cost add-ons. The NEC Pinwriter P5200 has a veritable cornucopia of fonts, with six letter-quality type styles built in. The P5200 comes packed with both fabric and multistrike carbon-film ribbons.

We used the carbon-film ribbon for our test. With it, the NEC produced very black, sharp characters with a superior appearance. The P5200 did take its time (3:00) punching out that neat-looking text. Its 47-cps speed was just over half as fast as NEC's stated 75-cps maximum. In draft mode, the P5200 produced text at 59 cps, even further afield from the company's rated 220 cps.

Printer Purchasing—What to Look For

Print Quality. The overall appearance of text is likely to be your number 1 criterion for judging the quality of a printer, particularly if you're considering buying a higher-quality model that retails for more than $500. A printer in that price range should be capable of producing characters that exhibit no trace of the dottiness usually associated with dot-matrix printers. The edges of characters should be clean and well defined. In graphics mode, consistency and a quality referred to as *linearity* are quite important: Straight lines printed in graphics mode should be of uniform thickness and devoid of staggered areas. Zones where patterns are printed should be uniform throughout, with little or no patchiness.

Ink. Most dot-matrix printers come with fabric-ribbon cartridges which, when reasonably fresh, produce dark, high-quality characters. Multistrike carbon-film ribbons are beginning to show up for some brands of dot-matrix printers. Carbon-film ribbons are usually about 50 percent more expensive, but they yield exceptionally black and clean characters. Check out the price and availability of replacement ribbons before you buy a printer. (We once bought a fancy new German printer only to find out later that a replacement ribbon would take over a month to arrive and would cost almost $30.)

Font Design. Closely related to print quality is font design. Although there are a number of generic font types common to most printers, there is no agreed-upon standard for individual characters. For example, most printers come equipped with a Courier-style font. However, the specific shape and design of individual characters of the Courier character set vary slightly from one manufacturer to another. Avoid printers with odd font designs.

Font Styles and Sizes. Many printers come with a variety of built-in fonts in various sizes. Although one or two good letter-quality fonts will likely be adequate for many people, it's certainly convenient to have a wider variety to choose from. Some printers come with slots for optional cartridges that add fonts. Other printers allow character images to be read from a disk file into a special buffer in the printer. Printers that have this feature are said to support downloadable *soft fonts*.

Speed. Generally speaking, the speed at which a printer lays down text on the page bears some relationship to the price of the printer. All other things being equal, the less time it takes to crank out a page, the better. Unfortunately, today's emphasis on speed has created a good deal of confusion, since the numbers advertised by printer manufacturers (usually quoted in characters per second) often differ greatly from the actual usable speed of a printer.

Many manufacturers measure maximum speed by dividing the number of characters in one line of text by the time it takes to print that one line. For example, if a line contains 80 characters and it takes ⅓ second to print that full line, the print speed is 240 characters per second, right? Well, not quite. This method of calculating speed measures the maximum "burst" speed of a printer. It doesn't take into account the amount of time that the printhead pauses or the time required to advance the paper to the next line. These delays make the effective speed of most printers significantly less than what's indicated by the quoted specifications.

Software can also play a major part in the perceived speed of a printer. Some programs are poor at printer control. We ran into a drawing program for the IBM PC that actually took almost two hours to print a full page of hi-res graphics on the HP DeskJet.

Compatibility. Buy a printer that's not supported by the software you use, and you may be in for enough mental anguish to make a case before Printer Divorce Court. Most printers are control-code compatible with the most popular printers so that they're supported by the popular software. Since such printers respond to the same command sequences, they're said to *emulate* the model. For instance, all of the 24-pin printers we reviewed for this article, with the exception of the Apple ImageWriter LQ, respond to Epson LQ-series control codes.

Noise Level. No one wants to hear a printer, especially at home at 3 a.m. If a printer seems too loud during initial tests, it will likely become more irritating as time goes on. Printer muffler enclosures designed to reduce noise levels are inconvenient and expensive. Buy a pair of earplugs or a quieter printer.

Bed Size. Printers don't come in twin, queen, or king size, but they do come with a narrow or wide carriage bed. Narrow-bed printers accept forms up to 10 or 11 inches wide. Wide-bed printers usually handle up to 16-inch forms. Think twice before putting out the cash for a wide-bed printer. It will take up a lot of desktop real estate, and you can increase the number of characters per line on a narrow-bed printer by using a smaller type size. The narrow-carriage printers we tested are also available in wide-carriage versions.

The Rest. All of the printers we tested, except for the Apple ImageWriter LQ, came equipped with parallel interfaces, although serial-interface versions are also available. The Hewlett-Packard DeskJet comes equipped with both types of interface. All had an autoload feature to simplify the loading process by automatically advancing cut-sheet or pin-feed paper to the top of the first page at the push of a button. All of the printers tested support italics, emphasized print, underlining, subscripts and superscripts, and expanded and condensed print. Apple printer products carry a 90-day warranty; the rest of the printers come with a one-year guarantee.

— *ARL* ⊡

Grappling with the Mac

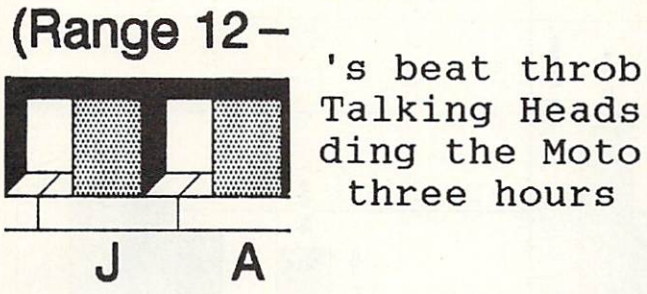
We did functional testing of all of the printers on an Amiga 500, using the printer drivers supplied with Release 1.3 of the Workbench, and on an Apple Macintosh SE. Anyone familiar with the Macintosh is probably wondering how we got all the printers to work on the Mac. The answer, and the freedom from ImageWriter-only printing, is a printer-interface device recently introduced by Orange Micro called the Grappler LQ. The Grappler LQ lets you use many of today's popular 24-pin dot-matrix, ink-jet, and laser printers with the Macintosh Plus, SE, or II. Orange Micro also markets the Grappler C/Mac/GS, an interface for using 9-pin dot-matrix printers with Apple II and Mac systems.

All of the 24-pin printers worked well with the Grappler LQ/Mac combination, albeit at about half the speed of Apple's ImageWriter LQ, probably because of delays introduced by the Grappler's software and hardware. The HP DeskJet was slower yet, but it produced amazingly high-quality output that we preferred to that of the Apple 24-pin printer. Orange Micro's software includes a software-based print spooler which allows you to continue work while the printer is busy, although using the spooler may increase print time even more. If you'd like a 24-pin printer that you can use with the Grappler to do double duty with a Macintosh, steer yourself toward a printer capable of producing very even gray patterns with excellent linearity in bitmapped graphics mode.

— ARL ⊡

While the Pinwriter P5200's 2:48 for a full page of bitmapped graphics wasn't particularly quick, we judged the printer's output in this test to be excellent—among the sharpest we've seen produced by an impact printer. The 5200's bitmap linearity was marvelous, second only to that of the Hewlett-Packard DeskJet. The only flaw we could find was that there are faintly visible bands in the gray-pattern areas of the printout.

The P5200 was also noticeably louder than the rest of the printers in our test. Part of that noise was a loud ratcheting sound that emanated from the ribbon cartridge as the ribbon advanced during printing.

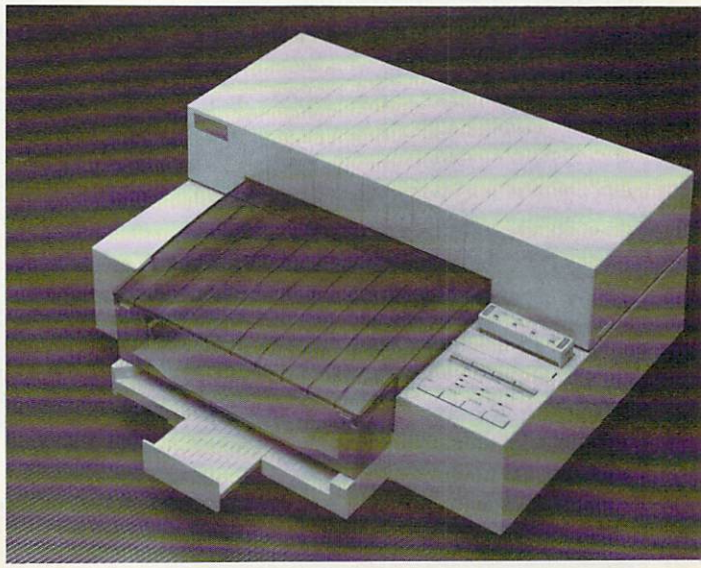


NEC Pinwriter P5200

Hewlett-Packard DeskJet

The HP DeskJet is an intriguing printer capable of producing exceptionally high-quality print. Unlike the rest of the printers tested, the DeskJet does not create characters by striking a ribbon with mechanical pins. The DeskJet is an ink-jet printer; it literally sprays characters onto paper through a set of nozzles in the disposable printhead. This also makes the DeskJet extremely quiet.

The DeskJet's letter-quality text is dark, sharp as a tack, and beautifully formed. Its output under most circumstances is virtually indistinguishable from that produced by a laser printer. Even in draft mode, text looked almost as good as the letter-quality modes of several of the 24-pin printers we tested. We measured the DeskJet's letter-quality speed at 59 cps (HP claims 120 cps maximum) and draft mode at 71 cps (HP claims 240 cps). The wide disparity is due to paper-handling time—the DeskJet accepts only cut-sheet paper, and it takes time for the printer to cycle be-



Hewlett-Packard DeskJet

tween pages. Plain photocopy paper works well with the HP, and the feeder bin accepts up to 100 sheets.

The DeskJet crossed the finish line in the bitmapped-graphics derby with a passable time of 2:34. The graph produced by the DeskJet was almost perfect in every respect. Under extremely close inspection, large letters appeared less rounded than those produced by the impact printers because of the sharpness of the dots created by the HP.

Courier is the only font built into the DeskJet. The DeskJet has two cartridge slots for adding additional fonts. At least a dozen different DeskJet font cartridges are available from HP. The cartridges are somewhat expensive ($100–$150), but they are very easy to use.

Hewlett-Packard and a few third-party manufacturers also market 128K RAM cartridges for support of downloadable soft fonts for the DeskJet. One or two RAM cartridges can be fit into the cartridge slots. Printing with downloaded fonts is considerably slower than using built-in or cartridge fonts, but the added versatility makes at least one RAM cartridge a worthwhile addition. HP sells a set of Helvetica and roman soft fonts for the DeskJet that are just fine, but most DeskJet owners will want to acquire

Print Products

Apple ImageWriter LQ
$1,399
Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010

Epson LQ-850
$849
Epson America
2780 Lomita Blvd.
Torrance, CA 90505
(800) 922-8911

Grappler LQ
$149
Orange Micro
1400 N. Lakeview Ave.
Anaheim, CA 92807
(714) 779-2772

Hewlett-Packard DeskJet
$995
Hewlett-Packard
18110 SE 34th St.
Camas, WA 98607
(206) 254-8110

LJ2DESK
$22.00
S. H. Moody and Associates
1810 Fair Oaks Ave.
South Pasadena, CA 91030

NEC Pinwriter P5200
$749
NEC Information Systems
1414 Massachusetts Ave.
Boxborough, MA 01719
(800) 343-4418

Okidata Microline 390
$699
Okidata
532 Fellowship Rd.
Mount Laurel, NJ 08054
(800) 654-3282 (OKI-DATA)

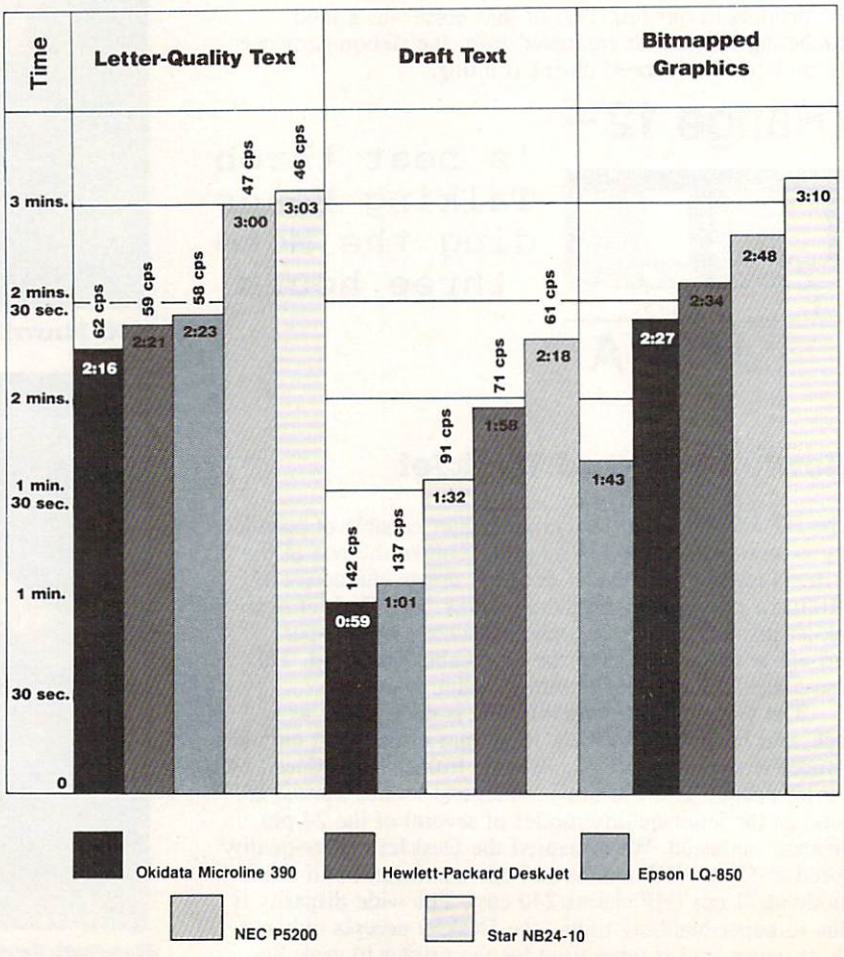
Star NB24-10
$749
Star Micronics America
200 Park Ave.
Suite 3510
New York, NY 10166
(212) 986-6770

Putting Printers Through Their Paces

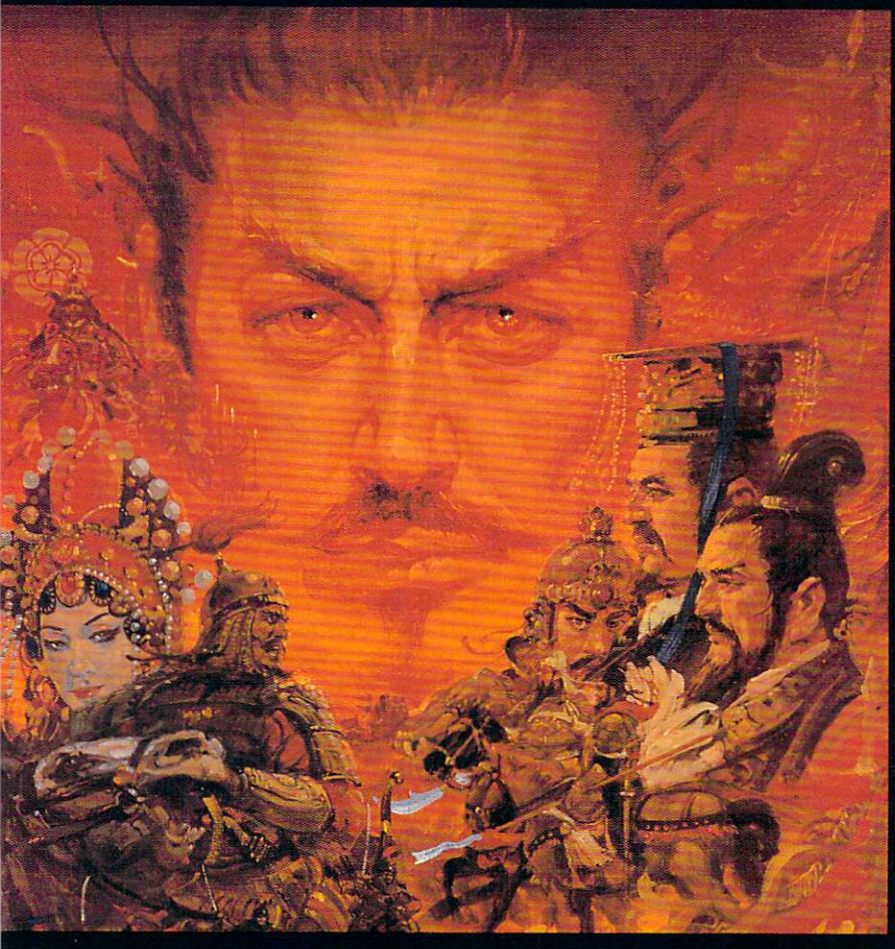
The speed ratings in this article were derived from tests run on an IBM AT–compatible computer (with the exception of the Apple ImageWriter LQ). We ran tests on the printers, measuring speed on both text and bitmapped graphics output. In the character-speed test, we printed a three-page text file that was 8365 bytes long, and we measured the amount of elapsed time from the first to the last character of the file hitting the printed page. We derived our character-per-second speed measurements by dividing the elapsed time by the number of characters in the file. All fonts used for these ratings were ten characters-per-inch internal fonts. The bitmapped graphics test measured the time it took to produce a full page of medium-high resolution (180 dots per inch) graphics. We used *Microsoft Word* 4.0 to print the text file and Digital Research's *GEM Graph* to print a full-page graph. A one-megabyte printer buffer was used to eliminate any software-control delays.

— ARL

Print Test Ranking



KOEI, WE SUPPLY THE PAST, YOU MAKE THE HISTORY.



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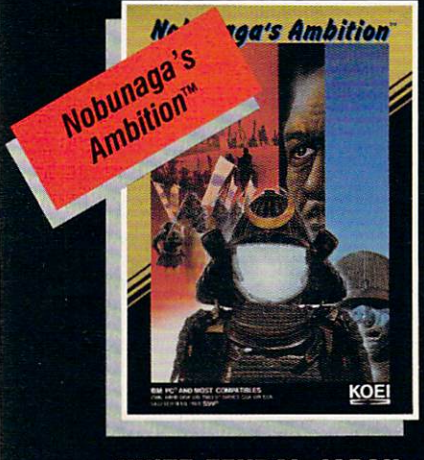

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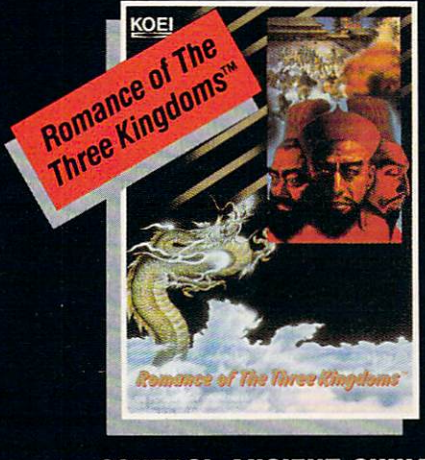
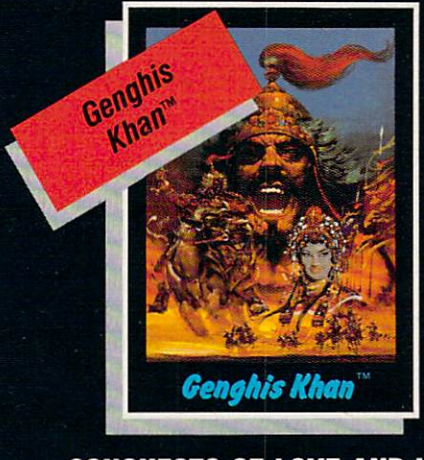
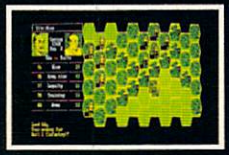


CONTROL ANCIENT CHINA
On Sale Now



CONQUESTS OF LOVE AND WAR
Coming in November



Titles available on IBM 3½" and 5¼" formats. Other popular formats coming soon.

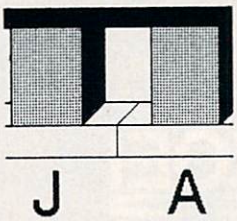
IBM is a registered trademark of International Business Machines Corporation.

LJ2DESK, a program marketed by S. H. Moody and Associates that converts soft fonts for the LaserJet to DeskJet format. There are hundreds of PC-compatible shareware fonts available for the LaserJet, and we had a ball playing with a few dozen of them during our tests.

The DeskJet is compatible with most HP LaserJet control codes. Almost all of the software we tested that supports the HP LaserJet worked well with the DeskJet. An Epson FX-series emulation cartridge is also available. Unlike the LaserJet, the DeskJet requires an add-in cartridge to print text in landscape orientation. Bitmapped graphics will print in either portrait or landscape orientation.

Output produced on the DeskJet does have one possibly fatal flaw. The ink currently used by HP in the ink-jet printhead is water-soluble. Spill some coffee on a page or get caught in the rain with DeskJet output, and the characters smear and smudge badly. Hewlett-Packard is said to be working on a more permanent ink, but until then, if you buy a DeskJet, don't go near the water.

