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DECEMBER 1987
VOLUME 5
NUMBER 12

1987 IN REVIEW: BEST HARDWARE

FAMILY & HOME OFFICE COMPUTING™

CELEBRITY COMPUTER WISH LIST

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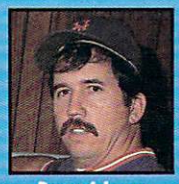
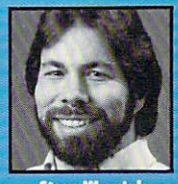
Julia Child

Robin Williams


Davey Johnson

Linda Ellerbee


Steve Wozniak

Annual BEST-EVER SHOPPING GUIDE

GIFTS FOR HOME & HOME OFFICE

SEASONAL SOFTWARE SPECIALS

SPREADSHEETS Vs. DATABASES

• REVIEW • HYPERCARD • REVIEW •

TELECOMPUTING • MS-DOS FOR EDUCATION
CATALOG SHOPPING • FAMILY BUDGETS
GAMES • NEW PRODUCTS
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Microsoft Works: If it's

You were going to do the billing this morning. Right after you did the sales forecast. Which you were going to get to when you figured out how to get the labels printed. For the envelopes. For the catalogs. For the mailing.

We have a name for people like you: Microsoft® Works.

Four stunningly simple, amazingly versatile programs in one. At your fingertips. A microsecond away on the PC nearest you.

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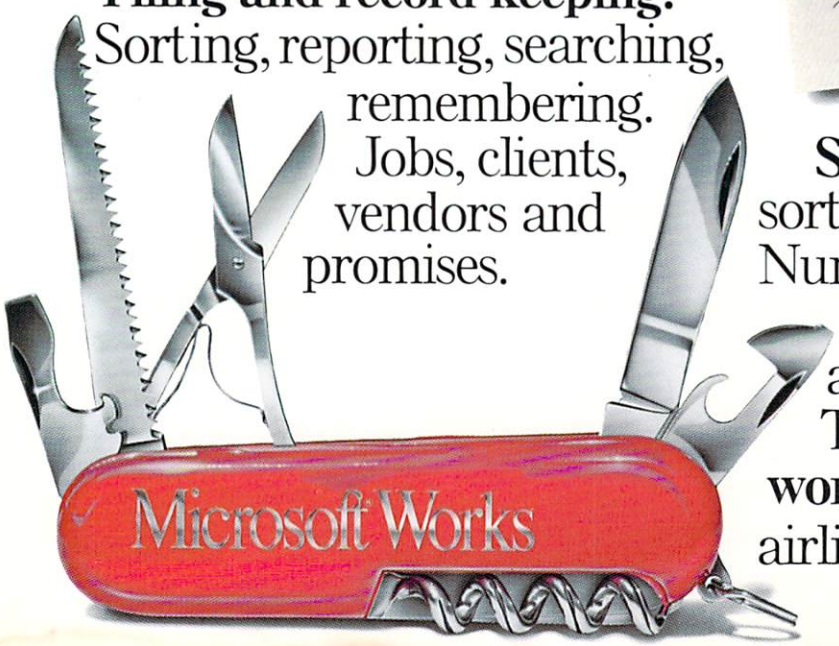

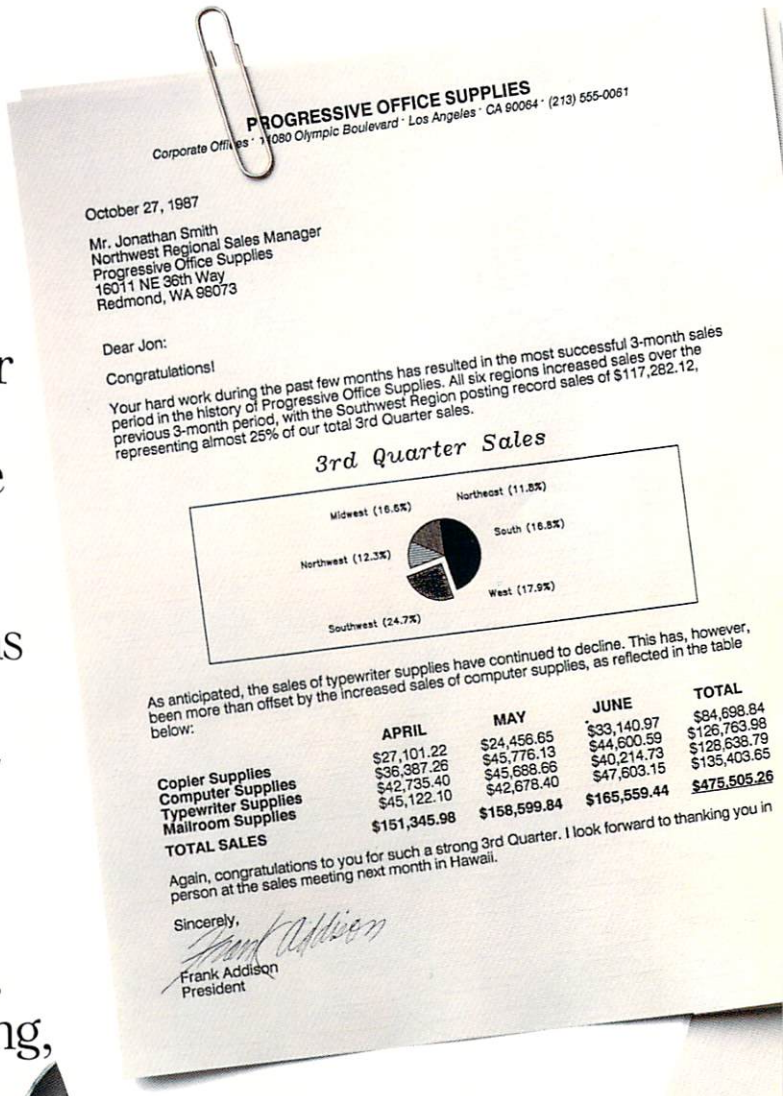

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Corporate Offices · 11080 Olympic Boulevard · Los Angeles · CA 90064 · (213) 555-0061

October 27, 1987

Mr. Jonathan Smith
Northwest Regional Sales Manager
Progressive Office Supplies
16011 NE 36th Way
Redmond, WA 98073

Dear Jon:

Congratulations!

Your hard work during the past few months has resulted in the most successful 3-month sales period in the history of Progressive Office Supplies. All six regions increased sales over the previous 3-month period, with the Southwest Region posting record sales of $117,282.12, representing almost 25% of our total 3rd Quarter sales.

3rd Quarter Sales

As anticipated, the sales of typewriter supplies have continued to decline. This has, however, been more than offset by the increased sales of computer supplies, as reflected in the table below:

	APRIL	MAY	JUNE	TOTAL
Copier Supplies	$27,101.22	$24,456.65	$33,140.97	$84,698.84
Computer Supplies	$36,387.26	$45,776.13	$44,600.59	$126,763.98
Typewriter Supplies	$42,735.40	$45,688.66	$40,214.73	$128,638.79
Mailroom Supplies	$45,122.10	$42,678.40	$47,603.15	$135,403.65
TOTAL SALES	$151,345.98	$158,599.84	$165,559.44	$475,505.26

Again, congratulations to you for such a strong 3rd Quarter. I look forward to thanking you in person at the sales meeting next month in Hawaii.

Sincerely,

Frank Addison

Frank Addison
President

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not one thing, it's another.

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rainfall in Peru, anything one computer can tell another computer.

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New Eddie Bauer style.

This year there's a sporty Eddie Bauer® model with dual front Captain's Chairs, special two-tone paint, unique interior appointments, and more. It's Aerostar with the good looks of the great outdoors!

Designed to move you.

But Aerostar's success isn't based only on distinctive looks. Its standard 3.0L V-6 has multi-port Electronic Fuel Injection for easier starting and smooth running. It delivers a spirited 145 horsepower. That's greater than any Chrysler mini-van. And it's powerful enough to tow an impressive 4900 lbs.**

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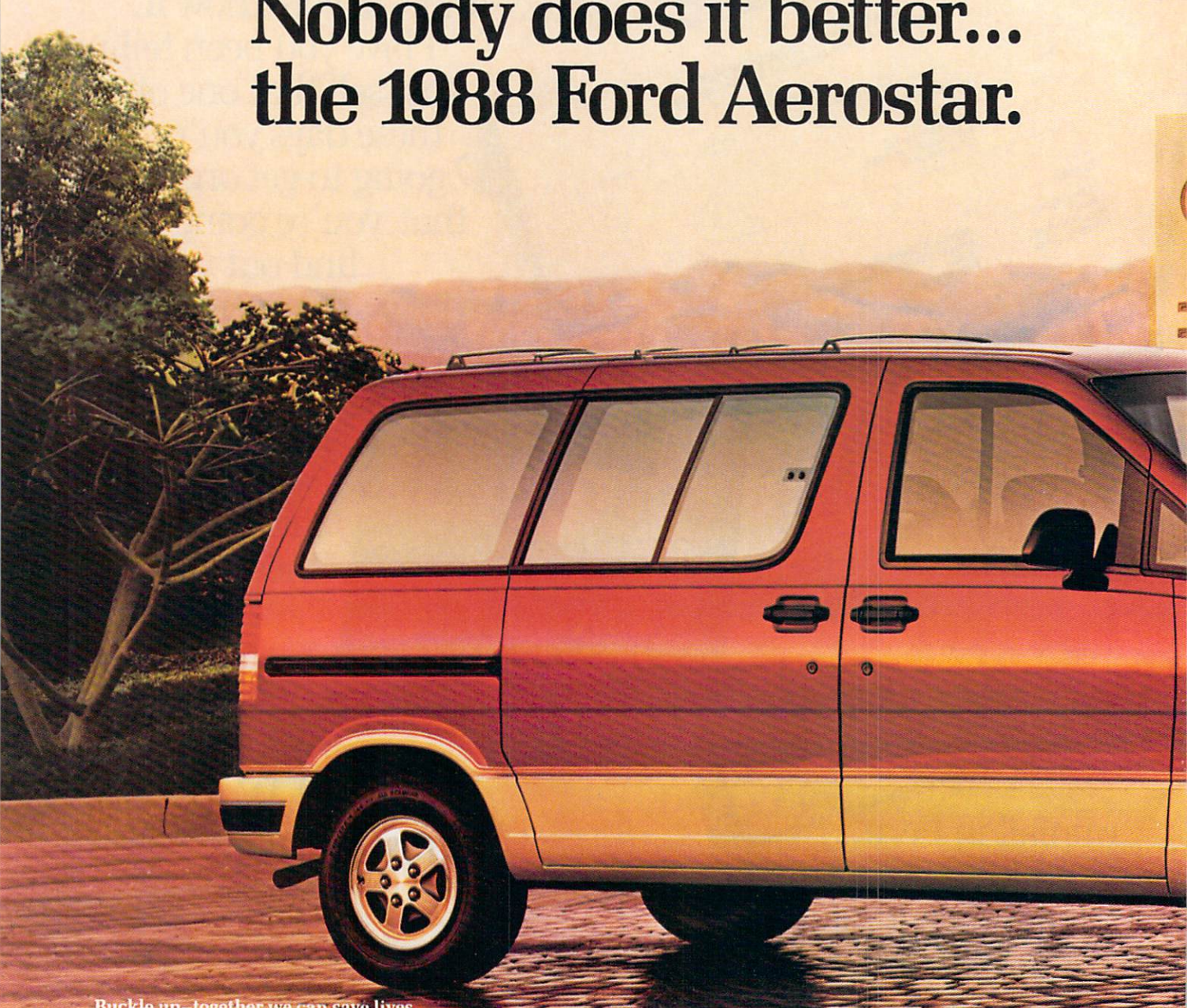
Nobody does it better... the 1988 Ford Aerostar.



Buckle up—together we can save lives.

folding seat-bed option.† All this in a minivan that's a breeze to handle and park, practically anywhere, even inside your garage.

6-Year/60,000-Mile Powertrain Warranty. Covers major powertrain components for 6 years/60,000 miles. Restrictions and deductible apply. Also, participating dealers back their customer-paid work with a free Lifetime Service Guarantee, good for as long as you own your vehicle. Ask to see these limited warranties when you visit your Ford Dealer.

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Based on an average of owner-reported problems in a series of surveys of '81-'87 models designed and built in North America. At Ford, "Quality is Job 1."

*Based on manufacturer's reported model year retail deliveries through July 31, 1987. **When properly equipped. Towing rating is reduced by passenger and cargo weight in towing vehicle. †With optional rear bench seat. Seat-bed optional on XL only.

Have you driven a Ford...lately? Ford

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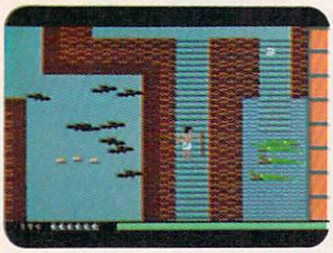
Available for: IBM PC and compatibles, Tandy 1000 SX & EX, C64/128 and Apple II Series.



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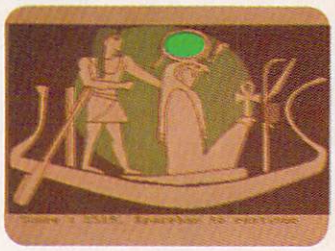

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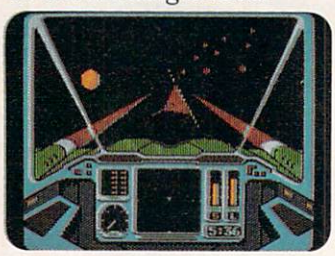

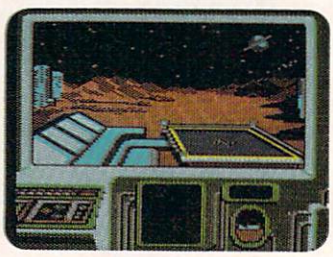

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PUBLISHED BY SCHOLASTIC INC.

DECEMBER
1987

VOLUME 5
NUMBER 12

FAMILY & HOME OFFICE COMPUTING

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4TH ANNUAL BEST-EVER SHOPPING GUIDE
'Tis the season to browse through our annual selection of great gifts, outstanding hardware, and holiday software specials: dozens of items for computer lovers.

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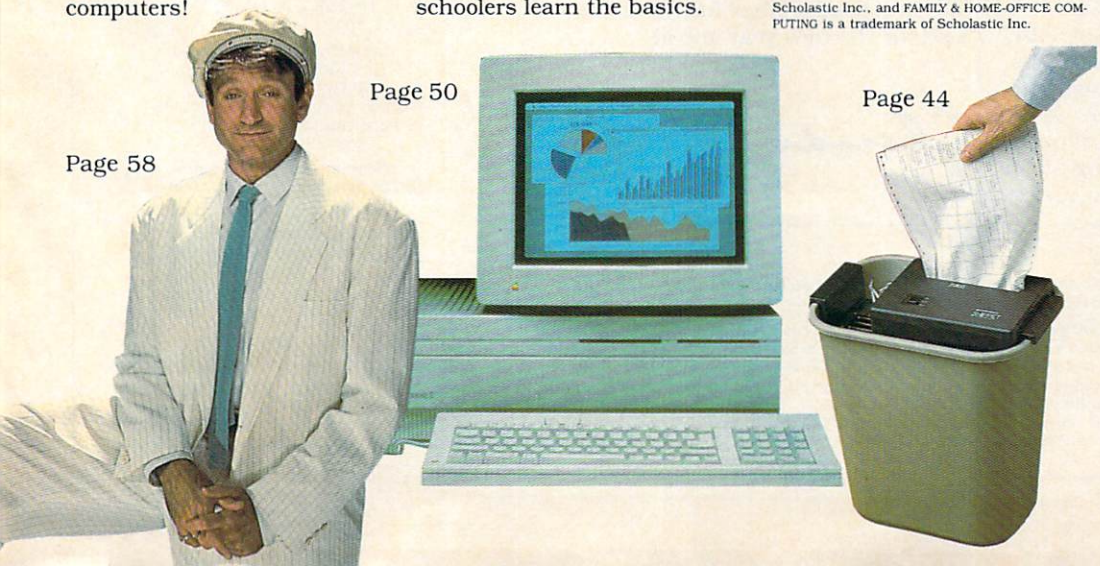

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FAMILY & HOME-OFFICE COMPUTING (ISSN 0738-6079) is published monthly by Scholastic Inc., 730 Broadway, New York, NY 10003. Subscriptions: in U.S., 12 issues for $19.97; Canadian and U.S. possessions add $6.00 per year for postage; Foreign residents add $8.00 per year. Printed in U.S.A. Copyright © 1987 by Scholastic Inc. All rights reserved.

POSTMASTER: Send address changes and notice of undelivered copies to FAMILY & HOME-OFFICE COMPUTING, P.O. Box 53561, Boulder, CO 80322-3561. Second-class postage paid at Monroe, OH 45050-9998 and additional offices.

EDITOR'S NOTE
OLD AND NEW TRADITIONS

This third issue of the first year of the expanded magazine title, FAMILY & HOME-OFFICE COMPUTING, finds us in the midst of the holiday season, a time of traditions. In that way, this year is no different from others.

Our traditions, like those of any family or school or business, date from various times. A number go back to our beginnings, others have been added along the way, and still others wear the signs of the newly established, but with every indication that they'll be around for some time.

The number-one tradition of our magazine is our commitment to presenting ideas and information as simply and directly as we can—a minimum of jargon, as few details as possible about the innards of machines, as much help as we can provide about making this technology best serve the reader.

Our annual "Best-Ever Shopping Guide," here in its fourth edition (page 43), is another seasonal tradition. Our categories and organization and, of course, the products have changed from year to year, but the basics remain. So you'll find "Seasonal Software Specials," as usual (page 49); our editors' review of the year's notable hardware (page 50); and we've put together a wide assortment of gift possibilities (page 44) to help you pick presents for family members and friends, especially the ones for whom you have a tough time shopping.

A new trend, probably on its way to becoming a tradition, is the home-office gifts category (page 46). Home-office operators represent the largest and fastest-growing segment of computer-using consumers. Although they have been part of our readership since the founding of the magazine, it is only now that more attention is being focused on them.

That attention makes it especially important to keep in view the complete spectrum of home-based computing. Entertainment remains popular with nearly all computer owners and is part of another tradition—presenting games groups of people can play (page 64) during holiday festivities.

Education still is a priority as well, our readers continue to tell us. This month's "Home-School Connection" (page 24) gives MS-DOS computer owners an idea of some education programs available for their children.

We certainly hope that our magazine is part of your education every month, that you feel you learn to be more effective using your computer as the result of having read our articles and our reviews, and that reading us becomes a long-held tradition around your house.

Of course we all send you our traditional good wishes for the holidays and for the new year ahead.

Claudia Cohl

CLAUDIA COHL
EDITOR-IN-CHIEF

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PRINTED IN THE U.S.A.
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Whether you work in an office, bring office work home or run a business from home, the Model 25 can help you keep up with correspondence, prepare proposals and balance budgets. It can also help you track inventory and handle your business and personal accounting as well.

The system works with the other members of the Personal System/2 family. And it was designed to run lots of the popular programs that are already available for IBM Personal Computers.*

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IBM Personal System/2	Model 25
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Operating system	IBM DOS 3.3

*Model 25 has one full-size and one eight-inch expansion slot.

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- ☐ **GAMES 1**—3-D Pacman, Kong, Spacewar, Janit-Joe, futuristic Flightmare and more. Color required.
- ☐ **GAMES 2**—Qubert, Pango, Centipede, dungeons and dragons style Zoarre, etc. Color req.
- ☐ **GAMES 3**—Blackjack with customizable rules, Armchair Quarterback (you call plays), and more.
- ☐ **GAMES 4**—Star Trek, the Castle adventure game, and the original Colossal Caves Adventure.
- ☐ **GAMES 5**—The Hack adventure game from the universities. Like Rogue, only much richer.
- ☐ **GAMES 6**—Pinball, Othello, Dragons, Sopwith (fly a Sopwith Camel) and more. Color required.
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- [2] **MUSIC 2a,b**—(2 disks) PianoMan 3.0 polyphonic music recording and playback program.
- ☐ **ORGANIZER 1**—DeskTeam, a Sidekick clone, and the Judy personal calendar program.
- ☐ **PRINTER 1**—Resident print control and font utility, intelligent spooler, banner maker, and more.
- ☐ **SIMULATION 1**—Maze making program, MIT's Life simulation, starfields, etc. Color graphics req.
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- ☐ **UTILITIES 6**—Advanced utilities including Mark/Release (remove resident progs w/o reboot!)
- ☐ **UTILITIES 7**—More advanced utilities including Masterkey (undeletes files from hard disks).
- [2] **WORD 1a,b**—(2 disks) PC Write 2.71, a powerful word processing system w/spell checker, laser supt.

Most software listed is shareware or user-supported.

3.5" format add $1/disk. 125 page directory, add $2.

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LETTERS

SEEKING INFORMATION ON COMMODORE PC

After much careful research and thought, I purchased a Commodore PC 10-2 computer several weeks ago. I realize it's a rather new system, but I'd like to read more about it.

Do you have any plans to cover this machine in the future? I know that it's considered an "IBM compatible," but I also feel a more in-depth study of this particular computer is needed.

WAYNE T. BRADLEY
Chicago, Illinois

EDITOR'S NOTE: *You'll find coverage of the PC 10-2 in our "Buyer's Guide to Computers" in the November issue. Look for more on the computer in future buyer's guides.*

THANKS FOR THE GUIDANCE

For the past 16 months, I've been stretching and abusing my first (64K) computer. I will always have a soft spot in my heart for the old machine, but now, my at-home secretarial service has grown, and it's time to upgrade my equipment. I've been looking around for something affordable that can do desktop publishing. I was so pleased with your article, "Shopping For Software" (June 1987). On your advice, I've also been attending users' group meetings.

You've been most helpful in guiding me toward the right computer (is there such a thing?).

LOUISE APPLEQUIST
Mission Viejo, California

Recently I enrolled in a BASIC programming class and learned a great deal—I'd never used a computer before. The teacher covered the first five chapters slowly—I was really enjoying it—then just highlighted the next few. I was swamped, overwhelmed. Arrays and bubble sorting—I had no inkling what they meant. Some mysterious functions such as "INKEY$" were just that, mysteries. Much of my computer knowledge I picked up from your magazine and others.

LINDA D. VOGEL
Ingleside, Texas

IN A NUTSHELL

Your August issue contained a review of a revised 2.0 database program called *Nutshell*. The publisher was Nashoba Systems, but neither its address nor its phone number was listed. May I please get the information so that I can contact them?

Your new format is most interesting and I look forward to each issue. Keep up the good work!

SHELDON SHAFFER
THE STARTING PLACE, INC.
Hollywood, Florida

EDITOR'S NOTE: *For names and addresses of software publishers, refer to the Software Guide chart preceding the longer Software Reviews (where you found* Nutshell*). The chart lists all 24 programs we review each issue, including those in the longer Reviews section, and gives a short description, publisher information, hardware requirements, backup policy, and performance ratings.*

APPEAL TO APPLE

I'm writing to emphasize the need for a laptop model in the Apple II family. There is a constantly increasing flow of IBM-compatible laptops with steadily improving features at lower prices. This is obviously an expanding market, yet we of the Apple persuasion remain excluded. It's not fair to us, and Apple Computer is losing out on a potential market. I, for one, have even considered shifting my computing to the MS-DOS area so that I could have laptop capability.

I have heard that Apple has put some design effort into a laptop, but is waiting for a market to develop. Please let Apple know that there is a market *now*. (Incidentally, this letter was drafted in pencil on a yellow legal pad while on a return flight from AppleFest in California, then word-processed in Florida on my IIGS. How much better if I could have entered it directly on any Apple II "LT" (laptop) while on the plane!)

ELBERT S. MALONEY
Pompano Beach, Florida

FAMILY & HOME-OFFICE COMPUTING *looks forward to letters from all its readers. Please direct your correspondence to: Letters to the Editor,* FAMILY & HOME-OFFICE COMPUTING, *730 Broadway, New York, NY 10003. Include your name, address, and phone number. We reserve the right to edit letters for length and clarity.*

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CIRCLE READER SERVICE 33

THE OFFICE AT HOME

CATALOG SHOPPING

A Look at the Best Catalogs for Home-Office Products

BY KAREN KANE

I recently had a house guest who plopped down in the middle of my living room with a pile of catalogs in her arms and a big grin on her face. She confessed to an obsession with catalog shopping and lamented that she had stopped receiving her favorites when she moved. For a brief moment, I considered moving out as a way to dodge the deluge of catalogs that stuffed my own mailbox and magazine racks. Then I remembered the feeling of satisfaction I get when a package I ordered arrives from L.L. Bean or Spiegel. It's like sending myself a present.

Shopping by catalog can be a convenient way to comparison shop if you don't feel you need to "squeeze the Charmin" first. There are no store hours, no overaggressive salespeople, and no crowds to deal with during the holidays. You can just sit in your favorite chair, flip through the colorful pages of a catalog, phone in your order, and await the merchandise.

Unlike mail-order houses, which usually advertise product names, model numbers, and prices only, catalog companies present their products with detailed descriptions and pictures to help you get a feel for what's offered. Some of the better catalogs even supply helpful hints on how to choose a specific product, charts that compare the features of several products, and glossaries with technical terms defined.

But which catalog do you look in to find the best deal on a spreadsheet package, a top-of-the-line computer chair, or an answering machine? Where computer-related products are concerned, there are almost as many catalogs to compare as there are products in them.

GENERAL OFFICE SUPPLIES

The most common type of catalog is one that sells a wide range of office supplies and accessories—from disks and paper to ergonomic chairs, computers, and copiers. These catalog companies are similar to department stores in that the products are grouped into item types such as furniture, hardware, or accessories.

The *Quill* catalog is among the largest in this category—almost overwhelming. It offers the most thorough compilation of office products that I found, including paper clips and staplers. This catalog has everything, so be prepared to spend some time browsing through it. If you just want a pen, there are more than 40 pages where various types of pens, pencils, and accessories appear.

Products are grouped according to tasks rather than exclusive categories or departments. For example, if you want to raise your monitor above your desk with an adjustable arm, the cables for monitor and keyboard extensions are on the same page with the selection of monitor floats. If you ship a lot of products from your home office and need supplies, everything from the postal scales to the aerosol spray ink that covers up old markings on cardboard boxes is grouped together on a few pages.

Two other general computer supplies catalogs are *Global* and *Inmac*. Both include a variety of products that are well-presented and described. Both have strong money-back guarantees and good reputations for fast delivery. The catalogs' helpful hints provide advice on getting orders delivered quickly, the best printer paper for your needs, and protecting yourself against different power surges. Indexes and icons at the top of each page help you find the item you're looking for.

Inmac boasts a 45-day free trial period during which you can return any product if you're not completely satisfied. You can also choose among extended 3-year, 5-year, and lifetime guarantees on selected products. Global's guarantee is only 30 days, but the company has a wider selection of software.

Some catalogs specialize in paper products—such as business cards, stationery, tractor-feed business forms (checks, invoices, billing, and order forms, for instance), and mailing supplies—but often include other supplies as well. *NEBS* and *Deluxe Computer Forms* are among the larger catalogs that specialize in these products.

There are dozens of other office supplies and accessories catalogs with competitive prices, each one with a slightly different emphasis or selling point. *The Drawing Board Computer Supplies Catalog* has a Frequent Buyer Club; every dollar you spend earns you a bonus point toward free gifts or credit on future purchases. *The Drawing Board* "Book Store" includes a good selection of guides and tutorials for business application software. *Moore*, which specializes in business forms, gives a 10 percent discount on your next order if it doesn't have an item

KAREN KANE *is assistant technical editor for* FAMILY & HOME-OFFICE COMPUTING.

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CIRCLE READER SERVICE 47

in stock. *R&R Direct* and *The Reliable HomeOffice Catalog* are targeted at small business and home-office settings, as opposed to corporations. *Lyben* has great prices and a good reputation for service and reliability—but has only brief descriptions of products and few pictures. You should know more about the product than its name before ordering.

ELECTRONIC EQUIPMENT

When ordering electronic equipment through the mail, it's best if you've seen or used the product before. Be sure to check machine specifications very carefully and understand the catalog's return policy. Also, keep the shipping charges in mind when ordering heavy equipment.

About half of the more than 200-page *47th Street Photo* catalog is dedicated to electronic equipment for the home office (answering machines, typewriters, computers, and printers). Each product has a black-and-white photo and a short but clear list of its features. Unfortunately, the 10-day money-back guarantee does not always apply to computer-related merchandise. *Jade Computer*, on the other hand, has a flexible return policy for all its hardware. In general, any item can be returned within 30 days if you're not satisfied with it, but Jade has been known to replace faulty merchandise after six months.

For the do-it-yourself repairperson, *The Specialized Product Company* has a well-indexed, color-coded catalog of tool kits and testing equipment. *Jensen*'s catalog isn't as impressive but the selection and prices seem comparable. *Jameco Electronics* is a good resource for computer parts, and *The Printer Works* specializes in parts for Diablo printers.

COMPUTER-SPECIFIC

Catalogs that specialize in products for specific computers are good if you're worried about hardware and software compatibility or if you're not interested in pawing through a lot of products that aren't for your machine.

The *M.W. Ruth Co.* carries third-party products designed especially for the Adam, Amiga, and Atari ST series. This newsprint catalog is organized alphabetically by company and includes many of the small organizations that have sprung up to support these machines. Disks of public-domain programs are offered for $12.95 each.

The *Amiga Buyer's Guide to Software & Accessories*, published by Commodore and available from Commodore dealers, lists products for the Amiga 500, 1000, and 2000. *The Everything Book* for the Commodore 64/128 is a newsprint catalog that includes a good selection of Commodore-compatible hardware, accessories, and software. The company, however, charges a fee for returns unless a product arrives damaged.

IBM has its own *IBM Personal Computer Catalog* that features hardware, software, workstation products, supplies, and accessories for the IBM PCs. You will pay the full list price if you order PC products from this catalog.

Icon Review Catalog specializes in outstanding Macintosh hardware, software, and accessories, and offers savings of up to 60 percent. The four-color catalog has an attractive layout with thorough descriptions of the items pictured. Some of the hardware is further explained with comparison charts. Icon Review products can also be ordered from the Electronic Mall on CompuServe (GO MALL).

The Traveling Software Catalog has a small but varied selection of software, hardware, and accessories for portable computers.

SOFTWARE

Power Up! is a great place to find productivity software for MS-DOS and Apple computers. In addition to selling many popular packages, Power Up! publishes and sells some very useful application programs of its own. Every product in the catalog is backed by a 30-day "no-risk" guarantee that allows you to try the program and return it if you're not completely satisfied.

Selective Software lists business-productivity programs, games, and educational programs for MS-DOS computers. Each of the 50 to 60 pages highlights a different package with excellent descriptions. Colorful screen illustrations also help you get a feel for what the program will do. Selective Software will offer you catalog credit if you're not satisfied with a program, and you can get $5, $10, and $25 gift certificates good toward future purchases when you spend $25, $50, and $100 or more on Selective Software merchandise. Most products are in stock and delivered fast, via UPS Second Day Air.

Software Express/Direct is also an MS-DOS software catalog with a strong emphasis on business, utility, and personal productivity software. Prices start at 75 cents! The descriptions for most programs in this black-and-white catalog are not very detailed, but for $10 (minimum order) you can try out several programs and return them within 30 days for a full refund.

Nonagon Software lists best-sellers for Apple, Commodore, IBM, and Macintosh at discount prices. And *4-5-6 World's Catalog for Lotus Users* lists add-ins, books, updates, utilities, learning aids, and printing and graphics tools for Lotus products.

A PERSONAL CHOICE

Because of my house guest's enthusiasm over shopping by mail, a dozen or so new catalogs have found spots on my coffee table, kitchen counter, and bedside stand. As the holidays grow nearer, I'm collecting gift ideas and dog-earing the catalog pages with the most unusual products, such as the computer-glare glasses I found in the trendy *Fortune's Almanac* catalog. If you enjoy shopping, then add shopping by catalog to your list. But if you hate to shop, doing it in the comfort of your own home may make the chore a little less painful. ■

CATALOGS

Deluxe Computer Forms & Accessories (800)328-0304; The Drawing Board Computer Supplies Catalog, (800) 243-3207, (203) 379-9961; The Everything Book, (800) 348-2778; Fortune's Almanac, (800) 331-2300; 47th St. Photo, (800) 221-7774, (212) 260-4410 (in NY); 4-5-6 World's Catalog for Lotus Users, (800) 456-4123; Global Computer Supplies (516) 420-0044, (516) 752-2299 (in NY), (800) 845-6225; The IBM Personal Computer Catalog, (800) IBM-2468; Icon Review Catalog, (800) 228-8910, (408) 625-0465; Inmac, (800) 826-8180; Jade Computer, (800) 421-5500; Jameco Electronics, (415) 592-8097; Jensen, (602) 968-6231; Lyben Computer Systems, (313) 589-3440; M.W. Ruth Co., (609) 667-2526; Moore, (800) 323-6230; NEBS Computer Forms and Supplies, (800)225-9550; Nonagon Software, (800) 942-2058, (800) 223-8327 (in CA); Power Up!, (800) 851-2917, (800) 223-1479 (in CA); The Printer Works, (800) 225-6116; Quill, (312) 634-4800, (312) 634-4850; R & R Direct, (800) 654-PLUS; Reliable HomeOffice, (800) 843-2850; Selective Software, (800) 423-3556, (403) 423-3556 (in CA); Software Express/Direct, (800) 331-8192; Specialized Products Company, (800) 527-5018; The Traveling Software Catalog, (800) 343-8080, (206) 483-8088.

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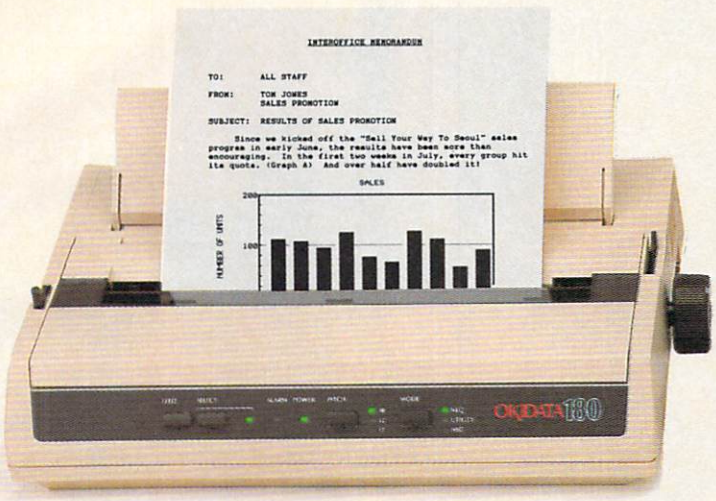

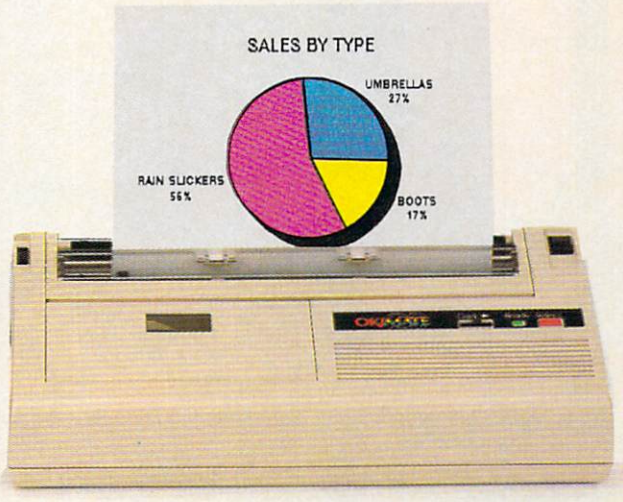

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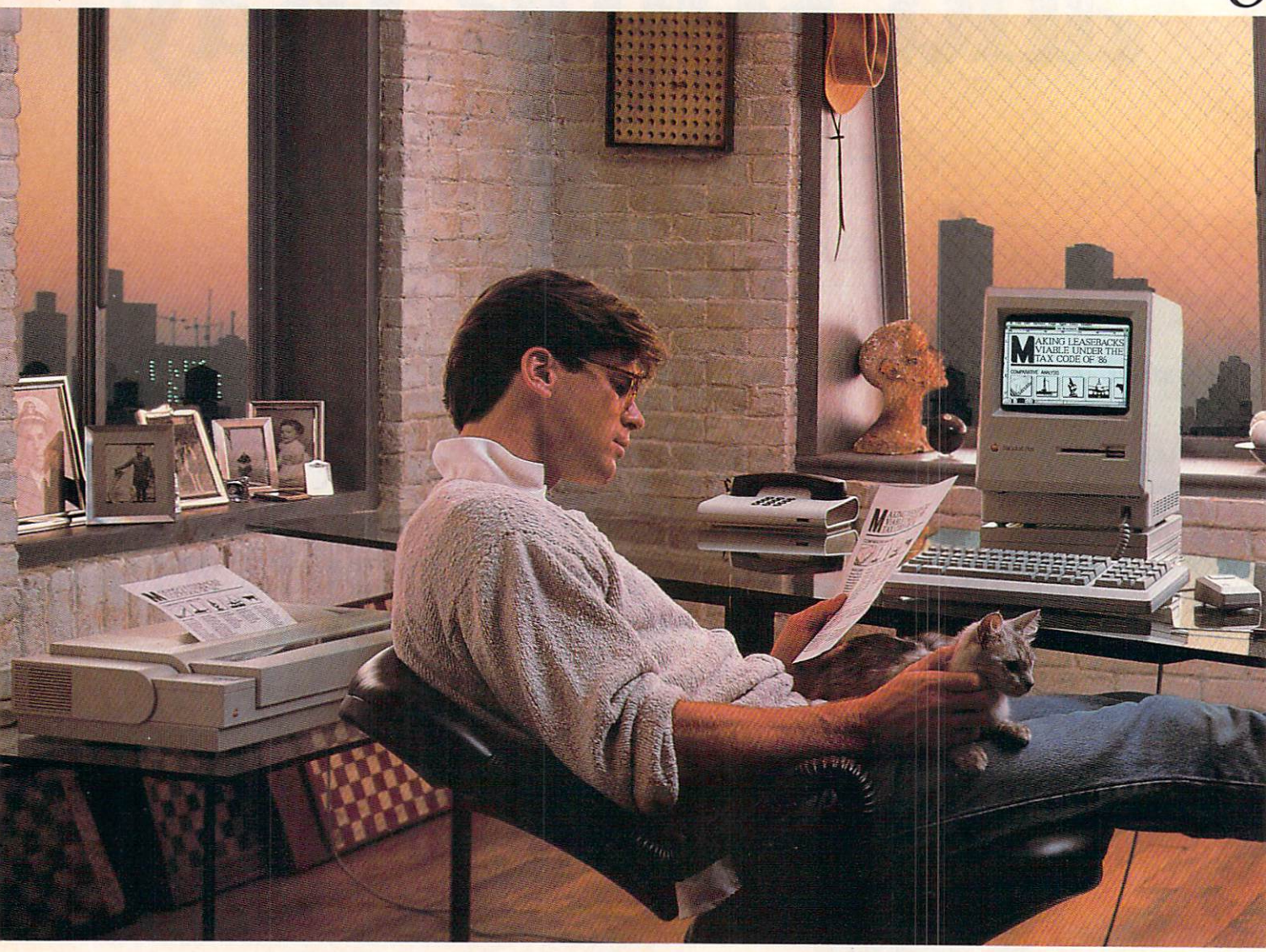
CIRCLE READER SERVICE 38

How to succeed in business without leaving



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CIRCLE READER SERVICE 5

PERSONAL FINANCE

A HOME BUDGET THAT WORKS

The House that the Isabellas' Computer Built

BY LINDA WILLIAMS

For Joseph and Maria Isabella, the parents of five children between the ages of 3 and 8, the decision to buy a computer was not made lightly. As Maria told FAMILY & HOME-OFFICE COMPUTING not long after their November 1986 purchase:

"We live in the inner city of Cleveland. We have never owned our own home—we rent our two-bedroom house—and until very recently, we had never owned a television set. Yet as we researched and conferred, we felt that owning a computer would be an investment that the whole family could benefit from."

Less than a year after the IBM compatible with a hard-disk drive, Mitsubishi color monitor, and NEC dot-matrix printer entered the Isabellas' lives, the system has earned its weight in gold. Joe, 33, a real-estate financial analyst and law student, now takes work home from the office—and earned a raise as a result of his increased productivity; Maria, 32, has embarked on a booming freelance writing career; Nina, 8, Damien, 7, and Julia, 5, have improved their school performances by honing skills at home; and twins Monica and Andrea, 3, have more than prepared themselves for kindergarten. Without the computer and the accompanying spreadsheet, word-processing, database, and educational software, few of these advances would have been possible.

Perhaps above all, the Isabellas have pulled their finances into line using a computer-based budget. As a result, they can see that their dream of owning a home could soon become a reality.

The Isabellas (clockwise, from top): Joseph; Damien, 7; Monica, 3; Maria; Julia, 5; Andrea, 3; and Nina, 8.

IT'S ALL IN THE SYSTEM

"We've always been on a budget, ever since we've been married," Maria says. But she explains that the paper-and-pencil method was tedious and time-consuming, an ineffective and often inaccurate gauge of spending habits. "There was a lot of margin for error on paper," she says.

By contrast, she explains, "The computerized budget [which Joe designed] is a lot more precise." And she appreciates some of its extra features, such as flexibility in making changes and an up-to-date balance that's accessible at any time. Of course, any well-designed budget depends on a sensible structure; with his strong background in numbers, Joe could see the wisdom of that. One cold winter's day, Joe spent four or five hours setting up the family budget with *SuperCalc 4*.

Maria and Joe share the task of updating their computerized records—sometimes weekly and at least twice a month—and checking to see how much money is spent versus the amount the budget allotted. Each time the Isabellas make a purchase, they save the receipt, and every time they pay a bill, they make a note of it in the checkbook register. When it's time to enter the expenditures into the family budget, Maria divides the receipts and checks into categories: education, such as tuition and books for her husband and children; utilities; meals; savings; charitable contributions; clothing; rent; car insurance, gas, and car repairs; medical; computer; life insurance; and miscellaneous.

The Isabellas stress that a regular routine for entering the information is crucial. Looking at a week's worth of receipts and bills is much less intimidating than facing several months' worth. And the bigger the pile gets, the worse the job seems.

Once the expenditure-related information is in the computer, the Isabellas can check those amounts against the budgeted allotments. Joe explains that any discrepancies between the two amounts are evident on the "variance report" that the family prints out each month. They can pick a certain category—such as clothing (which, Joe notes, tends to be a problem area)—and create a bar graph showing the dif-

LINDA WILLIAMS, *who lives in New York City, frequently writes about computers and finances. She wrote "The Mail-Order Buying Boom" in the August issue.*

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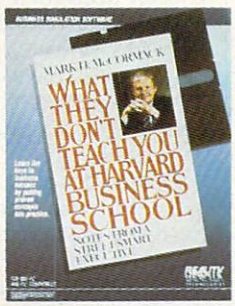

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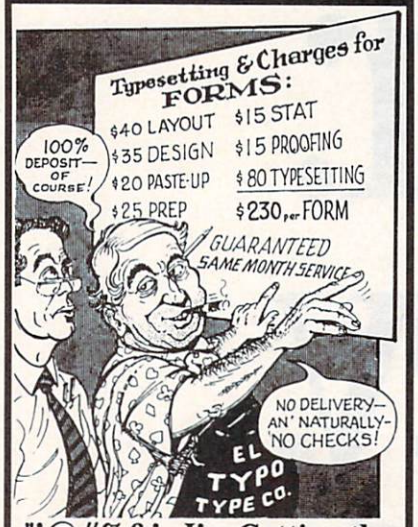

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PERSONAL FINANCE

ference between budget and reality. "Bar graphs help you see where you are out of line," he says. "Sometimes you have to point it out visually to understand."

BE REALISTIC ABOUT SPENDING PATTERNS

An important element of a family budget is realism, the Isabellas say. Of course, many expenditures—such as rent and tuition—are not controllable and won't vary from month to month, so those categories will be fixed amounts in the budget. For those that aren't constant, such as food and clothing, it's important to imagine all the costs that may occur during the course of a month or year and prepare for emergency purchases. Underestimating rarely proves useful, the Isabellas discovered. At one point, in an effort to save money, they skimped on some categories. The effort backfired, Maria explains: "It had reached the point where the figure was so low, we were always frustrated about overspending. Now, when I say we spend $90 a week on groceries, we really do."

KEEP EXCESSES IN THEIR PROPER PLACES

In working the bugs out of their computerized budget, the Isabellas have found another area in which they must exercise caution. When they underspend in one category, such as medical, they no longer move that excess to another, such as clothing. They keep the extra funds in their appropriate categories as "a cushion against emergencies," Maria says, to help them prepare for seasonal needs (back-to-school checkups, for example). Or they eventually transfer the surplus money to the savings account.

"Before, I would take from one category that was underbudget and move the money to a category that was over," Maria says. "Now, if there is a negative amount in one category, I just restrict that spending."

ASSESS SPENDING SEASONALLY

Once you've been using a budget for a year or so, you can see the larger picture, according to the Isabellas. Studying a printed graph may help you decide whether to make permanent adjustments or seasonal adjustments. (For instance, you may incur medical-insurance deductible costs at the beginning of the year or higher food expenses in the summer when the kids are home.) As your family grows, your needs in one category may permanently increase, while they decrease elsewhere. For instance, when 5-year-old Julia entered school in September, the allotment for the tuition and books category had to increase.

With this flexibility, Maria explains, "We have been able to tune our expenses to a point where we can see where the excesses are and decide if we need to reduce the amounts we have allotted to certain areas."

LET YOUR COMPUTER SERVE AS A ROLE MODEL

If you use the computer to keep close tabs on your finances, other family members may soon see the value of the procedure. The Isabellas would like to create a simple budget to sharpen their five youngsters' awareness of money and saving. "They are often given money at special occasions; for instance, one child has a first communion coming up," Maria explains. "They will learn the value of what is coming in if they save the money rather than spend it." Joe agrees that a budget would serve a purpose for the children. "The kids get gift money," he says, "and half the time, they drop it in the yard."

KEEP ONE EYE ON THE FUTURE

For the Isabellas, the computer has not only proved valuable in generating added income and keeping tabs on expenditures, but it has also moved them toward their goal of buying a home. As they have seen, saving for a large purchase—whether a home, a car, or college tuition—can make the time spent budgeting all the more worthwhile.

In the past year, the Isabellas have learned something about financing homes. They have been creating computerized mortgage tables for friends and relatives considering buying or refinancing a home. The mortgage tables show the respective values of various mortgage types and interest rates and whether refinancing at a lower interest rate will be advantageous in the long run. When the Isabellas finally get their own home, they will be financially ready for the purchase, thanks to their computer. ■

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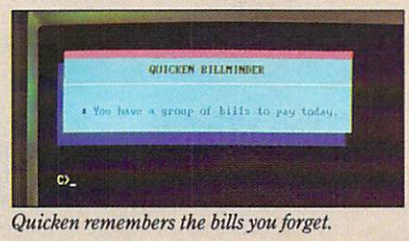

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"Extremely simple and fast." *Esther Dyson, Industry Analyst*

"Absolutely the best small accounting program made." *Bob Schwabach, Universal Press Syndicate*

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Software Compatibility: Exports data and reports in ASCII. Also exports in Lotus® format with optional Transfer Utility.
Hardware Compatibility: All IBM® PC, AT,® PS/2® and compatibles with 256K RAM and DOS 2.0 or higher. All Printers. All monitors. Also available for Apple® IIe, IIc and GS with most of the same features.
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TELECOMPUTING

CONNECT!

A Dress Rehearsal for Logging on to Information Systems

BY STEPHEN MILLER

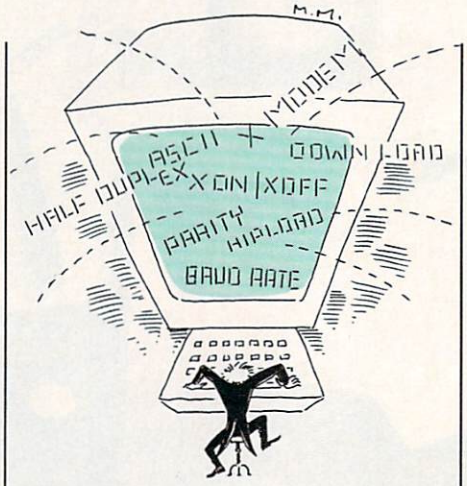
Once you get your computer system up and running on your primary task, it doesn't take long before you start trying to determine what else the computer can do. It might not be long before you start hearing about the wonders of using a modem. You hear glowing reports about free software, working at home via telecommuting, thousands of electronic bulletin board systems catering to every interest or whim, electronic banking, making travel arrangements by computer, tracking investments, instant access to the most obscure facts, making new friends on a CB simulator, and a host of exciting marvels, a phone call away.

All of these things are true, but too often the true believers forget that telecommunications isn't magic and that it can be confusing to the novice. It can be sufficiently confusing to the beginner that this Brave New World can seem more trouble than it's worth. When terms such as *baud rate*, *XModem*, *upload*, *download*, *full* or *half duplex*, *parity*, *ASCII*, *XON/XOFF*, and *serial ports* are tossed around randomly by the initiated, it's natural for the beginner to feel confused and intimidated. It's too bad, because telecomputing really is a marvel and isn't difficult to master. The secret is to just do it and follow instructions—and not worry about what you're doing or what the terms mean.

In order to move about the telecomputing world, you need a computer, a modem, communications software, a telephone line, some cables, and the telephone number of a computer to call. Beyond that, you just follow instructions and be persistent if you don't succeed on the first try.

STARTER KITS

Many commercial services sell starter kits that can be purchased at computer retail outlets or by calling toll-free numbers (*see "System Telephone Numbers" below*). Some kits are packaged as extras with many modems and communications-software packages.



A starter kit gives you an overview of what the service offers, how to sign up, how to log on, and how to move around the system. The kits usually include a few prepaid hours to let you learn the system and look around. Prices vary, but most starter kits cost less than $50.

Each kit also includes an identification number and a temporary password, so you can sign on and register yourself and choose your billing procedure. At that time, you can choose your own password, which only you should know. All systems allow you to pay by credit card, although with some services you can have the fee deducted electronically from your checking account.

Carefully read the instructions that come with your starter kit for the commercial database service before you attempt your first log-on. If you aren't clear about some of the instructions, call the toll-free customer-support number for assistance.

Before you log on to any service, you should know how to log off. Write down the log-off sequence and tape it near your monitor. Post-it note stickers are great for this kind of reminder. Information services can be confusing in the beginning, and new users often panic when they forget how to move around the system. During that state of confusion, the clock keeps ticking—remember, you're paying by the minute, so it pays to know how to disconnect properly. Simply hanging up doesn't always immediately tell the system that you're no longer online. It's possible to be charged for several additional minutes of use before the system checks on your status and stops the meter.

SOFTWARE SETTINGS

A task that can cause a great deal of confusion in the beginning is setting parameters to control your modem. The concept is simple: Your computer and the computer you're calling have to agree on how information is transmitted. The systems have to match in the length of words (7 or 8 bits), parity (usually none, even, or odd), stop bits (1 or 2), and baud rate (300, 1200, or 2400).

Most of the commercial services accept two settings: 7 bits, even parity, and 1 stop bit (7E1); or 8 bits, no parity, and 1 stop bit (8N1).

Once you've set your parameters, you call the service either through its own private network or through a secondary data network (called a packet-switching service) such as Telenet or Tymnet. In major metropolitan areas, you can often connect with the system directly through a local call. Outside large cities, your call can go through a local packet-switching service that delivers your call to the host system, thus saving you the long-distance charge. The cost for using packet-switching services is minimal—usually about $.25 per hour during non-prime-time hours (6 p.m.–7 a.m.).

SAMPLE LOG-ON

While the instructions for logging on to a service are spelled out in the starter-kit instructions, here's how a typical log-on session might proceed. First, let's sign on to CompuServe through Telenet, a packet-switching service. The user's response is enclosed within parentheses. →

Contributing editor STEPHEN MILLER *writes the Tandy column in the Machine Specifics department.*

ILLUSTRATION BY MONA MARK

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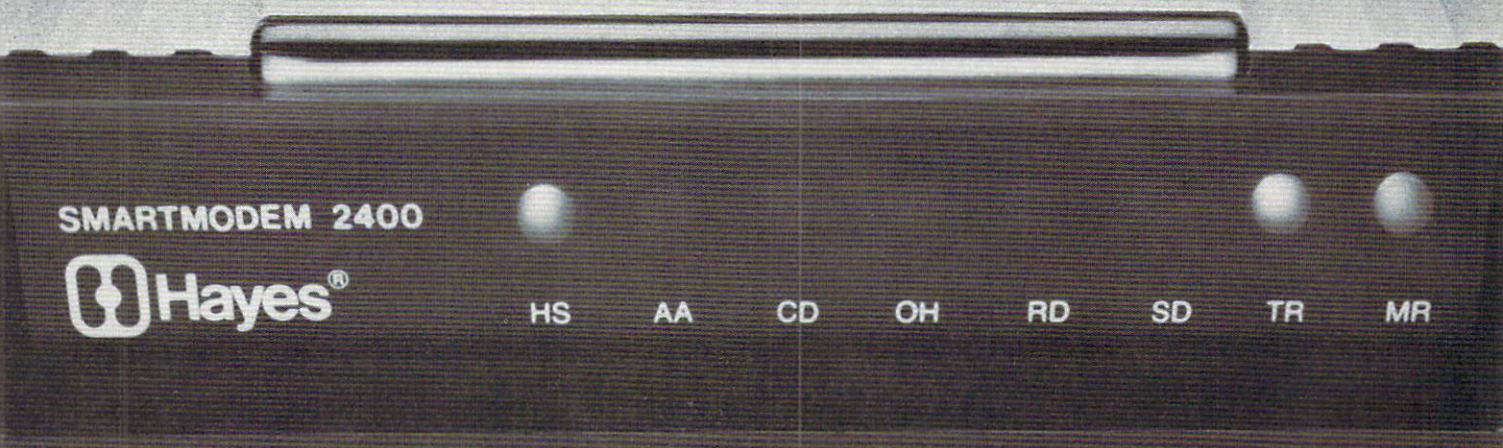

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*Based on estimated retail prices. **Requires external modem.

CIRCLE READER SERVICE 27

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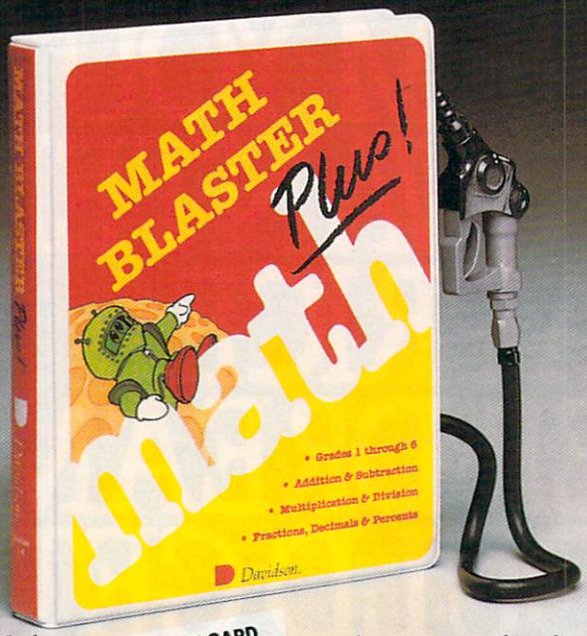

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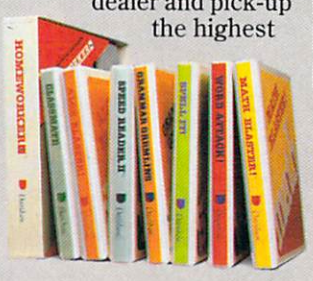

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CIRCLE READER SERVICE 18 FC-12

Davidson.

TELECOMPUTING

(Dial phone number)

CONNECT 1200 (press RETURN)
TELENET = (press RETURN)
617 16B
TERMINAL = (press RETURN)
@ (for example, type C 202202 to identify the system you want to reach)
202 202 CONNECTED
USER ID: (type 10-character ID)
PASSWORD: (password is typed but won't appear on-screen)

WELCOME TO COMPUSERVE!

Calling directly to an information service is a little simpler, and the method will vary, of course, with the system. Here's how your screen looks when you dial CompuServe directly:

(Dial phone number)
CONNECT 1200 (press CONTROL-C)
USER ID: (type 10-character ID)
PASSWORD: (type password)

WELCOME TO COMPUSERVE!

TROUBLESHOOTING

If gibberish appears on-screen when dialing a system, chances are your settings are wrong. If you're set at 8N1, switch to 7E1, and that should solve the problem.

