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(see page 52)

BUYER'S GUIDE—HOME COMPUTER SOFTWARE SAMPLER!

October 1989

COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

1990 Home Computer Guide

Are You a Power User?

- 20 Questions Rate Your PC Prowess
- Tips and Techniques to Raise Your Score

Novel Uses for Your Home PC

- Practical Programs for Nursery to Wine Cellar

5 DOS Shells

- How They Work
- Which Is Best

Children and Computers

- Kid-Friendly Hardware
- Programs for Kids

4 Horror Shockers!

- Scary Software Stories
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PLUS

- Flight Simulator Lessons!
- PC Power Strategies!
- Reviews!



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With Squadron Strategy**

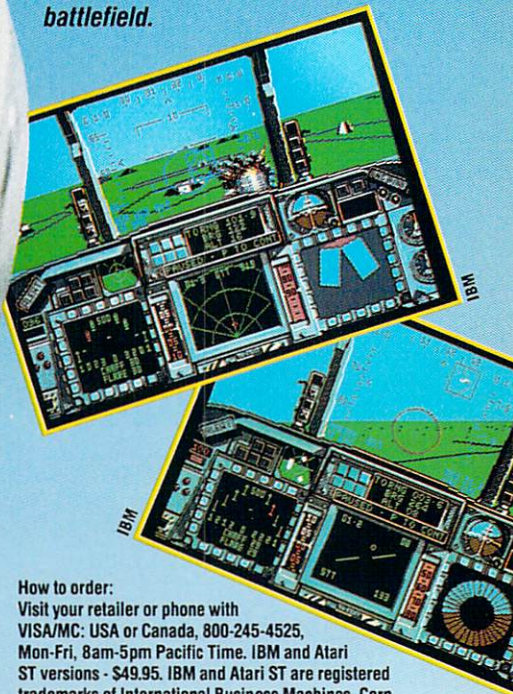


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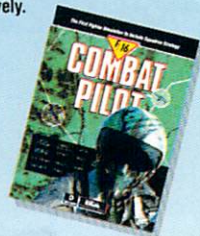
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Personal Budget for The Sinclair Family

Car Loan Repayment Schedule for Business Car #1

Mortgage Payment Schedule

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Personal Budget for 1989 The Sinclair Family

Car Loan Repayment Schedule for Business Car #1

Period	Balance	Payment	Interest Payment	Principal Payment	Cumulative Interest	Cumulative Principal
1	15625.00	355.52	169.27	186.25	169.27	186.25
2	15438.75	355.52	167.25	188.26	336.52	374.51
3	15250.49	355.52	165.21	190.30	501.74	564.81
4	15060.19	355.52	163.15	192.36	664.89	757.18
5	14867.82	355.52	161.07	194.45	825.96	951.63
6	14673.37	355.52	158.96	196.56	984.92	1148.18
7	14476.82	355.52	156.83	198.68	1141.75	1346.87
8	14278.13	355.52	154.68	200.84	1296.43	1547.70
9	14077.30	355.52	152.50	203.01	1448.94	1750.72
10	13874.28	355.52	150.30	205.21	1599.24	1955.93
11	13669.07	355.52	148.08	207.44	1747.32	2163.36
12	13461.64	355.52	145.83	209.68	1893.16	2373.05
13	13251.95	355.52	143.56	211.95	2036.72	2585.00
14	13040.00	355.52	141.27	214.25	2177.99	2799.25
15	12825.75	355.52	138.95	216.57	2316.93	3015.82
16	12609.18	355.52	136.60	218.92	2453.53	3234.74
17	12390.26	355.52	134.23	221.29	2587.76	3456.03
18	12168.97	355.52	131.83	223.69	2719.59	3679.71
19	11945.29	355.52	129.41	226.11	2849.00	3905.82
20	11719.18	355.52	126.96	228.56	2975.95	4134.38
21	11490.62	355.52	124.49	231.03	3100.44	4365.41
22	11259.58	355.52	122.00	233.52	3222.44	4600.00
23	11026.05	355.52	119.49	236.03	3341.93	4838.03
24	10789.98	355.52	116.96	238.56	3458.89	5079.59
25	10551.35	355.52	114.41	241.11	3573.30	5324.70
26	10310.14	355.52	111.84	243.68	3685.14	5573.38
27	10066.32	355.52	109.25	246.27	3794.39	5824.65
28	9819.85	355.52	106.64	248.88	3901.03	6078.53
29	9570.75	355.52	104.01	251.51	4005.04	6335.04
30	9318.98	355.52	101.36	254.16	4106.40	6594.20
31	9064.52	355.52	98.69	256.83	4205.09	6856.03
32	8807.35	355.52	96.00	259.52	4301.09	7120.55
33	8547.45	355.52	93.29	262.23	4394.38	7387.78
34	8284.80	355.52	90.56	264.96	4484.84	7657.74
35	8019.38	355.52	87.81	267.71	4572.45	7930.45
36	7751.15	355.52	85.04	270.48	4657.19	8205.93
37	7480.10	355.52	82.25	273.27	4739.04	8484.20
38	7206.20	355.52	79.44	276.08	4817.98	8765.28
39	6929.42	355.52	76.61	278.91	4893.99	9049.19
40	6649.75	355.52	73.76	281.76	4967.00	9335.95
41	6367.15	355.52	70.89	284.63	5037.00	9625.58
42	6081.60	355.52	68.00	287.52	5103.99	9918.10
43	5793.08	355.52	65.09	290.43	5167.98	10213.53
44	5501.55	355.52	62.16	293.36	5228.94	10511.89
45	5207.00	355.52	59.21	296.31	5286.75	10813.20
46	4909.40	355.52	56.24	299.28	5341.43	11117.48
47	4608.72	355.52	53.25	302.27	5392.90	11424.75
48	4304.95	355.52	50.24	305.28	5441.00	11735.03
49	3998.05	355.52	47.21	308.31	5485.63	12048.34
50	3688.00	355.52	44.16	311.36	5526.79	12364.70
51	3374.75	355.52	41.09	314.43	5564.40	12684.13
52	3058.25	355.52	38.00	317.52	5598.30	13006.65
53	2738.45	355.52	34.89	320.63	5628.40	13332.28
54	2415.25	355.52	31.76	323.76	5654.50	13661.04
55	2088.60	355.52	28.61	326.91	5676.50	14000.00
56	1758.45	355.52	25.44	330.08	5694.20	14349.08
57	1424.75	355.52	22.25	333.27	5707.45	14708.35
58	1087.45	355.52	19.04	336.48	5716.10	15077.83
59	746.45	355.52	15.81	339.71	5720.00	15457.54
60	401.65	355.52	12.56	342.96	5719.00	15847.50
61	58.10	355.52	9.29	346.23	5713.00	16247.73
62	0.00	355.52	6.00	349.52	5701.90	16658.25

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COMPUTE!

THE CHOICE OF HOME PC ENTHUSIASTS SINCE 1979

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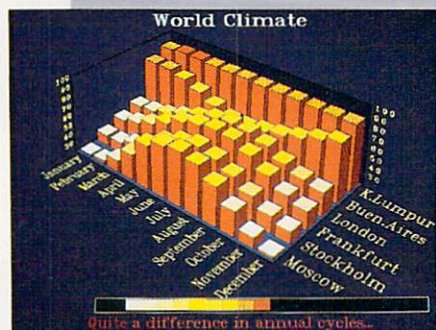
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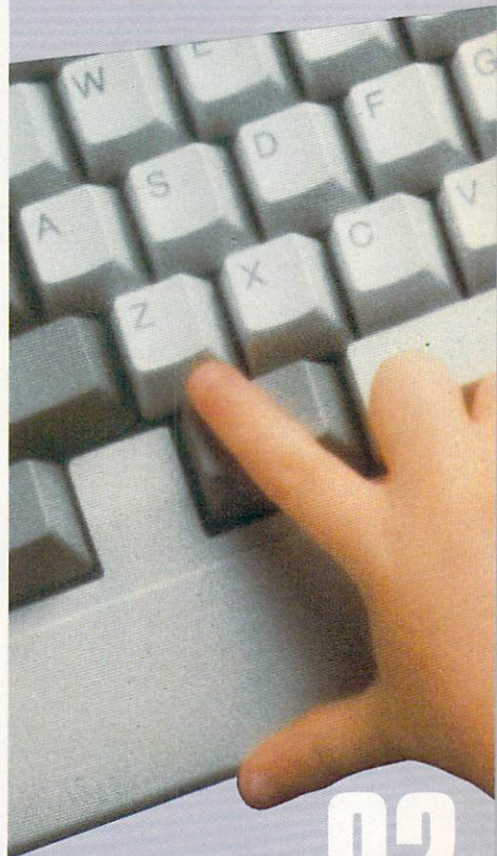
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Macintosh /18/HEIDI E. H. AYCOCK

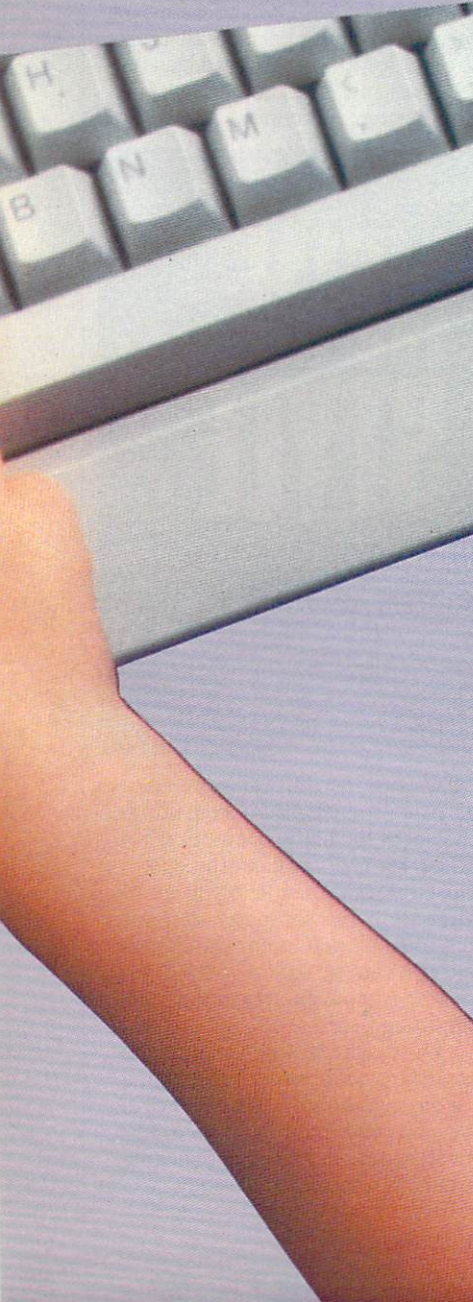
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PRODUCTIVITY

COMPUTE! CHOICE /68/DAVID STANTON

The latest version of *BetterWorking Eight-in-One* brings value home.

A NEW FACE ON DOS /76/DAN GOOKIN

Beauty is skin deep, so give your DOS prompt a makeover.

PC PRIMER /82/HINTS AND TIPS FROM OUR READERS

A boot/data disk boosts double-floppy system power.

LEARNING

COMPUTE! CHOICE /84/KRISTEN STERNBERG

Hidden Agenda lets every kid grow up to be el Presidente.

KIDS' TIME /92/LESLIE EISER

Make your computer child-accessible, not childproof.

HOMEWORK /98/HINTS AND TIPS FROM OUR READERS

Family fun with a do-it-yourself grammar game.

ENTERTAINMENT

COMPUTE! CHOICE /100/KEITH FERRELL AND PETER SCISCO

Omega programs innovation into tank-warfare games.

NIGHTMARE ON GAME STREET /106/SHAY ADDAMS

Four chillin' games that go bump in the night.

GAMESCOPE /112/HINTS AND TIPS FROM OUR READERS

A quick flying lesson for would-be computer pilots.

COLUMNS

EDITORIAL LICENSE /4/PETER SCISCO

A bolder *COMPUTE!*—open your eyes to a new decade and enjoy.

IMPACT /72/DAVID D. THORNBURG

The complex computer revolution depends on simplicity.

DISCOVERIES /88/DAVID STANTON

Multimedia thrills and fire drills for educators.

GAMEPLAY /104/ORSON SCOTT CARD

Game interfaces evolve to support real (or reel) player interaction.

OFF LINE /151/DAN GOOKIN

Believe it or not, I've got to take a stand.

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P E T E R S C I S C O

Ten years is a long time in the magazine business, an eternity in the computer business. Both enterprises boast more shakeouts than a Hollywood hair salon. A discriminating audience, computer-literate and future-bound, makes short work of any computer magazine that fails to fulfill its promise.

COMPUTE! is still here: strong, lively, and dedicated to the world of home computers. From the VIC-20 and the Atari 800, through the Commodore PET and the CoCo, into the days of the Commodore 64 and the Apple II, and finally to a world where IBM PC and compatible computers dominate in the home (80 percent of our readers use an MS-DOS machine), *COMPUTE!* has evolved as the computing community has evolved. We've embraced the new technologies and celebrated the old. We've written the stories and shared the perspectives that have made the personal computer the harbinger of the Information Age.

But time waits for no one, and if you've thumbed through this issue of *COMPUTE!*, you've noticed quite a change. A bolder palette with a much stronger presentation may catch your eye first. But look deeper. We've broadened our scope as well, bringing in special departments devoted to productivity, entertainment, and learning. And we're launching a special section dedicated to in-depth explorations.

No matter what you use your computer for, you'll find new uses inside our trio of departments. Parents and teachers alike can look to our Learning department for the products, strategies, and techniques that make the home computer an educational wonder. At a time when policy makers and self-proclaimed experts bemoan the mediocre performance of our schools, you can be sure that you and your children are prepared for the future because of the discoveries you

make at your home computer. The computer isn't a substitute for school, but a tool for moving beyond those walls and into the world of imagination. And we can help you, and your children, make that leap.

Game players can keep up with the latest toys through our Entertainment section, and they can put their computers to work with what they glean from our Productivity pages. And, for those of you who bought your computer for serious work, discover how truly productive your computer can be when it becomes a focal point of family fun and curiosity.

Each department not only offers informational features, but also profiles what we call a *COMPUTE!* Choice: a product representative of the best and the brightest in that area. This month we look at the updated version of *BetterWorking Eight-in-One*, an inexpensive integrated package that can help you be more productive; we cast our vote for *Hidden Agenda*, a game that uncovers the gray areas of diplomacy and should spark discussions at home and in school for some time; and *Omega*, a cybertank war game that gives group entertainment a new meaning and brings programming out of the basement and into the living room.

Another addition to *COMPUTE!* is our In Focus section, in which we expand upon a single topic—complete with features, guest columns, a buyer's guide, and a resource page for expanding your horizons. And don't overlook our monthly In Focus disk offer; the disk features a collection of outstanding shareware programs that exemplifies the special area of home computing we've covered in that issue. We've take special care to select packages that bring real value to your PC; each month you'll have a chance to increase your software library and expand the usefulness of your computer.

This anniversary issue of *COMPUTE!* doesn't close a book. It opens a new chapter. And to that end we look ahead in a special anniversary

story about the future of home computing—the products and ideas in development today that will shape the way you and your children will use computers tomorrow. No more pie in the sky; take a look at the reality of the 1990s.

But don't worry that we've completely abandoned our old ways. You'll still find our Specific section (now with two MS-DOS columns: one for beginners and intermediate users, the other for more advanced users) with news and views about your favorite system, our concise and honest

NEW LOOK

NEW
STYLE

NEW CONTENT:
INTRODUCING
THE NEW
COMPUTE!

reviews, our insightful columnists, plus new-product announcements and news about the home computing front.

COMPUTE! will continue to write stories that can help you get the most out of your computer, no matter what software you use or what hardware you choose. And it will maintain its place as the authority in the home computing field.

The magazine you're holding reflects several months of big dreams, long days, and hard work. A lot of enthusiasm went into it, and we think a lot will come out of it. So open your eyes to a new decade and enjoy. □



Konami is bringing hot shots like you down to earth.

It's time to get your head out of the clouds. Because Konami is zeroing in on you with AJAX™ and Life Force™, two explosive new computer games.

In AJAX you'll command the world's hottest fighters, dogfighting to the death with planes, tanks, ships and an armada of UFOs loaded with surprise attacks. While in Life Force you'll duel with Zelos, an all-engulfing, planet-eating alien who's hungry to take a bite out of your plutonium-packed star cruiser.

So, if you think you're the hottest fighter jock ever to blister the skies with a heat seeking missile, take a shot at AJAX and Life Force.

But be warned. The first thing to go down in flames will be your ego.

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AJAX is available for Commodore, Amiga, IBM/100% compatible computers. Life Force is available for Commodore® only. AJAX™ and Life Force™ are trademarks of Konami Inc. Konami is a registered trademark of Konami Industry Co., Ltd. IBM® is a registered trademark of International Business Machines Inc. Commodore® is a registered trademark of Commodore Electronics Ltd. Amiga® is a registered trademark of Commodore-Amiga, Inc. © 1989 Konami Inc.

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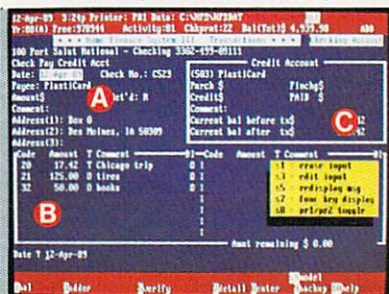
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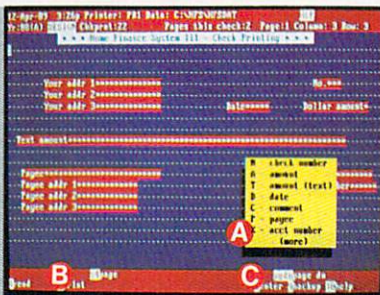
- A. Just start typing the account name or number and a Smart Menu finds the closest match. Payee, address and date are filled in automatically.
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- C. Remembers amount owed and expense codes.

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- B. Keep checks in one printer, report paper in another. Toggle with one keystroke.
- C. Design and save 3 different formats.



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Capacity: Define up to 100 asset or checking accounts, 100 credit accounts, four 30-character macro keys, three check formats, 14 expense codes per check, 100 expense codes, 15 deposit codes. Number of models and transactions limited only by disk space. Up to 10 years of data on-line as disk space allows. 100% assembly language.

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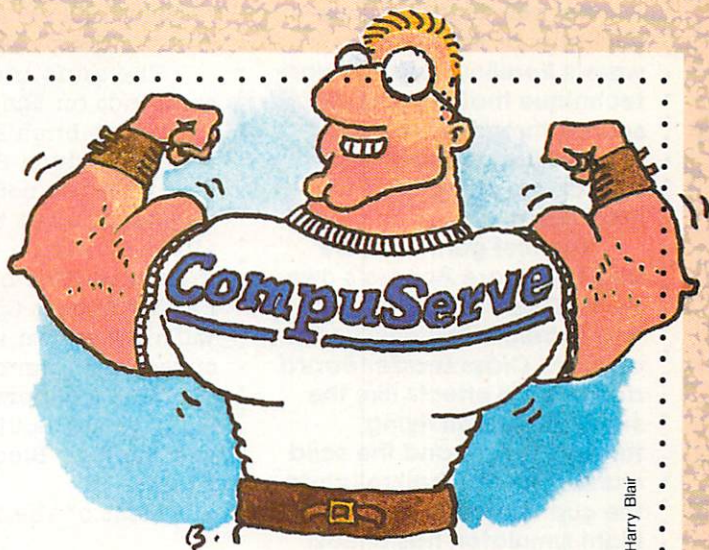
NEWS & NOTES

COMPUSOURCE?

Not even online services are immune from the atmosphere of corporate takeovers, acquisitions, and mergers, as CompuServe's buyout of The Source illustrates. The two information services share many of the same features, but each has unique offerings. The combination of the two could result in an even better resource for subscribers.

CompuServe subscribers won't be affected, but Source subscribers will be converted to a CompuServe membership. CompuServe will send an ID number and a password to former Source subscribers and include an added bonus of \$20 worth of free time. The online cost will remain the same (\$6.00/hour at 300 baud; \$12.50/hour at 1200-2400 baud).

CompuServe expected to increase its subscription numbers significantly with the buyout. Source representatives estimated a 25-percent overlap between users of the two services, which would translate into an additional 39,750 clients for CompuServe.



One of CompuServe's transitional tasks is to evaluate and consolidate its offerings. Overlapping services will be eliminated, and features previously unavailable on CompuServe (but sold on The Source) will be incorporated into the new service wherever possible. A new library of files for downloading is being created by merging the thousands of existing files from both databases.

— RICHARD C. LEINECKER

Tandy to Lotus: Come Home

Tandy's DeskMate graphics interface received a major en-

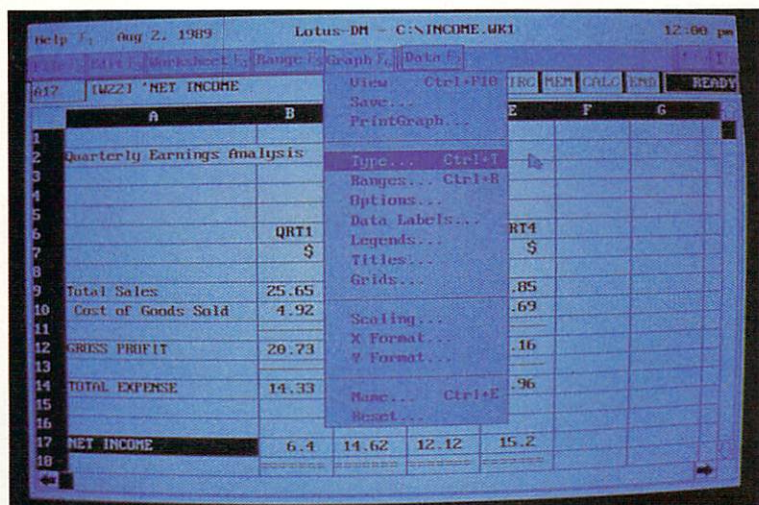
dorsement in August with the announcement of the *Lotus*

Spreadsheet for DeskMate, developed jointly by Lotus and Tandy.

The spreadsheet, scheduled to be available in the fourth quarter of 1989, combines features from *Lotus 1-2-3* release 2.01 with the Tandy DeskMate environment. *Lotus for DeskMate* requires 512K of memory and DOS 3.2 or higher, and it offers worksheets of 256 columns × 8192 rows. The program supports the .WK1 file format and is compatible with other Lotus spreadsheet products.

Lotus for DeskMate will be distributed through Tandy's 7000 Radio Shack stores at a suggested retail price of \$219.95. A runtime version of DeskMate's graphics interface is included with the spreadsheet.

— KEITH FERRELL ▸



Tandy's popular graphics interface, pull-down menus, and dialog boxes are part of *Lotus Spreadsheet for DeskMate*.

Soft Sounds on the PC

You'll never confuse the clicks, buzzes, and beeps emanating from the IBM PC's tiny speaker with arcade-hall games.

But you might prick up your ears at Access Software's RealSound, a software technique that plays digitized sounds through a standard PC speaker. The realistic sounds are actual digital recordings.

The first games to use RealSound are Access's own *World Class Leader Board* and *Echelon*. The new version of *World Class Leader Board* adds sound effects like the swish of the ball flying through the air and the solid clunk when the ball rolls into the cup. *Echelon*, a space-flight simulator, has almost 500K of sounds, including an opening musical score; sound effects for the ship's engine, cannon, photon torpedos, and teleporter.

Owners of older versions of these program can get the RealSound updates by sending their original disks and \$10 to Access Software, 545 West 500 South #130, Bountiful, Utah 84010.

—DENNY ATKIN

PC Glasnost

Personal computers soon may be significantly more available behind the Iron Curtain, thanks to a Commerce Department ruling in July that removed export restrictions on AT-class and similar computers.

The announcement came hot on the heels of President Bush's successful trip to Eastern Europe and was timed to coincide with negotiations of the Western allied 17-nation Coordinating Committee on Multilateral Export Controls. With American approval secured, the Committee removed all export restrictions to the Soviet Union and Eastern Bloc, effective August 15.

Most of the machines

covered by the Commerce Department ruling operate with Intel's 80286 microprocessors or their equivalent. The IBM PS/2 Model 30 and Apple Macintosh Plus are examples of machines affected by the decision.

The Washington-based Computer and Communications Industry Association hailed the move but said that more remains to be done. "This should have been done a long time ago and at higher levels with fewer exceptions," said the group's vice president and general counsel, Ed Black.

Laptops were excluded from the Commerce Department's foreign availability study at the Pentagon's insistence.

—RICHARD KELLEY

TROUBLE IN THE APPLE ORCHARD

Responding to customer complaints, Apple Computer is offering a repair extension plan on some internal and some external 40-megabyte hard drives.

Installed in some SE's, II's, and Ix's, the drives don't start up properly, according to Apple spokesperson, John Cook. The hard disk icon doesn't appear on the desktop, and you have no access to your files. The affected drives are labeled with serial numbers 335507 through 1023016.

If you own one of these troublesome drives, you are eligible for free repairs through June 1990. If you've already repaired the drive, Apple will reimburse you for the service.

For more information, call (408) 252-2775.

—HEIDI E. H. AYCOCK

Building a Better Mouse

If a three-button mouse seems like a luxury, try the PowerMouse 100. Its standard two buttons are surrounded by 38 small, programmable buttons.

By writing key-definition tables, you can assign macros and commands to the mouse. A table is loaded into the memory-resident portion of PowerMouse's software.

When you want to change the way the buttons work, load a different key-definition table.

PowerMouse 100 requires an IBM PC or compatible with a graphics adapter card, DOS 2.0 or higher, and a serial port. It retails for \$195, and you can get more information from ProHance Technologies, 1307 South Mary, #104, Sunnyvale, California 94087; (408) 746-0950.

—HEIDI E. H. AYCOCK ▸



How to build a high-paying career, even a business of your own, in computer programming.



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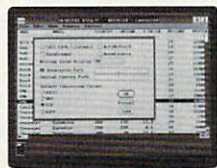
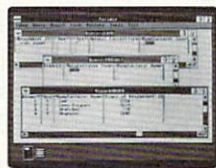
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Does It Play Eight-Tracks?

It makes stereos, televisions, and microwaves. Now it makes computers. Emerson, one of the leading home-electronics producers, has leaped into the personal computer market.

The company is counting on name recognition and its widespread home-electronics distribution network to

capture the mass market for computers, said

Al Abrams, an Emerson spokesman.

Emerson's PCs have some features that set them apart from the average PC clone. Among those attributes are a 32-voice Signetics sound chip, MS-DOS 3.3 in ROM, and an online MS-DOS help program that not only displays onscreen instructions, but *says* them as well.

The line includes three models, the 8000EC, a 10-MHz 8088 computer with 768K of RAM and four open expansion slots (\$999 retail); the 8286EC, a 16-MHz 80286 system with 1MB of RAM, SCSI hard disk interface, and four 16-bit and two 8-bit expansion slots (\$1,599 retail); and the 8386EC, which has all of the features of the 8286EC but uses a 16-MHz 80386SX microprocessor (\$1,999 retail).

Emerson will sell its computers through discount electronics and department stores, such as Fretter and Service Merchandise. For more information, contact Emerson at One Emerson Lane, North Bergen, New Jersey 07047; (201) 854-6600.

— DENNY ATKIN

Conflict in the Classroom

From the safety of their classroom, students can examine the roots of conflict between the Israelis and Palestinians. Last month ABC News InterActive released *In the Holy Land*, an interactive educational videodisc package.

The cost is \$395 and includes a videodisc, *HyperCard* stacks, a printed directory of the videodisc, and lesson plans. The *HyperCard* interface requires a Macintosh with a hard drive and one megabyte of RAM, but the disc player can be operated without a computer. For more information, contact Optical Data, 30 Technology Drive, Warren, New Jersey 07060; (800) 524-2481.

— RICHARD C. LEINECKER

SOUND-BOARD DUET

Brown-Wagh Publishing repackaged its Creative Music System several months ago as the Game Blaster, a PC music board aimed at computer gamers who want more than beeps and boops. But the company isn't stopping there. At June's PC Expo, it announced that it would also distribute a new music card, code-named "Killer Kard" from San Francisco-based Creative Labs.

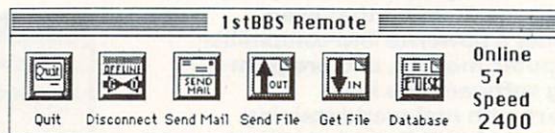
Brown-Wagh co-founder Richard Brown said the two products target different audiences. The 12-voice Game Blaster lists at

\$129, although Brown expected it to be discounted to \$85-\$95.

The Killer Kard, when bundled with the Creative Music System (CMS) software, is for the serious user who needs 23 voices on a stereo board. The number of voices is a combination of the Game Blaster's 12 voices and the 11 voices available on the popular Ad Lib card. Brown said the card is fully Ad Lib-compatible and will retail for \$195.

The Killer Kard uses DMA technology and a proprietary hardware compression routine to keep its memory demands to a minimum. It includes a microphone jack and amplifier jack, joystick port, and MIDI interface. With its editing capabilities, the CMS software synchronizes voice and graphics.

— PETER SCISCO



MacAnswering Machine

Hello. You have reached the office of . . . reads the message on your Macintosh screen. Using 1stDESK Systems' new bulletin board program, you can turn your Macintosh into an answering service, a salesclerk, and a recordkeeper.

1stBBS helps you set up a bulletin board where people can log on and leave messages. The information is stored in a database-file format, so you can keep logs of sales, contacts, and appointments. Your associates can access your files, make changes, and add new information from remote Macintoshes.

The program is also designed for any organization that needs to be in contact with a lot of people at odd times.

To contact a Macintosh running *1stBBS*, you must use *1stBBS REMOTE*. If you own *1stBBS*, though, you have an unlimited license to copy the remote program.

1stBBS retails for \$195. For more information, call 1stDESK Systems, 7 Industrial Park Road, Medway, Massachusetts 02053; (800) 522-2286. □

— HEIDI E. H. AYCOCK



LETTERS

Computer Roots

In your August "Letters" column, Ron Madaras of San Leandro, California requested information concerning a family tree program for the Macintosh. I would like to recommend a program called *Personal Ancestral File*. It is a genealogical management system for home computers which is available for Macintosh and DOS compatibles.

It consists of four programs. The Family Records Program will help you record genealogical information for individuals and families; enter notes and sources for each individual; produce pedigree charts, descendants charts, family group record forms, and sorted lists.

The Research Data Filer Program will help you with your general research. You can document each source you have used, including details about where you found it, what it contains, and its publishing information. You can search, sort, or print your genealogical research information by event, place, date, name of person, or relationship to others.

The Genealogical Information Exchange helps you transmit all or part of your family records from one disk to another. It has a modem communications program for sending and receiving files.

LORRAINE TAYLOR
PROVO, UT

The Personal Ancestral File package retails for \$35 and is available for the IBM PCs and compatibles, Macintosh, and Apple II. For more information, contact The Family History Department, Ancestral File Operations Unit, The Church of Jesus Christ of Latter Day Saints, 50 East North Temple Street, Salt Lake City, Utah 84150; (800) 453-3860, extension 2584; or (800) 662-3756 in Utah.

Rotten Apple

I was surprised that you rated *PaperClip* for the Apple II (May 1989) so highly. After using the C64 version of the program (most satisfactorily) for

several years, I purchased *PaperClip* for the Apple IIe. There were several bugs, the most serious of which was the inability of the program to print properly. I tried the program on three different Apple IIe's and on a Laser 128 (using the Star PowerType, Apple ImageWriter, and Epson LX-80 and FX-80 printers and three different interface cards). In every case, printout was garbled or the program did not print at all. Upon contacting Electronic Arts, I received a letter stating that the program may be found unsuitable for "some users," and that EA would no longer be supporting the program. I was offered my choice of one of four games as a replacement.

I fail to see how anyone could suggest the purchase of a program that has such a defect, and I cannot understand how such a major bug could escape your observation. If you haven't actually used the program, please don't recommend or suggest it to anyone else.

TERRY MCCREARY
MURRAY, KY

The information on PaperClip for the Apple II computers appeared in "Buyer's Guide to Word Processors." The buyer's guides are not reviews, but listings of available products. We try to provide you with as much information about as many products as possible, but we cannot review every piece of software on the market. For this reason, we limit the buyer's guides to objective, fact-based information on a larger number of products and reserve more in-depth coverage for the reviews section, columns, and feature articles. At the time the buyer's guide was written, Electronic Arts was still supporting PaperClip for the Apple II.

PC Is Better

I own a Nintendo Entertainment System and an IBM Personal Computer. I enjoy the PC more than I do the NES. The PC seems to be more useful, and if you have one and know how to program, you can make your own games, not just play them.

SAMMY SMALL
ROY, UT

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COMPUTE! SPECIFIC

MS-DOS

POWER UP

Laptops are different. They have special problems, and they need special hardware and software to address these problems. Here are ten of the most useful products I've found to keep my laptop running smoothly. If you don't have a laptop, don't stop reading. At least five of these essentials will improve the performance of any computer, desktop or laptop.

First, you'll need a carrying case. There are many available, but the *Traveling Attache* (Traveling Software, 18702 North Creek Parkway, Bothell, Washington 98011; 800-343-8080; \$59.95) has much to recommend it. With its vertical orientation, it fits easily under an airplane seat; it's well padded and sturdy; it's roomy (the external pocket is large enough to hold a portable printer); and it's inexpensive.

You'll need to carry your disks around, too, and an excellent choice is *The Easel Plus* (Innovative Technologies, 5649 La Jolla Boulevard, La Jolla, California; 619-456-0722; \$19.95). This durable carrier holds twenty 3½-inch disks and can sit upright—hence its name. A slot for a business or identification card tops things off.

A modem is a must for most laptop users, but it can be expensive to buy two of these wonders (one for your laptop

and one for your desktop). GVC has a first-rate solution with its 1200- and 2400-baud Mini-modems (GVC-Chenel, 99 Demarest Road, Sparta, New Jersey 07871; 201-579-3630; \$149—1200 baud, \$299—2400 baud). These fully Hayes-compatible modems are aggressively priced, they're sturdy and light (6½ ounces), they run on either battery or AC current, and they can be used with both your laptop and desktop computers.

When you start communicating from a remote location, you may need some help from the *Laptop Survival Kit* (Electronic Specialists, 171 South Main Street, Box 389, Natick, Massachusetts 01760; 508-655-1532; \$149.95). This 14-piece kit contains suppressors for power and telephone lines and an array of devices to help connect the determined communicator. Chief among these tools is a set of alligator clamps that allows you to connect to phones without RJ-11 plugs. You can purchase the entire kit or any of its parts separately.

Communicating by modem is only half of the average laptop's social life. When you're united with your big-iron desktop, you'll want to share files. To do this at high speed, you'll need a special cable and transfer software. There are

scores of transfer programs available these days, including the king, *LapLink*, but if you're interested in a bargain, look no further than *Rapid Relay Easy* (Systems Management Associates, 3325 Executive Drive, P.O. Box 20025, Raleigh, North Carolina 27619; 919-878-3600; \$69.95). This package installs in a snap, it's lightning fast, and it works flawlessly.