(Range



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Talking Heads
ding the Moto

J A

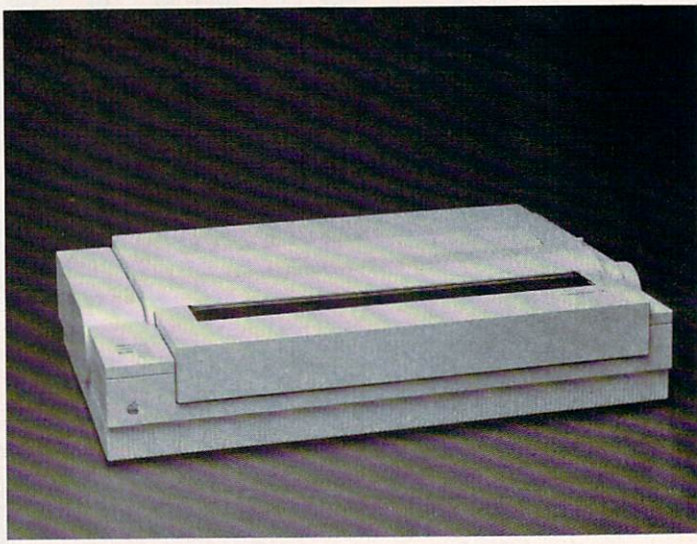
Apple ImageWriter LQ

If you don't want to deal with the vagaries of Orange Micro's Grappler LQ interface (see the sidebar "Grappling with the Mac"), there's still hope for Apple II and Macintosh owners who want to join the 24-pin club.

When the LQ is connected to the Apple IIGS, IIe, or IIc, its built-in fonts are used for text. The Macintosh prints text on the ImageWriter LQ from font images stored in the computer's System file. Apple provides three letter-quality fonts suitable for document processing on disk with the LQ (Times, Helvetica, and Courier). The LQ can print other Macintosh fonts, but their overall appearance will not be as finished and smooth as that of fonts designed especially for the printer.

Although we didn't connect the ImageWriter LQ to our PC AT clone for a text test, we measured the ImageWriter's average speed at a little less than 60 cps when used in letter-quality mode on an Apple II system. The printer's internal Courier and Times fonts were clear, sharp, and visually pleasing. Speed in letter-quality mode using the Apple-supplied fonts was closer to 50 cps on our Macintosh SE.

The LQ did an excellent job on our Macintosh graphics printouts, producing crisp images with excellent linearity and gray-pattern uniformity. Page-print time ranged from a little over two minutes to almost eight minutes for a full page, depending on the print-quality level selected and the complexity of the graphics. While this may seem a long time, the LQ was almost twice as fast as a non-Apple 24-pin printer equipped with the Grappler LQ, which is probably more attributable to translation delay in the Grappler's software rather than a real speed difference between the ImageWriter LQ and the other printers we tested.



Apple ImageWriter LQ

The ImageWriter LQ can only be purchased in a wide-carriage version, which accounts for a good deal of the disparity in price between the LQ and the other impact printers tested. The ImageWriter LQ accepts up to three cut-sheet bin feeders, supports color printing with a special ribbon, and can also be connected to an AppleTalk network for printer sharing.

eat throbbing
Talking Heads
binding the

Proof in the Printing

All of the printers we tested are capable products, able to produce text that rivals—and in some cases surpasses—the quality of the best daisywheel printers. Our all-around favorite was the Hewlett-Packard DeskJet. Its laserlike output and quiet operation make it a joy to use. Among the 24-pin impact printers, our top choices were the Okidata 390, which successfully combines high speed with superior print quality, and the NEC P5200, for its classy-looking print and varied built-in fonts.

One final word for users on a budget in search of perfect text: If printing graphics is not on your list of requirements, consider picking up a daisywheel printer. The popularity of laser and 24-pin printers has just about killed the daisywheel business, flooding the market with bargain-priced printers. Good-quality 10-cps daisies are regularly sold for a little over $100, with industrial-strength 40-cps units now going for $300–$500. ⊡

Arlan R. Levitan, contributing editor and author of the monthly column "Levitations," is also the hardware analyst for Consumer Guides' *Computer Buyer's Guide*.

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Screen Shots taken from the IBM version.

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In the Beginning . . .

The prequel to the Zork Trilogy is scheduled for release this fall. *Zork Zero,* from Infocom, takes players back to before the beginning.

The game spans one century and explores the collapse of the Great Underground Empire. It features more than 200 locations and as many puzzles as the entire Zork Trilogy. *Zork Zero* also has the distinction of being the first Infocom game to include graphics puzzles. With *Zork Zero,* Infocom also introduces its newest-generation parser, a mouse interface, onscreen hints, and an onscreen map.

Subtitled "The Revenge of Megaboz," the game takes players back to the last days of the empire. Megaboz has cast a spell that has destroyed the ruling Flathead family. The object of the game is to save the rest of the kingdom from the curse of Megaboz.

Zork Zero will be released first for the Macintosh and the Apple II, then for the Apple IIGS and the IBM PC and compatibles. Amiga, Atari ST, and Commodore 128 editions will be available sometime in 1989. All versions will have a suggested retail price of $49.95.

Infocom, 125 CambridgePark Dr., Cambridge, MA 02140

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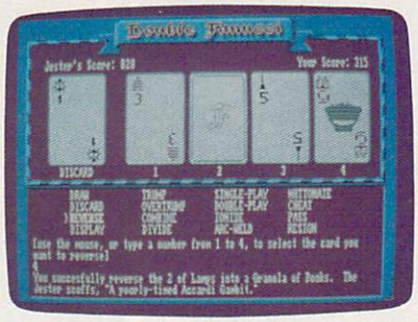

***Zork Zero* is the first Infocom game to feature graphic puzzles.**

Tree86 Sprouts a New Branch

The Aldridge Company has released an updated version of *Tree86.* The DOS-enhancement utility has built-in EGA/VGA and mouse support. Its graphic tree of the logged drive is designed to simplify file and subdirectory maintenance.

With version 2.0, you no longer need to wait when reading tree and drive information on single- or multi-drive systems. The program logs up to 26 drives in memory, uses expanded memory for data storage, has context-sensitive online help, and features a new configuration program to set colors and program defaults.

Version 2.0 of *Tree86* has a suggested retail price of $89.95. An update is available to registered *Tree86* users for $15.95.

The Aldridge Company, 2500 CityWest Blvd., Suite 575, Houston, TX 77042

Circle Reader Service Number 201.

Keyboard for the Disabled

The Unicorn Expanded Keyboard, from Unicorn Engineering, is designed for physically, visually, mentally, and learning-disabled people, providing them with the means to write, play games, learn, and communicate with a computer.

The large touch-sensitive surface can be used in place of a standard keyboard. Its 128 keys can be arranged in prepared or customized configurations. The package includes prepared and blank overlays, along with setup software. With the Echo or other speech synthesizers, users can operate the keyboard as a communication aid.

Unicorn Engineering has also released *Up and Running,* a software program that provides Expanded Keyboard users access to over 50 educational programs, including *The Print Shop, Stickybear ABC, Math Blaster Plus,* and *AppleWorks.*

The Expanded Keyboard can be used with the IBM PC and compatibles, as well as with Apple personal computers. With the Apple II, users must plug the keyboard into the Adaptive Firmware Card interface. IBM PCs and compatibles require the PC Serial Aid interface.

The suggested retail price for the Unicorn Expanded Keyboard is $325.00. *Up and Running* sells for $69.95. The price for the Adaptive Firmware Card ranges from $400.00 to $450.00, depending on the model of Apple computer used. The PC Serial Aid retails for $300.00.

Unicorn Engineering, 6201 Harwood Ave., Oakland, CA 94618

Circle Reader Service Number 202.

Mickey McLean

Paw Print increases mouse traction while protecting desk tops.

PC Peddling

PC owners can hook up their computers to a variety of indoor bicycle equipment with the *Dynalink* system from Calladyne. This computer-assisted data-acquisition and display system links IBM PCs and compatibles to equipment such as wind-load simulators, stationary bicycles, and training rollers.

Speed and heart-rate sensors mount directly onto the bike and the rider, providing realtime display of physiological and performance data. The information is stored at the end of each session, to be examined or printed at a later time.

Users can choose from three types of exercise sessions: the Standard Workout, the Match Race, and Head-to-Head Competition.

continued on page 60

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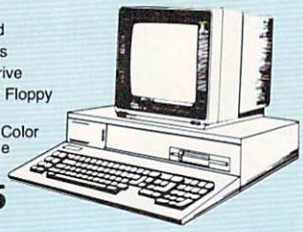

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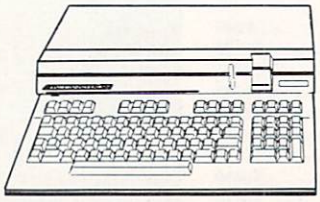

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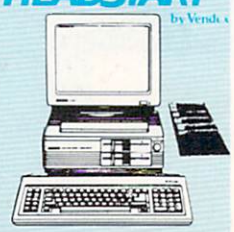

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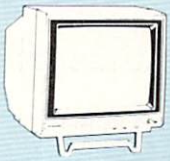

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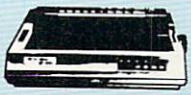

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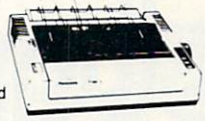
Panasonic Office Automation 1080i Model II



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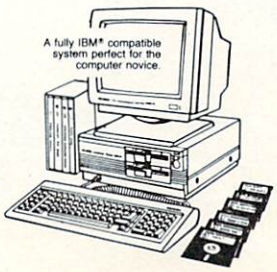

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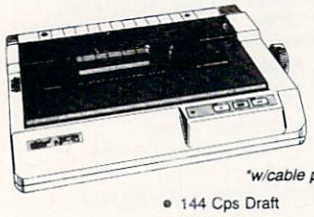

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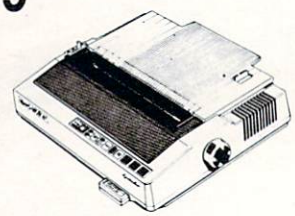

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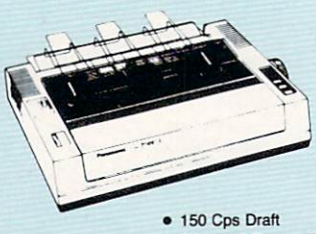

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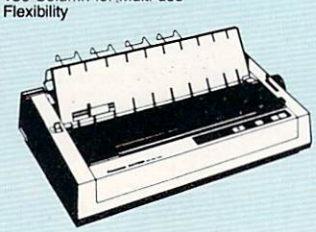

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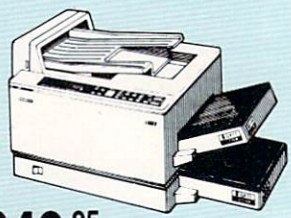

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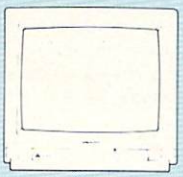

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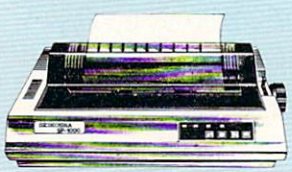

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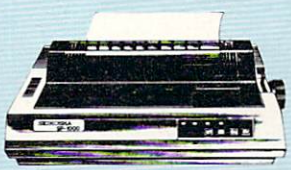

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continued from page 52

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Paw Print has a suggested retail price of $7.99.

Suncom, 290 Palatine Rd., Wheeling, IL 60090
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New 9-Pins from Epson

Epson America has extended its FX line of 9-pin dot-matrix printers with the FX-850 and the FX-1050.

Both printers include the SmartPark paper-handling feature, previously available only on the company's 24-pin LQ-series printers. The SmartPark allows users to switch between continuous-feed paper and single-sheet paper or envelopes without removing the continuous-feed paper.

Both printers operate at 264 characters per second (CPS) in elite draft mode and at 54 CPS in elite near-letter-quality mode. The 80-column FX-850 and the 136-column FX-1050 also offer bidirectional text and unidirectional bit-image graphics-printing capabilities. Other standard features include roman and sans serif near-letter-quality fonts, a built-in parallel port, an 8K buffer, a low sound setting, and RAM battery backup. Both support almost all MS-DOS applications.

The suggested retail price for the FX-850 is $549; the FX-1050 retails for $799.

Epson America, 23530 Hawthorne Blvd., Torrance, CA 90505
Circle Reader Service Number 205.

Amiga Hi-Res

Commodore Business Machines, in conjunction with monitor manufacturer Moniterm, has introduced the Viking 1 high-resolution monochrome monitor for the Amiga. The monitor supports applications such as desktop publishing, CAD/CAM, and graphics illustration.

Features include 1008 × 800 × 2 bit resolution, 72-MHz pixel frequency, and 56-kHz horizontal frequency. The monitor's screen measures 19.6 inches diagonally; the entire unit weighs 36 pounds, and measures 17.8 × 14.5 × 15 inches.

The Viking 1, available through Moniterm, has a suggested retail price of $1,995.

Commodore Business Machines, 1200 Wilson Dr., West Chester, PA 19380
Circle Reader Service Number 206.

Search for Karna

Warlock, a new arcade-action adventure, has been released by Three-Sixty Pacific. Designed for the novice and the experienced game player, *Warlock* features 20 difficulty levels.

Players must find the stolen Karna. During the quest, players encounter a variety of humorous characters. Game features include full-color graphics, animation, and digitized sound.

Warlock is available for the Commodore 64 at the suggested retail price of $29.95. Amiga and Atari ST versions retail for $34.95, and an Apple IIGS edition sells for $39.95.

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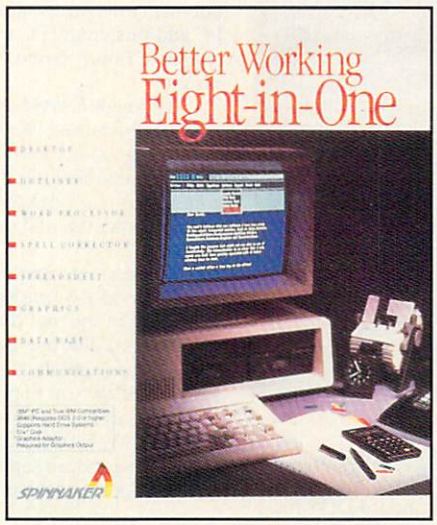

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MS-DOS

It's almost impossible to make meaningful filenames using MS-DOS. Standard DOS filenames are limited to eight characters plus a three-character extension (such as .EXE, .DOC, or .TXT).

Trying to solve the eight-character-limit problem has often led to even more problems. Some programs offered as solutions use a lot of memory, and many of them require a hard disk to run.

Extend-a-Name, a new memory-resident program from World Software (124 Prospect Street, Ridgewood, New Jersey 07450; 800-962-6360; $79.95) allows file descriptions of up to 60 characters. Perhaps *Extend-a-Name*'s most impressive feature is that it uses as little as 37K.

Extend-a-Name works with hard disks or floppy disks. The program stores your extended names in a special file in the root directory of any disk you use. According to Frederick Grossman, World Software's vice president, "Market research showed us that a large percentage of corporate users' PCs are floppy-only machines, so we made sure that *Extend-a-Name* would work well in that environment." That's good news for home users because, although hard disks are undoubtedly the fastest-growing PC add-ons, many PC users still have floppy-based systems.

Although *Extend-a-Name* isn't a full-featured DOS shell, it does offer many useful shell-like features—including the commands copy, delete, assign, rename, tag, and untag files.

The current version puts all of *Extend-a-Name*'s program files in the root directory of your hard disk but, according to Grossman, the next version will allow you to place these files in any subdirectory you wish. World Software is considering mouse support in a future release of the program.

Big Blue's Plans

On March 17, 1987, IBM announced its Systems Applications Architecture (SAA), one major piece of that company's long-range plans for the computer world. At its most accessible level, SAA is a set of guidelines for developing a common user interface for applications programs; at a deeper level, it's a plan to standardize all aspects of computer interaction, including information sharing between micros, minis, and mainframes.

Several of SAA's guidelines may already be familiar. Pull-down menus are the passport to a program's functions, and all menus behave in a similar way. Menu selections are accessed by typing a letter associated with each command. For example, Alt-F brings up the File menu in any application on any system; Alt-F-O opens a file. You can also select commands with a mouse.

Several applications already support SAA: Windows 2.*x*, Windows/386, OS/2, and *Microsoft Works* (notice that all are Microsoft products). More SAA programs will undoubtedly be released in the coming months.

Industry reception to SAA has been mixed. One insider has called it the best thing that could happen to the microcomputer community. Another has stated that SAA simply makes all applications equally difficult to use.

Whether or not they agree with the principles of SAA, PC users will be seeing more SAA applications in the future. Let's hope they're as thoughtfully implemented as *Microsoft Works* and Windows.

News Flashes

MS-DOS 4.0. Microsoft and IBM have announced MS-DOS 4.0, a dramatic enhancement to the most widely used operating system in the microcomputer world. According to sources close to Microsoft, MS-DOS 4.0 includes many of the features of OS/2's Presentation Manager.

Although the interface is text-based (the Presentation Manager is graphics-based), MS-DOS 4.0 reportedly has pull-down menus, dialog boxes, and mouse support. Other enhancements include integrated support for LIM EMS 4.0 (Lotus-Intel-Microsoft Expanded Memory Specification) and hard disk sizes beyond the current 32-megabyte barrier.

Hard Times for Seagate. If you have a hard disk in your PC, chances are it was made by Seagate. Founded in 1979, Seagate has grown into the largest independent supplier of PC hard disk drives in the world. Eager for an even larger market share, the company recently beefed up production. The targets of Seagate's hard disk war were Miniscribe, Tandon, and Priam, the other

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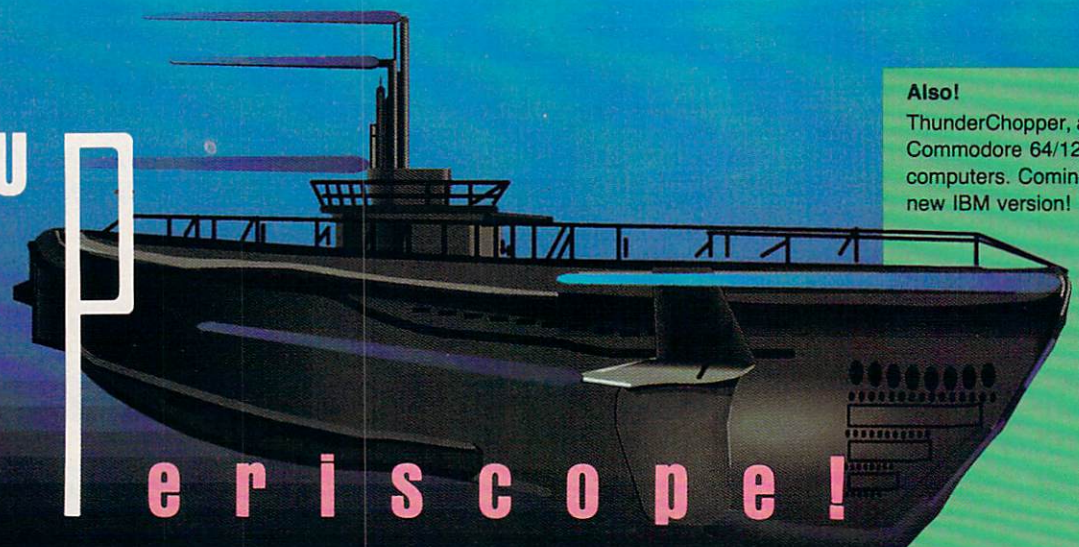

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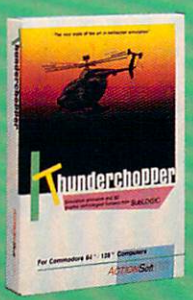


major players in the microcomputer hard disk market.

But Seagate's plan backfired. Demand went soft, the company reported record losses, and Wall Street reacted violently—the company's stock dropped nearly 30 percent in mid-July.

Hard disk prices have plummeted over the last three years, and Seagate's overproduction may push prices down even further. If you're in the market for a hard drive, now might be a good time to take a serious look.

Starting in Style

Here's a way to dramatically boost your productivity without spending a penny—start each of your applications from a beautifully simple batch file.

When you run a program you normally follow a number of steps. First, if the program is on drive C and you're on another drive, you change drives. Next, you change to the proper subdirectory. Now you enter the program's name, followed by a filename. After you've finished using the application, you change back to your root directory. You repeat these steps with each application you run—so why not put these commands in a batch file and save yourself all the steps?

Here's a simple batch file to start a word processor on drive C.

ECHO OFF *DOS 3.3 users can use the command @ECHO OFF for an even cleaner display.*
C: *Changes to the C drive.*
CD C:\WP\XY *Changes to the word processor's subdirectory (substitute your own directory names here).*
EDITOR %1 *Runs the program and loads a file, if one is specified on the command line.*
**CD ** *Returns to the root directory after the program is finished.*

Name this file WP.BAT or something similar, and put it in a subdirectory named BATCH. To invoke the program, type either WP (or WP,). Follow that command with a filename. Last, make sure that the subdirectory BATCH is in your DOS path.

If you're unfamiliar with DOS's PATH command, it's simply a way to store the names of the directories that DOS searches each time you enter an executable program (a file with an extension of .EXE, .COM, or .BAT) at the command line. You can set the DOS path anytime from the command line or put the PATH command in your AUTOEXEC.BAT file, the file DOS executes each time you boot your computer. Check your MS-DOS manual for details on the syntax for PATH commands.