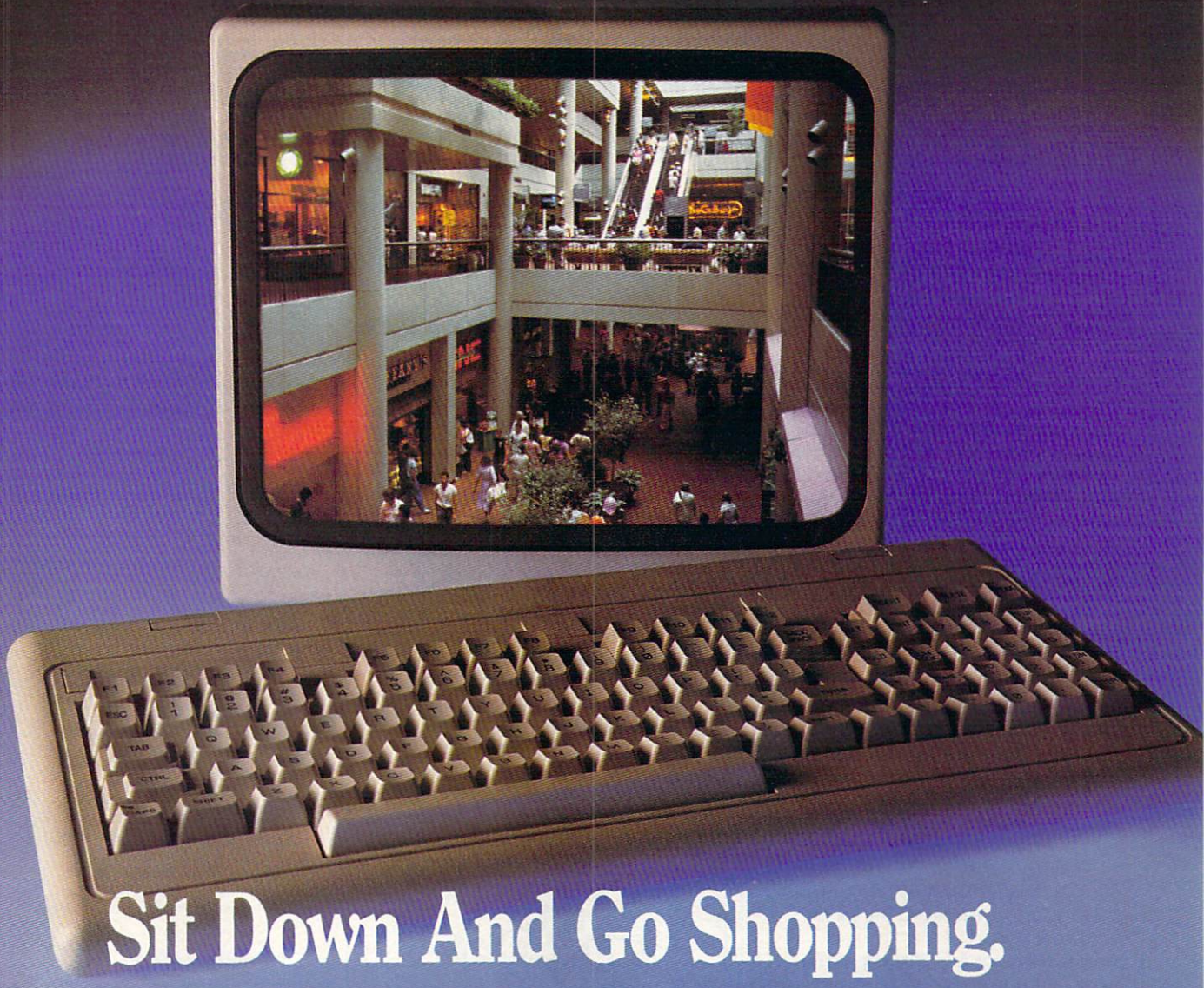
If you can't see the letters appear on-screen as you type, you probably should switch from full duplex to half duplex. With most communications software, you can alternate between the two settings easily.

Many computer users are beginning to view telecommunications as a sociological phenomenon that is transforming the information flow and altering the way people communicate. That may be true, but for most people telecomputing is just plain fun. Confusing jargon or the appearance of complexity shouldn't keep you from that fun. ■

SYSTEM TELEPHONE NUMBERS

Call the following numbers for information on system costs and sign-up procedures:

CompuServe (800) 848-8199
Delphi (800) 544-4005
Dow Jones (800) 522-3567
GEnie (800) 638-9636
MCI Mail (800) 624-6245
QuantumLink (800) 392-8200
The Source (800) 336-3366



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CIRCLE READER SERVICE 8

HOME-SCHOOL CONNECTION

IBM DOESN'T ALWAYS MEAN BUSINESS: PART II
A Look at IBM-Compatible Software to Help Your Family Learn, Make Music, Explore the World, Find a College, and More

BY TONY MORRIS

Last month, we told you about some of the best language-arts and math software for IBM PCs, PS/2s, and compatibles. This month, we'll take a look at programs that can help your children improve their skills in science, geography, and typing. And we've included a few programs especially suited for preschoolers and college-bound students.

PRESCHOOL

Build a Book About You. Your young children can create custom-made stories based on information you provide about family members, friends, and neighbors. Print the stories and bind them into small books with materials included in the package. ($25. Mindscape, 3444 Dundee Road, Northbrook, IL 60062; [312] 480-7667. Also available for 128K Apple, C 64/128.)

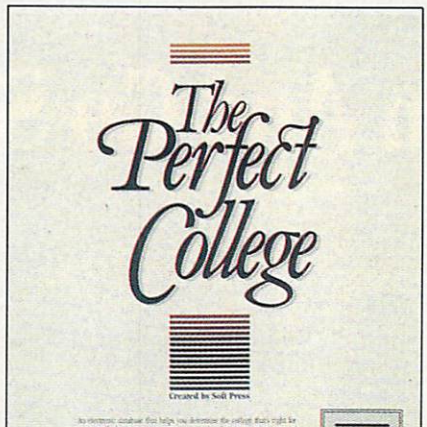
Early Games for Young Children. Children can play nine games that teach the alphabet, simple counting, pattern recognition, and matching. For ages 2½ to 6. ($35. Springboard Software, Inc., 7808 Creekridge Circle, Minneapolis, MN 55435; [612] 944-3915. Also available for Apple, C 64/128, Macintosh.)

Gertrude's Secrets.* Builds early cognitive and problem-solving skills in seven entertaining games. Children move colorful playing pieces to learn important classification, grouping, sequencing, and organizing skills. Ages 4 to 7. ($45. The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555; [415] 792-2101. Also available for Apple, C 64/128.)

Kindercomp Golden Edition.* An entertaining introduction to pre-reading, premath, pattern recognition, and creative drawing. Even very young children can learn to use the computer with this program. ($40. Spinnaker Software, One Kendall Square, Cambridge, MA 02139; [617] 494-1200. Also available for Apple, Atari 800/XL/XE, C 64/128.)

Number Farm. Six games use farm animals and crops to teach basic counting, number recognition, and numerical order. ($33, 256K. DLM, One DLM Park, Allen, TX 75002; [214] 248-6300. Also available for Apple, C 64/128.)

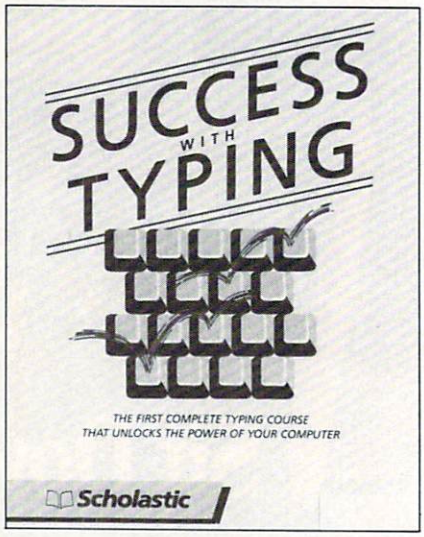
COLLEGE PREPARATION



The Perfect College.* An inexpensive program that helps students with the college-selection process. Covers more than 1,600 four-year accredited colleges and universities in the United States. ($20. Mindscape, see address and phone number above. Also available for 64K Apple, C 64/128, Macintosh.)

The Perfect Score: Computer Preparation for the SAT.* Allows students to study for SATs through intensive drill-and-practice. ($80. Mindscape, see address and phone number above. Also available for Amiga, 64K Apple, C 64/128, Macintosh.)

TYPING



Success With Typing. Complete self-paced touch-typing course in 18 lessons. Ages 10 and above. ($50. Scholastic Software, 730 Broadway, New York, NY 10003; [212] 505-3000. Also available for 64K Apple.)

Typing Tutor III.* Touch-typing program that monitors performance and stresses keys on which help is needed. Arcade-style action breaks the monotony of drill-and-practice. Ages 10 and above. ($50. Simon & Schuster Software, One Gulf & Western Plaza, New York, NY 10023. [212] 698-7000. Also available for 64K Apple, C 64/128, 512K Macintosh.)

SCIENCE

Chem Lab.* Sophisticated, computerized chemistry lab complete with dozens of chemicals, test tubes, flasks, Bunsen burners, and challenging chemical puzzles to solve. Ages 9 to 13. ($40. Simon & Schus-

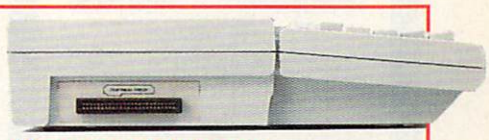
---

TONY MORRIS, *a contributing editor for* FAMILY & HOME-OFFICE COMPUTING, *wrote "IBM Doesn't Always Mean Business: Part I" in the November issue.*

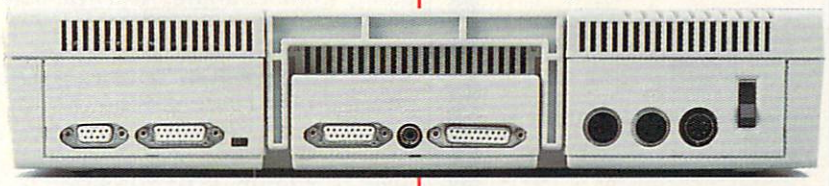
The standard equipment on a Laser 128 is optional on most computers

Take a look at the Laser 128 Apple®-compatible computer, and beginning with its built-in disk drive and 128K RAM of memory, you start to feel that this machine was designed with you in mind. The Laser 128 is ready-to-run – plug it in, insert your program and go. Everything is built-in for you.

The Laser 128 has built-in interfaces for all your peripherals, including serial and parallel printer interfaces, modem and mouse interfaces, a game port and you can hookup a color or monochrome monitor, or even a TV to it. Only the Laser has this much built-in as standard equipment.



It's expandable, too. The Laser 128 includes an expansion slot to let the computer grow with your increasing demands.



Choose from the largest software library in the world. The Laser 128 runs Apple IIe and IIc software, which makes it nice for you and your family, because children can use the same programs at home that they learn on in school. The Laser 128 is a computer for the whole family.

The Laser 128 is priced to keep money in your pocket. The Laser is about half the price of an Apple, and is even less than a comparably equipped Commodore unit. You get a lot of computer for a little money.

Look for the attractive Laser packaging at a store near you. For more information on the Laser 128 and the name of your nearest dealer, contact Video Technology Computers, Inc., 400 Anthony Trail, Northbrook, IL 60062, or call (312) 272-6760.

LASER 128®

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CIRCLE READER SERVICE 69

HOME-SCHOOL CONNECTION

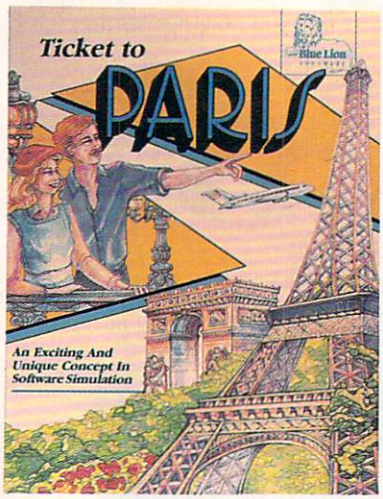
ter Software, see address and phone number above. Also available for 64K Apple, C 64/128.)

The Body in Focus.* Using this richly detailed biology program, children can view muscles, bones, and organs of the human body. For ages 12 to 18. ($50. Mindscape, see address and phone number above. Also available for Apple.)

GEOGRAPHY

Agent USA. Award-winning program teaches the locations of major cities, states, and capitals as children pursue a mysterious secret agent around the country. Incidental benefits include practice in map reading, problem solving, and logical thinking. Ages 9 to 13. ($40. Scholastic Software, see address and phone number above. Also available for Apple, C 64/128.)

Road Rally U.S.A. Teaches geography and map reading. Find the shortest route to your destination without stumbling over obstacles. Ages 10 and up. ($10. Firebird Licensees, Inc., P.O. Box 49, Ramsey, NJ 07446; [201] 444-5700. Also available for 64K Apple, C 64/128.)



Ticket to Paris* and ***Ticket to London.**** Each uses an imaginary visit to explore the foreign city, important landmarks, restaurants, hotels, theaters, modes of transportation, customs, weather, and so on. Ages 12 and above. ($40 each. Blue Lion Software, 90 Sherman Street, Cambridge, MA 02140; [617] 876-2500. Also available for 128K Apple, C 64/128.)

Where in the U.S.A. Is Carmen Sandiego?* and ***Where in the World Is Carmen Sandiego?**** Anyone over the age of 10 can learn about geography, history, and culture while tracking down Carmen Sandiego and her gang of villains. ($45 [*U.S.A*] and $40 [*World* includes *The World Almanac*]. Broderbund, see address and phone number above. Also available for 64K Apple, C 64/128.)

MUSIC

Music Construction Set. Encourages people of all ages to explore standard musical notation, composition, and sounds. Comes with some preprogrammed songs that can be modified and rearranged, as well as exercises that open the doors to experimenting with music. ($15, 256K. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; [415] 571-7171. Also available for 512K Atari ST, 256K Apple IIGS.)

SongWriter. Write, edit, save, and play back melodies and compositions, experience the fun of exploring musical sounds, learn music basics, and encourage creativity and develop confidence in musical expression. Can be used by anyone 5 and above. ($10. Thunder Mountain, a division of Mindscape, see address and phone number above. Also available for 128K Apple, 64K Atari 800/XL/XE, C 64/128.)

* Indicates that the program is also available for the IBM Personal System/2, IBM Convertible, Tandy 1000 HX and TX, Zenith Eazy PC, and any other IBM-compatible computer that uses 3.5-inch drives. "Apple" refers to the Apple II series. ■

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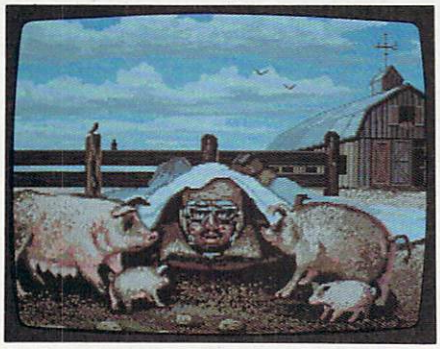
ENTERTAINMENT

HINTS, NEWS, AND NEW GAME FORMATS

NEWS AND RUMORS

★ We popped in on **Activision** not too long ago and found out about its plans for the upcoming year. Insiders tell us that the Mountain View, California, company plans to put just about all its games into MS-DOS formats . . . . And we have the full story behind the game that's been waiting in the wings under the code name *Air Rally* (we leaked the



***GeeBee Air Rally* (Activision) will have you gripping your joystick tightly as you fly near ground level—barely missing or crashing into a farmer's pigsty.**

news in August): It's called *GeeBee Air Rally*, an arcade-style game designed by **Steve Cartwright**, of *Hacker* and *Hacker II* fame. (Incidentally, *Hacker II* is now ready for **Apple IIGs** players.) Jump into the cockpit of the **GeeBee**, the racing plane engineered purely for *speed* by the aeronautical **Granville** brothers in the 1930s when airspeed-mania gripped Americans. The game has great graphics, comical crash landings, and an original music score. With 256 different levels, the challenge never ends. (If it piques your interest in air racing, try to catch the Reno Air Races next September.) *GeeBee Air Rally* is available for the **Amiga** ($40) and **C 64/128** ($30). The game is slated for the **Apple II** series and **IBM PC** in the spring.

★ **Accolade** has brought *Pinball Wizard* from a French software design house to the United States. The sophisticated arcade-style action game is the company's first European acquisition, and it's available for the **IBM PC**. It costs $35 . . . . Accolade has also developed a game for miniature-golf lovers: *Mini-Putt* for the **C 64/128** ($30) and **IBM PC** ($40).

★ It's been two long years for *Ultima* players eagerly anticipating a sequel. Now the Ultimate Quest continues with *Ultima V*, from **Origin Systems/ Broderbund**, for the **Apple II** series. Face the sinister Blackthorn as you

***Pinball Wizard* turns the IBM PC into a slick pinball machine.**

pursue the fate of Lord British, who's missing after an expedition to the Underworld. Fans can add the game to their software library for $60 in preparation for those cold winter days ahead.

★ **Electronic Arts** has three new games for the **C 64/128**, all priced at $30. Set in a maze of dungeons, *Demon Stalkers: The Raid on Doomfane* pits you against the demon Calvrak. It's do or die in *Skate or Die* as you compete in five skate-

It's do or die in *Skate or Die* (Electronic Arts).

boarding events. *Strike Fleet*, a multivehicle simulation, lets you control battleships, helicopters, and other modes of transportation. Besides the **C 64/128** format, this game is also available for the **Apple II** series . . . . And a source at EA says *The Bard's Tale III* is "in the works." Keep your eyes on this column for an update.

★ And here's news about the world of drag racing, simulation-style. When three-time world champion drag racer **Shirley Muldowney** met with **Cosmi Corporation** designer **Robert Bonifacio** to talk about the possibility of a simulation based on her racing career, she was so enthusiastic that they spent half the day brainstorming on the idea. Their collaborative efforts yielded *Shirley Muldowney's Top Fuel Challenge*, which pits you against her actual racing performances. It's available now for the **C 64/128** and costs $25 . . . . Following up on Wall Street arbitrageur Ivan Boesky's run-in with the law is Cosmi's *Inside Trader*. You buy and trade stocks and options, and as inside information on mergers and business strategies appears on your screen, you weigh the risks against the possible rewards. The leads may work to your and your cli-

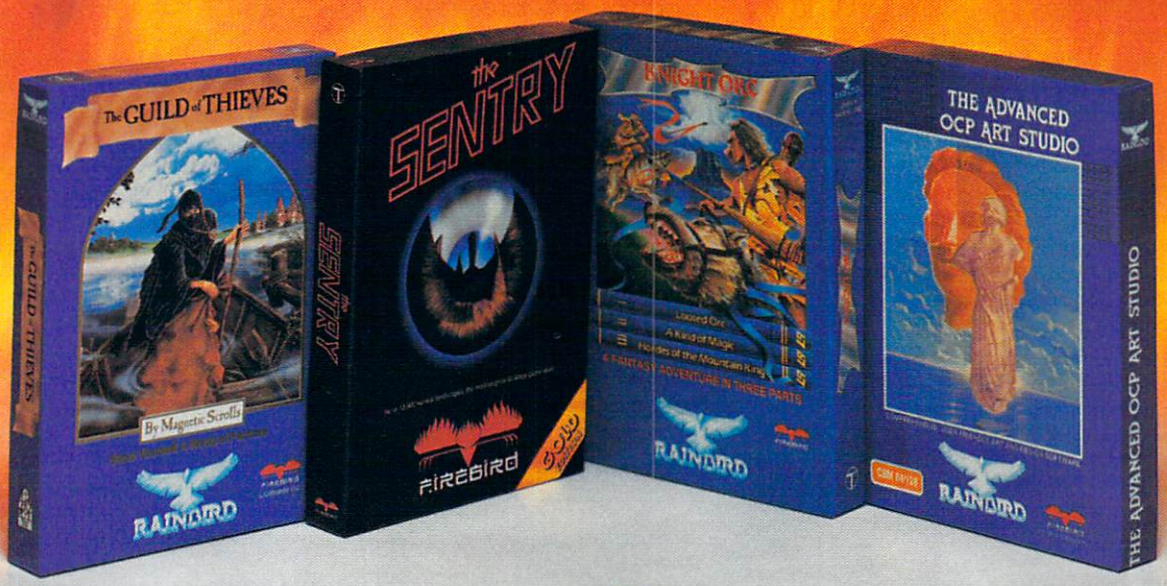
Trapped in the financial world of *Inside Trader* from Cosmi.

ents' advantages, but you'll be taking chances with the S.E.C. and may end up serving time. *Inside Trader* is out for the **IBM PC** for $25.

★ **Mindscape** has announced the new game by **Chris Crawford** (we told you about it back in August) called *Trust and Betrayal: The Legacy of Siboot*. Crawford introduces an innovative icon-based language and characters with artificial personality. Players gather information on the characters and must adapt to changing relationships based upon their knowledge of behavior and personality. The mental battle of love, trust, and fear to determine the next Shepherd of Kira has just begun. The game is $50 for the **Macintosh**.

★ Having trouble finding a partner for bridge? Count in the *Bridge Baron II*. A descendant of *Bridge Baron*, *Bridge Baron II* is available from

FEEL THE HEAT



No matter what kind of game you're in the mood for, you'll find that if it's in a box marked FIREBIRD, it's really hot!

Firebird offers the excitement of a whole range of challenges — Adventures and Strategies for long rainy weekends, Arcade games for exhilarating evenings, Simulations when you need to get away from it all, Productivity software when you're feeling — well, productive.

Look for the Firebird — it stands for top-quality software in virtually *every* category.

Adventures Ablaze

The world has been waiting for a sequel to the highly-acclaimed PAWN, with its stunning graphics and revolutionary text-handling system. Here at last is GUILD OF THIEVES, an extraordinary Adventure like no other! Look for the Firebird logo on other addictive Adventures, too — like the stunning GOLDEN PATH, or the magical illusion of KNIGHT ORC with its superb graphics.

Four-Alarm Arcade Action

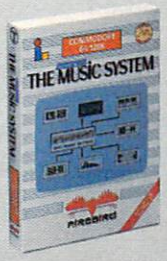
When it comes to fast-paced Arcade games, nothing beats Firebird's STARGLIDER, a breathtaking combat flight simulation with incredibly rapid 3D vector effects.

Or try ELITE, a game so different it defies

categorization, or the endlessly puzzling CHOLO.

Sizzling Strategies

If you're in the mood for Strategy, and have exceptional concentration and near-perfect hand/eye coordination, you'll love the challenge of SENTRY with its more than 10,000 full-color landscapes and four-way scrolling. More Strategies from Firebird: the revolutionary UNIVERSAL MILITARY SIMULATOR* and TRACKER, games that introduce totally new concepts in tactical warfare.



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CIRCLE READER SERVICE 25

Great Game Products for the **Apple II** series, **Atari ST, C 64/128, IBM PC**, and **Macintosh** for $40–$50 . . . . If you've been itching to learn the game, *5 Weeks to Winning Bridge* ($40) may be the key. Advanced bridge hands can learn the secrets of world-famous bridge-player **Dorothy Truscott** in *Play Bridge with Dorothy Truscott* ($30). Both games, from Great Game Products, are available for the **Apple II** series, **Atari ST, C 64/128, IBM PC**, and **Macintosh**. —LISA WU

GAME HINTS

STARFLIGHT (Binary Systems/Electronic Arts). Binary Systems has created a universe-on-disk for those who aspire to be intergalactic space traders, adventurers, and explorers. Starting off as a novice space trader, you must save the galaxy by discovering the source of the destructive solar flares and destroying the source within one solar year (10 months). As you explore star systems and planets with unique ecosystems, you will seek out aliens, new life, and ancient civilizations. (256K IBM PC; not compatible with EGA, but a "fix" is available from EA customer service)

★ At the very beginning of play, spend your money to recruit the best crew you can. If you choose the highest-rated creatures for each job (bearing in mind the compromises you'll have to make to secure harmony among the different races), they'll prove worthy of the price later.

★ Read the notices when you first arrive at Starport. You'll find useful information about continuum flux links, areas to mine, ruin locations, and areas to avoid.

★ When reconfiguring your ship at Starport, buy Class Five engines at midgame—you'll be better able to afford them. Next, you should buy shields and, last, some form of self-defense. Note: Buy some armor as soon as you can. It protects you in nebulae and gives a line of defense should you be caught with your shields down.

★ Make several copies of the star map included in your game, so you can mark off areas of interest. Keep a notebook of important star systems and continuum flux connections. Also, be prepared to take notes from aliens at all times.

★ Use the continuum fluxers to save precious Endurium and travel faster.

★ By midgame, the quickest way to make money is to recommend habitable planets for colonization. When you land, explore the surrounding countryside; take the time to draw a map, dividing into quadrants the territory you're capable of covering in your rover. If you know where you've been and where you're going next, you won't waste valuable time, fuel, and other resources covering territory twice.

★ If you find minerals while mining a planet, take them immediately. If you don't, the aliens may take them. Upgrade your mineral supply at every opportunity by unloading useless minerals and collecting more valuable ones.

Explore the universe and meet aliens in *Starflight* (Electronic Arts).

★ When looking for minerals on a planet, move your terrain vehicle until you see the notice "Scanning new terrain." Stop your terrain vehicle and look at your maps. There will usually be new mineral deposits showing on your widest map. Pick up the minerals (if any) and move until you get the notice again. Repeat the process, keeping tabs on your energy level.

★ If launching and landing repeatedly when mining a planet, always leave orbit, re-establish orbit, and then land in the new location.

★ Don't run out of gas. If you're forced to leave your vehicle, you may lose an important artifact.

★ To get the most out of capturing a life-form, record its biodata before you capture it. You get monetary units for the biodata as well as the life-form.

★ Keep at least five cubic meters of each of the repair elements in your cargo hold. There is a good chance you'll need them after meeting a hostile alien. Additionally, it's a good idea to keep minerals in the hold at all times.

★ Some creatures, such as the Spemin, will be in awe of you if you destroy one of their ships, but not anymore. They'll usually beg your forgiveness and answer any questions.

★ If you openly attack members of an alien race for no reason, they'll probably retaliate at the next encounter.

★ The Thrynn have many clues about artifacts; just ask them for general information. It's a good idea to check out all clues, especially the one about the red cylinder. The Thrynn will not cooperate if you have an Elowan on board.

★ Get a fully trained navigator as soon as possible.

★ The Spemin are more talkative if you speak in a hostile manner with shields up and lasers armed.

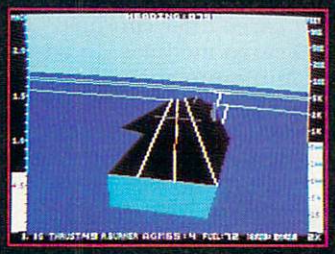
★ "Most extreme importance system of Velox: Grand lovely is guarded by Veloxi drones." Answer no to all numbers except those that are multiples of six.

★ Olde Earth is still suitable for life if you can find it. Hint: It may be near the Axe due to the large abundance of yellow stars.

★ If you wish to orbit heaven, answer Mechan 9 the following way: (1) You are group 9; (2) Verify code red; (3) You do not serve Laton; (4) You are ready for heaven.

★ There are three black egg devices. You need one to complete the game. —JOHN SCHMIDT, *Lindstrom, Minnesota*; SEAN BAIRD, *West Chester, Pennsylvania*; JAMES DELSON, *New York, New York*

EOS (Electronic Arts). As the newly appointed Space Director, you must design and build space stations that aid you in your goals ranging from

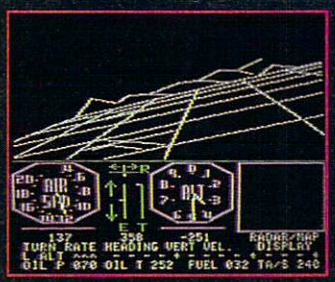


1985 - High-performance Jet flight simulator for the IBM, Commodore 64, and Apple II computers

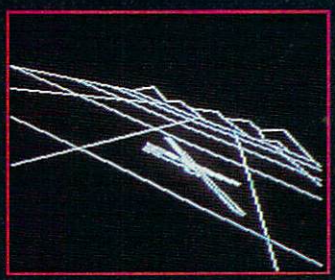
1987 - Expanding Scenery disk coverage; East Coast, Japan, & Europe

1986 - Flight Simulator II for the 68000 computers

1982/1983 - Microsoft Flight Simulator & Flight Simulator II



1979 - 3D graphics applied to the original FS1 Flight Simulator for the new Apple II and TRS-80 computers



1977 - SubLOGIC's 3D graphics package in BASIC and M6800 Assembly Language

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CIRCLE READER SERVICE 55

simple research objective to colonization of the Solar System. Keep in mind life-support, energy, and galley/gym requirements. By watching market trends and using your stations for commerce, you can earn money to operate your stations and build new ones. Eventually, you'll be able to move to research and work toward your goal. You can play with up to four opponents or against the computer, and the first to achieve the goals of the given scenario is the winner. Good graphics, realistic economics, and a detailed but smooth-flowing play system are the highlights of this game. (Apple II series, C 64/128)

★ At the start of any game, you should borrow 50 credits from the bank. This will enable you to buy a solar collector (which is much better than the cheaper Station Power module), as well as a good money-making module, such as a Space Telescope, Building Platform, or Computer Lab. The one you choose should be based upon economic demand, as well as the fields you have to research to complete the mission. If you repay the bank five or six credits a quarter, you'll be able to keep the loan under control until you can repay it completely.

★ Except in the aforementioned scenarios, never dedicate the modules you have to research. Always set some modules aside for commerce, so that you'll never go into debt. You can lose a lot of time trying to pay off a loan, because you'll have to stop all research and put everything into commerce. A good general rule to follow is to let any group of similar modules support itself. For example, if you have seven Building Platforms, put five or six in research and the remainder in commerce. Also, if a module's output earns less than seven credits a quarter, you should put it into research; tech points acquired are worth more.

★ In the Research mission, make sure your stations are Science Labs, if nothing else. A simple way to check this is to install seven weather centers, which are small and cheap. Also make sure that all your research modules are working toward breakthroughs. In the long run, breakthroughs will give you far more tech points than enhancements will.

★ In the Search for Life mission, first develop a Communications Base so that you can communicate with your probes. You can make the same station a Construction Base if you plan carefully. This is useful in researching the technology to build a Dry Dock. Next, build a Transportation Base/Science Lab to research the technology for Space Tugs. You really need only three Shuttle modules seeking breakthroughs, because in a few quarters you'll be able to install Space Tug modules, which are much smaller. You can then devote a whole station to Space Tugs, which will quickly do the research necessary for Propulsion Units and Jupiter Explorers. Keep your Space Tugs in research after you have the technology level you need, because you get many tech points for even small amounts of research in Transportation. (You earn one tech point for every tenth level you research, whereas you earn the same point for every half a level you research in Resources.) Make sure you launch probes early; it takes three to four years to reach the outer bounds of the Solar System. This will give you time to get a Communications Base orbiting Jupiter so you can receive transmissions from there.

★ In the Space Colony mission, you should first develop a Construction Base. This will enable you not only to build Dry Docks, but to also build Fabrication Labs. Next, build a Transportation Base and follow the same procedure noted above. (The Transportation technology is not as important in this scenario as it is in Search for Life, and you don't need Jupiter Explorers.) Fill in any empty spaces with Chemical Labs, Resource Platforms, and Weather Centers, because you need the research they provide. Later on, build a station designed solely of these three modules and have them quickly finish the necessary research.

★ Space Hospitals are extremely useful in missions other than Mars Rescue (where hospitals are the goal). Not only do they make more money than you'll be able to spend, but they do research and occasionally earn mission points.

★ When you send a Jupiter Explorer to a planet, make stopovers at any planet or moon that hasn't been explored by a previous Jupiter Explorer, Science Lab, or Settlement. Because Jupiter Explorers have unlimited fuel and since stops don't use up any time, you'll be able to cover more ground this way.

★ A well-built cargo liner can hold more than 40 cargo modules, in addition to the minimum components necessary to make it functional. Remember, you don't need a Life or Galley/Gym module. —DAMON OSGOOD *and* DAVID LANGENDOEN, *New York, New York*

CONVERSIONS

Black Cauldron (Sierra On-Line). Now available for Apple IIGS and Macintosh. Already out for Amiga, Apple II series, Atari ST, and IBM PC. Reviewed in August 1986 issue.

Dark Castle (Three-Sixty Inc.). Now available for Amiga, Atari ST, C 64/128, and IBM PC. Already available for Macintosh. Reviewed in July 1987 issue.

World Tour Golf (Electronic Arts). Now available for Apple IIGS. Already out for C 64/128 and IBM PC. Reviewed in March 1987 issue.

Might and Magic (Activision). Now available for C 64/128 and IBM PC. Already out for Apple II series. Reviewed in July 1987 issue.

Earl Weaver Baseball (Electronic Arts). Now available for IBM PC. Already out for Amiga. Reviewed in October 1987 issue.

EDITOR'S NOTE: *Titles listed for the IBM PC will also run on many IBM compatibles. Owing to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.*

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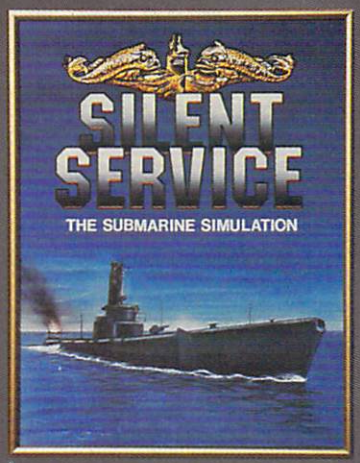

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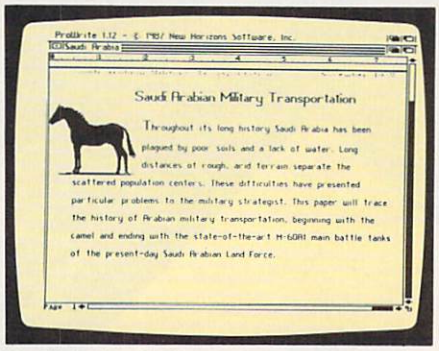
FAMILY COMPUTING®

ANSWERS TO YOUR COMPUTING QUESTIONS

EDITED BY CHARLOTTE PIERCE

This month, we offer answers to some of the computing questions that fill the mailboxes of FAMILY & HOME-OFFICE COMPUTING *editors.*

Q. I'm still searching for a full-featured word processor for my Amiga 1000 (upgraded to 1MB) that would have the ability to integrate



***ProWrite* lets Amiga users merge text and graphics.**

graphics from Electronic Arts's *Deluxe Creativity Series* ($100–$130) and work with files I've already created with *ProWrite*. Any suggestions?

A. LESLIE ROSE
Escanaba, Michigan

A. You'd be able to use *ProWrite* (New Horizons; [512] 329-6215; $125) text files (but not its graphics files) with the new version of the powerful and popular *WordPerfect* (WordPerfect Corporation, [801] 227-4410; $395), recently released for the Amiga 500, 1000, and 2000. To merge text and graphics, you'd have to use *ProWrite* or a desktop-publishing program such as *Publisher 1000* (Northeast Software/Brown-Wagh, [408] 395-3838; $200) or *PageSetter* (Gold Disk Inc., [416] 828-0913; $150).

Q. I'm interested in taking some college courses on-line. Do you know how I can get information on what's available?

TOM THOMPSON
Cody, Wyoming

A. The Electronic University Network, a division of Open Learning Systems, Inc., delivers on-line courses offered by colleges and universities across the country. Write or call: The Electronic University, 1150 Samsome Street, San Francisco, CA 94111; (800) 22-LEARN.

For an article on the subject, refer to "Get a College Degree Without Leaving Home" in our July 1986 Telecomputing department. If you don't have a copy, write to: FAMILY & HOME-OFFICE COMPUTING, Back Issues, P.O. Box 717, Cooper Station, New York, NY 10276. The cost is $4.25 each for one to four issues; $3.50 each for five to 10; and $3.00 each for more than 10. Include payment with your order.

Q. Your article on learning disabilities in the May issue interested me. I have three boys: the oldest, 18, has dyscalculia (learning disabilities in math), and the youngest, 15, has dyslexia (reading disability). The oldest one has graduated, but my 15-year-old is dreading going to high school and competing with the other children.

Needless to say, school has been an uphill push all the way and not just for them; try explaining to 10 teachers each year why these outgoing, normal-acting youngsters have trouble learning. My middle son is 16 and has an Apple IIc computer; the question is, how can we put it to better use to help all the boys learn?

LINDA CAROON
Oriental, North Carolina

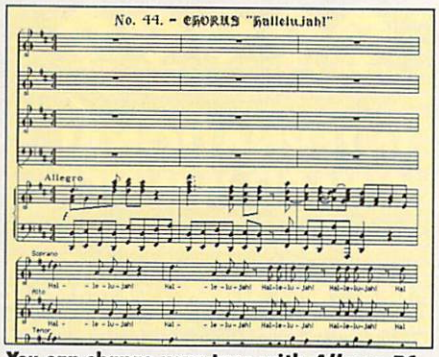
A. Reader after reader has told us of the positive effects that the use of computers has had on their children's learning and performance in school, even without the aid of specialized software.

Many commercial programs are suitable for children with learning disabilities *(see "Parents' Guide to Learning at Home with Computers" in the September issue)*. For information, support, and resources, you can contact organizations such as the Center for Computer Opportunities for the Disabled, in care of The Boston Computer Society, 1 Center Plaza, Boston, MA 02108; ([617] 367-8080); or the Disabled Children's Computer Group, 2095 Rose Street, Berkeley, CA 94709; ([415] 841-3224).

Q. I have an IBM-compatible Leading Edge, and I'm also an amateur musician. For several months, I've been looking for software that can transpose music from one key to another. I would like to input the key in which the song is written, input the notes and chord changes, and then print out a hard copy of the song in the new key. Do you know where I could find the appropriate software for less than $150?

W.E. RESTERSON
Gloucester, Massachusetts

A. Programs such as *Allegro PC* (CODA Music Software, [612] 854-9554; $79) and *SongWright Plus*, (SongWright, [703] 822-9068; $75) should meet your needs. For more information on music software, call



You can change your tune with *Allegro PC* for MS-DOS computers.

collect or write to: CODA Music Software, Music Learning Division, 1401 East 79th Street, Bloomington, MN 55420. Also, refer to our August "Making Music" feature for more ideas and software. ■

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This is your column. Please send your questions or profiles of your family's computing activities to: FAMILY & HOME-OFFICE COMPUTING, *Family Computing Department Editor, 730 Broadway, New York, NY 10003. Profiles should be three to five pages, typed or printed, and double-spaced. If your family's profile is selected for publication, we'll send you a software package for your computer. Due to the large volume of mail received, we regret that we are unable to acknowledge or return unpublished submissions.*

CHARLOTTE PIERCE *is managing editor for* FAMILY & HOME-OFFICE COMPUTING.

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MACHINE SPECIFICS

NEWS, OPINIONS, QUOTES, AND RUMORS ABOUT YOUR FAVORITE COMPUTER

APPLE

BY CHARLES H. GAJEWAY

Let's backtrack from last month's report on Apple's stunning new products and concentrate on upgrading its existing products.

Nothing improves computer performance more than adding a hard-disk drive. The increased disk access speed and the ability to store all programs and files in one convenient location are of incalculable value. This is especially true of the Macintosh, with its multiple windows and large program files, all of which are "disk intensive." But a few recent experiences have shown me that not all Macintosh hard drives are created equal. Here are a few tips on what to look for—and avoid—when shopping for a hard drive.

SCSI Hard Drives. The best all-around solution for most users is an external 20MB unit that connects to the SCSI port. The SCSI drives are much faster than drives that connect to serial or external floppy ports, and they can be daisy chained to other SCSI hard drives or tape backup units without robbing your Mac of ports. Although internal units are neater and more portable, they can overheat (on the 512K Mac and Mac Plus), can make it difficult and expensive to install expansion RAM, and tend to be unreliable.

If you *must* have an internal unit, Rodime—which manufactured the legendary hard drive used in the Compaq—has introduced a well-designed unit. The 20i Plus sells for $1,295. And, as of press time, some Rodime dealers planned to offer internal HyperDrive owners credit toward a Rodime drive.

The Jasmine Backpac 40 unit (Jasmine Technologies) connects to a Macintosh Plus SCSI port. Because it's small, this product offers most of the convenience of an internal drive, combined with the advantages of an external drive.

HFS Upgrade. A hard drive will run much better under Apple's HFS (Hierarchical File System). If you have an older 512K Mac, you'll need the system board upgrade, as well as an SCSI port (the Macintosh Plus Logic Board Kit; $599). This is a worthwhile investment, as most new software is being designed around the new ROMs and 800K floppy drives. Apple has a non-SCSI version of its HD-20 drive that doesn't require the upgrades, but its performance isn't in a league with the newer products'.

CHARLES H. GAJEWAY *can be reached on CompuServe* (ID: 73357,3577) *or on GEnie* (ID: C GAJEWAY).

ATARI

BY JOHN J. ANDERSON

Atari recently made history by becoming the first computer manufacturer to exhibit at the National Association of Music Merchants (NAMM) show in Chicago. The ST was present throughout the show in virtually every booth where there were MIDI instruments. Atari salespeople were besieged by music dealers eager to sign up as Atari dealers. By the time this four-day event was over, there were literally hundreds of dealer applications waiting to be approved. Before NAMM, Atari had 50 music stores as dealers. Now, it looks like there will be 250 when the new dealers are selected.

ST Memory Boost. Data-Free has introduced the Data-Free Board, a memory upgrade board for the ST (up to 4MB) that's easily installed. Sixteen chips will increase memory to 2.5MB, 32 chips to 4MB. You can purchase chips directly from Data-Free ($24 each) or do some shopping on your own. The board costs $159.

Low Cost Utilities. Looking for utilities and desk accessories in the public domain or as shareware? Here are a few you might want to keep an eye out for, either when on-line or at a users' group meeting:

ScrSaver.ACC—Blackens the screen without turning off monitor switch. Eliminates the possibility of phosphor "burn-in" on your monitor.

Coldboot.TOS—Click on this little 56-byte program and it cold starts your ST. Saves wear and tear on your power switch and your chips and is handy for clearing accessories out of memory.

DCopy19.TTP—This shareware program (the authors request payment if you continue to use it) copies, erases, hides, locks, renames, de-arcs files, formats disks, and much more. It's a very neat little multifunction program.

Antic's Stereo CAD. Have you seen Antic Software's 3-D Stereotek glasses yet? *(See October's Machine Specifics department.)* Making your own 3-D pictures and animations is possible using *Stereo CAD 3-D 2.0* ($90), which is included in the Cyber Studio package.

JOHN J. ANDERSON *can be reached on CompuServe* (ID: 76703,654).

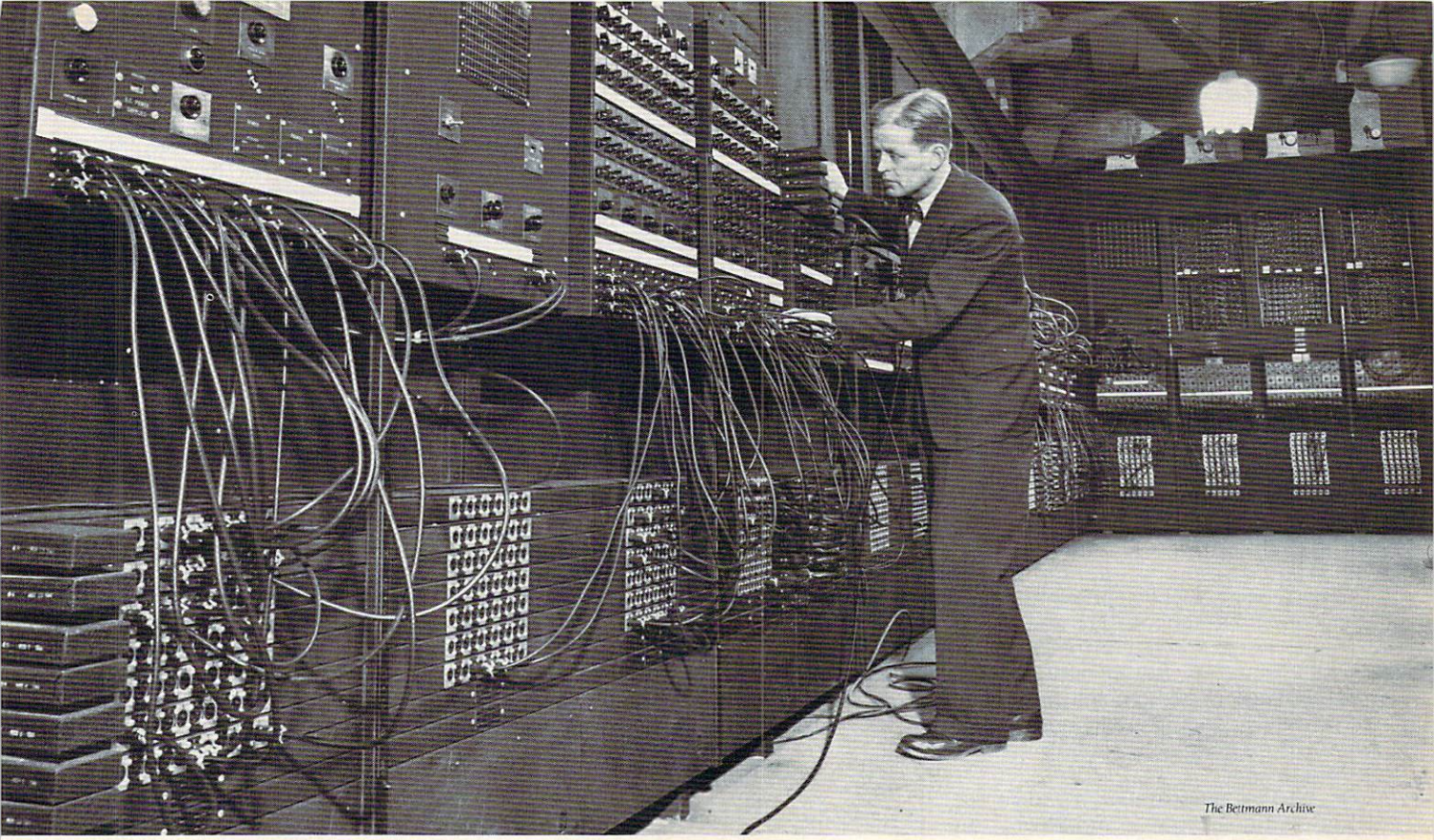
COMMODORE

BY SHAY ADDAMS

With the introduction of Berkeley Softworks's *geoPublish*, Commodore fans no longer need an Amiga to do desktop publishing. Modeled after similar software for the Macintosh and IBM, *geoPublish* lets you create multiple-page documents, such as brochures and newsletters, on the C 64 or 128.

Text imported from *geoWrite* documents may be pasted into single or multiple columns. If a column is too long for a page, you can run it over onto another one and it will "flow" automatically from page to page.

Illustrations from the program can be imported, and *geoWrite* offers several graphics tools for drawing boxes, lines, and other effects. A new typeface called Mega Fonts allows you to produce headlines in sizes up to 48 points. The results can be edited extensively before printing on a dot-matrix printer. For serious work, you'll want to use an Apple LaserWriter or send your files via QuantumLink to Berkeley where they can be laser printed. To use *geoPublish*, you'll need *GEOS*;



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MACHINE SPECIFICS

a RAM Expansion Card would probably be handy.

GeoProgrammer. For those who prefer programming to publishing, Berkeley also has a three-part package called *geoProgrammer* ($70). Designed for people who already understand 6502 assembly language, it consists of an assembler, linker, and symbolic debugger. *GeoProgrammer* uses *geoWrite* as an editor, so you can insert special comments into the source code. The program even lets you paste a *geoPaint* picture right into a line of code to indicate that the graphic should be used in your program.

Epyx's *Create A Calendar* lets you create your own calendars and type in notes and appointments in the date boxes. You can also add any of the numerous graphics (included) and icons to customize the calendar. A preview disk is being sent to users' groups and consumers who request one.

C 64 Becomes Amiga. If you've upgraded to an Amiga and haven't figured out what to do with all your C 64 or 128 sequential files, Central Coast Software may be able to help. The company will convert the contents of a 1541/1571 disk to the Amiga format with its *Disk-2-Disk* software in 5.25-inch disk format. Uppercase and lowercase "PET" ASCII files are converted to Amiga ASCII, for example.

C 64/128 program files can't be converted to run on an Amiga. Thus, this conversion service is most useful to someone who needs to convert word-processing files, though databases might also be a possibility. The service costs $6.50 per disk, plus a $15 service charge per order. Or you can get the *Disk-2-Disk* software for $50.

SHAY ADDAMS, *editor and publisher of* Questbusters, *an adventure-game newsletter, can be reached on CompuServe* (ID: 72267,601) *or on QuantumLink* (ID: JBCHALMER).

IBM

BY HENRY BEECHHOLD

The recently introduced IBM Personal System/2 Model 25 is IBM's first computer targeted at the home and educational markets since the ill-fated PC*jr*. It has a standard keyboard (not the rubber "Chiclet" keys of the *jr*) and 512K of RAM. With an 8MHz 8086 microprocessor—the same as in the PS/2 Model 30—the newcomer runs twice as fast as the original PC. So we're looking at a respectable update of familiar technology.

Competition. What's the point of the Model 25? Competition. IBM wants a considerably larger piece of the educational computer market than it has so far managed to capture. Apple is the market-share leader and Tandy—with its new, very aggressively priced line of System/2 software-compatible machines—is a strong player in the educational market as well.

Prices for the Model 25 range from $1,350 to $1,695, depending on the configuration. With IBM's usual educational discount, the machine is a little more competitive, but hardly mouth-watering.

For the noneducational user, the Model 25 doesn't seem at all appealing. The most obvious reason is that the more powerful, hard-disk equipped Model 30 is already selling for less than $2,000.

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The animated dot matrix display screen enables youngsters to play "spell the picture" games. A picture appears on the screen and the child has the fun of identifying and trying to spell it. The special screen also makes it possible for kids to express themselves artistically by creating their own computer generated drawings.

Plus, Learning Window is expandable with voice cartridges and additional programs: Number Power, IQ Builder, and Alphabet Soup.

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New Software Division. Perhaps IBM's new software arm, the Application Systems Division, will make a difference for the Model 25. Prior to the establishment of this new division, most IBM software was written by outside vendors. With a full-fledged in-house effort aimed at supporting its own computers, IBM may develop specialized software for education and other markets. We'll keep you posted.

HENRY BEECHHOLD *is the author of* The Brady Guide to Microcomputer Troubleshooting & Maintenance *(Brady Books, Prentice Hall Press, New York).*

MS-DOS

BY STEVE MORGENSTERN

I'm sure many of you, even those who keep up with current software, have never heard of *XyWrite* (XyQuest). It's used widely in the publishing world but has been largely ignored in a *WordPerfect*-Microsoft *Word*-dominated marketplace. Both of these programs are feature-packed and "perfect" for some people, but you definitely should look at *XyWrite* before making a decision. This is especially true now, with the release of *XyWrite III Plus*, a major update that solves some problems found in previous editions.

XyWrite has a reputation for speed, and it delivers. Functions such as scrolling text, jumping between pages, searching, and reformatting pages are all done in the blink of an eye.

There's no need to wade through layers of menus to make changes in your *XyWrite* document. Most commands are typed in using easy-to-remember abbreviations—LM10 gives you a 10-space left margin and ST stores a file on disk, for instance. Though some people would prefer a mouse-driven word processor, I find this command-oriented system fast and efficient.

The program offers all the features we've come to expect from a professional-level word processor: automatic hyphenation, sorting, automatic footnotes, index and table of contents generation, built-in macros, mail merge—the works. It also can open up nine different documents simultaneously in separate windows.

The new *XyWrite III Plus* addresses most of the problems with previous editions of the program. It now includes a full-featured spelling checker and also my favorite on-line thesaurus (*Word Finder* from Microlytics). And the program works much better now with memory-resident programs such as *SideKick* (Borland) and *Ready!* (Living Videotext).

PageMaker Deal. Aldus Corporation recently announced a special offer for users' groups—a copy of *PageMaker* for the IBM PC, list priced at $695, is now available for only $150. In addition, qualified users' groups can take advantage of the company's toll-free technical support service and receive other benefits. Sounds like a good deal. Call the company for more details about its special offers.

Covering the Spread. Here's an ingenious idea from SoftLogic Solutions. The company's new program, *@Liberty*, (read *at liberty*; $100) lets you create distributable copies of Lotus *1-2-3* spreadsheets—spreadsheets that users can run without having their own copies of *1-2-3*. This is more than a money-saving strategy; it also lets you keep your formulas, estimates, and data confidential.

STEVE MORGENSTERN *can be reached on CompuServe* (ID: 72545,606).

MACHINE SPECIFICS

TANDY

BY STEPHEN MILLER

Tandy can always be counted on to run a sale during the holidays. This year is no different. The new Tandy 1000 HX (regularly $699) is being sold with a CM-5 color monitor (regularly $300) for a total price of $849—$599 for the computer and $250 for the monitor. A 1000 TX and a CM-5 combo is selling for $1,249, reduced from $1,499. The computer and monitor must be purchased together to get the discount. The upgrade board that gives your SX the speed of a 286 AT class machine is on sale for $300, down from $400.

The Color Computer 3 has been reduced to $130 from $200. The FD502 disk drive for the CoCo is selling for $220, down from $300.

The Tandy 200 has been reduced a whopping $300 and is selling for $499. The Tandy 102 is down to $449. The DMP 130A printer now sells for $250, down from $360.

Over Hill, Over Dale. I'm often asked what I think is the best thing about Tandy products. It's not the products (which I really think are first-rate) but the service. There's a Radio Shack store on almost every street corner, and you can even get help in Maine or Hawaii—as I recently discovered.

I was flying to a conference in Miami and was helping a friend master his brand-new Model 102. As the big expert, I was demonstrating the wonders of ROM-based programs when I caught the base of my 102 on the corner of the pull-down tray. The memory switch, which holds files in memory, was flipped to the off position, and I watched in horror as all my work, including part of this column and *all* of a feature article, went into yonder Twilight Zone.

Fortunately, some of my files were saved on disk, but I couldn't get to them because I didn't have a special file necessary to access the files on the disk drive. The disk holding that file and the instructions for loading it were back in New York. As soon as I got to my hotel, I asked where the nearest Radio Shack store was located. It was only a block and a half away from my hotel.

I went there and told the salesperson, Rick Borrazas, what had happened. He got a copy of the disk and the instructions and let me reload the files. I was out of there in 10 minutes with my destroyed files restored. I wasn't asked any questions about where or when I bought my computer or whether it was under warranty or anything. That kind of service is worth a lot.

STEPHEN MILLER *is a computer consultant and journalist.*

ORPHANS

BY PATRICK SPERA

Another year bites the dust, the holidays are nigh, and let's face it—you *still* don't have all your shopping done! Humph, welcome to the club. I know what all my computers want to see under the tree (disk drives!). And I know what they're going to get: games and more games!

West Coast TI. Queen Anne Computer Shoppe (6102 Roosevelt Way N.E., Seattle, WA 98115) has been a staunch supplier of TI products. The owner, Barbara Wiederhold, was

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Lesson One appear in an easy-to-follow, delightfully illustrated lesson book

LED display screen. The child enters the answer by pressing keys on the alpha/numeric keyboard. If the answer is correct, the child hears a congratulatory tune. If incorrect, the child can try again.

But just as important as the knowledge youngsters gain with Lesson One is the confidence they gain. Lesson One is the pre-computer that looks, acts and sounds like a real computer. And in the computer-driven world we live in, the more comfortable you are with computer technology, the better off you'll be.

Lesson One. It makes learning tireless. Not tiresome.

The electronic learning tool that makes learning fun. For ages 5 and older.

Lesson One

to help your child explore spelling, math, music and logic. Questions appear in bright red on the computer-like

The 10 activities in

VTECH VIDEO TECHNOLOGY
Turn On A Mind.

Wherever toys are sold.

CIRCLE READER SERVICE 65

© 1987 H.K. Video Technology Canada, Ltd., Richmond, BC V6X3C6 Video Technology Industries, Inc., Northbrook, IL 60062

Turn on a mind to typing.

Type-right.™ Now learn to type without a typewriter. For students 9 and older.

Although you'll find it in the toy department, Type-right is not a toy.

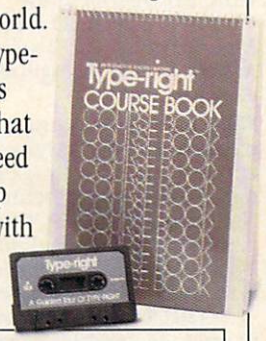
It's a fun, easy, fast way to learn how to master typewriters, word processors and computer keyboards as well.

AN INTERACTIVE TEACHING MACHINE Type-right™

This self-contained typing tutor comes with step-by-step instructions, both in booklet form and on audio cassette. The student is taken through a progressive series of typing lessons, from basic finger positioning to typing complete letters.

Typing speed and accuracy is electronically recorded so students can monitor their progress at the end of every lesson.

We live in a high-tech world. And Type-right is just what you need to keep pace with it.



VTECH VIDEO TECHNOLOGY
Turn On A Mind.

Wherever toys are sold.

CIRCLE READER SERVICE 66

© 1987 H.K. Video Technology Canada, Ltd., Richmond, BC V6X3X6 Video Technology Industries, Inc., Northbrook, IL 60062

part of the successful Sea/Tac Fest for TI computers held in September. She also runs a 24-hour BBS for TI users ([602]361-0895, at 300 and 1200 baud).

QACS offers the *Spad XIII* flight simulator for $25. This is an excellent simulator. You can cruise around the Eiffel Tower or engage in air-to-air combat over WWI France. Also available is the new Asgord adventure program, *Legends*. A variety of Geneve 9640 accessories are available, too.