The majority of laptops are still floppy-based systems, which means they're slow. An excellent solution to the slow-floppy dilemma is *Floppy-DRIVER* (DTG, 23704-5 El Toro Road, Suite 348, El Toro California 92630; 213-987-2000; \$89.95), a device driver that dramatically increases the speed of your disk drives. This program is a TSR that takes from 18K to 40K of memory and has some interesting additional features. With *Floppy-DRIVER* installed, you can format disks in the background. And, if you try to read or write to an unformatted disk, the program detects this and formats it for you.

While on the subject of speed, every laptop owner needs a cursor enhancer. Even on an 80286, the PC's cursor limps along aimlessly. Here you have several choices. There are two public domain programs that are excellent:

Quickeys (for 8088-based systems) and *Turbokey* (for 80286 systems). And, for the ultimate in cursor control, there's *Cruise Control* (Revolution Software, 715 Route 10 East, Randolph, New Jersey 07869; 201-366-4445; \$49.95). If the thrill is gone, one of these programs can get it back.

Once your cursor is sailing along, the next step is to arrange things so you can actually see it. For this, you'll want Ken Skier's *No-Squint Laptop Cursor* (SkiSoft Publishing, Suite 79, 1644 Massachusetts Avenue, Lexington, Massachusetts 02173; 617-863-1876; \$39.95). *No-Squint* makes your cursor big and bold, and it allows you to control its blinking speed, too.

Almost all laptops run on battery power, and there's nothing more frustrating than running out of juice just as a bolt of inspiration strikes. *Battery Watch* (Traveling Software, 18702 North Creek Parkway, Bothell, Washington 98011; 800-343-8080; \$39.95) resolves this problem in an elegant way: It monitors your system and tracks the drain on your battery. Press a hot key and you'll see a gas-gauge-style display that shows you just where you stand with your laptop's power. This package is a must.

Finally, if you travel with your laptop, your screen is going to get scratched. As time goes by, scratches can actually make the screen difficult to read. The solution is *Ultralucent EL* (Ultrasoft Innovations, 1 Transborder Drive, P.O. Box 247, Champlain, New York 12919; 514-487-9293; \$14.95). *Ultralucent* comes with a four-ounce bottle of *Ultragloss* scratch remover, a two-ounce bottle of *Antistatic Finishing Cream*, a flannel cloth, and a page of instructions. This product is nothing short of amazing. Don't put up with those scratches any longer. Try *Ultralucent EL*.

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—Jim Seymour, PC Week, Dec. 1988

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—Info World, Oct. 1988

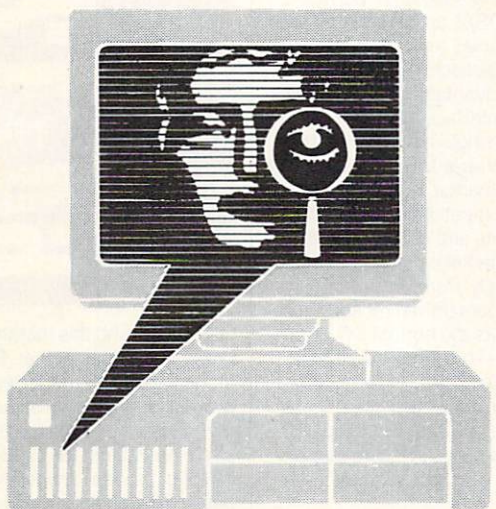
"... This is one of those programs that I didn't know I needed until I got it; now, what with all the hardware I try out around here, I use it all the time, and I can't think how I got along without it."

—Jerry Pournelle, Byte Magazine, May, 1989

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—Info World, Vol. 11, Issue 7

"... few products can provide such obvious performance improvement at such a low price."

—Mark Brownstein, Info World

"It lets you use unformatted disks with impunity, because it absorbs data into its buffer and lays that data on the disk as it formats... it lets you format floppies in the background, and even read and write them as they are being formatted... not a byte of data was lost."

—Winn L. Rosch, PC Week

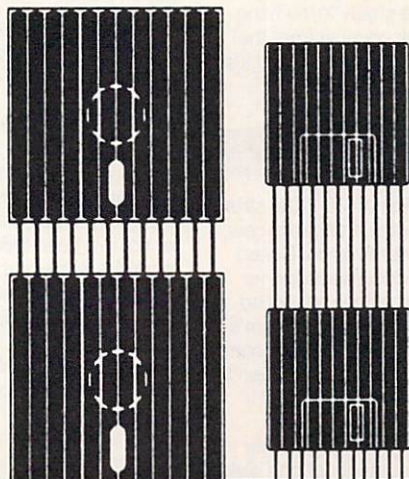
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Whatta Show

PC Expo in New York boasts everything from glitzy million-dollar exhibits manned by giants like IBM to small, flea-market-style booths run by a company's combination president, chief software developer, and janitor. Amid an atmosphere of heavy wheeling and dealing, the show is traditionally the site for announcements of interesting and unusual new products, and this year's installment—held in June—was no exception.

The most exciting news at the show was IBM's AVC, the Audio Visual Connection. A hardware/software combination, AVC is an authoring system for the creation of digitized video and audio programs. The system can capture sound and graphics, digitize, and manipulate them with powerful tools. What is so impressive about AVC is the sheer ease with which sound and graphics can be captured and edited. If you want to make your own professional videos, this is the product for you. The software and hardware ring up at about \$3,300, but you'll need a PS/2 Model 70 with an 8514/A monitor to run the package, which adds significantly to the cost.

All is forgiven. That was Xtree's message at PC Expo. For a limited time the company is allowing users with pirated copies of *Xtree*, the popular file manager, to register their *pirated* versions. Users who send the company a dump of their *Xtree* screen and \$20 will receive the latest version of the program and a manual. These users will then qualify for free telephone technical support and upgrades at reduced rates. Code-named SAFE (Software Amnesty For Everyone), the program lasts only 120 days. If you have a shady *Xtree* hanging around, come in from the cold, send in your \$20, and kiss your guilt good-bye.

Rated X

Each version of MS-DOS struts improvements and offers new, improved commands. Buried inside the documentation for DOS 3.2 or higher, you'll find one of the operating system's most powerful and useful commands: XCOPY. If you haven't taken a look at XCOPY yet, now's a good time.

When you want to copy the entire contents of one disk, including subdirectories, to another, COPY just won't do; it

only copies the files in one sub-directory. And, if the disks are different formats—a 5¼-inch and a 3½-inch or a ramdisk, for example—DISKCOPY won't work, either. DISKCOPY needs two disks of identical type because it goes through the data track by track, ignoring distinctions between files, subdirectories, and the like.

Here's where XCOPY comes in handy. To copy all files and all subdirectories from drive A to drive B, you'd give the command XCOPY A:*.* B:/S. DOS's COPY command would copy the files in the root directory, but not in the subdirectories.

XCOPY has another trick up its sleeve. It can select the files it copies by looking at the archive bit, which tells whether a file has been backed up or not. This means that you can use XCOPY to selectively back up files. The command XCOPY A:*.* B:/M copies files that have been changed since the last time you used XCOPY and resets the archive bit. It's easy to build a batch file that copies all altered files from each sub-directory on your hard disk that you normally use.

— Clifton Karnes

DOS PROMPT

It's what you see when you first turn on your computer. It's the digital doorway that provides access to all those other amazing (and often confusing) things MS-DOS allows you to accomplish. It's a sign of how much a new computer owner needs to learn, as well as a symbol for everything the experienced user already knows. And now, it's the name of a monthly column on MS-DOS matters for beginning and intermediate users, a companion column to Clif's "Power Up," and an integral element of "COMPUTE! Specific." It's a good name. I hope you'll find it an entertaining and educational column.

But who is Jack Nimersheim? More to the point, why should you read him?

For almost as long as *COMPUTE!* has been published, I've been tinkering around with these magnificent machines we call personal computers. I bought my first personal computer, a 16K Atari 400, way back in 1980. It was, as the old saying goes, love at first sight.

That ancient Atari has long since assumed its rightful place in the Nimersheim Museum of Personal Computing, a small

room just off my office that also contains a Radio Shack Model 100 (one of the original laptop computers), an Atari 800, a Morrow CF/M system, a Tandy 1000, a Heath-Zenith PC XT kit I cobbled together with my own limited soldering skills (an incredible learning experience, I assure you), a 300-bps acoustic modem, and several dozen other electronic artifacts that undoubtedly will contribute more than a few paragraphs to the definitive history of personal computers, should someone ever attempt such a tome. Come to think of it, maybe I'll write that history myself.

Where from Here?

As of now, it's my job to keep you posted on the latest developments in the wonderful world of MS-DOS. And, make no mistake about it, events in that world are moving at the same breakneck pace at which they have been moving ever since Bill Gates shipped his first copy of DOS, way back in 1981. All this despite the increasing attempts of media pundits and assorted other OS/2 oracles to convince us that DOS's days are numbered.

Don't you believe it! With an installed user base estimated at well over 25 million, MS-DOS still dominates the PC marketplace. Rather than drawing its last gasp, MS-DOS is more vital today than ever before in its eight-year history.

Consider the following: Microsoft Windows, largely ignored since its 1984 release, is suddenly stealing headlines from OS/2, as several software companies rush to deliver powerful applications designed to take advantage of this graphics DOS interface. *Lotus 1-2-3*, which single-handedly defined the lucrative MS-DOS spreadsheet market, now faces serious competition on a number of fronts and is adjusting its own marketing strategies accordingly. Personal Information Managers (PIMs) recently surfaced as the hottest DOS application—but what exactly is a PIM, and how can using a PIM help organize your life? These are just a few of the topics I'll be examining in future installments of "DOS Prompt."

How You Fit In

Before I close, I'd like to make an observation: Writers rarely are afforded the opportunity of getting to know their audience.

Most of the time, we submit an article to a given magazine, several months later it gets published (if we're lucky), we get paid (if our luck holds out a little longer), and that's the end of it. When you write a regular column for a magazine like *COMPUTE!*, however, establishing a dialogue with your readers isn't only possible, it's unavoidable. After all, whenever I succumb to the temptation to express a personal opinion in this column, several of you will undoubtedly feel a similar urge to respond. That kind of give and take is part of what makes writing a column so rewarding.

If you have any questions, comments or suggestions for "DOS Prompt," I'd like to hear about them. Simply drop me a line, care of the good folks here at *COMPUTE!*. They, in turn, will forward to me each letter they receive. And I, also in turn, promise to read every one of them. Another way to express yourself is to leave me a message on CompuServe's EasyPlex (73017,1122) or DELPHI MAIL (NIMS). Every so often, I'll dedicate one month's column to some of the more interesting suggestions and/or comments you submit, along with any response I feel compelled to tender.

Let me know how I do. As if I had to ask.

— Jack Nimersheim



Games abound this month, and pretty good ones at that. Even though MS-DOS machines are growing in popularity as home computers, some games are still released first for the 64 and 128. That's what an installed base of over 7 million computers does for you.

From Taito (11715 North Creek Parkway South, Bothell, Washington 98011; 604-984-3344; \$29.95) comes *Qix*, pronounced "kicks." Based on the arcade game of the same

name, *Qix* is now billed as "The Computer Virus Game." According to its new description, you are trying to neutralize a *Qix* virus by surrounding it with a vaccine.

In fact, the virus stuff is just a gratuitous description to make the game seem contemporary. *Qix* is actually a puzzle game, albeit a clever and mind-boggling one. A viruslike collection of lines called a *Qix* runs unpredictably around a rectangle that takes up most of the screen. You draw boxes from the rectangle's perimeter in an attempt to color-in parts of the screen to trap the *Qix*. Fill in 65 percent of the screen and the *Qix* is trapped, and you're on to the next level.

The *Qix* will destroy you if it touches an unfinished box. Various other creatures also try to destroy you by chasing you around the perimeter. Screen 1 is easy; screen 2 begins to get tricky. Reach screen 5, and you're either a genius or a joystick whiz.

Qix has one very annoying aspect. After each game, the program reloads the title screen, a process that takes far too long. If you could skip this step, the game would be infinitely more playable. Don't developers test their own products?

We Got a Convoy

Destroyer Escort is a new simulation from Microplay (180 Lakefront Drive, Hunt Valley, Maryland 21030; 301-771-1151; \$39.95). Graphically gorgeous, this game simulates the actions of a convoy escort on the Atlantic Ocean during World War II. Your duty as a destroyer captain is to make sure the convoy reaches port safely while you destroy as many enemy ships and subs as possible.

The game gives you a choice of three difficulty levels, depending on how much enemy resistance you want to face. Six missions are available. You can cruise from America to Great Britain, Great Britain to Gibraltar, Murmansk to Great Britain, or take any of these routes in reverse. Heading from America to Britain is the easiest because you have time to get used to the controls before meeting up with a concentrated enemy attack.

A map station yields a strategic map of the North Atlantic or the Norwegian Sea (depending on the mission), while a navigation station lets you guide your ship. At the five-

inch gun mounts, you can fire on the enemy as you see fit. From the anti-aircraft gun station, you shoot down enemy planes (when you aren't attempting to do away with enemy subs at the depth-charge station). The torpedo launch station is where you coordinate attacks against enemy ships, while the damage report and ship's status stations give you information about the condition of your ship and your mission's progress.

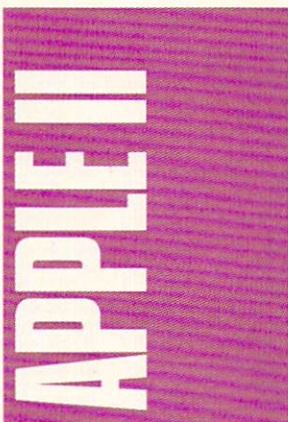
Destroyer Escort is a complete simulation that isn't inordinately complex.

Having a Baal

Psygnosis (Century Buildings, Tower Street, Liverpool L3 4BJ, United Kingdom; \$29.95) has released *Baal*, another graphically rich arcade game. Following in the footsteps of *Barbarian*, this game has you guiding a figure across a series of screens, blasting away at enemies and avoiding obstacles. You are one of a squadron of time warriors, whose mission is to retrieve a stolen war machine from the enemy. Problem is, the enemy is led by the evil Baal, and before you can get the machine, you must destroy him.

Like *Barbarian*, this game is fairly addicting. Its considerable graphics appeal gets you into the game and keeps you going. Unfortunately, also like *Barbarian*, *Baal* is interesting only for a limited period of time. Not a bad game, but it lacks seasoning.

— Neil Randall



The biggest news of the summer for Apple II fans was Claris's announcement of *AppleWorks* 3.0, an impressive upgrade to the II's most popular productivity software package. Scheduled for release by the time you read this, 3.0

should make every *AppleWorks* user a happy camper.

The *AppleWorks* upgrade wasn't developed by Claris, but by another well-known company: Beagle Bros. Flushed from success with its TimeOut series of *AppleWorks* add-ons, Beagle Bros. was commissioned to create 3.0 under Claris's direction. The result is the most significant change to *AppleWorks* since the product's release in 1983.

All three *AppleWorks* modules have been changed. The word processor now sports a spelling checker (reportedly the most asked-for feature by *AppleWorks* users). Version 3.0's spelling checker is faster, is smarter, and uses a larger dictionary than *QuickSpell*, the Beagle Bros. TimeOut add-on upon which it is based. Even phonetic spellings are recognized by the checker, which offers intelligent alternatives. Right justification and an enhanced tab system are two other important additions.

The *AppleWorks* 3.0 spreadsheet offers 26 new functions, ranging from advanced trigonometric to useful financial functions. Even though most of these functions have long been part of nearly every other spreadsheet for nearly every other computer, their arrival in *AppleWorks* is a major event.

Database enhancements include the ability to recall up to 20 report formats and multiple sorting levels.

Some programwide improvements have also been made, particularly in the memory-management, printer, and clipboard areas. *AppleWorks* 3.0 now recognizes all popular memory cards, supports 22 new printers, and lets you directly transfer information via the clipboard between all three modules.

Even with all these changes, however, *AppleWorks* 3.0 still works on a 128K Apple II (though there's only about 40K left for the desktop). The new version can read existing *AppleWorks* files, so transferring data to 3.0 won't be a problem. But, once you've used a 3.0-specific feature in a file, you can't use it with an earlier version of *AppleWorks*.

If you are a registered owner of *AppleWorks* and haven't already been contacted by Claris, call (800) 544-8554 to get upgrade information. The cost to upgrade is only \$79, a bargain for the increased power and convenience of 3.0; the program carries a price tag of \$249 if you're buying *AppleWorks* for the first time.

Claris is to be commended not only for the program itself, but also for the confidence it shows in the Apple II's future.

For more information about *AppleWorks* 3.0, contact Claris at 5201 Patrick Henry Drive, Box 58168, Santa Clara, California 95052-8168; (408) 987-7000.

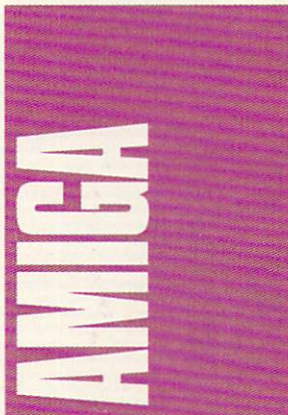
Print Anew

Bröderbund Software made *The Print Shop* a name recognized by almost every Apple II owner. Now it's readying an improved version, *The New Print Shop*.

This isn't just an upgrade, but a whole new program. Ease of use has been greatly improved. Users can now backtrack through the design process to make changes. Multiple fonts and multiple graphics can now be placed on a page, freeing users from the simplistic designs of the original *Print Shop*. Other added features in *The New Print Shop* include a calendar feature offering four formats, extra-large poster printing (up to 9 feet X 6½ feet), gift tag-sized cards, and a what-you-see-is-what-you-get preview function.

The New Print Shop requires at least 128K of memory and runs on all Apple II machines (there's not a IIgs-specific version of *The New Print Shop*, but the IIgs version of the original *Print Shop* will still be sold). Suggested retail price is \$49.95.

Contact Bröderbund Software at 17 Paul Drive, San Rafael, California 94903; (800) 521-6263 for more information. — Gregg Keizer



The Amiga could lay claim to being the most versatile personal computer on the market, even if there were no Amiga software. Amiga owners have access to MS-DOS software

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EZ-Spreadsheet V.521	SP 102	Simple to use but powerful system—ideal for beginners
As Easy As...	SP 103	Now V3.01 of this superb 123 spreadsheet loaded with features, and compatible with 1-2-3 files—highly recommended
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Technique Tutorials	SP 105	Teach yourself! Lotus and dBase. 1st class value for the experienced and novice alike
Lotus Templates	SP 106	If you use Lotus, you'll love these ready-made applications!
Instacalc	SP 107	This one's special—a fully-powered spreadsheet—Memory Resident (TSR)
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Pinball Combo	GA 104	Comprises 3 super pinball games, varying in complexity
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Striker	GA 108	Arcade quality fun, similar to 'Dribbler'
Amulet of Vendor	GA 109	Another super and engrossing adventure!
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Golden Wombat	GA 111	Yet another SUPERB adventure—don't miss it!
Arcade Quality	GA 112	Classic Kong, 3D Pacman, Pango & Blocks—a neat disk for button freaks!
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Arcade Assortment	GA 118
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We recommend these two packages of ten disks for those of you who are relatively new to computing. New or inexperienced users should have no difficulty in running these programs, and they will provide fun and valuable utilities for your system without confusing or intimidating you.

Price: Each pack counts as 10 disks—see our price break table at end.

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Mindreader	WO 109	Uses artificial intelligence to complete words and phrases, learns your own style
EZ-Write 2.3	WO 110	Highly recommended VALUEWARE™—these people are VERY professional
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EZ-talk	TE 108	More super-professional ValueWare™ comms package—fully featured
Oracom BBS	TE 109	(2 disks) See the rave review in 'Computer Shopper', June 1988—recommended

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Graphics

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Laser Utilities	UT 106	An assortment of utilities and fonts for you lucky laser owners—great value.
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Still River Shell	UT 108	Easy DOS mastery from a menu!
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Homebase	UT 112	(3 disks) Desktop organizer, database, WP, calendar, apps, calendar, cut/paste etc.
Speech	UT 113	Get your PC to talk—fascinating program.
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Powermenu	UT 115	Superb hard disk menu organizer with windowing.
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HDH III 2.10	UT 124	Another classic hard disk menu, not memory resident, loads of practical features, network compatible.
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PKARC/PKARC 3.6	UT 126	Latest version of this great file compression/deflation tool! A must for hard disk users.
Direct Mail	UT 127	Nice directory maintenance program from Morsott—nice windows and simple, functional features.
Wyndshell 1.1	UT 128	Good DOS shell, with modular windowing and mouse support, try this one!
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Programming

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Basic Program Generator	PR 105	Write programs from menus—Good for small business database type applications.
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using the Transformer and Bridge Card; they can run Commodore 64 programs with either of two available emulators; and European Amigans can even emulate the BBC Microcomputer, the British government-approved educational computer.

Now ReadySoft (30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9; 416-731-4175) has added Macintosh software compatibility to the Amiga's résumé with A-Max. This \$199.95 emulator includes two disks and a cartridge that can be plugged into either the disk drive port or the back of an external floppy drive.

ReadySoft avoids the legal problems that would be involved with cloning the Mac's operating system by requiring you to plug a set of genuine Macintosh ROM chips into the A-Max cartridge. In addition to a set of 128K Mac Plus ROMs that will cost about \$140, you'll need a copy of the Macintosh system software, which can be purchased complete with *HyperCard* for around \$50 from your local Apple dealer. You probably won't have much luck buying the ROMs from your dealer—Apple sent a letter to its dealers mandating that Apple parts can only be used in genuine Apple products. However, a list of mail-order companies selling Mac ROMs is included in the A-Max package. You'll also need to purchase a Macintosh external floppy drive so you can read and write Mac disks, unless you have easy access to a real Mac for file transfer.

A-Max's software compatibility is excellent. Out of the large number of Macintosh programs I tried, the only ones that wouldn't work on my Amiga 1000 were *Falcon* and some copy-protected games. Because the Mac uses the same 68000 microprocessor as the Amiga, A-Max doesn't suffer the slowdown associated with software-only emulators. As a matter of fact, I found that some Macintosh programs seemed to run a bit faster on the Amiga than on a Macintosh Plus, probably because of the Amiga's display coprocessor.

A complete A-Max system with ROMs, disk drive, and operating system costs around \$550. A used Mac Plus will cost you about \$800. However, A-Max gives you a bigger screen and the ability to use your Amiga peripherals on your "Mac," with only a slight loss of compatibility. If you

have a need to run Macintosh software, give A-Max a look.

1.4 in the Distance

As Mac users drool over the upcoming System 7.0 operating system update, of which they've seen only spec sheets, Amiga developers are already working with early Alpha test versions of AmigaDOS 1.4. The 1.4 upgrade will give the Amiga many of the same features that have been getting the Mac upgrade rave reviews, including interapplication communications.

The Workbench will get a major overhaul in 1.4. It has its own window, so you can pull it to the front even with a shell open. The upgraded Workbench will show default icons for programs and drawers with no .info file, list files by name only, allow you to "lasso" icons to copy multiple files, and sport new gadgets, such as a parent gadget.

Other additions include the *ARexx* language for interapplication communications, support for higher screen resolutions using the Enhanced Chip Set and a multisync monitor, a standard file requester, and *FastFileSystem* for floppies.

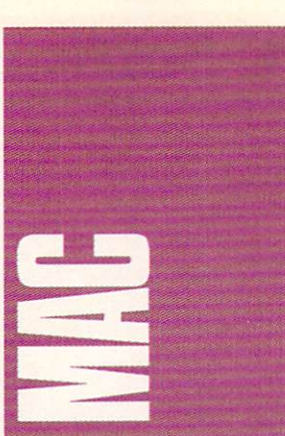
But don't start bothering your dealer yet; the update is in an early stage of development and probably won't be ready until at least early 1990. But as the first *major* operating system upgrade for the Amiga, it should be worth the wait.

Overseas Invasion

Want the secret to financial success? Simple: Mount your Amiga and joystick in a stand-up arcade-style case, add a quarter slot, and invite your friends over to play *Elite's Ikari Warriors* and *Speed Buggy*.

These British Amiga conversions are extremely faithful to the coin-op originals. *Ikari Warriors* is a Rambo-esque "shoot everybody in sight" game. If you play with a friend, you can work as a team to escape from behind enemy lines. *Speed Buggy* is an arcade-driving game. Maneuver your Dune buggy around five obstacle-laden courses in a race against time. The game's graphics are fast and smooth.

You'll need to save up \$39.95 in quarters for each game. For more information, contact *Elite Systems*, Eastern Avenue, Lichfield, Staffs, England WS13 6RX; (0543) 414188. — *Denny Atkin*



If you liked exploring *the Manhole*, take your next trip with *Cosmic Osmo*. Activision has released a new *HyperCard*-driven story, and it's even better than the first.

Fire up the engines of your spaceship and take off for outer space. To launch your ship, just click on one of the buttons on your control panel. The lights dim, the stars pass behind you, and a crater-pocked planet comes into view. Explore this world and others by clicking on objects such as craters, doors, and pages of books. As in *the Manhole*, each place is linked to others in unusual ways. You enter one room through a book on one planet and leave it through a giant space fish's mouth. The fish seems unrelated to the planet, but, somehow, you've passed through a cosmic portal.

Throughout the hyperjourney, the animation is whimsical and smooth. Click on the flag planted in the surface of the first planet, and the banner waves.

Besides the moving pictures, there's terrific sound. The guns go bang, the phone goes brrrring, and snare drums go rat-a-tat. The synthesized voices are very clear, and each character has its own sound.

Cosmic Osmo is good for young children because they don't need to know how to use commands or menus; they just click and go. It's also a fun story for older children and adults.

For information, contact Activision, a division of Mediagenic, 3885 Bohannon Drive, Menlo Park, California 94025; (415) 329-0500. *Cosmic Osmo* retails for \$69.95.

Silly Rabbit

Math is for kids—and sometimes for talking rabbits. Take *Math Rabbit* for example. He's a whiz at numbers, and he can teach your children arithmetic

acrobatics, too.

The Learning Company has released its popular *Math Rabbit* program for the Macintosh. Using four circus themes, the program leads kids through the fundamentals of numbers: singing clowns teach kids to count, a tightrope practice teaches kids to identify groups, a circus train teaches addition and subtraction, and fortune-telling cards teach kids to match totals to equations.

Every time your child completes a game successfully, *Math Rabbit* leaps around, dances, turns flips, and celebrates in other funny ways. The animation is very good, and some adults might be enchanted by the friendly rabbit before their children get a glimpse.

The real charm of the game, though, is the sound. A woman's voice gives instructions for the game. The same voice says "Uh-oh" when your child makes an error. It's a gentler error message than the traditional beeps or buzzes that you hear in other programs. In the tightrope practice, you drop unneeded boxes into a swimming pool, and you can hear the water splash as they hit.

The program retails for \$59.95. Contact The Learning Company at 6493 Kaiser Drive, Fremont, California 94555; (800) 852-2255.

From Other Worlds

Electronic Arts has just released *The Bard's Tale, Volume I*, a fantasy adventure game for the Macintosh. Your goal in the game is to assemble a party of adventurers and stop the evildoings of Mangar, a nasty wizard. Your characters have attributes and strengths that affect your progress. You fight battles and wield several magic powers. Of course there's a maze of dungeons, town streets, and towers. *The Bard's Tale* retails for \$49.95. For more information, contact Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404; (415) 571-7171.

Now that *SuperCard* is available, you need a reference book to go with it. *COMPUTE!* Books has released *The Complete SuperCard Handbook* by Dan Gookin. It retails for \$23.95. You can get more information about this book from *COMPUTE!* Books, Chilton Book Company, Chilton Way, Radnor, Pennsylvania 19089; (800) 345-1214.

— *Heidi E. H. Aycock* □

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The evil genius Dr. Doom has stolen a U.S. nuclear missile, and threatens to detonate it over New York City if his demands aren't met. The lives of five million innocent people rest on Doctor Doom's two arch-enemies: Spider-Man and Captain America. But this time Doom has created an army of robotic guards, and assembled the most formidable group of Super Villains ever, including Electro, Machete and The Hobgoblin to carry out his sinister plans.

You play the part of both Spider-Man and Captain America, invading Dr. Doom's fortress to save New York from Armageddon. You'll see authentic-looking comic book pages "tear open" for actual combat scenes, where you'll use Spidey's wall-crawling and web-slinging powers — or Cap's amazing shield — to defeat Doom's emissaries. Should you survive all this, you'll then face the evil Doctor Doom himself, an armored madman obsessed with revenge.

- An actual Marvel comic book destined to become a collector's item, only available in the game package, sets the stage for Spidey and Cap's mission!
- Varying levels of difficulty keep the game constantly challenging!

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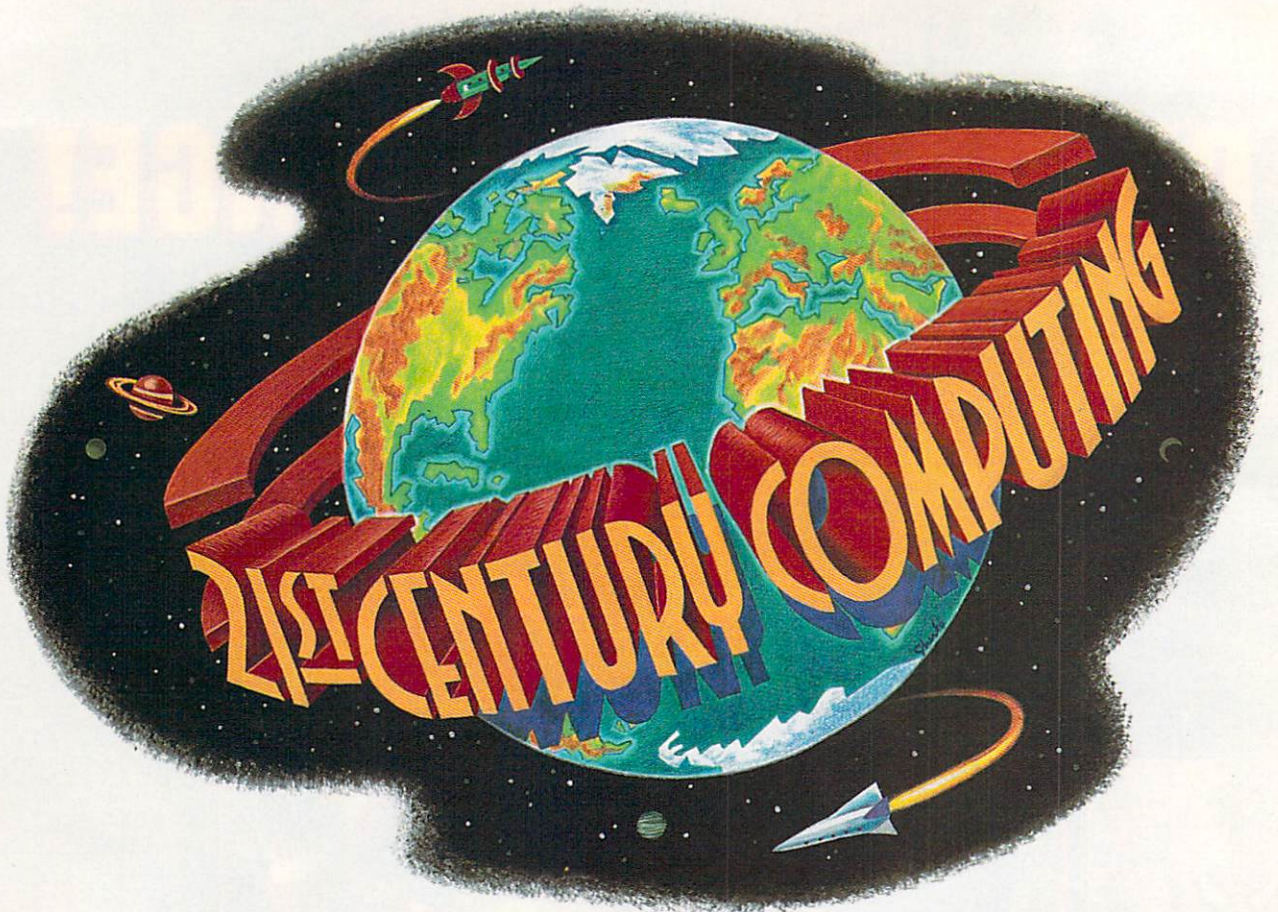
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A typical morning in the year 2001: You wake up, scan the custom newspaper that's spilling from your fax, walk into the living room. There you speak to a giant screen on the wall, part of which instantly becomes a high-quality TV monitor. When you leave for work, you carry a smart wallet, a computer the size of a credit card. When you come home, you slip on special eyeglasses and stroll through a completely artificial world.

Incredible, but all very

**A WORLD OF
TECHNOLOGY
MAKES
YOUR HOME
COMPUTING
FUTURE A
VIRTUAL REALITY.**

possible. "In the next 11 years, you'll see incredible breakthroughs in the home," says Robert Simon, director of Lotus West, the West Coast R & D center of Lotus Development, maker of *1-2-3*.

Eleven years is an eon in computing. Take a look back to 1978. Apple was still a startup, *VisiCalc* didn't exist, and the average home com-

puter huffed along bravely with 48K of RAM. The IBM PC was three years away; most people had never even heard of personal computers. By 2001, our computers of today will seem just as ancient.

To some extent, the future is always dreamland. We tend to imagine that glamorous technology will arrive sooner, cost less, and run better than it really does. Meanwhile, less-heralded advances steal in and become part of our lives. No one can fully predict the future, but we keep trying. Some of the surer bets:

DESKTOP LIBRARIES



"Storage will probably be 50 times what we now have, for the same price," says Tom Lafleur, director of engineering at

Qualcomm, a San Diego, California, satellite communications firm. The secret is erasable optical disks.

These devices will hold vast amounts of data. The NeXT computer already offers an erasable optical disk that holds 656 megabytes of data. Optical disks will popularize desktop libraries, which in turn will alter our whole sense of computing. With instant referencing of thousands of volumes of information, computing will be like working with an army of electronic elves, all ready to fetch in a flash any tidbit you like.

"It'll also allow you to store audio and video," says Phillip Robinson, a computer consultant with Virtual Information of Sausalito, California. "You'll be able to capture segments of a show you like, cut them out, and put them in a video report for school. Look at the NeXT machine. I can see the equivalent of that for \$1,000."

DISPLAY



High-definition TV (HDTV) offers exceptional resolution, as fine as a motion picture. It has 1125 lines, more than twice

the current 525, and promises photorealistic images and stunning 3-D. The screen is rectangular, rather than square, so you see movies as they were filmed. HDTV will eventually accept digital as well as analog input.

Japan has pioneered this technology, which will almost certainly lead to HDTV computer screens. "Its impact is close to the year 2001," says Paul Saffo, an analyst at the Institute for the Future, a research firm in Menlo Park, California.