— Clifton Karnes

64 & 128

Writing about the possible demise of the Commodore 64 and 128 is far from enjoyable, but it is certainly necessary. The official word from Commodore, according to the interview with Max Toy in the August *COMPUTE!*, is that the machines will receive Commodore's full support as long as people want them. In other words, it ain't over till it's over.

From the software publishers come different signals. Accolade, for instance, seems to want to switch to MS-DOS format for their launch version. As reported last month, SSG, whose products are distributed by Electronic Arts, has already shifted away from their 8-bit base (Apple II and 64/128). Avalon Hill's *Civil War* debuts on MS-DOS as well.

A shift away from initial release on the 64 doesn't mean the machine will disappear. But if production of 64 software stops, the computer may be in trouble. Infocom is one of the publishers that has decided to stop 64 software production. Having revamped its product line to the extent that it will release no more pure-text adventures, Infocom's new releases will not be developed for the 64 or 128. Clearly, time marches on. . . .

Let the Games Begin

Meanwhile, 64/128 owners have many new games to keep them busy.

Bard's Tale III, from Electronic Arts (1820 Gateway Drive, San Mateo, California 94404; $39.95), is the third installment in this popular fantasy role-playing series. In some ways, it's the most interesting and playable of the lot. For the first time, adventurers are equipped as soon as they are created, which eliminates the immediate need to find Garth's Equipment Shoppe. The reason for the change? Garth's Equipment Shoppe, like Roscoe's Energy Emporium, no longer exists. Tarjan, the mad god, has destroyed almost all of Skara Brae.

Find the source of the destruction and rescue Skara Brae from ruins. To do this, you must travel to the seven dimensions. This isn't easy—traveling among the dimensions requires the abilities of a Chronomancer.

What's a Chronomancer? It is, along with Geomancer, one of the new mage classes in *Bard's Tale III.* To become a Chronomancer, characters must master all spells of three mage classes; when they switch to the new class, all spells are lost. Becoming a Geomancer is less sacrificial: fighter classes can change into this class, but they lose some specific skills. Only one location allows the change to take place.

This edition contains some useful enhancements. There are seven mage classes. An automapping feature lets you wander the dungeons without making maps. Most importantly, you can now save the game at any point, even inside a dungeon. The game also autoboots in 128 mode.

Electronic Arts has provided some creative, positive copy-protection. Whenever you travel from one dimension to another, you must find a code sequence from a cardboard wheel enclosed with the package. The wheel is easy to operate but difficult to copy. This means you can play for hours without knowing copy-protection exists. By the time you find out, you'll be addicted enough to buy your own copy.

The Third Wave

Another third-edition release is SSG's *Reach for the Stars* (distributed by Electronic Arts; $44.95). Unlike the third edition of *Bard's Tale,* this is not a separate adventure but an upgrade.

Reach for the Stars is a strategic game of galactic conquest. Up to four players, in any combination of computer and human, compete to conquer and colonize star systems in an effort to take over the entire galaxy. This was SSG's first game release, and it quickly became a favorite.

At the heart of the game is production. Every second turn is the production turn, when you must specify, for each planet you currently occupy, how many Resource Points you will spend on Industry, Scouts, Transports, Starships, Technology, Social Level, Environment, Planetary Defense, and Consumer Services. There's no free lunch. Industry is vital, but a heavily industrialized planet must be defended from enemy invasion. You can create planetary defenses, or you can patrol the planet with a solid space navy. If you don't provide enough consumer services, your populace might riot; ignoring environmental and social concerns decreases your ability to produce.

During play, you arrange your ships into task forces and

send them out to other planets. You can colonize unowned planets, or you can conquer those owned by other players. Conquering planets increases your wealth and power, but it also increases your headaches. As if these problems weren't enough, the game allows you to toss in such options as novas (a painful way to lose a base), xenophobia (which eliminates trade), solar debris, and enhanced computer players.

The game display and user interface are different from earlier versions. A new option lets the computer suggest an optimum production. In the new advanced game, armies replace Planetary Defense points, scouting is automatic, navigation distance of starships is restricted to your current navigation technology, overpopulation has been eliminated, holding a conquered planet is considerably more difficult, and a planet's population and industrial maximums can be increased.

With its enhancements, *Reach for the Stars* has become even better—it's both wholly absorbing and utterly addictive.

Puff, Puff, and Away

Bubble Ghost, from Accolade (20813 Stevens Creek Boulevard, Cupertino, California 95014; $29.95), is pure whimsy, one of the more inventive premises in recent memory. Here, you help a pathetic little ghost put his soul to rest by using your joystick to make him blow a very breakable bubble through all 35 of his mansion's rooms.

To make the ghost blow, you push the joystick button; push it long enough, and the ghost turns red. You must move the ghost into different positions to blow the bubble upward, backward, or diagonally.

Each room has its own set of traps. Several rooms, for example, contain a candle that will pop the bubble if it gets too close. But the candle is exposed, and the ghost can blow, so. . . .

Far from action-packed, this game is simply a joy to play and watch. Two players can compete, but the competition is gentle. Even so, the game has staying power; it has already become a favorite with the neighborhood kids. *Bubble Ghost* may not become a classic, but it's definitely worth a look.

Take the A Train

Metrocross, from Epyx's U.S. Gold line of 64/128 action games (U.S. Gold, P.O. Box 8020, 600 Galveston Drive, Redwood City, California 94063; $39.95), is a race game. You zip through the city's subway system, and you have a certain amount of time to get to the end of each section. In your way are such barriers as rolling logs, rats, potholes, and slimy surfaces. Helping you are cans you kick for points, springboards that let you somersault over obstacles, and skateboards that improve your speed dramatically.

Two players can compete—the fast action really sustains interest, and the game offers a steady challenge. *Metrocross* autoboots on the 128.

— Neil Randall

APPLE II

It's no secret Apple doesn't think of the IIGS as an entertainment machine, but that hasn't stopped a number of software publishing companies from releasing IIGS-specific games. Many of these games, however, are not original creations but are translated and enhanced versions of proven programs. It seems the publishers are, for the most part, trying to play it safe.

One such publisher is MicroProse, which has just released an Apple IIGS version of its popular *Pirates* (180 Lakefront Drive, Hunt Valley, Maryland 21030; 301-771-1151; $44.95). First published for the Commodore 64, *Pirates* has made the move to the IIGS intact—and then some.

Pirates is a hybrid, mixing arcadelike elements with historical simulation, testing players' tactical, strategic, and economic abilities. You play the part of a privateer, buccaneer, or out-and-out pirate, sailing in the Caribbean from the late sixteenth century to near the end of the seventeenth. As a rogue on the Spanish Main, you sail and navigate your ship, battle against enemies with cannon and cutlass, and haul away the loot in whatever form you can find it. Sword fighting plays a big part in the game—here's where those hours in front of an arcade machine will help.

Pirates gives a flavorful taste of the times, and it's fun to boot (or is that booty?). And what with several scenarios, including a number based on historical fact, there is a depth of play to *Pirates* that will be appreciated by everyone. Even finding your way around the Caribbean, for instance, is a challenge when you play at the highest level because your subordinates are (according to the documentation) "drunken gutter swine" and no help at all. Sailing from one place to another gets harder as you step up in difficulty levels; for example, tacking into the wind while a Spanish sloop blasts at your ship takes on a nightmarish quality at the top level.

Like other MicroProse games, *Pirates* comes with a manual that's well worth reading, even if it's often hard to locate specific details once you're in the middle of a game.

Pirates is entertaining and even a bit educational. All that's missing is someone with a parrot on one shoulder and a hook in place of a hand.

Just for Kids

Sage Productions, known for its *AppleWorks Journal,* is preparing a new monthly publication, with the first eight-page issue expected in September. Called *Computer Learning News,* the newspaper is aimed at kids ages 8–12, *not* parents or teachers. *Computer Learning News* will offer puzzles, games, class projects, and individual experiments—all designed for classroom and lab use.

Teachers can order multiple-copy subscriptions for their classroom or computer lab ($99.00 for 15 copies and a teacher's edition), and parents can order single-copy subscriptions for home use ($11.95). Additional 15-copy subscriptions, minus the teacher's edition, cost $90.00. Contact Sage Productions at 5677 Oberlin Drive, San Diego, California 92121; (619) 455-7513.

Computer Learning News is also looking for submissions for publication and is calling for "creative and fun ways for 8- to 12-year-olds to learn about computers and software." Write to Trudy Totty, editor, *Computer Learning News,* care of Sage Productions, for more details.

IIGS Gets Going

The new Apple IIc Plus wasn't the only major announcement made at September's AppleFest in San Francisco. Overshadowed perhaps, but still important, is the system software update for the IIGS.

Update 4.0, as Apple is calling it, includes several major components. The most significant is GS/OS 2.0, a new operating system that supercedes ProDOS 16. Designed specifically for the IIGS, GS/OS offers faster booting to the Finder and faster disk access. Boot time is about half of what it was—it takes about 32–34 seconds from the moment the machine is turned on to the time the Finder appears. Loading programs from the Finder is up to three times faster; thus software that fre-

quently goes to the disk should also operate faster. A cache feature helps at two more choke points in IIGS software speed—the disk directory and application software menu bars. When a user accesses the current disk directory or the menu bar, the system places the directory or menu contents in RAM so that at the next request for the same directory or menu, it snaps into view almost instantly.

Another new development in GS/OS, File System Translators, allows applications to read non-ProDOS files. One of the first translators will be for CD-ROM and its High Sierra format. In demonstrations, a GS/OS-equipped IIGS called up files from Microsoft's *Bookshelf* CD in an Apple CD-ROM drive.

GS/OS is compatible with the IIGS's first operating system, ProDOS 16. As long as it was written to Apple's guidelines, ProDOS 16 software (all of the current IIGS-specific software, in other words) will work under GS/OS.

The requirements for GS/OS are easily met—512K, at least one 800K drive, and ROM 01 or later (ROM 01 is the update made within a year of the machine's release; if you have an early model IIGS, see your Apple dealer for a free ROM update).

The other major element of Update 4.0 is an enhanced Finder. Like GS/OS, the new Finder 1.2 is faster—up to three times faster in copying disks, for instance. A new feature lets users verify disks.

Another addition is the *Advanced Disk Utility*, a program that replaces the older *System Utilities*. The *Advanced Disk Utility* makes it possible to partition hard disks for more efficient use of large storage devices (the partitions are then treated as separate volumes by the Finder).

Apple plans to include update 4.0 with every IIGS shipped after September 16, and you can get the update through the normal distribution channels. Apple is encouraging its dealers to let anyone copy the update software; documentation, however, only comes with the update package, which you buy from the dealer (the price hadn't been set by the time of this writing). The update will also be placed on commercial databases such as CompuServe and GEnie, as well as bulletin boards, for downloading.

Although Update 4.0 is certainly welcome and will answer some of the IIGS's critics, it's still a disappointment. Boot time and disk-access speed-ups are nice, but they don't address the machine's basic fault—its inherent slowness when running sophisticated IIGS-specific software. No matter which way you cut it, the IIGS is slow. Word processing programs written specifically for the IIGS can't keep up with the average typist; paint programs redraw the screen much too slowly. Speeding up the boot time and disk access helps, but more time is spent *within* applications, not getting to them. Only when Apple beefs up the IIGS with a faster microprocessor will the machine become what it wants to be—an easy-to-use, full-featured, color computer that pushes hard against the lower edges of the Macintosh line.

Rolling in Dough

Apple continues to rake in the cash. Its third-quarter (April–June) sales and income were up substantially over the same quarter last year. With increases of over 70 percent in total sales, and nearly 60 percent in total income, the quarter became the fourth in a row to report an over-50 percent growth.

Sales nearly reached the $1 billion mark, almost assuring that Apple will be a $4 billion company in 1988. The cause of the upswing continues to be the Macintosh, according to Del Yocam, who is temporarily in charge of Apple while John Sculley is on sabbatical. An increase in Macintosh II sales and a jump in international sales were the two major contributors, Yocam said.

Strong sales of the Apple II family helped out, however. One analyst noted that the Apple II machines' higher margins (the difference between what Apple sells the machines for and what they cost to make) made it possible for Apple to maintain a high profit, even with higher manufacturing costs caused by the DRAM shortage.

— Gregg Keizer

AMIGA

If you want to program in machine language on the Amiga, you'll need a good assembler, a good disassembler, and a good debugger.

There are almost a dozen assemblers for the Amiga. Perhaps the best is *C.A.P.E.*, from Inovatronics (11311 Stemmons Freeway, Suite 8, Dallas, Texas 75229; 214-241-9515; $89.95). Among *C.A.P.E.*'s strong points are its integrated editor (which shows you exactly where your syntax errors are), its speed, and its excellent code optimization.

Like most Amiga assemblers, *C.A.P.E.* is fully compatible with the standard Metacomco assembler, *Assem*, but it's several times faster. If you define all symbols in your source code, *C.A.P.E.* lets you create an executable file directly, with no linking step. If you'd rather program the traditional way, you can use the standard Amiga Include files and *BLink*, the public domain *ALink* replacement included on the *C.A.P.E.* disk.

The versatile 68000 chip lets you perform certain tasks in many different ways. The common methods are not always the most efficient. *C.A.P.E.* allows you to set an optimize flag so that you can create smaller, faster programs.

When you're writing machine language programs, a debugger is a must. *MetaScope: The Debugger* from Metadigm (16762 MacArthur Boulevard, Suite 300, Irvine, California 92715; 714-955-2555; $95.00) is a good choice. With *MetaScope*, you can set breakpoints, enter trace mode, and single-step through your program. You can have the program's output go to the screen or to a log file. You can examine memory and change any values you want—just use the mouse to click on the old number and enter a new one. *MetaScope* will use symbol information if it's included in the load file, and it lets you save the symbol information with a file.

A disassembler comes in handy when you want to see how someone else's program works. *DSM* from OTG Software (200 West 7th Street, Suite 618, Fort Worth, Texas 76102; $67.50) fits the bill. A good way to learn machine language on the Amiga is to write some code in C or Modula-2, compile it, and then disassemble the object code.

DSM and *C.A.P.E.* make a great team. Using *DSM*, you can disassemble just about any program, including the AmigaDOS programs in the C directory. Then you can reassemble them with *C.A.P.E.* (with the optimize flag turned on) for smaller, faster versions.

If you're learning machine language on the Amiga, there are two books that will help: *Amiga Machine Language Programming Guide* (from COMPUTE! Books, P.O. Box 2165, Radnor, PA 19089; 800-346-6767, or 215-964-4996 in Pennsylvania or foreign countries; $19.95) and *Amiga Machine Language* (from Abacus; $19.95).

Big Monitor

Commodore, along with Moniterm, has introduced a high-resolution monochrome monitor, the Viking 1, for the Amiga

2000. The best word to describe the monitor is *big*. A full 19 inches and as wide as the Amiga 2000, it sports an amazing resolution of 1008 × 800.

The extremely high resolution of the monitor should draw the interest of desktop publishers and business graphics users. An unusual feature of the monochrome monitor is that it offers four shades—white, black, and two grays. This increases the monitor's apparent resolution.

The Viking 1 weighs in at 36 pounds and costs a whopping $1,995; it's for the 2000 only. Moniterm will distribute it.

Virus Defense

Viruses are a real problem in the Amiga community. Those hurt most are new owners who don't know how a virus spreads or how to get rid of it. Any Amiga can catch a virus. Viruses spread at computer shows, by downloaded software and, worst of all, by infected commercial software.

Though public domain programs have sprung up to fight the war against viruses, new users have had trouble locating and using those programs.

The folks at Discovery Software International (163 Conduit Street, Annapolis, Maryland 21401; 301-268-9877), knowing a market opportunity when they see one, have brought out *V.I.P.*, a program every Amiga owner should have.

V.I.P. ($49.95) makes fighting viruses easy. Whenever you get a new disk, load *V.I.P.* and pop the suspect disk into the drive. *V.I.P.* takes a close look at your new disk. If the boot block on your disk contains a known virus, *V.I.P.* lets you know. If the disk is clean, *V.I.P.* saves a copy of the disk's boot block. If your computer does come down with a virus, you can use *V.I.P.* to restore your disk library to good health.

Discovery Software realizes that viruses continue to evolve. If you find a new one, load *V.I.P.* and start the program; then load the infected disk. Use specific commands to tell *V.I.P.* that the loaded disk is infected. From then on, *V.I.P.* will recognize the new strain.

V.I.P. works best as preventative medicine. If you worry about viruses at all (and you probably should), consider *V.I.P.* a worthy investment—it could save you a lot of aggravation.

Discovery Software has also released a new version of its hit game *Arkanoid*. The upgrade has twice as many levels as the earlier version. There's also a price reduction, down to $29.95. That price should make the new *Arkanoid* competitive with Mindscape's *Blockbuster* ($39.95) and Constellation Software's excellent *Crystal Hammer* ($19.95), two similar games.

BASIC Surprises

If you program in Amiga Basic, you may have realized that you can't get to all of the Amiga's capabilities. One solution is to switch to another language. If you'd rather stick with BASIC, the book *Amiga Tricks and Tips* (Abacus, 5370 52nd Street Southeast, Grand Rapids, Michigan 49508; 800-451-4319; $19.95) is for you.

For instance, many impeccable sources have said that you simply can't display a HAM (Hold-And-Modify) screen in Amiga Basic. Wrong. *Amiga Tricks and Tips* shows you how.

The 340-page book is packed with useful information such as how to change fonts and type styles. It shows you how to make borderless windows, 3-D graphics, sliders, and more—all in BASIC.

If you're interested in the nitty-gritty of Amiga Basic, *Amiga Tricks and Tips* tells you about its file structure and its token values. It also covers error trapping and DOS calls.

Ready to try a little machine language? This book explains how you can call machine language subroutines from BASIC.

Amiga Tricks and Tips is ideal—the only book of its kind.

— Rhett Anderson

MAC

Are you getting tired of the Apple/Microsoft/HP lawsuit? Most of us are, but, just to keep you up to date: Hewlett-Packard's long-delayed legal reply is a cry of "Monopoly!" The company claims Apple is violating the Sherman Antitrust Act.

To make matters more complex, the end of the conflict has been pushed further out of sight. In August, U.S. District Court Judge Robert Aguilar set the trial date for August 1989. Old lawsuits never die.

In a taste-of-their-own-medicine vein, QuickView Systems is talking about copyright infringement *by* Apple—against QuickView, via *HyperCard*. The company's not saying it has happened, but that it probably will. QuickView's MS-DOS package, *Zoomracks*, uses a card-and-rack metaphor, offering the rack as a way of viewing more than one card at a time. QuickView has two patents tied into *Zoomracks*, and the company holds that when *HyperCard* is switched to a multiple-card-viewing capability, the patent on the rack system will be violated.

Really, is any database that shows multiple records onscreen going to be a target for a lawsuit now?

Buy-Outs and Mergers

Claris has bought *FileMaker 4* from Nashoba Systems (actually, the company's bought Nashoba Systems). *FileMaker 4* is a pretty hot seller in the database market, and it's a necessary addition to Claris's line of Mac products, which includes *MacPaint II*, *MacWrite II*, *MacDraw II*, and a mystery product that will be revealed at the Boston Expo, which is a week away as I write this.

FileMaker, whose installed base is around 60,000, recently underwent considerable alteration. Claris is planning to repackage *FileMaker* in a few months, but there are no plans for changing the product itself; the name, however, will change to *FileMaker II* to fall in line with Claris's other products. Do you think Claris will ever put out an original product? Maybe the mystery program is an original instead of an acquisition. *FileMaker II* (Claris, 440 Clyde Avenue, Mountain View, California, 94043; 415-960-1500) will cost $299.

Cricket Software now has distribution rights to *Ragtime* (Cricket Software, Great Valley Corporate Center, 40 Valley Stream Parkway, Malvern, Pennsylvania 19355; 215-251-9890; $395) from B & E of Erkrath in West Germany; *Ragtime* was formerly distributed by Orange Micro.

I used *Ragtime* in its first incarnation—I don't know if it's ever been refined or updated. It's sort of a page-layout program, but it includes a word processor and a spreadsheet with graphics. Or maybe it's a word processor and spreadsheet combo with page-layout capabilities. Either way, I saw it as an uncomfortable mix of features where the whole was slightly less than the sum of its parts. But Cricket's excellent line of products bodes well for any refinement the company decides to do for *Ragtime*.

Under the Apple Menu

We're no longer limited to a miserly 15 desk accessories under the Apple menu, what with products such as *Suitcase* and *Font/DA Juggler* that let us access as many fonts and DAs as we have room for on a system disk or hard drive. And, happi-

ly, the advent of MultiFinder didn't sound a death knell for DAs.