Adam Dot-matrix Printing. Terry Fowler of gHAAUG (Route 2, Box 2756, Pearland, TX 77581) has developed an interesting program that will print *SmartWriter* files to a dot-matrix printer. Normally, these files are sent to the Adam printer, which is a rather slow daisy-wheel printer. But, with *File Printer* ($20), users who've added a dot-matrix printer can print with alacrity.

The self-loading program will print in either Newsletter (two columns) or Letter format. It allows for margins and different type sizes. Fowler usually has an assortment of Adam products available, so you might want to send a self-addressed, stamped envelope for more info.

TS 1000 Revived! There has been a flood of new products for the TS 1000. Even a clone is now available! Silicon Mountain Computers has developed a series of hi-res graphics programs for the TS 1000/1500. Hi-res graphics on the 1000? Yes, but there's a catch.

These programs require a static RAM memory device in the 8K–16K memory location. The Hunter Board is an example of such a device. Though the Hunter Board is no longer sold, you can get Silicon's SCRAM Non-volatile Memory Board for $40. Talk about a lucky break!

With the SCRAM board, you'll be able to run such programs as *The Dungeon of Ymir*, a very challenging adventure game ($20), and *Year-At-A-Glance* ($10), an appointment book calendar. Also available is SCRAM *Extended BASIC* ($25), which has a multitude of new graphics commands.

TS 1000 Clone! The PC-8300 is a TS 1000 clone imported from Hong Kong. Early buyers actually received their owner manuals written in Chinese! The PC-8300 ($30) shows many improvements over the 1000, including a "Chiclet"-style keyboard, a joystick interface, a monitor output, and an option to upgrade to a color output (with an add-on module).

The clone is not 100 percent software compatible with the TS 1000, due to the added features. Many programs that call on the TS ROM routines will crash. But all BASIC programs will run with no problems. Like the TS 1000, this computer makes a very good learning machine for children. It's easy to use and nearly indestructible. American Design Components carries the PC-8300 computer.

PATRICK SPERA *is sysop of the Computer Club Forum on CompuServe* (GO CLUB), *a meeting place for owners of orphaned computers.*

PHONE NUMBERS

Aldus Corporation (206) 628-2352; American Design Components (800) 524-0809; Antic Software (415) 957-0886; Apple Computer, Inc. (408) 996-1010; Applied Engineering (214) 241-6060; Atari Corp. (408) 745-2000; Berkeley Softworks (415) 644-0883; Central Coast Software (805) 528-4906; Commodore (215) 431-9100; Data-Free (416) 741-9825; Epyx (415) 366-0606; gHAAUG (713) 482-5040; IBM (800) 447-4700; Jasmine Technologies (415) 621-4339; NAMM (619) 438-8001; Queen Anne Computer Shoppe (206) 522-6558; Rodime (216) 765-8414; Silicon Mountain Computers (604) 352-1668; SoftLogic Solutions (800) 272-9900, (603) 627-9900 in NH; Tandy/Radio Shack (817) 390-3011; Xy-Quest (617) 275-4439.

Strokes Of Genius.

If you haven't been to Europe or taken a world tour lately, you may not have heard of AMSTRAD. So, let us introduce ourselves.

AMSTRAD is a British company that makes the best selling computer in Europe.* We even outsell IBM. And worldwide, over 2,000,000 AMSTRAD computers have been sold — not to mention all the AMSTRAD printers and word processors in use.

Now AMSTRAD is coming to America. And you'll soon see why AMSTRAD is making the competition very nervous.

Why buy your computer in expensive little pieces? With most computers, expanding capabilities means spending a fortune for add-ons. Not with AMSTRAD. Our computers come with additional ports *built-in*. That means no expensive brain surgery is required if you ever need to expand.

AMSTRAD computers also allow you to upgrade graphics capabilities — also without brain surgery. The PC1640 has monochrome (Hercules), CGA and EGA capabilities built into a single motherboard. So, to make your work look better, simply install a more sophisticated AMSTRAD high quality monitor.

Everything you need in two managable boxes. Everything. Naturally, AMSTRAD Computers are IBM compatible. However, we've also built in the boards necessary to run mouse-driven, windowing GEM® software that lets you create spectacular graphics. We even give you a mouse and all the software you'll need — lots of it.

Imagine. Virtually everything you need to start computing within minutes after you open the box.

Extraordinary printers, too. AMSTRAD gives you a choice of two brilliantly designed printers — the DMP 3000 and the DMP 4000. Both offer IBM compatibility and a list of standard features other printer manufacturers call options.

What if you don't need a computer? If you just want to express yourself, you'll love AMSTRAD's 9512 Word Processor. It's incredibly easy to use, comes with powerful built in software to perform a variety of tricks, a large, high-resolution monitor and a letter quality printer. To create a bestseller, all you need to add is a great plot.

The Coup de Grâce. Because of AMSTRAD's ingenious engineering and integration of traditionally optional features into our products, our prices are significantly less than you'd ever expect for such performance. In fact, you can buy a complete AMSTRAD computer system for less than $700. Add a printer and the price is still less than a thousand dollars. Or buy a complete word processing system for less than $800.

We may not become as famous as the Beatles, but . . . With more than 1000 dealers in America already (and the number is growing fast), AMSTRAD is quickly becoming famous for putting high performance within reach of thousands of businesses and personal users.

To find out more about putting brilliant performance in your hands, send in the reply form for the name of your nearest AMSTRAD Dealer. You'll see for yourself, you don't have to be an Einstein to be a genius. Just smart enough to buy AMSTRAD.

Please send me the name of my nearest AMSTRAD Dealer.

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Mail to: AMSTRAD, 1915 Westridge Dr. Irving, Texas 75038. Or call: 214/518-0668.

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*Source: International Data Corp.

CIRCLE READER SERVICE 4

4th Annual BEST-EVER SHOPPING GUIDE

Ho, ho, ho, it's that time of year again. Santa is on every street corner, Rudolph is on television, and FAMILY & HOME-OFFICE COMPUTING presents its "4th Annual Best-Ever Shopping Guide." Our annual shopping guide is a compilation of the best gift ideas for computer lovers, an inventory of software specials, and a roundup of the most significant new hardware of 1987.

Our five-page "Holiday Gift Guide" has more than 40 gift suggestions—ranging from a few dollars to a few thousand dollars—for that certain computer-using someone on your Christmas list. For people of all ages, you'll find gifts ranging from software that lets you make your own zany postcards to a computer-controlled train set; just for kids, there's talking software, a hand-held linguistic computer, and more; and for people with home offices, we've included everything from office furniture, to a shower telephone, to a CD-ROM reference library.

"Seasonal Software Specials," on page 49, will tell you about savings on software and special holiday promotions. And starting on page 50, you'll find "Notable Hardware: 1987 in Review," our examination of computers, printers, and modems that have outshone the others because of their raw performance, state-of-the-art technology, or price–performance value.

So browse through our gift guide, software specials, and hardware selections and find that perfect gift—for a friend, a family member, or yourself.

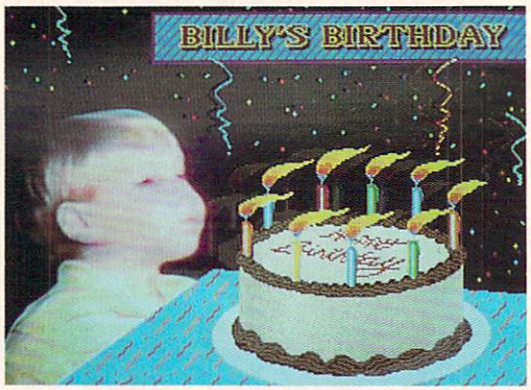
HOLIDAY GIFT GUIDE

FOR COMPUTER LOVERS

BY MARTIN BIHL

Software for Chefs. Help a cook become a chef! All of the nearly 600 recipes from Public Television's "Great Chefs" series are in this package of the same name. The volumes are organized alphabetically (A–F, G–N, O–Z); $25 each or $65 for the set (for Apple II series, Atari ST, C 64/128, IBM PC, and Macintosh); from Concept Development, 45 Cordova St., St. Augustine, FL 32084; (904) 825-0220.

CIRCLE READER SERVICE 71



Desktop Video 1.2. If you know an Amiga user who is an aspiring Steven Spielberg, *Deluxe Video 1.2* will get the cameras rolling. With an Amiga, a VCR, and a camcorder, he or she can build a studio and create impressive films, rock videos, professional video presentations, and much more. Even without a VCR or a camcorder, users can create computer-generated videos with a graphics package. $130; from Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171.

CIRCLE READER SERVICE 73

Family & Home-Office Computing. What better gift is there for a computer user? And at a yearly price of $19.97 ($29.97 for two years), you can save up to $48 off the newsstand price! Use the order form in this issue or write to FAMILY & HOME-OFFICE COMPUTING, P.O. Box 51344, Boulder, CO 80321.

CIRCLE READER SERVICE 75

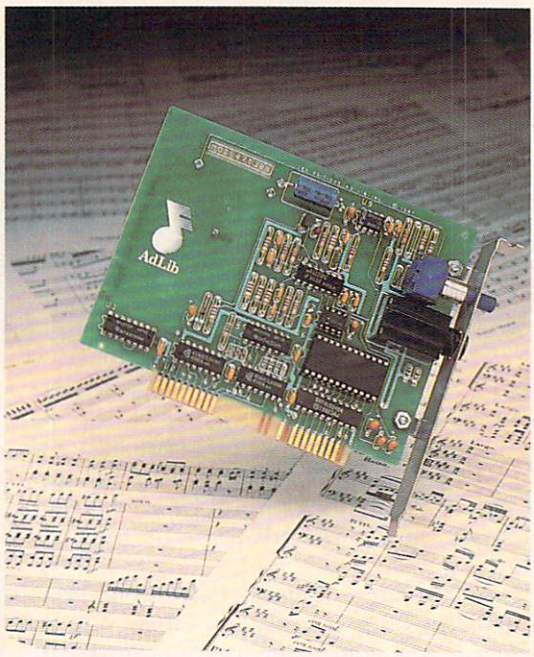
FOR THE WHOLE FAMILY

Postcards. Think of the fun that people of all ages will have making—and that you'll have receiving—computer-generated postcards decorated with bikinied warthogs, tourists, moonscapes, and Mona Lisas. The Macintosh version requires *MacPaint*, *FullPaint*, or *SuperPaint* to run, and the Apple IIGS requires *Paintworks Plus*. $25 (Apple IIe/IIc, C 64/128, IBM PC), $30 (Apple IIGS, Macintosh); from Activision, P.O. Box 7286, Mountain View, CA 94039; (415) 960-0410.

CIRCLE READER SERVICE 70

HyperCard. This remarkable software lets Macintosh users organize 16 million "cards" of information with graphics, text, music, animation, voice, and video. With each card capable of being linked to 60,000 other cards, this may very well be the beginning of an information revolution—and the most important gift you could give a 1MB-Mac user with two 800K disk drives. $49; from Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; (408) 996-1010.

CIRCLE READER SERVICE 72



Music System. The Ad Lib Personal Computer Music System will transform an IBM PC or compatible into a single musical instrument or an entire orchestra—and will make any modern-day Mozart flip his or her wig. The package includes the Ad Lib Music Synthesizer Card, the Ad Lib Visual Composer, and a 60-page step-by-step guide to computer composing in various musical styles. The synthesizer card features a headphone jack, an amplifier capable of driving a small bookshelf-size speaker, and built-in volume control. $245; from Ad Lib, 50 Staniford Street, Boston, MA 02114; (800) 463-2686.

CIRCLE READER SERVICE 76

Computer-Generated Cards. Classic Compu's "Merry Christmas," "Season's Greetings," "We've Moved," "Open House," "Thank You," "Party Time," "Celebrate," "An Invitation," and "A Short Note" collections of cards allow you to type in your own messages as the cards run through your printer. $12 from Classic Compu, 3100 W. Chapel Avenue, Cherry Hill, NJ 08002; (609) 667-5310.

CIRCLE READER SERVICE 74

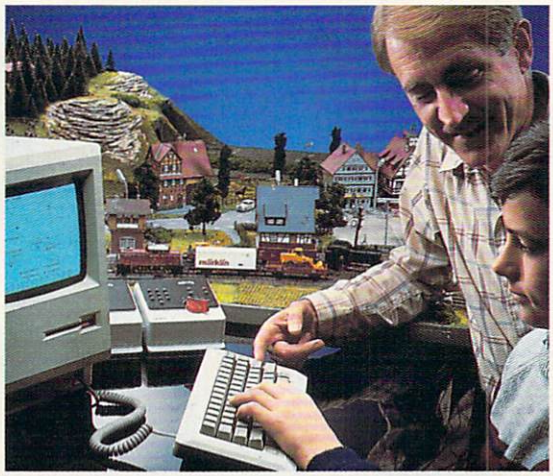
Music Software Catalog. With more than 600 programs, ranging from games that teach 5-year-olds the names of musical notes to software that helps bandleaders chart their half-time marching formations, the Coda catalog is indispensable for finding music software. $4; from Coda Music Software, 1401 East 79th St., Minneapolis, MN 54420; (800) 843-1337 or (612) 854-9554.

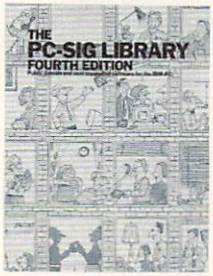
CIRCLE READER SERVICE 77

MARTIN BIHL *is a freelance writer who lives in New York City.*

Computerized Train Set. The perfect gift for the hacker who's interested in trains or the railroader who wants to get involved with computers. With two locomotives, four freight cars, two electric switches, a central control unit, a transformer, and a track, the novice and expert alike can control each train via their Apple II, C 64/128, IBM PC, or Macintosh. $965; from Marklin, 16988 West Victor Road, New Berlin, WI 53151; (414) 784-8854.

CIRCLE READER SERVICE 78



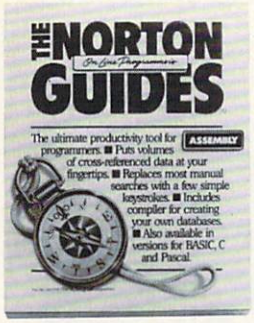


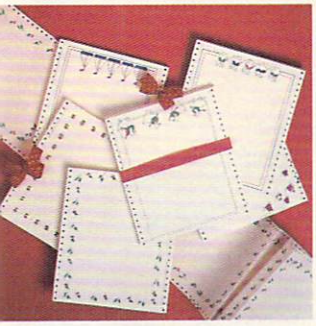
PC-SIG. Give someone a membership to PC-SIG, the largest distributor of inexpensive shareware and user-supported and public-domain software for IBM PCs and compatibles. With more than 25,000 members, it's an active organization that distributes more than 800 disks at $6 each. Members are entitled to an annual directory of thousands of programs, software discounts, and yearly subscriptions to *PC-SIG* magazine. Membership is $20 per year; from PC-SIG, 1030 East Duane Avenue, Suite D, Sunnyvale, CA 94086; (408) 730-9291.

CIRCLE READER SERVICE 79

Programming Guides. *The Norton On Line Programmer's Guides* put programming information at the keyboard and will be a boon to any new programmer. With cross-referencing and pop-up help screens, these on-line language reference database systems come in single-language and double-language packs and are available in Assembly, BASIC, C, and Pascal languages. $100 for the Instant Access Program and one language database, $50 for each additional language database; from Peter Norton Computing, 2210 Wilshire Blvd., Suite 186, Santa Monica, CA 90403; (213) 453-2361.

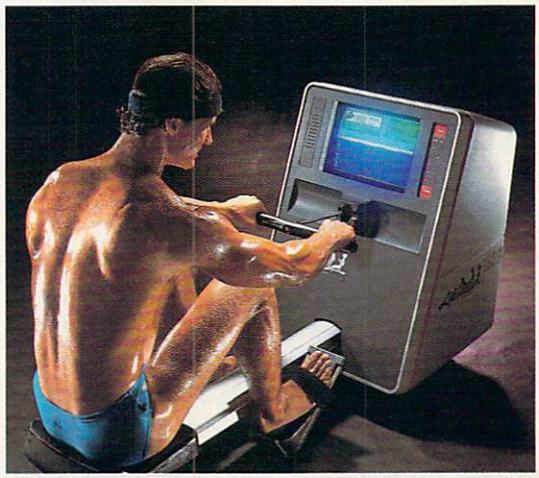
CIRCLE READER SERVICE 80





Cheery Computer Paper. Bears, boats, butterflies, and flowers all have been joined by holly berries, Christmas wreaths, and assorted other seasonal designs on computer paper from Computer Creation. In packages of 100 sheets, this paper is sure to brighten anyone's Christmas mail. $10 per package; from Computer Creation, P.O. Box 3742, Long Beach, CA 90803; (213) 434-2655.

CIRCLE READER SERVICE 81



Rowing Machine. For an aerobic fitness buff or a crew jock who needs some off-season training, how about Bally's Liferower? This computerized rowing machine lets you row against an opponent and tracks time, distance, and calories. $2,700; from The Sharper Image, 650 Davis St., San Francisco, CA 94111; (800) 344-4444 or (415) 445-6000.

CIRCLE READER SERVICE 83

Computer Training Videos. *The Video Professor*, a series of VHS videocassettes, will introduce users to computer jargon, components, and applications, as well as provide advanced lessons for *WordPerfect* and Lotus *1-2-3*. Tapes are $80 each; from Data Link Research Services, 1536 Cole Blvd., Suite 180, Golden, CO 80401; (303) 239-9950.

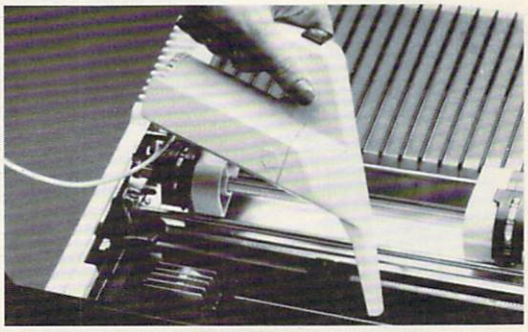
CIRCLE READER SERVICE 84

Tool Kit. This kit includes 11 tools that every computer owner needs to make adjustments, upgrades, and repairs. $30; from Curtis Manufacturing, 305 Union St., Peterborough, NH 03458; (603) 924-3821.

CIRCLE READER SERVICE 82

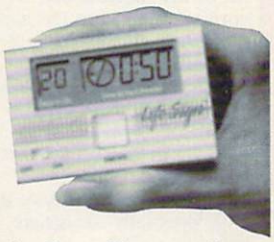
Minivacuum. For cleaning the dirt and grime off computers or typewriters and removing dust from tight corners, the System Sweeper is ideal. It's lightweight, comes with three attachments, and plugs into a wall outlet. $40; from MicroComputer Accessories, P.O. Box 66911, Los Angeles, CA 90066; (213) 301-9400.

CIRCLE READER SERVICE 87



Quit-Smoking Computer. Giving up cigarettes will never be a snap, but it can be easier with Life-Sign, a pocket-size computer that tracks smoking habits and formulates a personalized withdrawal program. These computers have been used and proven effective in corporate programs such as one sponsored by the Marriott Corp. $70; from Health Innovations, 13873 Park Center Road, Suite 336, Herndon, VA 22071; (800) 543-3744 or (703) 478-2824 (in VA).

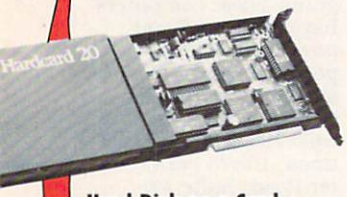
CIRCLE READER SERVICE 85



Car Signs. Here are all the tools needed to design personalized diamond-shaped, yellow signs to hang in your car window. The package includes two sign holders, 50 sheets of yellow paper, and software. $30 (for Apple II series, C 64/128, and IBM PC); from Zebra Systems, 78-06 Jamaica Ave., Woodhaven, NY 11421; (718) 296-2385.

CIRCLE READER SERVICE 86

FOR THE HOME OFFICE



Hard Disk on a Card. Know someone who'd like a hard drive for an IBM PS/2 Model 25 or 30 or an IBM PC or compatible? Plus Development's Hardcard is a fully integrated Winchester hard-disk drive on a card that provides 20MB or 40MB of storage. To fit the hard card in the Model 25, the company will send you a free, specially designed bracket. $795 (20MB), $1,195 (40MB); from Plus Development Corp., 1778 McCarthy Blvd., Milpitas, CA 95035; (408) 434-6900.
CIRCLE READER SERVICE 88

***1-2-3* Screen Manager.** Lotus *1-2-3* users will be able to double, triple, or even quadruple the number of cells displayed on the screen with *SeeMORE*, a program that is loaded into memory and linked with *1-2-3*. The program will also let users select colors and screen-layout options and produce hard-copy printouts of any compressed screen. $80 (IBM PC, PS/2, and compatibles with a graphics adapter); from Personics Corp., 2352 Main Street, Building 2, Concord, MA 01742; (800) 445-3311, (800) 447-1196 (in MA), or (617) 897-1575.
CIRCLE READER SERVICE 89

Showerphone Radio. Give home-office workers the Showerphone Radio, and they will have one less reason to miss important business calls. It's specially designed to withstand moisture and humidity. This no-hands speakerphone lets them lather as they blather. $40; from Cosmo Communications, 16501 NW 16th Court, Miami, FL 33169; (305) 621-4227.
CIRCLE READER SERVICE 90

Printer Muffler. Shut up the loudest chatterbox in an office. This printer muffler greatly reduces noise from 80-column printers with its thick foam lining and a tight-fitting lid; it's sure to make an office area a more peaceful environment. $60; from Global Computer Supplies, 45 South Service Road, Plainview, NY 11803; (800) 845-6225 or (516) 420-0044 (in NY).
CIRCLE READER SERVICE 91

Rolltop Computer Desk. Stylish enough for the living room, yet sturdy enough for the office, this woodcraft rolltop computer center may be just right for someone setting up a modern office in a traditional home. The desk includes space for a monitor, keyboard, disk drive, printer, and paper, and the rolltop locks to keep everything secure. 45-by-29.5-by-49.5 inches. $279; from Global Computer Supplies, 45 South Service Road, Plainview, NY 11803; (800) 845-6225 or (516) 420-0044 (in NY).
CIRCLE READER SERVICE 92

Reference Library Plus CD-ROM Drive. Writers and editors will flip over the Amdek Laserdrive 1 and *Microsoft Bookshelf CD ROM Reference Library*. This hardware-software combination brings an entire reference library—*American Heritage Dictionary, Roget's Electronic Thesaurus, The World Almanac*, among others—to computers. The Laserdrive 1, an external CD-ROM drive for IBM PCs and compatibles, can read up to 276,000 pages of information (552MB) from a single CD-ROM. $1,295; from Amdek Corp., 1901 Zanker Road, San Jose, CA 95112; (408) 436-8570.
CIRCLE READER SERVICE 93

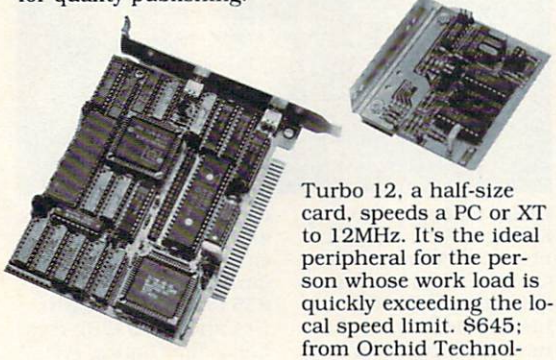
Paper Shredder. Appropriate for the person on your list who regularly works with confidential information, Snippet's Personal Shredder is hardly bigger than a telephone and fits comfortably over the average office wastebasket. Shreds at a rate of 11.5 feet per minute and up to 10 sheets of 8.5-by-11-inch paper at a time. $199; from R + R Direct, P.O. Box 1702, Dayton, OH 45402; (800) 654-PLUS, (800) 545-PLUS (in OH), or (513) 461-7587.
CIRCLE READER SERVICE 94

Address Book. Capable of organizing and printing by name, zip code, profession, and other categories, this *Pocket Address Book* program is for people who frequently scratch out the names of old business associates and scribble in new ones. The software package comes with bindings, a calendar, a leather cover, and 100 sheets of 6-by-3⅜-inch tractor-feed paper to make a hand-held address book. $70 for the IBM PC in the Power Up! catalog; from Channelmark Corp., 2929 Campus Dr., P.O. Box 7600, San Mateo, CA 94403; (800) 851-2917, (800) 223-1479 (in CA), or (415) 345-5900.

CIRCLE READER SERVICE 95

Desktop-Publishing Setup. For the publishing magnate in your midst, *PageMaker* and the Hewlett-Packard LaserJet Series II printer make a nifty combination. *PageMaker* is the most literal translation of traditional publication pasteup techniques in software, and HP's LaserJet Series II is one of the finest and highest-quality printers available. Together, they make a great package for quality publishing. *PageMaker* is $495 for the Macintosh Plus, SE, or II and $695 for 640K IBM PC or PS/2 Model 30 (the IBM version requires *Windows*); from Aldus Corp., 411 First Ave. South, Suite 200, Seattle, WA 98104; (206) 622-5500; the HP LaserJet Series II costs $2,595; from Hewlett-Packard, Inquiries Manager, 1820 Embarcadero Road, Palo Alto, CA 94303; (800) 752-0900.

CIRCLE READER SERVICE 96

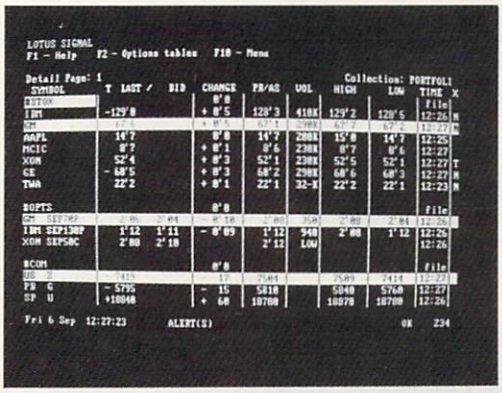


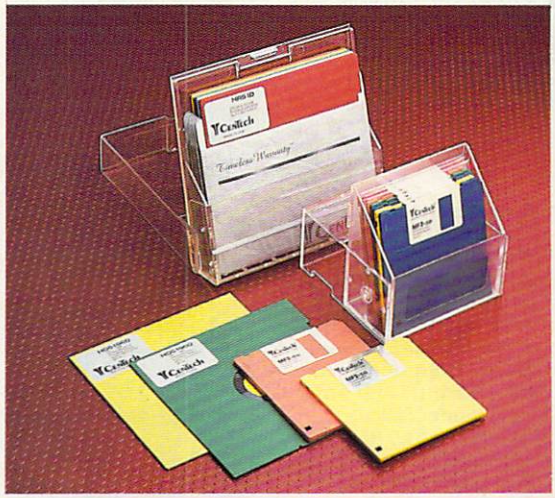
Accelerator Card. Help someone get his or her IBM PC or PC XT up to PC AT speed. The Turbo 12, a half-size card, speeds a PC or XT to 12MHz. It's the ideal peripheral for the person whose work load is quickly exceeding the local speed limit. $645; from Orchid Technology, 45365 Northport Loop West, Fremont, CA 94538; (415) 683-0300.

CIRCLE READER SERVICE 97

Software for Investors. With current stock price quotes, news alerts, and a built-in alarm system to alert users to trading of stocks of particular interest, *Signal* offers investors a wealth of information. Users can track 600 selected securities simultaneously, and information can be fed directly into Lotus *1-2-3*. The package, available for the IBM PC, is $595 and has an $80 monthly subscription fee and an additional $20-per-month charge for each exchange subscription. From Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 577-8500.

CIRCLE READER SERVICE 98





Colored Disks. Someone's Christmas stocking deserves these color-coded disks that can organize information by color. Available in both 5.25-inch and 3.5-inch formats, they make great gifts for people who can never find what they are looking for. Prices range from $15 to $32 for a box of 10; from R + R Direct, P.O. Box 1702, Dayton, OH 45402; (800) 654-PLUS, (800) 545-PLUS (in OH), or (513) 461-7587.

CIRCLE READER SERVICE 99

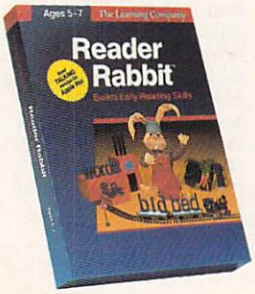
Modern Workstation. Here's just one of HeartBeat's ergonomically designed Computer Workstations. Very stylish and brightly colored, one of the styles is bound to suit that special someone who works out of a modern office. Prices start at $995; from HeartBeat Computer Workstations, 12501 Gladstone, #B2, Sylmar, CA 91342; (818) 898-1198.

CIRCLE READER SERVICE 100

JUST FOR KIDS

Job-Search Software. Put the world's largest career counseling and outplacement firm to work for the young job seeker on your list with *Career Navigator*. With a handbook, four disks, self-assessment exercises, weekly "To Do" lists, and much more, *Career Navigator* is a comprehensive program that leads a job seeker step-by-step through the job hunt. $95 (256K IBM PC; printer required); from Drake Beam Morin, 100 Park Ave., New York, NY 10017; (212) 692-7709; (800) 345-JOBS; or (301) 634-1007 (in MD).

CIRCLE READER SERVICE 103

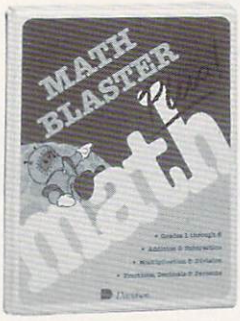


Talking Software. How do you make an award-winning educational game even better? By making it talk! Now *Reader Rabbit*, a series of reading skills and vocabulary games for 5- to 7-year-olds, has added digitized speech. $60 (for the Apple IIGS and the Tandy 1000); from The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555; (415) 792-2101 or (800) 852-2255.

CIRCLE READER SERVICE 101

Math Blaster Plus. How can math be a blast? With *Math Blaster Plus*, a program that teaches children, ages 6 to 12, basic math skills with activities called "Countdown," "Ignition," "Lift-Off," "Orbit," and an arcade game called "Blasternaut." $50 (for Apple IIe/IIc/IIGS and IBM PC); from Davidson & Associates, 3135 Kashiwa St., Torrance, CA 90505; (213) 534-4070.

CIRCLE READER SERVICE 104

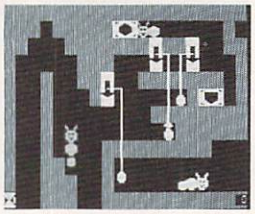


Hand-Held Linguistic Computer. Word Wiz would be a big hit with kids if all it did was play games such as Hangman and Anagrams and generate codes for cryptic messages. The fact that it's an electronic spelling corrector makes it something parents will love, too. $70; from Franklin Computer, Route 73 & Haddonfield Road, Pennsauken, NJ 08110; (609) 488-0600.

CIRCLE READER SERVICE 102

Christmas Software. Every creature will be stirring on Christmas Eve with *'Twas the Night Before Christmas*, which, along with playing an animated and musical version of the classic poem, lets children send personalized letters to Santa, create yuletide cards with special messages, play a Christmas jigsaw puzzle, and do more. $9 (64K Apple II series, C 64/128, and 256K IBM); from Simon & Schuster, One Gulf + Western Plaza, New York, NY 10023; (212) 373-8500, (800) 624-0023, or (800) 624-0024 (in NJ).

CIRCLE READER SERVICE 105



Thinking Game. For kids ages 7 to 14, *Think Quick!* hones decision-making, logical-reasoning, and creative-thinking skills (on six different levels of play) as kids wend their way through a castle, avoid monsters, build a knight, and chase away a dragon. $50 (for the Apple II series and IBM PC); from The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555; (415) 792-2101 or (800) 852-2258.

CIRCLE READER SERVICE 106

Sesame Street Software. What kids wouldn't love to meet the people in their neighborhood with Big Bird, learn math among the stars with Grover, and reunite Ernie with his Rubber Duckie? These three learning games, plus three other Sesame Street packages, make special gifts for preschoolers. $10 each; (all available for the C 64/128 and 256K IBM PC; some available for the Apple II series and the Atari 800/XL/XE); from Hi Tech Expressions, 1700 N.W. 65th Avenue, Suite 9, Plantation, FL 33313; (800) 848-9273 or (305) 584-6386.

CIRCLE READER SERVICE 107

Basic Tutor Computer. Programmed so that children have to press only a couple of keys to type an entire BASIC command, the BASIC Tutor computer is almost guaranteed to teach children, ages 7 and above, how to write and run programs. Includes an instruction booklet that explains programming in everyday language and has large, easy-to-read keys. The 2K computer is easy to carry and runs on four C-size batteries or an AC adapter. $70; from Video Technology Industries, 400 Anthony Trail, Northbrook, IL 60062; (312) 272-7076.

CIRCLE READER SERVICE 108

Lucasfilm Game. Looking for a gift for a closet maniac? Try *Maniac Mansion*, in which players help Dave Miller rescue his girlfriend from a 55-room Victorian mansion and the evil clutches of Dr. Fred, who plans to take over the world one teenager at a time. Encounter love, greed, rock and roll, microwave ovens, and postal fraud (among other things). $35 (for the Apple II series and C 64/128); from Lucasfilm Games, P.O. Box 2009, San Rafael, CA 94912; (415) 662-1800. ■

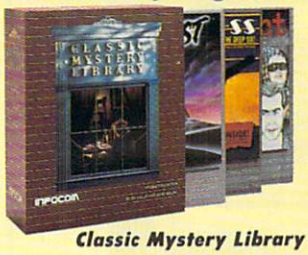
CIRCLE READER SERVICE 109

SEASONAL SOFTWARE SPECIALS

BY AMAL MORCOS

Santa will be able to fill his bag of goodies with the various gifts presented in this year's "Seasonal Software Specials." Software manufacturers are offering great deals on everything from educational software to best-selling games. And if you rummage through this grab bag of bargains, you'll also find modems, magazine subscriptions, and even motorcycles.

INFOCOM SOFTWARE LIBRARIES. Infocom ([617] 492-6000), whose interactive text adventures range from the absurd to the bizarre, is packaging some of its best-selling titles in "libraries" at less than half their original prices. First is *Science Fiction Classics*, which includes *The Hitchhiker's Guide to the Galaxy*, *A Mind Forever Voyaging*, and *Planetfall*. Another, *Enchanter Trilogy*, includes *Spellbreaker*, *Enchanter*, and *Sorcerer*. And *Classic Mystery Library* rolls *Moonmist*, *Suspect*, and *The Witness* into one package. Each



Classic Mystery Library

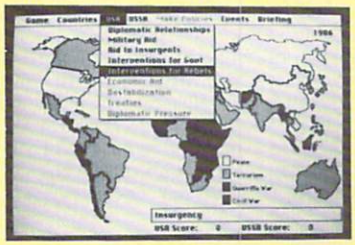
collection, valued at up to $125, costs $50 for the C 64/128 and $60 for the Apple II series, IBM PC, and Macintosh. Offer good while supplies last.

BONUS COUPON BOOKS. Activision ([415] 960-0410) calls them **The Great Good Deals Giveaway Bonus Books**. A long title, but a fitting description for a book full of bargain coupons.

AMAL MORCOS *is researcher for* FAMILY & HOME-OFFICE COMPUTING.

For example, new subscribers to **QuantumLink** can receive the Q-Link software and a 300-baud auto-dial modem free when they prepay $39.80 for their first four months of membership. And those who purchase **Gamestar**'s *GFL Championship Football*, *Championship Baseball*, or *GBA Championship Basketball: Two-on-Two* can receive discounts on Wilson-brand footballs, baseball gloves, and basketballs. Other specials include five free **Memorex** disks and discounts on programs by Activision and its affiliated labels. The coupon books will be packaged with software sold by Activision during the Christmas season. The coupons are valid through March 31, 1988.

BUY THREE, GET ONE FREE. Mindscape ([312] 480-7667), whose notable games include *Déjà Vu*, *Balance of Power*, *Defender of the Crown*, and *Superstar Ice Hockey*, will give you one free game when you buy any



Balance of Power

three Mindscape titles of equal value. Coupons are included in each box or available from dealers. The offer lasts through January 31, 1988.

BUY TWO, GET ONE FREE. Britannica Software ([415] 546-1866), the parent company of **DesignWare**, **DesignWare Plus**, **EduWare**, and **Blue Chip Software**, is promoting its new corporate name by giving you a free program when you buy two of comparable value before January 31, 1988. Look for the coupon in this issue of FAMILY & HOME-OFFICE COMPUTING, as well as at participating dealers. Some noteworthy Britannica titles include the financial simulation *Managing For Success* and the writing developer *Writing 1-5*.

SWEEPSTAKES. When you give someone *California Games* from **Epyx** ([415] 366-0606), you're also giving him or her the opportunity to

California Games

win anything from a skateboard to a Kawasaki Jet Ski, and if you give someone *Street Sports Baseball*, he or she can get Reebok sneakers. Included in the packages of these titles are instant-winner cards. Scratch off three of a kind, and you win. (Offers for the jet ski and the sneakers end March 31, 1988 and February 28, 1988, respectively.) Also, inside the package of Epyx's *Print Magic* is a free disk full of holiday images. This offer expires December 31, 1987.

GRAPHICS GIFTS AND MOTORCYCLES. Merry Christmas from **Broderbund** ([415] 492-3200), as the company passes on some savings to you. If you buy *The Print Shop*, Broderbund's most successful program, you'll receive a *Special Edition Graphics Library* free. The Special Edition disk is a new graphics library disk for the Apple II series, C 64/128, and IBM PC. It's not sold in stores and is available only through this promotion, which runs through December 31, 1987. And to promote the release of *Superbike Challenge*, Broderbund is giving away a 650cc Suzuki Motorcycle. Through January 31, 1988, entry forms will be packaged in *Superbike Challenge*, a fast-paced arcade-action game for the Atari ST, C 64/128, and IBM PC for $20.

SPORTS SPECIALS. Sports fans, this is truly your season. In an unusual offer, **Gamestar/Activision** ([415] 960-0410) is offering

Gamestar's holiday bonus

47 percent off a six-month subscription to *Sports Illustrated*. The company will include information on the promotion in all of its products shipped during the pre-Christmas selling season. Also included in the package are bonus incentives of special issues for subscribers, a football telephone, and a commemorative Super Bowl lapel pin. Offer good through February 29, 1988. For basketball fans, **The Avalon Hill Game Company** ([301] 254-9200) is including a $5 coupon inside the *NBA* package for *Season* update disks. From the designers of *Super Sunday*, *NBA* is a fully animated and statistically accurate simulation.

EDUCATION BUYS. For the language student on your list or the friend who's planning a trip to Europe, **Gessler Educational Software** ([212] 673-3113) is offering

Bataille de Mots

the award-winning *Bataille de Mots* at a 15 percent discount to all who mention that they saw this special in FAMILY & HOME-OFFICE COMPUTING. The arcade-like game that drills students in French vocabulary is also available in Spanish and German versions, *Batalla De Palabras* and *Wortgefecht*. If you buy a program from **DLM** ([214] 248-6300) from now until May 1, 1988, you'll find a $5 coupon enclosed in the package, good toward your next DLM software purchase. And if you want to sharpen your child's reading speed, stuff that stocking with a free *Speed Reader II* data disk for ages 12 and above from **Davidson & Associates** ([213] 534-4070). Thirty-five reading passages and coupons for free disks come in every *Speed Reader II* package.

SENTINEL SPECIAL. During the holiday season, each specially marked 5.25-inch black or color Prism double-sided, double-density 10-pack from **Sentinel Technologies, Inc.** ([617] 775-5220) will contain DOS preformatted disks compatible with MS-DOS version 2.0 and higher. In addition, each 10-pack will include a demo disk containing **MECA**'s *Andrew Tobias' Managing Your Money*. ■

NOTABLE HARDWARE

1987 IN REVIEW

SIGNIFICANT PRODUCTS: COMPUTERS, PRINTERS, MODEMS

BY NICK SULLIVAN

As 1987 glides to an end, it becomes clear that it has been a watershed year for the computer industry. Befitting, perhaps, as it's the tenth anniversaries of the Apple II, the TRS-80 Model I, and the Boston Computer Society—among the industry's first stepping stones.

This year, IBM introduced its next generation of computers, the Personal System/2 line; two new Apple Macintosh models made their debut; Compaq shipped its Deskpro 386, the first computer with the powerful Intel 80386 microprocessor; Zenith, NEC, Toshiba, and Tandy brought out MS-DOS laptops with superb screen displays; and Tandy strengthened its MS-DOS lineup with several new computers.

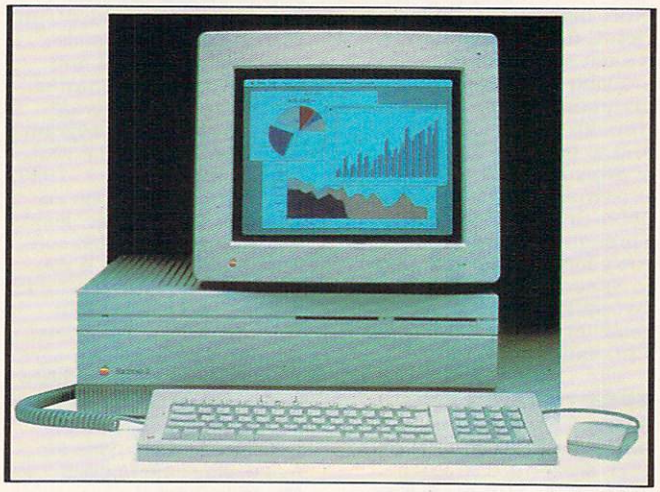
With this parade of announcements, and the Macintosh and MS-DOS operating systems settling down as entrenched standards that can seemingly coexist, the computer industry is striding into the 1990s.

Many notable products caught the eyes and captured the hearts of various editors this year. To keep the laundry list within bounds, we'll look here at products in three major hardware categories: desktop computer systems, printers, and modems. Products are highlighted because they offer: (1) state-of-the-art technology; (2) raw performance; or (3) price-performance value.

COMPUTERS

STATE OF THE ART

Macintosh II
Apple Computer



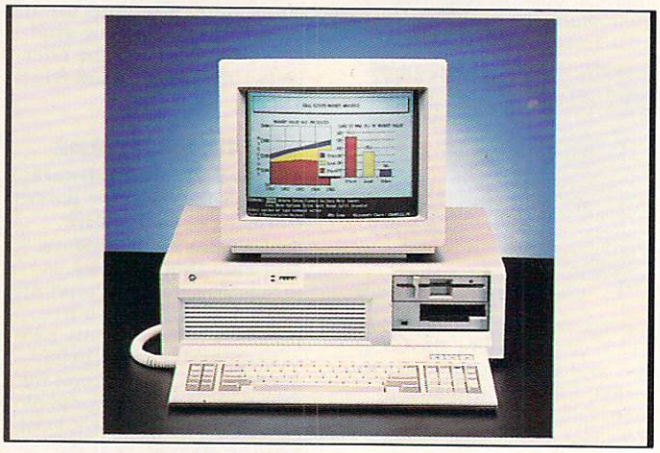
The latest and greatest Macintosh is the embodiment of most current advances in microcomputer technology: It's a lightning-fast color graphics machine, with virtually unlimited memory and good sound output. It comes standard with 1MB but can be expanded to 8MB on the system unit and beyond with third-party plug-in boards.

Its 3.5-inch floppy can be teamed with a 20MB, 40MB, or 80MB hard-disk drive. Up to 256 colors can be displayed at once in high resolution (640-by-480 pixels), compared to only 16 colors on IBM's top-of-the-line PS/2 Model 80. A math co-processor is standard so that calculations are also lightning fast. *MultiFinder* and *HyperCard (see review this issue)*—sophisticated systems software—come with the machine.

The Mac II has six open slots, ready for add-on boards to enhance the machine. One such board is the Mac 286 (AST Research), which will run MS-DOS software under the Macintosh point-and-click interface. Best of all, the Mac II represents a natural evolution of earlier Macintosh machines and runs 90 percent of existing software. The Mac II is expensive—more than $6,000 for a typical color system—but it's a bridge between the microcomputer and minicomputer worlds and a harbinger of the technology you'll see in far less expensive computers in the years ahead.

RAW PERFORMANCE

PC's Limited 286[12]
Dell Computer Corp.



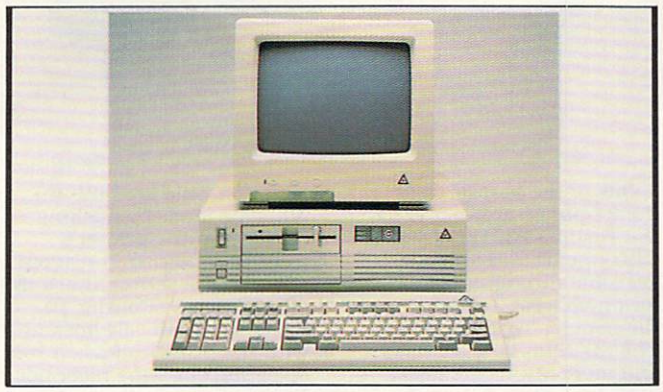
The PC's Limited 286[12] is extremely fast, reliable, and well-priced ($2,700 for hard-disk system, shipping included). It runs as fast as the Compaq III but is about $2,000 cheaper. Probably the only way to get a faster machine is to buy one of the 80386 machines (IBM PS/2 Model 80, Tandy 4000, Compaq 386 machines) that run at 16 to 20MHz—but besides speed, the more expensive 80386 machines don't offer any other advantages right now. The 286[12] is usually sold with 640K of RAM, a 5.25-inch floppy (1.2MB), and a 40MB, 70MB, or 150MB hard-disk drive. You can, however, order it with two floppies, either 5.25-inch or 3.5-inch. A SmartVu

NICK SULLIVAN *is a senior editor at* FAMILY & HOME-OFFICE COMPUTING.

Panel on the system's front tells you (with words and numbers) what the computer is doing as it works. More often than not, this feature is merely a reassuring "night-light," but if something should go wrong the electronic error signals make it easy to solve the problem over the phone with the company's Austin, Texas, reps. In general, all PC's Limited computers—sold direct from the company through mail order or phone order—have strong support from the company.

PRICE-PERFORMANCE VALUE

Leading Edge Model D2
Leading Edge



Nothing fancy here—just a lot of power for the money. The Leading Edge D2 ($1,995), the latest in the successful Model D family, is an IBM PC AT-compatible computer. It has 640K RAM, expandable to 1MB and higher, a 1.2MB floppy-disk drive, a 30MB hard-disk drive, and five available expansion slots. It runs at three speeds—6MHz, 8MHz, and 10MHz. The computer comes with a high-resolution monochrome monitor and also has an enhanced graphics adapter (EGA) built-in, should you wish to upgrade to an EGA color monitor. The keyboard is AT-style, with a large RETURN key and 12 function keys. Also included are MS-DOS 3.2 and GW-BASIC. Leading Edge's industry-leading 20-month warranty is in effect.

PRICE-PERFORMANCE VALUE

Tandy 1000 TX
Tandy Corp.

The TX is the top of the Tandy 1000 line—the best-selling MS-DOS product line on the market. Besides that impressive pedigree, the TX has two alluring attributes: speed and 3.5-inch disk drives. It's not properly an AT-compatible, but it does use an 80286 microprocessor and runs significantly faster than the IBM PS/2 Model 30. One 3.5-inch drive is standard, which ensures that you'll stay current as more software becomes available in that format. The second drive can be a 3.5-inch, 5.25-inch, 20MB hard-disk drive, or hard card that fits in a slot. And the TX's third alluring attribute is its price. At $1,370 for a typical two-drive system, it costs considerably less than an equivalent Model 30 system.

PRICE-PERFORMANCE VALUE

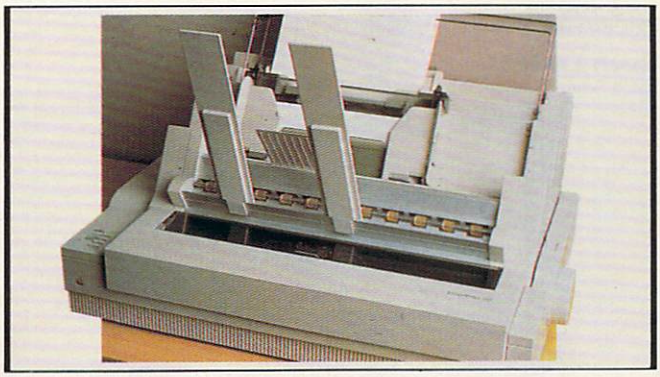
Laser 128EX
Video Technology

The Laser 128EX is notable for two reasons: It combines some of the best features of the Apple IIe and IIc, and it costs considerably less than either. These feats would not be so unusual in the MS-DOS world for a number of computers could make similar claims vis-à-vis the IBM PC. But in the Apple II world, clones are few and far between. The Laser 128EX has 128K, built-in parallel and serial ports, and a built-in disk drive on the right side. There's one external slot to add an expansion board, but since it's external the board will be exposed to dust. The Laser 128EX runs most Apple IIe/IIc software—though copy-protected programs sometimes present problems—and runs it three times faster than the Apple machines do. Sometimes the Laser's color display isn't as bright as Apple's own. But the Laser, sold mostly through mail order, costs only $499, compared to $829 for the IIe and $940 for the IIc.

PRINTERS

STATE OF THE ART

ImageWriter LQ
Apple Computer



Apple just *has* to be different. Other manufacturers use the standard 25-pin serial connector for modems and printers; Apple uses its own Apple 8-pin or 9-pin serial connector. Others churn out 24-pin printers; Apple has introduced a 27-pin printer. In this case, being different means being better. The type from the ImageWriter LQ ($1,399) is the best we've seen from a dot-matrix printer. It has one-third more dot density than does the ImageWriter II, which is a good printer, and comes close to some laser printers. Besides its speed—250 characters per second (cps) in draft mode, 115 cps in letter-quality mode—the LQ offers a number of features that make it attractive for productivity tasks. One is a 15-inch carriage, wide enough to print many larger spreadsheets and business forms. Another is built-in fonts, including Courier, Helvetica, Symbol, and Times. The ImageWriter LQ is fully integrated with the Macintosh, allowing for a choice of horizontal and vertical image orientations.

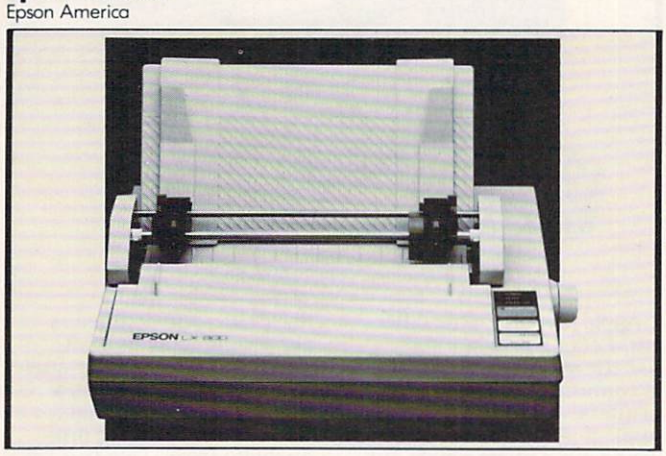
RAW PERFORMANCE

Hewlett-Packard LaserJet Series II
Hewlett-Packard

Hewlett-Packard, the first company to introduce a desktop laser printer (in 1984), has not maintained its leadership position in this printer category the past few years—until now. The HP LaserJet Series II is now the printer to beat, especially in the MS-DOS world. This new LaserJet Series II is smaller, lighter (50 pounds), and less expensive ($2,495, and commonly sold for $1,700) than the LaserJet printer. More important, with a new Canon-made laser engine, the type output is much improved. Some find it darker and sharper than print from the much more expensive Apple LaserWriter. Six fonts are built-in, as are ports to hold two additional font cartridges at once (prices range from $150 to $330). You can mix up to 16 fonts on a page and print eight pages of text per minute. Printing graphics is much slower. In fact, if you want to print full-page graphics, you'll probably have to add memory, since the printer's standard 512K is limited. Users can plug memory boards (1MB for $495, 2MB for $995, 4MB for $1,995) into a slot on the printer's side. And though the printer doesn't have Postscript built-in—which makes it easy to change typestyles without changing font cartridges—QMS's *Jet Script* software gives you that capability.

PRICE-PERFORMANCE VALUE

Epson LX-800
Epson America



In the computer industry's earlier years, Epson was best known for its FX line of 9-pin dot-matrix printers. Now, of course, Epson makes 24-pin printers, laser printers, and computers. But this year, Epson went back to its roots and brought out the inexpensive LX-800 ($299). This 9-pin dot-matrix printer is fast—180 characters per second (cps) in draft mode, 30 cps in near-letter-quality mode—and produces good-looking type. It comes with a tractor to hold continuous-form computer paper and also accepts single sheets. This IBM-compatible printer is a good value for general-purpose computing at home.

PRICE-PERFORMANCE VALUE

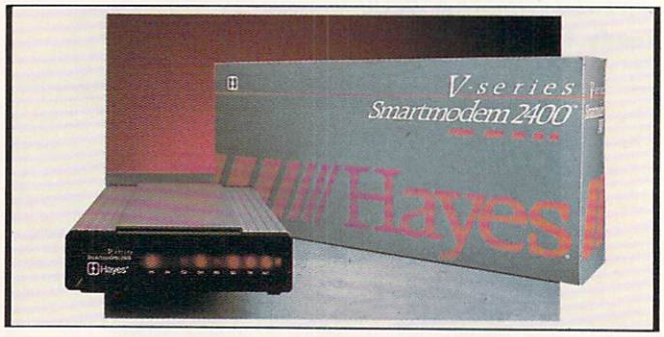
Toshiba P321SL
Toshiba

One of the best deals in the 24-pin printer market is the Toshiba P321SL ($749 with tractor feed and often available through mail order for much less), successor to the popular Toshiba P321. The SL (Slim Line) is smaller and more attractive, faster (216 cps), and quieter. An insulated noise cover reduces the sound generated, though 24-pin printers are not quiet by any stretch of the imagination. You can change fonts (Courier, Prestige, and Elite are built-in) and type mode by pushing buttons on the printer's front panel. An LCD readout tells you the setting that's in effect, such as Courier 10. Paper automatically lines up with the printhead when you open and close the roller bar. The print quality in letter-quality mode is superb; in high-speed draft mode it's only average. All in all, the P321SL is a true successor, with many refinements that make it a pleasure to use.

MODEMS

STATE OF THE ART/RAW PERFORMANCE

Hayes V-series Smartmodem 2400
Hayes Microcomputer Products

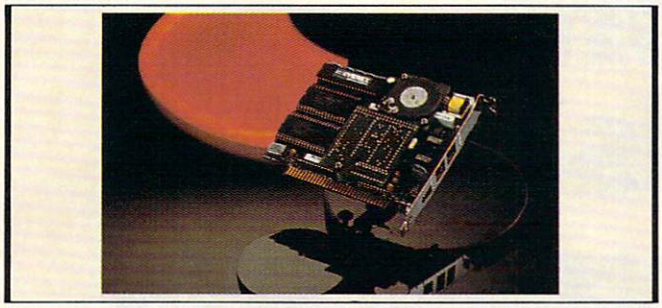


One problem with 2400-baud transmissions is that scratchy phone lines can cause the modem to "back down" to 1200 baud. Or, when sophisticated error-checking mechanisms are used to prevent dirty transmissions, the effective speed is dramatically lowered. In either case, the power of the 2400-baud modem is wasted. The new Hayes V-series modems (there's also a V-series Smartmodem 9600) mitigate those problems with two features: First, data compression allows for faster throughput so that the effective transmission rate on the Hayes V-Series Smartmodem 2400 approaches 4800 baud; and second, new error-checking mechanisms have been installed to keep up with this increased speed. Of course, to take advantage of these features you have to send to another V-series modem, and because they're so new, not many are in use yet. And since proprietary Hayes technology is being used for the data-compression feature, other Hayes-compatible manufacturers won't be able to easily use this same feature. However,

there is speculation that information services, such as CompuServe and Dow Jones, will adopt the V-series protocol, enabling users to upload and download files at high speed.

PRICE-PERFORMANCE VALUE

Evercom 24
Everex Systems



The Evercom 24 is an internal 2400-baud unit for MS-DOS computers that lists for $289, but it can be ordered by mail for less. It comes with *Bitcom* communications software—not fancy but powerful. The modem is contained on half cards that should fit most MS-DOS computers. (For non-MS-DOS computers, the least expensive external 2400-baud modem we've found is the U.S. Robotics Sportster 2400 [$299], which doesn't include software.) Though very dirty or scratchy phone lines will disrupt your transmissions, in our tests the Evercom 24 modem has performed well under a variety of conditions.

COMPANY INFORMATION

Apple Computer Inc., 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010.
Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380; (215) 431-9100.
Compaq Computer, P.O. Box 692000, Houston, TX 77269; (713) 370-0670.
Dell Computer Corp., 1611 Headway Circle, Building #3, Austin, TX 78754; (512) 339-6800.
Epson America Inc., 23530 Hawthorn Blvd., Torrance, CA 90505; (213) 373-9511.
Everex Systems, 48431 Milmont Drive, Fremont, CA 94538; (415) 498-1111.
Hayes Microcomputer Products Inc., 705 Westech Drive, Norcross, GA 30092; (404) 449-8791.
Hewlett-Packard Company, 3000 Hanover Street, Palo Alto, CA 94304; (800) 752-0900.
IBM Corp., 900 King St., Rye Brook, NY 10573; (800) 447-4700.
Leading Edge Products Inc., 21 Highland Circle, Needham Heights, MA 02194; (617) 449-4655.
Tandy Corp., 1700 One Tandy Center, Fort Worth, TX 76102; (817) 390-3011.
Toshiba America Inc., 9740 Irvine Blvd., Irvine, CA 92718; (714) 583-3000.
Video Technology Inc., 400 Anthony Trail, Northbrook, IL 60062; (312) 272-6760.