Others predict even higher-quality resolution. "The display will be 1500 lines, seamless, with 35-millimeter resolution," says Marty Perlmutter, partner at The Green Street Gang, a San Francisco multimedia firm. But even this forecast may fall short, as MIT's Media Lab is now experimenting with displays of 2000 lines.

PREPARING FOR 2001

Get a jump on the twenty-first century today by exploring the avenues likely to lead there. For some innovations, like HDTV and voice recognition, you'll have to wait. But other essential building blocks for future computing are here today. Here are some guideposts on your road to the future.

CD-ROM is appearing for a broad variety of computers. Several disks contain desktop libraries, hypertext encyclopedias, and video. If you plan to buy a CD-ROM drive, be aware that erasable optical disks will eventually preempt them.

ISDN is some years away, but you can already investigate the remarkable world of online services. If you're a novice telecommunicator, you may want to start with Prodigy (run by IBM and Sears), which is available in several metropolitan areas, including New York, Los Angeles, Washington, Baltimore, Atlanta, and Detroit. The service should reach 42 percent of American households by the end of this year and go nationwide by the early 1990s. Prodigy is easy to use and offers a panoply of features: online shopping, news, advertising, stock purchasing, electronic mail. You could sign on to a local BBS, or even tap into one of the giant databases such as DIALOG.

Desktop video software makes it easier to create full-motion graphics, an application that will grow in popularity as the power of home computers increases. The many animation programs already on the market provide excellent ground on which to learn the rules of moving pictures.

Explore object-oriented programming without waiting for a NeXT computer by learning *HyperCard* or some other hypertext programming application. Plain-English programming languages and graphics-oriented programming languages are setting the stage for the personal software applications of the future. If you want to try the NeXT, visit a local Businessland computer store and see if it has one on display. The year 2001 is still a ways off, but you can make an effort to meet it on the road.

COMMUNICATIONS



The completion of a nationwide Integrated Systems Digital Network will throw this field wide open.

The data equivalent of the interstate highways, ISDN will simultaneously transmit voice, video, and computer data over existing phone wires. The first segment of ISDN is already in place: It shows the caller's number when the phone rings.

"It'll definitely replace the need to use modems," says Greg Simons, president of Primera Software in Berkeley, California. "The things we enjoy in an office where we hardwire computers, you'll be able to enjoy all around the world. You can have a voice-mail network all around the United States."

ISDN will make giant databases much more accessible. "If I'm going to Seattle and I wanted to read the Seattle paper, I could do it now," says Simons. "Or if I wanted to see what's on TV there, I could see it



HDTV (left) scans almost twice as many lines as current NTSC-standard TV (right) and uses a rectangular screen, resulting in film-quality images.

THE NEW ELECTRONIC BRAINS

Although once tagged as *electronic brains*, digital computers have never been very brainlike. But research in two areas—*fuzzy logic* and *neural networks*—holds out the tantalizing vision of a more human home computer.

In 1965, Lofti Zadeh, a professor at UC Berkeley, invented fuzzy logic, a way of reasoning about ill-defined notions. It has since grown into an academic discipline with major implications for computers.

Traditional logic analyzes the statement *Bob is tall* by setting a cutoff line, such as 5 feet 10 inches, and matching Bob's height against it. If he stands 5 feet 11 inches, he's tall; if he's 5 feet 9 inches, he's not tall.

In real life, no cutoff line exists. Bob is "very tall," "somewhat tall," "a bit tall." Fuzzy logic captures such essentials by creating partial memberships in *fuzzy sets*. For example, if Bob were 7 feet 2 inches, he might receive a 1.0 membership in the set of tall people—that is, a full membership. If he were 6 feet 2 inches, he might have .80 membership, fairly complete. If he were 5 feet 6 inches, he might have .05 membership, very slight.

Fuzzy logic excels at judgment calls; the world's best chess programs use it. It's reviving expert systems and currently runs an ultramodern Japanese subway, cement kilns, and robots. NASA is exploring its potential for controlling extravehicular space robots and the Mars Rover.

Other scientists are approaching the brain more directly, attempting to mimic it with special machines called *neural networks*. Some have achieved startling results.

Neural networks are composed of numerous identical chips, with a web of synapselike connections between them. As in the brain, these links grow stronger or weaker according to use. They store data as patterns of cell-to-cell connections, as the brain apparently does, and scientists often do not even know where particular items are. But it doesn't matter because data is accessed by content, not by specific address: You reach one memory by stimulating another one associated with it.

Neural networks can perform tricks of association impossible on digital computers. They can function even after partial destruction, though their performance dims. Finally, to the surprise of scientists, they appear to need periods of rest, where they "sleep" and even "dream."

Neural network devices also improve their performance over time. One, called *NETalk*, learned how to read English prose aloud with 98-percent accuracy in only 16 hours and with no programming. Ultimately, these machines might perform such human feats as understanding and summarizing.

Neither fuzzy computers nor neural networks have fully proven their potential, but research is moving apace. If they continue to shine, they may well ornament our desktops by the turn of the century.

right now."

The potential for such hookups is obvious; the fallout, especially for non-computer industries, could be enormous. "Movies will probably be squirted into the home through the telecommunications lines and compressed into eight seconds on the erasable disk in your living room," says Perlmutter. "That'll wreak havoc with the corner video store."

THE MULTIMEDIA CENTER



"Certainly, by the year 2001, we'll have an integrated home communications center," says Lee Felsenstein, inventor of the first

portable computer, the Osborne 1, and president of Golemic in Berkeley, California. "That will be the home computer, combined with the ISDN telephone connection; the HDTV, which will be happening; the

various information technologies ranging down to answering machines and fax; and general-information utility use."

"I'm frightened to use the term *home computer*, says Nat Goldhaber, a Silicon Valley venture capitalist who makes his headquarters in Berkeley, California. "The computer for the vast majority of people will disappear into this integrated telecommunications device that will be in the home."

Saffo agrees. "The personal computer as we know it will persist longer in the home than in business," he predicts. "But by 1996-1997, they'll start to disappear. They'll become a low-end commodity like the typewriter."

However, Saffo notes that a unified TV, stereo, and computer system will initially be only superficial, a matter of unified control. "Deep, true multimedia is where the computer knows everything that's on the screen. We'll be lucky to get that kind of depth by the year 2001."

MULTITASKING



By the twenty-first century, multitasking will be everywhere. "A system will be absurdly obsolete without multitasking," says Robinson, "because the computer will be hooked up to a phone line that'll be delivering video images and fax information." It will be like having a pocketful of machines in a single device. Imagine your computer playing an aria in the background as you write, search an online database, or blast space blobs.

VOICE RECOGNITION



The ultimate input tool, voice recognition could bring computers to almost every level of society. Many observers see it as inevitable by the year 2001. "You'll talk to your TV set, and it'll customize itself and pull things off the air in the categories you told it," says Perlmutter. "'Give me everything on Madonna, everything on Dan Quayle.' It'll look for that and grab it from the 2000 channels it's scanning."

Greg Simons of Primera goes even further. "You'll have the most powerful Sun computer for a thousand bucks retail, and that computing power will be used to give a better interface so [anyone] could use it," he says. "[You] could talk to it, and there'd be a huge flat-panel screen on the wall. It'd be just an appliance, a looking glass into a whole sea of databases, libraries, entertainment services, newspapers, and TV." Such a machine, he adds, could even recognize body input, such as waving hands or swinging a bat.

INTERACTIVITY



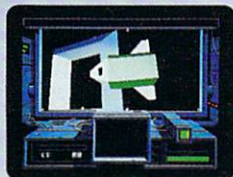
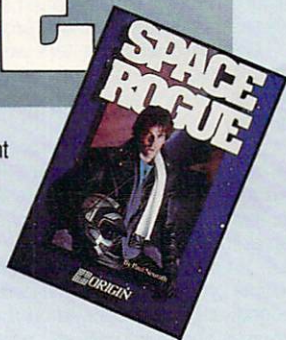
The fusion of computer, optical disk, and HDTV will produce dazzling interactive entertainment. "Instead of watching a movie about the Oregon Trail," Saffo says, "the kids will be able to play the role of a character."

Joel Pitt, senior software designer at JWP Information Systems in Old Bridge, New Jersey, suggests that old movies could be turned into



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the cinematic equivalent of adventure games. "I'm sure in some way you'll be able to redo *Casablanca*," he says, "so at the end you could have Colonel Strasser shoot Bogart. Or hold on to Ingrid Bergman."

REMOTE CONTROL



"Remote control is a big item," Saffo says. "We'll see it on everything that should have it and on a lot that doesn't need it at

all." By 2001, computers should vaporize annoying VCR controls. "The VCR is much more difficult to use than it would be if a computer were controlling it," says Lotus's Robert Simon. "For instance, you could tell it to record all episodes of a particular series, rather than your preprogramming it." You could also store the shows on optical disk for direct random access, without rewinding.

INTERFACES



"Software will get more and more humane," says Pitt. "It'll be easier to access, more obvious to the user, more fluent in

terms of its abilities to respond to the coarse level of communication which humans are used to." Icon-based interfaces will be everywhere,

and hypermedia tools like *HyperCard* should be more common and simpler to use.

EXPERT SYSTEMS



lems. For example, it's difficult to

Expert systems were once considered the golden chariot into the future, but they've been plagued by surprising problems. For example, it's difficult to

have a software application make a judgment call without a huge base of knowledge. That takes a lot of software, and a lot of money. But some observers predict a revival.

"I think expert systems will be woven into programs like those that access databases," says Primera's Simons. "Like *HyperCard* with real brains. The classic Alan Kay example is a system that's your buddy, your link to all this data, and it assembles a newspaper for you every day."

For example, such a system could note that when you read the paper you skip the local murders and astrology column, but always go to page 12 for over-the-counter stocks. With that knowledge, it would create a one-page summary of just the news you want every morning. It could also cast its net beyond any one publication, scanning the financial sections of all major papers, selecting the most interesting stories, and serving them up.

"They'll come into the home on something like a fax machine," Saffo says of customized newspapers. He also suggests that expert systems may appear in household appliances.

"Servicing appliances is a problem, and I think they'll be increasingly designed with replaceable modules," he says. "We'll see onboard diagnostics, where a consumer can have the washer self-diagnose and indicate which black box to pull out and replace." >

Optical disk storage—like that used today in the NeXT computer—plays a central role in the home computer systems of tomorrow.



THE PARALLEL PROMISE

"Everything that happens at the high end is a harbinger of things that come to the desktop," says Phillip Robinson, computer consultant with Virtual Information of Sausalito, California. Right now, the most significant news at the high end is the advent of a long-awaited architecture: parallel processing.

Conventional computers work serially, sending one chunk of data at a time through a single chip. The most obvious route to more power is to place several processors in harness. Already appearing on supercomputers, parallel architecture may well reach the home by 2001.

Until recently, parallel processing has been snarled in the problem of synchronizing the chips. "Critics say, 'If you had to plow a field, would you rather do it with two oxen or a thousand bunnies?'" says Justin Rattner, director of technology at Intel Scientific Computers in Portland, Oregon. "The trick with a thousand bunnies is getting them all to hop at the same time."

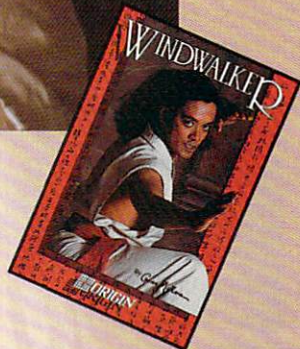
"It takes a lot of software intelligence to know how to split a job up into parts that multiple processors can [perform]," says Robinson, "particularly when the results of a second calculation depend on the first." But software designers are surmounting this obstacle, and observers say parallel processing will soon break into general acceptance at the high end. From there it could be a fairly straight ride to controlling the family's giant flat screen with a slew of processors.

"There will be a lot of information flowing into the home," says Andy Halford, director of software development at Alliant Computer Systems of Littleton, Massachusetts. "You'll be able to get video pictures in windows on your PC, and that might be games for kids, stock-market returns for the investor, video shopping. Travel agents would be able to show you a city. All that requires tremendous computer power, and the only way to achieve that is through parallelism."

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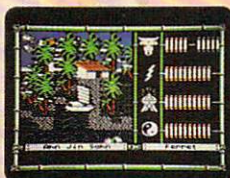
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HOME CONTROL



"I think, by the year 2001, in some way or another, computers will be at the center of household control," says Pitt of

JWP. Already they're regulating home heating and lights. And with the right mechanisms, says Pitt, your refrigerator could register the food it contains."

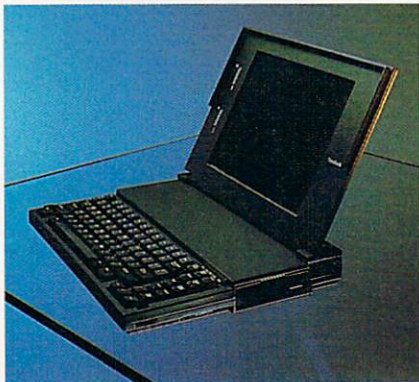
"I think there's going to be a million tiny computers controlling everything in the home that's now controlled mechanically," says John Golini, electronics consultant at Jay Gee Programming in Los Gatos, California. Door locks will be microcontrolled from a keypad; computers could also regulate cosmetic mirrors, changing the amount of magnification and light.

PORTABILITY



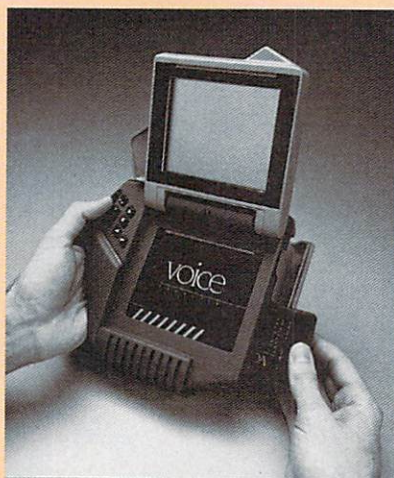
Instead of the notebooks we carried to school, our kids will be carrying computer notebooks. And instead of keyboards, students will use electronic pens and special tablets to jot down their lecture notes. Qualcomm's Lafleur expects we'll have wallet-size computers by the year 2001. "Look at the average wallet," he says. "A dozen credit cards and notes and car insurance information. I'd want something the size of or smaller than a wallet, and all that information available to me. You could call it a *smart wallet*."

►



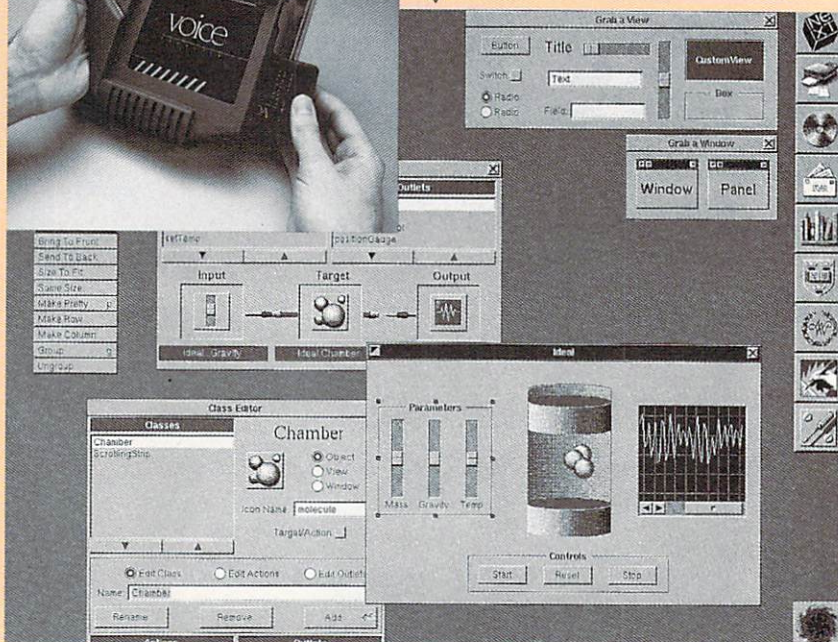
Spiral notebooks give way to notebook computers like the Dynabook, from Dynabook Technologies.

FUTURE SPEAK



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Writing code becomes more intuitive with object-oriented programming.



If you want to move into the future, you've got to talk that talk. Here's a few terms to loosen your tongue:

Compact Disc-Read Only Memory (CD-ROM)—Compact discs that store hundreds of megabytes of data and can't be written to or erased.

expert systems—Customized computer systems that recognize and retrieve information based on the user's own preferences and a preprogrammed base of knowledge.

fuzzy logic—A system of logic that gives tangible parameters to normally fluctuating values and judgments.

high-definition TV (HDTV)—A motion-picture-quality television that boasts 1125 lines (instead of the conventional 525 lines) and a rectangular (not a square) screen.

Integrated Systems Digital Network (ISDN)—A nationwide network that will use existing telephone lines to transmit voice, video, and computer data.

multimedia—The integrating of audio, video, graphics, and communication technologies within a computer system.

multitasking—The ability to perform more than one function at a time.

neural networks—A series of identical chips with synapselike connections, similar to the brain, that strengthen or weaken according to use.

object-oriented programming (OOP)—A method of programming in which blocks of code are represented by icons and can be manipulated to create applications.

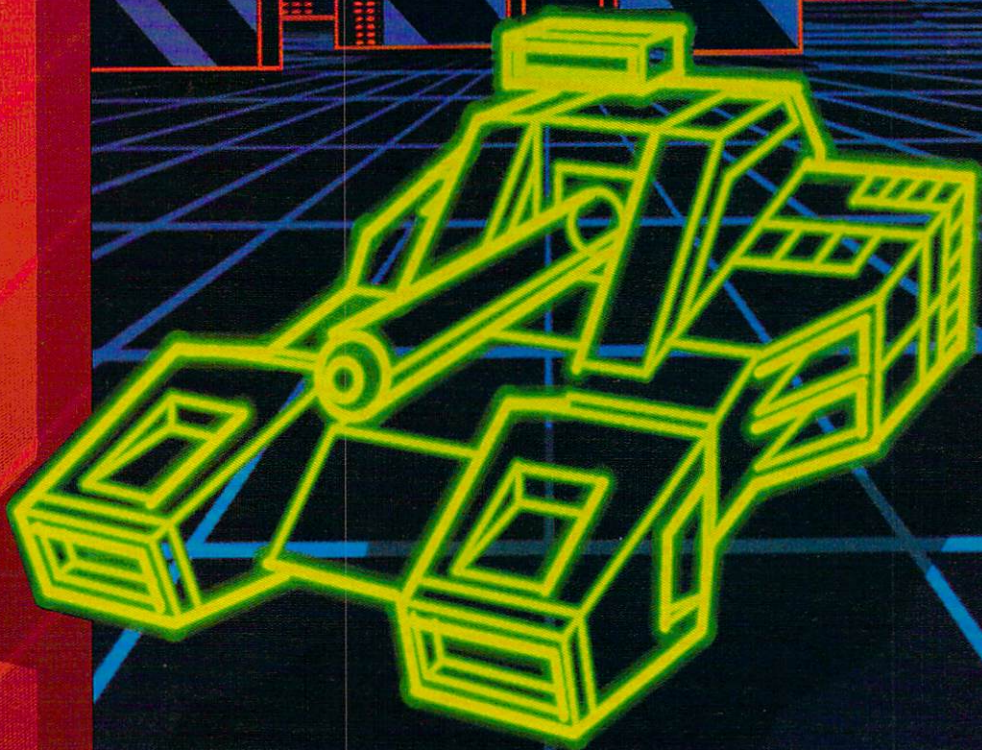
parallel processing—A method of computing in which multiple processors are assigned separate, interdependent pieces of a larger computing task.

virtual reality—An artificial world of experience created through use of computerized devices and controlled simulations.

voice recognition—A computer input method through which computing systems and electronic appliances are activated or controlled by voice or audio commands.

— Jeff Sloan

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BRAVE NEW WORLDS



Virtual Reality: the creation of artificial worlds of experience. VR devices place you inside a controlled hallucination—the ultimate simulation.

"We've designed computerized clothing you wear over each of the sense organs," says Jaron Lanier, CEO of VPL Research in Redwood City, California. For example, EyePhones is a heavy pair of glasses, rather like a scuba mask. Put them on and find yourself transported to a new 3-D environment. Don a DataGlove, extend your hand, wiggle two fingers, and you can walk through that scene. If you want, reach down and pick up a virtual object.

Beyond entertainment, virtual reality could serve a variety of other uses, such as neuromotor training. "My favorite example is juggling," Lanier says. "You can make the balls move slowly at first, then speed them up as you get better. In education, you could pick up molecules and turn them around in your hand. If you want to shop from home, you could try out new houses, new cars." Lanier is currently working with Autodesk of Sausalito, California, maker of computer-aided design programs, by using

the glasses and glove to "walk" through *AutoCAD* files as if they were actual buildings.

Virtual reality has social aspects, too. "It's kind of like a costume party," Lanier says. "You can choose your own appearance and create shared worlds with other people. I see it as a social medium over the telephone, where people will have collective parties in virtual reality."

Author Stewart Brand notes that today's movie theaters provide a kind of immersion in a virtual reality, and people go to them partly for that experience. "But [VR] is as much of an immersion as you can get without piping into your nervous system," he says. The experience is so compelling that the threat of virtual addiction could itself become a reality.

Currently, the glasses and glove are very costly, though VPL Research has licensed the technology to Mattel for a low-level product called PowerGlove, which will act as a controller for Nintendo games. But Lanier expects VR to be common consumer technology in the next decade.

O U T P U T



Declining prices will make laser printers a familiar feature in the home; dot-matrix printers will slip into oblivion. CD-ROM and other computer optical discs will equal audio compact disks in sound quality. But future computer output may be even more sophisticated than printing or sound.

Primera's Simons suggests an output device that resembles a pair of glasses that can be slipped on anywhere for instant access to information.

We can expect to see better scanners, faster chips, more special-purpose chips, optical wiring, software that encompasses several applications under one roof (the integrated packages we use today are the forerunners), hypertext encyclopedias, and an array of innovations far be-

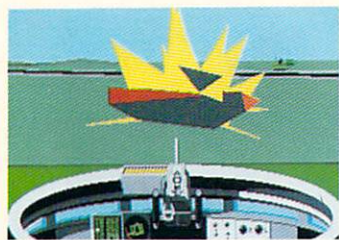
yond the power of prognostication.

The future, as *The Amazing Kriswell* informed us in *Plan Nine from Outer Space*, is where we'll spend the rest of our lives. If our experts are right, it should be a remarkable sojourn. □

Paul Freiberger is coauthor of *Fire in the Valley*, one of the first books to detail the history of personal computing. Dan McNeill has written several books and articles on the development of personal computers.

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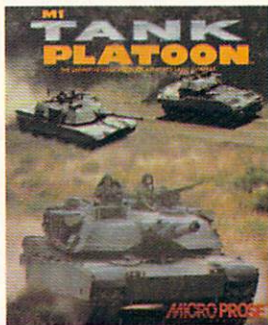
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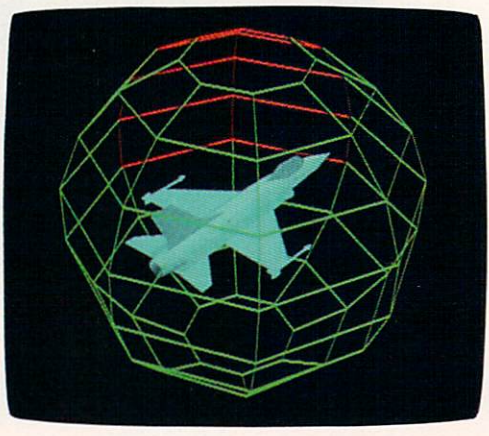
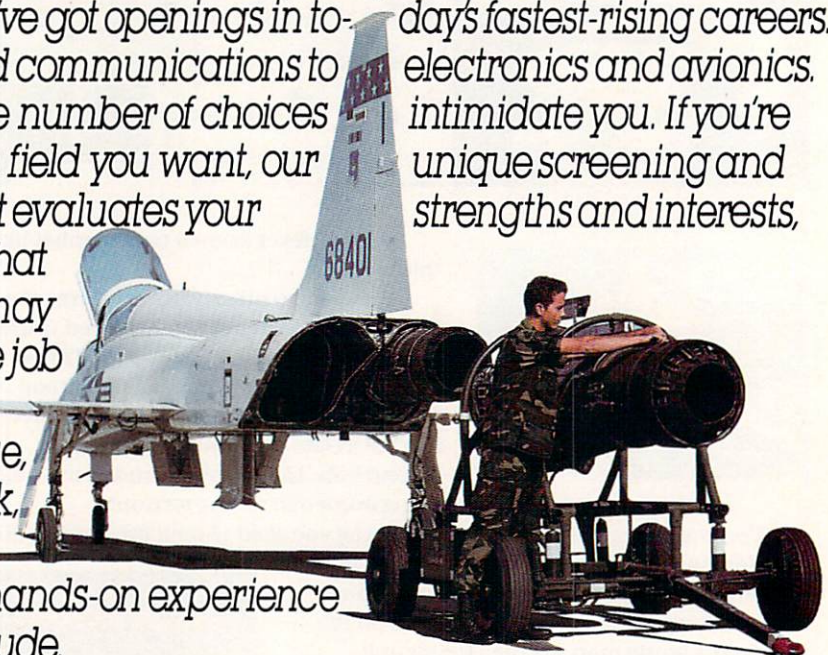
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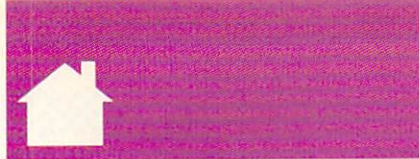


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HOME COMPUTING EXPLOSION

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and find out.

Discover Your Computer Personality

Heidi E. H. Aycock



All of us have an alter ego, a secret identity. It's called the *computer personality*. You leave your computer on whenever you're home, but your neighbor shudders at the thought of turning on his printer. You have a five-command DOS vocabulary, but your 12-year-old daughter is already hardcoding EEPROMs.

There's no trick to using computers. There's no secret code, no special password. Experience, curiosity, and a little confidence are all you need to get closer to your silicon sidekick.

Find out where you stand in relation to your computer. Are you an 8088 double-floppy fidget fingers or an i486 32-bit bus burner? Maybe you fall somewhere in between. *COMPUTE!*'s home computing test can help you find your place. Some of our questions deal with how you use your computer; others refer to what you know about your machine.

For each question, pick the best response for you. Then, check out the scoring section. When you've finished there, you can explore our many suggestions that tell you how to move from your level to the next.

Hang on to this quiz. A few months from now, you can look at it again and see how much you've advanced. You'll be surprised at your progress.

I'm OK. You're OK. My Computer's OK.

How Do You and Your Computer Get Along?

1. How many times do you turn on your computer during the day?
 - A. I turned it on once, panicked, then shoved it into the attic.
 - B. A few hours, a few days per week.
 - C. If I'm home, my computer's on.
 - D. The last time my computer was off was during a blackout.
2. What programs do you use?
 - A. A word processor and some games.
 - B. A word processor, some other productivity packages, some games, a graphics package, a memory-resident calendar, and a DOS shell.
 - C. All of the above plus a hard disk backup program, a memory manager, and a telecommunications program.
 - D. Modula 2, Turbo C, or some other high-level programming language, and a debugger.

3. Do you read software manuals?
 - A. I read them all the way through before I try a new program. I keep it in my lap the whole time.
 - B. I use them to install programs. I check the table of contents for new concepts and read about the unfamiliar ones. Then I dive in, using the index when I need help.
 - C. Unless I'm stuck, I ignore manuals.
 - D. I don't look at manuals except to find out how to declare a data type.

4. How do you deal with problems?

For example, if you issue a print command and nothing happens, what do you do?

- A. I issue the command again. If it doesn't work, I issue it again and again and again. I've replaced my return key four times this year.
- B. I issue the command again. If it doesn't work, I start reading the manual.
- C. I save my file; then I check the power switch, the online light, and the paper supply. If everything's in order and I still don't have a print-out, and I can't find the answer in my manual, I call tech support.
- D. I save my file, check the switches, lights, and paper. Then I grab my tool kit and my printer specifications. The doctor is in.

5. Your four-year-old son just hit the delete key and erased the entire directory of files. What do you do?

- A. Not notice because I've never figured out what a directory is.
- B. Pull out my backup floppy disks and copy their contents back onto my hard disk.
- C. Boot up my trusty Norton Utilities and rescue the lost files.
- D. Use the DEBUG command to reconstruct the RAM contents, and use EDLIN to write my own data-recovery program.

6. How well can you use DOS?

- A. What's DOS?
- B. I can get a directory, start a program running, and copy files.
- C. I use it when my DOS shell doesn't provide the tools I need.
- D. DOS! I don't need no stinking DOS. I've got machine language.

7. How many computers do you own?

- A. One.
- B. One, but I wish I had more.
- C. More than one. An MS-DOS machine for serious work, a laptop for working on the road, and an old 8-bit whose CPU I know well.
- D. More than one. I use PC clones or Macs because they're so common, Amigas or STs because they're so beautiful, and Commodores, Apples, or Atari 8-bits because they're so simple.

KEEP ON LEARNING

In this article, we've explored several avenues that lead to the top of the computer-expertise ladder. But the list goes on. Everywhere you look, there's a way to get more involved with your computer.

Take classes at your local community college. Some computer-consulting firms offer courses, too. You can study microcomputers generally, delve into a new software package, or (go ahead, take the plunge) learn to program.

If you're an experienced computer user, take off in a new direction—artificial intelligence or robotics, for example. If you're an Amateur or a Rookie, take up desktop publishing or tax programs.

Amateurs and Rookies can tune in to "Computer Chronicles," a PBS series about information technology. Also, if you're ever in Boston, the Computer Museum presents a fine computer retrospective as well as a look into the future.

PC Pros and All-Stars can volunteer their time to a local service organization. Most groups need people to keep records, manage finances, produce literature, and so on. You could provide this help with your computer skills. At the same time, you would add to your own experience and broaden your perspective. After all, that's what computing is all about: expanding your personal horizons through the use of technology.

8. How do you back up your data?

- A. I don't.
- B. On a regular basis, I copy all my files to a reserved set of floppy disks.
- C. I use a commercial backup utility.
- D. I use my own, home-brewed backup utility.

9. Can kids use computers?

- A. No; computers are too complex.
- B. Yes; anyone can use a computer.
- C. No; kids are too complex.
- D. Yes; I'm a kid.

10. What do you call your computer?

- A. Sir.
- B. Pal.
- C. HAL.
- D. I don't call it, it calls me—*master*.

In the Know

How Well Do You Know Your Computer?

11. What's DOS?

- A. I don't know DOS, but I'm taking a tai chi class.
- B. An acronym for Disk Operating System.
- C. A list of computer commands that catalog programs.
- D. A chip inside my computer. >



HEAVY METAL HEAVY MENTAL

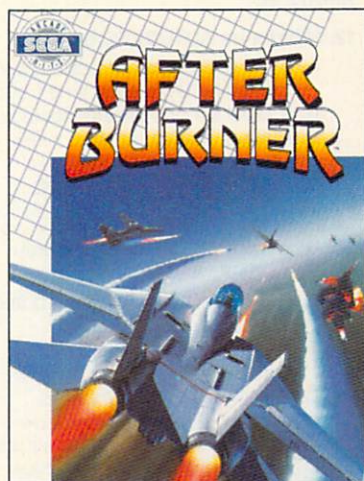


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Ok, jet jockey. Show us your true colors. Are you an ace, the top card in the deck?

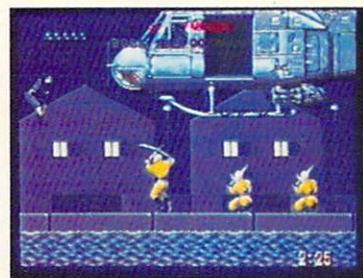
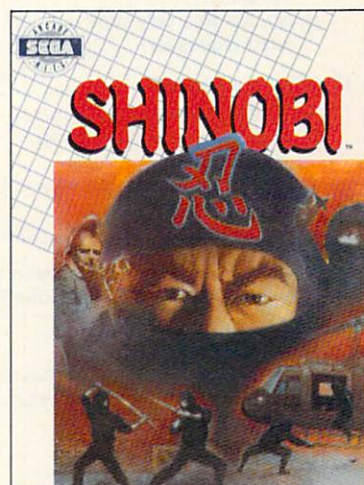


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AMATEUR

12. What's an AUTOEXEC.BAT file?
 A. A set of startup instructions performed by DOS each time I boot.
 B. A DOS file of business contacts.
 C. A set of configurations for my memory and hardware ports.
 D. A set of rules for writing PC programs.
13. What's the difference between CGA, EGA, and VGA?
 A. Each works on a different brand of computer.
 B. The number of video ports required.
 C. One's the Cruddy Graphics Adapter; one's the Expensive Graphics Adapter; and one's the easy-to-install Velcro Graphics Adapter.
 D. The number of colors available, graphics resolution, speed, and price.
14. Can you share word processing files with friends who don't use the same software as you?
 A. Yes, as long as the files were created on a PC compatible.
 B. Yes, as long as I can save files in ASCII format or in another format compatible with my friends' word processors.
 C. No. My files only work on my computer.
 D. No. My files only work with my word processor.
15. What's a macro?
 A. A keyboard vacuum cleaner.
 B. A set of standards for video display.
 C. A set of instructions activated by one keystroke.
 D. A computer model of an edible fish.
16. What's the difference between an XT, an AT, and a 386 computer?
 A. The microprocessing chip.
 B. The keyboard.
 C. Whether or not there's a mouse.
 D. How many colors the monitor displays.
17. What's a DOS shell?
 A. A program that saves electricity.
 B. An interface that provides the power of DOS without the complexity of the A prompt.
 C. A printer driver for color output.
 D. A video standard for animation.
18. What's the best way to keep a power outage from destroying your data?
 A. Save your work every 15-20 minutes.
 B. Say a prayer before you turn on your computer.
 C. Keep the Caps Lock key down while you work.
 D. Plug your computer into a power strip.

ROOKIE

19. What are TSRs?
 A. TSRs are printers that *take some risks*, meaning they're harder to use but give sharper output.
 B. TSRs are games that *turn some radical*, meaning they instill left-wing sympathies in players.
 C. TSRs are *tape system regulators*, meaning they manage backup tape-drive systems.
 D. TSRs are programs that *terminate, but stay resident*, meaning they hang out in RAM, but they surrender control to DOS until summoned by a certain keystroke combination.
20. What's the difference between conventional, expanded, and extended memory?
 A. Conventional memory is the 640K of RAM that DOS can access, expanded memory is bank-switched memory, and extended memory is available only with ATs and 386 machines.
 B. Conventional memory stores common commands, expanded memory stores unusual commands, and extended memory stores user-defined commands.
 C. Conventional memory stores information in groups, expanded memory stores information in large pieces, and extended memory stores information in long strips.
 D. Conventional memory is stored in RAM, expanded memory is stored in ROM, and extended memory is stored on disk.

Settling the Score

In the first section, "I'm OK. You're OK. My Computer's OK," there are no right or wrong answers. Your responses simply show how comfortable you are with your computer, how often you use it, and how adventurous you are.