Some highly recommended items for your Apple menu:

- *Disk Tools Plus* (Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; 415-571-7171; $49.95): A set of desk accessories whose stars are Disk Tools II, Phone Pad, and Calendar. Disk Tools II is a must if you don't work under MultiFinder; it lets you do all sorts of DeskTop maintenance—such as renaming, copying, and trashing files—without leaving an application. Phone Pad is a giant notepad with searching and dialing capabilities. The Calendar is a no-nonsense month-at-a-time accessory with plenty of room for each day's notes and a good search capability.
- *Thunder* (Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; 415-571-7171; $49.95): An interactive spell-checker that watches as you type and that can perform automatic corrections once you teach it which words to fix. The current version is not compatible with MultiFinder, but an upgrade is imminent. Evan Gross, who created *Disk Tools Plus*, is also the programmer behind this one; he deserves to be mentioned for his excellent implementations and great attention to interface details.
- *QuicKeys* (CE Software, 1854 Fuller Road, West Des Moines, Iowa 50265; 515-224-1995; $99.95) and *Tempo II* (Affinity Microsystems Ltd., 1050 Walnut Street, Suite 425, Boulder, Colorado 80302; 303-442-4840; $149.95): Respectively, medium- and heavy-duty macro recorders. *QuicKeys* records keyboard, menu, and mouse activities. *Tempo* offers more, including branching capabilities based on the contents of the Clipboard or a user's reply to a *Tempo*-created dialog box.
- Art Roundup (Dubl-Click Software, 18201 Gresham Street, Northridge, California 91325; (818) 349-2758): The art-grabbing desk accessory included with Dubl-Click's *WetPaint* clip art. You can't buy it separately. Utilities like this let you open any paint-type document and grab some—or all—of it to the Clipboard for pasting into the current application. Art Roundup's newest version lets you set up a slide show so you can flip through all the art documents in a folder. *WetPaint* clip-art packages sell for $79.95.
- *Acta* (Symmetry, 761 East University Drive, Mesa, Arizona 85203; 602-844-2199; $79.00): If you don't use an application like *More*, try this outliner desk accessory.
- *Word Finder* (Microlytics, One Tobey Village Office Park, Pittsford, New York 14534; 716-248-9150; $59.95): If you need an online thesaurus, this is the one to use. It's bundled with *Microsoft Word* 3.01.

Upgrades and Enhancements

WordPerfect for the Mac (WordPerfect, 1555 North Technology Way, Orem, Utah 84057; 801-225-5000; $395) was upgraded within four months of its original release. Version 1.0.1 responds to users' requests, according to the company. Scrolling in print preview, word-at-a-time selection extensions, ruler copy and paste, compatibility with *WordPerfect* files created on MS-DOS machines, and proportional graphics scaling are among the improvements. The update is free to registered users.

Good news for current and future users of Acius's *4th Dimension:* Help is on the way. I have a love/hate relationship with this program. Its user environment is simple but weak; its custom environment is complex and frustrating but has amazing power—if you can get to it. Acius is planning to release a utility program that bridges the gap between the two environments, letting you set up a database with prewritten procedures. So, you should get the power of the customized environment and the ease of the user environment. I'll believe it when I see it.

LetraSet's *Image Studio* is up to version 1.5 now; it's free to registered users of the previous version. The main change is 256-level gray-scale editing (as opposed to the former 64-level capability). In addition, there are new tools that provide blurring and shading options.

Cricket is releasing minor fixes to *Cricket Draw* and *Cricket Graph*. The fixes are responses to user complaints about bugs in the programs. The current versions are 1.1 for *Draw* and 1.2 for *Graph;* registered users with these versions get the maintenance updates for free. Users of earlier versions can contact Cricket to find out the upgrade fee, which will probably be nominal.

HyperDA (Symmetry, 761 East University Drive, Mesa, Arizona 85203; 602-844-2199; $69), the *HyperCard* stack-reader desk accessory from Symmetry, underwent a minor fix immediately after its introduction to make it MultiFinder-compatible. Now, the 1.1 version is available and has the most requested addition: phone-dialing capabilities.

The upgrade to *DeskPaint* 2.0 ($129), a full-featured graphics program/desk accessory, includes DeskDraw for object-oriented graphics, Auto Trace for converting bit-mapped graphics into clean-edged objects, a charcoal pencil drawing tool, and online help. The upgrade costs $35 if you bought *DeskPaint* before July 1, and it's free if you bought it later. Contact Zedcor, 4500 East Speedway, #22, Tucson, Arizona 85712-5305; (800) 482-4567.

From the Virus King

There's a new company in Montreal called Z-lot. It's apparently refining three programs that are nearly ready for release: an animation program, a presentations program, and a 3-D program.

The founder of the company is Richard Brandow, the man who originated the peace virus. Enough said.

Just Around the Corner

The release of Ashton-Tate's super-spreadsheet, code-named *Glass* for so long, is imminent. Titled *Full Impact*, the program provides strong spreadsheet capability with a lot of charting power.

Full control of the graphs and a wide range of text formatting inside independent text blocks that can float anywhere on the spreadsheet put *Full Impact* in a class that Ashton-Tate calls "presentation spreadsheets." *Desktop publishing* is no longer the magic phrase—*desktop presentations* is the buzzword these days.

An interesting note about Ashton-Tate's *Full Write Professional:* A company representative was slated to demonstrate it at my local user's group, NJMUG.

At our steering committee meeting, we argued about whether we should make a 2.5-megabyte machine available for the demo or insist on his using the standard 1-meg machine. Some felt that a sluggish 1-meg demo would be boring; others, like me, felt the representative would suffer more than the audience, who would get a more realistic sense of *Full Write*'s capabilities and drawbacks on the standard-memory Mac.

We left it up to the representative—arrive as scheduled and use a standard 1-meg machine, or reschedule for three months later and get the bigger machine. He rescheduled.

More II, from Symantec (which swallowed LivingVideo-Text last year), is also on its way, having been announced and displayed in early February. Color will be available, of course, but it also has built-in graphics tools for creating presentation slides.

It remains to be seen—by me, anyway—whether, in pursuit of the lucrative presentations market, the newly tailored *More* has lost its power as a writer's tool and all-round organizer. *More II* will cost $395 (Symantec, 10201 Torre Avenue, Cupertino, California 95014; 408-253-9600).

— Sharon Zardetto Aker ▷

ATARI ST

A video digitizer scans photographs and other images and then converts them into data for use with other programs like *NEOchrome* or *DEGAS*.

The Navarone ST SCAN (Navarone Industries, 454 Kenneth Avenue, Campbell, California 95008; 408-378-8177; $1,239) is a desktop scanner that scans sheets of paper fed into it at up to 300 dots-per-inch (dpi) resolution. The results are surprisingly good, and the software that comes with the scanner lets you save the scanned image in *DEGAS*, PostScript, or IMG formats. IMG is especially useful because the premier Atari desktop publishing packages can directly use this format. Unlike the *DEGAS* format, IMG isn't limited by screen resolution—it can use the full 300 dpi possible on a laser printer. The ST SCAN is fast: 6 seconds per page at 150 dpi, or 12 seconds per page at 300 dpi. But it does have limits: You must feed images through a roller-feed system, which means you can't scan books or other bound material.

If the ST SCAN's price is too steep, a less-expensive alternative is IMG Scan for the Atari ST from Seymor-Radix (P.O. Box 166055, Irving, Texas 75016; 214-255-7490; $99.95). But be prepared to make some serious tradeoffs. IMG Scan purports to turn your printer into an inexpensive video digitizer. It uses the mechanical components of your printer to move the digitizing head, which saves you the cost of buying new hardware. IMG Scan's software lets you easily set gray scales, set the portion of a picture you want to scan, and view the finished product with adjustments for gray scales. It works with color or monochrome monitors and can save images in either the *NEOchrome* or *DEGAS* format. It does not save images in IMG format, despite the name, so if that's what you want, you should look elsewhere.

Two serious drawbacks to this package make it unsuitable for anything except the most casual of uses. First, it's slow. The exact speed depends on your printer—it takes as long to scan an image as it does for your printer to print a page of high-resolution graphics. More troublesome is the way the digitizing head attaches to your printer. You must remove the ribbon and then attach a twisted pair of optical fibers to your printhead. Four pieces of metal tape are provided for this. I found it virtually impossible to securely fix the optical fibers to the printhead while making sure a 1/16-inch space remained between the printhead and the image being digitized. The optical fibers had a tendency to become detached from the printhead as it moved, spoiling the digitized image. Also keep in mind that when you're scanning you can't use your printer for anything else. In short, the IMG Scan digitizer didn't work very well from a mechanical standpoint. Use it only if you're long on patience and short on cash.

Drives, He Said

With the increasing presence of the ST in the business world, the need to exchange data with the IBM PC and compatibles has become more pressing. Although the new IBM PS/2 machines use 3½-inch disks, they don't use the same format as the ST. Typically, PS/2s can read ST disks, but not always.

With the older IBM and compatible computers, you can move data back and forth between the ST and PC by attaching a 360K 5¼-inch drive to your ST. That way your ST can read 5¼-inch disks created on the PC—it can even copy and delete files and perform other basic functions on the bigger disks. Even the ST's Show Info desktop function works. The same disk can be used with no problem on a PC or compatible.

Two products make disk switching easier. The first, I.B. Drive (I.B. Computers, 1519 Southwest Marlow Avenue, Portland, Oregon 97225; 503-297-8425; $249.95), is a 5¼-inch drive that matches the ST's gray color. It attaches with a standard cable that plugs into the B-drive port on your ST. Two pieces of software are included: a formatting program that can be used by both your ST and your PC, and a program that slows the head-stepping rate of the ST to match that required by the I.B. drive. The formatting program is strictly TOS, and the documentation fails to explain many of the parameters. Luckily, the default parameters seem to work fine.

The program that adjusts the head-stepping rate must be the first program in your AUTO folder. This is especially important if you boot a hard drive, as it must execute before the hard drive boot program. Unfortunately, the inadequate documentation (one page!) doesn't tell how to make sure that the head-stepping program is the first to execute. Let me fill you in. It isn't enough to list it first in the AUTO folder. You must also give it the earliest date/time, because the programs are executed in that order. You must empty your AUTO folder and rebuild it in the right order.

The documentation also doesn't mention that you must insert a 5¼-inch disk in the I.B. drive when booting up. If you don't, the system won't come up. Once you get past these problems however, the I.B. drive works pretty well.

One difficulty in working with a 5¼-inch drive is that there are only two drive ports on the ST. You must unplug the 3½-inch drive and plug in the 5¼-inch drive whenever you want to switch. Apart from being hard on the cables and plugs, the drive port is difficult to reach on a Mega ST, where it's located on the back of the system box.

Enter the Drive Master, from the people at Practical Solutions (1930 East Grant Road, Tucson, Arizona 85719; 602-884-9612; $49.95). The Drive Master box comes with a cable to plug into your B-drive port. You can plug your 3½-inch and your 5¼-inch drives into the Drive Master. To operate it, simply use the black button on the front of the box to switch between drives. One small problem is that it's hard to tell at a glance which position the push-button switch is in, so you can select the wrong drive by mistake. Still, the Drive Master works well—you won't want to give it up once you've gotten used to it.

Choose Me

Application and Design Software (226 Northwest F Street, Grants Pass, Oregon 97526; 503-476-0071) has upgraded its *Universal Item Selector* mentioned in *COMPUTE!*'s September issue. Version 2.01 carries a new price tag as well—$19.95. New functions include wildcard renaming, deleting, copying, and moving. You can also lasso groups of files or folders and drag them to the buttons (Move, Copy, Rename, or Delete) for operations on the entire group. You can shift-click on files to include them in a group and scroll the file selector window to see more files while adding others to your list. After you've highlighted the files you want, click and drag the group to the appropriate button. You can hide files so they don't show up in the directory, and print the contents of the current directory and the contents of any file right from the file selector. Finally, you can use the *Universal Item Selector* to search for a file through the current folder and any subfolders. If you start this search from the root directory, the entire disk will be searched. Users of version 1.0 can upgrade for $4 and their old disk.

— David Plotkin ⊡

fast looks

Low-Cost Desktop Publishing; Apple's Layout Miracle; Soccer for the Streetwise; After-Blast Survival; Math Mirth; and Middle-of-the-Road Word Processing

Each month, "Fast Looks" offers up snapshots of some of the most interesting, unusual, or important new software and hardware for the Amiga, Apple II, Atari ST, Commodore 64/128, IBM PC, and Macintosh lines of personal computers. We think you'll want to know about them *now*, not next month.

Sports Scheduler

Aimed at people who organize sports league competition—such as Little League officials, city and county recreational directors, and school faculty—*Sports Scheduler* creates schedules for any kind of league—softball, baseball, football, soccer, bowling . . . anything.

Operating under a menu-driven system, you create a league, name teams, select the number of games in the season, and indicate playing times, days, and locations.

Sports Scheduler calculates the appropriate dates, schedules teams to play each other an equal number of times, and names the teams as Home and Visitor. Teams are even equally distributed among the possible game times and locations, so no team plays all early games or all games at the poorest fields.

You can include up to 22 teams per league and set up as many as 231 games per schedule with *Sports Scheduler*. You also can save schedules as either ASCII or DIF files for importing into most word processor or spreadsheet programs for editing.

Sports Scheduler simplifies a complex task while filling a very specific need not shared by most personal computer owners. The publisher, in fact, mentions that most of its sales have been to school districts. For those deeply involved in recreational sports, though, *Sports Scheduler* is a real find.

— *GK*

Apple II with at least 128K; 80-column card required
for IIe—$89.99
IBM PC and compatibles—$89.99

Sports Software Associates
75 Recreation Park Dr.
Hingham, MA 02043
(617) 749-7880

Cosmic Relief

Cosmic Relief: Professor Renegade to the Rescue is an animated puzzle—a logical maze, of sorts. It doesn't look like a maze, but as you travel through a cartoonlike landscape, false turns and missed opportunities can mean complete failure. Success requires that you find Professor Renegade and that you help him save the world from destruction.

Along the way, you gather tools that you find in your path. Some of them are necessary for getting through the maze. For example, you'll find a hot-air balloon, but it won't take off unless you find another item located somewhere else in the game. Meanwhile, your progress is limited by your inability to use the balloon. Other trinkets you'll find along the way are invaluable to Professor Renegade's anti-asteroid deflector.

Choose a traveling companion (from five experienced adventurers) and some natives to help carry the items you collect. You'll find snakes everywhere, and there's at least one ogre-looking character: all head and legs—no charm at all.

If you enjoy animated graphics and interesting sound, you'll like playing this game. Logic-puzzle fans will also enjoy the challenge.

— *HA*

Amiga—$34.95
Atari ST—$34.95
Commodore 64/128—$24.95

Datasoft
19808 Nordhoff Pl.
Chatsworth, CA 91311
(818) 886-5912

Contributing to "Fast Looks" this month were Heidi Aycock and Gregg Keizer.

NewsMaster II

Maybe you have the aspirations of William Randolph Hearst, but the wallet of Freddy the Freeloader. Perhaps you've just seen Elvis double-dating with Bigfoot, but you don't have a means to tell your story. Well, here's one way to get the scoop without dishing out a lot of dough.

The *NewsMaster II* page-layout program for the IBM PC and compatibles lets you arrange text and bitmapped graphics on an 8½ × 11 inch page. You can crop, resize, and move graphics; edit, cut, and copy text; and combine fonts to make slick, professional-looking printouts.

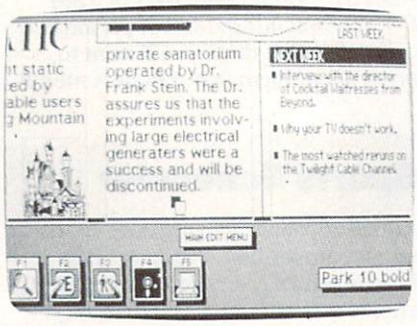
Like other layout programs, *NewsMaster II* doesn't let you create graphics or large text files from within the program. But it does let you import files from word processors and paint programs. Additionally, *NewsMaster II* includes a picture library of almost 300 graphics images. *Newsmaster II* only imports ASCII files, however, which is a limitation if you want to import files and still retain the formatting (boldface, italics, and so on) established in the word processor. Similarly, the program imports only three kinds of graphics files—those in *NewsMaster* format, those in *PrintMaster* (another Unison World program) format, or those you capture via the memory-resident *NewsMaster* capture utility.

When you press a special key sequence, the capture utility takes a snapshot of whatever graphics image is on your computer screen, turns it into a *NewsMaster*-format graphic, and inserts it into an image library. You can invoke the capture utility from within most graphics programs—so almost any image you can display on your computer can be used in a *NewsMaster II* newsletter. The capture utility's inability to work with programs running under *Microsoft Windows* is a drawback. Also, you can't capture text-based programs. For example, copying a screen from *Microsoft Word* is only possible when *Word* is in Graphics Mode.

NewsMaster II can produce from one to ten columns per page. All columns on a given page must be the same width, and all text automatically flows between columns. If the text won't fit in one column, the overflow will automatically move to the next column, and even to the next page if necessary. One command places an entire file on the page (or pages), regardless of the file's length.

Unfortunately, *NewsMaster II*'s autoflow does have a drawback—you can't turn it off. The program treats all articles in a newsletter as one column. For example, if you add five lines of text to column 1, then the five lines at the bottom of that column are pushed off and appear at the top of the next column, even if the next column is on the next page. Such rippling changes slow the layout process. They can also mess up your design. To force an article to start at the beginning of page 2, for instance, you may have to add carriage returns to the end of the last column on page 1. If you then edit page 1, you have to adjust all subsequent pages that are affected.

You can avoid a lot of work by not importing an article until you've finished editing it. Also, once you've laid out a page in *NewsMaster II*, it's best not to make changes. That way, you will do as little text editing as possible within the program.



Design pages with *NewsMaster II* to create newsletters and brochures—without emptying your wallet.

NewsMaster II does not support any complex graphics standards. If you want anything other than black-and-white, bitmapped graphics in your newsletter, then you'll need to augment *NewsMaster II* with scissors and tape.

Despite these limitations on importing, editing, and layout, *NewsMaster II* has its good points—it's easy to set up, it can run on a floppy disk–only system, it uses icons, and it provides some of the best nonlaser printouts I've seen. If you use a reducing photocopier to make a 5½ × 8½ inch final newsletter, you should find a *NewsMaster II* printout acceptable.

Only two menu selections are required to install *Newsmaster II* on a hard disk system: one for the graphics controller (CGA, EGA, Hercules, or let *NewsMaster* figure it out) and one for the printer. To choose a printer, you select the manufacturer and then pick a model number.

Learning *NewsMaster II* is also easy. You can access commands through the function keys, and the screen displays the current commands by a set of icons. For example, at the main-menu level, F4 will call up disk operations like Save and Load, so the main menu's fourth icon is of a disk with F4 above it. The icons are particularly useful if you have an AT-style keyboard because they're arranged from left to right just above the appropriate function keys. Some of the most often used commands have control-key shortcuts.

The program will lay out only an 8½ × 11 inch, letter-size, portrait-oriented (tall) page. Newsletters are limited to four pages. Printout resolution depends on your printer. The standard is 120 dots-per-inch, with resolutions as high as 288 dpi possible on some 24-pin printers. *NewsMaster II* also supports a few laser printers. If you have a laser printer that emulates the Epson FX-80 and has 512K of internal memory, you're in business.

NewsMaster II offers 34 fonts. This includes News 12 and News 12 Bold as different fonts, however, so you have to change fonts to make a word boldface. No separate formatting attributes are allowed, which means you can't put some fonts in boldface type and you can't underline. The program does allow italics, but text can't be both boldface and italic. You can't add new fonts, either. Unison World won't say if it plans to release additional fonts for the package.

Documentation is disappointing because it has not been updated to include changes from *NewsMaster I*. Its tutorial section is good, however, in its run-through of important commands. Better documentation might cut the number of calls to Unison World's usually busy support line.

If the program's limitations don't fence you in and you're looking for an inexpensive publishing program that's easy to learn and to use, *NewsMaster II* could be worth more than a quick read.

— *Thomas Cox*

Newsmaster II

For . . .
IBM PC and compatibles with at least 512K—$79.95

From . . .
Unison World
Suite 902
2150 Shattuck Ave.
Berkeley, CA 94704
(415) 848-6670

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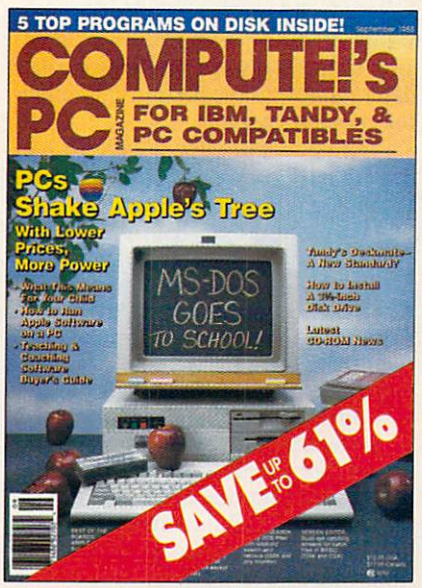

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Springboard Publisher

It's amazing what an Apple II can do: Here's an Apple II running a desktop publishing program.

Springboard Publisher, the long-awaited program from Springboard Software, is a tribute to its developers and to the Apple II computer. The developers deserve recognition for their ambition, if nothing else; the Apple II deserves note as the personal computer that wouldn't say die.

Not that *Springboard Publisher* doesn't have problems. But given that the program is operating in 128K, given that it's running on a microprocessor that runs at 1/25 the speed of a top-of-the-line MS-DOS machine, and given that it works on all Apple II's, it's unreasonable to compare it with desktop publishing software on more powerful machines.

Springboard Publisher has three separate modes: page-layout mode for gross actions, such as placing of text and graphics frames; text mode for text entry, editing, and formatting; and graphics mode for creation and importation of art. The three separate modes make *Springboard Publisher* feel like an integrated program, not one seamless package. Moving from one mode to another requires a menu selection or a mouse click; patience is also required, since switching modes can take a long time.