COMPUTERS TO WATCH

The following products all show promise, for one reason or another, and are currently being tested in the world's greatest laboratories—consumers' homes. While awaiting users' reactions, we present these brief descriptions.

Commodore Amiga 500 and **2000:** These exciting audio-visual computers offer so much promise. Both can run two or more programs simultaneously, both are capable of good animation and overdubbing on a VCR, and the 2000 can run MS-DOS

software with an add-on board. So far, however, the Amigas have not been supported with the necessary software to make them viable systems. Yet these two Amiga 1000 upgrades are new to the market and appear to be selling, and the well-known *WordPerfect* word processor is a big name that could give them a boost.

Leading Edge Infinite Memory System: This is a Leading Edge Model D with an unusual twist. It includes a cartridge slot in front for

removable Bernoulli cartridges, which individually store 20MB. When you fill a cartridge with data, you can remove it and stick in a fresh one. With a regular hard-disk drive, you'd have to erase data before you could store more. In essence, a Bernoulli tape cartridge is like a high-speed floppy disk that stores 20MB.

IBM PS/2 Model 50: For individuals or small businesses, the Model 50 seems to be the best bet in the Personal System/2 line. It's fast and powerful, incorporates IBM's new VGA graphics standard, and has three expansion slots for future upgrades. The VGA standard allows you to display up to 256 colors at once in medium resolution (320 x 200) and up to 16 colors in high

resolution (640 x 480). The Model 50 comes with 1MB of memory, a high-density (1.44MB) 3.5-inch disk drive, and a 20MB hard-disk drive. Parallel, serial, and mouse ports are built-in. More and more software is becoming available in the 3.5-inch format. What is really needed, however, is software that takes advantage of the superb color graphics and uses a mouse. That should come next year, along with Microsoft's OS/2 operating system.

Tandy 4000: The Tandy 4000 is the least expensive 80386-based machine on the market that uses 3.5-inch disk drives. The IBM Person-

al System/2 Model 80 is an 80386 machine with a 3.5-inch floppy and a 44MB hard drive; it costs $6,995. An equivalently equipped Tandy 4000 costs $4,299. Both run at 16MHz—about four times faster than the original IBM PC. Both will run the upcoming OS/2 operating system. However, Microsoft's OS/2 software isn't expected until sometime next year, and without it the 80386 machines are fast, but no more sophisticated than the 80286 machines. With OS/2, the 80386 machines will be capable of multitasking.

Compaq Deskpro 386/20 and **Portable 386:** These speedy and powerful computers are the first to use the second-generation 80386 microprocessor, which operates

25 percent faster than the 80386 chip used in other computers. The Portable 386 is a portable computer based on a 20MHz 80386 microprocessor from Intel. It comes with either a 40MB hard-disk drive ($7,999) or a 100MB hard-disk drive ($9,999). The machine comes with 1MB of RAM, expandable to 10MB, and includes a full-size detachable keyboard. The Compaq Deskpro 386/20 comes with either a 60MB, 130MB, or a whopping 300MB hard-disk drive, and costs anywhere from $7,499 to $12,499. People who do heavy number crunching and data processing will find that these Compaqs, while expensive, have no rivals (right now) when it comes to speed. They're computers that Compaq's competitors—including IBM—are now looking to beat. ■

Getting More From Spreadsheets and Databases

Q: WHICH IS BETTER, A SPREADSHEET OR DATABASE MANAGER?

A: NEITHER. IT DEPENDS ON YOUR APPLICATION.

BY ROB KRUMM

Part One

Tom Goren, my accountant, recently left a C.P.A. firm where he was a tax manager to start his own firm. He decided he would completely computerize his practice and asked my advice about hardware. I asked if he'd thought about software yet, and he said, "Not really. I thought I'd get the equipment set up first."

Goren was making a common mistake. Despite the youth of the computer industry, there's an old axiom that says you should research the software that fits your needs before you buy either the software or the hardware. Although this advice is sound in theory, it's almost impossible for novices such as Goren to follow. Matching your needs to the features and abilities of software is one of the hardest tasks in computing. The growth and development of a strong consumer-based software market has created a vast wonderland of programs from which to select. This massive volume of programs, all different from their competitors, makes the task of choosing increasingly more difficult. Yet the wealth of creativity represented by the software market promises some fantastic results if the right choice is made.

"The primary problem," says one of my clients, Carolyn Rigiero, "is that buying software is a little like choosing a family pet. No matter how much time you spend looking over the litter, you don't really know what you've chosen until you get it home and live with it awhile."

The purpose of this article, then, is to try to establish some common-sense ways of discerning the types of software that should be applied to particular tasks. Specifically, we'll look at guidelines that would indicate whether a given task can be handled best by a spreadsheet or a database. Please note that while all the tasks used as examples below *could* be accomplished with either type of program, one will help you be more productive than the other, depending on the task. It's like carving a pattern in stone—you could use a screwdriver, and still get the job done, but it wouldn't be the best tool for the job. At the end of each section, you'll find a summary of each set of guidelines for choosing the correct type of software.

ROB KRUMM *is founder and owner of microComputer Schools, Inc., in Walnut Creek, California. He has written several books on major software packages; the latest releases are* Understanding and Using dBase III Plus *(Simon & Schuster/Brady Company) and* Using Lotus 1-2-3 for Business *(Addison-Wesley).*

CONCENTRATE ON CONTENT, NOT FORM

A common misconception about software is caused by the differences that sometimes occur between a program's form—the way that it appears on the screen—and its content—the operations that it's capable of performing. For example, the name *spreadsheet* is applied to a program that displays a screen divided into a series of rows and columns. The name fits the look of the program, which resembles the row-and-column layout of an accounting ledger. Based on its appearance, and the connotation of the word *spreadsheet*, many people conclude that this program should be applied to tasks normally carried out with ledger books.

However, appearances can be misleading, as in the case of spreadsheets. While the form of the screen display indicates one type of function, the operational capability of a spreadsheet falls into a very different category. In truth, spreadsheets should be referred to as mathematical modeling programs. An advantage of using a model—a replica of some real-life object—is that it can be tested for an approximation of how the real-life object would behave under various conditions. Analysis of the results provides information that is then applied to the real-life object.

Computers create models by using

mathematics to duplicate real-life objects and situations. Popular spreadsheets, such as Lotus *1-2-3*, *SuperCalc 4*, *Excel*, and *Multiplan*, provide this type of mathematical modeling in a form accessible to almost every computer user. For example, a budget—whether for personal use or business—is a mathematical model of income and expenses. Spreadsheets allow the user to describe a series of relationships between values that can instantly be calculated to reflect the results of a specific set of conditions.

This ability to revise results to conform to any change in the basic assumptions is referred to as *what-if analysis*, the name applied to a very common form of decision making. Suppose that you're about to buy a new car. This decision requires you to look at various loans with different interest rates and lengths. What if you borrowed the money at 9 percent for 60 months? Or at 5.5 percent for 36 months? Or at 3.5 percent for 24 months? The models created with spreadsheets help you make decisions by showing the results of numerous possibilities so that, in minutes, you can compare and contrast each option.

In advising my accounting and bookkeeping clients, I explain that the tasks usually associated with ledger books aren't really models, since they're not speculative situations. Ledger books record, accurately it is hoped, actual historical data. This data is not subject to flights of fancy or what-if speculation, but is information recorded exactly as it happened. This type of task works best in a database program that's designed to record and retrieve large amounts of data.

Summary. The first principle to keep in mind when you're thinking about computerizing a task is to analyze the basic type of information you are going to work with, rather than looking at the form of a particular program's screen display. By concentrating on the content of your task you'll be able to assess the type of application to use.

DEPENDENT VS. INDEPENDENT VALUES

How can you begin to evaluate whether any particular task requires a spreadsheet or a database, and then determine which spreadsheet or database?

To understand these steps, consider the following scenario. Ron Johnson, a real-estate developer, plans to carry out a project in which he would build, and then sell, 15 single-family homes. Johnson's first step is to apply for a loan, which requires a business plan that projects the costs and income generated. In addition, he'll want to keep track of the actual expenses and compare them to the amounts projected for the same items. He wants to know if these are spreadsheet or database tasks.

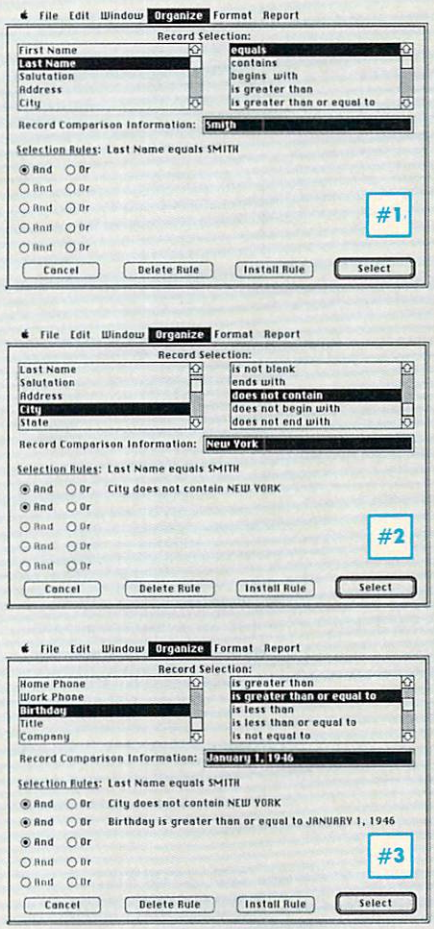
One of the basic methods of analyzing this problem revolves around the concept of *dependent* and *independent* values. An independent value is one that occurs as a result of some activity outside the scope of any project and is usually a given, such as fixed prices and costs. Dependent values are those that can be calculated from the figures that are already part of the project. For example, when you're ready to fill out your income tax return, you deal with lots of numbers. The amount of money you earned, the total of your medical expenses, and how much you paid in interest on your home are all independent values. No one can be absolutely sure what those values will be beforehand. However, once these values have been established, the procedure by which the amount of tax owed is figured is based on a series of related calculations described in the tax laws. The amount of tax paid is a number that depends on the values you provide for income, interest, and deductions; therefore, a spreadsheet is best.

When generating the business plan mentioned above, Johnson began with a few assumptions about basic costs and some ideas of how each item related to all the other items. For example, the amount of money to be borrowed depends on the expenses, such as the interest due on the loan. Therefore, the business plan falls into the spreadsheet category because the values entered are really a series of related numbers, each dependent on a few initial assumptions. On the other hand, the task of keeping track of the actual expenses and comparing them to budgeted expenses is one in which most of the values are historical data, or independent values, which strongly suggests that a database program should be used.

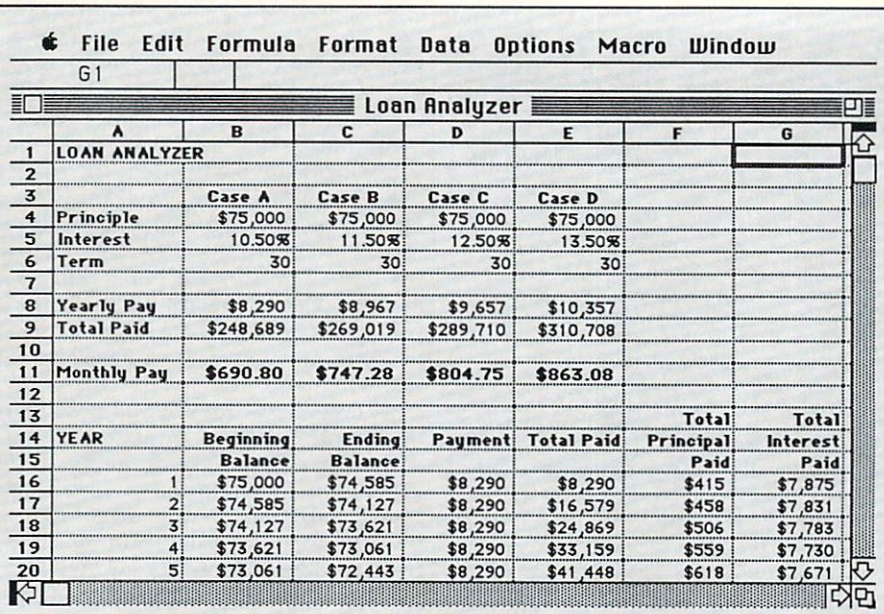
Summary. The first step in deciding whether any task is a database or a spreadsheet application is to determine the relative percentage of dependent and independent numbers in the project. A printed copy of a project that is similar in content to the one in question would be helpful. A highlighter can be used to mark all of the values that are dependent on other values. After the highlighting is done, if it's found that a high percentage of the values are dependent, then a spreadsheet program is probably the correct one to use. If, however, most of the values appear to be independent of other values, then the task probably requires a database.

THE ESSENCE OF DATABASE SOFTWARE: SELECT AND SEQUENCE

As a computer educator, I am often called upon to train computer sales representatives. When I asked the students in one class to tell me what a database was, most of them described it as the computer equivalent of a stack of index cards. Others called it the screen display into which information is entered or the storage of data in a disk file. In reflecting on their responses, I found that they were confusing the form in which da-



Database software gives you the power to select specific information from a larger set of data based on logical criteria. With the three selections made above, this mailing-list database (done with Microsoft *Works*) will select only those people whose last name is "Smith" (#1), who do not live in New York City (#2), and who were born on or after January 1, 1946 (#3).



	A	B	C	D	E	F	G
1	LOAN ANALYZER						
2							
3		Case A	Case B	Case C	Case D		
4	Principle	$75,000	$75,000	$75,000	$75,000		
5	Interest	10.50%	11.50%	12.50%	13.50%		
6	Term	30	30	30	30		
7							
8	Yearly Pay	$8,290	$8,967	$9,657	$10,357		
9	Total Paid	$248,689	$269,019	$289,710	$310,708		
10							
11	Monthly Pay	$690.80	$747.28	$804.75	$863.08		
12							
13						Total	Total
14	YEAR	Beginning	Ending	Payment	Total Paid	Principal	Interest
15		Balance	Balance			Paid	Paid
16	1	$75,000	$74,585	$8,290	$8,290	$415	$7,875
17	2	$74,585	$74,127	$8,290	$16,579	$458	$7,831
18	3	$74,127	$73,621	$8,290	$24,869	$506	$7,783
19	4	$73,621	$73,061	$8,290	$33,159	$559	$7,730
20	5	$73,061	$72,443	$8,290	$41,448	$618	$7,671

If your work involves many values that depend on other values, a spreadsheet is the best program to use. Say you're trying to figure out loan payments for a mortgage. The known (or *independent*) values are the principle, interest, and term of the loan. All the other values—such as monthly payment or total interest paid—rely on those numbers. They are called *dependent* values.

tabase programs frequently display information on the screen with the actual function and purpose of the program. This is the same problem of mixing form with function that occurs with spreadsheets.

I explained to the students that the essence of database programs can be summarized in two operations: *selection* and *sequencing*.

Selection is a process by which a subset of related information can be selected out of a larger set of information. If the set of information is a list of people who own Apple computers, you could then create a subgroup by selecting all Macintosh owners. You could create a smaller subgroup by selecting Macintosh owners in Pennsylvania. In each case you are selecting information based on a logical criterion by which each piece of information can be tested to determine if it belongs to the subgroup.

Sequencing is a process whereby a set of information is arranged in a specific order, usually numeric, alphabetical, or chronological. This is also called *sorting*. When a program performs selection, sequencing, or some combination of both, it is performing database management. If the task you have in mind requires that you select data for related subgroups or arrange your data in some order, your task requires database operations.

Summary. While it is true that database programs perform other tasks—such as math and printing reports—it is the sophisticated selection and sequencing features that truly distinguish database managers from other software such as word processors and spreadsheets.

TWO TYPES OF SORTS: PHYSICAL AND LOGICAL

The distinction between databases and other software often is made more confusing because many spreadsheets and even some word processors provide some functions that fall into the data-management sphere. For instance, although Lotus *1-2-3* is considered a spreadsheet, its original conception was as a three-part program: one, spreadsheet; two, business graphics; and three, database. Lotus *1-2-3* has a sequencing command and can perform some data selection. *WordPerfect* is a word processing program, but it too can perform sequencing of data in a limited way.

The database facilities offered in *1-2-3* remind me of a baseball pitcher who can also get a base hit from time to time. It's a great feature to have, but you still don't want your pitcher batting cleanup. The implication is that "real" database programs do something that spreadsheets with database functions cannot.

So how are database programs different from programs that include sequencing and selection operations in some limited form?

Consider sequencing. Suppose you wanted to alphabetize customer information written on index cards by the surnames of the customers. How would you do it? The most obvious method would be to physically move cards around until you have placed the cards in the correct order. This is called a *physical* sort because you actually move the data from one position to another.

Another method would be to number all the cards just as they are in random order. Then create a list in which the names are arranged alphabetically and next to each name place the number of the card on which the name appears. This method would be a *logical* sort. In a logical sort you don't physically rearrange the information to conform to the sort order, but create a list that shows the order the cards ought to be in if they were to be physically rearranged.

Most people would assume that the physical sort is the most direct and best method for organizing the cards. But when you change from human activity to computer operation, the logic changes because of the technological advantages of computers.

There are a number of disadvantages to physical sorting that can be overcome by using logical sorting. When the data is rearranged in a physical sort, such as with spreadsheets or some simple file managers, the original order is destroyed. In addition, any subsequent sorts delete the previous sorted order. However, in a logical sort the original order of the data is preserved. You can set up as many additional sort orders as you like without changing or destroying any previous sequencing orders.

Logical sorts usually take less time than physical sorts because they manipulate only the key data needed to determine the sequence and ignore ancillary information stored with the key. A physical sort must move all the data associated with each key to the new location.

Changes made to data also pose a problem for programs that sort physically. For instance, if you add new data for sorting to a spreadsheet such as *1-2-3*, the program must sort from the beginning and perform a complete physical sort in order to place the new data into the proper sequence. Programs that use logical sorting create organized index lists in order to quickly place new items into their proper position without having to resequence the other records.

Logical sorting is often referred to as indexing because of the similar way indexes are created for books. When you make an index for a book, you don't rearrange the text of the book in alphabetical order. Instead

you create an alphabetized list of topics and note the page numbers on which the topics are located. This is much the same way that logical sorting programs operate.

Summary. This distinction between physical and logical sorting provides another way of defining spreadsheet and database applications. If your application requires only occasional sequencing and the quantity of information is relatively stable, you can probably get by with the level of database functions found in *1-2-3* or similar spreadsheets.

On the other hand, if your task requires the data to be sequenced in several different ways and if additions, corrections, and revisions are made frequently to the data, your task requires the use of a full database program. Spreadsheets *may* sequence but database programs include the ability to create and maintain logical sequence orders.

TRANSFORMING INFORMATION WITH DATABASE SOFTWARE

When the expression "what you see is what you get" (WYSIWYG) is applied to computers, it refers to a situation where the computer screen resembles as closely as possible the final printed product. WYSIWYG usually connotes ease of use. The phrase implies some very basic truths about the way the human mind operates and the difficulties that people commonly encounter with computer applications.

Humans are genetically predisposed to a special form of cognition called one-to-one correspondence. This ability, inherent in all normal individuals, is what makes counting on your fingers easier than only using mental images to count. Your fingers serve as visual symbols for the numbers being counted. However, in modern society the individual must dispense with the instinctive method and rely on a more abstract and arduous mental system of counting.

Why is this the case? Viewed in isolation, counting on your fingers is perfectly adequate for many counting tasks. But, if counting is viewed as a preliminary step toward learning higher mathematics, the student must acquire a more difficult, abstract form of counting in order to better understand the more complex tasks to follow.

This same distinction arises when looking at the difference between spreadsheets and databases. The structure of a spreadsheet is such that the data is placed into rows and columns, creating the same form in which the information will appear on the final printout—a one-to-one correspondence.

"This one-to-one correspondence has a very reassuring effect on people who are new to computers," says Angie Hinds, a new student of Lotus *1-2-3*, who is starting work as an administrative assistant for a small publishing company that relies heavily on computers.

This security, like counting on your fingers, is sometimes misleading, however. Suppose that you want to enter into the computer a list of names and addresses that's organized into columns, one for the name, another for the street address, a third for the city, and so forth. If you were to use a spreadsheet, which is already divided into columns and rows, you could begin immediately by entering the names into the first column, the street address into the second column, and so on. When you were finished, the screen display would look just like the paper list.

If you were using a spreadsheet such as *Multiplan* or *1-2-3*, you could sort the names alphabetically or by zip code. However, suppose you then wanted to print the names and addresses onto mailing labels. This would be a problem because you entered the names and addresses side-by-side, not vertically as they would appear on mailing labels. But if you had entered the data vertically, you would have then lost the ability to sort because the information would be scrambled into the same column.

This example points out a deficiency of programs that use one-to-one correspondence. In the case of the names and addresses, the task required an application that could *transform* the data from column format to mailing-label format and back again.

Database applications are characterized by their ability to place the same data into a variety of output formats, called *reports* (there are also add-on programs for some spreadsheets that create reports). The database applications may be used to generate many different reports from the same data, such as mailing labels, form letters, or bills.

Databases may also combine the data into columnar reports or summary sheets. But there is a price to be paid for these advantages. If the data is constantly capable of changing form, how are we to visualize what is going on? Database programs require the user to deal less with individual, concrete items (such as the actual numbers in a spreadsheet's cells) and to begin to conceive of data through a system of symbolic names that represent the actual data (such as TOTAL INCOME representing the sum of all income items). This type of system is inherently harder to comprehend because there is no single, visual image that accounts for all the possible relationships. The relationship between the items is really in the mind of the person using the program as much as it is in the memory of the computer.

It is for this reason that database programs have not generally garnered the same widespread popularity as have word processors and spreadsheets, which do present one-to-one correspondences between the on-screen appearances and the final products. Among the database products on the market, those that present the most visually oriented screen images are the most widely accepted programs. However, visual images and database power are often at odds with one another. The screen structure of many programs makes it easy to enter data. But assembling the final product from the initial data is usually a different matter.

Summary. A very crucial question to ask about any task is whether the data entered in one form is to be output in a different form. The transformation of data into various reports constitutes a one-to-many relationship, which contrasts to the one-to-one correspondence found in spreadsheets.

For example, all financial accounting, in which data is entered into ledgers and journals, and turned into balance sheets and income statements, requires a degree of transformation found only in databases. This fact seems to contradict the common notion that spreadsheet programs are accounting programs. Perhaps this is a result of the fact that many accountants use spreadsheets in their work.

"It is important to keep in mind that accountants do more than bookkeeping," says Tom Goren. "Much of our work fits well into the modeling functions provided by spreadsheet programs." ■

EDITOR'S NOTE: *Next month, in Part Two of this article, we'll see how you can use these related concepts of form versus content, dependent versus independent values, selection and sequencing, physical versus logical sorts, and transformation of data to buy the best spreadsheet or database application for your work.*

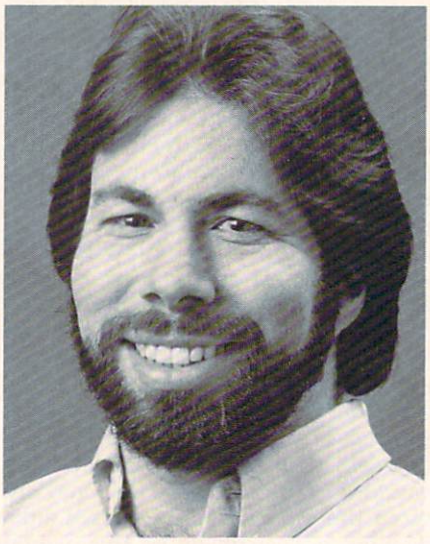
Dear Santa

COMPUTER-USING CELEBRITIES TELL US WHAT THEY WANT FOR CHRISTMAS

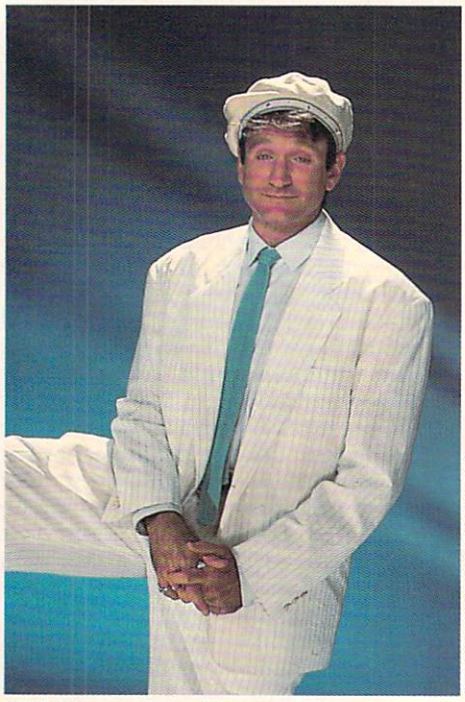
BY KATHRYN BONN

PHOTOGRAPH BY BRIAN LEATART

"I'd like a magic potion. By drinking it, I'd have a full understanding of MS-DOS at my fingertips."
JULIA CHILD



"A smaller laser printer . . . and a girlfriend who loves computers."
STEVE WOZNIAK



PHOTOGRAPH BY HARRY LANGDON

"I'd like to be able to jack in directly [to a computer]."
ROBIN WILLIAMS

These days, just about everyone—no matter how rich, important, famous, or busy—seems to be using computers. Artist Keith Haring creates artwork on his Amiga; reporter Linda Ellerbee keeps track of film footage on her Macintosh; and comic actor Robin Williams plays games on his assortment of computers.

With the holidays just around the corner, we checked with some computer-using celebrities to see if they—like the rest of us—have wish lists for their computers. Do they ever! Here's what some well-known personalities want for their computers this holiday gift-giving season.

Julia Child is an internationally recognized authority on French cooking and is credited with popularizing French cuisine in this country. Best known to most Americans for her television program, "The French Chef Cookbook," she hopes to hit the airwaves again with a new show in 1989. She's written numerous books on the subject, including *Mastering the Art of French Cooking I* and *II*, *The French Chef Cookbook*, *Julia Child & Company*, *Julia Child & More Company*, and *Julia Child's Kitchen*.

Although she wrote all of these without the aid of a computer, she swears she'll never work without one again. (She's currently writing a new book, titled *The Way to Cook*, using an IBM compatible.) "I don't know how I functioned without it before. I think they're absolutely marvelous," she says. "I welcome its little beep when I turn it on." *Microsoft Word* is her choice when it comes to word-processing software; she's happy about the fact that Microsoft continually updates the program.

Child's ideal Christmas gift would unfold the mysteries of her computer's operating system: "I'd like a magic potion. By drinking it, I'd have a full understanding of MS-DOS at my fingertips."

Comic actor **Robin Williams**'s gift for improvisation and his ability to create diverse, hilarious characters have made him one of the hottest young stars around. Best known for his role as Mork on television's long-running series "Mork and Mindy," Williams has continued to do stand-up comedy. His one-man show, "A Night at the Met," aired on HBO last year and received widespread critical acclaim. Williams's film credits include starring roles in *Popeye*, *The World According to Garp*, and *Moscow on the Hudson*. This month, look for Williams as an air force disc jockey in *Good Morning, Vietnam*. And in June, he'll be on stage along with Steve Martin at New York's Lincoln Center in a revival of Samuel Beckett's *Waiting for Godot*.

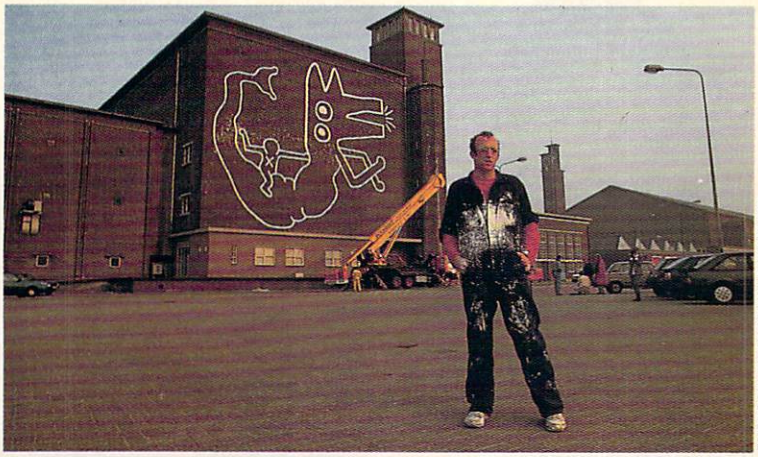
Williams, who is crazy about computers, also made a surprise guest appearance at last May's Software Publishers Association conference, where awards were presented to the best software publishers. Williams owns an impressive array of machines: an Apple II, an Atari 800, an Atari ST, a Commodore 64, and a Macintosh. When he's asked what he uses them for, his answer is concise: playing games. Williams stocks a vast library of software—almost any game you can name.

Santa, hear this: Williams wants to actually enter a computer system. "I'd like to be able to jack in directly, as in the book *Neuromancer*." In that novel, Case, the main character, is able to walk around inside a computer and enter programs at will. (Talk about interactive!)

At the age of 25, **Steve "The Woz" Wozniak** co-founded Apple Computer with Steve Jobs, running the company out of a garage for a year until the Apple II hit the market. And the rest, as they say, is history. Two years ago, "The Woz" left Apple and formed a new company, named CL 9 (short for cloud nine). He uses a Macintosh and an Apple II for sending and receiving electronic mail, writing speeches, cataloging slide presentations, and writing company correspondence. Wozniak doesn't have much time for computer games these days: CL 9 has kept him busy working on new products such as CORE, a universal remote control.

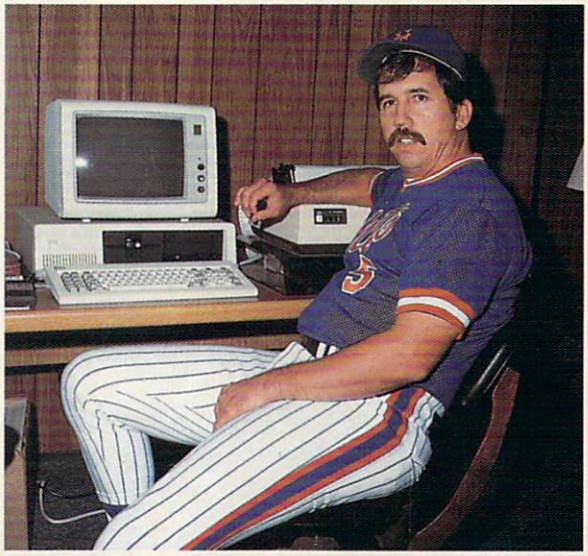
While Wozniak doesn't push his two children—Sara, 3, and Jesse, 5—to follow in his computer-fanatic footsteps, they've discovered the pleasures of computers on their own. They both like light educational programs, and Jesse has started playing games.

KATHRYN BONN *is a freelance writer who lives in New York City.*

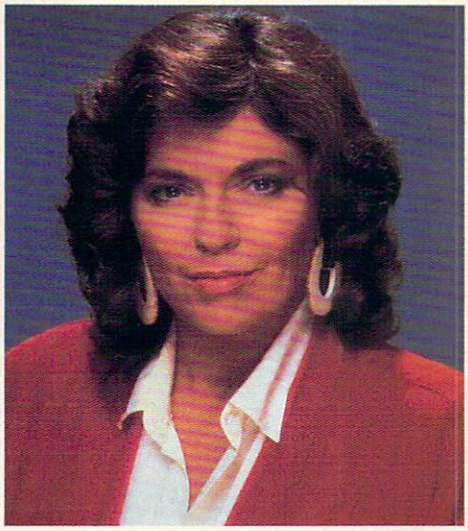


PHOTOGRAPH BY TSENG KWONG CHI

"A giant screen so that I can create huge computer-generated images."
KEITH HARING



"I'd like a program that could tell me the results of every batter-pitcher confrontation in the National League."
DAVEY JOHNSON



"I'd like a better-quality, faster, quieter printer."
LINDA ELLERBEE

For Christmas, Wozniak would like a laser printer that's smaller and lighter than his Apple LaserWriter. But what he says he really wants is "a girlfriend who loves computers."

Reporter and anchorwoman **Linda Ellerbee** was afraid of computers for years—and with good reason: She lost her first big reporting job because of one.

In 1972, while working for the Associated Press (AP) in Dallas, she typed a letter to a friend on one of the news syndicate's computer terminals. "I lambasted the Dallas newspaper, Dallas in general, and the man I was seeing," she recalls. Ellerbee also made some critical comments about AP's hiring practices concerning women and minorities. The next day there was an Apollo launch, and AP invited in the NASA brass to show off its new computer equipment. During the demonstration, her letter appeared for everyone to see. "Somehow, it went out over the wire," says Ellerbee. "I was fired immediately."

Despite that horrendous introduction to computers, today Ellerbee is a full-fledged computer convert. Friend Rolfe Tessem transformed her from a low-tech holdout into a Macintosh devotee. "He took me by the hand, led me into the [computer] store, said 'she'll take this, this, and this,' sat me down in front of a Mac, and a half hour later I was writing on the computer. I haven't stopped since."

Ellerbee's computer—nicknamed 'Max'—is indispensable. With Tessem, Ellerbee has formed a production company called Lucky Duck. They're working with WNET in New York to bring a new version of "Our World" to PBS soon. (ABC canceled the series at the end of its 1986-87 season.) Tessem, a producer, says computers will make the task of cataloging and cross-referencing the reams of film footage used in a series like "Our World" hundreds of times easier. "ABC did everything on paper, and by the end of the program's 26-show run, things were in chaos," he explains.

And what's on Ellerbee's Christmas list? A laser printer, she says. "I'd like a better-quality, faster, quieter printer."

Keith Haring, 29, is often called a graffiti artist, a tag he doesn't really like. "People tend to think of spray painting on subways," he explains. It's probably more accurate to call his giant, cartoonlike murals and metal sculptures "pop art."

Among his better-known projects is the mural he drew on the Berlin Wall in October 1986. Haring's drawing depicts red figures joined with black figures—a silent protest against the wall that divides the German city. This past summer, he toured Europe and Japan, where he painted a carousel in Germany and street signs in Japan. Haring has also been enormously lucky at turning his artwork into a financial success. His store, Pop Shop, on Lafayette Street in New York City, has done so well that a Tokyo branch is in the works.

Haring uses his Amiga strictly for experimenting with his art. He likes to scramble drawings, playing with their dimensions. "The computer makes an image fluid instead of static. I like the flexibility of making changes, making something longer, wider, whatever. It's fun."

His only gripe about computers is the limitations of small-screen monitors. He likes *big* art. Haring is hoping for "a giant screen so I can create huge computer-generated images and change the scales of things. Even better, something that would allow me to project [images] onto the sides of buildings." (Keith, there *are* some large screens that you can attach to computers, but they cost thousands of dollars.)

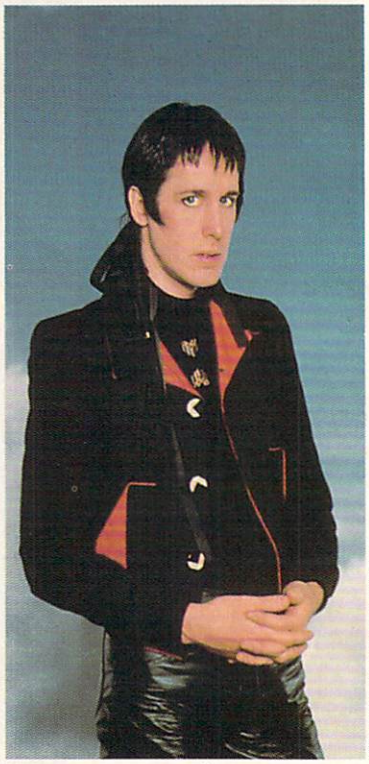
Davey Johnson, manager of the New York Mets, uses an ITT Extra and an IBM laptop to work on baseball-game strategy. Using custom-made software, he compares Mets players' statistics with those of the opposing team to help determine his batting lineup and pitching choices. Then Johnson can predict how each batter might fare against a certain pitcher.

Here's a scenario where the computer might come in handy. The Mets are in a crucial situation late in the game, with men on base and the pitcher due up at bat. Since pitchers are notoriously bad hitters, Johnson would probably substitute a pinch hitter. His choices are Darryl Strawberry and Gary Carter. On the mound is the dreaded Mike Scott, the Houston Astros' ace pitcher. Johnson might consult his computer records to see

"I'd like to guarantee that I never accidently make a foolish mistake."
WILLIAM F. BUCKLEY, JR.

"A 10-pound portable Mac."
MICHAEL CRICHTON

"I'd like a Cray [supercomputer]."
PENN (the taller half of PENN & TELLER)



"A laser printer."
TODD RUNDGREN

PHOTOGRAPH BY MARK WEISS

which player hits Scott's killer 'split-finger' fastball better and use that player.

Johnson's ideal Christmas gift would help alleviate the stomach churners that make him reach for the Rolaids. "I'd like a program that could tell me the results of every batter-pitcher confrontation in the National League so that I could tell what was going to happen before it did and not have to worry myself over it."

Science-fiction author **Michael Crichton** has many novels to his credit, including the mega-bestseller, *The Andromeda Strain*. He owns a Macintosh and uses it for word processing "99 percent of the time." Also a director, he's known as a computing whiz in Hollywood and someone to call when you hit a glitch. Crichton designed the first spreadsheet program specifically for film production, which is used for budgeting and scheduling. Today, it's a tool that's widely used by people in the movie business. He's directing a film called *Smoke*, which stars Burt Reynolds and Theresa Russell. *Sphere*, his latest novel, came out last summer, and he's writing *Travels*, his autobiography.

An ideal gift for author Crichton would be "a 10-pound portable Mac. I travel a lot, so I need something light. And I don't like to use IBMs because they're too old-fashioned." Patience, Michael, your wish may be answered in the very near future. A company called Dynamac sells a 15-pound Macintosh-compatible laptop and another company, Colby Systems, has one that weighs only 16 pounds.

William F. Buckley, Jr. is one of the most visible proponents of conservative Republicanism around. He's editor of *National Review* and hosts the long-running PBS series "Firing Line;" both are highly respected forums for conservative opinion. "Firing Line" has brought fiery debates between Buckley and his more liberal guests to the airwaves.

Buckley uses a variety of computers; three Kaypros, two IBMs, one Epson, and one Toshiba. He uses all—except his Epson—for writing; he uses the Epson for navigation on sailing trips.

Here's Buckley's ultimate wish: "For Christmas, I would like to guarantee that I never accidentally make a foolish mistake." Sorry, Bill, but there's no computer or peripheral that can do that for you.

Musician **Todd Rundgren** is known as a technological wizard in the music business. Rundgren has a Macintosh and a hard-disk drive for programming software and computer graphics, as well as various musical applications. A musical Renaissance man, Rundgren plays a variety of instruments. His hit albums include *Hermit of Mink Hollow*, *Something/Anything*, and *Todd Rundgren*, which features the mega-hit, "Can't We Still Be Friends?" What would he like to see under his tree on Christmas morning? A laser printer.

The team of **Penn & Teller** specializes in an offbeat brand of magic, though they don't like to be called magicians. "Call us rip-off artists or rip-off artists and magicians, but not just magicians," says Penn Jillette. (Teller prefers to be called simply "Teller.") Whatever it is that they do, it's a unique blend of comedy and magic, with more than a hint of the bizarre. The duo has appeared on "Saturday Night Live," "Late Night with David Letterman," "Good Morning America," and "The Today Show," as well as off Broadway and at Atlantic City's Trump Plaza Hotel & Casino. Among other tricks they perform is a Houdini-like underwater escape, in which Teller, imprisoned in a tank, appears to be running out of air. For one eerie moment, the audience expects the worst; it's this kind of shock value the pair thrives on.

Recently, Penn & Teller appeared in rap-group Run DMC's video, *It's Tricky*, where they play card sharks. They hosted the "pregame" show for September's MTV awards and made a home video for Lorimar called *Penn & Teller's Cruel Tricks for Dear Friends*. The wacky pair is working on its first feature film, *Penn & Teller Get Killed*, scheduled for release in September 1988.

The pair has three computers: a Zenith laptop, an IBM PC, and an Epson IBM compatible. They use them for writing scripts for their shows and storing their tricks on disk. Penn says of computers: "We wouldn't be in the entertainment business without them. It's impossible to write without a computer."

Penn has a Christmas wish that is as serious and grounded in reality as his illusory profession: "I'd like a Cray [supercomputer]." And Teller? He won't tell. ■

HYPERCARD

Taking the Mac to New Levels

USERS HOLD THE WINNING HAND WITH THIS COMBINATION DATA-MANAGEMENT AND SOFTWARE-CREATION PACKAGE

BY DAVID HALLERMAN

Picture this: You're sitting at home in your most comfortable chair, looking through the entire permanent collection of the National Gallery of Art in Washington D.C. You've always been particularly entranced by the Impressionists and want to see only their works. So you click on a series of buttons on the Macintosh's screen with the mouse, and visions of Renoir and Monet move in full color across a television monitor sitting beside the computer. You're using *HyperCard* along with *The National Gallery of Art* laser disk from Videodisc Publishing ([212] 685-5592).

Now picture this: You've logged on to Dialog, an on-line information service with more than 300 databases. Normally, you need to know each database's command structure in order to get at the information (a real pain!), but today you're using a program on your Macintosh that makes browsing through all the databases much easier because the commands are finally uniform. That program, also, is *HyperCard*.

One more picture. On short notice, you put together an interactive project proposal on the computer using words, graphics, and sound. Your company gets the contract. This, too, is *HyperCard*.

Those examples show you just some of the possibilities inherent in *HyperCard*. This new system software (bundled with every Macintosh and available to present users for only $49) opens up the Macintosh by giving you control of the Mac's fluid graphics and fast data-handling capabilities. And by incorporating other media, such as laser disks or CD-ROM, *HyperCard* foreshadows a near future of customized and interactive information.

WHAT IS *HYPERCARD*?

Like most application software, *HyperCard* is used to create and modify documents. In this case the documents are called *stacks*, since the metaphor behind *HyperCard* is a stack of index cards. You also use *HyperCard* to run and modify stacks created by other people, much the same way that you run any separate program. These stacks are often called *stackware*.

What a stack can do—and what a stack can contain—is up to the creator. Each card in a stack can consist of text, numbers, graphics, and sound. By combining these relatively simple elements within the *HyperCard* software engine, extremely complex applications can be set up.

HyperCard's creator, Bill Atkinson, calls it a "software erector set." But unlike a real Erector set, where you have to build all the models from scratch, *HyperCard* comes with sample stacks that can be used immediately and also customized over time. One supplied stack is an on-screen Rolodex file—to which you can add your own list of names, addresses, and phone numbers—which links up with another stack called *Datebook*. That stack gives you an appointment calendar, yearly calendar, and to-do list. Other stacks that come with the *HyperCard* package include ideas for cards, buttons, clip art, and still other stacks that you can modify and use for your own purposes.

If *HyperCard* offered such mundane applications only, the excitement wouldn't be there. But *HyperCard* is a chameleon that can take on whatever color is needed. Since everyone can use *HyperCard* at some level, I've seen many different kinds of stacks in less than two months—everything from stacks that interactively teach reading skills and American Sign Language for the hearing-impaired to stacks for figuring out withholding taxes, keeping track of a personal library, creating sales presentations, making educational time

DAVID HALLERMAN *is a senior editor for* FAMILY & HOME-OFFICE COMPUTING.

lines, and playing games. There's even a charming children's story about a kitten's hectic day called *Inigo Gets Out*.

Businesspeople will be able to use *HyperCard* to construct stacks for tasks that are specific to their businesses without having to consult a programmer first. In fact, that's one of *HyperCard*'s strengths—letting you create quick solutions to individual problems. As Atkinson said, "There are a lot of very specific needs that never could have been met before because [people] couldn't afford a professional programmer to sit down and analyze their work. But the people who have the needs know exactly what they want."

WHAT'S COMING IN STACKWARE?

If you're not concerned with making your own stacks or if you have some need beyond your capabilities, you'll be able to find a wide range of commercial stackware. Many stackware products will come from companies not previously involved in the computer software field, but whose employees have expertise in particular areas. For example, a company that publishes reference books could put that same information into stacks, interactively cross-referenced for easy access and more readily updated than any book. That's exactly what the *Whole Earth Catalog* people are doing with their popular, and very browsable, book.

Of course, many of the publishers already known for software are getting into the stackware business. Activision, for instance, is coming out with two stackware products, *Focal Point* and *Business Class*. Both were designed by Danny Goodman, who is also the author of the definitive book on *HyperCard*, *The Complete HyperCard Handbook* (Bantam Books).

Focal Point is an interlinked information manager that's perfect for many common business functions. You can use it for appointments, incoming and outgoing phone calls, or tracking expenses, deadlines, and time spent on any project. Those who travel a lot will appreciate *Business Class*, because it compiles travel facts about countries around the world, such as currency exchange rates; local climates, holidays, and customs; and language. Like most stacks, this one will be customized by people as they use it; they can add updated or specific information about a country or city.

Publishing stackware is an attractive opportunity for small companies because of the low overhead and investment. In addition, professional programmers can easily add new capabilities to *HyperCard*, increasing its utility for professionals and amateurs alike. These are called *external commands* and *external functions*. For instance, external commands already exist that allow stacks to talk (by calling on Apple's *Macintalk* speech driver). Other new commands might include a telecommunications mode for going on-line when you're using any stack or giving *HyperCard* the ability to search through the 550MB (or more) of data found on a CD-ROM disk.

One of the most exciting uses for *HyperCard* is as a "front end" for laser disks and CD-ROM disks. Both promise a whole new world of information *(see next month's feature, "1990 Here We Come")*, but both are just collections of information, without an "engine" to run them. You need some means to find your way through these mazes of data.

While *HyperCard* is not yet ready to let you set up an environment for browsing through laser-read disks, it won't be hard for programmers to add CD-ROM or laser disk control to *HyperCard* in the form of external commands. That's just what's being done with the National Gallery of Art disc mentioned earlier. Not too long from now, you'll be able to go exploring in this new interactive, customizable medium—*HyperCard* and CD-ROM as partners.

Stackware takes off with *Business Class* (Activision), a tool for frequent travelers. Here's the Italy card (top). By clicking on its bottom-left icon, you go to the Currency card. A click on the handshake icon (fifth from left) takes you to the Social Customs card. Other cards cover local holidays, weather, electrical current, and more.

WHAT'S IT LIKE WORKING WITH *HYPERCARD*?

When you open *HyperCard*, it automatically takes you to a special stack named *Home*. The *Home* stack works as a partial substitute for the normal Macintosh desktop since you can run another stack—or even another program—by clicking with the mouse on a button that contains its icon.

The *Home* stack also holds the User Preference card, which lets you set your user level to one of five. As the numbers increase, each level offers more capabilities, while retaining all the functions available in the previous level. The first level, Browsing, lets you look through stacks without changing a thing, which is useful when you want to create stacks that

users can scan but not modify.

At the second user level, Typing, you can add or change text and numbers, but nothing else. This is the level that most commercial stackware programs will probably be set at initially.

When you use *HyperCard* at the third user level, Painting, a range of computer painting tools (richer than the original *MacPaint*) becomes available. Here's where you can also bring into your stacks bit-mapped graphics created by other programs, such as digitized images.

The fourth level, Authoring, is where you begin to construct your own stacks. The key function available here lets you make buttons that take you from one card to another when you click on them. By setting up the right buttons, you can create collections of data linked entirely by your own associations. In fact, using a button to connect any two cards is called a *link*.

When you set up *HyperCard* at Scripting—the fifth, and highest, user level—you can write scripts (a set of commands) in HyperTalk, the plain-English programming language built into *HyperCard (see "Introducing HyperTalk")*. This is where all the latent power of *HyperCard* can come to life.

IS THERE A DOWNSIDE?

Even though *HyperCard* offers useful text capabilities, don't sell your word processor. And while you might want to take care of some specific number-crunching with a customized stack (such as tracking expenses), a spreadsheet is still invaluable for budgeting, financial forecasting, and other numerical models. And even though *HyperCard* offers extensive data-manipulation functions, a "real" database is a better tool for such tasks as merging form letters with a large mailing list.

And while the bit-mapped graphics are up to the Macintosh standard, you cannot use graphics that are larger than one screen by scrolling, as you do with programs such as *MacPaint*. Nor can you use object-oriented graphics, such as those produced by programs similar to *MacDraw*, without first saving them as bit-mapped graphics. These limitations are likely to be eliminated in subsequent versions of *HyperCard*, but no promises have been made yet.

Also, let's face it: *HyperCard* is a memory hog. You need at least 1MB of RAM in your Macintosh, and more is desirable, especially if you want to run *HyperCard* under the new multitasking MultiFinder. And while you can get by with "only" two 800K floppy-disk drives, one floppy with a hard drive is far more preferable, particularly when you have large stacks or if you're using long sound effects (which tend to distort when run from a floppy). However, if you can afford all these hardware necessities, you'll find that *HyperCard* runs without any real trouble.

There are, however, some error-handling difficulties to be aware of. For instance, when you print a report from a stack, it prints in the Geneva or Helvetica font, no matter which font you already have in the fields (although future versions of *HyperCard* will probably correct this problem). And experienced Macintosh users, who are accustomed to double-clicking on an icon to open an application, will have to change habits since *HyperCard* demands single clicks only.

Apple's manual for *HyperCard* is clear on what it covers, but it takes you only through the Authoring level. To learn more about *HyperCard*, especially the HyperTalk scripting language, you'll need to begin with the supplied Help stack—which is a wonderful introduction to all of *HyperCard*—and go on to the previously mentioned *The Complete HyperCard Handbook*.

INTRODUCING *HYPERTALK*

By learning how to write scripts in HyperTalk, the plain-English programming language built into *HyperCard*, you can begin to create your own detailed stackware. Before we look at the elements of HyperTalk, let's take an overview of a stack's components, called *objects*. Each of these objects is a place where you can put a HyperTalk script.

Stack. A collection of cards along with background(s), although a stack may be composed of a single card and background.

Background. The underlying graphics, fields, and buttons behind every card; also refers to the unifying graphic element in a stack. While there may be more than one background in any stack, a single card can share only one background with other cards.

Card. One screen's worth of information in the form of text, graphics, and buttons.

Field. Where you put textual information, both words and numbers. Fields can be static, or they may scroll so that you can read more than one screen's worth of text on a single card. You can put several fields on any card or background.

Button. An on-screen object that you click on to set off a particular action within that stack. A button may consist of words, an icon, or both. You can put several buttons on any card or background.

IS *HYPERCARD* FOR REAL?

Atkinson is quick to point out that *HyperCard* is not a final product set in stone. Rather, it's the first wave of a generation of programs that will control information and customize your software environment.

By making certain that every new Macintosh buyer gets a copy of *HyperCard*, Apple Computer is making a statement about its hopes for the future of computing. This will influence other hardware and software manufacturers, so much so that publishers of software for other computers, such as the Amiga or MS-DOS machines, will undoubtedly be making work-alike clones of *HyperCard*.

Is *HyperCard* overhyped? Yes, if you think it's the be-all and end-all in software. However, for those with more reasonable expectations, *HyperCard* is almost a dream come true. I particularly appreciated how easy it is to set up intricate Macintosh screens—complete with graphics, various fonts, on-screen buttons, and dialog boxes—within *HyperCard*. Even though I am not a programmer, with minimal effort I've been able to create stacks to use in my work. For example, it took me about 30 minutes to construct a stack that I use for keeping track of all the stackware packages I've read about.

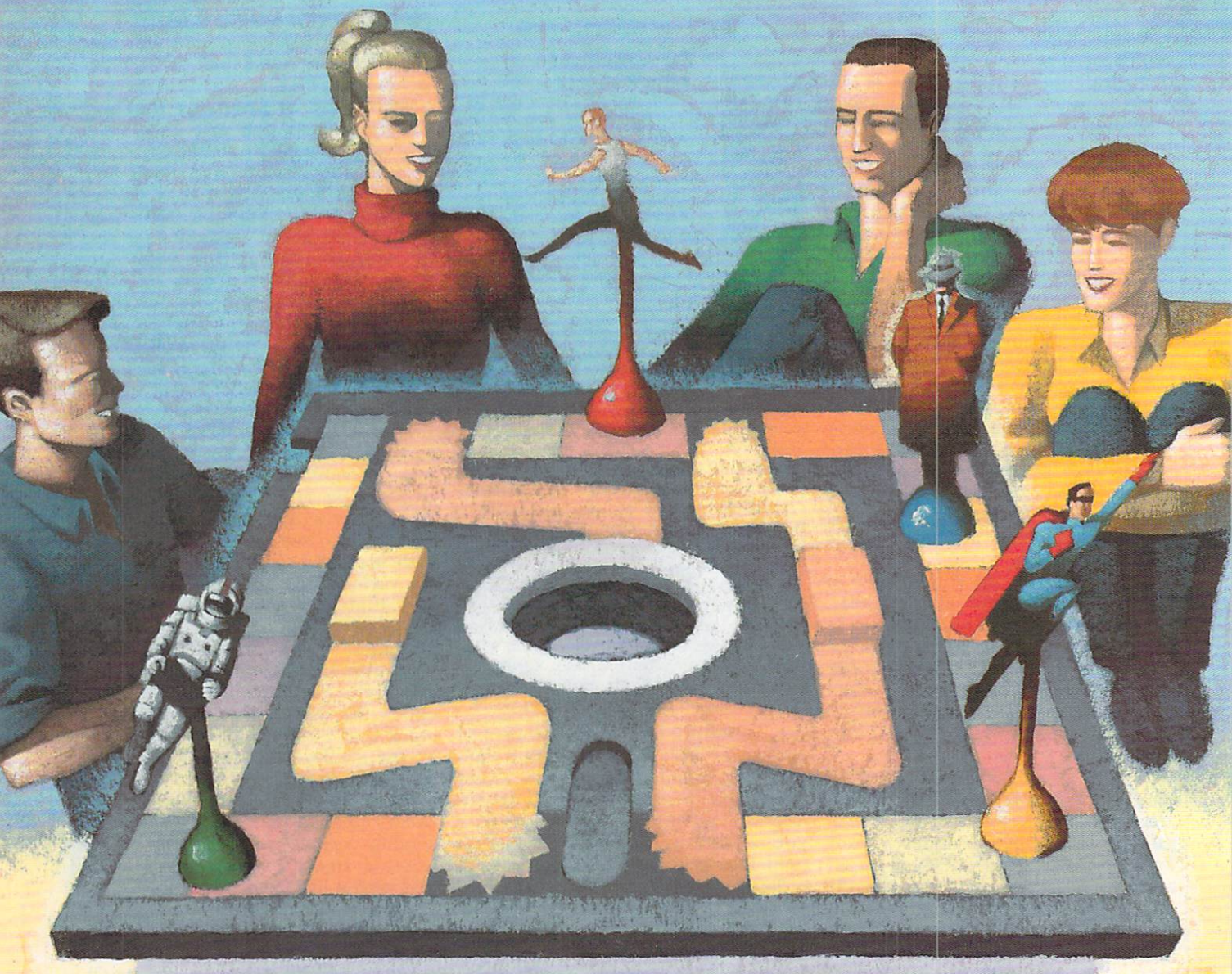
If you can operate a mouse, you can use a *HyperCard* stack. If you're reasonably logical, you can customize existing stacks or create your own; and with a little experience and a little desire, you'll eventually think it simple to write scripts in HyperTalk.

And, most important, if you have an interest and a Macintosh, you'll find *HyperCard* a wonderfully welcome addition to your software collection.

EDITOR'S NOTE: *Join us next month and succeeding months for more information about HyperTalk,* HyperCard, *and various stackware products. As creator Bill Atkinson recently forecast, "The language design is woven in with the structure of* HyperCard. *HyperTalk could be . . . a mouse-age BASIC that brings in a new generation [of users]." You'll hear more from him in a special interview in the January 1988 issue.*■

HYPERCARD FACTS

PUBLISHER: Apple Computer, Inc.; (408) 996-1010.
PRICE: $49 (included with all Macs purchased after August 11, 1987)
HARDWARE REQUIREMENTS: 1MB Macintosh, with two 800K floppy-disk drives. Hard-disk drive, printer recommended.



Games For Guests

FUN FOR ALL AND ALL FOR FUN

BY DAVID LANGENDOEN

Your guests have arrived. Each has bitter truths and sordid stories. And, believe it or not, one of them is a murderer. Doesn't quite sound like Aunt Mary or Tim and Louise from across the street, does it? But Aunt Mary did have a compelling motive . . . .

DAVID LANGENDOEN *was one of the original high school editors for "K-Power," a former section in this magazine. He's now an undergraduate at the University of Virginia in Charlottesville.*

Fortunately, this is only a hypothetical scene from a murder party created with the aid of *Make Your Own Murder Party*—one of the many pieces of entertainment software that could be ideal for your guests to play this holiday season. When selecting games for them, keep these considerations in mind: (1) Is the game easy to learn and play?; (2) Does it have multiplayer capability?; and (3) How much fun does it promise? Other factors to consider are the amount of competition inherent in the game and the age ranges the game is suitable for *(see "Consider Your Guests" for further explanation)*. With these helpful hints in mind, we at FAMILY & HOME-OFFICE COMPUTING have selected a group of games that we think you and your guests will enjoy.