- For every A you chose, give yourself two points.
- For every B, give yourself four points.
- For every C, give yourself six points.
- For every D, give yourself eight points.

For every question in the test's second section, "In the Know," there's only one right answer among the four choices. For every correct response, give yourself five points.

11. B: On PC compatibles, the disk operating system is known as MS-DOS or PC-DOS. It acts as a translator between hardware and software.
12. A: A batch file is a series of MS-DOS commands that is executed when you type the batch file's name and then press the Enter key. An AUTOEXEC.BAT file is a special

PRO

kind of batch file because it's executed when you boot the machine.

13. D: CGA (Color Graphics Adapter) boards provide the lowest-quality color graphics on an MS-DOS computer, but they're cheaper than EGA (Enhanced Graphics Adapter) and VGA (Video Graphics Array) boards.

14. B: ASCII is a common code used for text files when they're shared between different programs or micro-computers. It doesn't retain special formats like columns and italics, but it gets the job done.

15. C: Macros are most useful for repetitive tasks that can be gen-

ALLSTAR

TELECOMMUNICATIONS:

Contact with the Outside World

If you haven't yet stepped into the world of telecommunications, try connecting with a BBS or a communications service.

BBSs are electronic bulletin boards, forums for people with common interests. Using your computer and a modem, you can link up with other people who share your fascination with Brazilian mythology or stamp collecting or British mystery writers—whatever you're interested in. There are around 5000 BBSs in the United States.

Whether you're an Amateur or an All-Star, you can learn a lot from the other people who are logged on. If you're really confident with your computer skills—listen up Pros and All-Stars—you can start your own bulletin board with an old computer.

For a directory of BBSs, try the *1989 BBS Bible* from Bubeck Publishing, Box 104, Collegeville, Pennsylvania 19426; (215) 287-6356. For information on starting your own BBS, hook up with a sysop (system operator) on an established board and ask questions.

Besides BBSs, there are several communications services: CompuServe, The Source, GENie, PC-Link, and Prodigy. Each service has several forums about computers, as well as online groups that discuss noncomputer subjects. If you're a Pro or an All-Star, you can be a valuable resource for people who bring questions to these forums. If you're an Amateur or a Rookie, these forums offer valuable tips. A good BBS is also the place to find public domain software and shareware.

For a book about these services, try *Guide to Commercial Telecommunications Services*, by Jeffrey Hsu. Contact Prentice Hall Computer Books, Simon & Schuster Reference Division, One Gulf + Western Plaza, New York, New York 10023; (212) 373-8140.

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AMATEUR

eralized enough to work in many files.

16. A: An XT has an 8088 chip, an AT has an 80286 chip, and a 386 machine has—you guessed it—a 80386 chip. The chip dictates how fast a computer can process information. Among these three, the XT is the slowest and the 386 is the fastest.

17. B: DOS shells are designed for people who don't like the traditional DOS interface. You have access to DOS commands but information is presented in a friendlier way.

18. A: If the power goes out and you've saved your work every 20 minutes, at worst you'll have to reconstruct only 20 minutes worth of work.

19. D: TSRs are designed for convenience. With a keystroke, you can call up an address book, a thesaurus, or some other nifty program. Although they add power to your computer, they also eat up RAM.

20. A: Conventional, expanded, and extended memory are all types of RAM, dynamic memory that temporarily stores information while your computer is on.

Find Yourself

If you scored 0–25 points, you earn the rank of PC Amateur.

An Amateur presses the return key with great trepidation, convinced that one of the computer's function keys engages the self-destruct sequence. To the Amateur, DOS is a dark and loathsome beast, lurking somewhere in the computer's housing. Manuals are cryptic riddles and RAM chips are rune stones.

To graduate from Amateur status, you have to experiment. Create disposable files. Try to destroy them. Try to lose them. Save changes that you've made one time and don't save changes the next. As long as you don't use a hammer or a bucket of water, you won't do any permanent damage to the computer.

Learn to view DOS as a file manager, not as some evil force to be reckoned with. Learn the difference between software and hardware, operating systems and applications, the A drive and the C drive. When you stop to consider what a manual's instructions mean, instead of just following its orders, you're ready to move on to Rookie status.

ROOKIE

Recommendations:

PC Amateur books (See "Resources" on page 66)

Online tutorials (See "Resources" on page 66)

Computer classes (See the sidebar on page 33)

User groups (See "Resources" on page 66)

Computer-oriented television shows (See the sidebar on page 33)

If you scored 26–85 points, you qualify as a PC Rookie.

You know where to look for information. You know how to boot up new software. You know what to check when your printer doesn't work. In short, you understand your computer, even if you don't feel particularly secure with other systems and other software.

Moving up from PC Rookie status requires a deeper understanding of all computers and all software. If you have a favorite word processor, try a new one and see how the commands parallel each other. If you and your friends have computer questions, try to find the answers together, rather than asking a more experienced user. Find out which PC configuration is best suited for the kind of work you do. Learn to customize your system with AUTOEXEC.BAT and CONFIG.SYS files.

If you remain forever in the PC Rookie stage, you'll be OK. But you'll find computers can be more fun and more helpful if you increase your knowledge of them.

Recommendations:

PC Rookie books (See "Resources" on page 66)

Experimentation with new applications and utilities (See the sidebar on page 33)

Classes on specific applications (See the sidebar on page 33)

User groups (See "Resources" on page 66)

If you scored 86–114 points, you qualify as a PC Pro.

You understand the whole system, and you can usually sit down at any computer and make it whir and hum—from PCs to Macintoshes to Suns to NeXTs. You're a good resource for the less-experienced users. To you, the computer is a helper, happily exploited.

To be a PC Pro is to reside in computer Nirvana. You're seldom lost or confused, novices look to you for guidance, the boss thinks you're

PRO

on the fast track. However, there's always more you could learn.

Recommendations:

Read reference books (See "Resources" on page 66)

Take a leadership role in a user group (See "Resources" on page 66)
Join a special interest group (SIG) in a user group (See "Resources" on page 66)

Volunteer your computer skills to a service organization (See the sidebar on page 33)

Log on to a bulletin board for advanced users (See the sidebar on page 36)

If you scored 114–130 points, you qualify as a PC All-Star.

Unless you live near a research facility, you may never have seen a PC All-Star in person. They go from their computers at work to their computers at home, quick as bits through a bus. Their pasty white complexions belie their comments about their latest picnic in the park or their tennis game. While the rest of us are living, the PC All-Star is hacking away in a basement lab.

We need our All-Stars. They write the software that we use. They design the research tools we use to fight disease. They work with raw numbers that would devour even the most confident PC Pro.

But listen up, All-Stars: Computing isn't everything. If you spend more time with your computer than with anything else, develop some new interests. Find a team sport. Donate some time to a children's group like Special Olympics or Girl Scouts. Shop at the mall, for crying out loud—you might find out who Tiffany is. Your computer needs human input, sure; but you need it even more.

Recommendations:

Start a bulletin board for advanced users (See the sidebar on page 36)

Become a guide for new members of a user group

Try a new operating system

Try a new language

Take up neural networks as a hobby

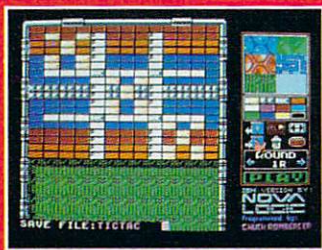


ALLSTAR

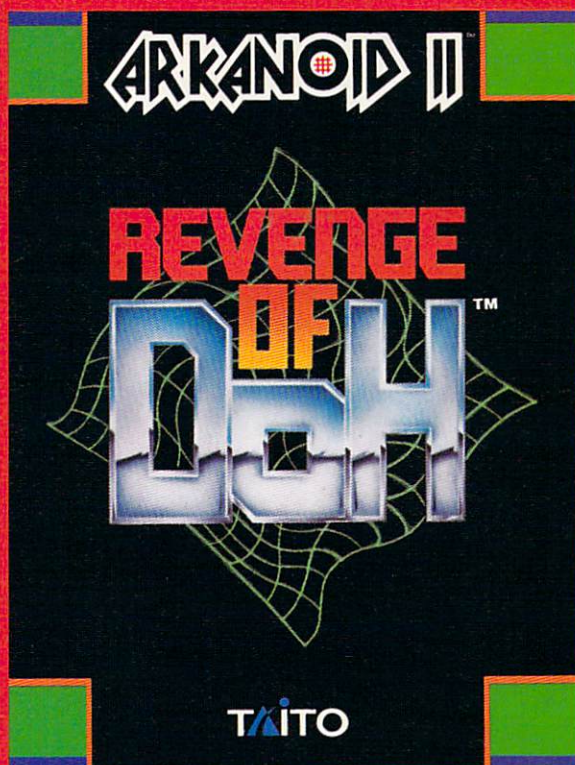
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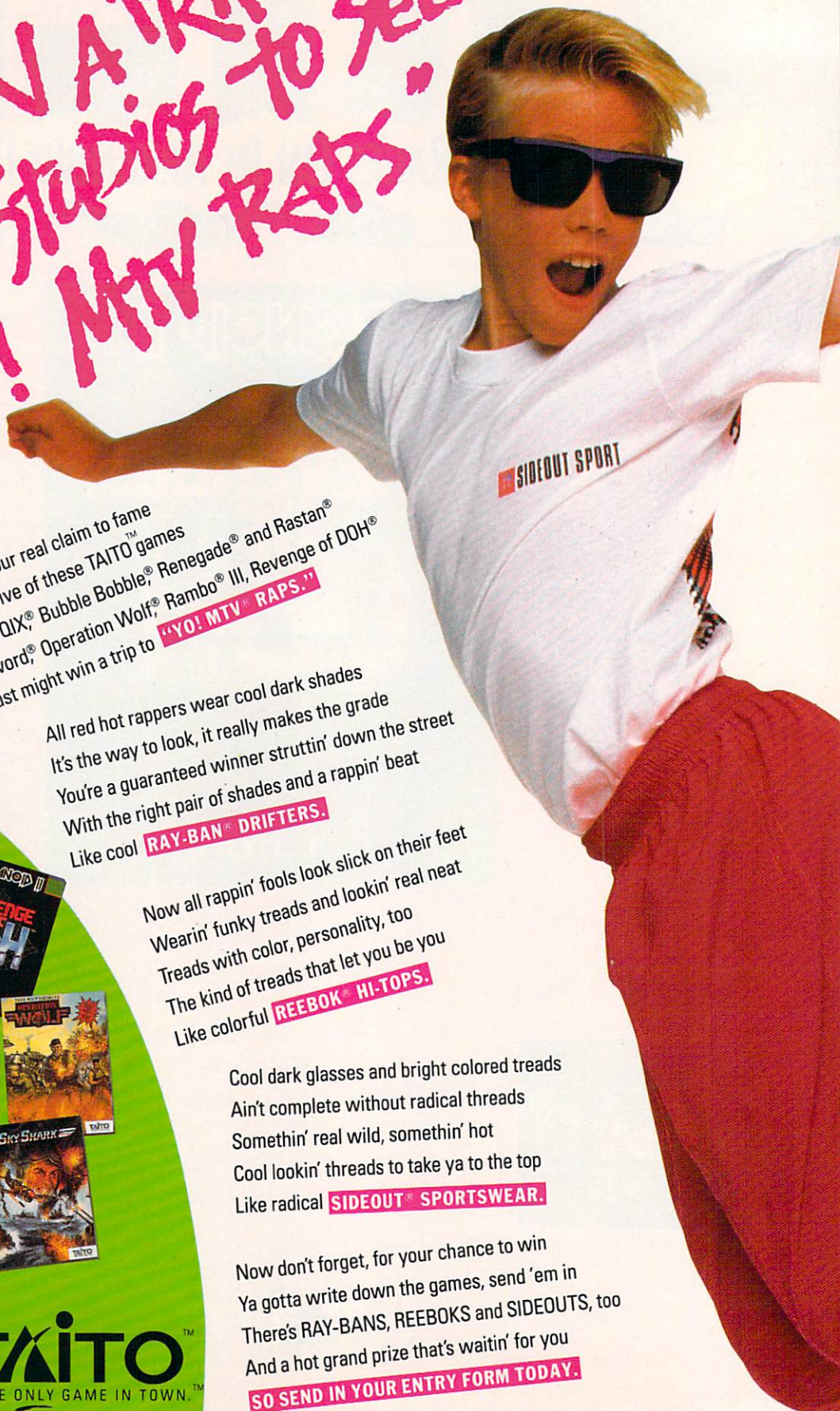
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MY VIEW

L A R R Y B L A S K O

A DECADE INTO THE BIG BANG

COMPUTERS BECOME THE HOME APPLIANCE OF THE 1990s

Back in the beginning, Apple, PET, and TRS-80 frolicked through the Garden of Home Computing. And there were simple, gentle games for simple, gentle computers and simple, gentle hobbyists.

Now it's 1989, and the Garden has been paved. Games have become "simulations" with 100-page technical manuals. The IBM PC AT and MS-DOS are as simple and gentle as a combat jet. Is this progress?

It is if your definition of progress means home computers are less a novelty and more an accepted household tool. For five years as a home computing columnist, I've received a steady flow of letters from across the nation; most ask how to get a computer to do some particular chore. These people don't want to hear how the computer does what it does any

more than they want to hear how their refrigerator keeps food cold. In short, they see home computers as household appliances.

Look at the numbers: It's estimated that there is one computer for every five citizens. A home computer inhabits one of every five households. The *Computer Industry Almanac 1989*, by Egil and Karen Juliussen (Brady Books: New York), projects that more than 10 million personal computers will be sold in the United States this year. Compare that with the estimated 50,000 in 1970—mostly IBM mainframes.

Those numbers represent an intensely competitive industry. When asked how many Tandy computers were in the hands of PC users, CEO John Roach said, "4 or 5 million," a deliberate bit of imprecision.

Personal computers may be almost as common as appliances, but they're infinitely more powerful. And we take that power for granted. The up-and-coming home computer is an AT-class clone, which just five years ago was the corporate muscle machine. We're also taking lower prices for granted; for example, you can spend around \$150 for a second 3½-inch floppy drive (adding 720K of storage), or you can get 20 times more storage from a 20-megabyte hard disk for just twice as much.

So what do we do with all that power? Mostly, we play games. The Software Publishers Association says 57 percent of last year's consumer software sales were in the recreation category. The balance of the \$465 million in sales were split almost evenly between general home productivity software and educational programs.

Competition, lower prices, and more power provide a wealth of good vibrations in the home computing arena. But it could be better.

First, there has to be a better user interface for home computers. At best, MS-DOS demands some understanding of what's happening inside the box. Home users don't care. They just want to make it happen. Tandy's

DeskMate interface is beginning to make some inroads, but it's still a small bucket bailing a sea of hostile A: prompts. A user interface goes far beyond any one machine. Anyone who uses more than one of the mass-market telecommunications services would welcome a single and simple means of navigation.

Another area needing improvement is standards. Never mind operating systems and bus architectures; we would all curse less and compute more if standards for keyboards, mice, monitors, cables, printers, modems, and other peripherals were as enforced as big-city parking laws.

Let's also please fix the documentation, which is an engineer's word for *instructions*. About 20 percent of the nongame software I get for review comes with manuals guaranteed to baffle the average user.

Finally: lower prices. Even though you can get more and more computer for less cash, it's still hard to put together a good system for less than \$1,000. That's three times the cost of a color TV, five times the cost of an intelligent typewriter.

Almost ten years ago, my personal computer had 4K of memory and used a cassette tape for storage and a color TV as a monitor. I'm writing this article on a Tandy 1000 SX, with 160 times the memory, a 20-meg hard drive, and an RGB color monitor. And that's not state of the art. After ten more years, my current rig will seem as quaint as a Model T on a Ford dealer's showroom floor. And the explosion of home computing will

be an echo heard everywhere.



Larry Blasko writes "Compu-Bug," a weekly computer column distributed by the Associated Press. He's the author of ABCs of Computing, A Plain-English Guide. □



Mean Streets

An Interactive Detective Movie

It's the year 2033. Your name is Tex Murphy, private investigator in San Francisco. You've been hired by the beautiful daughter of a university professor to uncover the facts about her father's death.

As you begin your investigation, you uncover the deaths of several prominent members of the scientific community. Are these deaths coincidental, or is something more sinister going on?

- You will interact with more than 27 characters which animate and respond to questions, bribes and threats.
- Some characters actually talk. This spectacular effect is achieved by synchronizing digitized animation with *Real Sound*[™]
 - You'll crack high-tech security systems.
 - You'll rummage through offices, warehouses, and factories as you search for vital clues.
 - You'll risk your life in action-packed shootouts.
 - You'll fly to major cities along the west coast in your Lotus speeder. This land and air vehicle is a full 3-D solid-fill flight simulator.

Mean Streets features *Real Sound*[™] our own proprietary technology that allows MS-DOS computers to play high quality digitized sound effects, music and speech **WITHOUT HARDWARE.**

Real Sound[™]

ACTUAL 256 COLOR VGA SCREENS



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BUYER'S GUIDE

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

DOES YOUR DESK OVERFLOW WITH RECEIPTS? ARE YOU TIRED OF LOOKING FOR THAT RARE KENYAN POSTAGE STAMP? DO YOU MIX UP ANNIVERSARIES AND WEDDINGS? WHETHER IT'S RECORDKEEPING, COLLECTING, OR FILLING OUT TAX FORMS, YOU'LL FIND SOMETHING TO HELP YOU IN THIS

HOME SOFTWARE SAMPLER

COLLECTIONS

BDL.Collect

BDL Homeware
IBM PC and compatibles
\$49.95

Collections of all types can be organized with *BDL.Collect*. You determine the information you want to record, such as description, cost, availability, condition, category, location, dates, and comments. The files can be searched for specific items, and printed reports include estimated profit or loss, sales catalogs listing the items, and locations of the items. *BDL.Collect Extended*, which allows longer descriptions, is available for \$49.95.

Byte Size Home Inventory

Publishing International
IBM PC, XT, AT, or compatible
\$19.95

You can keep track of your personal belongings for insurance and other purposes with this program. It stores a list of items such as furniture, jewel-

ry, and appliances along with the purchase price and date, model and serial numbers, market or appraised value, and the expiration dates of warranties. A videotape reference guide is included for people who have videotaped their belongings.

Organize Your Collection

HomeCraft Computer Products
IBM PC and compatibles
\$59.95

Organize Your Collection is a series of customized databases, each specifically designed to track baseball cards, records, books, videos, jazz albums, comic books, or classical recordings. Fields in the databases are already set up, so all you have to do is enter the data. Data can be edited, searched, and printed. HomeCraft also offers to create custom databases for almost any type of collection.

FAMILY HEALTH

FamilyCare Software

FamilyCare
IBM PC and compatibles,
Macintosh
256K, DOS 2.0 or higher required
(IBM)
512K (Macintosh)
\$99.00

Developed by a team of pediatricians and computer scientists, *FamilyCare Software* provides a database of more than 1500 questions and recommendations on the emergency and nonemergency care of children of any age, from newborn through teenage years. The program starts by asking a series of questions

about the symptoms. It then offers recommendations for the illness or injury and advises which symptoms to watch to see if the child's condition worsens. The program also names over-the-counter medications and suggests tips for health maintenance. The program includes a 30-day, money-back guarantee. >

Data East
presents

WIN
A TRIP FOR 4 TO SUPERBOWL XXIV

SWEEPSTAKES

& Hundreds of Other Prizes

New Orleans. The Superdome. The biggest game of the year! All as close as your local software dealer! That's where you'll find ABC's Monday Night Football™—first in a hot new series of fast-action games from Data East MVP Sports.™

Win the Grand Prize! A trip for four to football's premier event—Super Bowl XXIV. Plus hundreds of other major prizes! You can win \$5,000 in cash, Sony® entertainment systems or Data East's ABC's Monday Night Football pinball machines!

It's simple. Just take this ad to your participating dealer and compare the symbol on the game piece below to those on the back of ABC's Monday Night Football package. If they match, you're an instant winner!

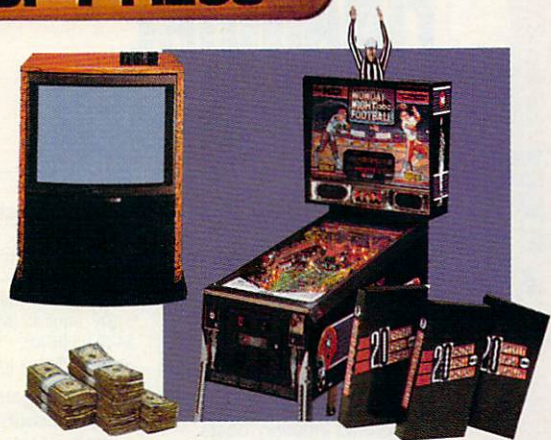
ABC's Monday Night Football from Data East MVP Sports. Experience it! Up close and personal. More action, more color and more fun. The sights and sounds of ABC's Monday Night Football.

Available for the IBM® PC/compatibles, and the Commodore 64.®



DATA EAST MVP Sports Sweepstakes Official Rules—NO PURCHASE NECESSARY

How to enter: Simply take the prize symbol "game piece" in this ad to your participating retailer. Exactly match the prize symbol on your game piece with one of the prize symbols found on specially marked packages of Data East MVP Sports' ABC's Monday Night Football games and you win the prize indicated. You may also obtain a match and win prize symbol game piece (while supplies last) and a copy of the winning prize symbols by sending a stamped, self-addressed envelope by December 31, 1989 to Data East MVP Sports Sweepstakes Requests, P.O. Box 8455, Beaverton, OR 97076. WA and VT residents need not affix postage to return envelope. If you are a prize winner, claim your prize by sending your winning prize symbol game piece with your signature and your name, complete address and phone number in the spaces provided via certified or registered mail to Data East MVP Sports Sweepstakes Winner, P.O. Box 8456, Beaverton, OR 97076. All winning claims must be received by January 10, 1990. Any official game piece or package symbol which is forged, tampered with, mutilated, contains printing errors or is obtained through other than approved distribution, is void. Decision of judges is final on all matters. All unclaimed prizes will be awarded in a Second Chance random drawing. If you are not an instant winner, print your name, complete address and phone number in the spaces provided on your prize symbol game piece and mail to Data East MVP Sports Second Chance Sweepstakes, P.O. Box 8458, Beaverton, OR 97076. Second Chance Sweepstakes entries must be mailed separately and received by January 10, 1990. If there are any unclaimed prizes, Second Chance winners will be randomly drawn on January 15, 1990, by ACS Marketing Services, Inc., an independent judging organization whose decisions are final. Odds of winning Second Chance Drawing depend on the number of unclaimed prizes and valid entries received. Not responsible for lost, late, misdirected, incomplete or illegible entries. Winners will be notified by mail. One Grand Prize winner will receive a trip for four to Super Bowl XXIV in New Orleans. Trip includes round trip coach airfare (or reasonable ground transportation if applicable), three nights lodging, tickets for four to the Super Bowl XXIV game, transfers to and from the game, pre-game brunch and \$500 cash for expenses, approximate retail value (based on furthest point of departure) \$8,500. One First Prize winner will receive \$5,000 in cash. Two Second Prize winners will each receive a Sony Entertainment Center, approximate retail value \$3,500 each. Three Third Prize winners will receive a Data East ABC's Monday Night Football Pinball game, approximate retail value \$3,000 each. 1,000 Fourth Prize winners will each receive an ABC Sports Monday Night Football 20th Anniversary Commemorative video, approximate retail value \$20 each. Total approximate retail value of all prizes \$49,500. Odds of winning instantly are: Grand Prize—1:2,000,000, First Prize—1:2,000,000, Second Prize—1:1,000,000, Third Prize—1:666,667, Fourth Prize—1:2,000. Sweepstakes open to residents of the U.S. except employees and families of Data East USA, Inc., its affiliates, subsidiaries, advertising and promotion agencies and printers. All prizes will be awarded. Limit one prize per family/household. No substitutions or cash equivalents. Taxes are responsibility of winners. Sweepstakes void where prohibited, taxed or restricted. Winners may be required to sign affidavit of eligibility and publicity and travel releases. To obtain an official winners list, send a stamped, self-addressed envelope by March 1, 1990 to Data East MVP Sports Sweepstakes Winners List, P.O. Box 8460, Beaverton, OR 97076.



1st Prize: \$5,000. **2nd Prize:** A complete entertainment center featuring big screen TV, stereo and CD (VCR not shown). (2 Winners!) **3rd Prize:** ABC's Monday Night Football pinball game from Data East Pinball. (3 Winners!) **4th Prize:** ABC's Monday Night Football 20th anniversary videocassette featuring the greatest plays from the past two decades. (1,000 Winners!)

NO PURCHASE NECESSARY

If the prize symbol shown here exactly matches one of the prize symbols found on specially marked packages of Data East MVP Sports ABC's Monday Night Football Games, you win the prize indicated.

If you are a prize winner, claim your prize by filling in the information below and sending via certified or registered mail by January 10, 1990, to Data East MVP Sports Sweepstakes Winner, P.O. Box 8456, Beaverton, OR 97076.

Name _____
 Address _____
 City _____ State _____ Zip _____
 Telephone _____
 Signature _____

prize symbol



See Official Rules for details.

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* ABC Sports and ABC's Monday Night Football are registered trademarks of ABC Sports, Inc.
 * Data East MVP Sports is a trademark of Data East USA, Inc.
 * Sony is a registered trademark of Sony Corporation.
 * IBM is a registered trademark of International Business Machines.
 * Commodore 64 is a registered trademark of Commodore Business Machines, Ltd.
 * Super Bowl is a registered trademark of the National Football League.



You can create and print your own checks with *Dac-Easy Light*.

FINANCIAL MANAGEMENT

College Financial Planner

Randle, Coray, and Associates
IBM PC and compatibles
\$69.95

With this program, you can create a financial plan for your children's education. Each child's data may be updated each year as inflation, costs, and other circumstances change. Costs such as tuition, room, books, and transportation can be itemized, and the program automatically adjusts the costs for inflation. The program provides three plans for saving the needed capital. A manual and forms for gathering data are included in the package.

Dac-Easy Light

Dac Software
IBM PC and compatibles
80-column printer required
\$69.95

Designed for both home and office, this accounting package tracks credits and debits, creates financial statements, and prints checks and invoices. It offers a chart of accounts for recording deposits, withdrawals, customers, and vendors. The program can be used to generate up-to-the-minute financial statements and monthly balance sheets.

Dollars and Sense

Monogram
IBM PC and compatibles,
Macintosh
80-column display required (IBM)
512K required (Macintosh)
\$179.95 (IBM)
\$149.95 (Macintosh)

Create budgets with as many as 120 accounts, print checks, pay bills, perform automatic transactions, estimate taxes, and monitor your financial condition with *Dollars and Sense*. Using five hypothetical scenarios, you can experiment with different liability options and see the outcomes in color graphs. A portfolio manager tracks stocks, and telecommunications software links you to online services. Double-entry accounting functions are computed automatically. Data can be exported to *Lotus 1-2-3* and other spreadsheet programs. Onscreen help is available.

Managing Your Money

MECA Ventures
Apple II, IBM PC and compatibles,
and Macintosh
128K (Apple)
256K (IBM)
Two disk drives (Macintosh)
\$149.95 (Apple)
\$219.98 (IBM and Macintosh)

This package comprises nine integrated programs covering major aspects of home financial planning such as check-book management, budgets, tax planning, insurance and retirement planning, and portfolio management. It incorporates the new tax-law changes and contains a full-featured word processor. You can store memos on its electronic calendar. Financial data can be exported to *Lotus 1-2-3*.

Money Counts 6.0

Parsons Technology
IBM PC and compatibles
\$35.00

This money-management software handles as many as 999 accounts and 100,000 transactions per year. It monitors cash, credit cards, and checking and savings accounts. It also prints checks; determines interest rates, loan payments, and amortization schedules; prints reports; displays graphs based on your financial information; estimates taxes; and analyzes financing options. It's menu-driven, it's not copy-protected, and it provides password protection and on-screen help.

Personal Portfolio Manager

Abacus
IBM PC and compatibles
384K, two disk drives required;
modem recommended
\$150.00

This program manages your portfolio. You can update your portfolio by typing in stock prices or by accessing Dow Jones News/Retrieval or the Warner Computer online services via modem. Some report formats are provided, but you can also create custom formats. Onscreen help is available at all times.

Quicken

Intuit
IBM PC and compatibles,
Macintosh
512K (Macintosh)
\$49.95

Quicken features check-writing and financial-management options, along with a bill minder that reminds you to pay your bills. The program automatically writes recurring checks, and financial records are updated whenever a transaction occurs. You can generate several kinds of reports, such as budgets, income tax, and expenses. Free telephone support is provided.

Your Personal Financial Planner

Timeworks
Commodore 64 and 128, IBM PC
and compatibles
\$49.95 (Commodore 64)
\$69.95 (Commodore 128)
\$99.95 (IBM)

Through onscreen instructions and an illustrated manual, this program guides you through financial planning for your home. It also features an electronic checkbook that prints checks, maintains balances for five checking accounts and ten credit cards, and performs monthly reconciliations. The program also monitors personal financial holdings, helps prepare tax forms, and generates financial statements.

Your Personal Investment Manager

Timeworks
IBM PC and compatibles
512K required
\$149.95

This program tracks, analyzes, and manages investment transactions, portfolios, taxes, and retirement investments. It can notify you of upcoming deadlines and help you plan your investment strategies. Other features include context-sensitive help, swiftkeys to quickly access information, customized reports, graphing and charting, and a sideways printing option. The package gives you one hour of prime time on Dow Jones News/Retrieval Service. The software works with *Lotus 1-2-3*, *Framework*, *dBase II*, and other major applications. >

LEGAL FORMS

Microlawyer Legal Forms

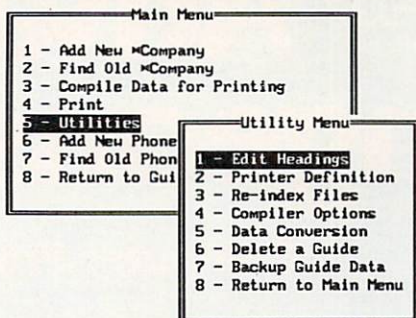
Progressive Peripherals & Software
Amiga, Apple II, Atari ST, Commodore 64, IBM PC and compatibles
\$59.95

Microlawyer is a collection of more than 100 legal documents for personal and business use. The forms can be used with a word processor to create wills, powers of attorney, premarital contracts, leases, loans, and other legal papers. The forms can be used by anyone but are not designed to replace legal advice.

WillMaker

Nolo Press
Apple II, Commodore 64, IBM PC and compatibles, Macintosh
128K required
\$59.95 (Apple, IBM, Macintosh)
\$39.95 (Commodore 64)

Unless you live in Louisiana, *WillMaker* can help you write a legal will. Provisions are made for spouse, children, grandchildren, friends, charities, guardian and alternate guardians for children, trust accounts, and an executor and alternate executor of the estate. Updates can be made to your will as your financial or personal status changes, and the program makes the legal adjustments required by each state. The accompanying 200-page manual explains the fundamentals of writing a will and estate planning. Nolo Press also provides an update service to keep track of changes in the law.



MyBase lets you print address books and quick-reference files in convenient formats.

ORGANIZERS

Address Book Plus

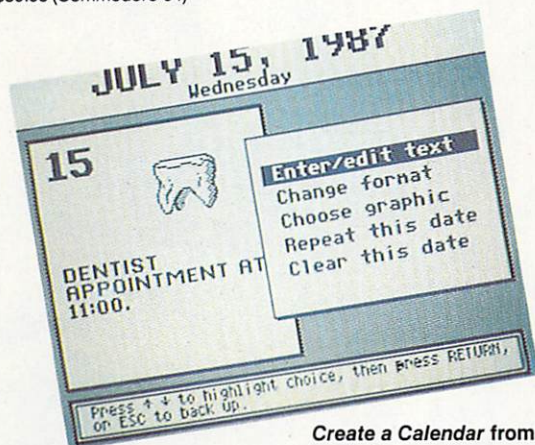
Power Up!
IBM PC and compatibles
256K and DOS 2.0 or higher required
\$69.95

You can organize and print address books, mailing lists and labels, file cards, and more with *Address Book Plus*. Each file can contain up to 1500 names (with 640K), and the number of files is unlimited. You can sort and search on fields, and you can print address books on laser or dot-matrix printers in four sizes: pocket size, organizer size, standard size, or custom-designed size.

MyBASE

Useful Software
IBM PC and compatibles
384K required
\$89.95

MyBASE stores and prints address books and quick-reference guides. Each address record includes fields for company name, three individual names, five phone numbers, fax numbers, two addresses, and comments. Another format stores other kinds of information, such as recipes, collections, or memos. Print files in many formats, such as checkbook-size notebooks, billfold-size fanfold, and Rolodex-size cards. The program also supports mail merge, labels, and searches.



Create a Calendar from Epyx reminds you of important dates and appointments.

STATIONERY

Award Maker Plus

Baudville
Amiga, Apple II, Atari ST, Commodore 64, IBM PC and compatibles, Macintosh
256K required (IBM)
512K (Macintosh)
\$49.95 (Amiga, IBM, Macintosh)
\$39.95 (Apple, Atari ST, Commodore 64)

Parents, teachers, coaches, and best friends can create customized awards, certificates, licenses, coupons, and other documents. You can choose the text style, a personal message, border style and color, and hi-res pictures to add to the predesigned awards. The program supports

class-name files and includes gold-embossed press-on seals. Baudville offers a 90-day limited warranty.

Create a Calendar

Epyx
Apple II, Commodore 64, IBM PC and compatibles
Printer required
\$29.95

Daily, weekly, monthly, and annual calendars can be designed with this program. Over 100 graphics, borders, and fonts are included; or images from *Epyx Graphics Scrapbooks* and *The Print Shop* can be imported. You can add notes and graphics to any day

and automatically schedule regular events. The program makes calendars for any year from 1753 through 9999.

Print Magic

Epyx
Apple II and IBM PC and compatibles
384K and a graphics card required
\$49.95 (Apple)
\$59.95 (IBM)

Home artists can design and print cards, flyers, certificates, stationery, and banners with this program. It combines text and graphics and shows the document on the screen just as it will print out. You can import images from *Epyx Graphics Scrapbooks*, *The Print Shop*, and other paint programs, or you can use the library of artwork that's included in the package. The program provides 24 paint brushes, geo-

metric shapes, zoom, six levels of enlargement, and automatic flip and invert. The program supports dot-matrix and Hewlett-Packard Series I laser printers. ▸



Advanced Dungeons & Dragons[®]

Computer Products

The Real Stuff.



STRATEGIC SIMULATIONS, INC.[®]



When it comes to fantasy games, the ADVANCED DUNGEONS & DRAGONS system is the real stuff. In fact, AD&D[®] designed fantasy role-playing gaming as we know it today!

Only AD&D games provide the incredible richness of detail that makes vast and mysterious worlds come alive, filled with characters, monsters, weapons, spells and encounters of incredible diversity and depth.