As the documentation suggests, it's best to create a concrete page design before entering text or graphics mode; planning saves you considerable time later. In the page-layout mode, you see a reduced schematic of the page. You place text and graphics frames, define areas of the page where subsidiary text and art will later appear. You can allot up to nine columns and easily set page margins—column width and margins can be changed any time.

The program is best suited for one-page documents since each page must be individually designed. I recommend that you buy *Springboard Publisher Style Sheets,* a collection of newsletter designs that are especially helpful if you're new to document design. Using the style sheets will save you hours of work, and you'll end up with much cleaner publications than if you hacked through it yourself.

You enter the publication's copy in text mode—essentially a word processor. Here you format text in one of three typefaces and several font sizes, and you decide which text you want to print in boldface, which in italics, and which in any of the other type styles. Text entry can be disastrously slow, however, because of the bitmapped display and the way the program redraws the screen after virtually every keypress. A recent update to the program added a function that temporarily erases text below the cursor position, so the program can keep up with an average typist. The solution works, but it doesn't let you see the complete text of your article, and deletions are still too slow.

***Springboard Publisher* features several fonts and styles that you can choose from a pull-down menu.**

Importing text from a fast word processor will solve the speed problem, but it's not nearly as painless as it should be. You must close the current document, import the text, save it to a new *Springboard Publisher* document, copy the text to the clipboard, open the original document, and, finally, paste the text into place. The process is clumsy, but it works and is preferable to typing in the program's turtle-paced text mode.

No matter how it's entered, text automatically wraps within columns and snakes from one column to the next, and from one page to the next, with no problem. Text also flows around the rectangular graphics or text blocks. Editing will be familiar to those who have used Apple IIGS word processors.

Graphics mode offers paint tools for creating and selecting shapes, lines, patterns, and text. You can also import clip art at any time using a less complicated process than the one for importing text. Springboard offers three volumes of clip art for *Publisher.* Called *Works of Art,* each volume has upward of 500 pieces in various categories. Besides *Works of Art,* the program supports the original *Newsroom* format, as well as DOS 3.3 and ProDOS hi-res graphics (though not graphics done in double-hi res, such as those produced with *Dazzle Draw*).

The window in graphics mode is small and troublesome. For instance, you're required to move the window several times as you draw—a tedious procedure. Entering text in a graphics frame was particularly difficult, since it was impossible to enter more text than would fit in the small window without repositioning the cursor. The program also crashed twice in this mode.

Other features of *Springboard Publisher* are impressive in theory and, sometimes, in reality. In many ways, the program tries to include the same features as those found on powerful desktop publishing programs for other computers. That's ambitious, but I'm not sure it's all that wise, since the more features added to a program, the harder and slower the program becomes.

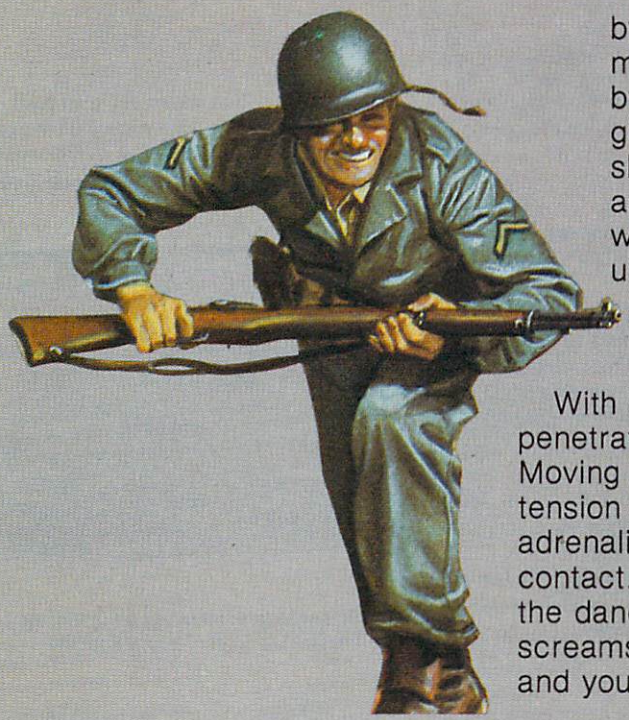
Printed pages from an ImageWriter are acceptable, though smaller fonts tend to be difficult to read, even when printed at highest quality. *Springboard Publisher* supports 93 printers and 55 interface cards. Only monochrome printing is available. A separate package containing a LaserWriter driver is in the works.

The program comes on a 3½-inch disk, a clear signal that Springboard believes Apple is heading toward that format across the line (see "News & Notes" in this issue for details on Apple's new IIc Plus, which uses the smaller disk drive format). A package with 5¼-inch disks is also available. Installation on a hard disk is simple because *Springboard Publisher* is not copy-protected.

Although *Springboard Publisher* will run on a 128K machine, it's hard to imagine dealing with the combination of disk-access delays on top of the program's own slowness. If you have it, additional memory is a godsend; ramdisks are supported, and they are the preferred way to work with *Springboard Publisher.*

Documentation is clear and very well illustrated, although you might get the feeling that it only scratches the surface. There are two manuals—one an excellent tutorial, the other a more standard reference. A crowded quick-reference card is also included.

Springboard Publisher suffers from a clear case of the Apple II's technological limit. The program is slow—really slow. Even on an Apple IIGS, with the whole program in a ramdisk, I was still forced to wait while screens were redrawn; graphics were remade; text was



A peaceful morning is ripped by the staccato thunder of an enemy machine gun. In the distance, shrouded by the morning mists, you catch fitful glimpses of enemy activity as you shoulder your weapon and begin another assault. Another dive into the unknown, where death waits to harvest the unwary, the unlucky and the damned.

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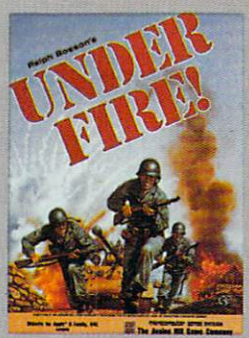

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deleted, selected, or copied; or frames were moved. Compared to the efficiency of a desktop publishing package on the Macintosh, for instance, the delays seemed unbearable. Even turning off the time-intensive Intuitive Text feature didn't really help.

This is as much the fault of the computer as it is the fault of the software's demands. *Springboard Publisher* cries for a faster Apple II; an accelerated Apple IIe, or better yet, an accelerated IIGS would be an improvement. The new Apple IIc Plus, with its high-speed microprocessor, would be a good choice except that the machine is hard to expand beyond 128K of RAM.

If you already have an Apple II, or you're planning to buy one for tasks other than desktop publishing, *Springboard Publisher* offers astounding results. You can, with an investment of time, turn out high-quality, good-looking newsletters, single-page reports, forms, and more.

On the Apple II? Amazing.

— Gregg Keizer

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Font, style sheet, and clip art packages are available. A LaserWriter driver has been promised. An MS-DOS version is planned, though not announced.

Street Sports Soccer

Bojo's no speed demon, and he's too cocky to play goalie, but he's an artist with his feet and a soccer ball. When he breaks free in *Street Sports Soccer*, you'd better hope somebody like Dana's guarding your net. She's an amazing defensive player.

Bojo and Dana are two of the nine kids in your neighborhood who love to take to the streets for a scrappy game of soccer, the latest game added to the Street Sports series from Epyx.

This brand of soccer isn't World Class. There are no fancy stadiums and cheering crowds for these kids, but the action's just as intense. In this game, you're up against street-wise players who know how to make the best of trash-can lids and manhole covers. As captain of a three-player soccer team, you'd better learn the local terrain, too. If asphalt bothers you, move the game to the park—just watch out for mudholes.

Play *Street Sports Soccer* against the computer, or plug in two joysticks and challenge a human opponent. Each team has two forwards and a goalie. You can select from old teams, which are five pairs of teams who have faced each other before, such as the Breakers and the Demons. Choose Random and the computer selects both sides for you. If you select New, you get to pick your team one player at a time. Spend some time with the instruction booklet learning the nine kids' strengths and weaknesses.

Just to make it fair, the computer flips a coin to see who selects first. You don't expect to pick the three best players every time, do you? You and your opponent take turns. Once you have your team, you can decide who plays which position. You can also move players to new positions if you call up an old team.

Once you take to the street, you can play a timed game, from 2 to 45 minutes, or a game that ends when one team reaches a certain score. The timed game is a convenient feature because the action stops right on the mark. If dinner's going to be ready in 20 minutes, you can play for 17 minutes and still have time to wash your hands. When you decide to sit down for a fast game, you'll be glad to see that *Street Sports Soccer* loads quickly, too, even with a 1541 drive. Use Epyx's Fast Load cartridge if you're in a real hurry.

The forwards line up at midfield when the game starts. Your joystick controls the player with the ball. A player's clothing changes color to indicate that you have him or her under control. You can dribble the ball in any direction, pass to another player, or attempt a goal with different joystick and fire-button combinations. You can shoot for either corner of your opponent's goal or straight up the middle if the goalie is out of position.

Defensive moves are similar, but you click the fire button to switch between forwards and the goalie. When your opponent attempts a shot, move the joystick and goalie toward the ball. If your timing's right and your goalie's skills are good, you'll block the shot.

These rowdy players create a lot of fast and furious action as play nears a goal. Feet and elbows fly, and it's not always clear who has control of the ball. You may try a shot only to find one of your opponents racing downfield with the ball.

Street kids scrimmage on an asphalt playing field in *Street Sports Soccer*.

Play stops after a goal. Victors exchange congratulatory high 5s, and one of the losing forwards fetches the ball and returns it to midfield. My adrenaline is usually up at this point, and at first I resented the ten seconds or so it takes for the players to line up. But the break gives me a chance to calm down, analyze mistakes, and review game strategy.

Street Sports Soccer follows most of soccer's official rules. Tripping and bumping earn penalty shots for the offense. Offsides is called when an offensive player without the ball gets behind a defensive player. (That rule always confuses me. If you don't understand it either, don't worry; just wait for the computer to enforce it.)

When time runs out or the set score is made, the winning team celebrates with back flips. If time is running low and your team is leading, your goalie can delay the game by hanging on to the ball after your opponent has scored. I once killed a minute and a half that way and forced a tie game into overtime. I tried another delaying tactic by letting my forward run with the ball. That worked for about 30 seconds, until an opposing forward tackled her and stole the ball.

Those little touches add to the game's interest, especially if you're playing a human opponent who may try similar tactics. The walls surrounding the park and the buildings bordering the city street are convenient features. They keep the ball inbounds, so no one has to go chasing wild kicks.

About the only problem I encountered in *Street Sports Soccer* was determining who was on my team when I let

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the computer pick the players at random. The players on the field are hard to recognize. But if I cared who was on my team, I shouldn't have selected the random mode in the first place.

All in all, *Street Sports Soccer* is a good little game. It's not a great one, and I doubt it will become a classic, but it's a game to consider if you're a soccer fan. If soccer's a game you'd rather play than watch, you'll probably enjoy mixing it up in the street with Julie, Radar, Butch, and all the others.

— *Tom Netsel*

Street Sports Soccer

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Electronic Arts' *Wasteland* breaks new ground for adventure games.

Wasteland

Maybe the end of the world will be like this. If it is, I don't think I want to be part of it. That's why playing *Wasteland* is such a vicarious thrill—I get to experience something that I *really* don't want to ever have happen.

Wasteland is an excellent game from the group that produced the Bard's Tale series. And *Wasteland* doesn't pretend to be a role-playing clone. It's different, and that difference is what makes it appealing.

One difference is the vague nature of your goal. You're simply instructed to assemble a group of Desert Rangers—experts at surviving in a dog-eat-dog radioactive world—to investigate unusual disturbances in the desert.

Another difference is that characteristics can be *assigned* (as opposed to the more normal fashion of drawing them by lot) to members of your party. These characteristics offer more variety than you'll usually find in computerized role-playing games. Even more important, the right combination of traits and talents can make or break your mission. For instance, if any member of the group has an IQ under 20, the group, as a whole, will find some skills unavailable.

Wasteland also stands out by its non-linearity. Many problems in *Wasteland* have two or more solutions, so that you can play the game more than once, using different strategies on different problems. The areas that your party visits don't have to be reached in a particular order. Some places are much more dangerous than others, though. If you're starting with an inexperienced group or you're a novice role-player, you may find it best to follow the suggestions in the instructions.

Wasteland employs several other

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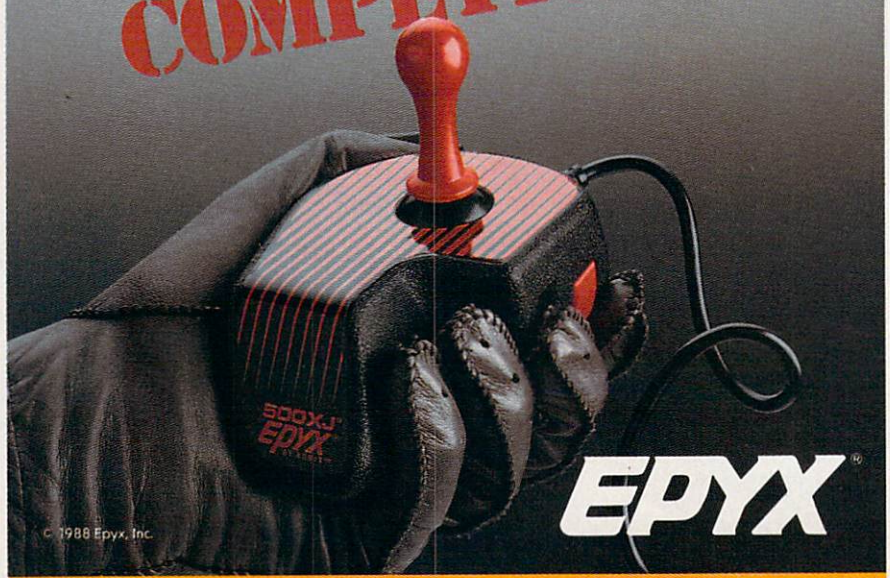

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innovative devices that add variety, suspense, and excitement to each outing. The nonplaying characters (those controlled by the computer) and the story line are handled differently than in most games. Some of the nonplayer characters are friendly and will offer to join you. They are an eclectic bunch, some possessing skills that you'll eventually need. Unlike similar non-playing characters in other adventure games, these characters do not simply add firepower to your group, nor do they serve you passively. Each has a particular personality and may decide not to follow your orders.

The story line of *Wasteland,* exceptional in both its richness and depth, makes use of a booklet of 162 numbered paragraphs to enhance the text within the game. These paragraphs come into play at various stages of the game as well as in response to actions that you may accept or reject. The paragraphs may supply information, send you on a quest (there are many diversionary adventures within the main story), or provide you with hints necessary later in the game.

Wasteland also departs from the norm in combat. Much more emphasis is placed on the tactical maneuvering of your force than in similar games. Your party can be divided into smaller groups, with each group performing different tasks. Specialists might plant explosives or disarm a trap, while others might lay down covering fire. Your character might burn the whole clip of his Uzi, fire only a short burst, or just get off a single shot.

Graphically, the game provides several different views. While traveling outdoors or working its way through the various labyrinths, the group is represented by a single icon. The view is from overhead. The effect is similar to games such as *Ultima* and *Questron.*

During any encounter, when viewing party members, or when communicating with headquarters, a portion of the screen is used for one of the nearly 100 well-drawn close-ups. Animation is minimal, however.

Two warnings about *Wasteland:* The game is dynamic, meaning that once an action takes place, its effect is permanent. If you blow up a medical facility, you can't come back later expecting to find succor for your wounds. If you kill a person when you should have negotiated, it's too late to benefit from his or her knowledge. Because of this, it's essential that you do not play the game from the master disks. Instead, use the non–copy-protected game disks created from the copy-protected masters. This leaves the original game intact in the event you make a grievous error or want to replay *Wasteland* with a different group of characters.

A second warning is on the cover of the package: *PG-13, Contains Some Violence.* Actually, *Wasteland* contains no more violence than most adventure games, although its descriptions are much more graphic. Monsters and characters aren't just killed; they are blown into a "fine red mist" or look like a "bloody sausage." Additionally, there are subtle and not so subtle sexual innuendos sprinkled throughout the paragraphs, though none are overly graphic or offensive. Unless you are especially squeamish, don't let the label put you off from purchasing *Wasteland.*

Wasteland breaks new ground in adventuring. Its puzzles, action, and interaction make it worth the effort necessary to survive in the aftermath of this, thankfully fictional, holocaust.

— James V. Trunzo

Wasteland

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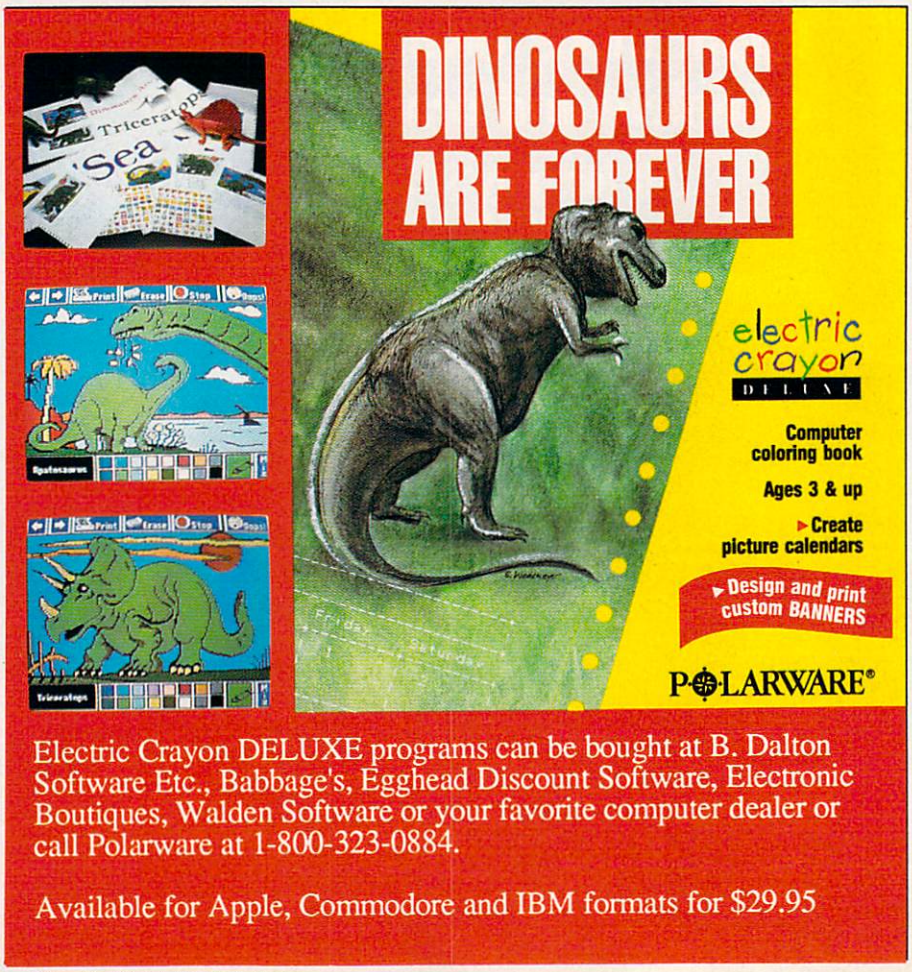

Math Blaster Plus

The true test of an educational software product is whether or not your children use it. If the content is boring or the presentation is little more than electronic text, children become restless. Programs of this type frequently get shelved quickly.

There's nothing boring or booklike about Davidson's *Math Blaster Plus.* Students in grades 1–6 take to it immediately. Younger children revel in its

The wait is over... but the excitement has just begun.

More than two years in the making, Warriors of Destiny sets the new standard for role-playing games. No other game can offer you as beautifully detailed a world or as exciting an adventure. Ultima V is the game for all role-playing gamers: Warriors of Destiny will enchant the novice and challenge the expert.

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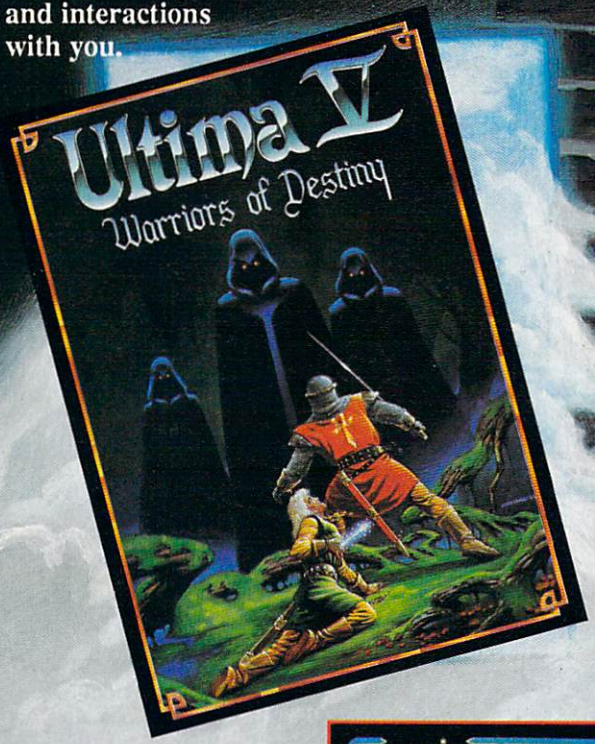

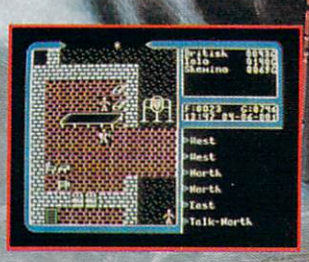

Screen displays shown from the Apple™. Others may vary. Allows the use of Ultima IV characters. No previous Ultima experience required.