MURDER IT WROTE . . .

A murder party is a party with murder as its theme, at least when you play *Make Your Own Murder Par-*

ILLUSTRATION BY DARRYL LIGASAN

ty. Every person at the party plays a character with a plausible motive to kill the "victim" (an imaginary person). All possess some knowledge and evidence about each other and the circumstances surrounding the slaying; and, over a series of rounds, they interact with one another. They exchange information and ideas and try to pry out each other's "Bitter Truths" (every character's deep, dark secrets and motives for wanting to kill the victim). The catch is that everyone *must* tell the truth, and even the murderer doesn't know that he or she did it. At the end of all the rounds, everyone writes down the name of the person whom they think did it and the reason why. The murderer is revealed and the person(s) who figures out "whodunit" and why wins.

Make Your Own Murder Party provides the mystery and all the necessary details. You can even customize the characters to better fit your guests. The computer prints out everything you'll need—information sheets for your guests, props, and "evidence." After this point the computer is finished and you, the host, take over, providing whatever music, food, and surroundings you feel are appropriate (sadly, food is beyond *Murder Party*'s scope).

Two mysteries are provided with the game, The Big Kill and Empire. Each can be replayed because the game is designed to alter the murderer's identity with every new party you host. The Big Kill is about the death of a famous movie star, who was a college buddy of the characters during the sixties at Berkeley. (Now what movie does that remind you of?) Empire focuses on the murder of a wealthy widow, and the characters are people with claims to the fortune.

To run both mysteries, the documentation provides many suggestions, ranging from how to deal with latecomers to proposing recipes for dinner. The only real limitations are that you need six to eight players and that it's not suitable for young children. What is most appealing about *Murder Party* is that it's a program for making a party game rather than being a game you play at the computer. Therefore, your guests need not even look at a computer to play. With an imaginative host, it can be extremely entertaining.

CONSIDER YOUR GUESTS

Ease of Use. Is the game easy to learn and play? As long as quality isn't sacrificed, you should look for the easiest games; you don't want your guests to become frustrated.

Multiplayer Participation. This is an absolute must. As many people as possible should be able to play simultaneously. This does not mean that everyone has to hold a joystick, but rather, that everyone should be able to participate actively.

Fun. In this case, fun should be defined as what's going to make people smile and laugh. Although a serious game can be fun, too, a lighthearted one is a better choice when playing with guests.

Competition. A little competition is harmless and can even be desirable. However, you want to avoid games with strong competitive elements because you don't want anyone to harbor negative feelings afterwards.

Age Range. Some games are best-suited for young kids (under 12), while others are geared toward older children and adults. It's a good idea to have some games of both types on hand. Better still, look for games that everyone can play, so all can join in the fun.

Everyone can join in the hilarity when you boot up *Accolade's Comics*.

CHOOSE YOUR OWN LAUGHTER

Fun is not always *funny*, but when you play *Accolade's Comics*, humor is what it's all about. This game is ideally tempered for guests with little computer-gaming experience because it's laugh-provoking and easy to learn. As in a *Choose Your Own Adventure* book, in which the reader encounters a situation and is asked to choose from a list of actions and responses, *Comics* lets you pick your answers from a list. Some of these choices will be wrong and will end the adventure prematurely, while others will continue the story. Often there is more than one "right" answer, and the story can follow different paths to the same conclusion. Groups of players can have fun at the same time, because everyone can participate in choosing the responses—a good laugh for all is almost guaranteed. Further, it's suitable for children and adults alike.

Comics is somewhat complicated, since it incorporates a number of arcade sequences. You are Steve Keene, thrill seeker, private spy, and comic book character. Play is resolved through the use of "boxes" that are linked together on-screen to form a scrolling comic strip. Each box depicts a scene and gives you a choice of actions or responses to what a character you encounter says or does. There are many hilarious options, and true to the spirit of comic books, the outrageous choices often work better than the obvious ones. The arcade sequences are not overly difficult, and there is even an option to practice them if you do have any problems.

OF BIRDIES, BOGIES, MEDALS, AND HIGH KICKS

A recent phenomenon at FAMILY & HOME-OFFICE COMPUTING has been the mysterious disappearance of several of the editors. When tracked down, they were found huddled around a monitor discussing birdies, bogies, and eagles. They had discovered *Mean 18*. Since it has a simple play system, you don't need to know a whole lot about golf to enjoy it. However, it's also exciting for knowledgeable golfers, since it incorporates many details, such as a complete selection of clubs. The players can choose from a variety of courses available with the program or they can design their own, using the built-in construction kit, called a Golf Course Architect Set.

If golf isn't your guests' cup of tea, consider playing one of the sports games from Epyx; among the best for group play are *Summer Games*, *Winter Games*, and *California Games*. *Summer Games* focuses on Olympic-style events such as diving, swimming, and track and field. In *Winter Games*, you skate, ski, and bobsled. And the "rad" *California Games* features such "Left Coast" fun as skateboarding, surfing, and bike racing. All three can individually involve up to eight players, with each player representing one of 18 countries competing for the gold (substituted by sponsors and trophies in *California Games*). With few exceptions, learning to play each event is simple; that means ready fun for your guests. If none of them is a joystick jockey, you can choose to exclude the particularly difficult sports events. *Summer Games* and *Winter Games* are the two easiest to play, but *California Games* is the most fun, with lively music and "awesome" events. The

whole series—with splendid graphics and music—is great for all ages.

If your guests include children, especially younger rambunctious ones, let them expend their energies on *Karate Champ*. Two players (or one playing against the computer) try to knock one another down using various karate moves, such as the high kick and reverse punch. Although it may be difficult for younger players to remember all the moves, they can have just as much fun by moving the joystick around and watching their characters perform all types of jumps, kicks, and punches. Occasionally they'll be rewarded by hitting something.

In fact, sports games as a group are often appropriate for guests. The prime consideration when choosing one is that it should allow for at least two players. And if it is limited to two players, like *Karate Champ* is, make sure that it is a short game, so that there is a high turnover.

THE FINAL FRONTIER

It's a game of space. It's a game of economics. It's a game of strategy. It's a game for guests who like any of these things. It's called *EOS: Earth Orbit Station*, and it can be so addicting that your guests may become regular visitors. *EOS* places you in command of a major space project, ranging from a simple research mission to the construction of an entire space colony. Up to four players (either human or computer) vie to complete the project first. They are responsible for financing themselves and generating the new technologies that will make their missions successful. This is done by constructing space stations from various modules and parts and then allocating portions for commerce and research. You can also trade technology and money with other players. To facilitate this, the play system lets you select most different options with the joystick, which makes it easy for guests to become involved quickly. Graphics abound, and the construction of a space station is reminiscent of Tinker Toys and Lego. Although *EOS* is not as lighthearted as the games mentioned above, it is engrossing.

***California Games* offers you and your guests such "rad" fun as skateboarding.**

And if the players work together, it becomes an involved group effort.

There is something for everyone in the classic *M.U.L.E.* Fun, music, strategy, humor, and competition—as well as cooperation—are all part of it. Four players are sent to colonize a distant world with the aid of M.U.L.E.s, stubborn robots that will run away, if given the opportunity. Each player chooses a character from an assortment of bizarre creatures and, with each turn, is granted a new plot of land. On any given turn, a player can change what is being produced on his or her plots, analyze soil samples for valuable minerals, or hunt the ever-elusive Wampus. There is also an auction at which players can buy and sell commodities to each other or to the store. Players compete to be "First Founder," but they must also work together or the colony will fail and everyone will lose. The game is simple to learn for first timers and is entirely graphic, employing the joystick for player movement. *M.U.L.E.* is geared for older kids (ages 12 and above) and adults, as the economics employed and the game's nuances may be difficult for younger children to understand. However, with some coaching, even younger players will be able to participate in the fun.

But *Robot Rascals* is specifically designed for younger children and for group play, and may be a better choice than *M.U.L.E.* It's a combination computer-card game that simulates a giant scavenger hunt. Numerous items are hidden on an on-screen planet. Each player tries to find the necessary items (dictated by the cards that are dealt) by controlling a Robot Rascal via the computer. The robots may move about, scan for items, and even steal things from one another. There is a catch: Every turn, a player draws a Luck card that often calls for the switching or passing of item cards between players. By the end of the game, a player might need a completely different group of items than when he or she started. *Robot Rascals* is simple enough to make for immediate fun for almost any group of guests.

GROUP CONQUESTS

For those guests with gaming experience or for those who enjoy strategy-oriented games, *Lords of Conquest* is just what the general ordered. Using an extremely elegant and simple play system, it presents a challenging and thought-provoking game. Up to four human players (a computer opponent is only available when you're playing alone) divide a world created by the computer or the players themselves. A world is made up of a group of territories or countries, a few of which contain valuable resources necessary to win the game. Players take turns conquering each other's countries and combining resources to construct weapons and cities. Interplayer trade is available, as well as the option to aid another player against a third.

Many other multiplayer tactical-strategy games exist, but *Lords of Conquest* is as good as most and far easier to learn than any of the others. Although competitive, it's not overly so because games are short, and there is no room for grudge matches.

A FINAL WORD

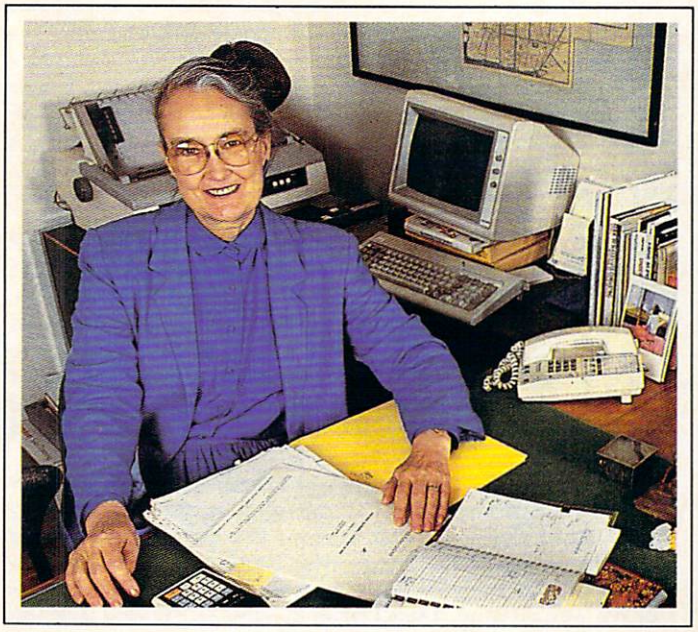
Besides the considerations presented in the inset for selecting games for guests, it's also important to have an idea of the kinds of games your guests would like. Consider their previous computer experience, interests, and hobbies. And remember, keep an eye on Aunt Mary. She's a wily one . . . . ■

SOFTWARE INFORMATION

Accolade's Comics (Accolade). Apple, C 64/128. $40–$45.
California Games (Epyx, Inc.). Amiga, Apple, C 64/128, IBM PC and compatibles. $40.
EOS: Earth Orbit Station (Electronic Arts). 64K Apple, C 64/128. $30–$35.
Karate Champ (Data East). Apple, C 64/128. $20.
Lords of Conquest (Electronic Arts). Apple, Atari, C 64/128. $15.
Make Your Own Murder Party (Electronic Arts). Apple, C 64/128, IBM PC and compatibles. $15.
Mean 18 (Accolade). Amiga, Apple IIGS, Atari ST, IBM PC and compatibles. $45–$50.
M.U.L.E. (Electronic Arts). Atari, C 64/128. $15.
Robot Rascals (Electronic Arts). Apple, C 64/128, IBM PC and compatibles. $40–$45.
Summer Games (Epyx, Inc.). Apple, Atari, C 64/128. $20.
Winter Games (Epyx, Inc.) Amiga, Apple, Apple IIGS, Atari ST, C 64/128, IBM PC and compatibles, Macintosh. $40.

PUBLISHERS' PHONE NUMBERS

Accolade: (408) 446-5757
Data East: (408) 286-7074
Electronic Arts: (415) 571-7171
Epyx, Inc.: (415) 366-0606



Home-Office SHOPTALK

AN EXPERT FIELDS QUESTIONS ABOUT STARTING, MAINTAINING, AND EXPANDING A HOME-BASED BUSINESS

BY JOANNE H. PRATT

EDITOR'S NOTE: *This installment of Home-Office ShopTalk is the third in a series that began in the October issue.*

Q: I am a steel salesman with about 300 active accounts. I want software that will chart my sales dollar amounts and graph any year to determine trends. I am getting nowhere talking to salespeople at software centers. Some recommend databases, and some advise spreadsheets, but they aren't sure which ones. I have a Leading Edge Model D.

—A. THOMAS, *Fullerton, California*

A: It's bewildering but accurate: You could track your business records with either a spreadsheet or database. *(See "Getting More from Your Spreadsheet or Database: Part I" in this issue.)* I vote for the database approach and keeping it simple. If you want to sell steel—not play with your computer—I suggest Borland's *Reflex* ($150; 384K IBM PC or compatible). The database manager is not one of these mega-relational databases that costs a month's profit to buy and learn to use.

Yet *Reflex* has several outstanding features. Pull-down menus help refresh your memory if you don't use the software every day. Multiple windows allow you to analyze several accounts on-screen simultaneously and in different formats.

In fact, *Reflex*'s strong point is its ability to display figures in different ways: as a single form; as tables compiled from several forms; as reports; and as graphs. In addition, you will be able to cross-tabulate your accounts, for example, by product number and customer, and calculate totals for either one or both.

Look also at *Reflex: The Workshop* ($70), an add-on collection of templates. The sales-analysis and trend-analysis forms might be time-savers for you.

JOANNE H. PRATT, *president of Joanne H. Pratt Associates, Dallas, Texas, has 28 years of experience operating home-based businesses. Pratt Associates conducts research and consults for private firms and government agencies. Send your questions about working at home to Home-Office ShopTalk,* FAMILY & HOME-OFFICE COMPUTING, *730 Broadway, New York, NY 10003.*

Q: I would like to begin a moonlighting business at home. I work with computers daily as a pharmacist, I've installed them in many pharmacies and have trained dozens of pharmacists to use them. I program with Fortran as well. I have the basic knowledge, the money to invest, and the time to pursue moonlighting in either researching, data entry, or bookkeeping and income-tax returns. That's where my experience ends and my ignorance begins. Where do I begin?

—A. ROBY, *Staten Island, New York*

A: For you—as for so many of us—the opportunity is so obvious, it's hidden. You appear to have a ready-made market for services to pharmacists who already know you in a related capacity. Although you may be able to build a business beyond pharmacists, by all means begin there. I would go with the bookkeeping and tax return preparation, as it offers higher dollar return than data entry does.

Name your business, then invest in a corporate-looking letterhead and business card. It's important for you to be viewed as a professional in this new endeavor, not as a qualified amateur.

The next step is to visit the pharmacists you've trained, present your card, and ask for their business. Start with the small pharmacies rather than with the regional chains. At the same time seek referrals to their co-workers and friends.

Why don't you bone up on the recent tax-law changes that will concern pharmacists? Use that knowledge to illustrate your expertise when soliciting business. In the wake of this year's dramatic changes in the tax law, your services may be very much in demand.

Q: The article on moonlighting in your August issue really intrigued me. If I could use my computer to earn income while enjoying the comfortable surroundings of my home and family, this would be the ideal moonlighting situation. Would you send me a list of companies that hire part-time remote data-entry workers? I've checked the local and Dallas-Fort Worth newspapers, but to no avail.

—EDWARD A. MATELSKI, *Wichita Falls, Texas*

A: Call Taylor Publishing Company ([214] 637-2800) in Dallas. Taylor has about 500 people on contract who work full-time and part-time producing school yearbooks. Some of them work at home. But your best bet may be to contact local companies that do a lot of data entry—such as insurance companies, banks, and tax preparers.

Q: I'm very interested in doing computer work at home for a company (I don't want to start my own business), but I've had no luck in finding a company that uses telecommuters. Do you or any of your readers know of such companies?

—JOAN KOPP, *Detroit, Michigan*

A: That's the hardest question I'm asked. If you read my previous two columns, you'll find several suggestions for locating companies that hire telecommuters. *The Work-at-Home Source Book* by Lynie Arden lists companies that hire telecommuters, but many of them hire from their staff workers. (To order the book, send $12.95 plus $1 for postage and handling to: TWN Publications, P.O. Box 820, Rancho Cordova, CA 95741.) Seven Michigan companies are listed, all of which require professional photography, programming, or technical-writing skills.

The 1987 National Work-At-Home Survey from Electronic Services Unlimited (a division of Link Resources of New York) indicates that more than 80 percent of the nation's telecommuters have "informal" arrangements with their employers. This suggests that these telecommuters are staff workers who have *grown into* telecommuting and were not *hired* as telecommuters.

All of you pioneering telecommuters out there—can you help? If you can, please send me your strategies for getting hired, and I'll share your success stories with FAMILY & HOME-OFFICE COMPUTING readers in future columns.

Q. I've been searching for accounting software that is user-friendly. I'm not an accountant or a computer whiz. I need a package that can handle my checking account, accounts payable, and general ledger. I am a small businessman with little bookkeeping experience. I wonder if there is a program that you can recommend for someone in my position.

—JOEL AZIZ, *Baltimore, Maryland*

A. Without knowing more details about your business, I can only make some general recommendations. I suggest that you get a demonstration or at least examine the manuals of *Bedford Integrated Accounting* (Bedford Software Corporation; $250) and *Dac-Easy Accounting* (Dac Software; $100). Both are leaders among the entry-level accounting packages.

Dac-Easy's virtues include a menu-driven installation procedure that calculates the disk space you'll need for your number of customers, vendors, and products. If you write checks both manually and by computer, as I do, you'll like the Payments and Adjustments journal that keeps track of checks prepared either way. And you will certainly like *Dac-Easy*'s rock-bottom price. An add-on accounting tutorial ($30) and a custom report-generator ($40) would also be good buys for you.

Bedford Integrated Accounting offers a big plus—the ability to view most of your reports on the screen. A pop-up list of account numbers makes it easy to enter data without referring to a printed list. Further, the practical user's guide and accounting manual give examples that make it simple for novices to set up their books. In addition, the program has a sample-company tutorial on disk and on-line help screens.

Compare both programs against your present bookkeeping system. Additionally, I highly recommend buying an hour of your accountant's or tax preparer's time so that either can look over your proposed new automated system before you start to depend on it.

Q. Into each life a hobby emerges; mine is raising and breeding koi (short for Nishikigoi, a prized Japanese decorative fish). After years of frustration and lost or misplaced records, I went to my faithful Epson QX-10 and word processor. Having converted my swimming pool to a pond with more than 200 koi, I now keep a graph of each one's progress. Also, I keep a running account of water and electrical consumption for both house and pond.

From there I went into select breeding, where my QX-10 became a real jewel. I am able to keep a running account of the spawning season: the dates of male and female introduction, spawning, and hatching; the approximate number of eggs; and the approximate number of fry at hatching. Then I keep graphs on feeding and the growth rate of fry.

I thought you might be interested. I wouldn't trade my system for anything.

—ERNEST J. de TOURNILLON, *Lakewood, California*

A: Indeed we are fascinated and impressed with the image of your beautifully colored Japanese fish and your ingenious computerization of your hobby. I wish my computer would raise some koi for me! ■

SMALL BUSINESS ADMINISTRATION PUBLICATIONS

The following pamphlets are available from the Small Business Administration, P.O. Box 30, Denver, CO 80201-0030 (some have been updated):

FINANCIAL MANAGEMENT AND ANALYSIS

NO.	DESCRIPTION
1.004	Basic Budgets for Profit Planning $1.00
1.010	Accounting Services for Small Service Firms $.50
1.015	Budgeting in a Small Business Firm $.50
1.016	Sound Cash Management and Borrowing $.50
1.017	Keeping Records in Small Business $.50

GENERAL MANAGEMENT AND PLANNING

NO.	DESCRIPTION
2.010	Planning and Goal Setting for Small Business $.50
2.022	Business Plan for Small Service Firms $1.00
2.025	Going Into Business $.50
2.027	How to Get Started with a Small Business Computer $.50
2.028	The Business Plan for Home Based Business $1.00
6.004	Selecting the Legal Structure for Your Business $.50

MARKETING

NO.	DESCRIPTION
4.002	Creative Selling: The Competitive Edge $.50
4.019	Researching Your Market $1.00
4.023	Selling by Mail Order $1.00

NEW PRODUCTS/IDEAS/INVENTIONS

NO.	DESCRIPTION
2.013	Can You Make Money with Your Idea or Invention? $.50

The *Zork Trilogy* has become a legend in its time, selling nearly one million copies! Now the legend continues with an extraordinary new Zorkian universe that breaks ground in computer gaming. For the first time, the character-building and combat of role-playing games joins the masterly prose and puzzles of Infocom's interactive fiction.

Beyond Zork's sophisticated new interface makes interaction more natural than ever, plunging you into a world teeming with magic and peril. The vast and varied Southlands of Quendor come alive as you seek fantastic treasure and combat the vicious monsters who haunt the streets and wastelands.

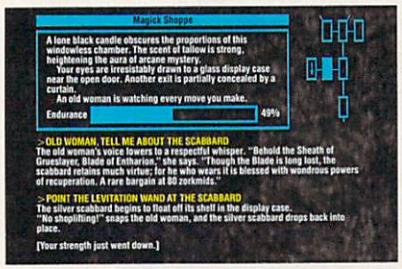
Challenge yourself to a quest that's far beyond anything you've ever experienced. *Beyond Zork.* The incredible new interactive story from the master storytellers at Infocom.

INFOCOM™

125 CambridgePark Drive, Cambridge, MA 02140

Beyond Zork *is available at your local dealer for the Apple II series, Macintosh, Commodore 128, Amiga, IBM PC and 100% compatibles, and Atari ST. To order direct, call 1-800-262-6868. Coming soon: Apple IIGS.*

Zork *is a registered trademark of Infocom, Inc.*



One glance at Beyond Zork *will show you that it's unlike any interactive story you've seen before. On-screen mapping. Window displays. A character that grows in strength and power. You get all the excitement of role-playing games, skillfully blended with the fabulous puzzles and award-winning prose of Infocom's interactive fiction.*

Screen shown is for the Commodore 128 version.

Is Escort Scared or Smart?

Cincinnati Microwave, the maker of Escort and Passport radar detectors, has ignored DAK's* third, *one-on-one Maxon versus Escort radar challenge. I think they're hiding behind 'independent' magazine reviews and refusing to meet us on the true field of battle. And now, I think I've finally figured out why. I believe they're in a NO WIN SITUATION! Read On.

By Drew Kaplan

It's time to attack. No more Mr. Nice Guy for me. I've done everything I can to get them out for a conflict.

I've offered $10,000, then $20,000, if they could beat Maxon's lowest price $99.90 detector (now on sale for just $79.90) by more than 10 feet. I've even offered to print the results in my next catalog, win, lose or draw.

In a minute, I'm going to introduce Maxon's revolutionary new Micro-Detector that is CORDLESS and built to **trounce** Escort and Passport, but first let's see what we can do to compare detectors.

IS THIS FAIR? YOU DECIDE

In their recent ads, Cincinnati Microwave quotes what Car and Driver Magazine's April '87 issue says about Passport, "At $295 direct from the factory, it's the most expensive piece of electronic protection in the group, but it's worth every nickel in roadgoing peace of mind."

Well, wouldn't you think that Passport obliterated every other detector by a country mile? And, don't you think everyone is going to go out and find the magazine and read the **WHOLE** review???

Well, look what else Car and Driver said **in the same article** (and not quoted in Passport ad), "As it turned out, the top five brands are so close in their "Overall Sensitivity" scores that a minor juggling of the X/K-band weighting formula would upset the apple cart." Wow, imagine that!

So, Passport didn't beat everyone by a mile. In fact, on the X Band tests, it appears that it came in 3rd in a Dead-Ahead Trap, 3rd in an Over-the-Hill Trap, and 3rd in an Around-the Corner Trap.

But in choosing Passport as best, Car and Driver says, ". . an 'excellent' appraisal of support systems (cords, lights, alarms etc.) is well worth several hundred feet of warning distance..".

Which brings me back to the point I've been trying to make since I first challenged Escort. Today, a good detector can often sniff out police radar as much as 60 seconds ahead.

Traveling at 55 mph, you only cover about 80 feet a second. So, whether there's a 10' or even 100' difference in sensitivity, with today's detectors it just doesn't make much difference.

READ THIS

So, if Passport or Escort lose to the $79.90 Maxon, it would be catastrophic for their advertising. And, even if they beat Maxon by a second or two, are they worth double or even triple the price?

So, that's why I think they're in a **no win situation**. Without the magazine's loving editorial comments, we'd be down to **who won** and by **how many feet?**

And while they may or may not be scared of losing to Maxon, so far, they sure seem to be smart enough to stay out of a footage contest.

MAGAZINE ROUND UP

Popular Mechanics Magazine in November '86, in their Around A Corner Test said, "The low ranked . . .and Passport had to be rounding the bend and pointing at the radar gun before they'd detect it. Too late then!" (Not quoted by Passport.)

Although in July, after Cincinnati Microwave complained, Popular Mechanics said in an Around A Corner Test, "Consistent with the results of our previous test, Passport was easily the best of the minis." (Quoted in Passport Ads.)

Speaking of 'consistent', the magazines aren't consistent even from issue to issue.

By the way, in July's test they hated Maxon, but at least they said, "No detector in this group had to round the corner before sniffing out Smokey."

Road and Track Magazine (September '86) top rated Passport even though Maxon (a recommended buy) appears to have beaten Passport in Uninterrupted Alert, and Passport beat Maxon in initial alert.

So, when you get right down to which detector protects you, an **on-the-road test** without all the loving editorial 'quotable remarks' seems to be the only way to go.

We need to win or at least tie, to prove to the world that our challenge is for real, and not, as Cincinnati Microwave said, "an advertising gambit". But, speaking of advertising gambits, read this!

PROTECTION FROM RASHID $5? WHOOPEE

Last year, Cincinnati Microwave announced to the world, in virtually every magazine I picked up, that all radar detectors but theirs would be obsolete.

It seemed that a K band collision avoidance system called Rashid VRSS would knock out everyone's detectors.

Well, I said then that the $558 system that recommends cutting a 6½" hole in your grill for installation, wasn't going to take over the highways.

But Cincinnati Microwave kept advertising about Rashid. (My opinion of an advertising gambit). It's been a year and nobody I've talked with has run into a Rashid. I challenged Cincinnati Microwave to prove that there were even 500 on the road in the whole U.S., but they've been silent. (I wonder why???)

Anyway, just to prove that we had the technical expertise, Maxon has developed and implemented an Anti-Rashid circuit in the new Micro-Detector.

It's added about $5 to your cost which **we all think is a waste**, but at least we won't get any more letters saying that the only reason we think it's worthless is because Maxon doesn't have it.

TRUE BREAKTHROUGH NO. FIVE

Unlike the questionable value Anti-Rashid circuit from Cincinnati Microwave, Maxon has now leapt ahead. Now you can have a micro detector that operates from 6 AA rechargeable batteries (included).

Now you can forget plugging your radar detector into your cigarette lighter. A revolutionary circuit design gives you cordless freedom and **improved** protection.

Maxon is using a circuit used in jet fighters and other military applications which replaces the traditional Gunn diode oscillator with a DRO (Di-electrically Resonated Oscillator).

The efficient DRO circuit is much more stable when subjected to temperature extremes and vibration (hence its use in the military, especially aircraft). Its only disadvantage is that it costs more.

The new detector also has incredible "support systems". Its bright LEDs, dim themselves at night. And speaking of dimming, they can be switched off so you can't be spotted from the rear.

And, as for the separate X and K warning tones, not only is the volume adjustable, 'Mute' lets you silence the alarms without adjusting volume. They will automatically reset after the alert passes.

You can plug the Micro into your cigarette lighter, you can run it for about 8 hours on its rechargeable batteries, and it automatically recharges from your cigarette lighter overnight or while you use it plugged in during the day.

OK, now it's time to prove that Maxon is Number One. Cincinnati Microwave, eat our dust!

A $20,000 Challenge To Escort

Let's cut through the Radar Detector Glut. We challenge Escort & Passport to a one-on-one Distance and Falsing 'duel to the death' on the highway of their choice. If they win, the $20,000 check pictured below is theirs.

By Drew Kaplan

We've put up our $20,000. We challenge Escort to take on Maxon's Dual Superheterodyne RD-1 $99.90 detector (right) (Now just $79.90), Maxon's new Mini RD25 $99.90 detector (middle) or Maxon's Cordless Micro-Trouncer $149.90 radar detector (left) on the road of their choice in a one-on-one conflict.

The real question today is: 1) How many feet of sensing difference, if any, is there between Maxon's Detectors and Escort's or Passport's? And 2) Which is more accurate at interpreting real radar versus false signals?

So Escort, you pick the road (continental U.S. please). You pick the equipment to create the false signals. And finally, you pick the radar gun.

Maxon and DAK will come to your highway with engineers and equipment to verify the results.

And, we'll have the $20,000 check (pictured) to hand over if you win!

BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mammoth electronics prime manufacturer. They actually make all types of sophisticated electronic products for some of the biggest U.S. Electronics Companies. (No, they don't make Escort's.)

Bob Thetford, the president of Maxon Systems Inc. and a friend of mine, was explaining their anti-falsing Dual Superheterodyne Radar detector to me. I said "You know Bob, I think Escort really has the market locked up." He said, "Our new designs can beat theirs".

. . .Next Page Please

. . .Challenge Continued

So, since I've never been one to be in second place, I said, "Would you bet $20,000 that you can beat Escort?" And, as they say, the rest is history.

By the way, Bob is about 6'9" tall, so if we can't beat Escort, we can sure scare the you know what out of them. But, Bob and his engineers are deadly serious about this 'duel'. And you can bet that our $20,000 is serious.

We only ask the following. 1) The public be invited to watch. 2) Maxon's Engineers as well as Escort's check the radar gun and monitor the test and the results.

3) The same car be used in all tests. 4) We'd like an answer from Escort no later than December 31, 1987, and 60 days notice of the time and place of the conflict to alert the public. And, 5) If Escort can prove that there are even 500 Rashid units in operation, we will present them with a check for $5,000 at the conflict.

HOW'S THIS FOR FAIR?

Cincinnati Microwave will be deemed the winner and given the check if **either** Escort beats Maxon's RD-1 or RD-25 by 10 feet in both uninterrupted and initial alerts or **equals** the Micro-Trouncer, **OR** if Passport beats Maxon's RD-1 or RD-25 by 2 seconds at 55mph in both uninterrupted and initial alerts or **equals** the Micro-Trouncer. So, DAK wins **only** if we beat **both** the $295 Passport and $245 Escort Radar Detectors.

SO,WHAT'S DUAL SUPERHETERODYNE?

OK, so far we've set up the conflict. Now let me tell you about the new dual superheterodyne technology that lets Maxon leap ahead of the pack.

It's a technology that tests each suspected radar signal 4 separate times before it notifies you, and yet it explodes into action in just 1/4 of one second. (1/10th second for the Micro-Trouncer.)

Just imagine the sophistication of devices that can test a signal 4 times in less than a 1/4 of one second. Wow!

But, using Maxon is easy. These long range detectors have all the bells and whistles with **separate** audible sounds for X and K radar signals.

LED Bar Graph Meters accurately **show the radar signal's strength.** And, you won't have to look at a needle in a meter.

Keep your eyes on the road, you'll see these meters with your peripheral vision.

You'll have a very high level of protection. Maxon's Dual Conversion Scanning Superheterodyne circuitry combined with **die-cast aluminum** ridge guide wideband horn internal antennas, really ferret out radar signals.

And the key word is 'radar', not trash. The 4 test check system that operates in 1/4 second gives you protection from signals from other detectors, intrusion systems and garage door openers.

So, when the lights and X or K band sounds explode into action, take care, there's very likely police radar nearby. You'll have full volume control, and a City/Highway button.

Maxon detectors are backed by Maxon's standard limited warranty.

Note from Drew: 1) Use of radar detectors is illegal in some states.

2) Speeding is dangerous. Use your detector to help keep you safe when you forget, not to get away with speeding.

DON'T WASTE MONEY

As I've said, **good** radar detectors today are very similar. The RD-1 is great. It is much smaller than Escort at just 3½" wide, 4¾" deep and 1½" tall.

If you want an even smaller detector, the RD-25 at just 2⅞" wide, 4½" deep and 1" tall, with its included windshield mount and identical specs is for you.

If you want the very best, or if you want to forget cords and be able to slip a

4½" wide, 3¼" deep, ¾" tall (It mounts sideways to the rest) detector into your shirt pocket, choose the Micro-Trouncer.

I'd love to tell you that the Micro-Trouncer is light years ahead in detection, because its circuitry certainly is.

But, I'd be into advertising gambitland if I claimed that 1 or 2 seconds of improvement over Maxon's other detectors or even over Escort and Passport really make a significant difference.

Caution: Cincinnati Microwave is right. There are many cheap imports that aren't very good. My quarrel with them is that except for themselves, I don't know who they think is any good!

CHECK OUT RADAR YOURSELF RISK FREE

Put a detector on your visor, dash or windshield. When it sounds, look around for the police. There's a good chance you'll be saving money in fines and **higher insurance rates.**

If you aren't 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

(RD-1 Pictured to Right.) To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for DAK's **$79.90** sale price ($4 P&H). Order No. 6132.

Note: An optional suction cup windshield mount and extra coiled power cord (we can't afford to throw them in for free) is just **$5.90** ($2 P&H) Or. No. 4800.

(RD-25 Pictured in Middle.) To get your Maxon, Dual Superheterodyne, Anti-Falsing **Mini** Radar Detector complete with 2 Power Cords, Window Suction Cup, Dash and Visor Mounts risk free with your credit card, call toll free or send your check for just **$99.90** ($4 P&H) Order No. 6133. CA res add tax.

(Micro-Trouncer Pictured to Left.) To order Maxon's Top-Of-The-Line, DRO Circuit Radar Detector with Mute, 4 Second LED Meter Hold, Dark Switch, Cordless Battery Operation (6 AA Ni-Cad Batteries Included) with Windshield, Dash, and Visor mounts and 2 power/charging Cords risk free with your credit card, call toll free or send your check for this revolutionary $249 suggested retail detector at DAK's market breaking price of just **$149.90** ($6 P&H) Order No. 6134.

OK Escort, it's up to you. We've got $20,000 that says you can't beat Maxon on the road. Your answer, please?

Escort and Passport are registered trademarks of Cincinnati Microwave. Rashid VRSS, and Rashid Radar Safety Brake are registered trademarks of Vehicle Radar Safety Systems, Inc.

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CIRCLE READER SERVICE 13

PRODUCT REVIEWS

EVALUATIONS OF COMPUTERS, PERIPHERALS, AND HOME-OFFICE EQUIPMENT

The Vendex HeadStart Turbo 888-XT comes with 512K of memory, a monochrome monitor, two 5.25-inch floppy disk drives, and five software packages.

COMPUTERS & PERIPHERALS

Vendex HeadStart Turbo 888-XT

MANUFACTURER: Vendex Pacific Inc.
ADDRESS: 40 Cutter Mill Road, Great Neck, NY 11021; (516) 773-4883
PRICE: $995

The words on the Vendex brochure are calculated to entice the most computer-phobic consumer. "The most difficult decision you'll make," the brochure announces, "is where to plug it in."

To stand out from the crowd these days, every MS-DOS computer needs a twist, and the Vendex HeadStart Turbo 888-XT attempts this by promising the novice ease of use. Vendex's promotional material says the system virtually sets itself up—that the Vendex *HeadStart Operating Environment* will walk you through the process of turning a piece of gray machinery into a willing servant. The material also guarantees that if all else fails, a technician will come over to hold your hand and guide you through the rocky waters of computing (for $50).

The computer itself comes with 512K (expandable to 768K), a monochrome monitor, two floppy disk drives, a keyboard, built-in ports (parallel, serial, mouse, floppy controller, light pen, and two joystick), and five software packages. These include *The Executive Writer* and *The Executive Filer* (both from Paperback Software); *ATI Interactive Trainer*; *MyCalc*, a spreadsheet from Software Tool Works; and *HOT*, a memory-resident desktop accessory published by Executive Systems. If you have trouble using any of these, you can call a toll-free number to get another technician—for an additional $40—whose services are available for one year.

Like many promises that sound too good to be true, Vendex's also come up a bit short. They are right about one thing: A not-too-bright child can set up the system and turn it on. In the computer's shipping box is a two-page brochure with STOP written in huge letters on the front. It's a simple, step-by-step guide to get the computer up and running, and it works.

The *Operating Environment* software, designed to answer the "what do I do next" question, is also simple—even simpleminded. The problem is that it doesn't go far enough. It explains a directory and allows the user to experiment with making files and performing other housekeeping tasks. But when it comes down to what really counts—explaining how to use, say, word-processing software, probably the most popular kind of software around—the screen goes blank. And the novice is back up on the rocks.

Time to call the toll-free number and request assistance. The technical manager on the phone was unusually blunt, but very helpful. He said to forget the $50 technician, who simply unpacks and plugs in the computer. But he offered to answer any software questions—including how to begin using *The Executive Writer*—without charging $40.

Vendex Pacific Inc., a subsidiary of a Netherlands company called Vendex International, is making its first venture into the computer market. (Vendex Pacific has been marketing consumer electronic goods such as VCRs, TVs, and radios in the United States since 1985.) So, we have a new Korean computer marketed by a Dutch company that promises the moon to first-time users.

While it doesn't fully deliver on its promise, the Vendex is nonetheless a very good deal. A full system—including software—for less than $1,000 is pretty rare. The AT-style keyboard, with the large RETURN key, is well-made and the keys are well-spaced; the monochrome monitor is acceptably readable. Both monochrome and color graphics are included, as is the ability to display 132 characters per line on-screen simultaneously. (A color system sells for $1,295.)

Even though the technician was a bit brash, he was very friendly and accessible. In my mind, he is one of the biggest assets of this fledgling computer system. If he and his coworkers continue to be as available when a few thousand more units are sold, Vendex will be able to offer something akin to the walk-through approach the company promised—albeit in a slightly different form.

— SANDRA WIDENER

CIRCLE READER SERVICE 110

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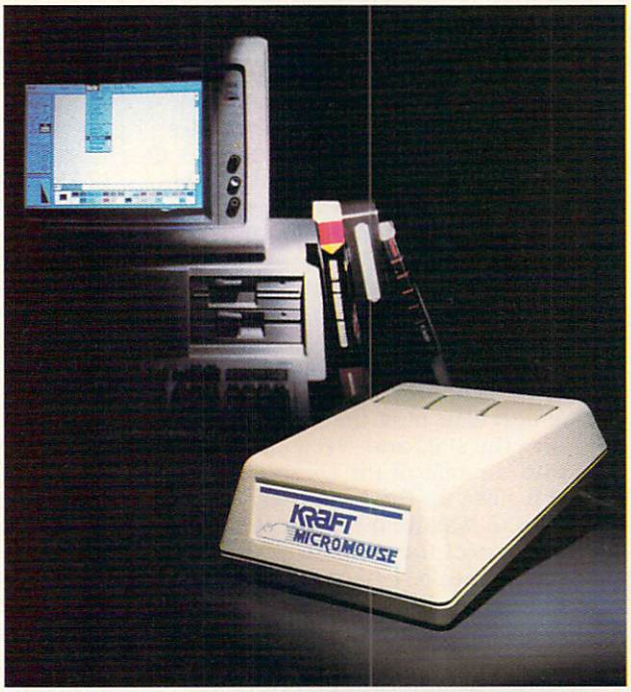

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Norton Utilities™
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CIRCLE READER SERVICE 30

Upcoming Features in

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FAMILY & HOME-OFFICE COMPUTING in the U.S.S.R.

March 1988

Buyer's Guide to AT-Compatible Computers

Developments in Banking On-Line

Tips for Marketing Your Business

PRODUCT REVIEWS

IBM Music Feature

MANUFACTURER: IBM Corp.
ADDRESS: Old Orchard Road, Armonk, NY 10504; ([800] 447-4700
HARDWARE REQUIREMENTS: IBM PC, IBM PS/2, or compatible with a full-length slot
PRICE: $495

The IBM Music Feature is an advanced music synthesizing adapter that brings a quantum leap in musical abilities to IBM PCs and compatibles. While it's advanced enough for professional use, it can be fun for the novice or student as well. Some suggested uses for the Music Feature are interactive music instruction and drills, desktop music publishing, and music recording.

The IBM Music Feature includes an adapter card, a MIDI interface, diagnostic disks, and an installation guide. The adapter card fits into any full-length slot and includes one input for the MIDI interface, one output for headphones, and two connections for output to a stereo system.

To install the adapter card, open your computer, locate an empty full-length slot, plug the adapter card into the slot, and screw the card into the rear of the computer. Once you close up the computer, you can plug in Walkman-type headphones or connect the adapter card to your stereo speakers using standard RCA-to-RCA type stereo connectors. And to get the most from the IBM Music Feature, plug a MIDI-compatible instrument into the MIDI interface and then plug that interface into the adapter card.

The sound quality of the Music Feature comes very close to that of CD recordings. That's because a Yamaha stereo FM sound synthesizer—similar to the ones found in Yamaha's DX line of of synthesizers—is at the heart of the Music Feature. This synthesizer offers 336 different instruments and can play up to eight notes simultaneously.

Interaction with the Music Feature is accomplished using the computer keyboard and/or a MIDI instrument. I plugged a Casio CZ-101 synthesizer into the Music Feature's MIDI interface, booted a program from Yamaha called *Playrec*, and found that I could easily record and play back up to eight tracks of music.

If your family has been considering adding MIDI music capabilities to your IBM PC, PS/2, or compatible, you might want to give the IBM Music Feature a closer look. Not only do you get a MIDI interface with the Music Feature, but you also get a professional quality Yamaha FM stereo sound synthesizer. And if one Music Feature adapter card isn't enough, you can have two Music Features in your computer at once. Think about it: 672 instruments at the touch of your fingertips.

—JOEY LATIMER

CIRCLE READER SERVICE 111

Space III Monitor Arm

MANUFACTURER: Innovative Office Products, Inc.
ADDRESS: P.O. Box 313, 31 Fairmount Ave., Chester, NJ 07930; (201) 879-2255 or (800) 524-2744
PRICE: $169

Most of us have problems accommodating everything we need on our desks. When space becomes a problem, we stack, squeeze, and store just about anything that can be stacked, squeezed, or stored. Unfortunately, there are certain items, such as computers, that have to stay right on our desks. Or do they?

A line of accessories from Innovative Office Products is designed to maximize efficiency by getting your monitor and keyboard off your desk surface. To help straighten my own untidy work space, I tried Innovative's Space III, one of three space-saving monitor arms.

The sturdy Space III monitor arm hovers about seven inches off your desk and accommodates a 12- or 13-inch monitor and a keyboard on a slide-out rack underneath. The effi-

This arm will get a monitor off a cluttered desk.

Easy Working™ From Spinnaker

Easy Working™ is a line of high quality, low cost personal productivity programs designed for the person who wants to spend time doing useful work, not struggling with complex computer commands and long manuals. Each Easy Working product is carefully designed to work alone or in combination with other members of the Easy Working family.

On-screen menus provide "at-a-glance" summaries of the features of the program. When you select a feature from the menu bar, a menu drops down to show all of the available options. Every command available is displayed in the drop-down menu. You will find that you will spend less time getting to know the program and more time on your projects. And since each member of the Easy Working family uses the same command structure, once you learn how to use one, you'll find a head start on learning to use the other two. But don't be fooled. Easy doesn't mean incomplete. Easy Working products are full-featured.

Easy Working™: The Writer™:
Complete word processing features allow you to create your letters and reports and arrange them to suit your needs, includes 100,000 word spellchecker. Editing functions include insert, delete, cut, paste, and copy.

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Others call: (617) 494-1200

Apple II+, IIe, IIc	$9.95
Commodore 64/128	$9.95
IBM/PC/AT	$9.95

SPINNAKER®

Spinnaker Software, Corp., One Kendall Square, Cambridge, MA 02139

CIRCLE READER SERVICE 50

cient Space III enables you to share a monitor between two computers' work spaces. Because you can swing it 360 degrees and tilt it 12 degrees up or down, the monitor arm can accommodate any number of positions for different users at different stations.

While the arm seemed a bit expensive to me, it's well worth the cost if most of the time you spend at your desk seems to be wasted trying to balance and arrange things on it.

—ANDREW TORRES

CIRCLE READER SERVICE 112

HOME-OFFICE EQUIPMENT

Canon PC-3 Personal Copier

MANUFACTURER: Canon U.S.A., Inc.
ADDRESS: One Canon Plaza, Lake Success, NY 11042; (800) OK-CANON or (516) 488-6700
PRICE: $695

Five years ago, a personal copier in a home office was a rarity. The whopping price tags and costs per copy—not to mention the size—made repeated trips to the local drug store or copy shop seem tolerable.

Canon U.S.A. almost singlehandedly changed all that. The company, which now controls almost 80 percent of the personal copier market with its line of seven copiers, virtually created the concept of the home-office copier when it introduced its PC-10 in 1982. With an ad campaign structured around Jack Klugman, Canon is primed to push what is proving to be one of the most popular pieces of home-office equipment.

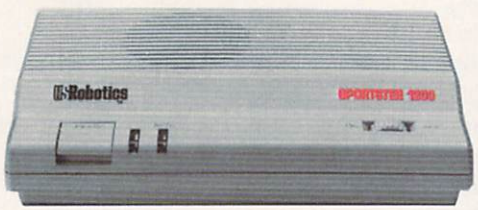
Add handles for portability, a weight of 25.5 pounds, color (white, blue, red, or black), and a low price ($695), and you've got the Canon PC-3, introduced about a year ago.

The PC-3's limitations quickly become evident to anyone who uses a sophisticated office copier. It can't use anything larger than letter-size paper and has no automatic feed, which means you hand-feed blank paper one sheet at a time. It certainly doesn't reduce or collate. And it isn't even fast: Initial copies take 14 seconds; subsequent copies take eight seconds. It does, however,

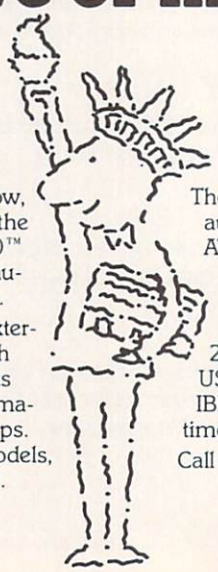
This $695 personal copier from Canon comes in red, blue, black, or white.

make clean, legible copies—on both sides when desired—with rarely a foul-up.

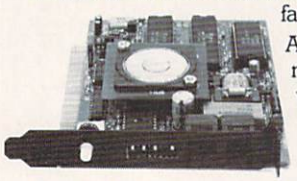
And the Canon PC-3 market isn't comprised of people who need 20 copies of a two-page document. It's made up of people—most of whom have offices at home—who make five to 10 copies a day, often one at a time, and who are sick of those repeated trips to the copy store. The



Your first modem doesn't have to be large, expensive or made in Taiwan.



A new line of modems from $139. At prices this low, you might expect a modem to come from across the ocean. But the beautifully compact Sportster 1200™ comes from USRobotics, a leading American manufacturer for over 10 years.



A Sportster internal or external modem teamed with your computer connects you to a world of information at 1200 or 2400 bps. Choose from three models, $139 to $299. Easily the USA's best modem value.

The Sportster features auto-dial, auto-redial and auto-answer. And it uses the industry standard AT command set, so it works with all data communication software.

For quick reference, the bottom panel contains a printed operations summary. You also get a 28-page user's guide, a two-year warranty, USR's Telpac™ Communications Software for IBM users, and a free subscription and connect time to the CompuServe® information service.

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CIRCLE READER SERVICE 61

machine's initial low cost—it frequently retails for less than $500—combined with the fact that it's practically maintenance free (the $85–$90 Canon cartridges, which come in red, brown, blue, or green, are each good for 1,500 copies and contain drum, developer, and toner), offsets the machine's 5½ cents cost-per-copy, which is high compared to that of other machines being sold to home-office users.

Though the PC-3's lack of an automatic feed and its inability to make legal-size copies will discourage some, those folks who just need to make a few letter-size copies a day will find the PC-3 a welcome and relatively inexpensive addition. (Those who need more machine and are willing to pay for it can find what they're looking for in next month's "Buyer's Guide to Personal Copiers.")

Just beware: When the kids get into the office, you're going to be going through those cartridges a lot faster than you had originally planned.

—MARK BITTMAN

CIRCLE READER SERVICE 113

Water-Resistant Showerphone-Radio

MANUFACTURER: Cosmo Communications Corp.
ADDRESS: 16501 N.W. 16th Court, Miami, FL 33169; (305) 621-4227
PRICE: $40

You can hang this water-resistant phone in the bathroom or kitchen so that you never miss an important call again.

Many of the 23 million homeworkers—whose schedules often differ greatly from those of office employees—bemoan calls missed while they were showering, washing dishes, doing laundry, or even relaxing with a magazine in the bathtub. For them, an answering machine can mean continued telephone tag or, worse, missed sales.

Cosmo Communications is marketing a solution in the form of a water-resistant phone/AM-FM radio. You can keep the unit in your kitchen or bathroom—without fear of water damage. You can even mount it onto bathroom tile, as you would any shower radio.

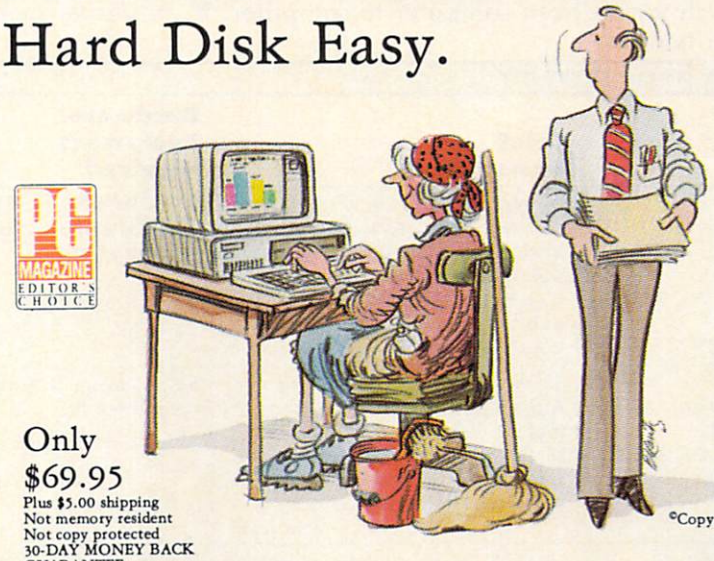
Using four AA batteries and plugging directly into a standard phone jack via the included 25-foot-long cord, the unit is surprisingly well-made. Calls come in loud and clear and, to the callers, it sounds like you are using a speakerphone. A water-resistant keypad facilitates dialing; you can talk without holding onto a receiver; and the electronic "ring" can be heard over the sound of running water.

If the idea of mixing business with a pleasurable shower turns you off, you might appreciate the convenience of answering in person and setting up a time for a recall.

—LINDA WILLIAMS

CIRCLE READER SERVICE 114

PreCursor® Makes The Hard Disk Easy.



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Designed from the user up...not the programmer down. Steve Semorile-Chevron.

PreCursor will run on IBM compatible MS-DOS systems and IBM 3270. IBM is a registered trademark of International Business Machines Corporation.

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- Excellent hard disk reference guide

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CIRCLE READER SERVICE 1

SOFTWARE GUIDE

Welcome to FAMILY & HOME-OFFICE COMPUTING's Software Guide, the most comprehensive listing available of two dozen of the newest, most noteworthy, and/or best programs on the market. Our reviewers include families from all over the country who have judged the software according to the following criteria: long-term benefits and applications, adaptability, and advantages of using a computer for a given task. Programs have been evaluated and rated for their performance in each of the categories listed below. More detailed reviews follow the chart. Unless otherwise noted, all programs are in disk format, and minimum memory requirements are 48K for Apple II series, 48K for Atari, 128K for IBM PC/PC*jr* or compatibles, and 128K for Macintosh. "Atari" alone denotes the 800/XL/XE series. "C 64/128" means the software will run on both a C 64 and a C 128 computer in C-64 mode; "C 128" alone means the software will run only on that machine.

Here's a rundown of the rating categories and what they mean: **O** = Overall performance, given the limitations and capacities of the particular computer for which the software is intended. **D** = Documentation, or the instructions and literature that accompany a program. **EH** = Error-handling, the software's capacity to accommodate errors made by the user—an especially important consideration with software for younger users. **PS** = Play system (in the games reviews), the quality of the game design and the game's playability. **GQ** = Graphics quality, also evaluated in light of each particular brand's graphics capabilities. **EU** = Ease of use after the initial learning period, which varies from computer to computer. **V** = Value for money, or how the software measures up to its price.