Now SSI uses this legendary system to take fantasy gaming one step beyond: A line of AD&D computer games set in the immense world known as the Forgotten Realms.

Every game in this exciting series



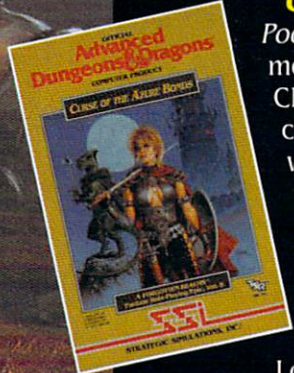
can be enjoyed by itself. However, the beauty of SSI's FORGOTTEN REALMS[™] epics is that they are intricately woven together. The more you play, the more you'll discover the glorious wonders of this mystical domain.

POOL OF RADIANCE: the first and now classic AD&D computer role-playing game. In the fabled ruins of Phlan and around the northern shore of the Moonsea, your band of six Player Characters fight an unending wave of monsters and strive to unmask their mysterious leader.

HILLSFAR: An action-adventure game that is a crucial stopping point in your travels. *Hillsfar* serves as the training grounds for all your heroes. Transfer your characters from *Pool of Radiance* or *Curse of the Azure Bonds* and increase their skills through vigorous workouts that include combat, maze-running, lock-picking, archery and horseback riding. Succeed in *Hillsfar* and some of your characters' statistics will actually improve. They will emerge from *Hillsfar* more prepared than ever to survive your dangerous journey.

CURSE OF THE AZURE BONDS: the sequel to *Pool of Radiance*, with deadlier monsters, more powerful spells and new Player-Character types. In this game, you find your characters' arms mysteriously imprinted with azure blue symbols. When they glow, they ensnare your will — you must do as they command! Search the realms for members of the New Alliance who forged these chains of enslavement and remove the Curse of the Azure Bonds.

Look for AD&D games from SSI at your favorite retailer. A wondrous universe awaits you.



TO ORDER: Visit your retailer or call 1-800-245-4525 to charge on VISA/MC. To receive SSI's complete product catalog, send \$1.00 to: SSI, 1046 N. Rengstorff Ave., Mountain View, CA 94045.

TAX-PREPARATION

Personal Tax Preparer

Parsons Technology
IBM PC and compatibles
256K required
\$29.00

Personal Tax Preparer can calculate and print your federal income tax on Form 1040 and Schedules A, B, C, D, E, R, SE, and others. It features online, pop-up help screens, IRS-approved pin-feed forms, amortization and accumulation schedules, a pop-up calculator, and a pop-up notepad. A financial calculator figures interest rates, loan payments, balloon payments, loan balances, interest earned, and savings and investments values. There is also a section to help you plan for the next year's taxes. Updates are available each year.

TaxView

SoftView
Apple IIs, IBM PC and compatibles
512K, printer required
\$119.00

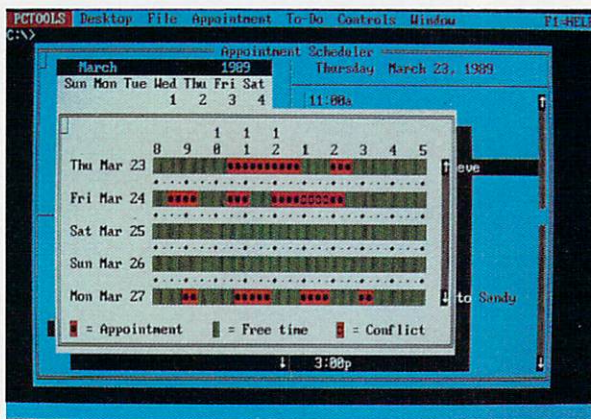
TaxView's onscreen forms help you figure your income tax, and you can print scheduled forms. Forms and sched-

ules can be linked, and data can be imported from text files. The program checks for errors and IRS violations. Versions are also available for the tax forms of some states, including California and New York, for \$65. Annual updates to the federal tax package are \$55, and state updates are \$35. The IBM version operates under Microsoft Windows; a runtime version of Windows is included.

TurboTax 1989

ChipSoft
IBM PC and compatibles
Two disk drives required
\$75.00

TurboTax is a recordkeeping, tax-preparation, and tax-planning package. Online help and telephone support are available. The program tells you if you've left anything off of the form and displays your current tax status. The next year's tax laws are built into the planning mode of the program. The data can be printed onto supplied 1040 forms. There are 26 integrated state-tax packages available for \$40 each.



Using *PC Tools Deluxe*, you can move quickly among the different modules.

UTILITIES

The Norton Utilities, Advanced Edition

Peter Norton Computing
IBM PC and compatibles
\$150.00

The Norton Utilities, Advanced Edition features utilities for data recovery and disk management, including UnErase;

Disk Test; Directory Sort; a disk optimizer; file-allocation-table editors; and a format-recovery utility to restore a formatted hard disk. The Norton Integrator runs all the utilities and provides online help. The Norton Change Directory constructs a visual tree of the directories,

PUBLISHERS' NAMES AND ADDRESSES

Abacus

5370 52nd St. SE
Grand Rapids, MI 49508

Baudville

5380 52nd St. SE
Grand Rapids, MI 49508

BDL Homeware

2509 N. Campbell Ave.
#328
Tucson, AZ 85719

Central Point Software

15220 NW Greenbrier Pkwy.
#200
Beaverton, OR 97006

Chipsoft

5045 Shoreham Pl.
San Diego, CA 92122

Dac Software

17950 Preston Rd.
Suite 800
Dallas, TX 75252

Epyx

600 Galveston Dr.
Redwood City, CA 94063

Family Care Software

Division of Lundin Laboratories
29451 Greenfield Rd.
Southfield, MI 48076

FreeSoft

150 Hickory Dr.
Beaver Falls, PA 15010

Gamma Software

17730-15th Ave. NE
Suite 223
Seattle, WA 98155

Homecraft Computer Products

P.O. Box 974
Tualatin, OR 97062

Intuit

540 University Ave.
Palo Alto, CA 94301

MECA Ventures

355 Riverside Ave.
Westport, CT 06880

Micro-Systems Software

12798 W. Forest Hill Blvd.
Suite 202
W. Palm Beach, FL 33414

Monogram

8295 S. La Cienega Blvd.
Inglewood, CA 90301

Nolo Press

950 Parker St.
Berkeley, CA 94710

Oxxi

1339 E. 28th
Long Beach, CA 90806

Parson's Technology

Dept. COM
375 Collins Rd. NE
Cedar Rapids, IA 52402

Peter Norton Computing

100 Wilshire Blvd.
9th Floor
Santa Monica, CA 90401-1104

Power Up Software

P.O. Box 7600
San Manteo CA 94403

Progressive Peripherals and Software

464 Kalamath St.
Denver, CO 80204

Publishing International

1209 W. Knickerbocker Dr.
Sunnyvale, CA 94087

Randle, Coray, and Associates

Box 1228
Utah State University Post Office
Logan, UT 84322

Softview

4820 Adohr Ln.
Suite F
Camarillo, CA 93010

Timeworks

444 Lake Cook Rd.
Deerfield, IL 60015

T/Maker

1390 Villa St.
Mountain View, CA 94041

Useful Software

22704 Ventura Blvd.
#145
Woodland Hills, CA 91364

and File Info lets you use up to 65 characters to describe a file. ASK creates interactive batch files.

PC Tools Deluxe

Central Point Software
IBM PC and compatibles
\$79.00

PC Tools Deluxe contains a number of utilities for data security and management. The Compress utility unfragments data files, a disk-caching routine speeds up disk access, and Undelete recovers lost

data. There's also a notepad for quick editing of files, a non-relational file manager, a calculator, an outline editor, a macro editor, a telecommunications program, and an appointment scheduler. □

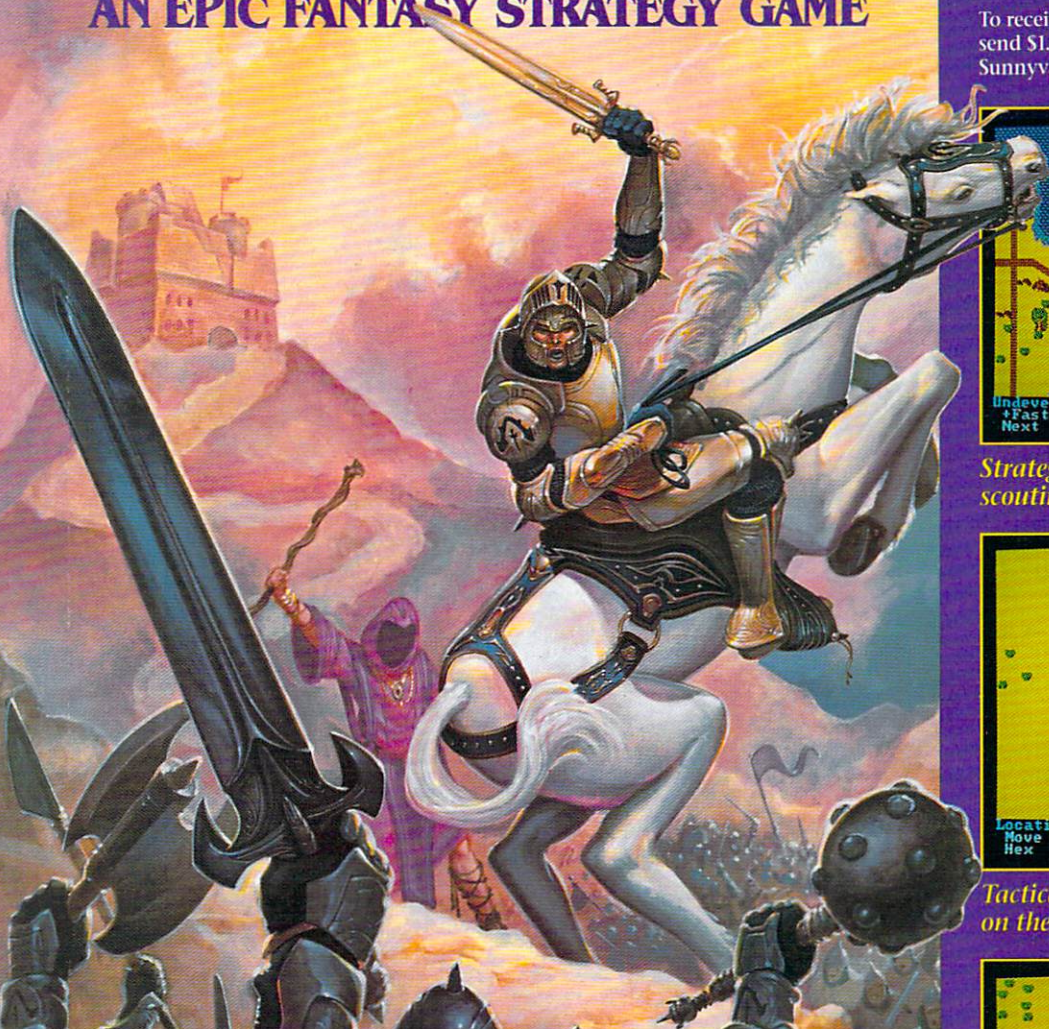
SWORD OF ARAGON™

AN EPIC FANTASY STRATEGY GAME

- ❖ Lead an army of warriors, knights, and mages to conquer the mystical land of Aragon.
- ❖ Move across the strategic map and zoom into highly detailed tactical combat against deadly foes such as evil humans, orcs, trolls, giants, cyclops, dragons, and minotaurs.
- ❖ You must also deal with the problems of medieval economics and resource allocation.

TO ORDER: Visit your retailer or call 1-800-245-4525 to charge on VISA/MC.

To receive SSI's complete product catalog, send \$1.00 to: SSI, 675 Almanor Avenue, Sunnyvale, CA 94086.



Strategic map showing a knight scouting the road to Paritan.



Tactical map showing an assault on the fortified city of Marinia.



Deadly combat between your forces and a dragon.

❖ IBM PC

COMING SOON FOR:

❖ COMMODORE 64/128

❖ AMIGA



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**SPECIAL
10th ANNIVERSARY
OFFER**

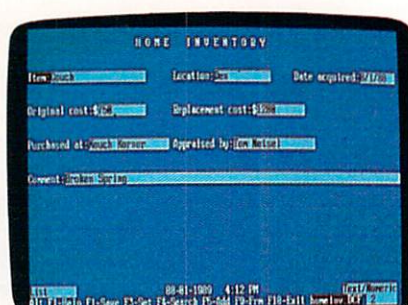
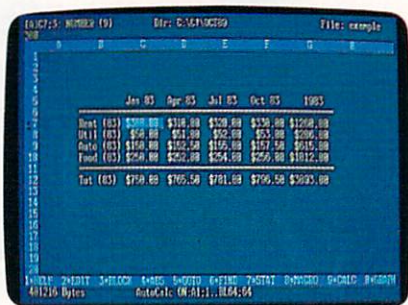
FREE*

COMPUTE!'s SHAREPAK for IBM PC and Compatibles

Compiled by Don Watkins

Each month, *COMPUTE!* brings you top-quality shareware, hand-picked for your home-computing needs. All required documentation is on the disk. You pay just one low price for the complete package—and this month, to celebrate *COMPUTE!*'s ten-year anniversary, it's **FREE!***

COMPUTE!'s October disk offers three extremely useful applications: a file viewer for browsing text, a spreadsheet with a twist, and a simple-to-use database manager.



LIST64

Looking for that story about alligators in New York City sewers? Boot up *LIST64* and find it. This file viewer lets you search files for text, mark and write selected text, and clean up files created in nontext format. Move around documents with commands such as page up, page down, left and right cursor, and go to top or bottom. You get EGA/VGA 43-line-mode support, online help, ruler, hex display, freeze top line, customization of colors, and more. Requires 64K RAM and DOS 2.0 or higher.

QubeCalc

Store data for everything from personal finances to baseball statistics in a row/column/page format where you calculate across, up, down, and through spreadsheets, called WorkQubes. For larger projects, link as many as 64 WorkQubes together. Features 60 built-in functions, macros, sorting, context-sensitive help, and graphics if you have graphics hardware. Supports *Lotus 1-2-3*, *DIF*, and *dBase II* and *III* formats. Requires 256K RAM and DOS 2.0 or higher.

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Don Watkins is the sysop of CompuServe's IBM NET. He can be reached at CompuServe 76703,750 or P.O. Box 919, Forestville, California 95436.

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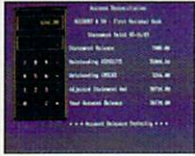
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MONEYCOUNTS 6.0

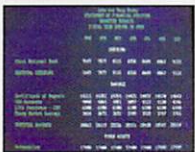
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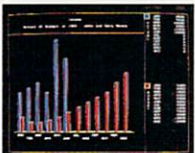
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Version	6.0	3.0	5.0	3.1
Manufacturer	Parsons Technology	Intuit, Inc.	MECA Ventures, Inc.	Monogram Software, Inc.
Suggested Retail Price	\$35.00	\$59.95	\$219.98	\$179.95
Account Balancer	YES	YES	YES	YES
Automatic Error Finder	YES	NO	NO	NO
Accounts Can Be Added				
When Entering Transactions (Data)	YES	YES	YES	NO
Financial Reports				
Actual Financial Results	YES	YES	YES	YES
Month and Year to Date	YES	YES	YES	YES
All Months On One Report	YES	YES	YES	YES
Budgeted Financial Results	YES	YES	YES	YES
Actual Compared to Budget	YES	YES	YES	YES
Actual Compared to Prior Month	YES	NO	NO	NO
General Ledger Report	YES	YES	NO	NO
Accountant's Trial Balance	YES	NO	NO	NO
Net Worth Computation	YES	YES	YES	YES
Inquiry Reports				
Check and/or Deposit Register	YES	YES	YES	YES
Account Analysis	YES	YES	YES	YES
All Transactions with Party	YES	YES	YES	YES
Cash Requirements Forecast	YES	YES	YES	YES
Aged Invoices Payable	YES	NO	YES	YES
Reports Export to Lotus or Quattro	YES	YES	YES	YES
Graphics	YES	NO	YES	YES
Bar Charts	YES	NO	YES	YES
Pie Charts	YES	NO	YES	NO
Optional Password Protection	YES	YES	NO	YES
Financial Calculator	YES	NO	YES	YES
Prints Amortization Schedules	YES	NO	YES	YES
Prints Accumulation Schedules	YES	NO	YES	YES
Mail List Manager	YES	NO	YES	YES
Prints Address Labels and Index Cards	YES	NO	YES	YES
Prints Telephone Directory	YES	NO	YES	NO
Mail Merge with Word Processor	YES	NO	YES	YES
Check Writer	YES	YES	YES	YES
Prints Laser Checks	YES	YES	YES	NO
Prints Any Pin-Feed Check	YES	NO	YES	YES
Personal Income Tax Estimator	YES	NO	YES	YES
Pop-up Note Pad	YES	NO	YES	YES
Pop-up Math Calculator	YES	YES	YES	YES
Optional Canadian Features				
International Dating	YES	YES	NO	NO
International Terminology	YES	NO	NO	NO
Capacity				
Total Number of Accounts Per File	999	255	**	120
Total Number of Open Transactions	100,000	65,535	**	4,000



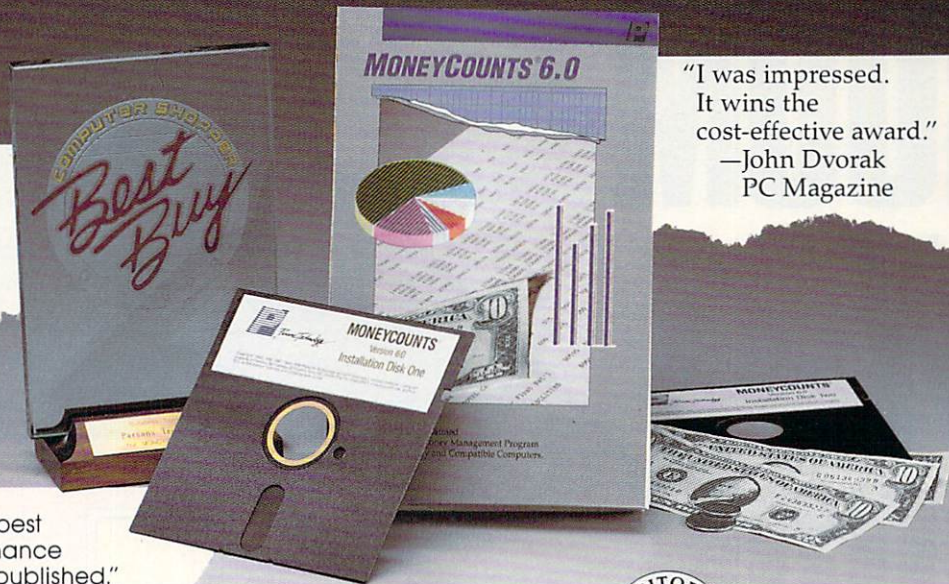
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ROOM BY ROOM

IN FOCUS

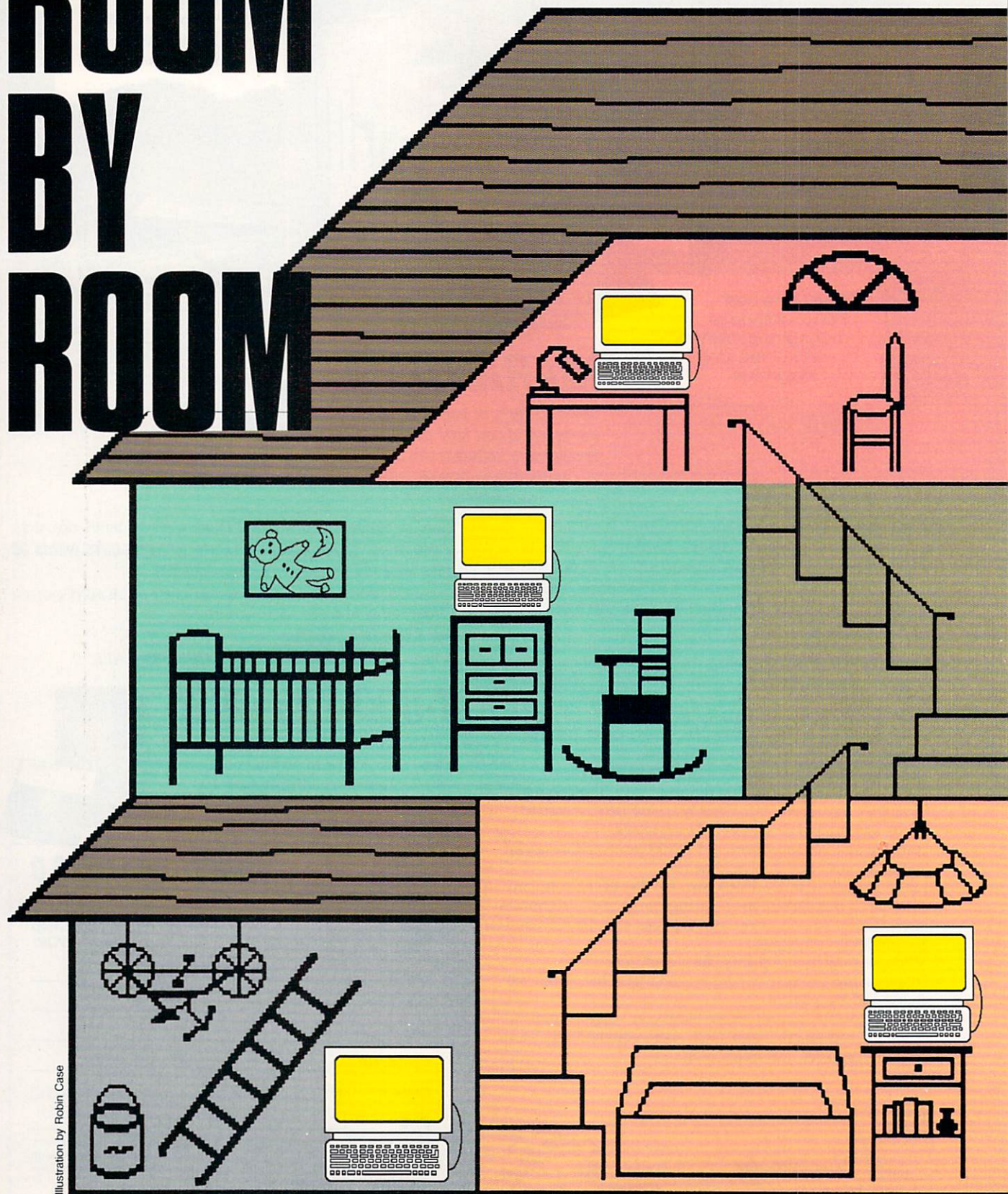
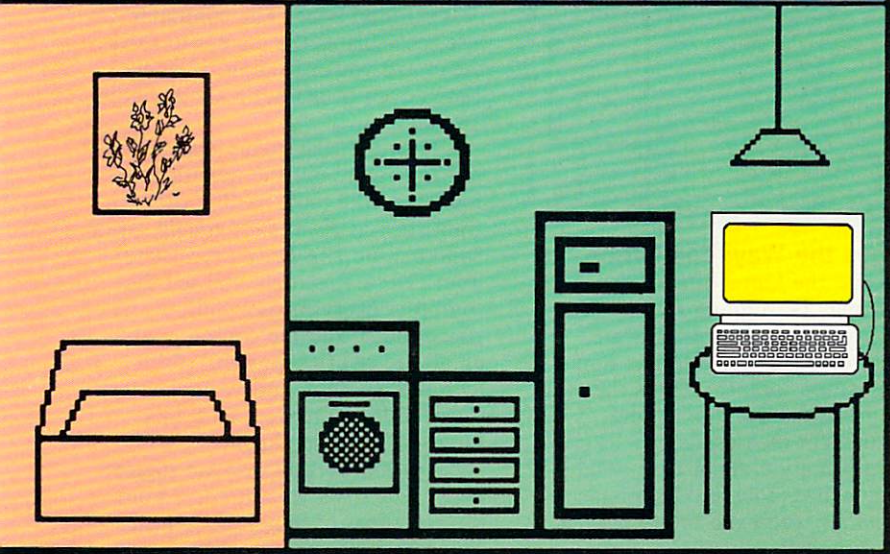
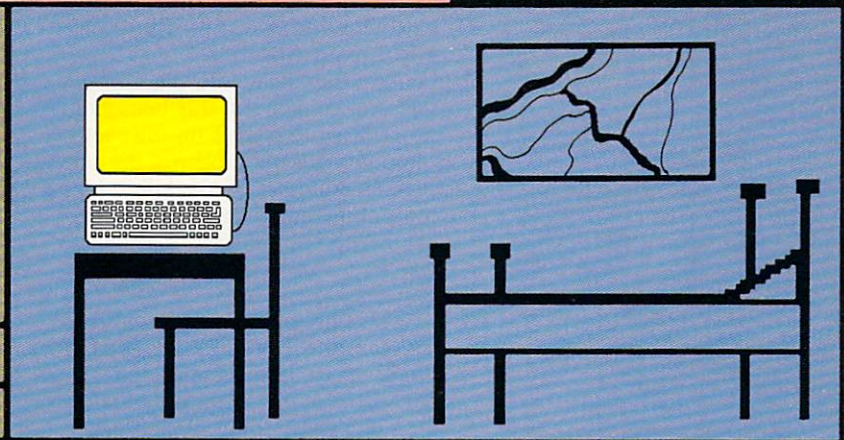


Illustration by Robin Case



USE YOUR HOME COMPUTER IN EVERY ROOM OF YOUR HOUSE



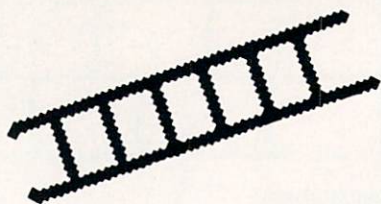
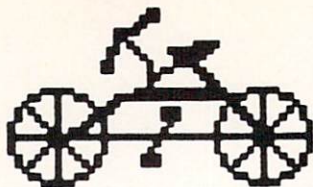
Amazing as it may seem, some people still don't know that the computer is the most utilitarian appliance in their house. These unenlightened souls think toasters, blenders, and dishwashers are more useful. They consider the home computer a toy, only good for blasting aliens or exploring dungeons.

Not so, and I'll prove it. Imagine for a moment that you have a computer in every room in your house and an unlimited budget for software. We're going to take a little house tour and see how the computer fits in each room just as well as a table lamp or a bedspread.

We're not talking about word processing and spreadsheeting here. Everybody knows you can do those things with a computer. Instead, I'll focus on unusual, often ignored, but frequently useful software. Maybe you'll see some new applications that have never even crossed your mind before.

D A N G U T M A N

ROOM BY ROOM



On Your Left—The Dressing Room and the Nursery

Let's start upstairs, in the master bedroom, first thing in the morning. Here we find Dad in front of his PC compatible running *Looking Your Best*, from 1 Step Software. The old guy has occasionally matched a paisley tie with a polka-dot shirt, so someone gave him a special Father's Day gift this year: an image and fashion consultant on a disk. Dad simply tells *Looking Your Best* what kind of body type he has, and the program searches through 400 million choices for the clothing styles and colors that would look best on him. The whole process takes about ten minutes. And 1 Step makes a version for Mom, too.

Now, down the hall into the baby's room. Infants are probably too little to use computers, but Gerber—the baby-food people—make a PC program called *Your Baby's Nutrition: From Infant to Toddler*. Using the program, new parents can evaluate their baby's food intake in relation to the U.S. Recommended Daily Allowances. Besides analyzing baby's diet, the program charts your child's growth and compares it to statistics from the National Center for Health Statistics. When the first tooth breaks through, when baby takes those first steps, when the chicken pox invades the peace and quiet of the nursery, you can also record those special moments in *Your Baby's Nutrition*.

As we move to the other children's rooms, the computer action gets more creative. Kids love making things with their computers. Using Publishing International's *Hometown U.S.A.*, they can print and assemble houses, banks, and churches—whole villages for all kinds of games and projects.

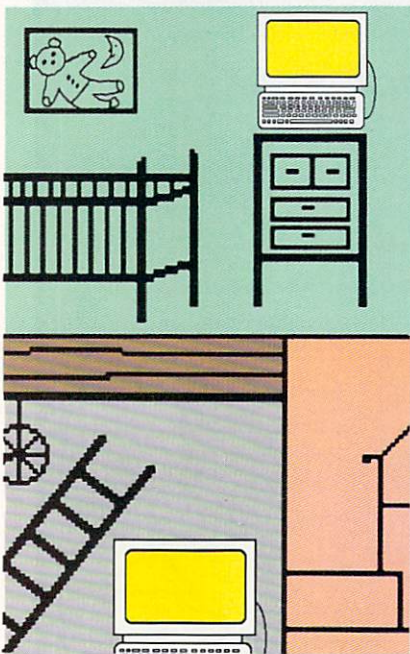
On Your Right: The Study and the Career Counseling Office

Our next stop is the teenager's room. Ambitious high school students can use their computers to prepare for the future. Plenty of well-known programs help prepare students for the dreaded Scholastic Aptitude Test. After their scores come in, students still need to pick a college. Two programs worth investigating are *College*

Explorer, from The College Board, and *The Perfect College*, from Mindscape. Use these programs to find a small Midwestern school with a polo team and a desirable mix of male and female students.

On the other hand, work may be the best path after graduation. In the quest for a good job, high school students can turn to *The Perfect Career*. As kids list their personal interests and skills, *The Perfect Career* narrows down a list of 650 jobs and finally presents them with a few ideal occupations.

Whatever job a young adult chooses, a good résumé is essential, and a computer can help. *The Resume Kit*, from Spinnaker, asks questions about work experience, education, and skills; then it automatically puts the information into any of nine common résumé formats.



Across the Way: The Office

Step into the home office, where Mom may be running *Family Matters*, from Springboard Software. This program is the ultimate home organization tool. It records the family's medical, educational, and employment records, as well as crucial information about automobile maintenance, household appliance warranties, and even breeding data on family pets.

When Mom's sick or Dad's hurt, the kids can run to the home office and boot up *FamilyCare*, from FamilyCare. This doctor-on-a-disk asks questions about the patient's symptoms, searches its database to determine the most likely malady, and suggests a remedy. This is artificial intelligence in practical use. The program was designed by three doctors at Wayne State University in Detroit.

It may be a bit morbid to think about, but Mom and Dad may also be bequeathing all their earthly goods with *WillMaker*, from Nolo Press. Two-thirds of us never bother to make a will, which puts a burden on loved ones. With this user-friendly program, writing a will is simple and fast; and, you'll save hundreds of dollars in legal fees. Just make sure you're of sound mind and body.

And Downstairs: The Pantry and Living Room

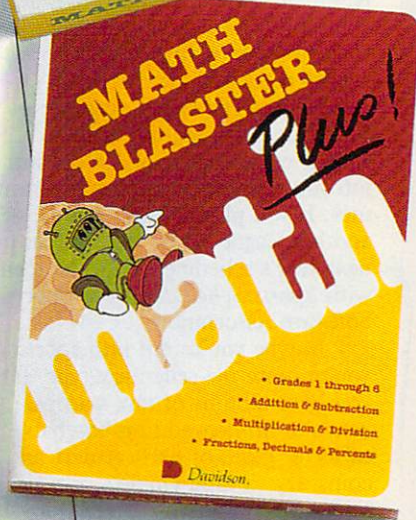
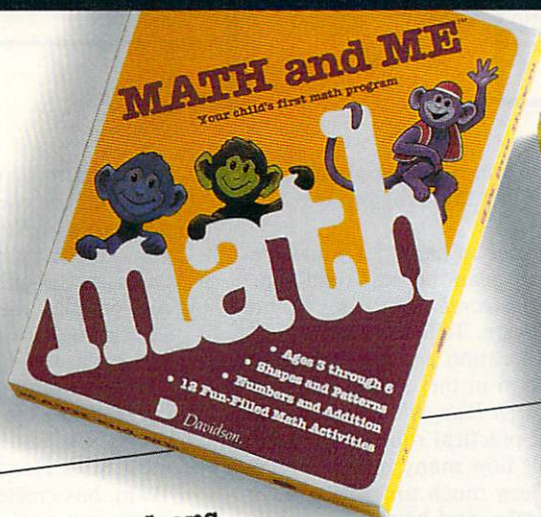
Look in the kitchen. In place of the stacks of cookbooks, this household stores favorite recipes on the chef's computer. Recipe programs are often cited as examples of overkill in home computing, but a major publisher like Broderbund doesn't release *Variable Feasts* unless there's a significant market.

This program features 260 recipes from the Time-Life Foods of the World series. Besides offering recipes, *Variable Feasts* suggests matching side dishes, soups, appetizers, desserts, and wine. The computer also recalculates the recipes to serve the crowd you're feeding. *Variable Feasts* even prints out a shopping list for you.

Now that the menu is settled, you can figure out the nutritional content of the food. With a diet program such as *Food for Thought*, from Sunburst, or *The Food Processor II*, from ESHA Research, you tell the computer every morsel you put in your mouth, and the computer adds up all the calories, protein, carbohydrates, sodium, and various artery cloggers. If you're on a diet, this information is invaluable.

For a beverage, may we suggest *Hugh Johnson's Wine Cellar*, from the vineyards of Simon & Schuster? You may not know the difference be-

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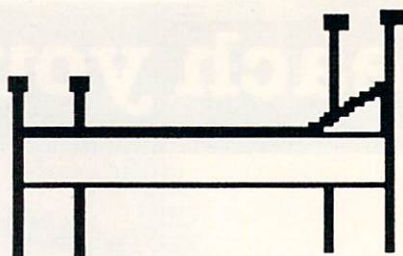
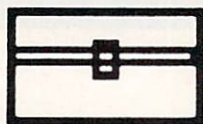
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ROOM BY ROOM



tween a muscatel and a Château Lafitte, but this program does. It lists hundreds of wines and matches them perfectly with your meal. For a nightcap, boot up *Mr. Boston Official Micro Bartender's Guide*, from Concept Development. It includes directions for a thousand drinks. Cheers!

In the living room, you can use your computer to customize virtually anything that can be printed on or even off paper. For some jazzy title screens on your home videotapes, try *Video Title Shop*, from Software Toolworks. Just whip up the screens on your PC and dump them into your VCR. You'll be mixing words with pictures faster than you can say *Stephen Spielberg*.

Before we call it a day, it's always relaxing to putter around in the basement awhile. If you've got a computer down there, you can use it to keep track of your league's bowling averages with *The League Secretary*, from Bowling Computer Systems. This program turns a weekly eight-hour chore into a fun job you can knock off in a few minutes. If you play softball, tennis, or another league sport, you can set up next year's schedule for all the teams with *Sports Scheduler*, from Sports Software Association.

Maybe you're not into sports; you're more the sedentary type. If you have albums of rare stamps, boxes of mint-condition baseball cards, or cases of Early American coins, try Compu-Quote's software series. The programs catalog, organize, and calculate the current market value of any collection.