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colorful graphics, animated reinforcements, and cheerful beeps and buzzes. Children are attracted to its presentation, ease of use, and varied options. The program is so magnetic that they learn an abundance of math facts, improve their math skills, and enjoy themselves in the process.

Math Blaster Plus succeeds with younger children where other math drills have failed. In Blasternaut, kids fire rockets at correct answers to math equations, earning points for each problem answered correctly. Speed helps, too—the quicker the response time, the higher the score. The game can be played from the keyboard or with a mouse or joystick. Keyboard control seems the easiest to master.

Math Blaster Plus offers four other learning activities: Countdown, Ignition, Lift-off, and Orbit. Together, they review more than 750 math facts in six stages. Stage 1 is the easiest and is designed for children in grades 1 and 2. Stage 6 is the hardest, using equations with fractions and percentages.

The activities are arranged in sequence, with each building on skills already learned. It's not necessary, however, for students to do them in order. Countdown is an interactive tutorial, and students should take advantage of this review to learn or reinforce their math-fact repertoires.

Ignition builds on the materials presented in Countdown. This activity presents students with a math fact and asks them to provide the correct sum, difference, product, quotient, or fraction. As with all the activities on the disk, the problems can be displayed vertically, horizontally, or in mixed format. Teachers select the display option from the Stage menu.

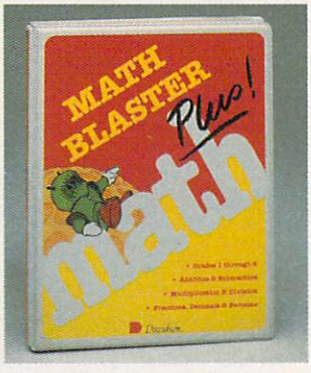
In Lift-off, the challenge is to solve an equation by determining the correct addend, subtrahend, factor, dividend, or numerator. At the higher levels, students may be required to find the missing value; for example, 1/?? = 4%.

In Orbit, three problems appear onscreen. One term in each is boxed. Players examine each problem to determine which of the boxes contain errors. When they enter the necessary corrections, they earn a star.

When a child completes an activity, the scoreboard appears. It shows the child's name, the number of correct answers, and other information about the activity. Then students get a chance to retry the problems they missed.

My seven-year-old son likes working with *Math Blaster Plus* because he enjoys being in control. He sets the stage level to 1 or the Blasternaut game level to easy and proceeds to fire off the correct answers. Being successful at a math task is more important to him than learning new skills. One positive result of returning to the program again and again is that his speed and accuracy have improved tremendously.

Math Blaster Plus is useful as a supplement to traditional classroom instruction. Some people will take advantage of its drill capabilities and use it as a remedial tool. Others will let it challenge mathematically astute children. Students work at their own pace, receiving positive reinforcement as they complete the exercises. A blasternaut scurries across the bottom of the screen, trailing messages like *good work* or *way to go*. Children frequently receive the messages even if they do not achieve a perfect score in an exercise. If the sound is too distracting, teachers or students may turn it off from a menu.



With *Math Blaster Plus*, children launch into orbit by answering math questions correctly.

Teachers will enjoy the program's many options. To reward students for completing activities, teachers can print certificates of excellence. It's even possible to save student files on a specially formatted Records Disk. Teachers can also create their own problem sets for *Math Blaster Plus*'s activities. A noteworthy option called Test Maker allows teachers to create and print math tests from their own files.

Math Blaster Plus gets high marks for ease of use, thoroughness, and versatility. The Mac-like interface makes program operation almost intuitive.

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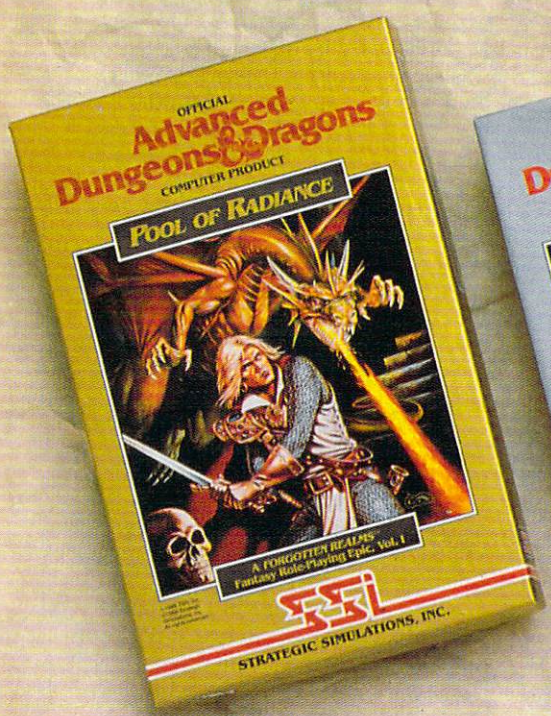

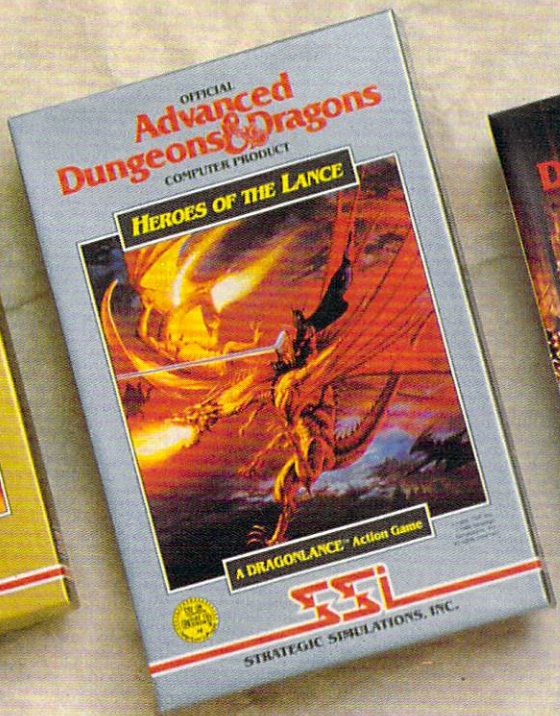

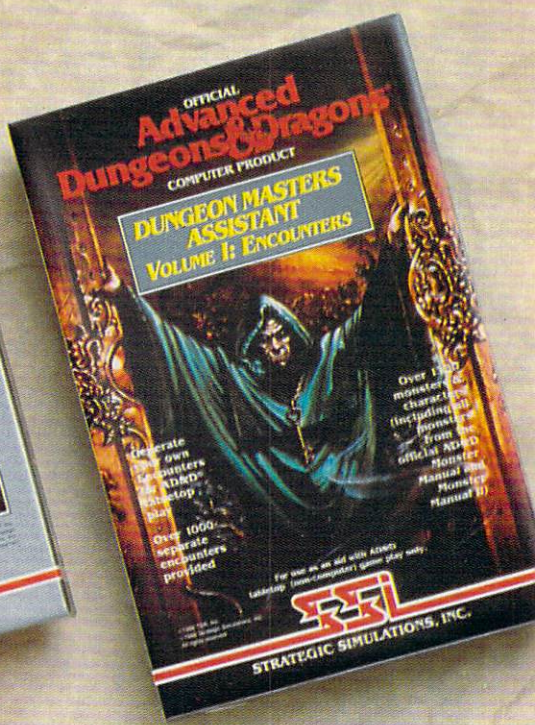

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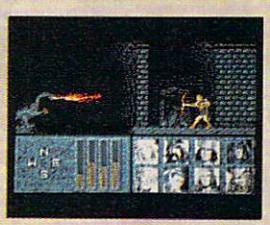

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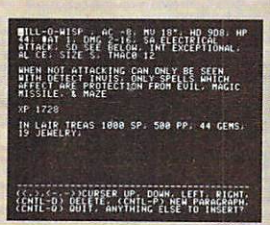

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One caveat: Apple IIe or IIc owners with RGB color monitors, beware! The program displays in monochrome on a digital RGB monitor. There isn't a problem for Apple IIe or IIc computers hooked up to composite color monitors, or for IIGS computers connected to analog RGB monitors.

Color problems aside, *Math Blaster Plus* is sure to become an educational classic.

— *Carol S. Holzberg*

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Webster's New World Writer II

With the MS-DOS word processor market as crowded as it is, new entries need something unique. Fortunately for *Webster's New World Writer II*, the uniqueness is built-in.

Webster's New World has several word processing products on the market already, led by their outstanding spelling checker and thesaurus. What Simon and Schuster needed for these products was a matching word processor, and *Webster's* nicely fills that void.

It fills another void as well. The professional writer has been well served in the MS-DOS world with feature-jammed entries such as *WordStar, WordPerfect, Word,* and *Nota Bene,* and the lower-end market has seen several shareware programs and new entries such as Spinnaker's Easy Working series.

Needed, though, are more packages aimed at the medium-price range, with a wealth of features but without some of the professional writer's more specialized requirements. At a price well below $200, *Webster's* is clearly designed for this group of users.

Like many recent MS-DOS products—especially those aimed at the beginner—*Webster's* is menu driven. Pressing the Escape key brings the main menu to the top of the screen, with selections for Search, Block, Appearance, Print, Files, Miscellaneous, and End. From this menu, you can proceed to several submenus.

From the Search menu you can perform search-and-replace functions, or you can tally (count) the instances of a specific text string. Tallying may seem a bit useless, but it can be especially helpful when you're looking for overused expressions. Then, with the help of the thesaurus (described below), you can alter the text to give it more variety.

The Block menu is straightforward. Here you create a block (using the cursor keys) and then copy, move, or delete it; write it to the disk as either a *Webster's* or an ASCII file; or change it to upper- or lowercase characters. A useful feature allows you to rehighlight the most recently defined block, so you can work with it again. It's less efficient, however, to move the block from one document to another. To do this, you must save the first to disk, load in the second document, and then merge the block into the new document. *Webster's* allows only one document on-screen at one time, and it has no clipboard-style features. ▷

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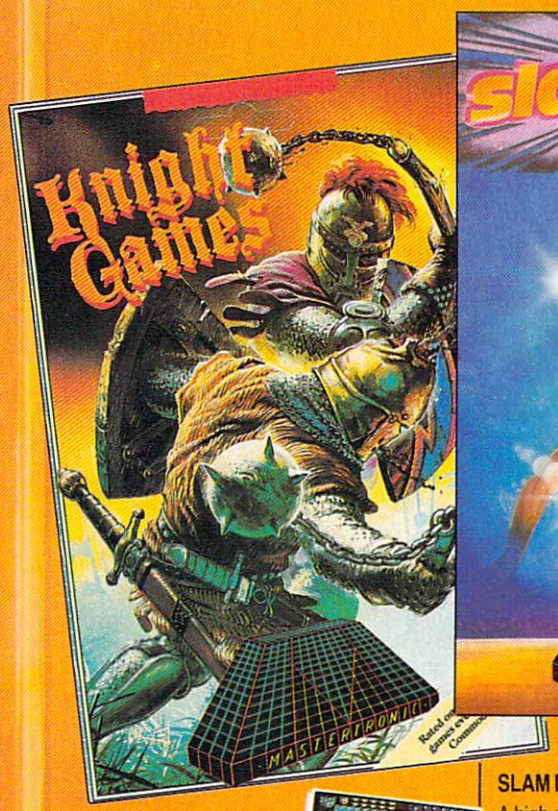

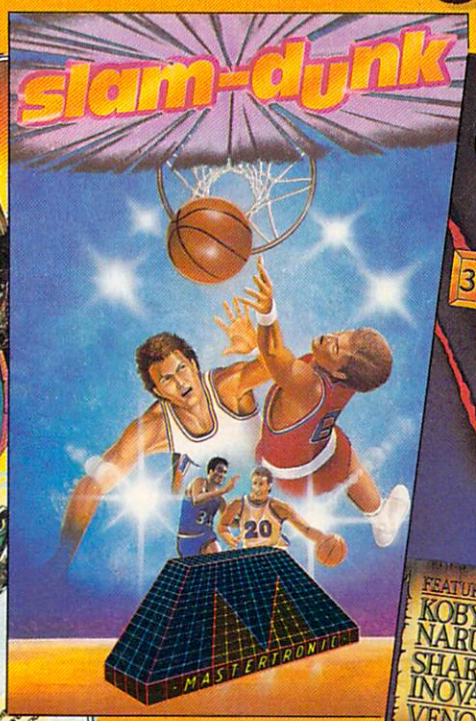

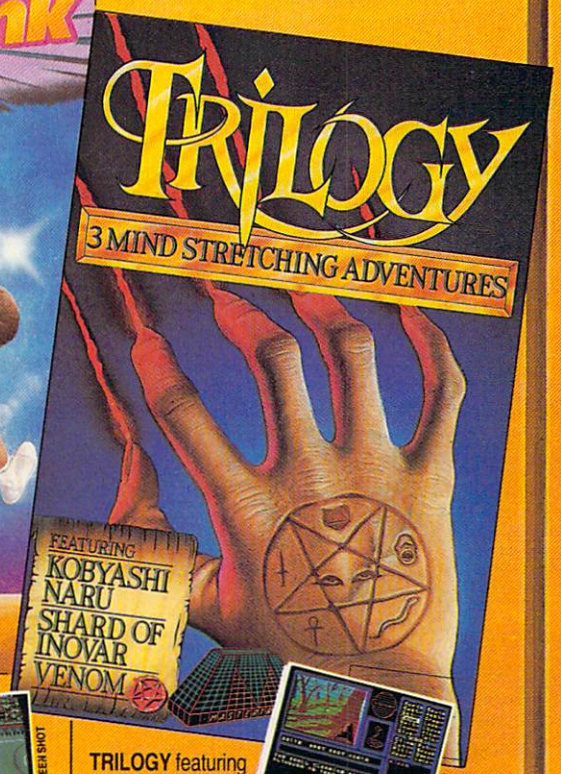

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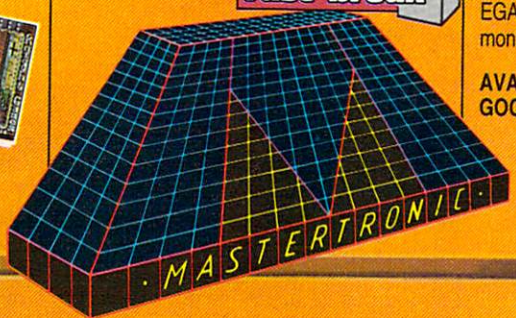

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Flight notes

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The 1.5 millionth copy of **Flight Simulator** will ship this fall. Flight Simulator has been our best-selling program by far over the years. So much innovative technology was originally invested in the program, it's no wonder that Flight Simulator is still the premier "showcase" software piece for any personal computer system. Our long-running support of **Scenery Disk** options continues to grow; the current "Western European Tour" Scenery Disk, so beautiful to fly, is an example of the continued evolution of scenery in both theme and execution. Watch for new Scenery Disk announcements at the start of the new year.

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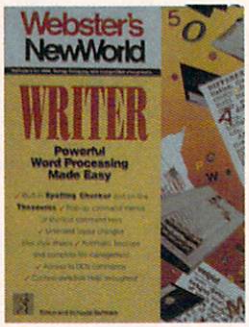
Webster's strengths and weaknesses become apparent with the Appearance menu. As its name suggests, this is the place to specify the appearance of your document, and the seven menu titles—Boldface, Underline, Indent, Align, Format, Headings, Other—make this function clear. What isn't clear, though, is that not all the appearance commands are included here, a fact that is initially confusing.

Fences comprise *Webster's* key formatting feature. *Webster's* operates on the basis of the paragraph format, not the page format, which means that changing page or header appearances can be accomplished at any new paragraph. Basically, you place a fence around the group of paragraphs you want to have a specific formatting, and they will maintain that formatting no matter what you do to the rest of the text. Initially, the fence idea takes a little getting used to, but for complex formats, it's a powerful feature. Even headers and footers are paragraph-sensitive, which means that you can easily ensure where a new header or footer starts in the text.

The Format menu allows you to set margins, choose spacing, select justified or ragged right margins, and set tabs. Here, too, you can hold three different formats and then call them up in the document as you need them. If, for instance, a long document needed three different paragraphing styles, and you wanted to ensure consistency, you would hold the three formats and then retrieve them as required.

As useful as it is, the Format menu causes some strange problems. First, although right and left margins are accessible here, top and bottom margins are not. Instead, you find them in the Print menu. It's unconventional, and hence initially (and unnecessarily) confusing. Second, changing margins is accomplished by expanding or shrinking the ruler line displayed at the bottom of *Webster's* screen. This is fine, except that changing the left margin means a probable loss of the default five-stroke initial tab setting (which you must then reset), and changing the default format is possible but not as easy as it should be.

Headers and footers are called headings, footings, and subheadings in *Webster's*. Each page can have one line of headings, one of subheadings, and one of footings. In effect, this yields a two-line header and a one-line footer. Each heading can include the filename, the current date, the page number, and the number of the last page of the document. All are extremely useful.



***Webster's New World Writer II* combines a word processor, spelling checker, thesaurus, and outliner in one outstanding package.**

A problem with headings is that even though they are paragraph-sensitive, they don't conform to the paragraph's format. In fact, I was unable, despite considerable effort, to move the left and right margins of the headings and footings at all. If there's a way to do so, the manual and the help system are silent on that point.

From the Print menu, you print your documents. *Webster's* offers printer drivers to support most popular dot-matrix printers, although future upgrades will have to include 24-pin and laser support (only the Hewlett-Packard Laserjet is currently supported). The Print menu contains a couple of unusual items. The first is typewriter mode, in which the printer prints as you type, either line by line or character by character. The second is double-sided printing, in which *Webster's* first prints all the odd-numbered pages of the document and then instructs you to turn the pages over. It then prints the even-numbered pages on the reverse sides.

The Miscellaneous menu offers a wealth of nice-to-have features. Here you add nonprinting comments to the text (and place them wherever you want in the text), get a word count and a page count, and set marks in the text that you can easily jump to. You can include the system date at the cursor location, and you can restore deleted text with the Whoops command. Here, too, you can do some graphics touch-ups. You can fill a line with any character you choose—*Webster's* stops when it reaches the right margin or a character—and you can use the numeric keypad to draw boxes and dividing lines in the text.

From this menu you can also revise your initial setup. Described in *Webster's* separate Installation manual, Revise Setup lets you set your drives and paths for document files, the thesaurus, the spelling checker, and auxil-

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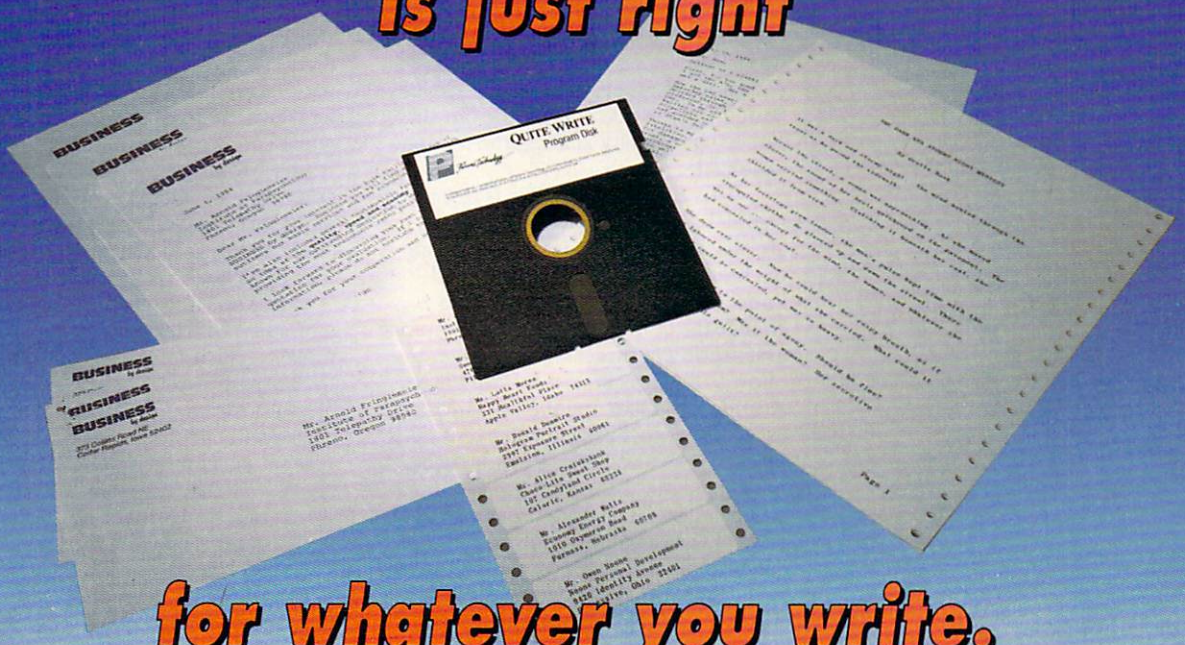

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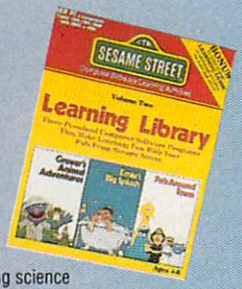

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iary dictionaries. Printer setup occurs here as well. You can also choose formatting options and whether or not you want *Webster's* to automatically save your document every so often. The default is every 1000 characters, but this can be changed by altering the configuration file.