BUSINESS & PRODUCTIVITY

Title Publisher Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings O	D	EH	GQ	EU	V
ABILITY PLUS Migent, Inc. P.O. Box 6062 865 Tahoe Blvd. Incline Village, NV 89450 (702) 832-3700 $259 © 1987	Integrated software with a flair. The word processor, spreadsheet, database, business graphing, and communications modules easily share data with one another, as well as with other popular programs.† —SUMMERS	384K IBM PC.* 2nd drive. Graphics card recommended.	90-day warranty. Not copy-protected.	★★★★	★★★★	★★★★	★★★	A	★★★
DIGA! Aegis Development, Inc. 2115 Pico Blvd. Santa Monica, CA 90405 (213) 392-9972 $80 © 1987	Those planning to connect their Amigas to the world will want to look at this complex, yet complete, communications program. Except for the poorly indexed manual, I was impressed.† —SUMMERS	512K Amiga. 2nd drive recommended.	90-day warranty. Not copy-protected.	★★★	★★	★★★	N/A	A	★★★
EASY WORKING: THE FILER Spinnaker Software One Kendall Square Cambridge, MA 02139 (617) 494-1200 $10 © 1987	"Inexpensive simplicity" are the key words for this capable database that's part of the integrated *Easy Working* series *(see below)*. Sketchy documentation makes it best for educated users. —SUMMERS	Reviewed on 256K IBM PC.* Also for 128K Apple IIe/IIc/IIGS, C 64/128. CGA or EGA (IBM).	30-day warranty. $5 thereafter. Not copy-protected.	★★	○	★	N/A	E	★★★
EASY WORKING: THE PLANNER Spinnaker Software (see above for address and phone) $10 © 1987	If you're the adventurous sort, the minimal documentation won't stop you from getting a good introduction to spreadsheets. With 250-rows-by-200-columns. —SUMMERS	Reviewed on 256K IBM PC.* Also for 128K Apple IIe/IIc/IIGS, C 64/128. CGA or EGA (IBM).	30-day warranty. $5 thereafter. Not copy-protected.	★★★	○	★★	N/A	E	★★★★
EASY WORKING: THE WRITER Spinnaker Software (see above for address and phone) $10 © 1987	Because it gives you good, basic word-processing functions, a 100,000-word spelling checker, and pop-up menus for only $10, you may not be bothered by its slow speed and poor documentation. —SUMMERS	Reviewed on 256K IBM PC.* Also for 128K Apple IIe/IIc/IIGS, C 64/128. CGA or EGA (IBM).	30-day warranty. $5 thereafter. Not copy-protected.	★★★	○	★★★	N/A	E	★★★★
HYPERCARD Apple Computer, Inc. 20525 Mariani Ave. Cupertino, CA 95014 (408) 996-1010 $49 © 1987	Employs the metaphor of cards in stacks to help you create collections of data linked by your own associations. Or browse and use others' collections. *(See long review, page 61.)* —HALLERMAN	1MB Macintosh. 2nd drive. Hard drive recommended.	90-day warranty. Not copy-protected.	★★★★	★★★★	★★★★	★★★	E	★★★★

RATINGS KEY O Overall performance: **D** Documentation: **EH** Error-handling: **GQ** Graphics quality: **EU** Ease of use: **V** Value for money: ○ Poor: ★ Average: ★★ Good: ★★★ Very Good: ★★★★ Excellent: N/A Not applicable: E Easy: A Average: D Difficult: † Longer review follows chart

*Titles listed for the IBM PC will also run on many IBM PC compatibles; owing to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

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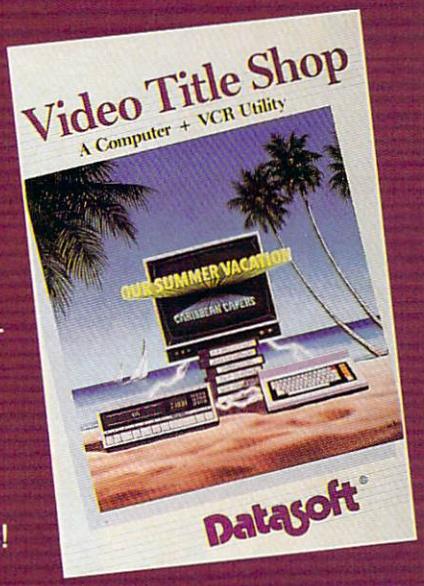

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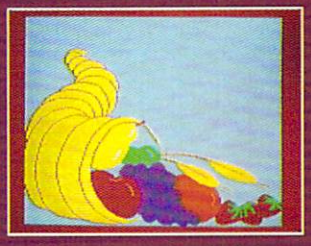

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Title Publisher Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings O	D	EH	GQ	EU	V
KAMAS Kamasoft 2525 S.W. 224th Ave. Hillsboro, OR 97123 (503) 649-3765 $70 © 1987	After I counted around 175 commands on the reference card of this outline generator, I was intimidated. It does a lot, but it's too complicated to save me time; there are other outliners that are easier. —ZORNBERG	256K IBM PC.*	90-day warranty. Not copy-protected.	★	★	★	N/A	D	★
LEXCHECK Complete Data Automation 201 S. Broadway Yreka, CA 96097 (916) 842-3431 $30 © 1987	Fast and flexible, this spelling checker offers possible alternate spellings from its 100,000-word dictionary. If a correct word is not there, just add it to your own auxiliary dictionary. —SUMMERS	512K Amiga. 2nd drive recommended.	Unlimited warranty. Not copy-protected.	★ ★ ★	★	★ ★ ★	N/A	E	★ ★ ★
THE MICROHELP UTILITY MicroHelp, Inc. 2220 Carlyle Drive Marietta, GA 30062 (404) 973-9272 $59 © 1987	Various unobtrusive aids to MS-DOS, such as increasing the speed of the screen display, on/off indicators for toggle keys (such as NUM LOCK), and changing screen colors. Best for those familiar with DOS. —SUMMERS	IBM PC.* Color monitor optional.	30-day warranty. Not copy-protected. 30-day money-back guarantee.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	A	★ ★
NOTES . . . FOR EXCEL Layered Incorporated The Schrafft Center 529 Main St. Boston, MA 02129 (617) 242-7700 $79 © 1986	For beginners, here's complete on-line help for all aspects of the *Excel* spreadsheet. For experts, a helpful "tips" section. Also available for Microsoft *Word*, *PageMaker 2.0*, *Jazz*, and *ReadySetGo!*. A smart idea.—HALLERMAN	512K Macintosh. 2nd drive.	90-day warranty. Not copy-protected.	★ ★ ★	★ ★	★ ★ ★	N/A	A	★ ★

EDUCATION & CREATIVITY

816/PAINT Baudville 5380 52nd St., S.E. Grand Rapids, MI 49508 (616) 957-3036 $75 © 1987	A hot and comprehensive paint program that takes wonderful advantage of the Apple IIGS's advanced graphics capabilities. Includes modes for IIe and IIc, too.† —FRANK	128K Apple IIe/IIc, 512K Apple IIGS. Color monitor, 3.5-inch drive (IIGS).	90-day warranty. $12.50 thereafter. $7.50 for backup.	★ ★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★
THE COMIC STRIP FACTORY Foundation Publishing, Inc. 6436 City West Parkway Eden Prairie, MN 55344 (612) 942-2925 $90 © 1986, 1987	Within a short time, even a non-artist can put together a very polished-looking comic. And for those with more artistic skills, comic creation is nearly limitless.† —DONAHUE	512K Macintosh. 2nd drive.	Unlimited warranty. Not copy-protected.	★ ★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★ ★	E	★ ★ ★
CONJECTURE Robert Scott Enterprises P.O. Box 1408 Auburn, WA 98071 (206) 939-4105 $25 © 1986, 1987	More than just a clever clone of TV's "Wheel of Fortune," *Conjecture* lets you enter lists of your own puzzles and categories, which also makes it an attractive educational tool. —SUMMERS	Reviewed on IBM PC.* Also for 128K Apple IIe/IIc/IIGS. CGA (IBM).	30-day warranty. $5 thereafter or for backup.	★ ★ ★	★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★
THE QUARTER MILE Barnum Software 2201 Broadway, #201 Oakland, CA 94612 (415) 268-0804 $45 © 1987	By playing an auto race game where your "speed" is determined by how fast you solve math problems, you can hone your adeptness at quick responses. Suitable for all ages.† —ZORNBERG	64K Apple. Planned for IBM PC.* 2nd drive, color monitor optional.	Unlimited warranty. $3 for backup.	★ ★ ★ ★	★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★
SAILING THROUGH STORY PROBLEMS DLM One DLM Park Allen, TX 75002 (214) 248-6300 $46 © 1987	An apt name: Not only is the motif a pirate sailing the high seas, but the increasingly difficult math problems are presented in small enough steps that children can experience a large measure of success all the way through the 12 levels. —ELTGROTH	64K Apple. 2nd drive, color monitor optional.	6-month warranty. $15 thereafter or for backup.	★ ★ ★ ★	★ ★ ★	★ ★	★ ★	E	★ ★ ★

RATINGS KEY **O** Overall performance; **D** Documentation; **EH** Error-handling; **GQ** Graphics quality; **EU** Ease of use; **V** Value for money; ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent; N/A Not applicable; E Easy; A Average; D Difficult; † Longer review follows chart

*Titles listed for the IBM PC will also run on many IBM PC compatibles; owing to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

THE PROGRAMMER

ILLUSTRATION BY BARTON STABLER

THIS MONTH

FYI
Page 92
News for programmers, information about our programs, and "Programming P.S."

CALENDAR PROGRAM
Page 96
Print out a *Wall Calendar* with highlighted special dates for any year from 1801 to 2399.

Page 106
The solution to last month's *Crossword Puzzler*.

HOLIDAY PROGRAM
Page 108
Try to make *Santa's Landing* smooth by safely guiding his gift-filled sleigh onto rooftops.

MICROTONES
Page 114
Tune into the holidays with *A Christmas Medley* of "O Christmas Tree," "Deck the Halls," and "We Wish You a Merry Christmas."

TIPS TO THE TYPIST
Page 120
How to type in FAMILY & HOME-OFFICE COMPUTING's programs.

PUZZLE
Page 120
Clues and data for a Christmas *Crossword Puzzler*.

THIS MONTH'S PROGRAM COVERAGE

Computers†	Wall Calendar (pg 96)	Santa's Landing (pg 108)	Puzzle Clues (pg 120)	A Christmas Medley (pg 114)
Apple IIgs	★P	★	★	★
Apple II series	★P	★	★	★
Atari 800/XL/XE	★P		★	★
Commodore 64/128	★P	★	★	★
IBM PC FAMILY				
IBM PC	★P	★A C	★	★A
IBM PC*jr*	★P	★	★	★T
IBM PS/2 Model 30	★P	★A	★	★
IBM PC COMPATIBLES				
Amstrad PC1512DD	★P	★C	★	★
Blue Chip	★P	★C	★	★
Commodore PC 10	★P	★C	★	★
Epson Equity I	★P	★C	★	★
Kaypro PC-10	★P	★C	★	★
Leading Edge Model D	★P	★C	★	★
Panasonic FX-600	★P	★C	★	★
Tandy 1000 EX/HX/SX/TX	★P	★C	★	★T
Vendex Turbo 888-XT	★P	★C	★	★
Zenith Z148PC	★P	★	★	★
Macintosh	★P		★	★
Tandy Color Computer	★P	★	★	

Key ★ Program in this issue for this computer, A Advanced BASIC required, C Color Graphics Adapter required, P Printer required, T Television or monitor with speaker required, † see below for specific models.

THE SYSTEMS WE TEST ON

Every FAMILY & HOME OFFICE COMPUTING program is thoroughly tested before publication. The exact systems we use during the testing process are listed here. While you can be sure that a program will work if your system matches ours, a comparable system configuration should also work. For example, even though we don't test on the Franklin Ace, Apple programs should work on this system. Any exception to the following hardware and software configurations will be listed in the chart above. Systems that do not have a specific printer listed were tested with Epson FX-80 printers when a printer option was available.

Apple IIe in 40-column mode w/64K RAM, DOS 3.3, two disk drives, MPC parallel printer interface, monochrome and color monitor. Apple programs should also work on Apple IIc/II Plus. **Apple IIgs** w/1MB RAM, one 3.5-inch and one 5.25-inch disk drive, ProDOS 3.3, and Apple RGB monitor. **Atari 800XL** w/two disk drives, DOS II version 2.05, Atari 850 interface, and color monitor. Atari programs should also work on Atari 800 (w/48K), 1200XL, 65/130XE. Smaller programs should work on Atari 400 & 600XL. **Commodore 128** in C 64 mode with two 1571 disk drives, color monitor, and Micrografix-parallel graphics interface. Programs should also work on Commodore 64/64C/128D. **IBM PC** w/640K RAM, Disk BASIC D2.00, IBM Monochrome Display and Printer Adapter, monochrome monitor, IBM Color/Graphics Monitor Adapter, RGB monitor, AST Sixpack Plus, and IBM PC DOS 3.10. **IBM PC*jr*** w/128K RAM, one disk drive, IBM PC DOS 2.10, cartridge BASIC J1.00. **IBM PS/2 Model 30** w/640K RAM, one floppy and one hard-disk drive, RGB monitor, IBM PC DOS 3.30, and IBM PC BASIC A3.30. Programs should also work on the PS/2 Model 25. **Macintosh** w/512K RAM, two disk drives, Microsoft BASIC 2.1, and ImageWriter printer. Macintosh programs should also work on 128K Mac/Mac Plus/SE/II and under Microsoft BASIC 2.0. **Tandy Color Computer 2** w/64K RAM, Disk Extended Color BASIC 1.1, two disk drives, Botek-serial-to-parallel printer interface, color monitor. Programs should also work on Color Computer 1 (w/64K) and 3.

The following PC compatibles have been added to our testing list. IBM PC programs should also work on other PC compatibles with at least 128K.

Amstrad w/640K RAM, two disk drives, MS-DOS 3.20, Locomotive BASIC, RGB monitor. **Blue Chip** w/512K RAM, two disk drives, monochrome monitor, MS-DOS 3.20, GW-BASIC 3.20. **Commodore PC-10** w/640K RAM, two disk drives, monochrome monitor, MS-DOS 3.20, GW-BASIC 3.20. **Epson Equity I** w/256K RAM, two disk drives, monochrome display adapter, monochrome monitor, MS-DOS 3.10, GW-BASIC 3.10. **Kaypro PC 10** w/640K RAM, two disk drives, RGB monitor, MS-DOS 2.11, GW-BASIC 2.02. **Leading Edge Model D** w/640K RAM, two disk drives, monochrome and RGB monitors, MS-DOS 3.10, GW-BASIC 3.11. **Panasonic FX-600** w/640K RAM, two disk drives, MS-DOS 3.10, GW-BASIC 3.10, enhanced graphics adapter, RGB monitor. **Tandy 1000 EX** w/256K RAM, two disk drives, MS-DOS 2.11 version 02.11.24, GW-BASIC 2.02 version 01.02.00, RGB monitor. **Tandy 1000 HX** w/256K RAM, one disk drive, MS-DOS 2.11 version 02.11.26, GW-BASIC 2.02 version 01.02.01, RGB monitor. **Tandy 1000 SX** w/384K RAM, two disk drives, MS-DOS 3.20 version 03.20.00, GW-BASIC 3.20 version 03.20.00, RGB monitor. **Tandy 1000 TX** w/640K RAM, one disk drive, MS-DOS 3.20 version 03.20.21, GW-BASIC 3.20 version 03.20.01, RGB monitor. **Vendex Turbo 888-XT** w/640K RAM, two disk drives, MS-DOS 3.20, GW-BASIC 3.20, RGB monitor. **Zenith Z148PC** w/640K RAM, two disk drives, MS-DOS 3.10, GW-BASIC 3.20, RGB monitor.

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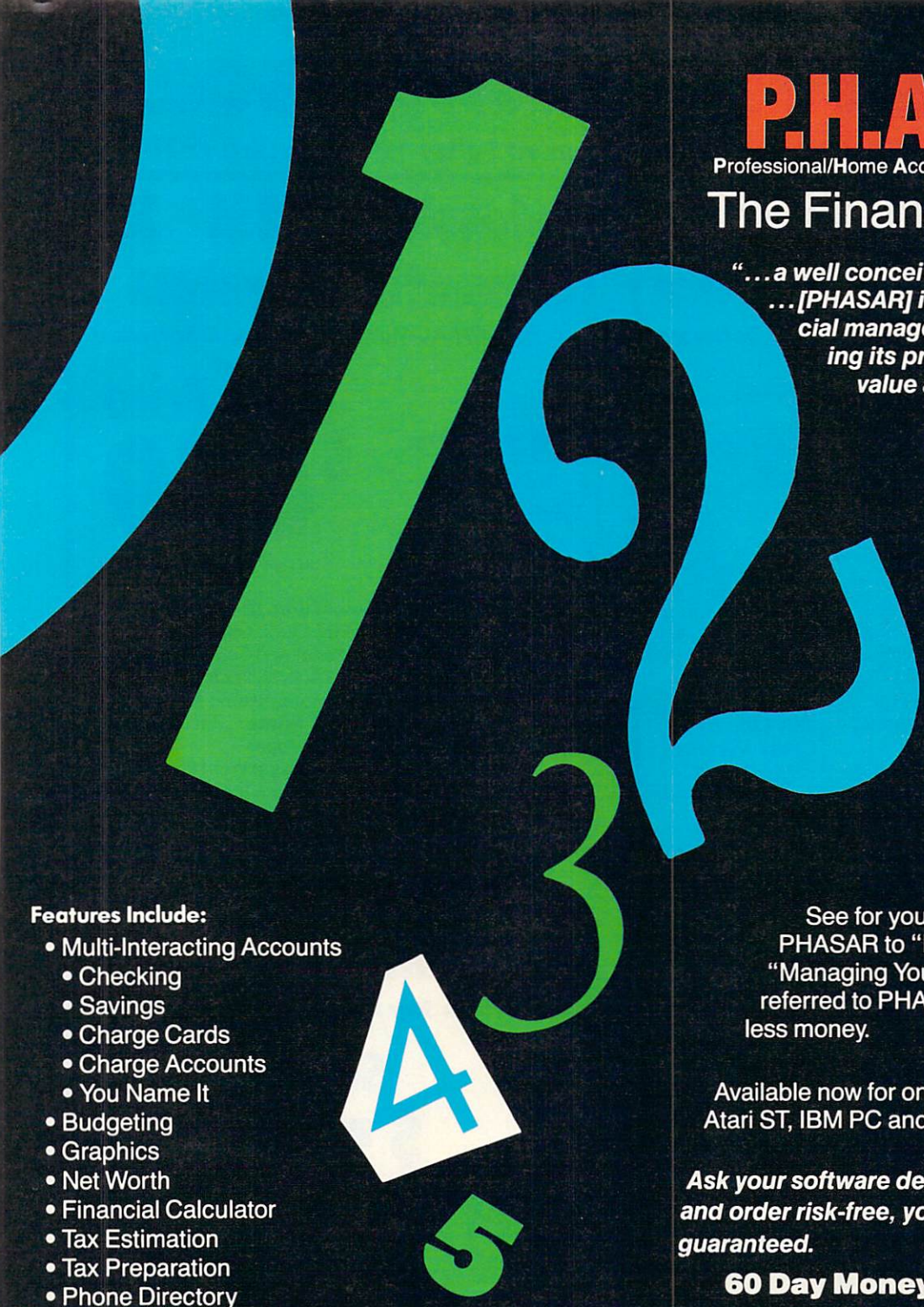
PROGRAMMING P.S.

Correction to a Previous Month's Program

Jack-O'-Lantern *(October 1987, page 98)*

IBM PC compatibles: On some IBM PC compatibles with a monochrome monitor, line 160 should be changed to read:

```
160 COLOR 0
```



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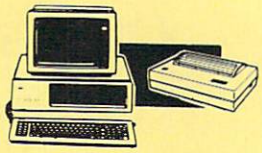

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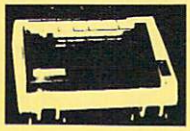

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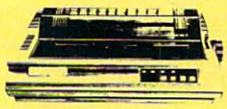

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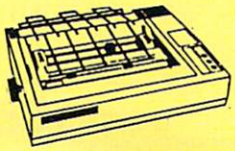

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WALL CALENDAR

BY STEVE C.M. CHEN

Do you have a hard time remembering birthdays and special events? Or, are you curious to know what day your birthday will fall on in the year 2000? Some families buy decorated full-year wall calendars each year and circle anniversaries, birthdays, and other special events. Our *Wall Calendar* program will print a calendar for any year from 1801–2399, ready to be decorated, marked, and hung.

If you have an Epson-compatible printer (the Macintosh version assumes you have an ImageWriter instead) or are an old hand with printer-setup codes, you can add a second section to the program *(see below)* so that it will also ask for your family's special dates and highlight them when it prints the calendar. It will also print the year and the month names using special printer modes *(see figure)*.

CUSTOMIZING A WALL CALENDAR FOR YOUR PRINTER

Below we explain how each special printer feature is set up in the program, so that owners of non-Epson-compatible printers who are knowledgeable or adventurous can study their printer manuals and insert the printer codes for special features they prefer. Using this guide, owners of Epson-compatible printers also can choose the highlighting features that they like more—italics, for instance. Keep in mind, though, that you can't use features that change character width or the number of characters per line for the month names or special days, or they may not align properly with the rest of the calendar.

As you study the printer codes below, you should know that CHR$(27) is referred to as "Escape" or "ESC" in most printer manuals.

EXPLANATION OF EPSON-PRINTER CODES

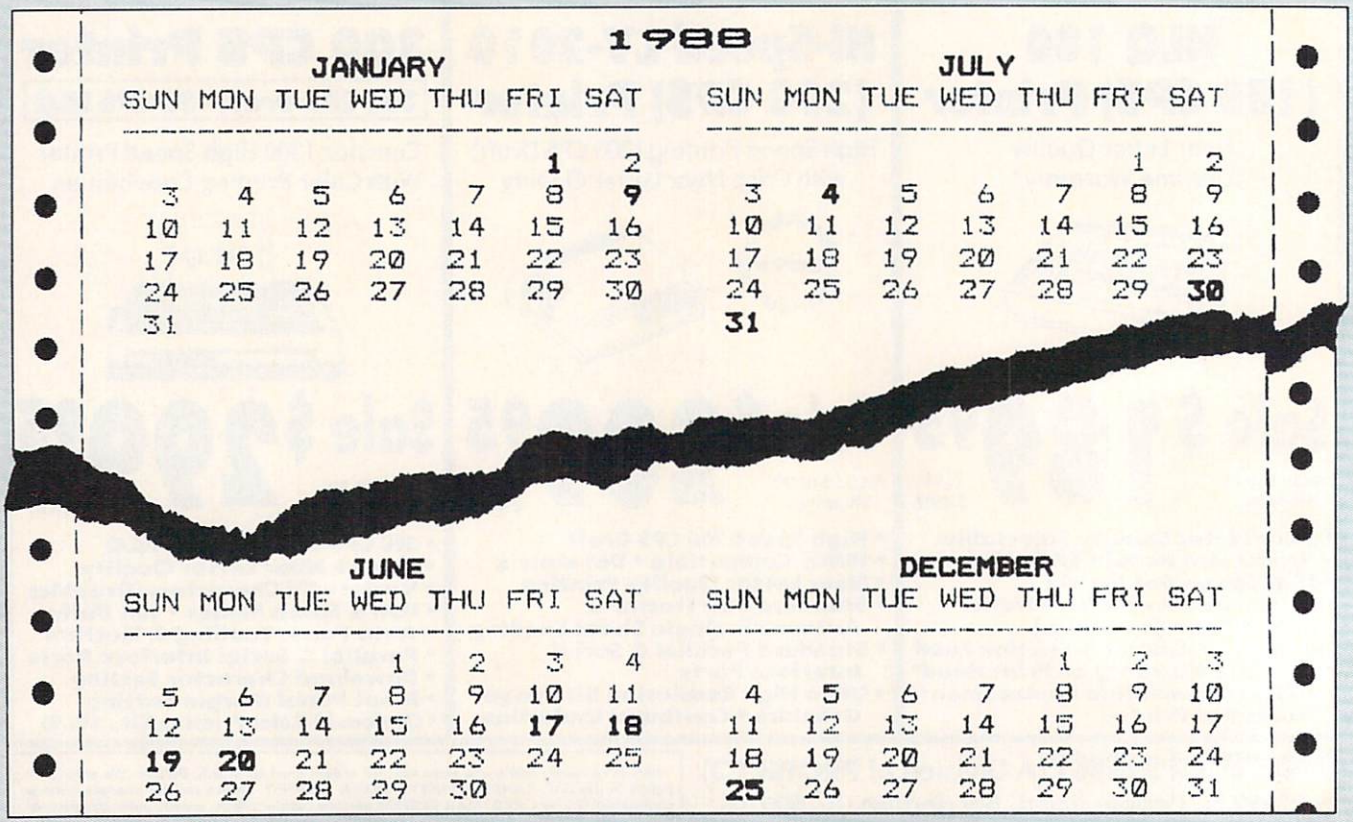
In the second (optional) section of the program, lines 40–110 tell the printer which special features to use. It's these lines that you'll modify if you decide to use different printer features or if you don't have an Epson-compatible printer.

Lines 40–60 determine how the year will be printed. In the second section of the program, we've chosen double-width, double-strike, and emphasized modes (the ImageWriter printer uses boldface instead of double-strike, emphasized mode to give a similar effect). Line 40 is used to center the year when we use double-width characters ("LW=40" stands for "set Line Width to 40 characters per line"). T1$ in line 50 contains the printer codes that initiate double-width, double-strike, and emphasized modes. T1$ also changes the ImageWriter typeface from elite to pica. T2$ in line 60 turns off these special features and returns the printer to its normal typeface.

Lines 70–80 define double-strike and emphasized mode that we use to print the month. M1$ in line 70 turns on the special features, and M2$ in line 80 turns them off.

Lines 90–110 define the same features for the days. The variable in line 90 (DF) tells the computer whether you want to highlight special days on the calendar. If you don't, DF must equal 0. If you do want to highlight special days, then DF must equal any number other than 0. Once again, in lines 100 and 110, D1$ is used to turn the special features on, and D2$ turns them off.

Caution: If you change the code for highlighting special dates, make sure your printer codes for D1$ and D2$ are no longer than seven characters each.



1988

JANUARY

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JULY

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JUNE

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

A sample printout of *Wall Calendar* with highlighted year, month, and special dates.

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Double sided/double density, full height drive. 48 T.P.I., 80 tracks.
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(Less printer)

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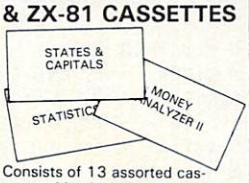

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Item #13148 **$39.95** New

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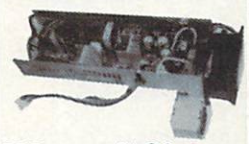

DC Output: +5V @ 8 amps.
+12V @ 1 amp.
–5V @ 250 ma.
Input: 110VAC/60 Hz., ±20%
Dim.: 12"L x 3¾"H x 5¾"D
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Apple II series w/printer/*Wall Calendar*

```
10 DIM EF(31),ML(12),SD(120),SP(13),WP(12)
20 DIM MO$(12),NM$(31),PL$(66)
30 TEXT:G$ = CHR$(7):SP$ = CHR$(32)
40 LW = 80
50 T1$ = ""
60 T2$ = ""
70 M1$ = ""
80 M2$ = ""
90 DF = 0
100 D1$ = ""
110 D2$ = ""
120 SA$ = SP$:FOR L = 2 TO 39:SA$ = SA$+SP$:NEXT L
130 DS$ = "-":FOR L = 2 TO 27:DS$ = DS$+"-":NEXT L
140 WK$ = "SUN MON TUE WED THU FRI SAT "
150 FOR L = 1 TO 12:READ MO$(L),ML(L):NEXT L
160 FOR L = 1 TO 31:NM$(L) = ""
170 IF L < 10 THEN NM$(L) = SP$
180 NM$(L) = SP$+NM$(L)+STR$(L)+SP$:NEXT L
190 HOME:PRINT TAB(11);"WALL CALENDAR":PRINT
200 INPUT "WHAT YEAR IS THIS CALENDAR FOR? ";Y
210 IF Y < 1801 OR Y > 2399 THEN PRINT G$;:GOTO 190
220 ML(2) = 28+((Y = INT(Y/4)*4 AND Y <> INT(Y/100)*10
0) OR Y = 2000)
230 FOR M = 1 TO 12:SY = Y:SM = M
240 IF SM < 3 THEN SM = SM+12:SY = SY-1
250 T = INT(SY*1.25)+(SY < 1900)+(SY > 2000)*INT((SY-2
000)/100)+INT((SM-2)*2.59)
260 WP(M) = T+1-INT(T/7)*7:NEXT M
270 FOR L = 1 TO 31:EF(L) = 0:NEXT L
280 FOR M = 1 TO 13:SP(M) = 1:NEXT M
550 HOME:PRINT "PLEASE WAIT A MOMENT ..."
560 PL$(1) = T1$+LEFT$(SA$,INT(LW/2-3))+STR$(Y)+T2$
570 FOR L = 2 TO 66:PL$(L) = LEFT$(SA$,6):NEXT L
580 C = 3:FOR M = 1 TO 6:GOSUB 1000
590 FOR L = 1 TO M*10+2-C:C = C+1
600 PL$(C) = LEFT$(SA$,34):NEXT L:C = C+1
610 NEXT M:MAX = C-1:FOR L = 1 TO MAX
620 PL$(L) = PL$(L)+LEFT$(SA$,10):NEXT L
630 FOR M = 7 TO 12:C = M*10-67:GOSUB 1000:NEXT M:HOME
640 PRINT "PRESS <SPACE BAR> WHEN PRINTER IS READY."
650 GET K$:IF K$ <> SP$ THEN 650
660 PRINT:PRINT CHR$(4);"PR#1"
670 FOR L = 1 TO 66:PRINT PL$(L):NEXT L
680 PRINT CHR$(4);"PR#0":HOME:END
1000 T$ = MO$(M):T = LEN(T$):Z = INT(14-T/2)
1010 PL$(C) = PL$(C)+LEFT$(SA$,Z)+M1$+T$+M2$+LEFT$(SA$
,28-T-Z)
1020 IF SP(M) >= SP(M+1) OR SP(M) > 120 OR NOT DF THEN
 1040
1030 FOR L = SP(M) TO SP(M+1)-1:EF(SD(L)) = 1:NEXT L
1040 C = C+1:PL$(C) = PL$(C)+WK$
1050 C = C+1:PL$(C) = PL$(C)+DS$+SP$
1060 C = C+1:P = WP(M)-1
1070 IF P > 0 THEN PL$(C) = PL$(C)+LEFT$(SA$,P*4)
1080 FOR D = 1 TO ML(M):IF P = 7 THEN P = 0:C = C+1
1090 P = P+1:IF EF(D) THEN PL$(C) = PL$(C)+D1$+NM$(D)+
D2$:GOTO 1110
1100 PL$(C) = PL$(C)+NM$(D)
1110 NEXT D:IF M < 7 AND P < 7 THEN PL$(C) = PL$(C)+LE
FT$(SA$,28-P*4)
1120 IF SP(M) > 120 OR NOT DF THEN RETURN
1130 FOR L = SP(M) TO SP(M+1)-1:EF(SD(L)) = 0:NEXT L
1140 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Epson-compatible printer, change lines 40–110 to read as follows:

```
40 LW = 40
50 T1$ = CHR$(27)+"W1"+CHR$(27)+"G"+CHR$(27)+"E"
60 T2$ = CHR$(27)+"W0"+CHR$(27)+"F"+CHR$(27)+"H"
70 M1$ = CHR$(27)+"G"+CHR$(27)+"E"
80 M2$ = CHR$(27)+"F"+CHR$(27)+"H"
90 DF = 1
100 D1$ = CHR$(27)+"G"+CHR$(27)+"E"
110 D2$ = CHR$(27)+"F"+CHR$(27)+"H"
```

Also, add lines 290–540:

```
290 ON DF = 0 GOTO 550:HOME
300 PRINT "DO YOU WANT TO HIGHLIGHT SPECIAL DATES? ";
310 GET K$:IF K$ <> "Y" AND K$ <> CHR$(121) THEN 550
320 TC = 0:FOR M = 1 TO 12:C = 0:QF = 0
330 IF SP(M) = 121 THEN M = 12:GOTO 540
340 HOME:VTAB 20:PRINT "PRESS <RETURN> ";
350 IF M = 12 OR C+SP(M) = 121 THEN PRINT "TO EXIT.":G
OTO 370
360 PRINT "FOR NEXT MONTH."
370 VTAB 22:PRINT "# OF DATES ENTERED THIS MONTH: ";C
380 PRINT "TOTAL # OF DATES ENTERED: ";TC
390 VTAB 1:PRINT "SPECIAL DATES IN ";MO$(M);":"
400 IF C = 0 THEN PRINT "NO DATES ARE ENTERED.":GOTO 4
20
410 FOR L = 1 TO C:PRINT SD(SP(M)+L-1):NEXT L
420 VTAB 18:HTAB 1:PRINT SA$:VTAB 18
430 IF C = 15 OR C+SP(M) = 121 THEN PRINT G$;:QF = 1:I
NPUT "";D$:GOTO 450
440 INPUT "PLEASE ENTER SPECIAL DATE: ";D$
450 IF D$ = "" THEN 530
460 V = INT(VAL(D$))
470 IF V < 1 OR V > ML(M) OR QF THEN PRINT G$;:GOTO 42
0
480 IF C = 0 THEN 520
490 FG = 0:FOR L = SP(M) TO SP(M)+C
500 IF SD(L) = V THEN L = 120:FG = 1
510 NEXT L:IF FG THEN PRINT G$;:GOTO 420
520 SD(SP(M)+C) = V:C = C+1:TC = TC+1:GOTO 340
530 SP(M+1) = SP(M)+C
540 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

Atari 800/XL & 130XE w/printer/*Wall Calendar*

```
10 DIM EF(31),ML(12),MP(13),PL(10),PP(10),SD(120),SP(1
3),WP(12),CS$(1),D$(2),DA$(27),D1$(7),D2$(7),LI$(39)
20 DIM MO$(74),M1$(12),M2$(12),NM$(124),PL$(3000)
30 DIM SP$(1),T$(300),T1$(12),T2$(12),WK$(27),Z$(40)
40 LW=80
50 T1$=""
60 T2$=""
70 M1$=""
80 M2$=""
90 DF=0
100 D1$=""
110 D2$=""
120 POKE 82,0:POKE 752,1:CS$=CHR$(125):SP$=CHR$(32)
130 LI$(1)=SP$:LI$(39)=SP$:LI$(2)=LI$
140 DA$(1)="-":DA$(26)="-":DA$(2)=DA$
150 WK$="SUN MON TUE WED THU FRI SAT"
160 MP(1)=1:FOR L=1 TO 12:READ T$,T:MO$(MP(L))=T$
170 MP(L+1)=LEN(MO$)+1:ML(L)=T:NEXT L
180 FOR L=1 TO 10:PP(L)=L*300-299:NEXT L
190 NM$(1)=SP$:NM$(124)=SP$:NM$(2)=NM$
200 FOR L=1 TO 31:C=L*4-2
210 NM$(C+(L<10),C+1)=STR$(L):NEXT L
220 PRINT CS$;LI$(1,10);"WALL CALENDAR":PRINT
230 PRINT "WHAT YEAR IS THIS CALENDAR FOR";
240 POKE 752,0:INPUT T$:POKE 752,1
250 TRAP 260:Y=VAL(T$):TRAP 40000:GOTO 270
260 TRAP 40000:GOSUB 1000:GOTO 220
270 IF Y<1801 OR Y>2399 THEN GOSUB 1000:GOTO 220
280 ML(2)=28+((Y=INT(Y/4)*4 AND Y<>INT(Y/100)*100) OR
Y=2000)
```

→

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In their day, they ruled over three quarters of the earth's surface.

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Officer's quarters.

Water purification.

```
660 PRINT CL$;"PRESS <SPACE BAR> WHEN PRINTER IS READY
."
670 GET K$:IF K$<>SP$ THEN 670
680 OPEN 4,4:CMD4
690 FOR L=1 TO 65:PRINT PL$(L):NEXT L
700 PRINT#4:CLOSE4:PRINT CL$:END
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+LEFT$(SA$,Z)+M1$+T$+M2$+LEFT$(SA$,2
8-T-Z)
1020 IF SP(M)>=SP(M+1) OR NOT DF OR SP(M)>121 THEN 104
0
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+DS$+SP$:C=C+1:P=WP(M)-1
1060 IF P>0 THEN PL$(C)=PL$(C)+LEFT$(SA$,P*4)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$:
GOTO 1100
1090 PL$(C)=PL$(C)+NM$(D)
1100 NEXT D:IF M<7 AND P<7 THEN PL$(C)=PL$(C)+LEFT$(SA
$,28-P*4)
1110 IF NOT DF OR SP(M)>121 THEN RETURN
1120 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1130 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Epson-compatible printer, change lines 40—110 to read as follows:

```
40 LW=40
50 T1$=CHR$(27)+"W1"+CHR$(27)+"G"+CHR$(27)+"E"
60 T2$=CHR$(27)+"W0"+CHR$(27)+"F"+CHR$(27)+"H"
70 M1$=CHR$(27)+"G"+CHR$(27)+"E"
80 M2$=CHR$(27)+"F"+CHR$(27)+"H"
90 DF=-1
100 D1$=CHR$(27)+"G"+CHR$(27)+"E"
110 D2$=CHR$(27)+"F"+CHR$(27)+"H"
```

Also, add lines 280–570:

```
280 IF DF=0 THEN 580
290 PRINT CL$;"DO YOU WANT TO HIGHLIGHT SPECIAL DATES?
";
300 GET K$:IF K$="" THEN 300
310 IF K$<>"Y" THEN 580
320 TC=0:FOR M=1 TO 12:C=0:QF=0
330 IF SP(M)=121 THEN M=12:GOTO 570
340 PRINT CL$;
350 POKE 214,18:PRINT:PRINT "PRESS <RETURN> ";
360 IF M=12 OR C+SP(M)=121 THEN PRINT "TO EXIT.":GOTO
380
370 PRINT "FOR NEXT MONTH."
380 POKE 214,20
390 PRINT "# OF DATES ENTERED THIS MONTH:";C
400 PRINT "TOTAL # OF DATES ENTERED:";TC
410 PRINT CHR$(19);"SPECIAL DATES IN ";MO$(M);":"
420 IF C=0 THEN PRINT "NO DATES ARE ENTERED.":GOTO 440
430 FOR L=1 TO C:PRINT SD(SP(M)+L-1):NEXT L
440 POKE 214,16:PRINT:PRINT SA$
450 D$="":POKE 214,16:PRINT
460 IF C=15 OR C+SP(M)=121 THEN QF=-1:INPUT D$:GOTO 48
0
470 INPUT "PLEASE ENTER SPECIAL DATE";D$
480 IF D$="" THEN 560
490 V=INT(VAL(D$))
500 IF V<1 OR V>ML(M) OR QF THEN 440
510 IF C=0 THEN 550
520 FG=0:FOR L=SP(M) TO SP(M)+C
530 IF SD(L)=V THEN L=120:FG=-1
540 NEXT L:IF FG THEN 440
550 SD(SP(M)+C)=V:C=C+1:TC=TC+1:GOTO 340
560 SP(M+1)=SP(M)+C
570 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

IBM PC & compatibles w/printer/*Wall Calendar*

```
10 DIM EF(31),ML(12),SD(120),SP(13),WP(12)
20 DIM MO$(12),NM$(31),PL$(66)
30 SCREEN 0,0:LOCATE ,,0:KEY OFF:COLOR ,0
40 LW=80
50 T1$=""
60 T2$=""
70 M1$=""
80 M2$=""
90 DF=0
100 D1$=""
110 D2$=""
120 SP$=CHR$(32):WK$="SUN MON TUE WED THU FRI SAT "
130 FOR L=1 TO 12:READ MO$(L),ML(L):NEXT L
140 FOR L=1 TO 31:NM$(L)="":IF L<10 THEN NM$(L)=SP$
150 NM$(L)=NM$(L)+STR$(L)+SP$:NEXT L
160 CLS:PRINT TAB(11);"WALL CALENDAR":PRINT
170 INPUT "What year is this calendar for";Y
180 IF Y<1801 OR Y>2399 THEN SOUND 400,2:GOTO 160
190 ML(2)=28-((Y MOD 4=0) AND (Y MOD 100<>0) OR Y=2000
)
200 FOR M=1 TO 12:SY=Y:SM=M
210 IF SM<3 THEN SM=SM+12:SY=SY-1
220 T=INT(SY*1.25)-(SY<1900)-(SY>2000)*INT((SY-2000)/1
00)+INT((SM-2)*2.59)
230 WP(M)=1+T MOD 7:NEXT M
240 FOR L=1 TO 31:EF(L)=0:NEXT L
250 FOR M=1 TO 13:SP(M)=1:NEXT M
520 CLS:PRINT "Please wait a moment ..."
530 PL$(1)=T1$+SPACE$(INT(LW/2-4))+STR$(Y)+T2$
540 FOR L=2 TO 66:PL$(L)=SPACE$(6):NEXT L
550 C=3:FOR M=1 TO 6:GOSUB 1000
560 FOR L=1 TO M*10+2-C:C=C+1:PL$(C)=SPACE$(34)
570 NEXT L:C=C+1:NEXT M:MAX=C-1
580 FOR L=1 TO MAX:PL$(L)=PL$(L)+SPACE$(10):NEXT L
590 FOR M=7 TO 12:C=M*10-67:GOSUB 1000:NEXT M:CLS
600 PRINT "Press <SPACE BAR> when printer is ready."
610 IF INKEY$<>SP$ THEN 610
620 WIDTH "LPT1:",255:ON ERROR GOTO 650
630 FOR L=1 TO 66:LPRINT PL$(L):NEXT L
640 ON ERROR GOTO 0:CLS:KEY ON:END
650 SOUND 400,4:RESUME 660
660 ON ERROR GOTO 0:CLS:GOTO 600
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+SPACE$(Z)+M1$+T$+M2$+SPACE$(28-T-Z)
1020 IF NOT DF OR SP(M)>=SP(M+1) THEN 1040
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=-1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+STRING$(27,45)+SP$
1060 C=C+1:P=WP(M)-1:PL$(C)=PL$(C)+SPACE$(4*P)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$
ELSE PL$(C)=PL$(C)+NM$(D)
1090 NEXT D:IF M<7 THEN PL$(C)=PL$(C)+SPACE$(28-P*4)
1100 IF NOT DF THEN RETURN
1110 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1120 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

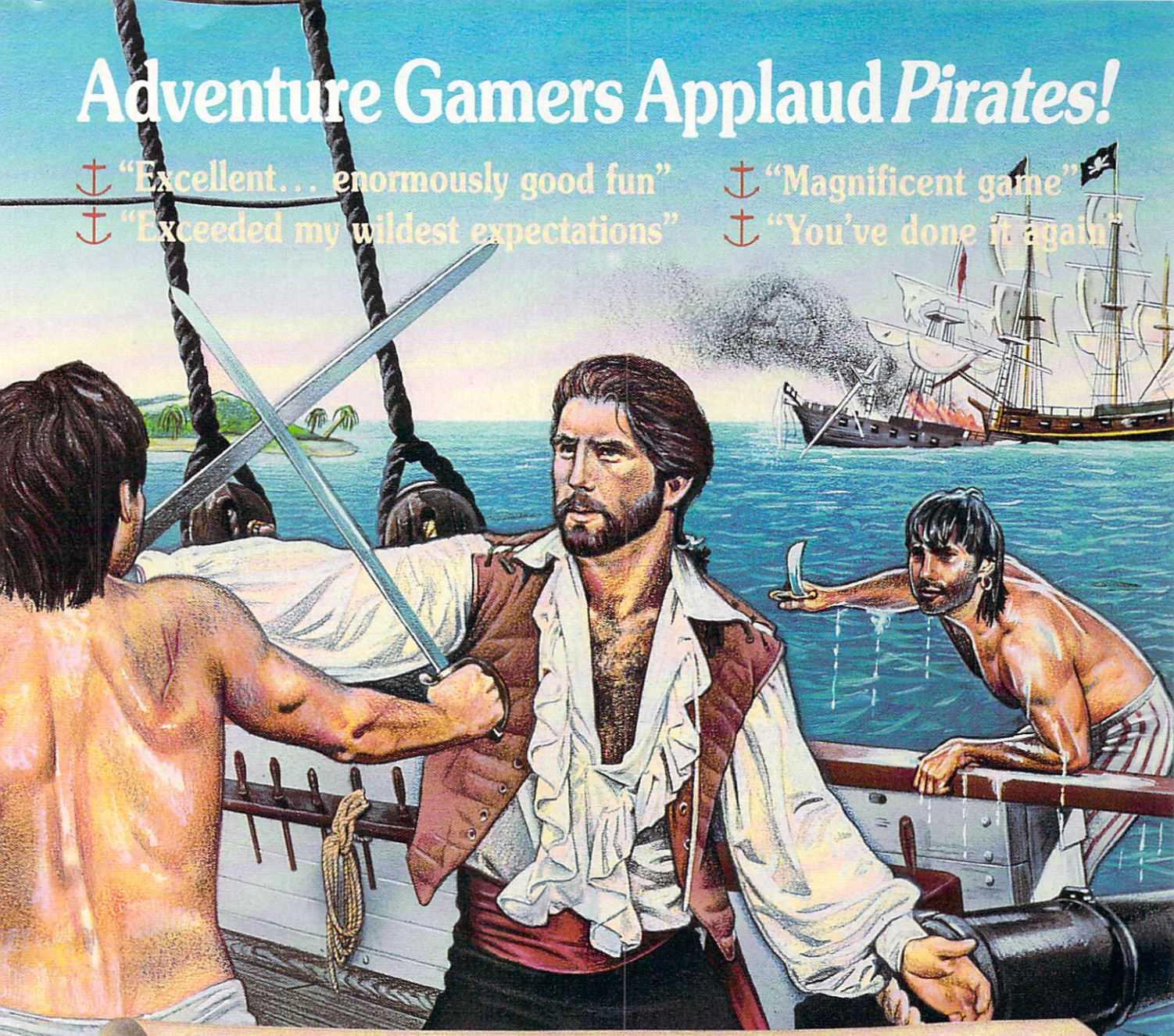
To make the program highlight if you have an Epson-compatible printer, change lines 40–110 to read as follows:

```
40 LW=40
```

→

Adventure Gamers Applaud *Pirates!*

⚓ "Excellent... enormously good fun" ⚓ "Magnificent game"
⚓ "Exceeded my wildest expectations" ⚓ "You've done it again"



"**PIRATES!** *is excellent . . . a great swashbuckling game,* **enormously good fun . . .** *it should keep you playing for months."*
(Popular Computing Weekly, U.K.)

". . . your game has **exceeded my wildest expectations . . .** *I have run up more game time on the computer in 3 days than in the entire month previous."* **(C.J.M., Buffalo, N.Y.)**

"This is one of the most **magnificent games** *I have ever had the pleasure of playing! It has exactly the balance of realism, playability and silliness that I most adore."* **(J.P.S., San Diego, CA)**

"**PIRATES!** *is a big hit in the Dallas area. This game is one of your best efforts. The graphics on all screens are excellent!* **You have done it again,** *Microprose."*
(Larry Medlin, DallasGamers, in Game News)

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```
660 PRINT CL$;"PRESS <SPACE BAR> WHEN PRINTER IS READY
."
670 GET K$:IF K$<>SP$ THEN 670
680 OPEN 4,4:CMD4
690 FOR L=1 TO 65:PRINT PL$(L):NEXT L
700 PRINT#4:CLOSE4:PRINT CL$:END
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+LEFT$(SA$,Z)+M1$+T$+M2$+LEFT$(SA$,2
8-T-Z)
1020 IF SP(M)>=SP(M+1) OR NOT DF OR SP(M)>121 THEN 104
0
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+DS$+SP$:C=C+1:P=WP(M)-1
1060 IF P>0 THEN PL$(C)=PL$(C)+LEFT$(SA$,P*4)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$:
GOTO 1100
1090 PL$(C)=PL$(C)+NM$(D)
1100 NEXT D:IF M<7 AND P<7 THEN PL$(C)=PL$(C)+LEFT$(SA
$,28-P*4)
1110 IF NOT DF OR SP(M)>121 THEN RETURN
1120 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1130 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Epson-compatible printer, change lines 40—110 to read as follows:

```
40 LW=40
50 T1$=CHR$(27)+"W1"+CHR$(27)+"G"+CHR$(27)+"E"
60 T2$=CHR$(27)+"W0"+CHR$(27)+"F"+CHR$(27)+"H"
70 M1$=CHR$(27)+"G"+CHR$(27)+"E"
80 M2$=CHR$(27)+"F"+CHR$(27)+"H"
90 DF=-1
100 D1$=CHR$(27)+"G"+CHR$(27)+"E"
110 D2$=CHR$(27)+"F"+CHR$(27)+"H"
```

Also, add lines 280–570:

```
280 IF DF=0 THEN 580
290 PRINT CL$;"DO YOU WANT TO HIGHLIGHT SPECIAL DATES?
";
300 GET K$:IF K$="" THEN 300
310 IF K$<>"Y" THEN 580
320 TC=0:FOR M=1 TO 12:C=0:QF=0
330 IF SP(M)=121 THEN M=12:GOTO 570
340 PRINT CL$;
350 POKE 214,18:PRINT:PRINT "PRESS <RETURN> ";
360 IF M=12 OR C+SP(M)=121 THEN PRINT "TO EXIT.":GOTO
380
370 PRINT "FOR NEXT MONTH."
380 POKE 214,20
390 PRINT "# OF DATES ENTERED THIS MONTH:";C
400 PRINT "TOTAL # OF DATES ENTERED:";TC
410 PRINT CHR$(19);"SPECIAL DATES IN ";MO$(M);":"
420 IF C=0 THEN PRINT "NO DATES ARE ENTERED.":GOTO 440
430 FOR L=1 TO C:PRINT SD(SP(M)+L-1):NEXT L
440 POKE 214,16:PRINT:PRINT SA$
450 D$="":POKE 214,16:PRINT
460 IF C=15 OR C+SP(M)=121 THEN QF=-1:INPUT D$:GOTO 48
0
470 INPUT "PLEASE ENTER SPECIAL DATE";D$
480 IF D$="" THEN 560
490 V=INT(VAL(D$))
500 IF V<1 OR V>ML(M) OR QF THEN 440
510 IF C=0 THEN 550
520 FG=0:FOR L=SP(M) TO SP(M)+C
530 IF SD(L)=V THEN L=120:FG=-1
540 NEXT L:IF FG THEN 440
550 SD(SP(M)+C)=V:C=C+1:TC=TC+1:GOTO 340
560 SP(M+1)=SP(M)+C
570 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

IBM PC & compatibles w/printer/*Wall Calendar*

```
10 DIM EF(31),ML(12),SD(120),SP(13),WP(12)
20 DIM MO$(12),NM$(31),PL$(66)
30 SCREEN 0,0:LOCATE ,,0:KEY OFF:COLOR ,0
40 LW=80
50 T1$=""
60 T2$=""
70 M1$=""
80 M2$=""
90 DF=0
100 D1$=""
110 D2$=""
120 SP$=CHR$(32):WK$="SUN MON TUE WED THU FRI SAT "
130 FOR L=1 TO 12:READ MO$(L),ML(L):NEXT L
140 FOR L=1 TO 31:NM$(L)="":IF L<10 THEN NM$(L)=SP$
150 NM$(L)=NM$(L)+STR$(L)+SP$:NEXT L
160 CLS:PRINT TAB(11);"WALL CALENDAR":PRINT
170 INPUT "What year is this calendar for";Y
180 IF Y<1801 OR Y>2399 THEN SOUND 400,2:GOTO 160
190 ML(2)=28-((Y MOD 4=0) AND (Y MOD 100<>0) OR Y=2000
)
200 FOR M=1 TO 12:SY=Y:SM=M
210 IF SM<3 THEN SM=SM+12:SY=SY-1
220 T=INT(SY*1.25)-(SY<1900)-(SY>2000)*INT((SY-2000)/1
00)+INT((SM-2)*2.59)
230 WP(M)=1+T MOD 7:NEXT M
240 FOR L=1 TO 31:EF(L)=0:NEXT L
250 FOR M=1 TO 13:SP(M)=1:NEXT M
520 CLS:PRINT "Please wait a moment ..."
530 PL$(1)=T1$+SPACE$(INT(LW/2-4))+STR$(Y)+T2$
540 FOR L=2 TO 66:PL$(L)=SPACE$(6):NEXT L
550 C=3:FOR M=1 TO 6:GOSUB 1000
560 FOR L=1 TO M*10+2-C:C=C+1:PL$(C)=SPACE$(34)
570 NEXT L:C=C+1:NEXT M:MAX=C-1
580 FOR L=1 TO MAX:PL$(L)=PL$(L)+SPACE$(10):NEXT L
590 FOR M=7 TO 12:C=M*10-67:GOSUB 1000:NEXT M:CLS
600 PRINT "Press <SPACE BAR> when printer is ready."
610 IF INKEY$<>SP$ THEN 610
620 WIDTH "LPT1:",255:ON ERROR GOTO 650
630 FOR L=1 TO 66:LPRINT PL$(L):NEXT L
640 ON ERROR GOTO 0:CLS:KEY ON:END
650 SOUND 400,4:RESUME 660
660 ON ERROR GOTO 0:CLS:GOTO 600
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+SPACE$(Z)+M1$+T$+M2$+SPACE$(28-T-Z)
1020 IF NOT DF OR SP(M)>=SP(M+1) THEN 1040
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=-1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+STRING$(27,45)+SP$
1060 C=C+1:P=WP(M)-1:PL$(C)=PL$(C)+SPACE$(4*P)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$
ELSE PL$(C)=PL$(C)+NM$(D)
1090 NEXT D:IF M<7 THEN PL$(C)=PL$(C)+SPACE$(28-P*4)
1100 IF NOT DF THEN RETURN
1110 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1120 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Epson-compatible printer, change lines 40—110 to read as follows:

```
40 LW=40
```

→

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```
50 T1$=CHR$(27)+"W1"+CHR$(27)+"G"+CHR$(27)+"E"
60 T2$=CHR$(27)+"W0"+CHR$(27)+"F"+CHR$(27)+"H"
70 M1$=CHR$(27)+"G"+CHR$(27)+"E"
80 M2$=CHR$(27)+"F"+CHR$(27)+"H"
90 DF=-1
100 D1$=CHR$(27)+"G"+CHR$(27)+"E"
110 D2$=CHR$(27)+"F"+CHR$(27)+"H"
```

Also, add lines 260–510:

```
260 IF DF=0 THEN 520 ELSE CLS
270 PRINT "Do you want to highlight special dates?"
280 K$=INKEY$:IF K$="" THEN 280
290 IF K$<>"Y" AND K$<>"y" THEN 520
300 TC=0:FOR M=1 TO 12:C=0:QF=0
310 IF SP(M)=121 THEN M=12:GOTO 510
320 CLS:LOCATE 20,1:PRINT "Press <ENTER> ";
330 IF M=12 OR C+SP(M)=121 THEN PRINT "to exit." ELSE
PRINT "for next month."
340 LOCATE 22,1
350 PRINT "# of dates entered this month:";C
360 PRINT "Total # of dates entered:";TC
370 LOCATE 1,1:PRINT "Special dates in ";MO$(M);":"
380 IF C=0 THEN PRINT "No dates are entered.":GOTO 400
390 FOR L=1 TO C:PRINT SD(SP(M)+L-1):NEXT L
400 LOCATE 18,1:PRINT STRING$(39,SP$):LOCATE 18,1
410 IF C=15 OR C+SP(M)=121 THEN SOUND 400,2:QF=-1:INPU
T "",D$:GOTO 430
420 INPUT "Please enter special date: ",D$
430 IF D$="" THEN 500 ELSE V=INT(VAL(D$))
440 IF V<1 OR V>ML(M) OR QF THEN SOUND 400,2:GOTO 400
450 IF C=0 THEN 490
460 FG=0:FOR L=SP(M) TO SP(M)+C
470 IF SD(L)=V THEN L=120:FG=-1
480 NEXT L:IF FG THEN SOUND 400,2:GOTO 400
490 SD(SP(M)+C)=V:C=C+1:TC=TC+1:GOTO 320
500 SP(M+1)=SP(M)+C
510 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

Macintosh w/printer/*Wall Calendar*

```
10 DIM EF(31),ML(12),SD(120),SP(13),WP(12)
20 DIM MO$(12),NM$(31),PL$(66)
30 WINDOW 1,"WALL CALENDAR",(0,38)-(527,338)
40 LW=80
50 T1$=""
60 T2$=""
70 M1$=""
80 M2$=""
90 DF=0
100 D1$=""
110 D2$=""
120 CALL TEXTFONT(4):CALL TEXTSIZE(9)
130 SP$=CHR$(32):WK$="SUN MON TUE WED THU FRI SAT "
140 FOR L=1 TO 12:READ MO$(L),ML(L):NEXT L
150 FOR L=1 TO 31:NM$(L)="":IF L<10 THEN NM$(L)=SP$
160 NM$(L)=NM$(L)+STR$(L)+SP$:NEXT L
170 CLS:INPUT "What year is this calendar for";Y
180 IF Y<1801 OR Y>2399 THEN SOUND 400,2:GOTO 170
190 ML(2)=28-(((Y MOD 4=0) AND (Y MOD 100<>0)) OR Y=20
00)
200 FOR M=1 TO 12:SY=Y:SM=M
210 IF SM<3 THEN SM=SM+12:SY=SY-1
220 T=INT(SY*1.25)-(SY<1900)-(SY>2000)*INT((SY-2000)/1
00)+INT((SM-2)*2.59)
230 WP(M)=T+1-INT(T/7)*7:NEXT M
240 FOR L=1 TO 31:EF(L)=0:NEXT L
250 FOR M=1 TO 13:SP(M)=1:NEXT M
520 CLS:PRINT "Please wait a moment ..."
530 PL$(1)=T1$+SPACE$(INT(LW/2-4))+STR$(Y)+T2$
540 FOR L=2 TO 66:PL$(L)=SPACE$(6):NEXT L
550 C=3:FOR M=1 TO 6:GOSUB 1000
560 FOR L=1 TO M*10+2-C:C=C+1:PL$(C)=SPACE$(34)
570 NEXT L:C=C+1:NEXT M:MAX=C-1
580 FOR L=1 TO MAX:PL$(L)=PL$(L)+SPACE$(10):NEXT L
590 FOR M=7 TO 12:C=M*10-67:GOSUB 1000:NEXT M:CLS
600 PRINT "Press <SPACE BAR> when printer is ready."
610 IF INKEY$<>SP$ THEN 610
620 WIDTH "LPT1:",255
630 FOR L=1 TO 66:LPRINT PL$(L):NEXT L:END
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+SPACE$(Z)+M1$+T$+M2$+SPACE$(28-T-Z)
1020 IF NOT DF OR SP(M)>=SP(M+1) THEN 1040
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=-1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+STRING$(27,45)+SP$
1060 C=C+1:P=WP(M)-1:PL$(C)=PL$(C)+SPACE$(4*P)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$
ELSE PL$(C)=PL$(C)+NM$(D)
1090 NEXT D:IF M<7 THEN PL$(C)=PL$(C)+SPACE$(28-P*4)
1100 IF NOT DF THEN RETURN
1110 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1120 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Image-Writer printer, change lines 40–110 to read as follows:

```
40 LW=40
50 T1$=CHR$(27)+CHR$(78)+CHR$(14)+CHR$(27)+CHR$(33)
60 T2$=CHR$(15)+CHR$(27)+CHR$(34)
70 M1$=CHR$(27)+CHR$(33)
80 M2$=CHR$(27)+CHR$(34)
90 DF=-1
100 D1$=CHR$(27)+CHR$(33)
110 D2$=CHR$(27)+CHR$(34)
```

Also, add lines 260–510:

```
260 IF DF=0 THEN 520 ELSE CLS
270 PRINT "Do you want to highlight special dates?"
280 K$=INKEY$:IF K$="" THEN 280
290 IF K$<>"Y" AND K$<>"y" THEN 520
300 TC=0:FOR M=1 TO 12:C=0:QF=0
310 IF SP(M)=121 THEN M=12:GOTO 510
320 CLS:LOCATE 20,1:PRINT "Press <RETURN> ";
330 IF M=12 OR C+SP(M)=121 THEN PRINT "to exit." ELSE
PRINT "for next month."
340 LOCATE 22,1
350 PRINT "# of dates entered this month:";C
360 PRINT "Total # of dates entered:";TC
370 LOCATE 1,1:PRINT "Special dates in ";MO$(M);":"
380 IF C=0 THEN PRINT "No dates are entered.":GOTO 400
390 FOR L=1 TO C:PRINT SD(SP(M)+L-1):NEXT L
400 LOCATE 18,1:PRINT STRING$(39,SP$):LOCATE 18,1
410 IF C=15 OR C+SP(M)=121 THEN SOUND 400,2:QF=-1:INPU
T "",D$:GOTO 430
420 INPUT "Please enter special date: ",D$
430 IF D$="" THEN 500 ELSE V=INT(VAL(D$))
440 IF V<1 OR V>ML(M) OR QF THEN SOUND 400,2:GOTO 400
450 IF C=0 THEN 490
460 FG=0:FOR L=SP(M) TO SP(M)+C
470 IF SD(L)=V THEN L=120:FG=-1
480 NEXT L:IF FG THEN SOUND 400,2:GOTO 400
490 SD(SP(M)+C)=V:C=C+1:TC=TC+1:GOTO 320
500 SP(M+1)=SP(M)+C
510 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

Tandy Color Computer w/printer/*Wall Calendar*