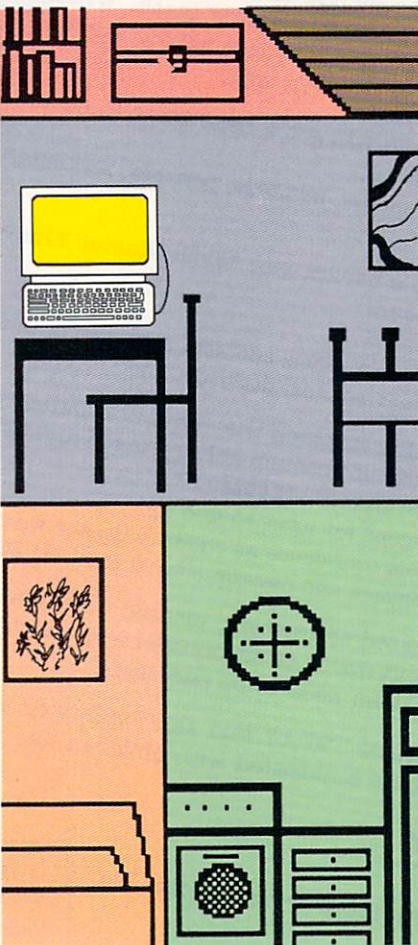
Through This Door: The Garage, the Gardens, and the Heavens

It's been a busy day, but our tour wouldn't be complete without a peek outside.

In the garage, for instance, you'd feel better about your car if you knew your 16-year-old was running *Keys to Responsible Driving*, from Mindscape. Developed in consultation with the National Safety Council and AAA, the program is a prep course for passing the written driver's test. Did you know that a car moving 50 miles per hour will travel

about 75 feet in one second? That's just one fact this program can teach you.

License in hand, let your teenagers help plan the next road trip with *Roadsearch Plus*, from Columbia Software. Tell the program your current location and your planned destination in the United States, and *Roadsearch Plus* will figure out the shortest practical route. The program also tells how many miles you'll travel, how much time the trip should take, and how much gas you'll need.



Look, in the backyard among the weeds and you'll see Mom running *Ortho's Computerized Gardening*, from Chevron Chemical. She plugs in her ZIP code, and the computer tells her which plants are most likely to thrive in her area. The program also records when to plant, fertilize, weed, and prune.

Is there a jogger in the family? A glance at the classified ads in a recent issue of *Runner's World* magazine turned up eight software packages designed specifically to help runners plan their training schedules. Check the back of any special-interest magazine for related software.

The family golfers can even use the computer to improve their games. Dr. Lou Riccio, a member of the USGA Handicap Research Team, has created *Golf Analyzer*. It points out weak points in your game so you can use your practice time more efficiently.

There's just one more place where we might find some interesting software: up on the roof. On cloudy nights, astronomy buffs can take their computers to the roof and boot up *Tellstar*, from Spectrum Holobyte. Not only does this program accurately display constellations, stars, and planets, but it also shows the appearance of the sky at night from anywhere on Earth on any date through the year 3000.

Beyond This Old House: The Architect's Quarters

To top it all off, you can create your next house on a computer with a computer-aided-design program. In *Design Your Own Home*, from Abracadata, you arrange basic geometric shapes to form buildings. Special disks are available for creating Colonial, ranch, Cape Cod, Tudor, and Victorian styles, as well as offices and interiors.

Once you've designed your dream house, you can control all the electronics from your computer keyboard. With an X-10 Home Control Interface, from X-10, you can program your house lights to switch on and off at specific times, you can automatically activate your appliances, and you can even start brewing your morning coffee before you wake up.

That wraps up our tour. Does anybody still think there's nothing to do with a computer in the home? See product box on page 62. □

Dan Gutman is the author of a weekly syndicated column, *I Didn't Know You Could Do That with a Computer!* (COMPUTE! Books), and a book about baseball due out next season from Penguin.



ARE YOU READY TO STEP INTO INDY'S SHOES?

Move larger-than-life exploits from the movie screen to the computer screen, and the results are often small potatoes.

Not so with *Indiana Jones and the Last Crusade*.™ Games that capture the action, excitement, and special effects of the greatest *Indy* movie of them all. And *Indy* the game character has all the style, wit, and resourcefulness that make the big lug so lovable in the movie.

Too much for one game.

One game can't do *Indy* justice. So we designed two very different game experiences: *Indy the Action Game*, and *Indy the Graphic Adventure*.

And in both cases, it seems that

Nazi Germany has just declared war on the Jones boys.

Red hot, slam-bam action.

Indy the Action Game delivers classic arcade thrills on a hell-bent chase for the greatest treasure in history—the Holy Grail. As *Indy*, you'll use your whip, your fists, and your wits. Escaping grave-robbing cutthroats. Pulverizing Gestapo goons. And surviving the lethal trials of the Grail Temple itself.

How's your I.Q.?

In *Indy the Graphic Adventure*, you'll find out if you can keep up with the guy with the whip and the hat. Maybe you'll make the same decisions *Indy* made in the movie. Or score higher I.Q. (*Indy Quotient*) points by finding subtle or ingenious alternatives. All the while exploring a stunning world of sights, sounds and characters—

many of which you didn't see in the film.

Use Lucasfilm's acclaimed—and enhanced—point n' click interface to toss off a sarcastic one-liner, sweet talk your way out of a tight squeeze, or just haul off and slug the sucker. And thumb through Henry Jones'



Knocking Nazis off precarious Zeppelin catwalks is all in a day's work in *Indy the Action Game*.



The trail to the Grail is strewn with rats, skeletons, and much, much worse in *Indy the Graphic Adventure*.

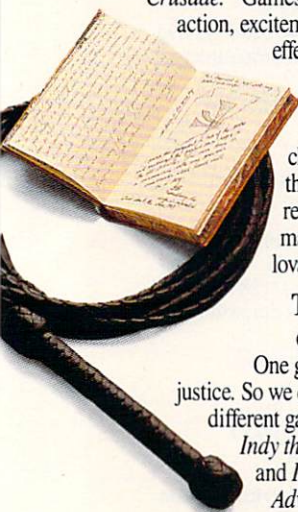
64-page Grail Diary for precious and fascinating clues.

We made a spectacle of ourselves.

Both games bring you the great graphics, exciting camera angles, and stirring sound tracks that made the *Indiana Jones* films so special.

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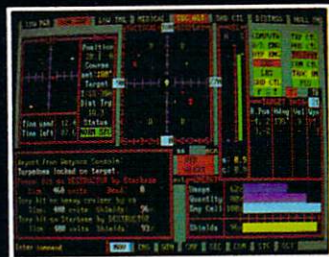
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RESOURCES

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User Groups

To find local user groups, first check with area computer dealers. They often maintain a list of groups and contact numbers.

There isn't a central resource for PC user groups, but here are some of the bigger organizations: Capital PC User Group in Washington, DC (301-762-6775 or 301-738-9060); Boston Computer Society (617-367-8080); Houston Area League of PC Users (713-524-2572 or 713-524-8383); and the BMUG in Berkeley, California (415-849-HELP or 415-849-9114).

Apple computer owners can call the Apple User Group Connection (800-538-9696, extension 500, or 408-974-6343 in California). *COMPUTE!'s Amiga Resource* magazine publishes a list of Amiga groups in October, and Commodore 64 and 128 owners can check the similar list published in the May and June issues of *COMPUTE!'s Gazette*.

Online Tutorials

The best cure for computer fear is to form an alliance with your computer and let it do the teaching. Below, is a list of DOS tutorials. Online tutorials are available for many different programs. Check with the company that publishes the software you use. Also check with the companies who publish these DOS tutorials.

DOS Step-by-Step; Info-Designs, 445 Enterprise Ct., Bloomfield Hills, MI 48013; (313) 334-9790

DOS Tutor; Design Software, 1275 W. Roosevelt Rd., W. Chicago, IL 60185; (800) 231-3088

Teach Yourself DOS; American Training International, 12638 Beatrice St., Los Angeles, CA 90066; (213) 823-1129

Learning DOS; Microsoft, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

PC Crash Course and Survival Guide; Scandinavian PC Systems, 51 Monroe St., Suite 1101, Rockville, MD 20850; (800) 288-SCAN

BOOKS

You can find a computer book for just about any occasion: the elementary approach for children, the gentle approach for beginners, the hard-boiled approach for the power user. Check the following list.

For the PC Amateur

ABCs of Computing: A Plain-English Guide, by Larry Blasko; Compubug, P.O. Box 626, Summit, NJ 07901

Easy DOS It, by Ron Bauer; The Easy Way Press, Electronic Publishers, P.O. Box 12041, Birmingham, MI 48012; (313) 651-9405

MS-DOS: The Basics, by David A. Lien; CompuSoft Publishing, San Diego, CA 92128; (619) 461-1580

PC/MS-DOS Made Easy, by Tony Dowden; COMPUTE! Books, Chilton Book Company, Chilton Way, Radnor, PA 19089; (800) 345-1214

For the PC Rookie

Running MS-DOS, by Van Wolverton; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

Inside the IBM PC, by Peter Norton; Brady Utilities Software, Simon & Schuster Reference Division, One Gulf + Western Plaza, New York, NY 10023; (212) 373-8140

A quick reference such as *DOS Instant Reference*, by Greg Harvey and Kay Yarborough Nelson; Sybex, 2021 Challenger Dr. #100, Alameda, CA 94501; (415) 523-8233; or any COMPUTE! Books Quick & Easy Guide; COMPUTE! Books, Chilton Book Company, Chilton Way, Radnor, PA 19089; (800) 345-1214

For the PC Pro

PC Magazine DOS Power Tools: Techniques, Tricks and Utilities, by Paul Somerson; Bantam Computer Books, 666 Fifth Ave., New York, NY 10103; (212) 765-6500

Supercharging DOS, by Van Wolverton; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

DOS Power User's Guide, by Kris Jamsa; Osborne McGraw Hill, 2600 Tenth St., Berkeley, CA 94710; (800) 227-0900

For the PC All-Star

The MS-DOS Encyclopedia, by various authors; Microsoft Press, 16011 NE 36th Way, Box 97017, Redmond, WA 98073; (206) 882-8080

MISCELLANEOUS

Try adding templates on your keyboard. They remind you which commands go with which keys. Several companies make templates; one is FuncKey Enterprises, Route 1, Box 639G, Sanger, Texas 76266; (817) 482-6613.

Wheel Ease Software Guides are also helpful accessories. You look along the outside ring of the wheel and find the task you're trying to accomplish—create a new directory, for example. Next, line up the inner wheel's window with the name of the task, and the command you need appears in the command-code window. Contact Wheel Ease Reference at 1075 Bellevue Way NE, Suite 369, Bellevue, Washington 98004; (206) 583-0642.

If you roam the telecommunications services or electronic bulletin boards, look for a DOS help program. *COMPUTE!'s PC Magazine* has included *DOS Help* on its disk. The shareware program, created by John Crouch, is like an index to DOS. There are other similar programs available in shareware circles.

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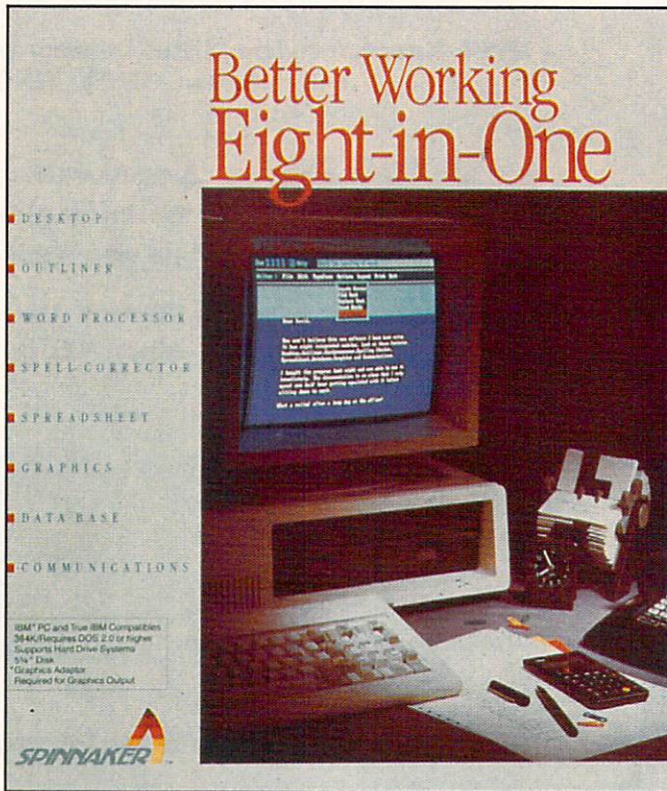
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PRODUCT



One of the most convincing arguments for multipurpose software is price. With a list price of just under \$300, *AppleWorks GS* costs less than \$50 per application. MS-DOS fans on tight budgets can purchase *Works* from discounters for just under \$150. Triple-digit software isn't cheap, but everyone knows that low prices mean poor quality. Well, surprise! The newest version of Spinnaker's *Better Working Eight-in-One* delivers a desktop full of utilities, an outliner, a word processor with a spelling checker and a thesaurus, a spreadsheet, a graphing program, a database, and a telecommunications program—all for \$59.95. And it's definitely not a low-budget affair.

Anyone familiar with menu bars, drop-down windows, and dialog boxes will instantly feel comfortable with *Eight-in-One*. From its main menu, you can select applications, access desktop accessories, manipulate files, format and copy disks, and configure the program to suit your computer. Once inside an application, the Quit menu offers options for returning to the main menu or moving directly to other applications. Onscreen help is available from any screen.

For keyboard input, you use a combination of arrow and function keys. Use the left and right arrows to move across the menu bar. Press the down arrow to open the highlighted menu window; pressing it again moves you through the options list. The up arrow will move the cursor up the list and will ultimately close the window. These same techniques work anywhere in the program and soon become second nature.

Except where numeric or textual input is specifically required (as in word processing, for example), the program accepts mouse input as an al-

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ternative to most keyboard commands. For example, if the message "F1 for Help," appears on the screen, you can click on F1 to access Help. The same intuitive approach to mouse control works equally well in most situations.

Novice MS-DOS users will appreciate the clarity and completeness of Spinnaker's manual. It explains everything you need to know to get *Eight-in-One* up and running. In addition, it includes a glossary of commonly used computer terms, as well as several appendices about the basics of hardware, software, and DOS.

Eight-in-One's word processor provides most features included in similar programs from other publishers. In addition, it includes many surprising extras not commonly available elsewhere.

Its 100,000-word spelling checker will check and correct an entire document or verify the spellings of individual words. The program also lists suggested spellings, automatically replaces misspellings when necessary, and permits users to personalize their dictionaries by adding words they commonly use.

Numerous other features contribute to the word processor's overall effectiveness. Two documents can be held in memory at the same time, allowing you to switch between them with the ALT-D command. A printer queue lets writers work with one document while printing another. The word processor can import text files produced by other Spinnaker applications, and it can load and save text files in ASCII format for exporting to other programs. A View option displays final documents the way they will appear on paper, and users can import graphics (PCX and PCC formats) into their word processor files.

Eight-in-One doesn't support WYSIWYG (What You See Is What You Get) displays or customized

fonts. But once you've configured the program, you can use double-wide pica, condensed text, superscripts, subscripts, and other available fonts. If your printer supports italics, bold-face, and underlining, you can use those, too. For writers who frequently mix fonts of different widths, *Eight-in-One* automatically adjusts line lengths to show exactly how many words will appear on each line. A status section at the top of the screen displays the active typeface and style along with other pertinent information.

If you want help organizing your thoughts before committing them to disk, try out the program's outliner. Because rearranging entries is so easy, outliners encourage you to keep working until you get things right.

Eight-in-One's outliner shares many of the word processor's features. What makes the outliner different is its organizing capabilities. You can arrange and rearrange headings and sub-headings. If you promote or demote an entry, the items under them will automatically adjust to maintain perfect outline form. With this outliner, you can choose from Roman numeral format, Arabic numeral format, or a

special format that indents sub-headings but omits level indicators entirely. After you've completed an outline, you can save it as an outline file or export it as an ASCII file.

Writing is a big part of any integrated package, but a good database is worth its weight in floppies. Although *Eight-in-One's* database module offers considerably less power than today's advanced stand-alone products, it can handle many tasks well. Since the program stores individual records on disk, rather than maintaining an entire file in memory, hard disk owners can create files with thousands of records. Each record can contain an undefined, but large, number of fields distributed over 55 screen lines. You can define your fields as character, numeric, date, logical, and memo. Numeric fields can hold literal values or formulas that manipulate other numerics within each record.

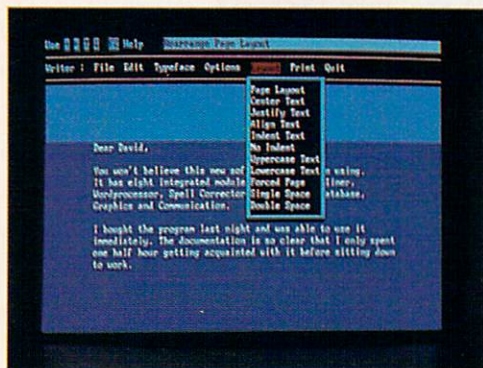
When the time comes to produce reports, the database's report generator performs nicely. It's versatile and easy to use. You can write short form letters and merge appropriate data; you can generate mailing labels; and you can design and save as many as



ten customized reports for each database file. If you wish, you can save an ASCII version for use in a word processor.

One deficiency in the database module requires mention: The Find function acts on only one field at a time. For example, a simple search can find all records that contain the last name *Locklin*. And, it can uncover all entries that mention Toronto, Canada. It can also locate all individuals under 18 years of age. However, the program can't scan for a combination of matching fields: all Locklins under 18 who live in Toronto, Canada, for example.

Eight-in-One's spreadsheet is also a strong asset. Although memory restrictions limit each file to about 4500 cells (on a 640K computer), the actual space you can work with spans 32,768 rows \times 10,000 columns. The program can import and export documents in *Eight-in-One*, *Lotus 1-2-3* (versions 1A and 2.0), and *DIF* formats. The print routine automatically handles extra-wide spreadsheets for side-by-



Write on with *Eight-in-One*.

side display. The spreadsheet even has its own graphing component.

In the spreadsheet, mouse control really struts its stuff. A click-and-drag motion highlights a block for easy copying, cutting, or pasting. Clicking the rightmost mouse button alternates between menu and edit screens.

In most respects, this spreadsheet works much like any other. Column widths can be adjusted. Cells can contain text, literals, or formulas. You may format them to display data in a wide variety of ways (dollars or percents, for example), and the usual array of predefined functions is available. You can also lock titles onscreen both horizontally and vertically, thereby providing necessary guidance when scrolling through large files.

Eight-in-One's graphics module confines itself to the creation of charts and graphs. Six types are available: bar charts, line graphs, shaded line graphs, pie charts, exploded pie charts, and scatter points.

You can enter data directly from the keyboard or import it from the program's spreadsheet or database module. Define the low and high ranges to be displayed, or, alternatively, the computer will calculate reasonable ranges and use them. With a few quick keystrokes, you can change a bar chart into a line graph or pie chart. Save your completed graphs to disk, print them, or export them for use in other applications.

On balance, the graphics module is adequate for creating simple, two-dimensional graphs, but it can't do much else. Serious users will require something with more muscle.

When it comes to communications software, simplicity is often better than an impressive list of confusing options. From this perspective, *Eight-in-One's* communications program has much to offer.

With all settings left at their defaults—COM1, 1200 baud, full duplex, no parity, eight data bits, and one stop bit—the program should be ready to work with most computer configurations and the vast majority of commercial services and local bulletin boards (provided you've installed a modem). Choose Communications from the main menu, enter a phone number in the directory, and select Dial to activate autodialing.

The communications module also provides sufficient flexibility to satisfy

many intermediate and advanced users. It supports transmission speeds from 300 to 9600 baud. The software can address any one of four serial ports, and its phone book can hold up to ten numbers. Users can create ten short macros to simplify log-ons. Four terminal-emulation modes are available (Standard, Teletype 930, DEC VT-100, and IBM 3101), and the program supports XMODEM and ASCII protocols for uploading and downloading to and from remote terminals.

All of these applications would be enough for any integrated package, but *Eight-in-One* doesn't stop there. Its Desktop menu includes six short utilities: Memo Pad, Address Book, World Clock, Calendar, Do List, and Label Maker. These aren't memory-resident pop-ups of the *SideKick* sort, nor are they true desk accessories in the Macintosh tradition. Instead, accessing these utilities requires closing the current application. Though somewhat inconvenient, the

process works pretty smoothly.

With Memo Pad, you can write notes, save them to disk, and recall them later. Address Book stores up to 200 names, addresses, and phone numbers. Calendar keeps track of your appointments, and the Do List will remind you of as many as 45 important chores. And Label Maker makes printing a mailing label a snap.

The Desktop's World Clock, besides displaying the time in 16 major cities around the world, boasts a handy alarm clock, which will notify you at the preset time no matter where you are within *Eight-in-One*.

Another convenient extra is the pop-up calculator, available anywhere at the touch of the ALT-K keypress combination. You can paste the results of the calculations into any *Eight-in-One* document.

The key to any integrated product is its ability to pass information between modules. True to form, *Eight-in-One* permits a wide range of file-sharing possibilities. The word processor can import files written by the spreadsheet, database, and memo pad. ASCII files that you receive through the communications module can be loaded into the word processor for editing. In addition, you can export word processing files for use by the database or communications programs.

Is this a perfect program? Of course not. When using the thesaurus, I had some trouble scrolling with my mouse (but not with the arrow keys). Similar problems with mouse control occurred within the database and other applications. I encountered a few isolated inconsistencies between the documentation and the program itself. However, none of these errors were fatal to the program.

The spelling checker is a bit slow, and some users might gladly exchange the program's limited graphing module for a full-featured paint program. And, since word processing files are entirely memory-resident, document size is limited to 50 pages or so on a 640K computer.

Every software product contains compromises, which inevitably open the door for criticism. Overall, *BetterWorking Eight-in-One* delivers more power, more versatility, more value for the money than any other integrated package designed for the home. □

BetterWorking Eight-in-One

IBM PC and compatibles with 384K and DOS 2.1 or later—\$59.95
Hard disk drive and mouse optional

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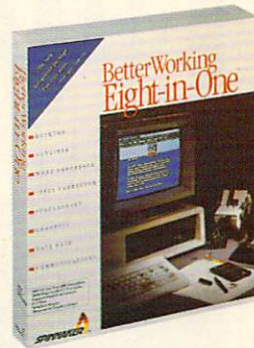
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DAVID D. THORNBURG

Though it's hard to accept, I remember a time in my life when I didn't have my own computer. My first machine, a Commodore PET, had a whopping 8K of RAM—an amount that no one would dream of living with today. I spent endless hours creating word processors, games, and other small programs that only hinted at the real power of personal computing.

Those were wild days. The personal computing field was dominated by Apple, Commodore, and Tandy, but that didn't keep others out of the fray. Many truly innovative computers never became commercial successes. Names like Interact and Kentucky Fried Computer (later to become Northstar) are just memories. Last week I was rummaging through a closet and came across some of these relics—antiques less than ten years old!

By the time IBM joined the fray with its lackluster entry, things had gotten serious. Word processors had 300-page manuals; the public had been brainwashed into thinking that computers should be hard to use, serious tools for business, not playthings for the mind. In this relatively conservative phase of the industry, companies like IBM established themselves with a "serious" product. The Atari 800, with its rich palette of colors and sounds, was clearly a "game" machine. The underpowered and overpriced entries from the giants were the "business" machines. They had few colors and only functional sound, and the more cryptic the commands, the better.

Fortunately, some companies continued to see the computer as a powerful tool for creativity. When Apple introduced the Macintosh in 1984, I felt the excitement return. For all the ink that has been spent on this computer over the years, the one point that's forever underreported is that working in the Macintosh environment is fun. Not "ha-ha" fun, but fun

like the early days of personal computing. The difference is that we controlled the hardware in the early days, but now we can control our programs, too. The hardware revolution is now a software revolution. The Macintosh shows that powerful applications can be mastered by people who think operating systems are surgical instruments. The "natural" user-interface metaphors such as windows, menus, and icons, as implemented on the Macintosh, greatly changed people's perceptions of this technology.

The core of the software revolution has nothing to do with the metaphor of the user interface; it has to do with simplicity. In 1984 I wrote a book using *MacWrite* and a 128K Macintosh. Today I've moved to

MacWrite to incorporate multiple columns, mail merge, spell checking, footnote generation, and text/graphics manipulation, but when they finally managed it, they didn't compromise the simple operation that characterized the program's first version. The same can be said for numerous other applications for the Mac and other computers. There's no legitimate reason for any program to be hard to learn and cumbersome to use.

All of this leads me to make a few observations about the way things will go in the world of personal computing. If you've followed my columns in these pages for the past decade, you've seen some predictions that haven't come true. But I'll stick my neck out.

The last decade has shifted the focus of personal computing from the hardware to the user, and this trend will continue in the foreseeable future. The public will judge computers by their ability to support the natural way human beings work. Any attempts to mess with this fundamental idea will, over the long term, meet with commercial failure.

In meeting that goal of human-interface comfort, several developments will take place. First, the connection between our computers and our phone systems (long talked about) will grow firmer because of the facsimile machine.

Also, just as slow cassette tapes gave way to 5¼-inch disks, which in turn are giving way to 3½-inch high-density disks, today's hard disks will surrender themselves to erasable optical media with gigabyte capacities.

The computer's overall form might change as well. For example, as the cost of video projectors drops, the CRT may be replaced by a projection screen that can be used up close for personal work or placed far away when the computer is being used in a group setting.

None of these changes will occur overnight. But slowly they will make their way into our lives, simplify the computing process, and guarantee the future of home computing. □



MacWrite 2.0 running on a Mac SE. Over the years, the basic operating environment has stayed simple and easy to use.

In the interim, I've looked at other word processors, many of which had features I thought I wanted. Each time, I decided that the trip wasn't worth the fare. When features come at the expense of simplicity, the cost in user frustration is too high to bear.

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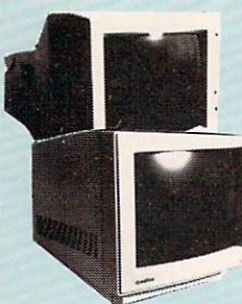
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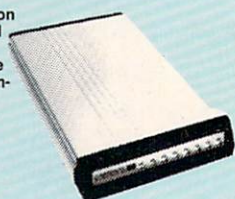
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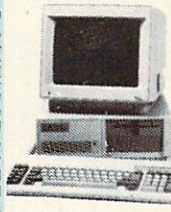


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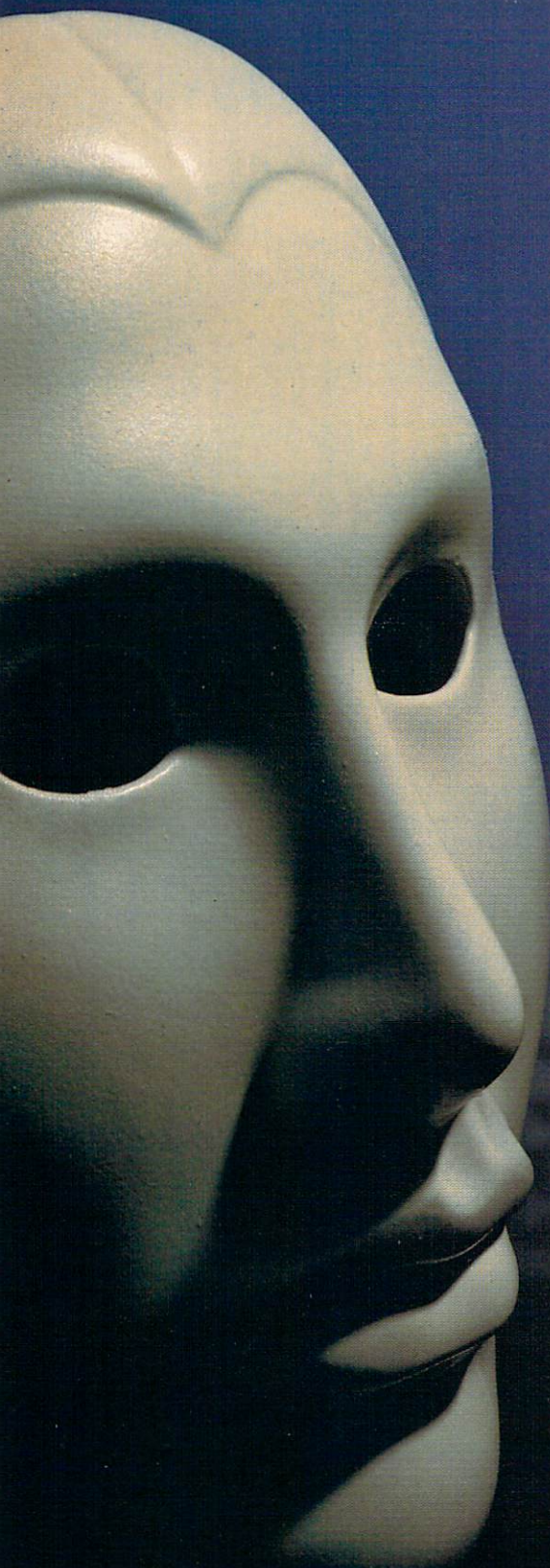
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WHOEVER SAID
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A

NEW

FACE

ON DOS

Dan Gookin

People agree: MS-DOS isn't the prettiest part of a PC. But don't put all the blame on Microsoft and IBM. DOS borrows its unpleasant approach from early microcomputer operating systems, all of which were designed before graphics interfaces became popular and before *user friendly* became a catch phrase. Except for typing cryptic commands and complicated codes, there wasn't any other way to use a personal computer.

Yet, the unfriendly face we associate with DOS has had an interesting side effect: It has spawned shell programs that insulate us from the command line interface and present a more attractive face to our eyes. Quite a few computer-age entrepreneurs have made their fortunes by getting between you and DOS. If you haven't looked at some of their efforts, now's the time.

The Shell Game

DOS shells are those nifty programs that give you access to DOS's features in a simple, friendly manner. Gone are the command lines and enigmatic phrases. Say hello to one-key commands, easy-to-follow graphics interfaces, and a simpler way of doing things.

Before you rush out to buy a shell program, however, take some time to learn how DOS works. You don't have to use it; just know the basics. It's like learning how to operate a car and to make minor repairs, but not calling yourself a mechanic. You're just a conscientious owner.

With that in mind, there are five DOS makeovers covered in this feature. They are Tandy's DeskMate, IBM's DOS 4.0, Delta Technology's *Direct Access*, Peter Norton's *Norton Commander*, and PC Dynamics' *Menu Works*. That list isn't complete, by any means. An argument can surely be made for Microsoft Windows and GEM, but for our purposes we will classify them as more complete operating environments in themselves, rather than as handy DOS shells.

Generally speaking, to use any of these packages, you need only an IBM-compatible computer. If you have a color monitor, these DOS shells will look better. With a color monitor, it's that much easier to see what the programs are doing. Your PC should also have more than enough memory, either 512K or 640K. A mouse is also a handy addition. And you need a hard disk. You can use a few of these applications with a floppy-only system, but that adds overhead to your basic computer operations.

DeskMate

Just because DeskMate comes from Tandy doesn't mean that you need a Tandy computer to use it. This wasn't always the case, but Tandy has made some adjustments to make DeskMate compatible with other PC clones. There's a lesson there somewhere.

Overall, DeskMate (version 3.0) is oddly interesting. It works best if you have a mouse and a color display, though neither are required. If you do use a mouse, you may notice some sluggish-

ness. You do need DOS 3.2 or later, and 640K of RAM really helps. There's no installation program; you can move the same application to a different computer and DeskMate will figure out which computer you have and how to configure itself to best serve that hardware. I like that.

DeskMate is only about 40-percent DOS shell, however. The rest of the program consists of an operating environment where you can use other, built-in applications, such as a mini-word processor, a spreadsheet, a database, and the standard programs you find in most integrated software packages. It's a jack of all trades, designed primarily to whet your appetite for more powerful and capable software.

But let's confine ourselves to DeskMate's DOS shell. It's not as graphic or intuitive as are some other shells. The "tree mode" is cumbersome, and file management offers little more than scattered menu options. It lacks file utilities and does little in the ease-of-use category. In short, there's not much to brag about.

Still, the shell does boast several fine attributes. You can, for instance, install your own applications into DeskMate. This excellent feature lets you bring in your own software, along with some data files, for quick launching from DeskMate's desktop. It runs slick and is enough to keep DeskMate on your PC even after you tire of its built-in applications.

Overall, DeskMate is an excellent first-time application for the home user. In fact, it will probably last you for several months (until you decide whether or not you need a more complete software application). As a shell, DeskMate lacks character. But as your first introduction to computers, it's nice. And you can continue to use DeskMate, installing new applications and so forth, as long as you own your computer.

DOSSHELL

PC-DOS 4.0 has many interesting trivial aspects about it. It's written totally by IBM (a good job, too); it lets you format a hard disk larger than 32 megabytes as one drive; you can use EMS memory with some of the DOS commands; its simple installation procedure lets you upgrade from older DOS versions (very nice); and it comes with an interesting, customizable, graphic, mouse-driven shell program called DOSSHELL (*that's* original).

But don't run out to your nearest computer dealer to pick up a copy of PC-DOS 4.0 so you can upgrade your old PC-DOS—there's no hurry. Version 3.3 is the version you should use. Until more software supports DOS 4.0, or something miraculous happens with DOS 4.1, the only reason to look into it is for its shell application.

DOSSHELL blows DeskMate away, as far as usefulness is concerned. It's full of utilities, it's configurable, and it has plenty of valuable features, including password protection and the ability to install your own programs into its menus. Its only major stumbling block is that it's not intuitive. There is no "feel" to it.

Presently, DOSSHELL only recognizes offi-

A NEW FACE



cial IBM hardware. Though there's a driver for the Microsoft Mouse, there's no Hercules video driver, nor is your favorite Epson or Panasonic printer likely to be listed among the IBM-only options. However, considering that DOSSHELL comes free with PC-DOS 4.0, and that it provides an effective and comfortably interesting environment, it's not that bad of a deal.

Direct Access

Now *this* is a DOS shell. In fact, it's one of the most popular DOS shells on the market. *Direct Access* beautifully uses the PC's uncomplicated text-based abilities to make using DOS simpler. It doesn't use graphics to trick you into thinking your PC is a Macintosh, but what it does, it does well.

The program is easy to set up. In fact, you

can just copy the files over to your hard drive. If you use the INSTALL program that comes on the disk, watch out—it will modify your AUTOEXEC.BAT file whether you tell it to or not. (I hate it when programs do that.) To be safe, make a directory for *Direct Access* and copy its files to that directory.

Anyone can use *Direct Access*. Office computer gurus can use it to quickly set up a menu system for the less wizardly. Even the most computer-fearful will understand and enjoy using it because it beats the pants off writing batch files.

To set up *Direct Access*, you create menu categories for things like spreadsheets, databases, word processors, and all your major hitters. Adding and manipulating menu items is a snap and is intelligently done. Once everything's in place, you're ready to use your system. Press a key and—zap!—you're using that application. If you're a complete computerphobe, you can stick *Direct Access* into your AUTOEXEC.BAT file so that you never have to see DOS.