This configuration file is extremely useful, but instructions for changing it are sparse. *Webster's* Installation manual seems to assume that users will know how to dip into MS-DOS to change the configuration file—a strange assumption considering the program's effort to address the new computerist. Admittedly, changing the file isn't necessary, but most people will eventually want to. Here you alter default pathnames, printer files, autosave values, character-per-inch and line-per-inch options, EGA capability, and so on. You can also choose a speed-up on a flicker-free display, and you can change the way the spelling checker scans your document.

The Installation menu contains one other unfriendly requirement. Hard drive users must alter DOS's CONFIG.SYS file to read FILES=20 and BUFFERS=12 or *Webster's* won't run. Again, experienced MS-DOS users won't have a problem here, but new users might give up at this point. In the case of the configuration file, changing is optional, but altering CONFIG.SYS isn't a matter of choice.

Where *Webster's* shines, though, is with its thesaurus and speller. Both are extremely versatile and highly useful, certainly among the very best available anywhere. In fact, the inclusion of these two features makes the entire package worth more than its selling price and, when added to the very good word processor, renders *Webster's* a superb deal all around.

Webster's thesaurus contains over 1 million words (an upgraded version yields 4 million), and most of these can be cross-referenced. Somewhat like a Hypertext application, the thesaurus lets you access words from within the synonym window. By using the cursor keys, you can skip from word to word in the synonym window. At any word (or phrase), you can press F10 and get a synonym window for that new word. Once you've opened a number of windows, *Webster's* lets you retrace your steps. From any window, you can replace the onscreen text with chosen alternates, and you can even find additional occurrences of words or word strings from within the thesaurus.

The spelling checker is equally useful. It operates at four levels, depending on how well you think you spell. *Full* checks through the main and alternate dictionaries and displays possible alternatives for all incorrect words. *Auto* offers fewer alternatives to each word, while *Quick* offers still fewer (but all words are still checked). *Manual* suggests no alternatives at all, unless you request them. You use it primarily to check typographical errors; it's the option most good spellers will choose.

The spelling checker also works on a realtime basis, beeping whenever you make a typing mistake (you can turn the beep off if you wish). You can create your own auxiliary dictionaries, each up to 64K long, and you can specify what part of document you want to check.The checker catches repeated words and words that run together, as well as simple spelling mistakes.

As if a good word processor, a superb spelling checker, and a stunning thesaurus weren't enough, the *Webster's* package contains an outliner as well. Available separately, *Outliner+* is versatile and usable. RAM-resident (it requires 104K by itself), it runs independently of *Webster's,* which means you can use it with other software packages.

For its price, *Webster's* is one of the best deals on the market. Professional writers and document creators may not find everything they need on the word processor, but students at all levels, except those who specifically need table of contents and index generation, and most other writers will require nothing more.

Even if you use a different word processor, though, you might consider picking up *Webster's* for its thesaurus, its spelling checker, and the outliner package. The thesaurus and spelling checker are highly professional, and a RAM-resident outliner is very nice to have.

— Neil Randall

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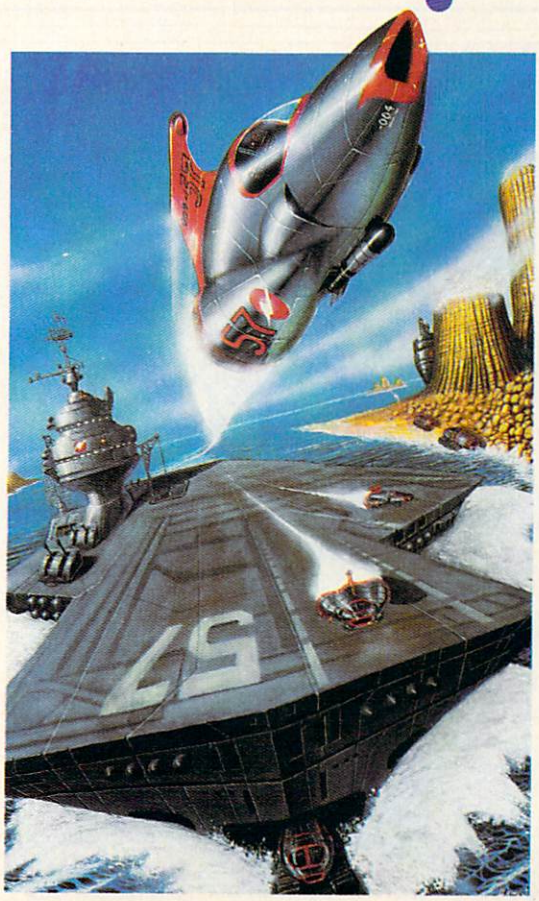

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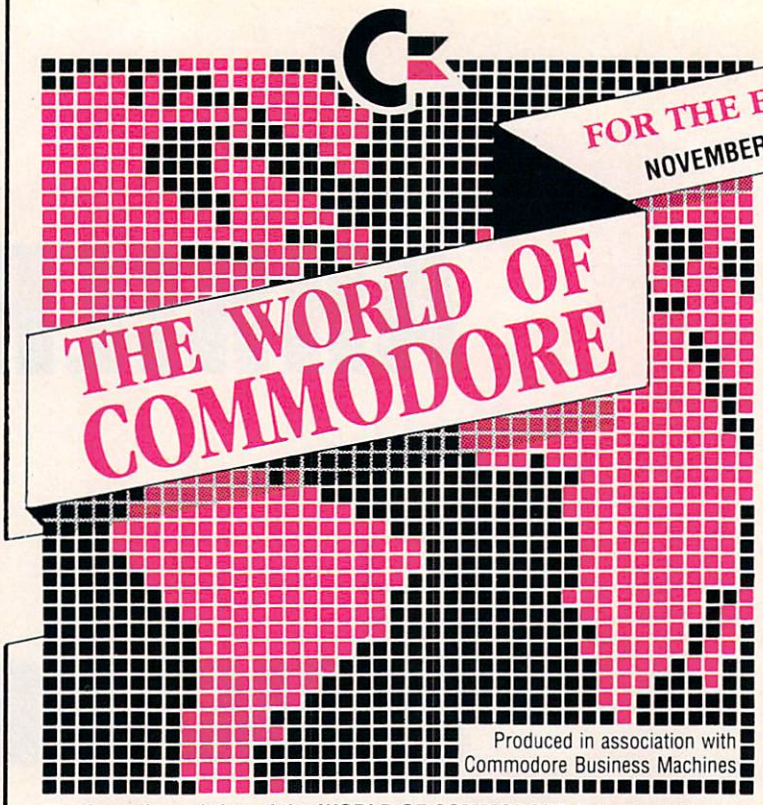

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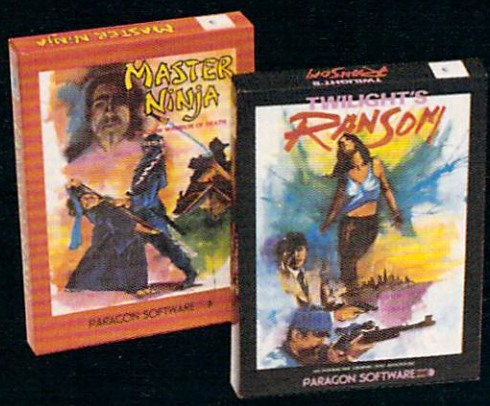

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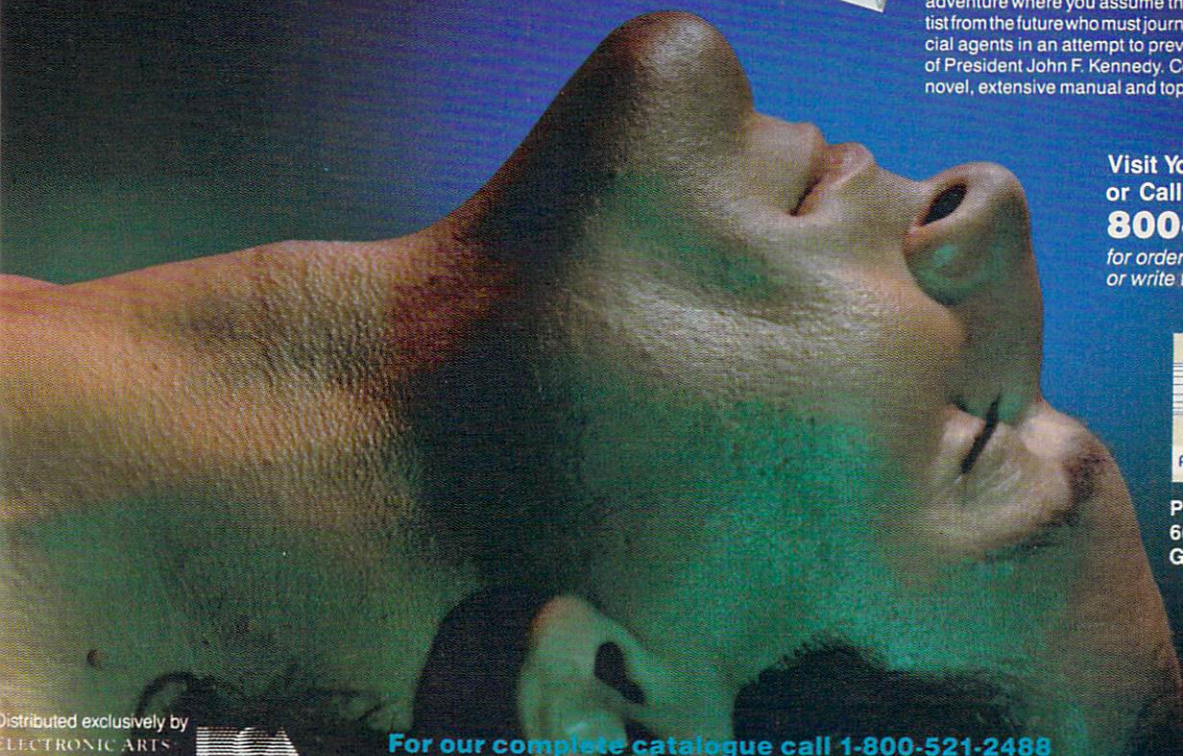

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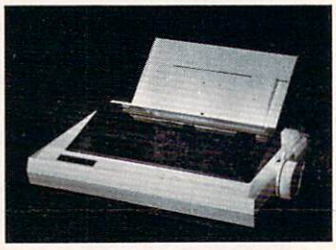

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Advertisers Index

Reader Service Number/Advertiser	Page
102 Action Soft	64
103 Avalon Hill Game Company	75
104 Britannica Software	79
Commodore Business Machines	92
105 CompuServe	40
106 Comp-U-Store	111
107 Computability	94
108 Computer Direct	108–109
Computer Sports World	98
109 Computers Buy Mail	96
110 Electronic Arts	17
Electronics Express	99
111 Epyx	IFC–1
112 Epyx	21, 23, 25, 27, 29
113 Epyx	78
114 Epyx	105
115 Epyx	6–7
G. E. Information Services	11
116 Gentry Software, Inc.	100
117 Hi Tech Expressions	90
ICR Future Soft	Onsert
118 Independent Insurance Agent	10
119 Indus-Tool	102
120 Koei Corporation	49
121 Konami	8–9
122 Lyco Computer	54–59
123 Mastertronic International, Inc.	87
124 Meca	IBC
125 Mediagenics	35
126 Melbourne House	51
127 Mibro	97
128 Micro Prose	18
129 Micro Prose	37
130 Mindscape	77
131 Montgomery Grant	107
NRI Schools	53
132 Origin Systems, Inc.	83
133 PC Enterprises	60
134 Paragon PC Software	101
135 Paragon Software Corp.	93
136 Parsons Technology	89, 95
137 Polaware	82, 84
138 Precision Data Products	98
Quasimotto Data Systems Ltd.	98
139 Radio Shack	33
140 Rainbird	91
141 Renco Computer Printer Supply	102
142 Sierra On Line	63
143 Smart Luck Computer Systems	60
144 Software Discounters of America	103
145 Spinnaker	61
146 Strategic Simulations Inc.	85
147 subLOGIC	64
148 subLOGIC	88
149 Taito	38–39
150 Wesson International	86
151 Wright Computer	97

Classified Ads	100–101
COMPUTE!'s Demo Disk Pack	80–81
COMPUTE!'s Holiday Subscription	73
COMPUTE!'s *SpeedScript* Disk	92

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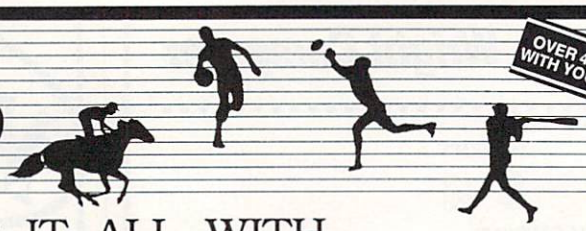

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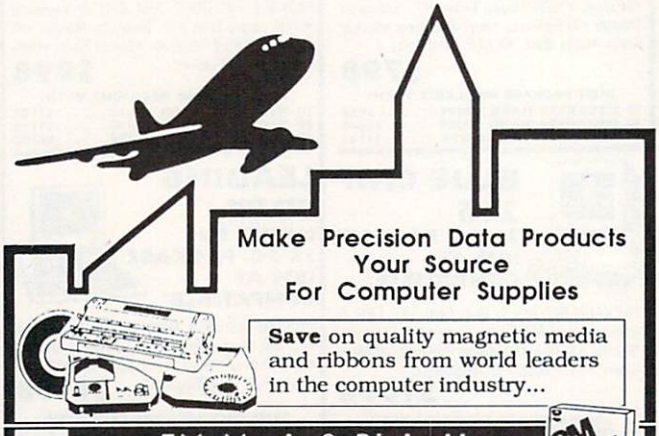

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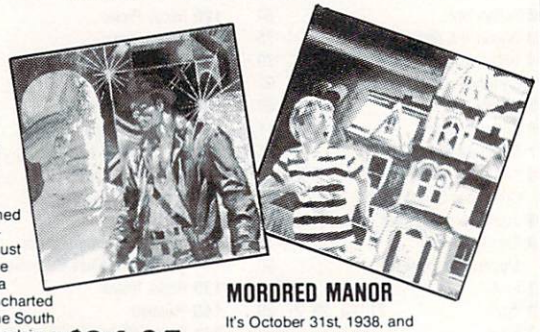

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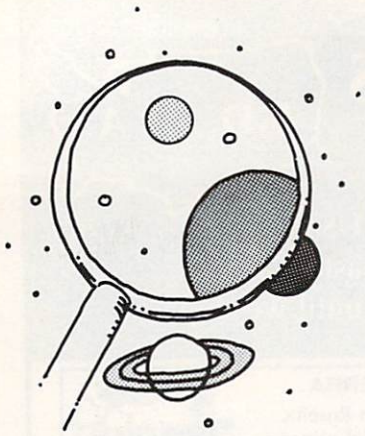

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There's Life in Those Aged Computers—They Can Teach and Tutor Nearly as Well as the Most Modern Machines

The computers of yesteryear—the VIC-20, Atari 400, and Apple II—just can't stack up against their modern corporate descendants—today's Amiga, Atari ST, and Apple IIGS. Earlier machines have even more problems. If you're one of those daring few who bought the kit and built a 1K Sinclair eight or ten years ago, for instance, you won't be surprised to hear that no one is developing a desktop publishing package for it. Commodore PET owners have to search hard for MIDI interfaces and music software.

In the meantime, exotic computer equipment becomes affordable as prices decline and features increase. Sooner or later, old machines lose their usefulness. Buying new often makes better sense than traveling the upgrade route. Right?

Maybe not. The enthusiasm generated by bigger and better computers and ever more powerful software has its down side, too. Not every family can arrange a 36-month low-interest loan to buy the latest and best for the kids. Nor can schools suffering from equipment shortages afford the luxury of trading up to state-of-the-art models year after year.

When concentrating on newer models makes us ignore older hardware, all computer enthusiasts lose. We lose when pioneer computerists give up because they cannot (or choose not to) keep up. We lose when schools let older machines sit idle because educators can't figure out how to use them effectively. We lose when interested parents wait for promised models or for prices to come down, thereby forgoing the educational benefits their children might otherwise have gained during the wait. When preoccupation with what new machines can do fools us into focusing on what the old standbys cannot do, we all lose.

It need not be that way. Older computers have a lot of life left in them. All we need to do is evaluate their strengths and take advantage of them. If you've outgrown your unused computer, why not get it into the hands of someone who can use it? Give it to a friend. Sell it. You might even donate it to a school. Grouped in labs, even Atari 400s or Tandy Color Computers can perform years of additional service.

For those who aren't quite ready to part with their first love, and for those who might benefit by the generosity of others who are, here are some suggestions for squeezing more education (and more fun) from orphaned machines.

Teach keyboard skills. Typing software exists for virtually every personal computer produced. Most keyboards follow the standard QWERTY layout, so it doesn't matter much whether you learn on a brand-new IBM PS/2 Model 60 or on an antiquated PCjr.

Study programming. Since BASIC was usually built in or supplied on ROM cartridges in older machines, you can do this with almost any old home computer. For learning how to program, you can't beat the Super PET, a model with many languages in ROM. How about a Logo lab filled with TIs running *TI Logo*?

Educate preschoolers. Break out that early-learning software for the young children in the family. Some of those old TI cartridge-based programs look good even by today's standards.

And a lot more. Conquer those text adventures that have stumped you for so long. Start word processing on your Adam or Commodore Plus/4, both of which have built-in software. Seek out sources of public domain programs. Develop friendships with experienced computerists who use your model. If they can't spur your imagination, no one can!

Still not convinced? Contact one of these support groups. They'll be glad to explain how the yard-sale bargain you bought on a whim could change your life. They would appreciate a self-addressed, stamped envelope with written queries. Incidentally, if you have other good ideas for educational uses of older equipment, why not send me a note?

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And the Answer Is . . .

Tune in to an episode of "Computer Chronicles," and you may be in for a distinctly uncomputerlike surprise: bells, buzzers, applause, and trivia. In October and November, the PBS television program will show tapes of the Computer Bowl.

The Computer Museum, a popular Boston attraction, is sponsoring the Bowl in the hope that the event will raise money for educational programs and call attention to computer literacy. Next year, the museum plans to sponsor a Junior Bowl for high school and college students.

Stewart Cheifet, executive producer of "Computer Chronicles," said he was attracted to the Computer Bowl because it looked like a fun approach to computers.

"We certainly thought our audience would be interested in the information and the characters involved," he said.

Producing a game show–like program hasn't been easy. "At the beginning, I don't think anybody realized the technological challenge," he said. "You don't just paste together a couple of wires and little red lights. When someone pushes a buzzer, you must have a careful system as to who has the right to answer."

Originally, a live audience and a satellite feed to the West Coast were the only spectators the organizers had to worry about. Filming for television changes many aspects of the production, said Janice Del Sesto, the Computer Bowl project developer.

"Having a live audience, having a television crew, having to design the set so that it is now appropriate for television taping has meant there's a lot more people involved," Del Sesto said.

The "Computer Chronicles" program will give the contest national exposure, bringing a wider audience to the museum, she said.

"It's really important that the Computer Bowl help develop a sense of ownership around the country for the museum. It is a resource for people, and it really belongs to everyone," she said.

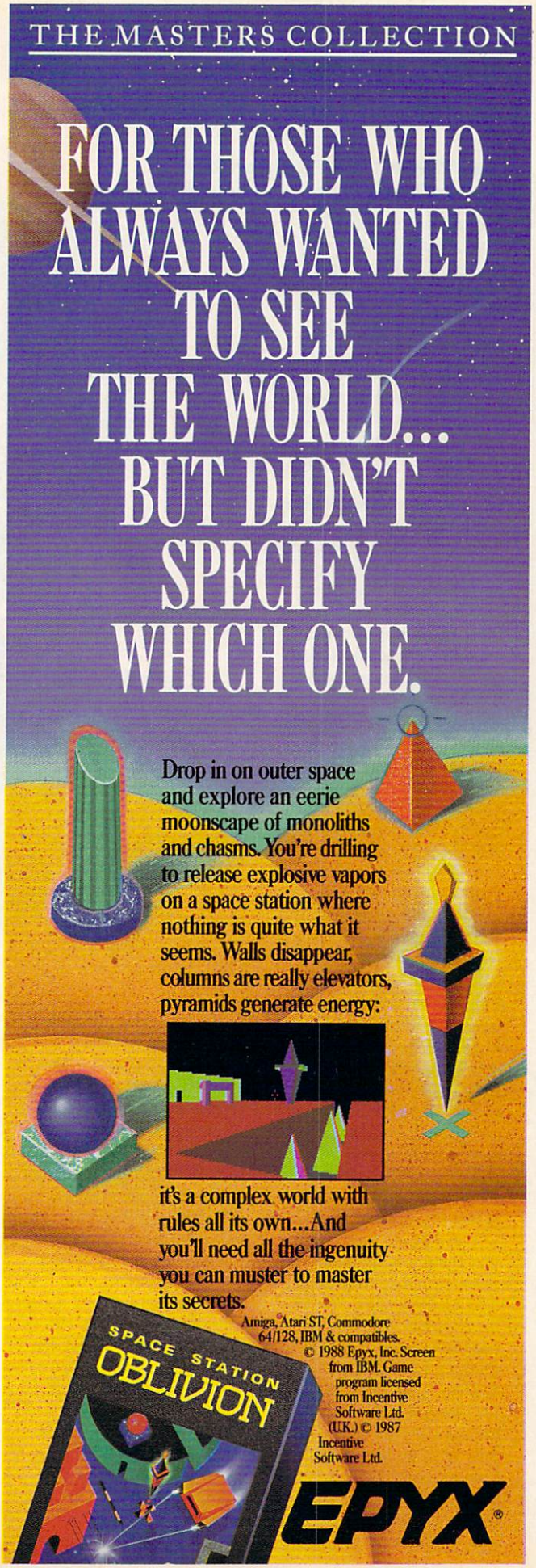
Teams for the Bowl include computer luminaries from both sides of the country. West Coast contenders will be team captain David Bunnell, chairman and CEO of PCW Communications; William Joy, Sun Microsystems cofounder; Allen Michels, Ardent Computers president; and Casey Powell, Sequent Computers president and CEO.