```
10 CLEAR 9000:DIM EF(31),ML(12),SD(120),SP(13)
20 DIM WP(12),MO$(12),NM$(31),PL$(66)
```

→

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CALENDAR PROGRAM

```
30 CLS:SP$=CHR$(32)
40 LW=80
50 T1$=""
60 T2$=""
70 M1$=""
80 M2$=""
90 DF=0
100 D1$=""
110 D2$=""
120 WK$="SUN MON TUE WED THU FRI SAT "
130 FOR L=1 TO 12:READ MO$(L),ML(L):NEXT L
140 FOR L=1 TO 31:NM$(L)="":IF L<10 THEN NM$(L)=SP$
150 NM$(L)=NM$(L)+STR$(L)+SP$:NEXT L
160 CLS:PRINT TAB(11);"WALL CALENDAR":PRINT
170 INPUT "WHAT YEAR IS THIS CALENDAR FOR";Y
180 IF Y<1801 OR Y>2399 THEN SOUND 200,2:GOTO 160
190 ML(2)=28-((Y=INT(Y/4)*4 AND Y<>INT(Y/100)*100) OR
Y=2000)
200 FOR M=1 TO 12:SY=Y:SM=M
210 IF SM<3 THEN SM=SM+12:SY=SY-1
220 T=INT(SY*1.25)-(SY<1900)-(SY>2000)*INT((SY-2000)/1
00)+INT((SM-2)*2.59)
230 WP(M)=T+1-INT(T/7)*7:NEXT M
240 FOR L=1 TO 31:EF(L)=0:NEXT L
250 FOR M=1 TO 13:SP(M)=1:NEXT M
520 CLS:PRINT "PLEASE WAIT A MOMENT ..."
530 PL$(1)=T1$+STRING$(INT(LW/2-4),32)+STR$(Y)+T2$
540 FOR L=2 TO 66:PL$(L)=STRING$(6,32):NEXT L
550 C=3:FOR M=1 TO 6:GOSUB 1000
560 FOR L=1 TO M*10+2-C:C=C+1:PL$(C)=STRING$(34,32)
570 NEXT L:C=C+1:NEXT M:MAX=C-1
580 FOR L=1 TO MAX:PL$(L)=PL$(L)+STRING$(10,32):NEXT L
590 FOR M=7 TO 12:C=M*10-67:GOSUB 1000:NEXT M
600 CLS:PRINT "PRESS <SPACE BAR> WHEN PRINTER"
610 PRINT "IS READY."
620 IF INKEY$<>SP$ THEN 620
630 FOR L=1 TO 66:PRINT#-2,PL$(L):NEXT L:CLS:END
1000 T$=MO$(M):T=LEN(T$):Z=INT(14-T/2)
1010 PL$(C)=PL$(C)+STRING$(Z,32)+M1$+T$+M2$+STRING$(28
-T-Z,32)
1020 IF NOT DF OR SP(M)>120 OR SP(M)>=SP(M+1) THEN 104
0
1030 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=-1:NEXT L
1040 C=C+1:PL$(C)=PL$(C)+WK$
1050 C=C+1:PL$(C)=PL$(C)+STRING$(27,45)+SP$
1060 C=C+1:P=WP(M)-1:PL$(C)=PL$(C)+STRING$(P*4,32)
1070 FOR D=1 TO ML(M):IF P=7 THEN P=0:C=C+1
1080 P=P+1:IF EF(D) THEN PL$(C)=PL$(C)+D1$+NM$(D)+D2$
ELSE PL$(C)=PL$(C)+NM$(D)
1090 NEXT D:IF M<7 AND P<7 THEN PL$(C)=PL$(C)+STRING$(
28-P*4,32)
1100 IF SP(M)>120 OR NOT DF THEN RETURN
1110 FOR L=SP(M) TO SP(M+1)-1:EF(SD(L))=0:NEXT L
1120 RETURN
2000 DATA JANUARY,31,FEBRUARY,28,MARCH,31
2010 DATA APRIL,30,MAY,31,JUNE,30
2020 DATA JULY,31,AUGUST,31,SEPTEMBER,30
2030 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,31
```

ADDITIONS TO *WALL CALENDAR* FOR SPECIAL PRINTER FEATURES

To make the program highlight if you have an Epson-compatible printer, change lines 40–110 to read as follows:

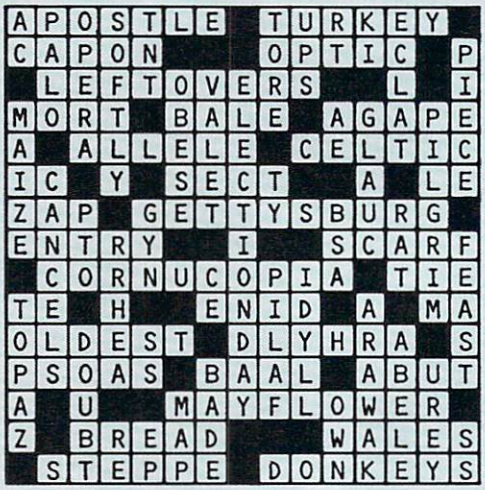
```
40 LW=40
50 T1$=CHR$(27)+"W1"+CHR$(27)+"G"+CHR$(27)+"E"
60 T2$=CHR$(27)+"W0"+CHR$(27)+"F"+CHR$(27)+"H"
70 M1$=CHR$(27)+"G"+CHR$(27)+"E"
80 M2$=CHR$(27)+"F"+CHR$(27)+"H"
90 DF=-1
100 D1$=CHR$(27)+"G"+CHR$(27)+"E"
110 D2$=CHR$(27)+"F"+CHR$(27)+"H"
```

Also, add lines 260–510:

```
260 IF DF=0 THEN 520 ELSE CLS
270 PRINT "DO YOU WANT TO HIGHLIGHT SPECIAL DATES?"
280 K$=INKEY$:IF K$="" THEN 280
290 IF K$<>"Y" AND K$<>CHR$(121) THEN 520
300 TC=0:FOR M=1 TO 12:C=0:QF=0
310 IF SP(M)=121 THEN M=12:GOTO 510
320 CLS:PRINT@384,"PRESS <ENTER> ";
330 IF M=12 OR C+SP(M)=121 THEN PRINT "TO EXIT." ELSE
PRINT "FOR NEXT MONTH."
340 PRINT@448,C;"DATES ENTERED THIS MONTH."
350 PRINT@480,TC;"DATES ENTER THIS YEAR.";
360 PRINT@0,"SPECIAL DATES IN ";MO$(M);":"
370 IF C=0 THEN PRINT "NO DATES ARE ENTERED.":GOTO 400
380 FOR L=1 TO C:A=INT((L-1)/5):B=L-A*5
390 PRINT@32*B+10*A,SD(SP(M)+L-1):NEXT L
400 PRINT@320,STRING$(31,SP$):PRINT@320,"";
410 IF C=15 OR C+SP(M)=121 THEN SOUND 200,2:QF=-1:INPU
T D$:GOTO 430
420 INPUT "PLEASE ENTER SPECIAL DATE";D$
430 IF D$="" THEN 500 ELSE V=INT(VAL(D$))
440 IF V<1 OR V>ML(M) OR QF THEN SOUND 200,2:GOTO 400
450 IF C=0 THEN 490
460 FG=0:FOR L=SP(M) TO SP(M)+C
470 IF SD(L)=V THEN L=120:FG=-1
480 NEXT L:IF FG THEN SOUND 200,2:GOTO 400
490 SD(SP(M)+C)=V:C=C+1:TC=TC+1:GOTO 320
500 SP(M+1)=SP(M)+C
510 NEXT M
```

Owners of other printers can add their own printer codes (*see sidebar*).

SOLUTION TO LAST MONTH'S PUZZLE



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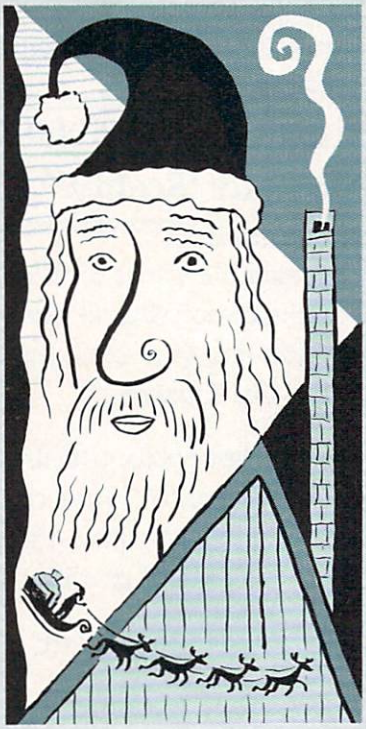
WHERE'S SANTA LANDING?

BY JOEY LATIMER



Welcome to your first day at the Acme Computer School of Santas! Today we'll be practicing the graceful art of landing sleighs on high-rise apartment buildings. No problem . . . if you don't mind an occasional 30-foot antenna or cement wall in Rudolph's face.

To see if you have what it takes to be a Santa, type the *Santa's Landing* program into your computer, SAVE it, then RUN it. Push the "Z" key to make your sleigh gain altitude, watching to see that it doesn't get *too* high. Steer your sleigh by pressing "B" (left) and "N" (right). Score points by landing safely on buildings as quickly as possible. When you land safely on a roof, the time remaining, multiplied by the number appearing on the building landed upon, will be added to your score. When you crash into something or land improperly, you lose all your points and must begin again. Stick with it and you could be the best Santa ever trained at Acme!

Apple II series/*Santa's Landing*

```
10 DIM AV(13),BV(13),CV(13),DV(13):HS = 0:CL = -16368
20 POKE 232,252:POKE 233,29:POKE 115,252:POKE 116,29
30 FOR X = 1 TO 13:READ AV(X),BV(X),CV(X),DV(X):NEXT X
40 FOR X = 1 TO 8:READ AH(X),BH(X),CH(X),DH(X):NEXT X
50 FOR X = 0 TO 138:READ SH:POKE X+7676,SH:NEXT X
60 FOR X = 0 TO 28:READ D:POKE 768+X,D:NEXT X
70 FOR X = 3 TO 7:READ T(X):NEXT X
80 SC = 0:POKE CL,0
90 HOME:HGR:CO = INT(RND(1)*50)+20:RO = 11:Q = 2
100 RF = 0:HC = CO:HR = RO:TIME = 1000:C = 2:R = 1
110 ROT= 0:SCALE= 1:HCOLOR= 7:DRAW 1 AT CO,RO
120 FOR X = 1 TO 13:HPLOT AV(X),BV(X) TO CV(X),DV(X)
130 NEXT X:FOR X = 1 TO 8
140 HPLOT AH(X),BH(X) TO CH(X),DH(X):NEXT X:VTAB 21
150 HTAB 6:PRINT "1X      2X      3X      5X     1X"
160 VTAB 23:HTAB 8:PRINT "TIME: 999";
170 HTAB 22:PRINT "SCORE: ";SC
180 HTAB 6:PRINT "<B>=LEFT  <N>=RIGHT  <Z>=UP";
190 RF = RF-1:P = RO/250
200 K = PEEK(-16384)-128:IF K < 0 THEN 250
210 POKE CL,0:K$ = CHR$(K-(K > 96)*(K < 123)*32)
220 IF K$ = "B" THEN C = P-Q
230 IF K$ = "N" THEN C = Q-P
240 IF K$ = "Z" THEN R = -Q+P/3:RF = 8:IF RO > 40 THEN
 RF = 4:Q = 1
250 IF RF < 1 THEN R = 1
260 CO = CO+C:RO = RO+R:HCOLOR= 4:DRAW 1 AT HC,HR
270 HCOLOR= 7:DRAW 1 AT CO,RO:HC = CO:HR = RO
280 TIME = TIME-4:VTAB 23:HTAB 14:PRINT TIME;"  ";
290 IF TIME = 0 THEN M = 1:GOTO 420
300 IF PEEK(234) = 87 THEN 190
310 IF RO < 2 OR CO < 2 OR CO > 246 THEN M = 3:GOTO 42
0
320 IF RO < 58 THEN M = 2:GOTO 420
330 Y = 0:FOR X = 3 TO 7
340 IF CO >= AH(X) AND CO < CH(X)-31 THEN Y = X:X = 7
350 NEXT X:IF Y = 0 THEN M = 2:GOTO 420
360 SI = TIME*T(Y):ES = INT(SI/10)*10
370 SI = SI-ES:SC = SC+SI
380 FOR X = 1 TO ES STEP 10:SC = SC+10
390 POKE 8,255-X/20-30:POKE 6,5:CALL 768
400 VTAB 23:HTAB 29:PRINT SC;:NEXT X
410 FOR X = 1 TO 800:NEXT X:POKE CL,0:GOTO 90
420 FOR T = 2 TO 32:IF T/4 <> INT(T/4) THEN 450
430 HCOLOR= 4:DRAW 1 AT CO,RO
440 HCOLOR= 7:DRAW 1 AT CO,RO
450 POKE 8,INT(RND(1)*100)+100:POKE 6,10:CALL 768
460 NEXT T:IF SC > HS THEN HS = SC
470 TEXT:HOME:IF M = 1 THEN PRINT "SORRY, YOU RAN OUT
OF TIME!":GOTO 500
480 IF M = 2 THEN PRINT "SORRY, YOU CRASHED!":GOTO 500
490 PRINT "YOU ARE LOST."
500 PRINT:PRINT "YOUR SCORE WAS ";SC;"."
510 PRINT "THE HIGH SCORE IS ";HS;".":PRINT
520 PRINT "PRESS <P> TO PLAY AGAIN,"
530 PRINT "OR <Q> TO QUIT."
540 GET K$:K = ASC(K$)
550 K$ = CHR$(K-(K > 96)*(K < 123)*32)
560 IF K$ <> "P" AND K$ <> "Q" THEN 540
570 IF K$ = "P" THEN 80
580 HOME:END
1000 DATA 0,0,0,159,1,0,1,159,12,88,12,159,80,88,80
1010 DATA 159,124,72,124,159,144,48,144,72,145,48,145
1020 DATA 72,146,48,146,72,180,72,180,159,218,96,218
1030 DATA 159,268,96,268,159,278,0,278,159,279,0,279
1040 DATA 159,0,0,279,0,0,1,279,1,124,72,180,72,12,88
1050 DATA 80,88,218,96,268,96,81,120,124,120,181,135
1060 DATA 218,135,0,159,279,159,1,0,4,0,53,39,53,45,45
1070 DATA 53,53,63,62,62,36,39,39,46,46,54,54,62,63,46
1080 DATA 54,46,46,62,63,45,45,45,45,45,45,45,44,44,44
1090 DATA 44,55,55,55,55,63,44,44,36,44,60,63,63,63,63
1100 DATA 63,47,45,45,45,60,39,63,63,47,45,37,63,45,37
1110 DATA 39,46,22,46,45,45,45,45,45,36,45,45,45,37,37
1120 DATA 60,60,52,45,12,46,37,62,62,62,45,46,53,39,62
1130 DATA 54,54,54,46,46,38,39,39,36,36,63,39,52,54,46
1140 DATA 45,63,63,63,36,36,54,45,61,63,54,63,55,62,62
1150 DATA 62,38,37,37,37,60,36,45,45,00,165,8,74,133
1160 DATA 10,164,8,173,48,192,136,234,234,208,251,165
1170 DATA 7,56,229,10,133,7,176,237,198,6,208,233,96,3
1180 DATA 1,1,2,5
```

Commodore 64 & 128 (C 64 mode)/*Santa's Landing*

```
10 DIM A(5),B(5),C(5),CK(5,2),D(5),KO(5),N(5),V(5),T$(
5)
20 DN=51164:HS=0:MV=49700:OV=51163:S=54272
30 V=53248:POKE V+21,0:POKE V+33,0:POKE V+32,0
40 FOR X=0 TO 23:POKE S+X,0:NEXT X:POKE S+24,15
50 POKE S+5,68:POKE S+6,68:Z$=CHR$(146)
60 FOR X=49700 TO 49710:READ ML:POKE X,ML:NEXT X
70 B$=CHR$(18):FOR X=1 TO 9:B$=B$+CHR$(32):NEXT X
80 FOR X=1 TO 5:READ KO(X),N(X),A(X),B(X),C(X):NEXT X
90 FOR X=1 TO 5:READ T$(X),V(X),D(X):NEXT X
100 FOR X=832 TO 1023:READ D:POKE X,D:NEXT X
110 FOR X=1 TO 5:READ CK(X,1),CK(X,2):NEXT X
120 BL$=Z$+CHR$(30)+CHR$(175)+CHR$(175)
130 AN$=Z$+CHR$(30)+CHR$(246)+CHR$(157)+CHR$(17)
140 FOR X=1 TO 3:PL$=PL$+AN$:NEXT X:TP$=Z$+CHR$(30)
150 FOR X=1 TO 38:TP$=TP$+CHR$(183):NEXT X
160 LF$=Z$+CHR$(30)+CHR$(165)+CHR$(157)+CHR$(17)
170 RT$=Z$+CHR$(30)+CHR$(167)+CHR$(157)+CHR$(17)
180 FOR X=1 TO 19:L$=L$+LF$:NEXT X
190 FOR X=1 TO 19:R$=R$+RT$:NEXT X
200 FOR X=39 TO 45:READ D:POKE V+X,D:NEXT X
210 FOR X=2040 TO 2046:READ D:POKE X,D:NEXT X
```

ILLUSTRATION BY JOSH GOSFIELD

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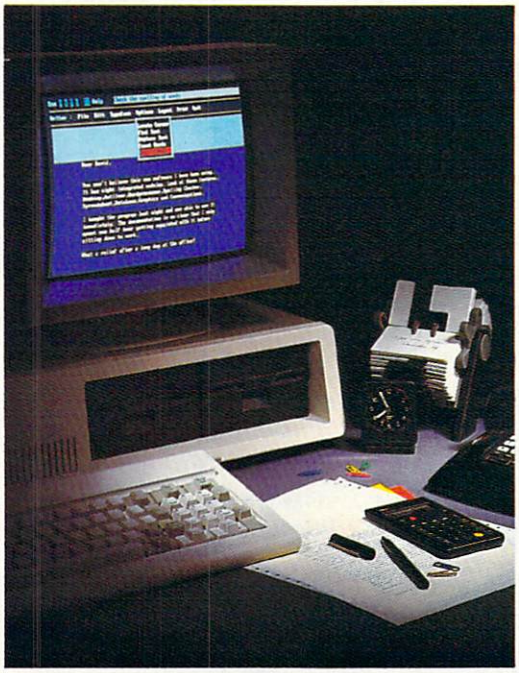

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CIRCLE READER SERVICE 51

```
220 FOR X=4 TO 13:READ D:POKE X+V,D:NEXT X
230 POKE V+28,0:POKE V+29,0:POKE V+23,0
240 POKE V+16,64:POKE V+27,0
250 SC=0
260 PRINT CHR$(147):CO=INT(RND(1)*100)+100:RO=62:Q=2
270 RF=0:HC=CO:HR=RO:TM=1000:C=1:R=1
280 FOR X=1 TO 5:PRINT CHR$(KO(X));
290 FOR Y=A(X) TO B(X):POKE OV,C(X):POKE DN,Y:SYS MV
300 PRINT LEFT$(B$,N(X));:NEXT Y,X
310 POKE OV,1:POKE DN,20:SYS MV:PRINT BL$;
320 POKE OV,37:POKE DN,20:SYS MV:PRINT BL$;
330 POKE OV,19:POKE DN,6:SYS MV:PRINT PL$;
340 POKE OV,0:POKE DN,0:SYS MV
350 PRINT CHR$(111);TP$;CHR$(112);
360 POKE OV,0:POKE DN,1:SYS MV:PRINT L$;
370 POKE OV,39:POKE DN,1:SYS MV:PRINT R$;
380 POKE OV,0:POKE DN,20:SYS MV:PRINT CHR$(108);
390 POKE OV,39:POKE DN,20:SYS MV:PRINT CHR$(250);
400 FOR X=1 TO 5:POKE OV,V(X):POKE DN,D(X):SYS MV
410 PRINT CHR$(28);T$(X);:NEXT X
420 POKE OV,8:POKE DN,22:SYS MV
430 PRINT CHR$(155);"TIME: 999";
440 POKE OV,22:POKE DN,22:SYS MV:PRINT "SCORE:";SC
450 POKE OV,6:POKE DN,24:SYS MV
460 PRINT "<B>=LEFT  <N>=RIGHT  <Z>=UP";
470 POKE V+30,0:POKE V+31,0:POKE V+21,127:POKE V+16,64
480 RF=RF-1:P=RO/350:GET K$:IF K$="" THEN 520
490 IF K$="B" THEN C=P-Q
500 IF K$="N" THEN C=Q-P
510 IF K$="Z" THEN R=-Q+P/3:RF=8:IF RO>115 THEN RF=4:Q
=0.85
520 IF RF<1 THEN R=1
530 CO=CO+C:RO=RO+R
540 IF CO>255 THEN CO=0:POKE V+16,67:GOTO 560
550 IF CO<0 THEN CO=255:POKE V+16,66
560 DO=INT(CO+23)
570 IF DO>255 THEN DO=CO-232:POKE V+16,66:GOTO 590
580 IF DO>78 THEN POKE V+16,64
590 DM=PEEK(V+31):POKE V+2,DO:POKE V+3,RO:POKE V,CO
600 POKE V+1,RO:HC=CO:HR=RO:TM=TM-4
610 POKE OV,13:POKE DN,22:SYS MV:PRINT TM;
620 IF TM=0 THEN M=1:GOTO 770
630 P=PEEK(V+30):IF P<4 THEN 720
640 FOR X=1 TO 5
650 IF P<CK(X,2) THEN SI=TM*VAL(LEFT$(T$(X),1)):X=5
660 NEXT X:ES=INT(SI/10)*10:SI=SI-ES:SC=SC+SI
670 FOR X=1 TO ES STEP 10:SC=SC+10:POKE S,20
680 POKE S+1,X/50:POKE S+4,33:POKE OV,28:POKE DN,22
690 SYS MV:PRINT SC;:NEXT X:POKE S+4,32
700 FOR X=1 TO 800:NEXT X:POKE V+21,0
710 FOR X=0 TO 3:POKE V+X,0:NEXT X:GOTO 260
720 IF PEEK(V+31)>0 THEN M=2:GOTO 740
730 GOTO 480
740 IF CO>56 AND CO<60 THEN P=7:GOTO 640
750 IF CO>7 AND CO<11 THEN P=64:GOTO 640
760 IF RO<52 OR (PEEK(V+16)=64 AND CO<26) OR (PEEK(V+1
6)>64 AND CO>63) THEN M=3
770 POKE V+21,0:FOR X=0 TO 3:POKE V+X,0:NEXT X
780 FOR X=2 TO 32:POKE 53281,INT(RND(1)*15)+1
790 POKE S+4,129:POKE S,X:POKE S+1,X*4:NEXT X
800 POKE S+4,128:POKE 53281,0:IF SC>HS THEN HS=SC
810 PRINT CHR$(147):IF M=1 THEN PRINT "SORRY, YOU RAN
OUT OF TIME!":GOTO 840
820 IF M=2 THEN PRINT "SORRY, YOU CRASHED!":GOTO 840
830 PRINT "YOU ARE LOST."
840 PRINT:PRINT "YOUR SCORE WAS";STR$(SC);"."
850 PRINT "THE HIGH SCORE IS";STR$(HS);".":PRINT
860 PRINT "PRESS <P> TO PLAY AGAIN,"
870 PRINT "OR <Q> TO QUIT."
880 GET K$:IF K$="" THEN 880
890 IF K$<>"P" AND K$<>"Q" THEN 880
900 IF K$="P" THEN POKE 198,0:GOTO 250
910 PRINT CHR$(147);CHR$(154)
920 POKE 53281,6:POKE 53280,14:POKE V+21,0:END
1000 DATA 174,220,199,172,219,199,24,32,240
2000 DATA 255,96,149,10,11,20,3,156,7,15,20,12,154,8,9
2010 DATA 20,18,30,6,18,20,25,152,8,12,20,30
3000 DATA 1X,7,12,2X,14,16,3X,21,10,5X,27,19,1X,33,13
4000 DATA 224,0,0,191,192,0,255,192,0,62,64,0,29,96,0
4010 DATA 28,32,0,31,255,255,31,255,15,255,252,15,255
4020 DATA 255,135,127,255,19,127,254,38,63,252,76,31
4030 DATA 252,152,255,255,16,0,0,0,0,0,0,0,0,0,0,0,0
4040 DATA 0,0,0,0,0,0,0,0,0,0,20,128,0,31,128,0,12,0,0
4050 DATA 15,0,0,29,240,0,255,224,0,255,128,0,255,128
4060 DATA 0,255,128,0,255,128,0,1,128,0,0,128,0,0,192
4070 DATA 0,0,96,0,0,32,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4080 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4090 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
4100 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,255
4110 DATA 0,4,8,8,12,16,20,32,36,64,68,10,10,9,4,14,5
4120 DATA 12,13,14,15,15,15,15,15,64,117,122,149,168
4130 DATA 101,223,173,15,125
```

IBM PC & compatibles/*Santa's Landing*

```
10 DIM A(21),B(21),C(21),D(5),SL(34),V(5)
20 DIM PA$(13),T$(5)
30 KEY OFF:SCREEN 1,0:COLOR 0,2
40 LOCATE ,,0:RANDOMIZE TIMER
50 HS=0:FOR X=1 TO 13:READ PA$(X):NEXT X
60 FOR X=1 TO 21:READ A(X),B(X),C(X):NEXT X
70 FOR X=1 TO 5:READ T$(X),D(X),V(X):NEXT X
80 FOR X=1 TO 4:DRAW PA$(X):NEXT X:PAINT (4,2),2,2
90 PAINT (5,7),2,2:DRAW PA$(5):DRAW PA$(6)
100 PAINT (7,11),3,3:DRAW PA$(7):DRAW PA$(8)
110 PAINT (24,7),3,3:FOR X=9 TO 13:DRAW PA$(X):NEXT X
120 PSET (29,3),0:GET (0,0)-(33,14),SL
130 SC=0
140 CLS:CO=60+(INT(RND*121)+120) MOD 200:RO=11:Q=2
150 RF=0:HC=CO:HR=RO:TIME=1000:C=1:R=1:PUT (CO,RO),SL
160 FOR X=1 TO 8:LINE (A(X),C(X))-(B(X),C(X)),1:NEXT X
170 FOR X=9 TO 21:LINE (C(X),A(X))-(C(X),B(X)),1
180 NEXT X:PAINT (50,160),3,1:PAINT (100,160),2,1
190 PAINT (230,160),1,1:PAINT (250,160),3,1
200 FOR X=1 TO 5:LOCATE D(X),V(X):PRINT T$(X):NEXT X
210 LOCATE 23,9:PRINT "Time:";TIME
220 LOCATE 23,23:PRINT "Score:";SC
230 LOCATE 25,7:PRINT "<B>=Left  <N>=Right  <Z>=Up";
240 RF=RF-1:P=RO/250:K$=INKEY$:IF K$="" THEN 250
250 IF K$="B" OR K$="b" THEN C=P-Q
260 IF K$="N" OR K$="n" THEN C=Q-P
270 IF K$="Z" OR K$="z" THEN R=-Q+P/3:RF=8:IF RO>40 TH
EN RF=4:Q=.75
280 IF RF<1 THEN R=1
290 CO=CO+C:RO=RO+R:PUT (HC,HR),SL:PUT (CO,RO),SL
300 HC=CO:HR=RO:TIME=TIME-4:LOCATE 23,14:PRINT TIME
310 IF TIME=0 THEN M=1:GOTO 420
320 IF POINT(CO+2,RO+15)<>1 OR POINT(CO+31,RO+15)<>1 T
HEN 390
330 FOR X=1 TO 5
340 IF CO+32<B(X) THEN SI=TIME*VAL(LEFT$(T$(X),1)):X=5
350 NEXT X:ES=SI-(SI MOD 10):SI=SI-ES:SC=SC+SI
360 FOR X=1 TO ES STEP 10:SC=SC+10:SOUND X/25+40,1
370 LOCATE 23,29:PRINT SC:NEXT X
380 FOR X=1 TO 800:NEXT X:GOTO 140
390 IF RO<2 OR CO<2 OR CO>283 THEN M=3:GOTO 420
400 IF RO>26 AND CO>129 AND CO<165 THEN M=2:GOTO 420
410 IF POINT(CO-1,RO+15) OR POINT(CO+34,RO+15) OR POIN
T(CO-1,RO) OR POINT(CO,RO+15) OR POINT(CO+33,RO+15) TH
EN M=2:GOTO 420 ELSE 240
420 FOR X=2 TO 32:SOUND RND*100+40,.3:COLOR X MOD 16
430 NEXT X:COLOR 0,2:IF SC>HS THEN HS=SC
440 CLS:IF M=1 THEN PRINT "Sorry, you ran out of time!
":GOTO 470
450 IF M=2 THEN PRINT "Sorry, you crashed!":GOTO 470
460 PRINT "You are lost."
470 PRINT:PRINT "Your score was";STR$(SC);"."
480 PRINT "The high score is";STR$(HS);".":PRINT
490 PRINT "Press <P> to play again,"
500 PRINT "or <Q> to quit."
510 K$=INKEY$:IF K$="" THEN 510
```

→

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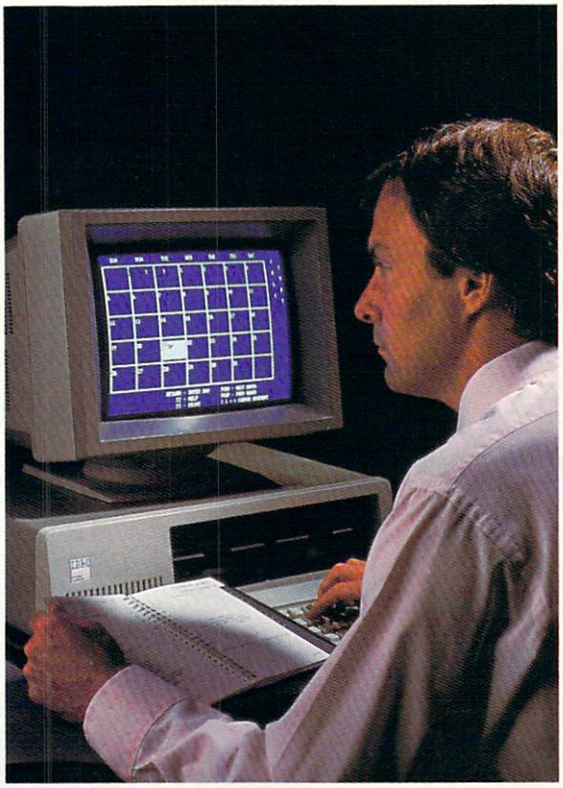

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CIRCLE READER SERVICE 52

```
520 K=ASC(K$):K$=CHR$(K-(K>96)*(K<123)*32)
530 IF K$<>"P" AND K$<>"Q" THEN 510
540 IF K$="P" THEN 130
550 SCREEN 0,0:CLS:KEY ON:END
1000 DATA "C1BM0,0;R1D1L1U1"
1010 DATA "C2BM1,1;R5D1R1D1L2D1L1D1L1U2L1U1L1U1"
1020 DATA "C3BM7,3;D1R1D1L1C1L1R1D1"
1030 DATA "C2R1D1R2D1L7U2C3U1D1C2R4"
1040 DATA "C3BM0,8;R15D1L1D3L1D1L1D1"
1050 DATA "BM12,14;L9U1L1U1L1U3L1U1"
1060 DATA "C2BM0,14;R14E4"
1070 DATA "C3BM20,9;R10U4R1U1H1L2D1G1L6G1D3"
1080 DATA "BM19,14;U1R1U1R1U1E1L1R1U1R9D3R1D1R1D1"
1090 DATA "C1BM10,7;R20L3U2D4U2L3U2D4"
1100 DATA "C2BM32,4;D1R1U1L1"
1110 DATA "C3BM27,4;U1L1U1L1U1D1R2U1"
1120 DATA "BM29,3;U1L1U1D1R2U1"
2000 DATA 23,97,87,97,145,127,145,201,71,201,241,143
2010 DATA 241,297,95,0,319,167,0,319,0,0,319,1,87,167
2020 DATA 23,87,167,97,71,167,145,71,167,201,95,167
2030 DATA 241,95,167,297,0,167,0,0,167,1,0,167,318,0
2040 DATA 167,319,40,71,162,40,71,163,40,71,164
3000 DATA 1X,13,8,2X,18,15,3X,11,22,5X,20,28,1X,14,34
```

Tandy Color Computer/*Santa's Landing*

```
10 CLEAR 500:PCLEAR 4
20 DIM A(21),B(21),BL(35,16),C(21),D(5),SL(35,16),V(5)
30 DIM PA$(13),T$(5)
40 CLS:PRINT@8,"SANTA'S LANDING"
50 PRINT:PRINT "HELP SANTA MAKE A SAFE LANDING"
60 PRINT "ON THE ROOFTOPS OF THE CITY."
70 PRINT:PRINT "AVOID CRASHING INTO BUILDINGS"
80 PRINT "AND THE BIG ANTENNA.  SANTA WILL"
90 PRINT "GET LOST IF HE LEAVES THE CITY."
100 PRINT:PRINT "<B> MOVES THE SLEIGH LEFT,"
110 PRINT "<N> MOVES IT TO THE RIGHT, AND"
120 PRINT "<Z> MOVES IT UP."
130 PRINT@416,"HURRY, CHRISTMAS IS ALMOST OVER!"
140 PRINT@448,"PRESS <ENTER> TO CONTINUE."
150 IF INKEY$<>CHR$(13) THEN 150
160 PMODE 4,1:SCREEN 1,0:PCLS 0
170 HS=0:FOR X=1 TO 13:READ PA$(X):NEXT X
180 FOR X=1 TO 13:READ A(X),B(X),C(X):NEXT X
190 GET (0,0)-(35,16),BL,G
200 FOR X=1 TO 4:DRAW PA$(X):NEXT X
210 PAINT (5,3),2,2:PAINT (6,8),2,2:DRAW PA$(5)
220 DRAW PA$(6):PAINT (8,12),3,3:DRAW PA$(7)
230 DRAW PA$(8):PAINT (25,8),3,3
240 FOR X=9 TO 13:DRAW PA$(X):NEXT X
250 PSET (29,3,0):GET (0,0)-(35,16),SL,G
260 SC=0
270 SCREEN 1,0:PCLS 0:TM=250:RO=11:Q=2
280 CO=RND(200):IF CO>100 AND CO<180 THEN 280
290 RF=0:HC=CO:HR=RO:C=1:R=1
300 PUT (CO,RO)-(CO+35,RO+16),SL,PSET
310 FOR X=1 TO 5:LINE (A(X),C(X))-(B(X),C(X)),PSET
320 NEXT X:FOR X=6 TO 13
330 LINE (C(X),A(X))-(C(X),B(X)),PSET:NEXT X
340 DRAW "BM52,110;D7"
350 DRAW "BM58,111;F6;BM64,111;G6"
360 DRAW "BM110,150;R5;D4;L5;D4;R5"
370 DRAW "BM121,152;F6;BM127,152;G6"
380 DRAW "BM163,110;R5;D4;L4;R4;D4;L5"
390 DRAW "BM174,112;F6;BM180,112;G6"
400 DRAW "BM215,150;G5;R6;L1;D4;U8"
410 DRAW "BM221,153;F6;BM227,153;G6"
420 LINE (0,176)-(250,182),PSET,BF
430 RF=RF-1:P=RO/192:K$=INKEY$:IF K$="" THEN 470
440 IF K$="B" OR K$=CHR$(98)THEN C=P-Q
450 IF K$="N" OR K$=CHR$(110)THEN C=Q-P
460 IF K$="Z" OR K$=CHR$(122)THEN R=-Q+P/3:RF=8:IF RO>
40 THEN RF=4:Q=0.75
470 IF RF<1 THEN R=1
480 CO=CO+C:RO=RO+R:PUT (HC,HR)-(HC+35,HR+16),BL,AND
490 PUT (CO,RO)-(CO+35,RO+16),SL,PSET
500 HC=CO:HR=RO:LINE (TM,176)-(TM,182),PRESET:TM=TM-1
510 IF TM=0 THEN M=1:GOTO 610
520 IF PPOINT(CO+3,RO+17)<>1 OR PPOINT(CO+33,RO+17)<>1
 THEN 580
530 FOR X=1 TO 4:IF CO+35<B(X) THEN SI=TM*X*4:X=4
540 NEXT X:SC=SC+SI
550 CLS:PRINT "YOUR SCORE IS ";STR$(SC);".":PRINT
560 PRINT:PRINT:PRINT "PRESS <ENTER> TO CONTINUE."
570 IF INKEY$<>CHR$(13) THEN 570 ELSE 270
580 IF RO<2 OR CO<2 OR CO>219 THEN M=3:GOTO 610
590 IF RO>24 AND CO>127 AND CO<165 THEN M=2:GOTO 610
600 IF PPOINT(CO-1,RO+17)=1 OR PPOINT(CO+36,RO+17)=1 O
R PPOINT(CO-1,RO)=1 OR PPOINT(CO,RO+17)=1 OR PPOINT(CO
+35,RO+17)=1 THEN M=2:GOTO 610 ELSE 430
610 IF SC>HS THEN HS=SC
620 CLS:IF M=1 THEN PRINT "SORRY, YOU RAN OUT OF TIME!
":GOTO 650
630 IF M=2 THEN PRINT "SORRY, YOU CRASHED!":GOTO 650
640 PRINT "YOU ARE LOST."
650 PRINT:PRINT "YOUR SCORE WAS";STR$(SC);"."
660 PRINT "THE HIGH SCORE IS";STR$(HS);".":PRINT
670 PRINT "PRESS <P> TO PLAY AGAIN,"
680 PRINT "OR <Q> TO QUIT."
690 K$=INKEY$:IF K$="" THEN 690
700 K=ASC(K$):K$=CHR$(K-(K>96)*(K<123)*32)
710 IF K$<>"P" AND K$<>"Q" THEN 690
720 IF K$="P" THEN 260
730 SCREEN 0,0:CLS:END
1000 DATA "C1;BM1,1;R1;D1;L1;U1"
1010 DATA "BM2,2;R5;D1;R1;D1;L2;D1;L1;D1;L1;U2;L1;U1;L
1;U1"
1020 DATA "BM8,4;D1;R1;D1;L1;L1;R1;D1"
1030 DATA "R1;D1;R2;D1;L7;U2;U1;D1;R4"
1040 DATA "BM1,9;R15;D1;L1;D3;L1;D1;L1;D1"
1050 DATA "BM13,15;L9;U1;L1;U1;L1;U3;L1;U1"
1060 DATA "BM1,15;R14;E4"
1070 DATA "BM21,10;R10;U4;R1;U1;H1;L2;D1;G1;L6;G1;D3"
1080 DATA "BM20,15;U1;R1;U1;R1;U1;E1;L1;R1;U1;R9;D3;R1
;D1;R1;D1"
1090 DATA "BM11,8;R20;L3;U2;D4;U2;L3;U2;D4"
1100 DATA "BM33,5;D1;R1;U1;L1"
1110 DATA "BM28,5;U1;L1;U1;L1;U1;D1;R2;U1"
1120 DATA "BM30,4;U1;L1;U1;D1;R2;U1"
2000 DATA 23,97,87,97,145,127,145,201,71,201,241,143,0
2010 DATA 319,167,87,167,23,87,167,97,71,167,145,71
2020 DATA 167,201,143,167,241,40,71,162,40,71,163,40
2030 DATA 71,164
```

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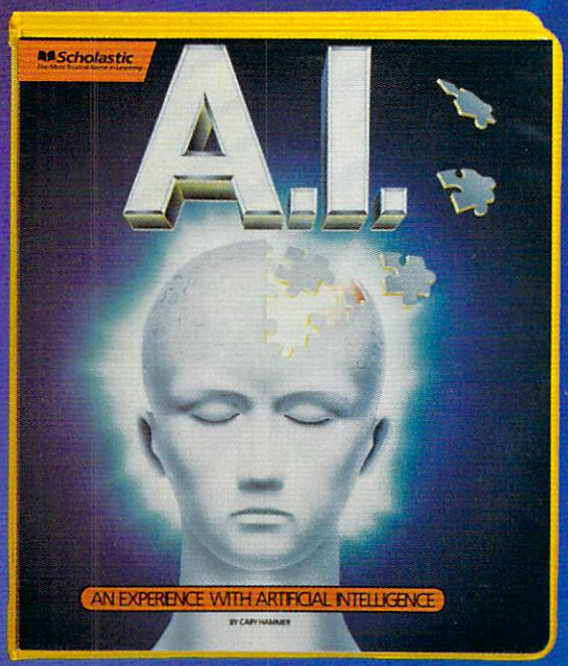

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CIRCLE READER SERVICE 45

A CHRISTMAS MEDLEY

BY JOEY LATIMER

Traditional songs are those that have been passed down from generation to generation for so long that the original writer has long been forgotten. In many cases, these songs change over time.

For this month's Microtones, we've created a program that plays three traditional European yuletide songs in *A Christmas Medley*. The first song in the medley is a German song titled "O Christmas Tree." Second in the medley is "Deck The Halls," an upbeat Welsh song commonly performed by choirs. The last song in *A Christmas Medley*, "We Wish You a Merry Christmas," is English in origin and popular in door-to-door caroling. All together, these well-known songs make up a musical Christmas card from the FAMILY & HOME-OFFICE COMPUTING technical staff to you, the folks who take the time to try our programs month after month. Happy Holidays!

Apple II series/*A Christmas Medley*

```
10 DIM D(207),N(207)
20 FOR X = 1 TO 207:READ N(X),D(X):NEXT X
30 FOR X = 768 TO 804:READ A:POKE X,A:NEXT X
40 HOME:VTAB 12:HTAB 9:PRINT "* A CHRISTMAS MEDLEY *"
50 FOR X = 1 TO 207:DE = 20
60 IF X > 59 THEN DE = 15
70 IF X > 126 THEN DE = 18
80 POKE 8,N(X):POKE 6,D(X)*DE
90 CALL 768:NEXT X:GOTO 50
1000 DATA 121,4,91,3,91,1,91,4,81,4,72,3,72,1,72,6,72
1010 DATA 2,81,2,72,2,68,4,96,4,81,4,91,4,121,4,91,3
1020 DATA 91,1,91,4,81,4,72,3,72,1,72,6,72,2,81,2,72,2
1030 DATA 68,4,96,4,81,4,91,6,60,2,60,2,72,2,53,6,60,2
1040 DATA 60,2,68,2,68,6,68,2,68,2,81,2,60,6,68,2,68,2
1050 DATA 72,2,72,4,121,4,91,3,91,1,91,4,81,4,72,3,72
1060 DATA 1,72,6,72,2,81,2,72,2,68,4,96,4
2000 DATA 60,6,68,2,72,4,81,4,91,4,81,4,72,4,91,4,81,2
2010 DATA 72,2,68,2,81,2,72,6,81,2,91,4,96,4,91,8,60,6
2020 DATA 68,2,72,4,81,4,91,4,81,4,72,4,91,4,81,2,72,2
2030 DATA 68,2,81,2,72,6,81,2,91,4,96,4,91,8,81,6,72,2
2040 DATA 68,4,81,4,72,6,68,2,60,4,81,4,72,2,68,2,60,4
2050 DATA 53,2,47,2,45,4,47,4,53,4,60,8,60,6,68,2,72,4
2060 DATA 81,4,91,4,81,4,72,4,91,4,53,2,53,2,53,2,53,2
2070 DATA 60,6,68,2,72,4,81,4
3000 DATA 91,4,91,2,81,2,91,2,96,2,108,4,108,4,108,4
3010 DATA 81,4,81,2,72,2,81,2,91,2,96,4,121,4,121,4,72
3020 DATA 4,72,2,68,2,72,2,81,2,91,4,108,4,121,2,121,2
3030 DATA 108,4,81,4,96,4,91,8,121,4,91,4,91,4,91,4,96
3040 DATA 8,96,4,91,4,96,4,108,4,121,8,81,4,72,4,81,4
3050 DATA 91,4,60,4,121,4,121,2,121,2,108,4,81,4,96,4
3060 DATA 91,8,121,4,91,4,91,2,81,2,91,2,96,2,108,4
3070 DATA 108,4,108,4,81,4,81,2,72,2,81,2,91,2,96,4
3080 DATA 121,4,121,4,72,4,72,2,68,2,72,2,81,2,91,4
3090 DATA 108,4,121,2,121,2,108,4,81,4,96,4,91,12
4000 DATA 165,8,201,2,176,2,169,2,74,133,10,164,8
4010 DATA 240,8,173,48,192,234,234,136,208,251,56
4020 DATA 165,7,229,10,133,7,176,235,198,6,208,231,96
```

Atari 800/XL/XE/*A Christmas Medley*

```
10 DIM V1(207,2),V2(150,2),V3(158,2)
20 POKE 710,53:POKE 752,1
30 FOR X=1 TO 207:READ A,B:V1(X,1)=A:V1(X,2)=B:NEXT X
40 FOR X=1 TO 150:READ A,B:V2(X,1)=A:V2(X,2)=B:NEXT X
50 FOR X=1 TO 158:READ A,B:V3(X,1)=A:V3(X,2)=B:NEXT X
60 PRINT CHR$(125)
70 POSITION 9,10:PRINT "* A CHRISTMAS MEDLEY *"
80 P1=1:P2=1:P3=1:T1=0:T2=0:T3=0
90 SOUND 1,V1(P1,1),10,8
100 SOUND 2,V2(P2,1),10,6
110 SOUND 3,V3(P3,1),10,4
120 IF P1>59 THEN 140
130 FOR DE=1 TO 10:NEXT DE
140 T1=T1+1
150 IF T1=V1(P1,2) THEN T1=0:P1=P1+1:SOUND 1,0,0,0
160 T2=T2+1
170 IF T2=V2(P2,2) THEN T2=0:P2=P2+1:SOUND 2,0,0,0
180 T3=T3+1
190 IF T3=V3(P3,2) THEN T3=0:P3=P3+1:SOUND 3,0,0,0
200 IF P1<208 THEN 90
210 GOTO 80
1000 DATA 121,4,91,3,91,1,91,4,81,4,72,3,72,1,72,6
1010 DATA 72,2,81,2,72,2,68,4,96,4,81,4,91,4,121,4
1020 DATA 91,3,91,1,91,4,81,4,72,3,72,1,72,6,72,2,81
1030 DATA 2,72,2,68,4,96,4,81,4,91,6,60,2,60,2,72,2
1040 DATA 53,6,60,2,60,2,68,2,68,6,68,2,68,2,81,2,60
1050 DATA 6,68,2,68,2,72,2,72,4,121,4,91,3,91,1,91,4
1060 DATA 81,4,72,3,72,1,72,6,72,2,81,2,72,2,68,4,96
1070 DATA 4,60,6,68,2,72,4,81,4,91,4,81,4,72,4,91,4
1080 DATA 81,2,72,2,68,2,81,2,72,6,81,2,91,4,96,4,91
1090 DATA 8,60,6,68,2,72,4,81,4,91,4,81,4,72,4,91,4
1100 DATA 81,2,72,2,68,2,81,2,72,6,81,2,91,4,96,4,91
1110 DATA 8,81,6,72,2,68,4,81,4,72,6,68,2,60,4,81,4
1120 DATA 72,2,68,2,60,4,53,2,47,2,45,4,47,4,53,4,60
1130 DATA 8,60,6,68,2,72,4,81,4,91,4,81,4,72,4,91,4
1140 DATA 53,2,53,2,53,2,53,2,60,6,68,2,72,4,81,4,91
1150 DATA 4,91,2,81,2,91,2,96,2,108,4,108,4,108,4,81
1160 DATA 4,81,2,72,2,81,2,91,2,96,4,121,4,121,4,72
1170 DATA 4,72,2,68,2,72,2,81,2,91,4,108,4,121,2,121
1180 DATA 2,108,4,81,4,96,4,91,8,121,4,91,4,91,4,91
1190 DATA 4,96,8,96,4,91,4,96,4,108,4,121,8,81,4,72
1200 DATA 4,81,4,91,4,60,4,121,4,121,2,121,2,108,4
1210 DATA 81,4,96,4,91,8,121,4,91,4,91,2,81,2,91,2
1220 DATA 96,2,108,4,108,4,108,4,81,4,81,2,72,2,81,2
1230 DATA 91,2,96,4,121,4,121,4,72,4,72,2,68,2,72,2
1240 DATA 81,2,91,4,108,4,121,2,121,2,108,4,81,4,96
1250 DATA 4,91,16,243,4,182,3,182,1,182,4,136,4,182
1260 DATA 3,182,1,182,6,182,2
2000 DATA 136,2,144,2,162,4,243,4,182,8,243,4,182,3
2010 DATA 182,1,182,4,243,4,182,3,182,1,182,6,144,2
2020 DATA 136,2,144,2,162,4,243,4,182,4,182,6,72,2,72
2030 DATA 2,91,2,68,6,72,2,243,4,243,6,121,2,121,4,121
2040 DATA 6,121,2,182,4,182,4,121,4,182,3,182,1,182,4
2050 DATA 243,4,91,3,102,1,108,6,121,2,81,2,72,2,81,4
2060 DATA 243,4,182,6,193,2,182,4,144,4,217,4,243,4
2070 DATA 182,4,144,4,243,8,182,6,136,2,243,4,243,4
2080 DATA 182,8,182,6,193,2,182,4,144,4,217,4,243,4
2090 DATA 182,4,144,4,243,8,182,6,136,2,243,4,243,4
2100 DATA 182,8,243,12,243,4,182,12,193,4,182,2,162,2
2110 DATA 144,4,182,2,193,2,217,4,162,4,162,4,243,8
2120 DATA 182,6,193,2,182,4,243,4,217,4,243,4,182,4
2130 DATA 144,4,136,4,136,4,144,6,217,2,243,4,243,4
2140 DATA 182,12,68,12,162,12,243,12,144,12,108,4,0,4
2150 DATA 144,4,136,4,162,4,121,4,182,8,0,4,182,8,144
2160 DATA 4,121,12,162,8,91,4,162,12,91,8,136,4,144,8
2170 DATA 91,4,136,4,162,4,121,4,182,8,0,4,182,12,136
2180 DATA 12,162,12,243,12,144,12,108,4,0,4,144,4,136
2190 DATA 4,162,4,121,4,182,16,0,4,121,3,121,1,121,4
2200 DATA 96,4,91,3,91,1,91,6,91,2
3000 DATA 108,2,91,2,81,4,193,4,121,8,0,4,121,3,121,1
3010 DATA 121,4,96,4,91,3,91,1,91,6,121,2,108,2,108,2
3020 DATA 108,4,121,4,68,4,72,6,91,2,91,2,0,2,91,6,91
3030 DATA 2,96,4,96,6,81,2,81,2,96,2,72,6,81,2,91,2
3040 DATA 91,2,91,4,243,4,72,3,72,1,72,4,121,4,121,3
3050 DATA 121,1,121,6,108,2,108,2,108,2,108,4,121,4
```

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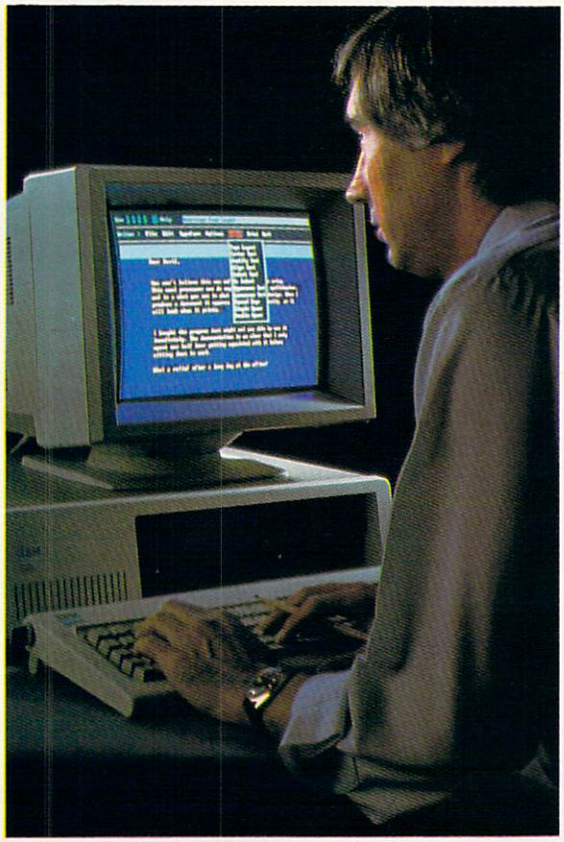

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CIRCLE READER SERVICE 53

```
3060 DATA 72,6,81,2,91,4,96,4,108,4,96,4,91,4,121,4
3070 DATA 96,2,91,2,81,2,96,2,91,6,108,2,121,4,121,4
3080 DATA 121,8,72,6,81,2,91,4,96,4,108,4,96,4,91,4
3090 DATA 121,4,96,2,91,2,81,2,96,2,91,6,108,2,121,4
3100 DATA 121,4,121,8,96,6,91,2,81,4,96,4,91,6,81,2
3110 DATA 72,4,96,4,91,8,72,8,81,4,91,4,96,8,72,6,81
3120 DATA 2,91,4,96,4,108,4,96,4,91,4,121,4,91,2,91,2
3130 DATA 91,2,91,2,91,6,91,2,91,4,96,4,144,12,136,12
3140 DATA 128,12,96,4,0,8,91,12,182,4,0,8,0,4,68,4
3150 DATA 193,4,72,8,0,4,72,12,162,12,64,12,60,12,121
3160 DATA 8,182,4,96,4,0,8,0,4,136,4,193,4,144,8,0,4
3170 DATA 144,12,136,12,128,12,96,4,0,8,91,12,182,4,0
3180 DATA 8,0,4,68,4,193,4,144,16
```

Commodore 64 & 128 (C 64 mode)/*A Christmas Medley*