Aside from running applications quickly and quietly, *Direct Access* also has password access/protection (ideal for use in education environments), and it performs some time-management functions, tracking computer usage according to user and project. A very clean system.

The only drawback is the program's lack of real utilities. You can't create a directory, move files around, or manipulate them in any way. But you can use the program to run other utilities that do all those things. Delta Technology claims only that *Direct Access* is a hard disk menu manager—and it's a good one.

The Norton Commander

From Peter Norton, the Utility God of the computer world, comes the *The Norton Commander*. It's most definitely a DOS shell, but it's also overflowing with interesting utility features, probably stemming from Norton's reputation for programs that do everything. In that respect, it doesn't disappoint.

The Norton Commander has all the standard features of a DOS shell: handy menus for performing DOS tasks, quick launch of programs, the ability to make your own menus, and an interface that's simpler to use than the old cryptic DOS command line. On top of that, *The Norton Commander* adds several features *Norton Utilities* lovers have come to cherish, including the ability to search for files; view files in either text, 1-2-3, or *dBase* formats; select groups of files for manipulation; or perform a host of other nifty computer jobs.

As if that weren't enough, *The Norton Commander* even supports the 43- and 50-line mode of EGA or VGA graphics (as well as the Microsoft Mouse). But it doesn't operate in graphics mode and, unlike some other utilities, you can't change the default colors. It presents a pretty busy screen, but you can turn everything off if you just want to look at the boring old DOS prompt. At a touch of a key, *The Norton Commander* snaps back to attention. ▸

Today's Menu

DeskMate—\$99.95

Tandy
1400 One Tandy Center
Fort Worth, TX 76102
(817) 390-3011

Direct Access—\$89.95

Delta Technology
1621 Westgate Rd.
Eau Claire, WI 54703
(715) 832-7575

Menu Works—\$24.95

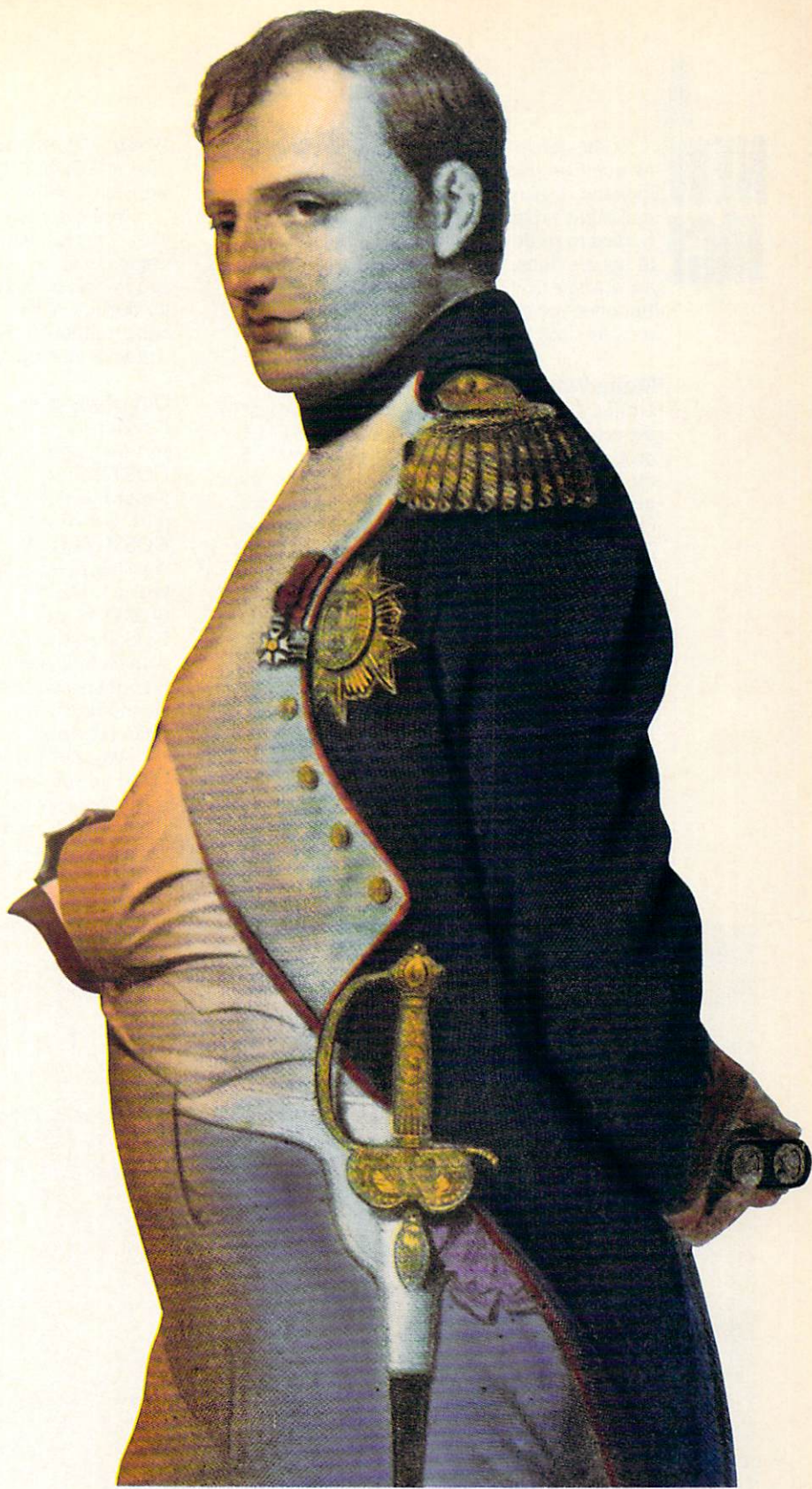
PC Dynamics
31332 Via Collins
Suite 102
Westlake Village, CA 91362
(818) 889-1741

The Norton Commander—\$89.00

Peter Norton Computing
100 Wilshire Blvd.
Santa Monica, CA 90401
(213) 453-2361

PC-DOS 4.0—\$150.00

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The only problem you might have with *The Norton Commander* is its overabundance of utilities and display formats, or panels. All that stuff makes the program a bit cumbersome. You really need to sit down with the manual to learn how things are done. I know what you're thinking: *Oh no, a whole new set of commands to memorize.* But once you get them down, *The Norton Commander* does its job effectively.

Menu Works 2.1

Unlike *Direct Access*, *Menu Works* does most of the setup work for you. Its amazing INSTALL program will search your entire hard drive for the nearly 1000 software applications it recognizes; then it will assign them to proper menu categories, create custom menus, and send you off on your merry way. There's nothing else to mess with, no reason to.

Unfortunately, the INSTALL program will modify your AUTOEXEC.BAT file unless you tell it not to during the installation process. (Stubbornly, it ignored my request and stuck three extra lines in there anyway.) On my computer it also put a blue border that I didn't want on my screen. I had to reboot to get rid of it.

Other than that, I found *Menu Works* immediately useful. It recognized a whole slew of files I had on my system, even such bizarre ones as old *Norton Utilities*, *PC Magazine's* Benchmark series, and shareware like *PC-Style* and *List*. It got confused by my two versions of

WordPerfect (4.2 and 5.0; I still haven't gotten used to 5.0), but other than that everything worked smoothly.

You can customize *Menu Works* by adding your own menus with optional passwords and original names. You also get some disk utilities and mouse support. All in all, it's a nifty package for beginners, and not a bad deal for power users, either (although they might frown at the pretty windows and zippy sound effects).

Out of My Shell

Developers have blessed us with a delightful assortment of makeup to cover those unsightly DOS blemishes. For those getting started, there's *DeskMate* and its easy graphics access to DOS, plus its own set of starter programs. Next comes *DOSSHELL*, which, if you own PC-DOS 4.0, you should investigate (everyone else, don't bother). *The Norton Commander*, with its bounty of DOS utilities, occupies the high end of the DOS-shell spectrum. Or, there's *Menu Works*, with its intelligent INSTALL program. My own favorite is *Direct Access*. It's what a DOS Shell should be: easy to use, easy to customize, and a clean presentation.

You can choose your favorite DOS shell based on your needs. With the variety available, there are plenty of ways to hide DOS's ugly face. If all else fails, you still have batch files. □

When he isn't taking a serious look at DOS, Dan Gookin writes *COMPUTE!'s* "Off Line" column.

Shelling Yourself

The DOS shell software market is big. Besides the major hitters, dozens and dozens of smaller companies market their own shareware and public domain shell programs.

Although some people consider them second-class citizens in the DOS shell world, these programs have lots of variety, serve many purposes, solve many problems, and oftentimes fill a special niche.

Nearly every program listed below gives you the ability to create a custom interface, complete with some type of menu for displaying common DOS commands. A few of them have utility features, and some of them offer funky sounds, fancy text, and fun graphics like exploding color windows. If you're interested in the shell game, you might want to check some of them out.

AUTOMENU

Magee Enterprises
2909 Langford Rd.
Suite A600
Norcross, GA 30071-1506
(404) 446-6611
\$50.00

DESKTEAM

Public Brand Software
P.O. Box 51315
Indianapolis, IN 46251
(800) 426-DISK
\$30.00

Express PC Menu System

Information Resources
210 Lorna Sq.
Suite 117
Birmingham, AL 35244
(205) 823-5777
\$79.95

4 DOS

J. P. Software
P.O. Box 1470
E. Arlington, MA 02174
(617) 646-3975
\$35.00 (\$50.00 if you order the printed manual)

HDM III

Public Brand Software
P.O. Box 51315
Indianapolis, IN 46251
(800) 426-DISK
\$25.00 (\$50.00 if you order the printed manual)

NIFTY & MOE

California FREEWARE
1747 E. Avenue Q
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Palmdale, CA 93550
(805) 273-0300
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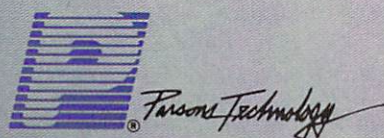


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PC PRIMER

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

The newest personal computers blaze along at dizzying speeds, their hard disks whirring in response to your every whim.

But not everybody can afford this year's or even last year's PC model. We all would like blinding speed, mass storage, and megabytes of RAM. We all would like the luxury of an edge-of-technology system. But some of us get along quite well with a double-floppy 8088 machine and 512K of RAM. With a little know-how, we can make our system sing with the best of them.

If, for example, you covet your neighbor's hard disk, here's a plan for making your old double-floppy system a more effective computing tool.

For applications that require a lot of data files (like word processing), nothing beats a combination boot/data disk. Not only can you use the disk to start your application, but you'll also have room on it to hold the data you work with most often. If, like me, you have one 3½-inch drive and one 5¼-inch drive, use the 3½-inch disk to hold the application and the 5¼-inch disk as your boot/data disk.

To construct a boot/data disk, first format the disk you want to use with the `FORMAT A:/S` command. (You'll need your DOS disk in drive B. You can substitute another drive letter for A:, but since most IBM PC and compatible computers load from the A drive, I'll use it as the example.) The /S switch transfers the hidden system files to your boot disk. On your screen, it looks like

B:FORMAT A:/S <Return>

After the format is complete, copy `COMMAND.COM` from your DOS disk to your boot disk using the `COPY` command. By including `COMMAND.COM` on your boot/data disk, you can get back to the A: prompt after you leave your applica-

tion. Type

**B:COPY COMMAND.COM A:
<Return>**

If you like, you can give your boot/data disk a label with the `LABEL` command:

B:LABEL A: <Return>

Follow the onscreen directions for entering a name for your disk (a maximum of 11 characters; you might call your word processing boot disk `WPBOOT`). You can also label your disk during the formatting process with the /V switch. If you choose this route, your screen will look like this (provided you're making a boot/data disk in drive A from B):

B:FORMAT A:/S/V

Just follow the onscreen instructions

**BOOT YOUR
DOUBLE-FLOPPY
COMPUTER INTO
THE BIG LEAGUES
WITH A STARTUP
DISK THAT'S
LOADED
FOR
ACTION**

for labeling the disk.

Now that you have your boot disk ready to run, you may want to add a few items to its arsenal. For example, my boot disk includes a screen-saver program, a cache program, and a utility that speeds up my cursor. My application disk, which goes in drive B, holds my working copy of *WordPerfect* (the writing program, the printer driver for my Panasonic 1080i, the dictionary, and some font files). As an added bonus, the application disk comes in handy when I'm on the road with a laptop.

If you have some TSRs you want to load before you start your application, copy them to the boot disk (my screen-saver and cursor-control programs are good examples). Then, use your word processor or any other text editor that saves files in ASCII format and write an `AUTOEXEC.BAT` file to jump-start your system at the touch of a switch.

On my boot/data disk, my `AUTOEXEC.BAT` file looks like this:

**SAVESCRN <Return>
FLASHKEY <Return>
FLASH 128 <Return>
B: <Return>
WP**

That's all I need. I just hit the switch and DOS loads, my TSRs load, the computer switches to the B drive, and—bang!—*WordPerfect* is up on the screen.

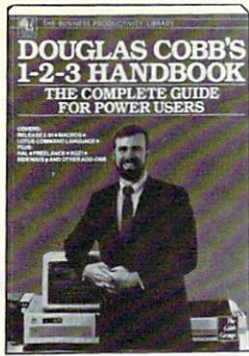
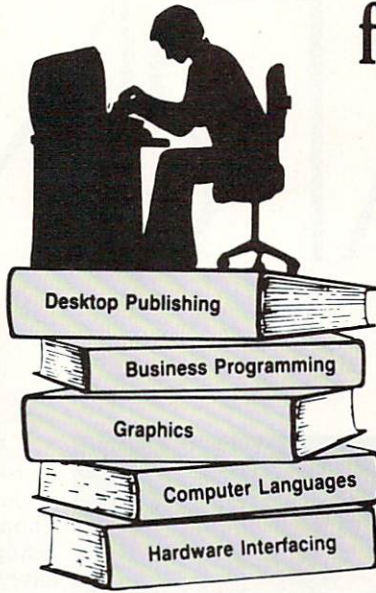
Using boot disks that load applications and double as data disks can greatly increase the efficiency of your double-floppy computer. It plays on the first rule of computing: Let the machine do the work.

Peter Scisco

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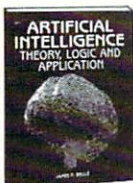
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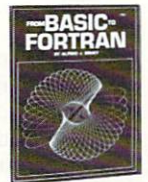
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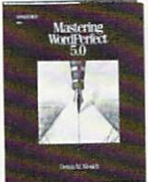
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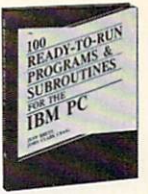
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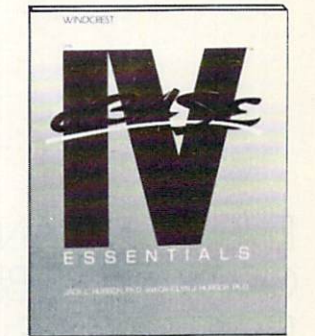
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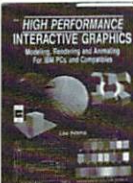
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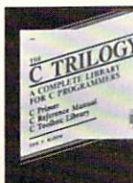
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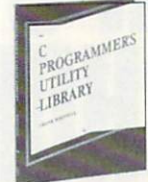
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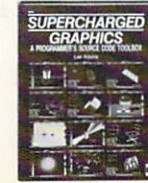
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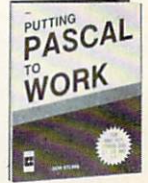
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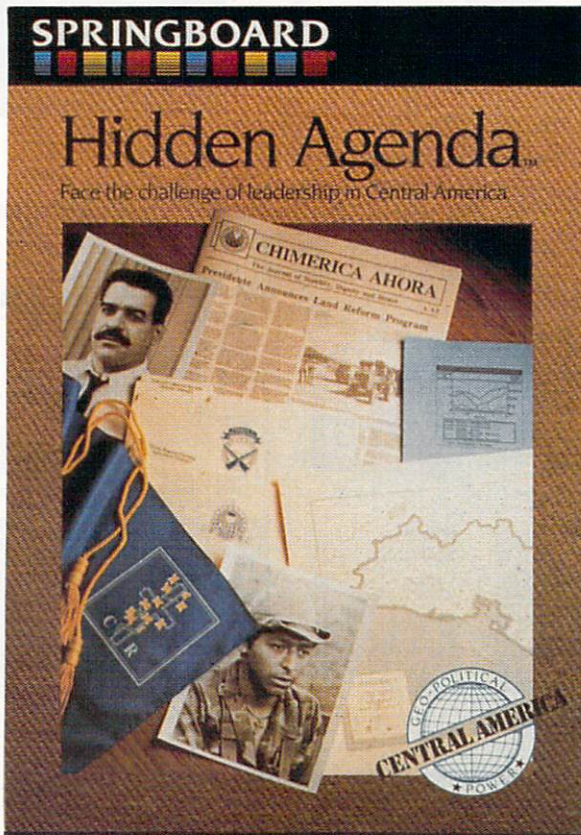
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LEARNIN



As President, you make decisions that affect your whole country. The people of Chimerica have bitterly competing interests, and you may have to compromise your own beliefs. When you consider the demands of coffee pickers and rich landowners, or of bankers and doctors, you learn precisely how complex running a country can be. For instance, if you're concerned about the quality of health care and you decide to increase the funding for clinics, you may not have enough money for the defense budget or for the roads that carry your export crops to the outside world.

Against this background of conflict, your object is to remain in power for three years. Against these considerable odds, you try to establish some economic stability and to improve social conditions.

Your first official act in *Hidden Agenda* is to hold a press conference where you define the goals for your presidential term. Then you ap-

point your cabinet. After inspecting representatives from the three political parties, you should choose the ministers who will give you the best advice.

As you play *Hidden Agenda*, you consult with them and other influential Chimericans. Most of your decisions aren't simply influenced by these people; rather, your decisions are controlled by these people. To take action in this game, you must encounter either your ministers or your people. Each encounter centers around a problem raised by one of these people. Your ministers propose solutions, and the people involved propose other solutions. For every crisis, you can choose from many re-

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KRISTEN STERNBERG

After a particularly bloody revolution in a certain Central American country, you suddenly find that you are *el Presidente*. What do you do? You're faced with food shortages, government corruption, angry crowds, and a myriad of other problems. Your cabinet might back you on important issues—then again, they might not. There's the laborers to pacify, but there's the elite crying out for their just desserts, too. Balance the budget. Maintain friendly relations with the superpowers of the world. Stay in power. Stay alive. A president's work is never done.

G

sponses, but you can't offer any original ideas. You ask for advice, and you either take it or leave it.

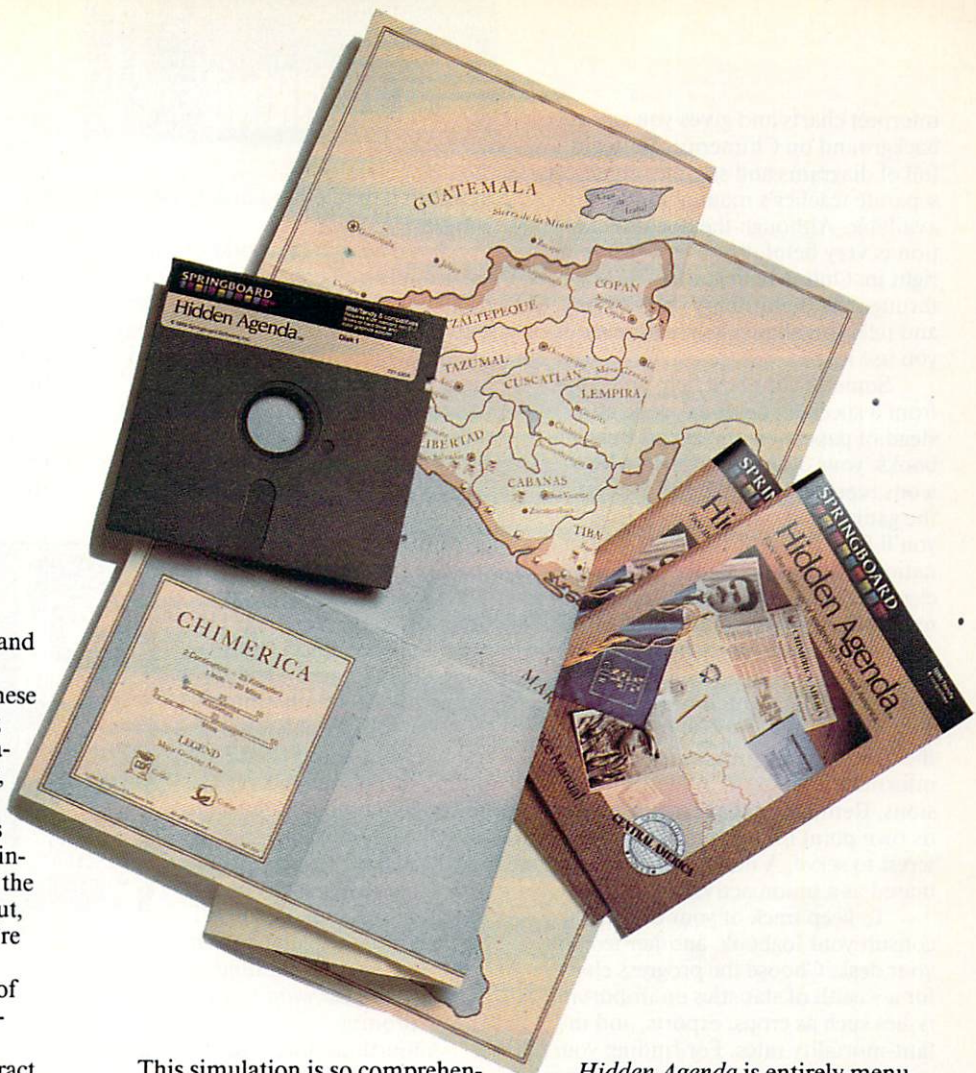
Each time you act on one of these proposals, you've made one move; every nine moves make up one season. Three seasons make up a year, and, if you make it through three years, you win. (With the sacrifices you've had to make to survive, "winning" becomes a relative term.) In the beginning, your tasks seem easy. But, later, when the pace quickens, you're forced to make snap decisions.

You won't always be notified of problems until they escalate, sometimes dramatically. While dealing with one character, others can interact with each other and even make their own decisions without your knowledge. At times, you'll be confronted with proposals that directly contradict each other. Compromise is tough when no one will give an inch.

You judge your progress in several ways. You get feedback from the people you encounter, and the newspapers evaluate your work, too. You can also check out the progress charts. Your ministers will of course have something to say about each decision you make. If you don't pay attention to their feedback, you might find that you've lost control.



Preserve popular support by responding to each crisis quickly.



This simulation is so comprehensive that I found few limitations. For instance, although the characters didn't change each time I played, they never became stale. I found that knowledge of the positions they represented increased my interest and my strength in decision making. I knew that I could count on certain people to back me, and I knew when others were likely to become restless. This doesn't mean that each character says the same thing every time, either. As you progress through the game, you'll find that their propositions vary quite a bit depending on the time of year and on your previous actions.

These people are varied and interesting, and each has one or more pet issues. Realism is the name of the game here. At first, in my ignorance, I simply chose to meet with people whose viewpoints interested me or people who might address the problems I anticipated during my term. For example, I thought the Cuban consul was one of the least of my worries—until I ignored him; and he shipped out in disgust, taking with him badly needed economic assistance from that country.

Hidden Agenda is entirely menu-driven, but this program can be fast-paced, exhilarating, and full of surprises. The screens are more diverse than in any program I've seen. You'll get to know the various icons, the many charts, and the photos of each person you contact. There are even animated screens. You'll always find something new to look at—or to worry about.

Your cabinet members are a real challenge. For one thing, they are very quick with their disapproval if your decision goes against their advice. Also, choose those ministers that will offer solutions you can live with, otherwise you may be forced to fire some of them. You can always replace a bad minister with a new one, but there's a limited pool of choices. One other thing: A cabinet member can turn on you. One of mine decided to lead her own revolution. From this experience I got a lot of practice bargaining with people. I also ordered my first execution.

For a complete description of the simulation and gameplay, you can read the extensive manual and the reference guide. The reference guide includes an extensive glossary of terms from the program and from the real world. The manual explains how to

interpret charts and gives you some background on Chimerica. Both are full of diagrams and sample screens. A separate teacher's manual is also available. Although the documentation is very helpful, you can also jump right in. Online help guides you through the preliminary operations and tells you about each feature as you use it.

Some of your best help will come from a specially designed desk. Instead of paperweights and address books, your desk is equipped with icons representing different aspects of the game. Under the Reports icon, you'll find several national and international newspapers. I found the articles really valuable because they kept me in touch with events I might have otherwise unknowingly neglected. If you read the newspapers as soon as you get in office, you'll be rewarded with a detailed synopsis on the state of the country, and you can use the information to make intelligent decisions. Remember that each press has its own point of view and its own interest to serve. A newspaper can be as biased as a union activist.

To keep track of your decisions, consult your logbook, another icon on your desk. Choose the progress charts for a wealth of statistics on important issues such as crops, exports, and infant-mortality rates. For finding your way through the countryside, a map is included.

You'll need a graphics adapter and either two 5¼-inch floppy drives, one 3½-inch drive, or a hard disk to run the game. *Hidden Agenda* is not copy-protected, and you are urged to make working copies of the original or

to install it on the hard disk before you start.

Even though the world of Chimerica was well constructed, a few problems with the mechanics of the game caused me some minor dismay.

First, although the manual and quick-start reference guide instruct you to type *ha* to load the game, that didn't work for me. I inspected the disk's directory and then typed *agenda*, which gave the proper results.

A second problem was more troublesome. When I inspected my logbook during the game, I selected an option that prints the entire log. The program froze, and I had to re-boot—just because I had forgotten to turn on my printer.

The third problem is more serious still. When I wanted to go back to a previous screen, I thought the logical step was to press the escape key. It wasn't. *Hidden Agenda* jumped me all the way back to DOS, and I lost all the time I had put into the game. I wish there had been the familiar *Are you sure you want to quit (Y/N)?* prompt.

A fourth problem makes *Hidden Agenda* compelling by forcing you to play the game all the way through at one sitting. Although there are instructions for saving a game in progress, I never successfully restored one from a floppy disk. I tried, but although the saved screens came up, they were filled with gibberish. It was

impossible to continue. I contacted the company for advice about this problem, and after extensive testing they assured me that the bug only showed up when you load *Hidden Agenda* from a floppy disk. There seems to be no problem running it from a hard disk. Springboard assured me that they would begin working on a revision at once. They also told me that anyone who runs into the same trouble should contact the company for a free replacement disk. Until the revision is available, however, plan to spend an hour or two completing your

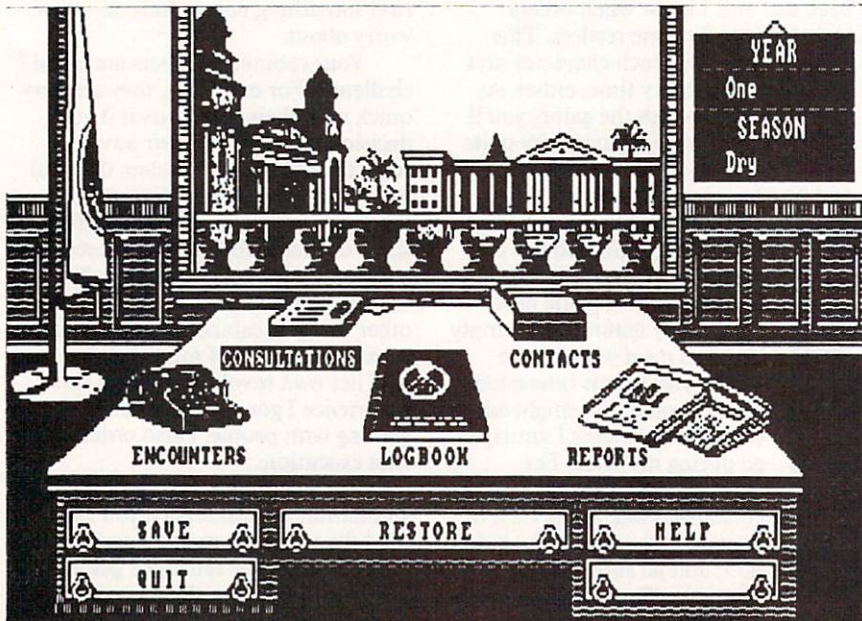


Choose four ministers to advise you on important issues.

presidential term.

Still *Hidden Agenda's* strong points far outweigh its faults. This absorbing game is very detailed and intricate. You'd never guess how involved the plot is and how much information the program is storing.

For instance, I didn't realize the extent to which the program kept track of my every move until I reached the end of my first game. When I read the encyclopedia excerpt that analyzed my performance during those three years in office, I was amazed at what was mentioned. The analysts saw fit to discuss every moment of indecision I ever had. It was a fascinating and sometimes embarrassing evaluation. The report of my years in office mentioned details I had already forgotten, and I learned that you can't fool—or please—all of the people all of the time. After the encyclopedic judgment of my performance, I had to start over again. That's a chance most leaders don't get. □



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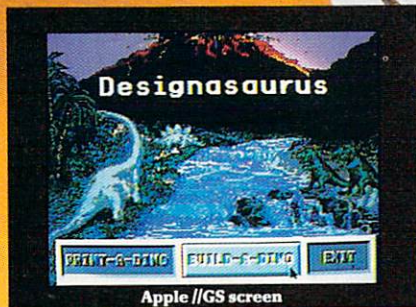
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DISCOVERIES

DAVID STANTON

The droll voice entreated: "Attention, please. Attention, please. The fire department is investigating the alarm. Stay calm. Attention, please."

Everyone glanced around, looking incredulous. If panic showed anywhere, it reflected more a fear of missing the Spotlight on Multimedia session than it did a serious concern for physical safety and well-being. This session promised a review of the Palenque Project, followed by Fred D'Ignazio's presentation from Multi Media Productions. Many of us expected the demonstration to be a major highlight of the conference, and we weren't disappointed.

An SRO crowd had packed the room early. Late arrivals clustered outside doorways to hear and see what they could. None of us, seated or standing, wanted to sacrifice our places; consequently, the first alarm went unheeded. It is unlikely that anything less than palpable proof of an emergency—smoke, flame, maybe torrents of water shooting from fire hoses or dripping from above—could have moved us. Multimedia, after all, had captured the imaginations of computer-using educators all over the country. It was certainly the hottest topic in Boston's Hynes Convention Center during the June 20-22 National Educational Computing Conference (NECC). It would not easily be upstaged.

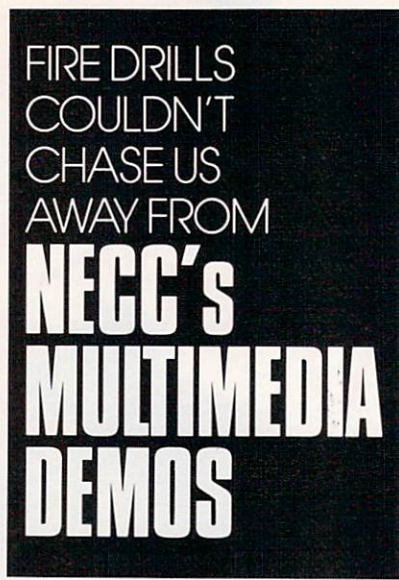
So what's multimedia? Essentially it refers to the integration of several audiovisual devices in a single presentation. We didn't call it multimedia in those days, but any teacher with ten years' experience understands it well. "Just turn to the next slide when you hear a beep," we instructed, and our student assistants became multimedia experts, too. Such commonplace teaching tools would hardly evoke sincere and spontaneous applause from a crowd of today's educators. Kathleen Wilson's much more sophisticated

multimedia presentation did.

Picture this. You're sitting in front of your IBM AT. A special video card hides inside the computer. A CD-ROM player and miscellaneous other gadgets sit alongside. You boot *Palenque*.

Suddenly you find yourself at the site of a Mayan ruin on Mexico's Yucatan Peninsula. Your monitor turns into a movie theater displaying real footage of the location. A familiar menu bar tops your screen. Clearly, this is no everyday theater. Here, you control the movie in surprising ways.

"What a beautiful pyramid!" you exclaim, as you run toward it with a slight joystick twist. "And look how



tall!" Joystick adjustments pan up, down, and across. "I wonder how old it is." A few points and clicks provide the answer. "What's that over there?" And the movie continues—starts and stops, pans, speeds up or slows down at your command.

Want a little narration? Just call on the young tour guide who pops up whenever you need him.

Don't worry about losing your way. A map shows exactly where you are. Just activate it whenever necessary. And there's more.

Bank Street College of Education's Palenque Project illustrates multimedia at its finest—difficult to describe but impressive enough to earn admiration from all who see it. This level of technology probably will take awhile to reach most American schools, but it certainly offers a glimpse of what education may be like—and sooner than we might expect.

If multimedia falls into two categories (expensive and relatively less so), Fred D'Ignazio specializes in the second type. He calls it *scavenged multimedia*. In practice, that means multimedia projects that can run on computer systems that schools and families already own.

He insists that kids can create some pretty exciting presentations with Commodore 64s, Apple IIs, and other computers not on the leading edge. He demonstrated several projects that prove his point. They included student-produced movies with computer-generated title and credit screens, software/video combinations using Apple's new Video Overlay Card and Scholastic's *Slide Shop*, and several quick-and-dirty 30-second educational videos. His advice for those interested in trying it themselves? "KISS: Keep It Simple to Survive. Keep It Simple for Success."

Multimedia fever hit vendors, too. IBM heralded the virtues of Linkway, its *HyperCard* counterpunch. Commodore's entire Amiga line ran desktop video demonstrations non-stop. Apple's lab bristled with activity as educators jockeyed to experiment with the Video Overlay Card and similar products for Macs.