Defending the East Coast's reputation are team captain Richard Shaffer, editor and publisher of the *Technologic Computer Letter;* David Hathaway, partner in Venrock Associates, a venture capital firm that invested in Apple Computer, among other projects; Mitchell Kapor, chairman of ON Technology and founder of Lotus Development; Dr. John William Poduska, Sr., founder of Prime and Apollo Computer and chairman and CEO of Stellar Computer; and Esther Dyson, publisher of "Release 1.0," an industry newsletter.

"We wanted to play on the idea of the East/West Coast rivalry," Del Sesto said.

The Computer Bowl is scheduled for early October, and "Computer Chronicles" will air the program in late October and early November. For information, contact your local PBS station.

— Heidi E. H. Aycock ▷



MacWorld Expo Celebrates HyperCard, Mac Corporate Life

Even as Boston sweltered, hundreds of exhibitors and an estimated 50,000 attendees at MacWorld Expo agreed the Macintosh was *cool.*

The three-day event served as a platform for the celebration of *HyperCard*'s first birthday, as well as an opportunity to extol the Macintosh line's increasing compatibility with the corporate environment.

There were fewer product announcements than usual from Apple. The big news was the long-awaited four-megabyte Macintosh II, and the even longer–awaited Apple Scanner. Missing from the product announcements was the anticipated two-megabyte Mac SE, as well as a Mac II based upon Motorola's 68030 chip.

The Macintosh II 4/40, aimed at high-end business users, includes 4 megabytes of RAM and a 40-megabyte hard disk at a price of $7,269. Apple announced 4-megabyte upgrade kits at $2,399.

With the Apple Scanner and its bundled *AppleScan* and *HyperScan* software, Apple hopes to extend the Macintosh's appeal further in the corporate community. The $1,799 scanner digitizes images, using two pieces of software: *AppleScan* provides control of shading and contrast and *HyperScan* directly imports scanned images into *HyperCard* stacks. *HyperScan* was developed by *HyperCard* author Bill Atkinson.

HyperCard stacks were very much a focus of the exposition, with many exhibitors offering *HyperCard* enhancement tools as well as commercial stacks. With more than a million copies of *HyperCard* in users' hands, many feel that the software is close to the critical mass at which it will take on a life of its own. Atkinson, however, noted that while the sheer numbers of *HyperCard* users and stacks are impressive, the software is still in its infancy and needs more elegant and well-constructed stacks, not just more stacks.

That *HyperCard*'s influence on information management will continue to grow served as the basis for the show's keynote address. Apple CEO John Sculley interrupted his sabbatical—during which he has ensconced himself in Maine to study cinematography—to appear before a packed auditorium and reveal the future as he sees it. His vision includes the Knowledge Navigator, a sophisticated descendent of the Macintosh, and *HyperCard.*

Sculley predicted that within a decade *HyperCard*-like linkages of information and people will revolutionize business. He augmented his talk with slickly produced videos showing what he called "the Grey Flannel Navigator," a corporate version of the Knowledge Navigator.

Other speakers expressed concern that Apple was neglecting the large personal computing market in favor of the narrower but exceptionally lucrative high-end business market. More than one speaker called for a laptop or portable Mac and a mass-market Mac, a machine priced to reach the general consumer. Apple spokespeople encouraged speculation about the possibility of such a machine, but declined to comment on when one would be available.

One of the chief activities at the Expo seemed to be IBM-bashing, with OS/2 in particular taking a number of lumps from speakers and exhibitors. Oddly, though, a substantial number of exhibitors were displaying software and hardware aimed at making Macintoshes more and more compatible with the IBM universe. *Networking, communications, connectivity,* and *file-sharing* were popular buzzwords throughout the event.

Not surprisingly, Bill Gates, of Microsoft, took time in his keynote address to defend OS/2, while also noting that despite the current lawsuit between his company and Apple, Microsoft's commitment to the Macintosh remains strong. Gates shrugged off personal feelings about the lawsuit, urging an out-of-court settlement to eliminate the hold the litigation is placing on new development.

— *Keith Ferrell* ⊡

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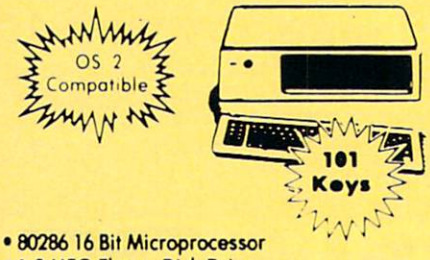

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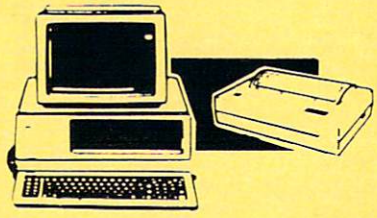

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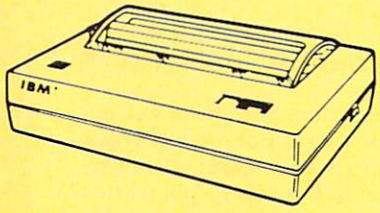

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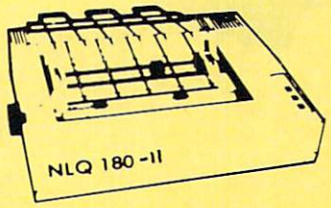

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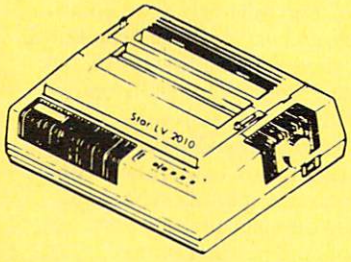

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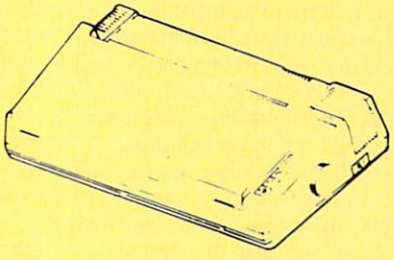

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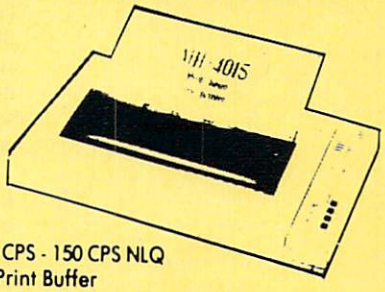

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continued from page 112

ditional CP/M software for the 16/8 (in Kaypro format) by the pound.

There are even a number of CP/M-based laptops floating around. The NEC Starlet had the dubious distinction of being one of the nicest full-screen CP/M lap machines ever made. The timing of its introduction couldn't have been worse, as it went head-to-head with a handful of new affordable MS-DOS laptops. Also doomed to a similar fate was Epson's Geneva PX-8. Both the Starlet and PX-8 show up for under $200 with bundled software and accessories. There are even a number of Sharp PC-5000s—a computer with a built-in printer—floating around for under $100.

Hewlett-Packard's original diskless HP Portable pops up occasionally for about $50 or less. Whatever their failings, HP products are built like tanks, and the HP Portable was no exception. Even though the HP's 16-line LCD screen is absolutely illegible under the most favorable lighting conditions, its heft and size make it an excellent self-defense weapon.

Rumor has it that the Portable was actually designed to withstand shocks of up to 50 G's. A running joke among early HP Portable users was that many companies bought the $3,000-plus system as a kind of data insurance policy. In the event of an auto or air mishap, your parts might be strewn over several football fields, but those corporate spreadsheets would no doubt be intact.

If you're really into abuse, you can still find complete Coleco Adam systems for $8 or so, complete with enough Cabbage Patch software cartridges to satisfy the practice-puck requirements of most junior hockey leagues.

Do you want to completely befuddle friends when they come over? Buy a dozen or so of those under-$10 peripheral switch boxes and then create a maze of interconnections behind your computer that only you can comprehend. Cascading printer buffers are also an attractive and functional alternative to lava lamps.

Don't wear blinders on your cerebrum when picking over computer junk. Inventing novel noncomputer uses of computer accessories stimulates the right side of your brain and is the mark of the true junkaholic. For example, padded sound enclosures intended for daisywheel printers are bulky, heavy, and usually terribly inconvenient for their intended purpose. Once marked down to $20, though, they make terrific gerbil and hamster cages.

On a more serious note, there's no denying that there are genuine, useful bargains out there waiting to be snapped up. In particular, the volatility of today's printer market has made it possible for even the most budget-minded shopper to pick up a good printer for a pittance. Smith Corona's discontinued TP-10 daisywheel may be slow and noisy, but it can usually be had for less than $50. Solid performers such as low-speed Dynax and Juki daisywheel printers go for less than a C-note. Do any of your friends own laptop computers with a built-in serial port? There are still thousands of compact IBM thermal printers (originally manufactured for the PCjr) available for less than $30.

There are some things that are best avoided, no matter how attractive the price. The award for most useless computer accessory of the year goes to those cute little battery-powered, hand-held vacuum cleaners. The ads invariably show them delicately sucking up lint and dust between the keys of a computer keyboard.

Have you ever actually tried to do that? Why bother with a rapier when a meat cleaver will do? You might get extra points for style by delicately hitting every crack and cranny in a keyboard with a fine brush, but even a third-rate shop vacuum will remove every speck of dirt and dust in a jiffy with a satisfying *WHUMP* as boulder-sized flotsam, spare change, paper clips, and the occasional loose key are unceremoniously sucked out.

Local and national computer want ads are generally of limited use. I'm tired of seeing people trying to unload Atari ST and Apple II systems for more than the machines sell for when they're new. However, some ads do have intrinsic entertainment value. My current favorites came from a monthly publication dedicated to computer classifieds. Those who are into physical fitness while computing would surely want to pick up an "RS-232 adapter—run a mile between your computer and your terminal." Enervating, perhaps, but decidedly inconvenient for floppy disk–based systems.

And finally, who can fail to recognize the summation of the techno-nerd gestalt as one stumbles across the ad, in the same monthly computer magazine, that says, "Asian women desire sincere friendship, meaningful relationships" under the "Miscellaneous Equipment" heading? ⊡

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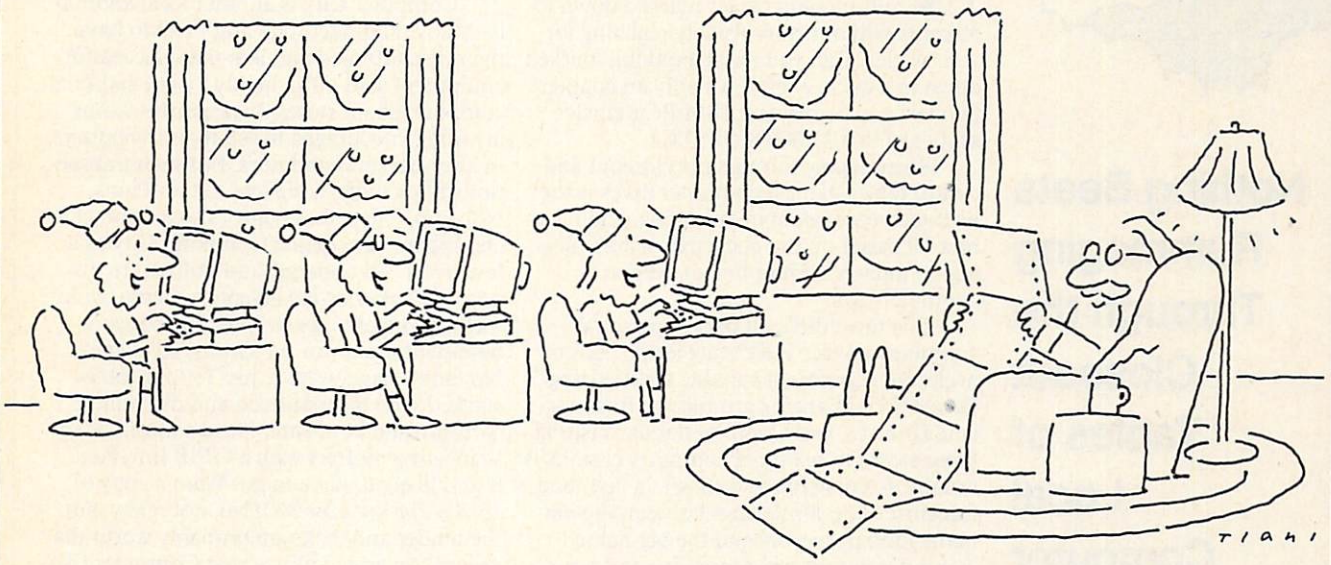

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ARLAN LEVITAN

Nothing Beats Rummaging Through the Closeout Tables of Local Computer Dives for Eclectic Entertainment

Are you a sucker for a bargain? Can you walk past a box of Apple Lisa null-modem cables marked down to 50 cents without convulsively reaching for your wallet? Can you resist anything marked down to a buck, even if it's only an adapter that lets you connect an IBM PCjr chiclet keyboard to a $5,000 80386 PC?

Rummaging through the closeout and castoff tables of local computer dives is the high-tech equivalent of antiquing, and it can be a lot easier on the pocketbook than picking up today's current line of expensive computer toys.

The most difficult part of personal computer salvage is locating fertile beds of neglected equipment suitable for dredging. Forget about hanging around the Businesslands, Entrés, and Computerlands. Visiting those stores in search of computer castoffs is usually as satisfying as dining at a fast-food franchise. The similarities between the big-name food purveyors and the big-name computer dealers are depressing and predictable. Both fast-food and fast-computer outlets are typically staffed by synthetically cheerful uniformed employees who are armed with only a cursory knowledge of the standardized, uniform products that they're selling.

They may be as scarce as greasy-burger palaces, but a good "greasy capacitor" joint can provide hours of low-cost fun. Look for computer stores where the employees wouldn't be caught dead wearing a suit or reading the *Wall Street Journal.* Any place with a "No one under 18 allowed unless accompanied by an adult" policy is pretty much a lost cause. If the store won't let in kids, then it won't have kidlike prices. Instead, the numbers on the tags will be *very* adultlike, namely *big.* My home-turf favorites (I live in a Detroit suburb) are Computer City and Sy Draft's.

Sy's is strictly a local accident, a result of a head-on collision between a tractor-trailer loaded with office supplies and an 18-wheeler full of computer equipment headed for a landfill. If you make your way past the jumbled aisles of self-sticking notes, staples, and paper clips, you'll stumble into the computer "department," where indentured high school students sit chained to work tables assembling decent-quality PC clones. The parts are from Taiwan, and the computers boot up with the famous *SyBM* trademark. The tables and shelves are stacked with a bizarre jumble of used and new software and hardware. Prices are always negotiable, varying with the time of day and how messy the store happens to be.

Computer City is another local anomaly. Many manufacturers don't like to have their discontinued and less-than-successful equipment sold off in highly visible national computer chain stores. Instead, the chains are often encouraged to sell their inventory to aftermarket liquidators. But such transactions often mean a big loss to the chains. Inacomp, one of the country's largest franchisers, apparently created Computer City as a low-overhead underground railroad to dispose of its own excess inventory, demo equipment, and closeouts, keeping the bargain-basement money in the family, so to speak. No fancy displays here, just folding tables stacked with discontinued and discounted software and hardware. Need a dozen or so brand-new plotters with a GPIB interface? City's likely to have them. Want a copy of IBM's *TopView* for $5? (No, not really, but the binder and disks are probably worth that much.) An added plus is that Computer City seems to be staffed by salespeople deemed to be too frank or laid back for foisting high-priced business systems on a trusting public.

There's more to be realized in shopping the bargain-basement venues than just saving a buck. There's something inherently altruistic about adopting orphan computer systems. I'm not talking about antiques that have redeeming historical value, like a KIM-1, IMSAI, or Osborne. I mean machines that are down-on-their-luck systems that don't have a ghost of a chance of attaining cult status. Sure, there's a multitude of headaches involved with being a foster computer-parent, but going against the flow builds character and independence.

MS-DOS, with its IBM PCs and compatibles, may be the ruler of the roost today, but it wasn't long ago that Digital Research's CP/M operating system reigned supreme. There are scores of brand-new CP/M-based systems, perfectly fine computers all, lurking in the warehouses of America. There are even some weird hybrid systems—like Xerox's 16/8—hitting liquidators' shelves. The Xerox has both a Z80A microprocessor (for CP/M) and an 8086 microprocessor (for a limited MS-DOS capability). Why bother picking up such an odd duck? Complete 16/8 systems that include a ten-megabyte hard drive, a monochrome monitor, and a fistful of applications and operating system software are going for about $350. An added bonus is that you can typically purchase ad-

continued on page 110

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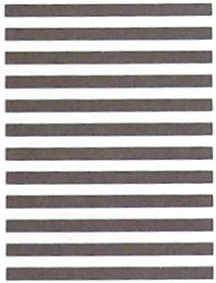

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135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151
152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185
186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202
203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219
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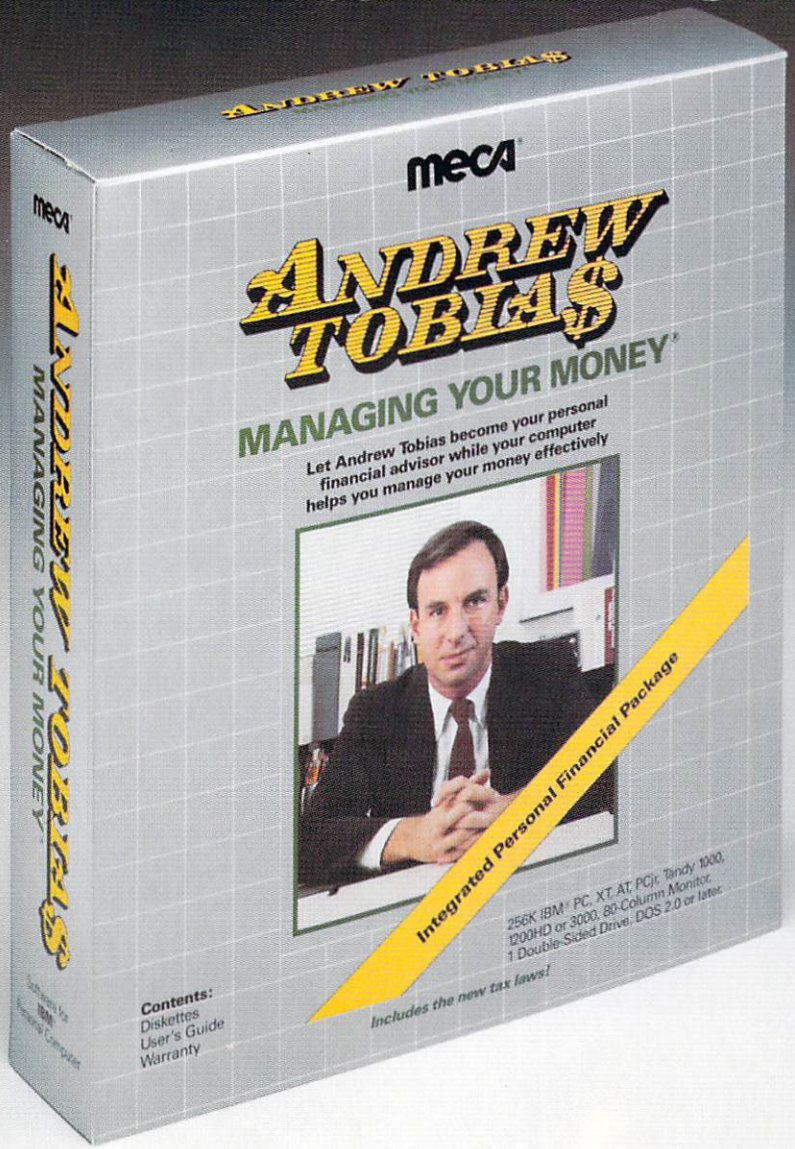

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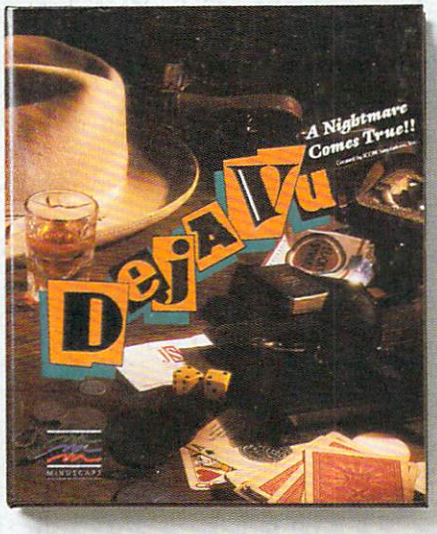

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