```
10 DIM V1(207,3),V2(150,3),V3(158,3)
20 S=54272:FOR I=0 TO 23:POKE S+I,0:NEXT I
30 POKE S+24,15:POKE S+5,31:POKE S+6,241:POKE S+12,31
40 POKE S+13,241:POKE S+19,31:POKE S+20,241
50 FOR X=1 TO 207:READ V1(X,1),V1(X,2),V1(X,3):NEXT X
60 FOR X=1 TO 150:READ V2(X,1),V2(X,2),V2(X,3):NEXT X
70 FOR X=1 TO 158:READ V3(X,1),V3(X,2),V3(X,3):NEXT X
80 POKE 53281,5:POKE 53280,2
90 PRINT CHR$(147):POKE 214,10:PRINT
100 PRINT TAB(9);CHR$(5);"* A CHRISTMAS MEDLEY *"
110 POKE S+11,33:POKE S+18,33
120 P1=1:P2=1:P3=1
130 T1=0:T2=0:T3=0
140 POKE S+1,V1(P1,1):POKE S,V1(P1,2):POKE S+4,33
150 POKE S+8,V2(P2,1):POKE S+7,V2(P2,2)
160 POKE S+15,V3(P3,1):POKE S+14,V3(P3,2)
170 T1=T1+1
180 IF T1=V1(P1,3) THEN T1=0:P1=P1+1:POKE S+4,32
190 T2=T2+1
200 IF T2=V2(P2,3) THEN T2=0:P2=P2+1
210 T3=T3+1
220 IF T3=V3(P3,3) THEN T3=0:P3=P3+1
230 IF P1<208 THEN 140
240 GOTO 120
1000 DATA 16,195,4,22,96,3,22,96,1,22,96,4,25,30,4,28
1010 DATA 49,3,28,49,1,28,49,6,28,49,2,25,30,2,28,49,2
1020 DATA 29,223,4,21,31,4,25,30,4,22,96,4,16,195,4,22
1030 DATA 96,3,22,96,1,22,96,4,25,30,4,28,49,3,28,49,1
1040 DATA 28,49,6,28,49,2,25,30,2,28,49,2,29,223,4,21
1050 DATA 31,4,25,30,4,22,96,6,33,135,2,33,135,2,28,49
1060 DATA 2,37,162,6,33,135,2,33,135,2,29,223,2,29,223
1070 DATA 6,29,223,2,29,223,2,25,30,2,33,135,6,29,223
1080 DATA 2,29,223,2,28,49,2,28,49,4,16,195,4,22,96,3
1090 DATA 22,96,1,22,96,4,25,30,4,28,49,3,28,49,1,28
1100 DATA 49,6,28,49,2,25,30,2,28,49,2,29,223,4,21,31
1110 DATA 4,33,135,6,29,223,2,28,49,4,25,30,4,22,96,4
1120 DATA 25,30,4,28,49,4,22,96,4,25,30,2,28,49,2,29
1130 DATA 223,2,25,30,2,28,49,6,25,30,2,22,96,4,21,31
1140 DATA 4,22,96,8,33,135,6,29,223,2,28,49,4,25,30,4
1150 DATA 22,96,4,25,30,4,28,49,4,22,96,4,25,30,2,28
1160 DATA 49,2,29,223,2,25,30,2,28,49,6,25,30,2,22,96
1170 DATA 4,21,31,4,22,96,8,25,30,6,28,49,2,29,223,4
1180 DATA 25,30,4,28,49,6,29,223,2,33,135,4,25,30,4,28
1190 DATA 49,2,29,223,2,33,135,4,37,162,2,42,62,2,44
1200 DATA 193,4,42,62,4,37,162,4,33,135,8,33,135,6,29
1210 DATA 223,2,28,49,4,25,30,4,22,96,4,25,30,4,28,49
1220 DATA 4,22,96,4,37,162,2,37,162,2,37,162,2,37,162
1230 DATA 2,33,135,6,29,223,2,28,49,4,25,30,4,22,96,4
1240 DATA 22,96,2,25,30,2,22,96,2,21,31,2,18,209,4,18
1250 DATA 209,4,18,209,4,25,30,4,25,30,2,28,49,2,25,30
1260 DATA 2,22,96,2,21,31,4,16,195,4,16,195,4,28,49,4
1270 DATA 28,49,2,29,223,2,28,49,2,25,30,2,22,96,4,18
1280 DATA 209,4,16,195,2,16,195,2,18,209,4,25,30,4,21
1290 DATA 31,4,22,96,8,16,195,4,22,96,4,22,96,4,22,96
1300 DATA 4,21,31,8,21,31,4,22,96,4,21,31,4,18,209,4
1310 DATA 16,195,8,25,30,4,28,49,4,25,30,4,22,96,4,33
1320 DATA 135,4,16,195,4,16,195,2,16,195,2,18,209,4,25
1330 DATA 30,4,21,31,4,22,96,8,16,195,4,22,96,4,22,96
1340 DATA 2,25,30,2,22,96,2,21,31,2,18,209,4,18,209,4
1350 DATA 18,209,4,25,30,4,25,30,2,28,49,2,25,30,2,22
1360 DATA 96,2,21,31,4,16,195,4,16,195,4,28,49,4,28,49
1370 DATA 2,29,223,2,28,49,2,25,30,2,22,96,4,18,209,4
1380 DATA 16,195,2,16,195,2,18,209,4,25,30,4,21,31,4
1390 DATA 22,96,16,8,97,4,11,48,3,11,48,1
2000 DATA 11,48,4,14,239,4,11,48,3,11,48,1,11,48,6
2010 DATA 11,48,2,14,239,2,14,24,2,12,143,4,8,97,4
2020 DATA 11,48,8,8,97,4,11,48,3,11,48,1,11,48,4,8
2030 DATA 97,4,11,48,3,11,48,1,11,48,6,14,24,2,14
2040 DATA 239,2,14,24,2,12,143,4,8,97,4,11,48,4,11
2050 DATA 48,6,28,49,2,28,49,2,22,96,2,29,223,6,28
2060 DATA 49,2,8,97,4,8,97,6,16,195,2,16,195,4,16
2070 DATA 195,6,16,195,2,11,48,4,11,48,4,16,195,4,11
2080 DATA 48,3,11,48,1,11,48,4,8,97,4,22,96,3,19,239
2090 DATA 1,18,209,6,16,195,2,25,30,2,28,49,2,25,30
2100 DATA 4,8,97,4,11,48,6,10,143,2,11,48,4,14,24,4
2110 DATA 9,104,4,8,97,4,11,48,4,14,24,4,8,97,8,11
2120 DATA 48,6,14,239,2,8,97,4,8,97,4,11,48,8,11,48
2130 DATA 6,10,143,2,11,48,4,14,24,4,9,104,4,8,97,4
2140 DATA 11,48,4,14,24,4,8,97,8,11,48,6,14,239,2,8
2150 DATA 97,4,8,97,4,11,48,8,8,97,12,8,97,4,11,48
2160 DATA 12,10,143,4,11,48,2,12,143,2,14,24,4,11,48
2170 DATA 2,10,143,2,9,104,4,12,143,4,12,143,4,8,97
2180 DATA 8,11,48,6,10,143,2,11,48,4,8,97,4,9,104,4
2190 DATA 8,97,4,11,48,4,14,24,4,14,239,4,14,239,4
2200 DATA 14,24,6,9,104,2,8,97,4,8,97,4,11,48,12,29
2210 DATA 223,12,12,143,12,8,97,12,14,24,12,18,209,4
2220 DATA 0,0,4,14,24,4,14,239,4,12,143,4,16,195,4
2230 DATA 11,48,8,0,0,4,11,48,8,14,24,4,16,195,12,12
2240 DATA 143,8,22,96,4,12,143,12,22,96,8,14,239,4
2250 DATA 14,24,8,22,96,4,14,239,4,12,143,4,16,195,4
2260 DATA 11,48,8,0,0,4,11,48,12,14,239,12,12,143,12
2270 DATA 8,97,12,14,24,12,18,209,4,0,0,4,14,24,4,14
2280 DATA 239,4,12,143,4,16,195,4,11,48,16,0,0,4,16
2290 DATA 195,3,16,195,1,16,195,4
3000 DATA 21,31,4,22,96,3,22,96,1,22,96,6,22,96,2,18
3010 DATA 209,2,22,96,2,25,30,4,10,143,4,16,195,8,0,0
3020 DATA 4,16,195,3,16,195,1,16,195,4,21,31,4,22,96,3
3030 DATA 22,96,1,22,96,6,16,195,2,18,209,2,18,209,2
3040 DATA 18,209,4,16,195,4,29,223,4,28,49,6,22,96,2
3050 DATA 22,96,2,0,0,2,22,96,6,22,96,2,21,31,4,21,31
3060 DATA 6,25,30,2,25,30,2,21,31,2,28,49,6,25,30,2,22
3070 DATA 96,2,22,96,2,22,96,4,8,97,4,28,49,3,28,49,1
3080 DATA 28,49,4,16,195,4,16,195,3,16,195,1,16,195,6
3090 DATA 18,209,2,18,209,2,18,209,2,18,209,4,16,195,4
3100 DATA 28,49,6,25,30,2,22,96,4,21,31,4,18,209,4,21
3110 DATA 31,4,22,96,4,16,195,4,21,31,2,22,96,2,25,30
3120 DATA 2,21,31,2,22,96,6,18,209,2,16,195,4,16,195,4
3130 DATA 16,195,8,28,49,6,25,30,2,22,96,4,21,31,4,18
3140 DATA 209,4,21,31,4,22,96,4,16,195,4,21,31,2,22,96
3150 DATA 2,25,30,2,21,31,2,22,96,6,18,209,2,16,195,4
3160 DATA 16,195,4,16,195,8,21,31,6,22,96,2,25,30,4,21
3170 DATA 31,4,22,96,6,25,30,2,28,49,4,21,31,4,22,96,8
3180 DATA 28,49,8,25,30,4,22,96,4,21,31,8,28,49,6,25
3190 DATA 30,2,22,96,4,21,31,4,18,209,4,21,31,4,22,96
3200 DATA 4,16,195,4,22,96,2,22,96,2,22,96,2,22,96,2
3210 DATA 22,96,6,22,96,2,22,96,4,21,31,4,14,24,12,14
3220 DATA 239,12,15,210,12,21,31,4,0,0,8,22,96,12,11
3230 DATA 48,4,0,0,8,0,0,4,29,223,4,10,143,4,28,49,8,0
3240 DATA 0,4,28,49,12,12,143,12,31,165,12,33,135,12
3250 DATA 16,195,8,11,48,4,21,31,4,0,0,8,0,0,4,14,239
3260 DATA 4,10,143,4,14,24,8,0,0,4,14,24,12,14,239,12
3270 DATA 15,210,12,21,31,4,0,0,8,22,96,12,11,48,4,0,0
3280 DATA 8,0,0,4,29,223,4,10,143,4,14,24,16
```

IBM PC & compatibles/*A Christmas Medley*

```
10 DIM A$(15):CLS:KEY OFF
20 LOCATE 12,28,0:PRINT "* A Christmas Medley *"
30 FOR X=1 TO 15:READ A$(X):NEXT X
40 FOR X=1 TO 15:PLAY A$(X):NEXT X:GOTO 40
1000 DATA T13002L4CF8.F16FGA8.A16A.A8G8A8B-E
1010 DATA GFCF8.F16FGA8.A16A.A8
1020 DATA G8A8B-EGF.>C8C8<A8>D.C8
1030 DATA C8<B-8B-.B-8B-8G8>C.<B-8B-8A8AC
1040 DATA F8.F16FGA8.A16A.A8G8A8B-E
```

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CIRCLE READER SERVICE 44

```
2000 DATA T20003C.<B-8L4AGFGAFL8GAB-GA4.G8L4FEF2
2010 DATA >C.<B-8AGFGAFL8GAB-GA4.G8L4FEF2
2020 DATA G.A8B-GA.B-8>C<GA8B-8>CD8E8FEDC2
2030 DATA C.<B-8AGFGAFL8>DDDDC4.<B-8L4AG
3000 DATA T15002F4L8FGFEL4DDDGL8GAGF
3010 DATA L4ECCAL8AB-AGF4D4CCL4DGE
3020 DATA F2CFFFE2EFED
3030 DATA C2GAGF>C<CC8C8DGE
3040 DATA F2CFL8FGFEL4DDDGL8GAGF
3050 DATA L4ECCAL8AB-AGF4D4CCL4DGEF1
```

IBM PC*jr* & compatibles/*A Christmas Medley*

```
10 DIM A$(6,3):CLS:WIDTH 40:KEY OFF:SOUND ON
20 LOCATE 12,8,0:PRINT "* A Christmas Medley *"
30 FOR X=1 TO 3:READ T
40 FOR Y=1 TO 3:FOR Z=1 TO T
50 READ D$:A$(X,Y)=A$(X,Y)+D$:NEXT Z,Y,X
60 FOR X=1 TO 3:PLAY A$(X,1),A$(X,2),A$(X,3)
70 NEXT X:GOTO 60
1000 DATA 5,T13002L4CF8.F16FGA8.A16A.A8G8A8B-E
1010 DATA GFCF8.F16FGA8.A16A.A8
1020 DATA G8A8B-EGF.>C8C8<A8>D.C8
1030 DATA C8<B-8B-.B-8B-8G8>C.<B-8B-8A8AC
1040 DATA F8.F16FGA8.A16A.A8G8A8B-E
1050 DATA T13001L4CF8.F16FB-F8.F16F.F8B-8A8GC
1060 DATA F2CF8.F16FCF8.F16F4.<A8
1070 DATA B-8A8>GCFF.>A8A8F8B-.A8
1080 DATA <CC.>C8CC.C8<FF>C
1090 DATA <F8.F16FC>F8.E-16D.C8G8A8G<C
1100 DATA T13002L4P4C8.C16CEF8.F16F.F8D8F8G<E>
1110 DATA C2P4C8.C16CEF8.F16F.C8
1120 DATA D8D8DCV11B-A.V15F8F8P8F.F8
1130 DATA EE.G8G8E8A.G8G8F8F<C>
1140 DATA V11A8.A16AV15CC8.C16C.D8D8D8D
2000 DATA 4,T20003C.<B-8L4AGFGAFL8GAB-GA4.G8L4FEF2
2010 DATA >C.<B-8AGFGAFL8GAB-GA4.G8L4FEF2
2020 DATA G.A8B-GA.B-8>C<GA8B-8>CD8E8FEDC2
2030 DATA C.<B-8AGFGAFL8>DDDDC4.<B-8L4AG
2040 DATA T20001F4.E8L4FADCFAC2F.B-8CCF2
2050 DATA F.E8FADCFA4C2F.B-8CCF2
2060 DATA C2.CF2.EF8G8AF8E8DGGC2
2070 DATA F.E8FCDCFAB-B-A.D8CC
2080 DATA T20002A4.G8FEDEFCL8EFGEL4F.D8CCC2
2090 DATA A.G8FEDEFCL8EFGEL4F.D8CCC2
2100 DATA E.F8GEF.G8AEF2A2GFE2
2110 DATA A.G8FEDEFCL8FFFFF4.F8L4FE
3000 DATA 6,T15002F4L8FGFEL4DDDGL8GAGF
3010 DATA L4ECCAL8AB-AGF4D4CCL4DGE,F2CFFFE2EFED
3020 DATA C2GAGF>C<CC8C8DGE,F2CFL8FGFEL4DDDGL8GAGF
3030 DATA L4ECCAL8AB-AGF4D4CCL4DGEF1
3040 DATA T15001F2.>B-2.<G2.,C2.A2.>L4DP4<AB-G>C
3050 DATA <F2P4F2A4>C2.<G2>F4,<G2.>F2<B-4A2>L4F<B-G>C
3060 DATA <F2P4F2.B-2.G2.,C2.A2.>L4DP4<AB-G>C<F1
3070 DATA T15001A2.B-2.B2.,>E4P2F2.<F4>P2P4B-4<E4>
3080 DATA A2P4A2.<G2.>B2.,>C2.<C2<F4>E4P2P4<B-4E4
3090 DATA A2P4A2.B-2.B2.,>E4P2F2.<F4>P2P4B-4<E4A1
```

Macintosh/*A Christmas Medley*

```
    DEFINT A-Z
    DIM V1(207,2),V2(150,2),V3(158,2),WAV(256)
    WINDOW 1,"MICROTONES",(0,38)-(527,338)
    LOCATE 8,22:PRINT "* A CHRISTMAS MEDLEY *"
    FOR X=-128 TO 127:WAV(X+129)=X:NEXT X
    WAVE 0,WAV:WAVE 1,WAV:WAVE 2,WAV
    FOR X=1 TO 207:READ V1(X,1),V1(X,2):NEXT X
    FOR X=1 TO 150:READ V2(X,1),V2(X,2):NEXT X
    FOR X=1 TO 158:READ V3(X,1),V3(X,2):NEXT X
  INITIALIZE:
    P1=1:P2=1:P3=1:T1=0:T2=0:T3=0
  SOUNDLOOP:
    IF T1=V1(P1,2) THEN SOUND V1(P1,1),2.2,,0:SOUND 0,
.3,,0:T1=0:P1=P1+1 ELSE SOUND V1(P1,1),2.5,,0
    IF T2=V2(P2,2) THEN SOUND V2(P2,1),2.2,,1:SOUND 0,
.3,,1:T2=0:P2=P2+1 ELSE SOUND V2(P2,1),2.5,,1
    IF T3=V3(P3,2) THEN SOUND V3(P3,1),2.2,,2:SOUND 0,
.3,,2:T3=0:P3=P3+1 ELSE SOUND V3(P3,1),2.5,,2
    T1=T1+1:T2=T2+1:T3=T3+1
    IF P1<208 THEN SOUNDLOOP ELSE INITIALIZE
    DATA 262,4,349,3,349,1,349,4,392,4,440,3,440,1,440
    DATA 6,440,2,392,2,440,2,466,4,330,4,392,4,349,4
    DATA 262,4,349,3,349,1,349,4,392,4,440,3,440,1,440
    DATA 6,440,2,392,2,440,2,466,4,330,4,392,4,349,6
    DATA 523,2,523,2,440,2,587,6,523,2,523,2,466,2,466
    DATA 6,466,2,466,2,392,2,523,6,466,2,466,2,440,2
    DATA 440,4,262,4,349,3,349,1,349,4,392,4,440,3,440
    DATA 1,440,6,440,2,392,2,440,2,466,4,330,4,523,6
    DATA 466,2,440,4,392,4,349,4,392,4,440,4,349,4,392
    DATA 2,440,2,466,2,392,2,440,6,392,2,349,4,330,4
    DATA 349,8,523,6,466,2,440,4,392,4,349,4,392,4,440
    DATA 4,349,4,392,2,440,2,466,2,392,2,440,6,392,2
    DATA 349,4,330,4,349,8,392,6,440,2,466,4,392,4,440
    DATA 6,466,2,523,4,392,4,440,2,466,2,523,4,587,2
    DATA 659,2,698,4,659,4,587,4,523,8,523,6,466,2,440
    DATA 4,392,4,349,4,392,4,440,4,349,4,587,2,587,2
    DATA 587,2,587,2,523,6,466,2,440,4,392,4,349,4,349
    DATA 2,392,2,349,2,330,2,294,4,294,4,294,4,392,4
    DATA 392,2,440,2,392,2,349,2,330,4,262,4,262,4,440
    DATA 4,440,2,466,2,440,2,392,2,349,4,294,4,262,2
    DATA 262,2,294,4,392,4,330,4,349,8,262,4,349,4,349
    DATA 4,349,4,330,8,330,4,349,4,330,4,294,4,262,8
    DATA 392,4,440,4,392,4,349,4,523,4,262,4,262,2,262
    DATA 2,294,4,392,4,330,4,349,8,262,4,349,4,349,2
    DATA 392,2,349,2,330,2,294,4,294,4,294,4,392,4,392
    DATA 2,440,2,392,2,349,2,330,4,262,4,262,4,440,4
    DATA 440,2,466,2,440,2,392,2,349,4,294,4,262,2,262
    DATA 2,294,4,392,4,330,4,349,16
    DATA 131,4,175,3,175,1,175,4,233,4,175,3,175,1,175
    DATA 6,175,2,233,2,220,2,196,4,131,4,175,8,131,4
    DATA 175,3,175,1,175,4,131,4,175,3,175,1,175,6,220
    DATA 2,233,2,220,2,196,4,131,4,175,4,175,6,440,2
    DATA 440,2,349,2,466,6,440,2,131,4,131,6,262,2,262
    DATA 4,262,6,262,2,175,4,175,4,262,4,175,3,175,1
    DATA 175,4,131,4,349,3,311,1,294,6,262,2,392,2,440
    DATA 2,392,4,131,4,175,6 ,165,2,175,4,220,4,147,4
    DATA 131,4,175,4,220,4,131,8,175,6,233,2,131,4,131
    DATA 4,175,8,175,6,165,2,175,4,220,4,147,4,131,4
    DATA 175,4,220,4,131,8,175,6,233,2,131,4,131,4,175
    DATA 8,131,12,131,4,175,12,165,4,175,2,196,2,220,4
    DATA 175,2,165,2,147,4,196,4,196,4,131,8,175,6,165
    DATA 2,175,4,131,4,147,4,131,4,175,4,220,4,233,4
    DATA 233,4,220,6,147,2,131,4,131,4,175,12,466,12
    DATA 196,12,131,12,220,12,294,4,0,4,220,4,233,4
    DATA 196,4,262,4,175,8,0,4,175,8,220,4,262,12,196
    DATA 8,349,4,196,12,349,8,233,4,220,8,349,4,233,4
    DATA 196,4,262,4,175,8,0,4,175,12,233,12,196,12
    DATA 131,12,220,12,294,4,0,4,220,4,233,4,196,4,262
    DATA 4,175,16
    DATA 0,4,262,3,262,1,262,4,330,4,349,3,349,1,349,6
    DATA 349,2,294,2,349,2,392,4,165,4,262,8,0,4,262,3
    DATA 262,1,262,4,330,4,349,3,349,1,349,6,262,2,294
    DATA 2,294,2,294,4,262,4,466,4,440,6,349,2,349,2,0
    DATA 2,349,6,349,2,330,4,330,6,392,2,392,2,330,2
    DATA 440,6,392,2,349,2,349,2,349,4,131,4,440,3,440
    DATA 1,440,4,262,4,262,3,262,1,262,6,294,2,294,2
    DATA 294,2,294,4,262,4,440,6,392,2,349,4,330,4,294
    DATA 4,330,4,349,4,262,4,330,2,349,2,392,2,330,2
    DATA 349,6,294,2,262,4,262,4,262,8,440,6,392,2,349
    DATA 4,330,4,294,4,330,4,349,4,262,4,330,2,349,2
    DATA 392,2,330,2,349,6,294,2,262,4,262,4,262,8,330
    DATA 6,349,2,392,4,330,4,349,6,392,2,440,4,330,4
    DATA 349,8,440,8,392,4,349,4,330,8,440,6,392,2,349
    DATA 4,330,4,294,4,330,4,349,4,262,4,349,2,349,2
    DATA 349,2,349,2,349,6,349,2,349,4,330,4,220,12
    DATA 233,12,247,12,330,4,0,8,349,12,175,4,0,8,0,4
    DATA 466,4,165,4,440,8,0,4,440,12,196,12,494,12
    DATA 523,12,262,8,175,4,330,4,0,8,0,4,233,4,165,4
    DATA 220,8,0,4,220,12,233,12,247,12,330,4,0,8,349
    DATA 12,175,4,0,8,0,4,466,4,165,4,220,16
```

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CROSSWORD PUZZLER

BY STEVE C.M. CHEN AND KAREN KANE

This is the last in a series of six crossword puzzles. This month, clues and data for a Christmas puzzle are presented along with the solution to last month's puzzle (page106). The solution to the Christmas Crossword Puzzler *will appear in next month's issue.*

In order to solve or print out the puzzle, you must have the master puzzle program. The Commodore 64/128, IBM PC and compatibles, and Tandy Color Computer versions of the program were presented in the July issue, and the Adam, Apple, Atari, and Macintosh versions appeared in August. Copies of the July and August issues are available for $4.25 from Crossword Puzzler, *c/o* FAMILY & HOME-OFFICE COMPUTING, *730 Broadway, New York, New York 10003. Please indicate your specific brand and model of computer.*

CHRISTMAS PUZZLE DATA

```
A FAGA,HAIA,KAFB,GBHB,1Ø97
B KBFC,KCAD,KDAE,BECE,11Ø1
C DEKE,MENE,OEFF,DGEG,1141
D FGIG,GHHH,IHGI,JIKI,1156
E LIJJ,AKBK,CKEK,LKMK,1167
F NKOK,ELOL,EMJM,ENHN,12Ø1
G INJN,EOGO,HOIO,JOZZ,6237
```

CHRISTMAS PUZZLE CLUES

Across

1A A spiritual being
1L Frozen precipitation
2A Heart part
2I A continent (abbr.)
2L Mongrel dog (spelling variation)
3A Before
3G Between Q and V
3L Coquettish glance
4B He turned Joseph and Mary away
4L Fellow
5E Main course
6A Anagram for paced
6G Kin
7A Organization of American States (abbr.)
7G Letters in a ligature
7J Two high cards of the same suit in the same hand
8A Shaped like the Guggenheim Museum
8J Creamy Christmas drink
9A City in Oregon
9H Article
9M Nylon without the "yo"
10A Striped sweet
10K Genus of palms (Latin spelling)
11F American inventor
12A 1A Across's nimbus
12F Plant that lovers look for
13A Interjection of concern or pity
13F Honey makers
13K Precious stone and type of Begonia
14A Cherish
14F Symbol for Europium
14K "The — that was Greece and the grandeur that was Rome . . . ."—E.A. Poe
15A Direct
15L Feast of the nativity of Jesus Christ (pl.)

Down

1A Association of American Publishers (abbr.)
1B Purple Japanese seaweed
1C Smile
1D Type of jacket
1E Frolicked
1J Recipient of honor
1L Chimney decoration
1M Near, to Shakespeare
1N 12F Across's home state (abbr.)
1O Cry
2I Strong metal
3G Prefix for backward
3H Binge
4F In, to Henri
6A Trigonometric function (abbr.)
6B SE portion of New Guinea
6C — of old age (two words)
6K —men, shelter made of plant or animal material
6M Glitzy letter spinner
6N Pierre's school
6O Sign at the beginning or end of a musical repeat
8D Rudolph the — Reindeer
8E East New York (abbr.)
8F 12th month
9H Spice in the carrot family
9I Birds build them
10G Philippe's farewell
10K Kinetic or potential
11J Good —' Boy
12A It's decked with holly
12B Medicinal plant
12C Bane of Pompeii
12L Dravidian
12M Old Greek coin
12N Brontë's Jane —
13O System (abbr.)

TIPS TO THE TYPIST

SOME GENERAL RULES

1. Read instructions and program headings carefully.

2. Don't let fatigue and boredom contribute to inaccuracy. If you're new to programming, type in a longer program in easy stages, SAVEing each installment as you go.

3. Assume that every character in a program listing must be copied accurately if a program is to work.

4. Watch out for potential trouble spots. About 90 percent of all typing errors occur in DATA statements.

5. Be aware that our program listings are printed 54 characters wide. Thus, a single BASIC program "line" (sometimes called a "logical line") may appear as several lines in our listing. If you are typing along and reach the right margin of the printed listing, don't press RETURN or ENTER before checking to see if the program "line" you're typing really ends there.

6. To correct an error in a BASIC program line, type the line in again from the beginning, and press RETURN or ENTER to replace the old line.

WHICH PROGRAM WILL RUN ON MY COMPUTER?

• IBM compatibility of BASIC programs is determined by both the hardware and the version of BASIC used. Our programs for IBM PC and compatibles are composed on IBM PCs and PC*jr*s, and are tested under most versions of BASIC available for these machines. Each "IBM PC and compatibles" program is also tested on a number of compatibles. For a rundown of the machines and versions of BASIC under which the program is guaranteed to work, see the chart at the beginning of "The Programmer".

DEBUGGING HINTS

1. Write down any error messages you receive.

2. Look up error messages in your manual, and check the indicated lines for simple mistakes. Also check related lines, such as the DATA statements corresponding to a READ routine. Correct all the problems you can find, and SAVE a corrected copy of the program before typing RUN again.

3. LIST the program in screen-size chunks (check your manual for instructions on how to LIST parts of a program) or get a printout. Compare what you've typed in—letter by letter—to the published program. Make sure that you haven't dropped or mixed up some punctuation, switched uppercase text for lowercase, or vice versa, or miscounted the characters (and/or spaces) between a pair of quotes.

4. Mistakes in DATA statements are the single most common cause of program failures. If you can't find your error in the lines the computer specifies, check your DATA statements line by line, letter by letter, comma by comma.

5. If all else fails, turn off your computer and relax. Then try again the next day—exhausted proofreaders are careless proofreaders.

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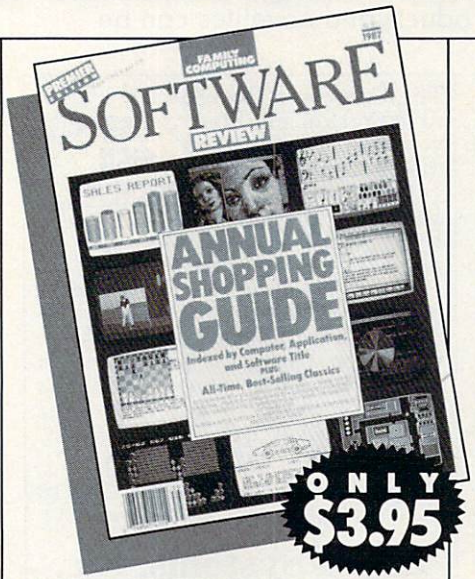

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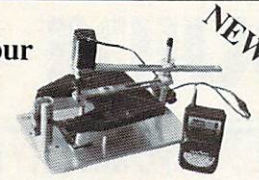

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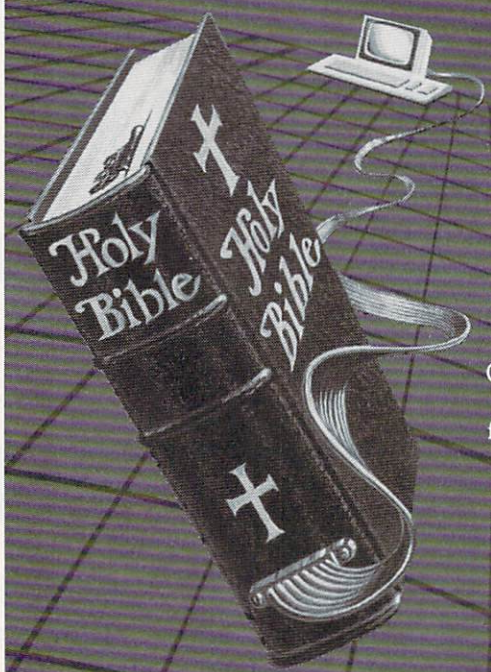

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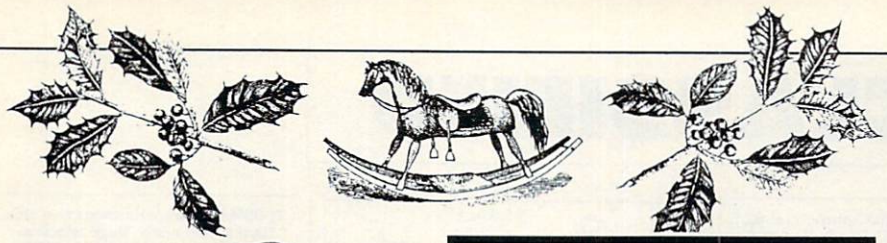

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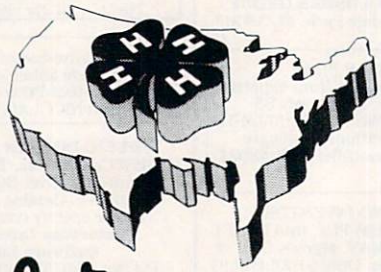

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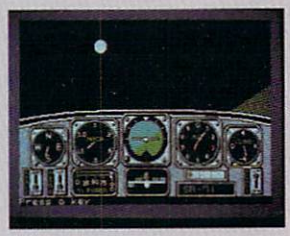

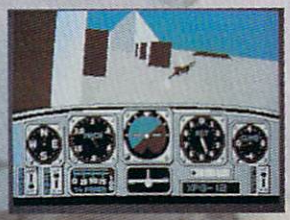

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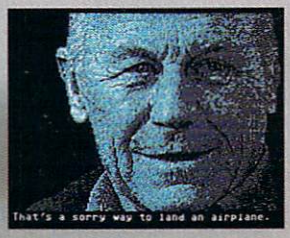

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SIGMA 7 Accolade, Inc. 20813 Stevens Creek Blvd. Cupertino, CA 95014 (408) 446-5757 $15 © 1987	First you steer a starship through a field of space mines, then through a Pac Man type maze. Finally, you use clues to solve a puzzle. Action-packed, but it lacked "legs." —DELSON	C 64/128. Joystick.	90-day warranty. $10 thereafter or for backup.	★ ★	★ ★	★ ★	★ ★	A	★ ★ ★
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TOP FUEL ELIMINATOR Gamestar/Activision 2350 Bayshore Parkway Mountain View, CA 94043 (415) 960-0410 $30 © 1987	The most interesting part is the time spent fine-tuning your 2,500-horsepower dragster before every six-second, quarter-mile race. Falls well short of its potential. —LANGENDOEN	Reviewed on Apple IIe/IIc. Also for C 64/128. Joystick (optional Apple).	90-day warranty. $7.50 thereafter.	★	★ ★	★	★	A	★
TOWER OF MYRAGLEN PBI Software 1163 Triton Dr. Foster City, CA 94404 (415) 349-8765 $55 © 1987	Liberally sprinkled with monsters and puzzles, this fast-moving arcade adventure delivers wonderful graphics and sound effects, as well as a good challenge.† —LANGENDOEN	512K Apple IIGS. 768K, MDIdeas SuperSonic card recommended.	90-day warranty.	★ ★ ★ ★	★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	A	★ ★ ★
YAK'S PROGRESS Eurosoft International 114 East Ave. Norwalk, CT 06851 (203) 838-9890 $20 © 1984–1986	A collection of eight games (seven pure shoot-'em-ups, one with added strategy) imported from England. Fun for a while, but no single game would be worth a separate purchase. —DELSON	C 64/128. Joystick.	90-day warranty. $10 thereafter. Not copy-protected.	★ ★	★ ★ ★	★ ★	★	A	★ ★

RATINGS KEY **O** Overall performance: **D** Documentation: **PS** Play System **GQ** Graphics quality: **EU** Ease of use: **V** Value for money: ○ Poor: ★ Average: ★★ Good: ★★★ Very Good: ★★★★ Excellent: N/A Not applicable: E Easy: A Average: D Difficult: † Longer review follows chart

*Titles listed for the IBM PC will also run on many IBM PC compatibles; owing to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

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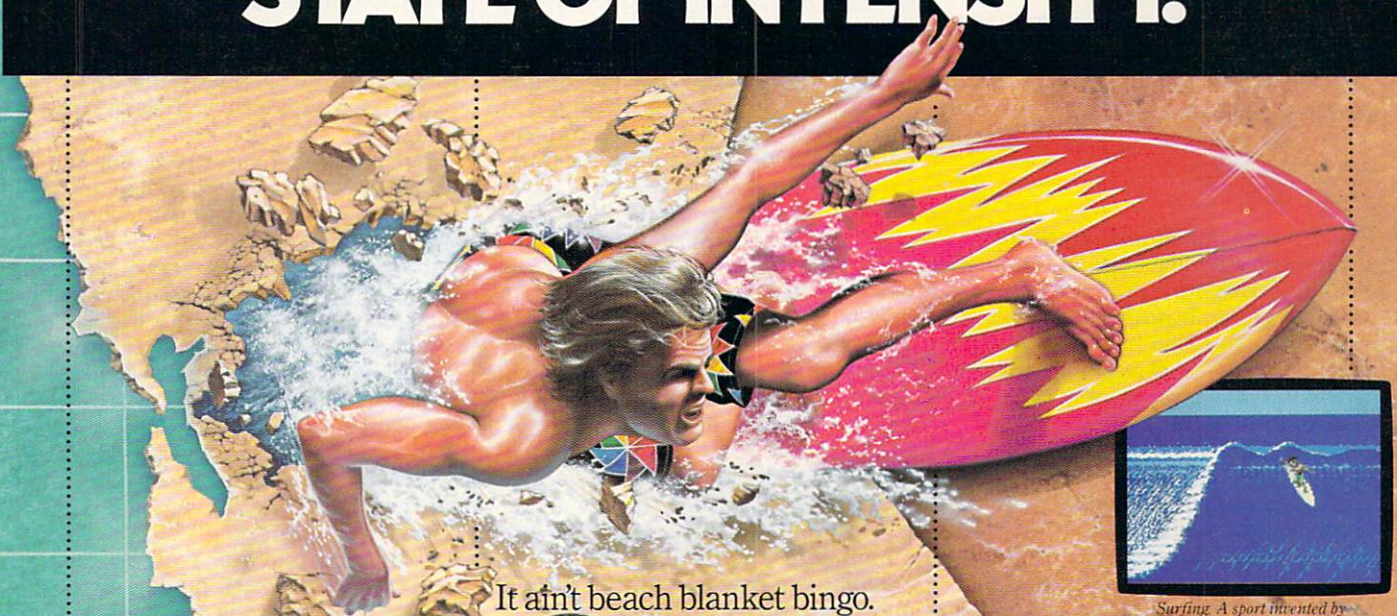

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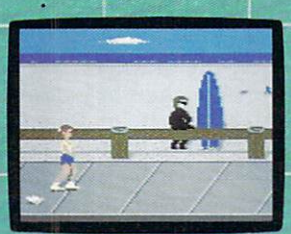
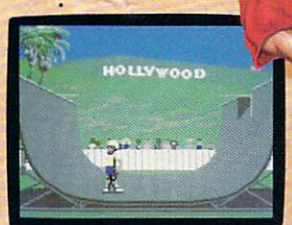
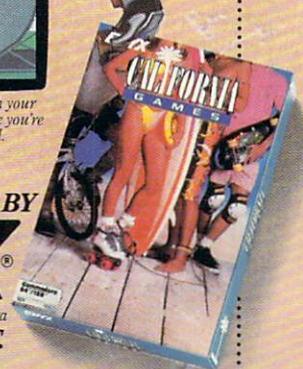


Slalom the boardwalk obstacle course on roller skates.



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



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SOFTWARE REVIEWS

On the following pages, you'll find in-depth reviews of some of the programs listed in the Software Guide. Refer back to the Guide on page 78 for information such as backup policies and addresses of software publishers.

BUSINESS & PRODUCTIVITY

Ability Plus

HARDWARE REQUIREMENTS: 384K IBM PC.
PUBLISHER: Migent, Inc.
PRICE: $259

There's more to choosing an integrated software package than merely deciding which product does the best job of combining its various functions. You also have to compare each package's individual features with similar, stand-alone products. *Ability Plus* earns high marks on both counts. Its word processing, spreadsheet, database, graphing, and communications modules easily share data with one another, as well as with other popular programs. It also comes with *Presentation*, a utility that lets you organize screens from *Ability* applications into a computer slide show.

Ability files can be linked, for instance, so that updates made to a spreadsheet segment that's part of a word processing document will also be made to the spreadsheet file itself. Moving bar menus make it easy to get around, and you can "flip" instantly between any two *Ability* applications.

The *Ability Plus* word processor offers all of the usual basic features, plus multiple-line headers and footers, and a good spelling checker. Wide documents can be printed sideways as well as vertically.

The spreadsheet allows up to 9,999 rows and 702 columns. It provides unlimited macros and 46 built-in functions, including average and sum. It has windows that scroll together or separately to let you look at different parts of the same worksheet simultaneously. Sorting and selection capabilities give this module some database power.

Data from spreadsheets can be displayed in nine different styles of graphs, ranging from exploded pie to stacked bar. You can enter the data directly, but it's more exciting to import it from the spreadsheet. When you import the data, you can have the graph redrawn automatically whenever the parent file changes.

Ability's database lets you use logical and relational operators (such as greater than or less than) as well as wild-card characters (one character that represents several possible characters) when searching and sorting. Its reporting capabilities include a mail-merge feature.

The Hayes-compatible communications program uses auto-log-on files that you create with the *Ability* word processor. You can save a communications session and upload or download data.

Presentation, the slide-show program, provides several ways of fading from one screen to another. You can enhance each screen with snippets of tunes ranging from Beethoven to Sousa.

Ability Plus is both flexible and capable. Each of the six applications is easily worth more than its share of the purchase price. If you plan to work with extremely large files or need unusual formats in one area, you'll probably still want to buy a stand-alone application. Many users, though, will discover that *Ability* is all the productivity software they need.

—TAN A. SUMMERS

Diga!

HARDWARE REQUIREMENTS: 512K Amiga.
PUBLISHER: Aegis Development, Inc.
PRICE: $80

If you're planning to connect your Amiga to the world, you'll need a good communications program. *Diga!* fills the bill with phone directories, log-on scripts, command key macros, multiple file-transfer formats, and a variety of terminal emulation modes. There's even a utility program that converts Tektronix format graphics programs to *Aegis Draw* or *DrawPlus* format. It's a complex program with a wonderful name (if one said *Diga, amiga* in Spanish, it would mean *Speak, friend*), yet it's easy to use thanks to good implementation of the Amiga's menu environment.

Diga!'s phone directories store configuration information (such as baud rate and parity), so whether you dial a remote information service or a local bulletin board, you'll have the right communications parameters. You can also change the current setup using an instant menu.

Diga! log-on scripts are written in their own programming language. Creating them may be a challenge for nonprogrammers, but the keystroke macros (which perform similar functions) are easier to create. You can store up to 80 characters under each function key or control key/function key combination, for a total of 50. Another interesting *Diga!* feature is its Doubletalk mode, which lets you chat with another *Diga!* user while you're transferring files.

The *Diga!* text-capture buffer can be set to any size up to 512K, and it can be made to loop so that when the buffer fills you lose the oldest information first. You can save, send, view, or print the buffer and transfer information stored in it to the Amiga Clipboard for use with other programs. You can transfer either ASCII or binary files using six different protocols, including CompuServe B, Kermit, and several versions of XModem. You can also use *Diga!* to set up your Amiga for remote access by other computers.

I was unhappy with the documentation's index, which listed only the commands shown on the menus. I had to dig for some specific facts, such as how to use the Tektronix conversion utility. Otherwise I had no problems with the program. Its many features make it a fine choice for Amiga communications.

—TAN A. SUMMERS

EDUCATION & CREATIVITY

816/Paint

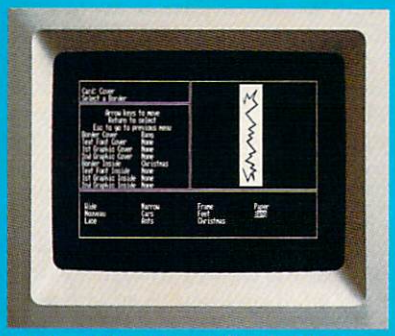
HARDWARE REQUIREMENTS: 128K Apple IIe/IIc, 512K Apple IIGS.
PUBLISHER: Baudville
PRICE: $75

816/Paint is a comprehensive paint program designed to use the maximum graphic capabilities of the Apple IIGS, and yet it also includes paint programs that use the standard and double hi-res modes of the Apple IIe and IIc. This makes *816/Paint* the most versatile Apple II paint program on the market.

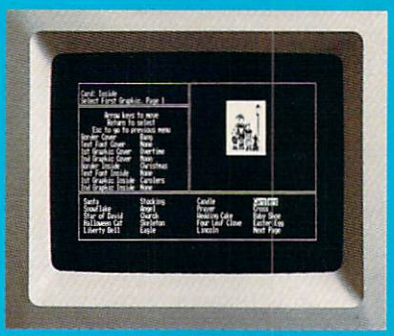
With all of the now common icon-based art features, *816/Paint* also gives you variable magnification when you're working close-up in the zoom—or fatbits—mode. Color animation can be produced by cycling the palette colors for any particular shade. Additionally, you can produce

A greeting card in 5 minutes? Easy.

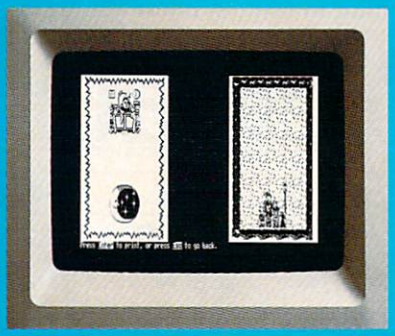
RUNAWAY BESTSELLER!



10:00— *Pick from 11 beautiful borders. Add 20 extra with Fonts & Borders.*



10:01— *Choose from over a hundred high-quality graphics and put two different ones on the same page. Select from hundreds more with Art Galleries.*



10:02— *Preview and make changes anytime without starting over. What a time saver!*

10:03— *Craft your message from 10 expressive typefaces in upper and lower case. Add 20 extra with Fonts & Borders.*

10:04— *And preview again.*

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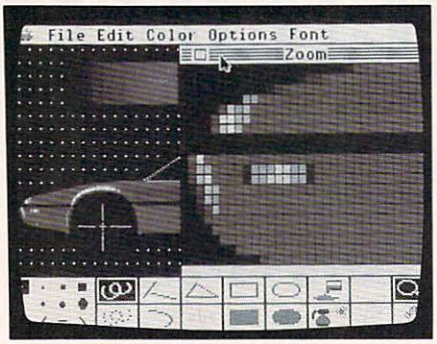
full-page pictures, as well as capture and enlarge or reduce any part of a picture.

The program uses conventional pull-down menu features and keyboard shortcut controls. Palette colors are easy to change, and patterns can be produced in various colors. The features you're most likely to change frequently—such as color and pen shape—are present on the screen so that menus need not be accessed to change them, a useful and time-saving feature.

I used *816/Paint* to produce a color poster for the first-ever family reunion of my husband's relatives, which attracted people from across the country. I then took a part of the poster, reduced it to a size suitable for a logo on a name tag, added "Frank Family Reunion," copied it eight times onto one page, and produced name tags for all 75 members attending the reunion. The tags and the poster were huge successes.

I read the manual as an afterthought; it was brief but concise. It also contained instructions on the use of some advanced features.

816/Paint is a well-executed, comprehensive paint program that takes



the IIGS into new graphic realms. The only drawback—as usual—is that the technology of color printing lags behind the capabilities of the color produced on the screen.

—CATHY FRANK

The Comic Strip Factory

HARDWARE REQUIREMENTS: 512K Macintosh.
PUBLISHER: Foundation Publishing, Inc.
PRICE: $90

From the truly bizarre to the merely mundane, the denizens of your imagination can easily be brought to life with *The Comic Strip Factory* (*TCSF*). Whether you rival Gary Trudeau or can't even draw a straight line, in a short time *TCSF* will have you making original, professional-looking comics.

For the complete beginner, a brief perusal of the first few pages of the manual will teach you all you need to know to get started. *TCSF* comes complete with six predrawn characters; such unheard of beings as Broadway Bug, Sweet Patootie, Tawny Dancer, Root Wiz, Slytho, and Fred Nerd. The characters come in "parts" files—an arm here, a leg there, and a few props thrown in, too. By mixing and matching the parts, you can create thousands of different poses and actions. Also included are several widely varying backgrounds (such as a street scene) that can be scrolled until you find the portion which seems to fit the strip you're creating.

The doodler and amateur artist will find that *TCSF* is like a dream come true. Design your own characters and save them to disk, or modify the existing ones to your heart's content. Have a part or character face another direction by flipping it on its axis, create dramatic effects by inverting its pixels, then use the editor to make sure everything is

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The SEXU-CATION program generates questions from subject areas selected from a menu by the user. If a wrong answer is given to a particular question, a detailed explanation is immediately displayed. This immediate feedback is important to facilitate learning. When a question is answered incorrectly, both the question and answer are saved and can be reviewed at the end of the session. The questions are randomly selected from a large database of 500 questions. This large database allows many sessions to be conducted without the boredom of having the same questions come up each time.

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just as you want it. Take a bunch of parts, group them together, and voilà!: a figure you can position anywhere (have them jump between panels), duplicate, or silhouette.

With a click and a drag of the mouse, you can quickly customize the entire page layout, choosing the number and shape of all the panels. Or jump to the text creator/editor, choose a suitable font, then write your characters' dialogue.

So let me suggest that when you first use *TCSF*, dive right in, work with the existing files, and create the most outlandish plots and scenes possible. Later, read through the manual and discover the program's untapped potential. Finally, try creating characters and backgrounds on your own. You may be pleasantly surprised at your own abilities. —JEFF DONAHUE

The Quarter Mile

HARDWARE REQUIREMENTS: 64K Apple.
PUBLISHER: Barnum Software
PRICE: $45

Do you find that your child doesn't do as well on school exams because he or she can't complete the work in the time allotted? Or would you like to increase your own speed in thinking out problems? *The Quarter Mile* can assist in speeding up your mental processes. The program's goal is to hone a user's adeptness at quick responses. The topics presently offered are mathematical in nature, but supplementary disks in subjects such as science or English will soon be available.

The program is set up as a competitive auto race, complete with the sounds of revving motors and speeding cars. Whether or not the car you're "driving" wins depends on your mental agility. You're penalized with a short pause in your car's speed if an incorrect answer is given, and then you're given another chance at the problem. Wrong answers trigger another aspect of the program, however. Problems that elicit incorrect responses are more likely to be repeated within a race. Correct answers are rewarded by increasing your car's speed.

Even though it has such a simple theme, *The Quarter Mile* is packed with features. You can choose from slow races—allowing a beginner to build up speed—or fast races—which challenge quick-witted competitors. The results from several races can be saved and compared, so you can measure your progress.

All in all, *The Quarter Mile* is fun and easy to use. The manual is clear to read; it helps you get the most from the program. Most important, the enjoyment of playing brings you back again and again; that repetition is necessary to increase speed in solving problems. I look forward to seeing the supplementary subject disks that the publisher says are forthcoming. —JUDITH ZORNBERG

ENTERTAINMENT

The Ancient Art of War at Sea

HARDWARE REQUIREMENTS: 256K IBM PC.
PUBLISHER: Broderbund Software
PRICE: $45

You'll never have to swab the decks in *The Ancient Art of War at Sea*. It's a realistic game, but not to the point where it drags the game down. *War at Sea* is one of the few war simulations, much less naval simulations, that calls for a wide-scale use of tactics and strategy and yet

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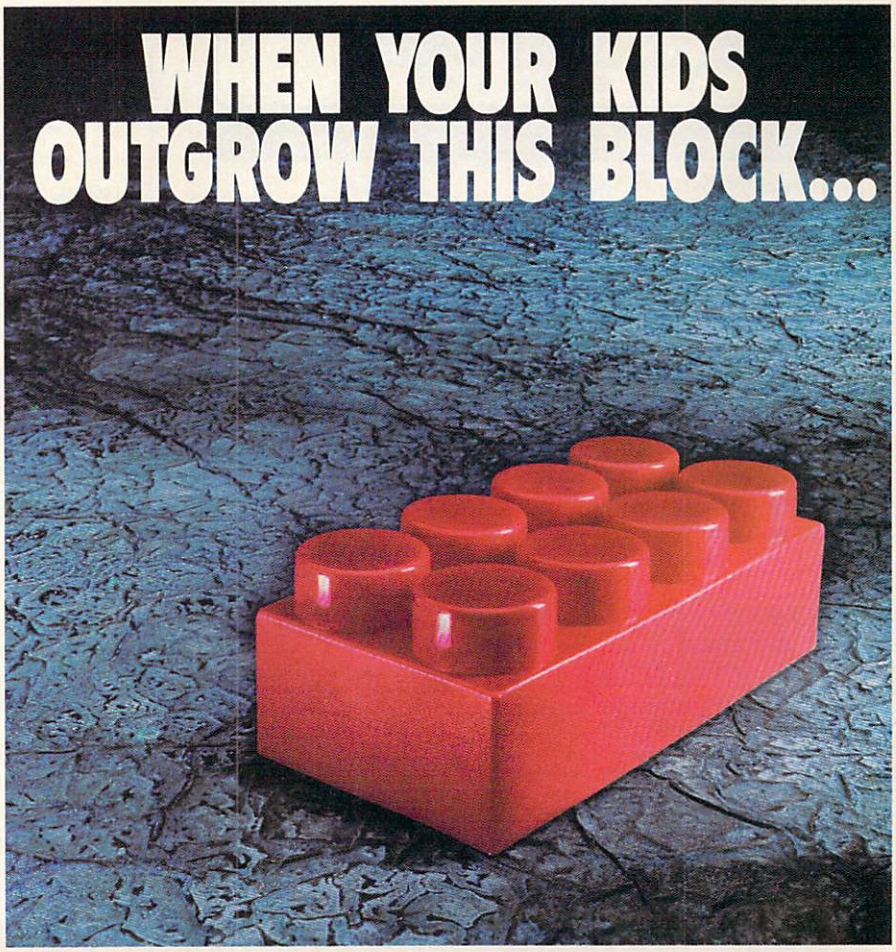
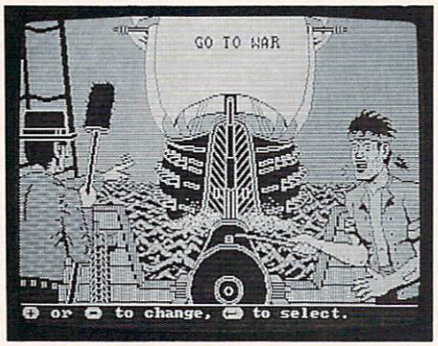


also provides consistent excitement. Not only can you play and modify the 11 battles provided, but you can create your own scenarios as well.

The game is set during the age of wooden hulls, sails, and cannon. The scenarios are, for the most part, based on famous historical conflicts. There are also imaginary conflicts and even one modern-day scenario (you have to use your imagination for this one).

During a battle, the player commands squadrons of ships consisting of frigates, ships-of-the-line, and flagships. Ships may dock to receive supplies and make repairs, or they can sail across the wonderfully detailed play screen (ragged coastlines and various water depths) and fight the enemy. When ships engage each other, the player can "zoom" in and personally command the battle or simply let the computer handle it. If the zoom option is used, the play screen becomes a close-up of the battle area.

Each ship is depicted and can be controlled individually. The reload time, gun range, and experience of the crew become major factors as the ships maneuver for good positions to blast broadside at each other. Ships can also come together and grapple, in which case the player commands the men in a close-up of the ships' decks.



Constructing your own scenarios is time-consuming but straightforward. Maps are assembled by putting together predesigned pieces. Fleets are equally simple to design.

The only complaint I have against *War at Sea* is that the scenarios provided with the game aren't challenging enough if a player is very good at the arcade-style fights. However, this is easily corrected by modifying the battles to make them more difficult.

Drop your mops and take command of the best naval simulation to date. —DAVID LANGENDOEN

Stationfall

HARDWARE REQUIREMENTS: 64K Apple, IBM PC.
PUBLISHER: Infocom
PRICE: $35–$40

Here we go again. Not only has Infocom come up with a sequel to *Planetfall*, but it has delivered another winner.

It's been five years since you and your faithful and rambunctious robotic companion, Floyd, saved the planet Resida from destruction. No longer do you have to scrub and rescrub decks, or clean out grotch cages while domineering, demonic lieutenants glare at you. Now you're a lieutenant first-class, and it's your duty to perform one of the most vital and important functions in the Stellar Patrol . . . paperwork. There is so much paperwork in fact that you sometimes catch yourself daydreaming about grotch cages. Look at today's TOP PRIORITY assignment, for example. You've got to fly a space truck to a nearby space station and pick up 24 pallets of "Request for

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Humor and challenge abound in *Stationfall*. Half of the fun is performing bizarre or stupid actions and seeing how the computer responds. As usual, Infocom's full-sentence parser and vast vocabulary facilitate communications with the program. The main difficulty with the game is that one of the problems is fairly obscure and you could easily become stuck.

If you do have any trouble solving *Stationfall*, look on the bright side. When you finally complete it, you'll surely be promoted and assigned new duties. What could possibly be worse than paperwork?

—DAVID LANGENDOEN

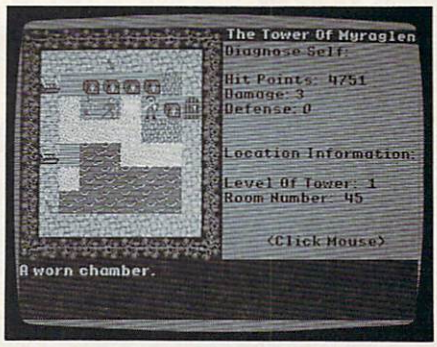
Tower of Myraglen

HARDWARE REQUIREMENTS: 512K Apple IIGS.
PUBLISHER: PBI Software
PRICE: $55

The packaging of *Tower of Myraglen* is its main problem; you literally need a screwdriver or knife to get through the heavy plastic case. However, once this obstacle is surmounted, *Myraglen* presents an outstanding arcade adventure (and if you have MDIdeas' SuperSonic Stereo Card, it's all the more outstanding).

The player, a Knight of Justice, must try to save his kingdom from destruction by recovering the Medallion of Soul Stealing from the Tower of Myraglen. The multileveled Tower has many innovative tricks, puzzles, and monsters—one of the puzzles isn't even related directly to the game itself (that's all I'll say). The player moves the Knight through the halls and rooms (shown graphically) using the mouse or keyboard.

The balance between action and thought is a good one. The puzzles



are not overly difficult—appropriate for a game of this genre—and they make for a refreshing change of pace from running around and killing monsters. It's a challenging game, but rarely frustrating. If you do have trouble, clues are always at hand.

Sharp and colorful graphics are used throughout, so much so that they are easy to take for granted. But action games cannot live on graphics alone. They need sound and music, of which *Myraglen* has plenty, including being in full-stereo with the above mentioned MDIdeas' card. The crisp, clear notes are impossible to miss from the opening screen to your character's death scream.

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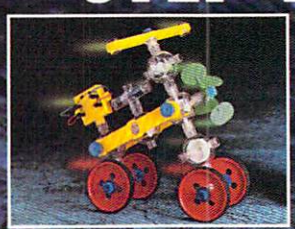

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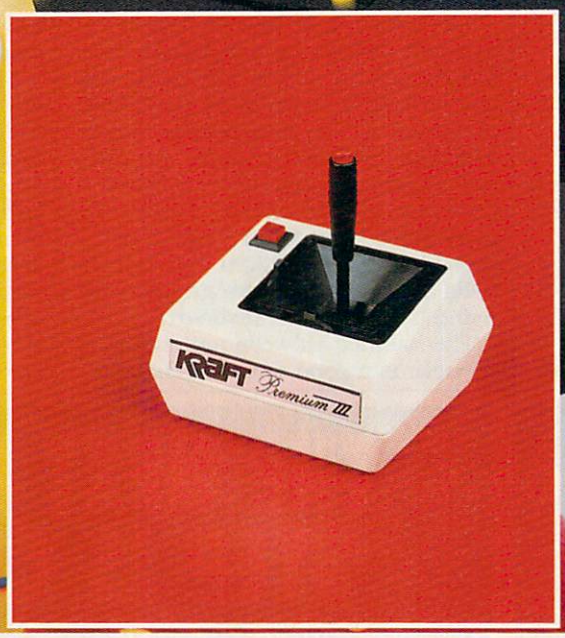

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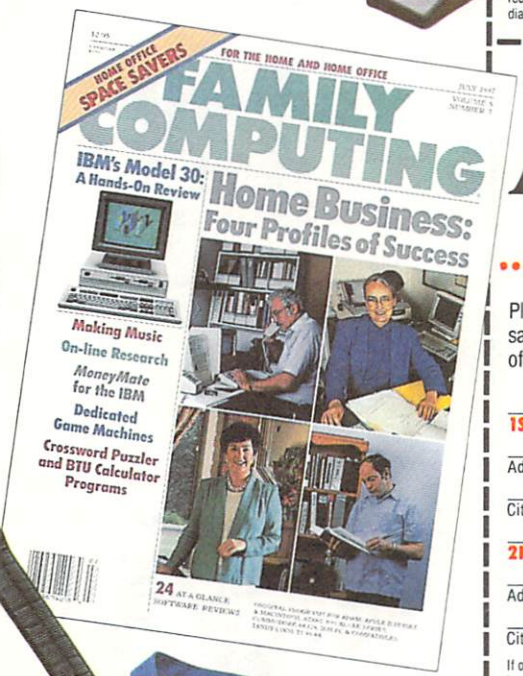

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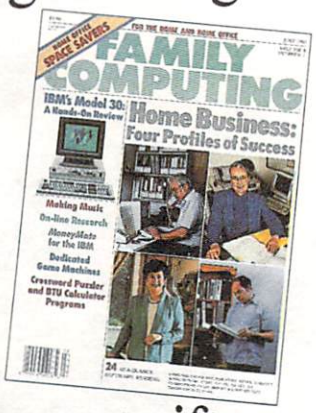

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