But multimedia wasn't the only news at NECC. Broderbund announced *Where in Time Is Carmen San Diego?* and *The New Print Shop*. Terrapin demonstrated *Terrapin LOGO Plus*, a version that comes with interface, motors, and Lego blocks for building and controlling robots. Jeffrey Gold debuted *Cyberlearn*, his new program that helps teachers and students create personalized tutorials. □

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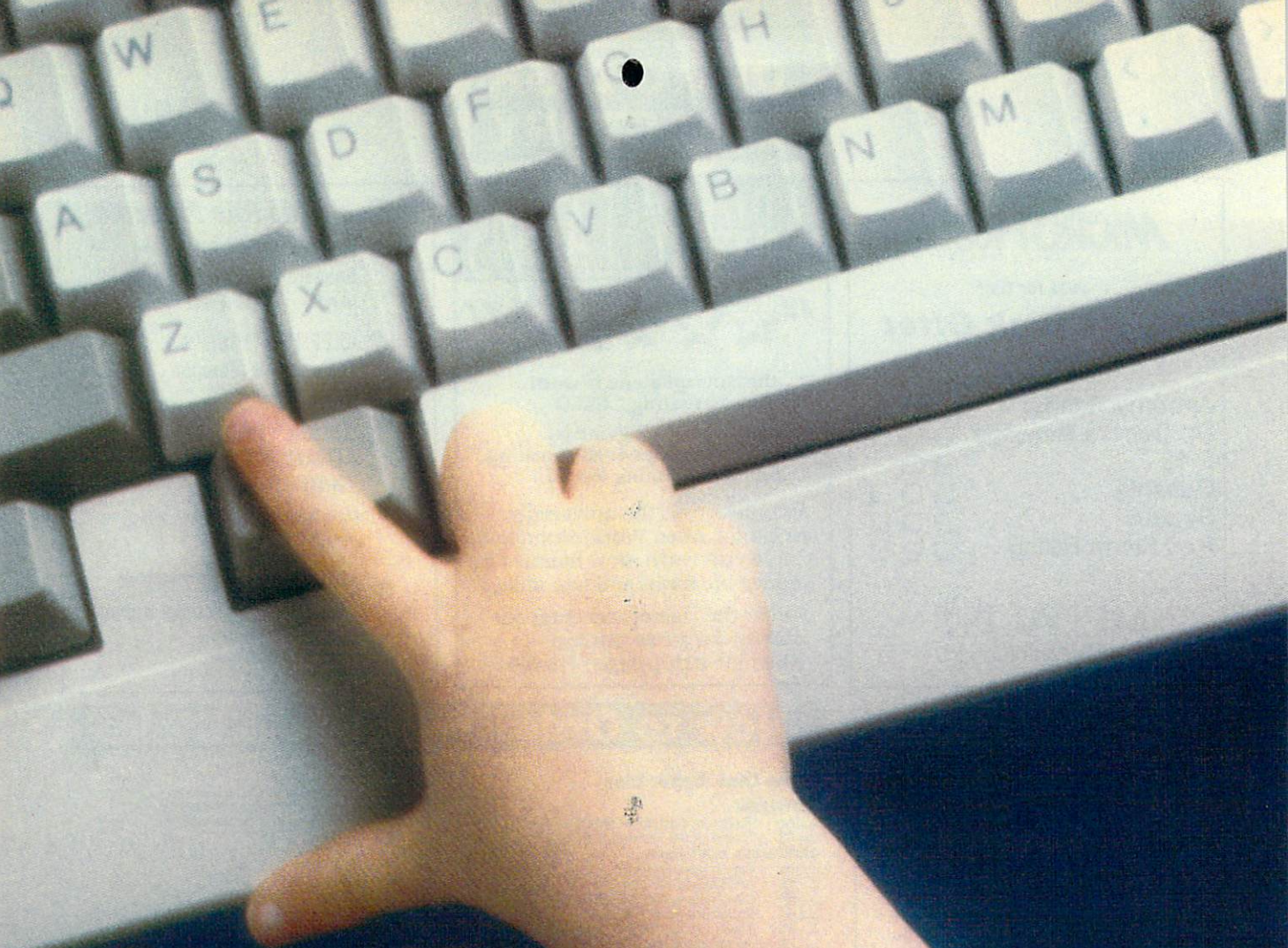
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MAKING
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KIDS' TIME

Leslie Eiser

Sharing the home computer with your preschooler can be a wonderful experience. Just as good books do, computers open up a world of enjoyment that is fun and educational at any age level. To gain access to this world, just put a disk into a disk drive and flip a switch. Making the most of this new world will require more planning, but the rewards are well worth the extra effort. The home-tested guidelines that follow are designed to help you and your children get the most out of your home computer.

Getting Started

The preschool educational programs that have been developed for the Apple II far outnumber those available for other machines. However, most of the best programs are available in several different formats. A little shopping around yields a good-sized roster of excellent programs for almost every machine. So don't feel limited in your choice of which computer to buy.

Put a color monitor at the top of your shopping list if you really want your youngsters to learn from your computer. And buy the best one you can afford. Many of the most interesting educational programs rely on color, and, even if color isn't required, it's definitely much more attractive. While quality makes the difference in the long run, capturing your child's interest at the beginning is often critical, and that's exactly when color counts the most.

Choosing the Location

The physical location of the computer may be the single most important factor to children in the three-to-five-year-old age group. If it's locked up in your office or sitting in a cold basement, they'll know it's there, but they probably won't use it without considerable encouragement. Put the computer in a highly visible location—near the kitchen or another family area where your children can see you using the computer. That will make computing much more attractive to them.

Put a good chair near the computer, preferably one wide enough to hold two people—you and your child. For very young people,

using the computer is a chance to spend time with an adult they admire. They will expect either you or an older sibling to stay nearby, providing instant help and positive reinforcement. Besides, you'll want to share their joy of discovery when they learn something new and their satisfaction when they give correct answers.

Not All Input Devices Are Created Equal

To very young children, the least appealing input device has to be the standard keyboard. The keys are tiny and, from a child's point of view, the letters aren't laid out in any particular order.

Nonetheless, the keyboard is definitely the path of least resistance. After all, every computer comes with one, and almost all commercial programs support them. To simplify using a keyboard, pull it right up to the chair. You can even put the keyboard directly on your child's lap. Try tilting the keyboard so that the up arrow matches the direction up. This will make it easier for kids with perception problems to relate a keypress with an action on the screen.

If your youngster will be using the computer often, consider investing in an alternate keyboard. Among the many styles, the Muppet Learning Keys from Sunburst and the PowerPad from Dunamis have been particularly well accepted. Both of these products are lap-sized, touch-sensitive pads, and plenty of software supports them. DIL alone offers over 20 different programs for the PowerPad, and Sunburst has published another 20 for the Muppet Learning Keys.

Since the active surface of the PowerPad is flat and plain, each program comes with at least one plastic overlay. The popularity of the PowerPad in special-education circles is clearly reflected in the design of software that supports it. Interface consistency is carefully maintained, color is used selectively, and the illustrations on the overlays are oversized, making it easy for physically handicapped children to press the appropriate spot. Dunamis and Mobius have also developed and modified software for the PowerPad. The materials from Mobius include a DOS shell designed to take advantage of the graphics and sound capabilities of the IBM PS/2 Models 25 and 30.

On the other hand, the Muppet Learning Keys has been targeted at a more traditional environment. It's more colorful, and the keyboard design is more involved than the Power-

Pad's. The pressure-sensitive keys are laid out in alphabetical order. There are several special function keys and a paint box, too. The programs available from Sunburst range from preschool materials like *Muppets on Stage*, to problem-solving games like *Teddy & Iggy*. There's even a simple word processor called *Muppet Slate*.

If you can't afford an alternate keyboard or if the software your child loves doesn't support either of these pads, consider this bargain-basement alternative: homemade stickers. Be sure to choose the kind that stick only to paper. These may not be as pretty or as permanent as the gummed ones, but they won't make a terrible mess on your keys, either. Use colored pens to make the labels more attractive and to create a more consistent interface.



Your children might prefer a kids-only keyboard like the Muppet Learning Keys.

Also consider a mouse or a trackball. While there are plenty of notable exceptions, many children will find using a mouse or a trackball difficult at first. The relationship between up (on the screen) and back (on the tabletop) is particularly difficult for children with perception difficulties. Programs like *NumberMaze* or anything in the Electric Crayon or Sesame Street Crayon series can be used specifically to teach mouse/screen cause-and-effect relationships.

Protecting Your Computer

Computers are generally hardy, and it takes a truly dedicated child to break one. Nevertheless, it took my five-year-old only two minutes of unsupervised play to figure out how to move files into the trash can on a Macintosh. PCs should be safer, but some of the new DOS shells make it almost as easy to delete files.

If you have the time, lock up your files before letting your youngster loose on the computer. Alternatively, never let your children boot directly from the hard drive. If they learn to insert a disk before turning on the computer, you can hope that they figure out how to switch drives only after they have learned the importance of your files. Some publishers hide the Quit command. This makes it harder for kids to leave the confines of the educational program in pursuit of new—and usually im-

portant—territory on the hard disk, but kids will invariably catch on.

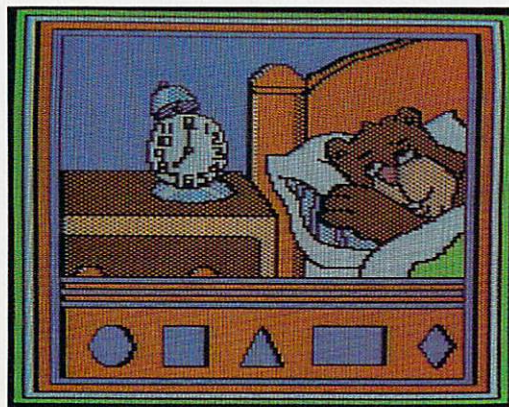
Less devastating, but equally irritating, is what children can do to your monitor. Fingerprints on the keyboard are bad enough, but right in the middle of the screen, they're infuriating. Unfortunately, pointing to objects on the screen is an important component of the concrete stage of learning, and you don't want to dampen your child's enthusiasm. If your monitor has a smooth glass screen, just make it a practice to wipe the screen with a slightly damp cloth after each session.

You might want to invest in a second monitor, but that's an expensive solution. You'd get the same results with a snap-on screen sold at most computer stores. Attach the screen before your children use the computer, and then remove it when it's your turn to work. You can throw it away when your children get past the grimy-finger stage.

Getting Acquainted

The simplest software familiarizes children with the keyboard—both the letter keys and the number keys. Programs such as the *Stickybear Alphabet*, *Alphabet Blocks*, and *Muppets on Stage* reward children for simply pushing a key on the keyboard. As a child's first exposure to a computer, these games are entertaining and fun. Typically, the graphics are well drawn and animated, and the computer reacts to the keypress with an appropriate sound. In the newest versions of these programs, including *Talking Tiles* and *The New Talking Stickybear Alphabet*, the computer actually says the letter or repeats the correct phonic sound. Parents with a little bit of programming experience may want to write their own versions of these programs. The graphics and sound may not be as sharp as those on commercial programs, but the excitement of sharing a computer with Mom or Dad is reward enough.

One of the best programs of this type is actually an old standby that has been upgraded recently. *The Golden Edition of Facemaker* from Spinnaker lets children build funny faces from a supply of parts. Children can then animate the faces or play a pattern game, trying to



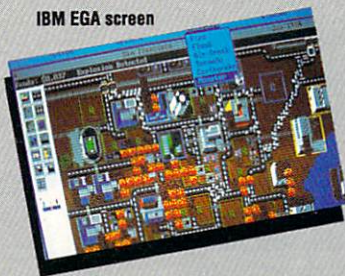
Stickybear Shapes teaches kids to recognize circles, squares, and triangles.

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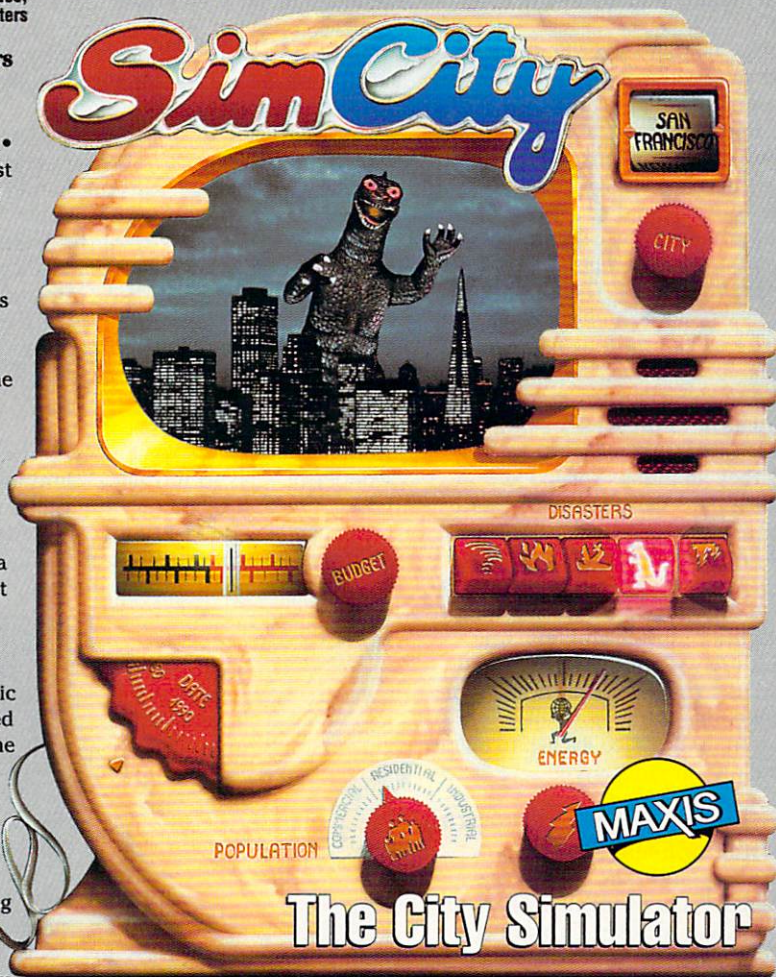


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(These comments are from the correspondence from real SimCity users. *Honest!*)



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WHOLE EARTH REVIEW -	Summer 1989

recall the sequence of animations that the computer uses.

The Electric Crayon and Sesame Street Crayon series from Polarware are electronic coloring books. They're perfect for introducing children to the computer in general and the mouse in particular. With wonderful colors and a marvelously simple interface, these programs are easy to use, and they provide attractive results. By encouraging kids to talk about their pictures and to write down simple stories, you can turn these programs into doorways to communication.

For story time, you and your children can create illustrated storybooks with just about any program that combines pictures and text.

KidWriter from Spinnaker uses a sticker approach to merging art with words. Older children can even get involved by writing the story for their younger brothers and sisters.

If you want yarns spun by other people, try *Jack and the Beanstalk* and *Flodd, the Bad Guy* from Tom Snyder Productions. These are two extremely well-drawn and quite humorous storybooks that are as entertaining to the adult reading the tale as to the child listening. After the first exposure to these stories, even two-year-olds will catch on to the trick of turning the pages, and they can start making up their own versions as they go along. Sprinkled through these stories are various choices, and, as you reach these choices each time, you can really see the importance of ritual and predictability. Very young children will want to make the same selections over and over, comforted by the repetition. Older children will experiment with different endings, excited by their control over the plot. Both of these are wonderful introductions to the computer for very young children, and a nice excuse to sit down with your child on your lap.

Drill-and-Practice Programs for Little Kids

Young children find drill-and-practice programs very reassuring, and they quickly learn to use these programs independently. There are counting programs, like *Number Farm* or *Astro-Grover*, that reward children when they count objects and type in the right number. Simple math programs, like *Stickybear Math I and II* or *NumberMaze*, let children demonstrate their growing proficiency. By offering a variety of levels, from basic addition to division, multiplication, and word problems, the life of these programs extends from preschool almost all the way to high school.

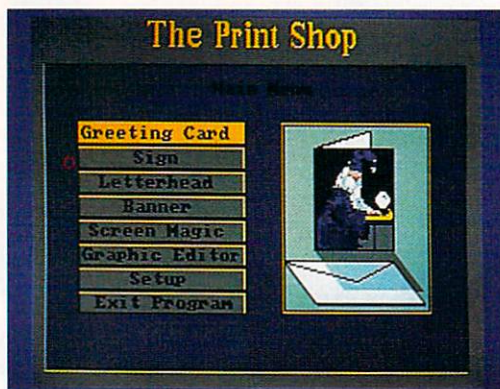
Simple letter games like *Alphabet Circus* reinforce letter recognition by responding appropriately when your child pushes the right key. At the next level up, there are prereading games, like *Reader Rabbit* or *Muppet Word Book*, that build the skills of letter discrimination and simple word recognition. Programs like *Ernie's Magic Shapes* and *Stickybear Shapes* teach shape recognition and discrimination through a combination of drill, positive reward, and repetition.

Despite any concerns you might have about their usefulness, all of these programs are very attractive to children. They love the positive reinforcement, and the certainty of success makes them continue to play. Try to relax when your child seems to move too slowly. It takes time for young children to synthesize the cause-and-effect relationship between the keyboard and the screen. When drill-and-practice software is used in an appropriate environment, accompanied by plenty of parental support and reinforcement, it can make the time spent sharing the computer with your preschooler very enjoyable. And programs like these will also form a positive foundation on which to build up to more challenging programs.

Besides the drill-and-practice software, you can also find programs that teach problem-solving skills. These skills are harder to define, tougher to teach, and very valuable. Programs like *Muppetville* and *Gertrude's Secrets* require more parental involvement, and they can frustrate young children because they're harder to win. Designed to challenge rather than lead children, problem-solving programs develop thinking skills that complement rote learning.

Open-Ended Results

Art programs and simple word processors are wonderful ways to introduce children to computers and to writing and drawing. Packages such as *The Print Shop*, *The Children's Writing and Publishing Center*, *Muppet Slate*, or *KidWriter* combine text and graphics.



Using *The Print Shop*, your children can learn to enjoy writing projects.

In my house, *The Print Shop*, from Brøderbund, has long been a favorite. Available for almost every computer, there's plenty of clip art, and the interface is easy enough for just about any child to master. Using the sign option with a large font, your children can create big books. Read them together to build vocabulary skills or just for fun. Let your child decorate the pages by hand and color in the attractive graphics. Then send the results to friends and family. When your kids have more to say, they'll graduate to one of the more standard word processors, already knowing what fun it is to write.

Bringing It All Together

When a computer first arrives in your home, everyone will want to take a turn on it. Maintaining that enthusiasm isn't simple.

Encourage your children by helping them define their own goals. Challenge them to explore the environments a computer can provide. Take the time to sit beside them while they explore and create. The positive reinforce-

ment that only you can provide is critical, so take an active role in their projects.

Support your children's interests with a variety of software. Try to pick out some programs that can be used independently and others that must be shared. By demonstrating your interest in their efforts, you will encourage your kids to become more responsible for their results. And you'll have fun in the process. □

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HOMework

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

Remember Mad Libs? You and your family or friends gathered around a book of funny, fill-in-the-blank stories. Your big brother would say “Give me an adjective,” and all the others would holler out a color or a size, aiming for the most outrageous descriptive word they could come up with.

Mad Libs is great for learning parts of speech. You’ve got to know a noun from a verb if you’re going to get your word included in the story. And you have to be creative. An adjective like *squiggly* is a lot better than *fast*.

Use your computer to create your own Mad Lib stories. With an integrated package or a word processor with mail-merge capabilities, you can write the story in one file and store the answers to word requests in another.

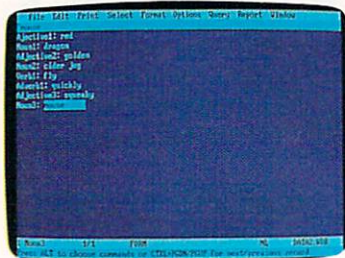
You shouldn’t have any trouble using the following instructions with your word processor or integrated package, even if it’s different from the one I used in my examples. Just check your manual for information on form letters, mail merge, or linking files.

Start up your integrated package and create a new word processing file. Begin your story, and identify the blanks’ names in all caps so you can find the names easily when it’s time to link them to database fields.

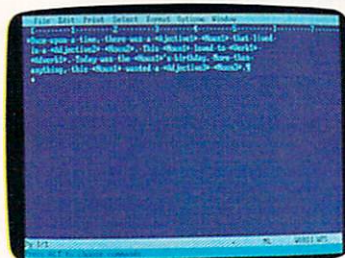
Here’s a short example:

Once upon a time, there was a(n) ADJECTIVE1 NOUN1 that lived in a(n) ADJECTIVE2 NOUN2. This NOUN1 loved to VERB1 ADVERB1. Today was the NOUN1’s birthday. More than anything this NOUN1 wanted a(n) ADJECTIVE3 NOUN3.

Next, create the database that will hold the responses. Name each field for those in the story. If your word processor supports mail merge, you’ll create a data file instead of a database. Usually, that means linking the files with a special code and listing the field names in the exact order that



Create a database that will hold responses to your fill-in-the-blanks story.



Link the database with the story; then let your family pick the missing words.

they appear in the text file.

For the example story, your database or data file would have eight fields: NOUN1, NOUN2, NOUN3, ADJECTIVE1, ADJECTIVE2, ADJECTIVE3, VERB1, and ADVERB1.

Some fields are repeated; depending on your story, you may need to list those fields only once in the database. Merging the two files—word processor and database—will take care of filling in all the blanks. Check your manual to be sure you don’t have to repeat the field name for each time it appears in the story.

For the final step before playing, link the files. Most integrated packages have a feature that lets you insert database fields into your word processing file. To find this feature in your manual, look up *form letters*, *mail merge*, or *linking files* in the index. Follow the directions for setting up placeholders in form letters.

If you use *Microsoft Works*, for

example, select the word *ADJECTIVE1* in the word processing file and choose Insert Field from the Edit menu. Click on the name of the associated database, and you’ll see a list of the fields. Click on the ADJECTIVE1 field and a placeholder named ADJECTIVE1 replaces the word *ADJECTIVE1* in the word processing file.

When it’s time to play, gather your family together and start filling in the blanks. You must have both files open for the merge to work, but make the database file active. You know what to ask for from the field names in the database. You ask for an adjective and, from the cries of “hot!” “fast” and “purple,” choose the first one. Or, let the group agree on one. Type the word into the database under ADJECTIVE1. Do the same for all the other blanks.

To see the results, print-merge the two files. For instructions, look again under *form letters*, *mail merge*, *linking files*, or *printing*.

Finally, read the story aloud and enjoy the laughs. You can use the story again or create more.

If your children are too young for parts of speech, change the names of the blanks to animals, colors, or names. For children of all ages, you might ask for the part of speech but limit it by giving a second category—NOUN/ANIMAL, ADJECTIVE/SIZE, and VERB/ACTIVITY, for example. This way, children learn what a noun is, and they also find out what kind of noun would be appropriate for the story.

This simple Mad Libs program can teach parts of speech and introduce your children to the computer. But most of all, it teaches children to be creative.

Heidi E. H. Aycock

Do you have advice that makes a better teacher out of your PC? If so, we’d like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we’ll send you a gift. ☐

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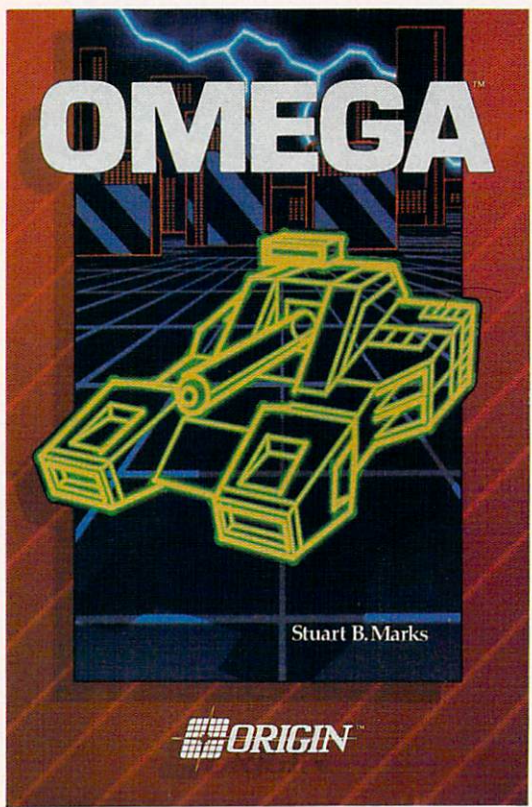
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ENTERTAINMENT



ORIGIN'S INNOVATIVE SOFTWARE WARFARE BRINGS PROGRAMMING TO THE FRONT LINES. DESIGN A FLEET OF ROBOT TANKS FOR KICKS AND CONQUEST.

developer has produced a truly interchangeable game; MS-DOS, Macintosh, Apple II and IIGS, Amiga, Commodore 64/128, and Atari ST owners can design tanks on their favorite system and send them into battle on any other system. For that alone, Origin deserves a lot of praise.

Also praiseworthy is Origin's embracing computer programming as an entertaining enterprise equal to arcades or adventures. At first blush, programming a robot tank may sound daunting or, at best, tedious. But soon you're poring over your routines like an inveterate hacker, even though you may have never written more than a dozen lines of code in your life.

Programming is at the heart of *Omega*. It's the only control you have over your tank. No fire buttons. No function keys. (You can seize manual control during a battle—but only if you've programmed in that option!) The game challenges you to think through the conditions and confrontations your tank may face, and to provide your cybernetic warrior with the logic for dealing with them.

The game's documentation presents a concise overview of logical thinking, complete with flowcharts, that goes a long way toward simplifying program design. The huge manual is well conceived. It carries you through the basics and then into the complexities of Cybertank Command Language, Origin's name for its plain-English programming language.

Before you can write the artificial intelligence (AI) that will guide your tank, however, you must configure its various hardware elements. You're constrained here by budgetary parameters (start off with 1000 credits) that increase with your skill level in 1000-credit increments.

All of your hardware options have been carefully considered. You select from items that include a variety of armor, engines, fuel supplies,

Armageddon will be easier tomorrow. We can stay home and send out cybernetic soldiers to do our fighting for us.

That scenario underlies Origin's *Omega*, a game that has you playing the role of a cybertank engineer for the Organization of Strategic Intelligence. Your job: to design, program, and dispatch sophisticated robot tanks into a bloodless battlefield. No blood, but plenty of sweat. Skull-sweat, to be specific. In order to make your tanks competitive, you must program them intelligently. Your tank becomes your proxy in battle. The more intelligent, the better its chance of victory. A small, smart tank just may be able to outfight a big, dumb tank.

Perhaps best of all, *Omega* doesn't limit your battles to your own computer screen. You can pit your tanks against those designed by your friends (or enemies, or even total strangers) no matter what computer they have or how far away they live. By disk or by phone wire, you're always on *Omega*'s firing line. At last, a

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INNOVATION

weapons, and scanners. Each item affects your tank's total performance as well as influencing the way the parts work together. Heavy armor, for example, requires more fuel to move around the battlefield than does light armor. An explosive weapon like a gas-plasma charge takes longer to load and fire than does a turbo laser. Optional hardware—available only when you've risen fairly high in the security ranks—includes fuel-conservation devices, remote scanners for hunting enemy tanks, repair kits, defensive shields, and more. If you can use it, *Omega* has it.

But it's not enough to load your tank with hardware while staying within your budget. You have to know how to use your tank's attributes, too. And that's where the game's AI programming comes in.

We can't stress enough that *Omega*, no matter how it appears at first glance, isn't a game for programmers only. Sure, you have to write code. But the game designers provide the tools that make programming fairly simple, especially for novices.

Foremost among these tools is a library of prewritten routines. If your programming skills are weak, or if you're a novice at logical thinking, you can include these routines in your

tank's AI and be ready to fight in short order. You can edit any capsule routine to modify it to your tastes and strategy. You can embed subroutines, write your own routines and save them as capsules for use in other tanks, and even view the routines used by the tanks *Omega* includes with the game.

The devious (or lazy) tank designer will find it simple to steal routines from the tanks Origin includes. Among these metallic monsters is a particularly deadly number programmed by Richard Gariott, a.k.a. Lord British, himself. In one of our battles, Scisco's Goathead tank (a lumbering giant with a maniacal disposition) consistently fell prey to Ferrell's Elvis5, a swift guerrilla fighter later dis-

covered to have incorporated some of Origin's more clever routines. You won't have to worry about someone borrowing from your routines, however, because each tank is protected by the user's password, which you enter during the startup process.

If you decide to write an original program or to modify some of the capsule routines, *Omega*'s excellent text editor is invaluable. You can cut, copy, and paste with ease, as well as include capsule routines with the click of a button or the touch of a key. A search-and-replace command would be a nice addition, as would the ability to import ASCII text files (for tank logic written at work). But Origin makes up for these limitations with its push-button programming palette that includes the most commonly used commands. You can write an effective, if rudimentary, program using



Mikki scores a direct hit on an enemy cybertank.



only your mouse, joystick, or arrow/enter keys. In short, you can assemble almost an entire program while hardly touching the keyboard.

The benefit of this approach is that you can learn in increments. Finish a tank program, for example, and a debugger tells you if there are any problems. Not sure how a program works? View it concurrently with the tank itself. In this mode, the program text scrolls on one side of the screen, showing you the commands that the tank is executing, as your tank performs its maneuvers on the other side of the screen. This is an excellent way to study how effectively your tank moves around obstacles, for example.

With your tank's body configured and its programming completed to your satisfaction, find out how your work measures up. Before you can send your offspring to war, its "intelligence" must pass muster. This process, *authorization* in *Omega* jargon, is where your program is debugged. If an error is found, you are notified on-screen. Exit the authorization process and you are returned to the edit screen at the point of error.

After you pass authorization, you're ready to roll onto the battlefield. You can test your tank against *Omega*'s best on predesigned fire zones (Austin, Houston, and a claustrophobic little scenario called Small),



Victory rests with the smarter tank.

you can design your own simulations and include your new creation in them, or you can send the tank to your friends. You're ready for war, no matter where.

You can also present your tank for evaluation, which is how you get promoted, earning more money to build deadlier tanks. An evaluation consists of ten one-on-one battles, just your tank and one of theirs, chosen to match your current level. To advance to the next level, you need to win seven of the battles.

You've designed your tank. Its AI is authorized. You're ready for your first battle. And while programming is key to winning your wars, you should

know that weaponry will carry you a long way. In the lower levels, the right combination of hardware can outfight *Omega*'s tank. You can pass some evaluations on the strength of your gun. (This approach falls apart pretty quickly once you're past level 5. By then *Omega*'s tanks are smart and strong.)

As the battle begins, the edit/design screen gives way to the battle screen, which is split into two parts: On the left is an overhead view of the battle, with your tank holding the center position. On the right are several monitors that gauge the damage inflicted on your tank, its fuel and weaponry supplies, the number of battles fought and won. From overhead, you watch your tank as it scans for the enemy, following the pattern your program demands. Search patterns, attack and retreat strategies, and tracking patterns are all included in *Omega*'s capsule routines.

At first, the battlefield graphics may disappoint you. There's not much, if any, differentiation among the various tanks. Animation is a bit twitchy, and terrain is two-dimensional.

That disappointment quickly fades as you realize how *Omega* gives you a window onto tomorrow's battlefield. The action resides in the tanks' logic rather than in their appearance. Watching one of your tanks move around the battlefield, scanning for the enemy, all the while conscious that the enemy is scanning for *you* is almost hypnotic. Depending on the placement of the tanks at the start of the battle (manual or random), searches may take some time. To make the search go faster, you can switch to a satellite view, in which the tanks are represented by blips and move much faster than on the closeup screen. Go back to the main battle screen when your tanks are in close proximity and watch the fireworks.

When the fight begins, the tanks tend to simply dig in and slug it out, especially at lower levels of logic. Weapons are represented as spherical projectiles (for explosive devices) or as shafts of light (for lasers). Sound effects on the PC version are quite limited. Origin should consider supporting one or more of the sound boards now available.

In its effort to create a realistic illusion of a futuristic cybertank design center, Origin occasionally goes too far. While the opening screens, with

the security check and retina scan, are fun and fuel the game's futuristic feel, an inconsistent tendency to label disk drives *slots* may confuse some players. This problem isn't major, but it does extend to the documentation. The game's quick-load reference guide, however, can help you find your way around.

Omega's screens on the whole lack strong visual effects. What you see throughout are metallic-gray screens with drop-down menus, push buttons, and windows for your text entries. This results from the nature of the game—designing tanks and writing programs is text-intensive.

The lack of visual effects, however, doesn't detract substantially from the game. *Omega* engages your mind, not your eyes. This is no arcade-action game for twitch-wristed vid-heads. It's more like a chess game in which you get but one move.

Like all fine games, *Omega* fulfills expectations while it encourages possibilities. For example, it would be exciting to see the battle unfold from the tank's perspective, leaving the overhead view for clearance evaluations and debugging. Origin does expand the definition of *group entertainment*, however, through use of a special BBS it has set up for nationwide warring.

A visual display during the hardware design process would also enhance the game. Picture a spinning graphic of your cybertank, taking on the attributes you assign it and displaying them for your inspection. Or, imagine these cybernetic soldiers rolling across the field accompanied by a full Wagner score.

It will be interesting to see if Origin expands this kind of programming game beyond the field of combat. A noncombative scenario would offer nonwarring gamers a chance to explore their own programming skills.

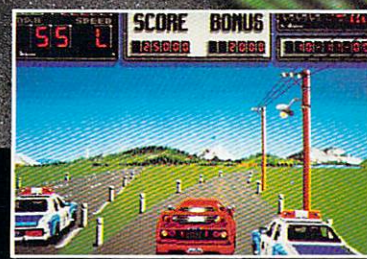
All these wishes are mere speculative observations. Origin has given no indication that it intends to pursue any of these avenues in a future release of *Omega* or any other game it has on the boards. But it's fun to think about. That's the mark of a good game—it unleashes the imagination. □

Omega

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GAMEPLAY

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

From the beginning—from the days of *Adventure* and the earliest incarnations of Zork—one of the chief drawbacks to story games on the computer has been that those who can't type very well can't play very well.

Now, I'll admit that this made me feel quite smug at first—my Mom was a hundred-word-per-minute error-free typist as I was growing up, and that was the standard I tried to meet. The result? Typing is as natural to me as speaking. So all that typing to get through a text adventure didn't bother me one bit.

That was then. This is now.

See, with a text adventure you *read* the action—you type, and the computer types back at you.

But with an animated story game, you *watch* the action, so you don't want to be typing your way through the game. You want to *act*.

Imagine how much fun it would be to drive a car if you had to type in the instructions. "Turn left." "Stop at the 7-Eleven." We wouldn't put up with it. The pleasure of driving comes from the fact that the car seems like an extension of ourselves; it feels as though we move, and the car moves with us. It feels, ultimately, as though the car were somehow hooked into our brain.

So it is with a nonverbal interface for a story game. Even those of us for whom typing is as easy as breathing appreciate a game that feels as though *we're* performing the actions directly, as though our figure in the game were wired directly to our own heads.

Here we come to the game *Loom*, designed by Brian Moriarty, formerly of Infocom, now of Lucasfilm Games. It's a fantasy, complete with dragons and magic spells—but it's like nothing you've ever seen (or done) before.

The story begins to unfold with an impressive half-hour audiotape, which tells how Bobbin was born under dangerous circumstances among

the guild of weavers. As he grows up, he has to learn something of weaver magic, which consists of short melodies played on a musical distaff.

And that's how you work magic in the game. You learn short melodies and plink them out on the distaff in the lower left corner of the screen. The audiotape contains a couple of short melodies; you'll learn more as you work your way through the game.

The fabric of the universe is unraveling, and, as the only child ever born of the magical Loom, only you have the power to fend off disaster. To do this, you must learn secrets from other guilds—the shepherds, the glassmakers, the blacksmiths.

As you pursue your quest, you never type a single letter—which is only fitting, considering that few characters in Bobbin's world know how to read. You move through the gorgeous landscapes by pointing to the place you want to go—Bobbin always knows how to get there.

(I get tired of characters who can't seem to walk without my constant attention.)

Loom is a work of storytelling art that can stand up well to comparison with other such arts—film, television, drama—without losing its value as a

game. The audioplay at the beginning helps immerse you in the tale; the terrific pictures and realistic animation sustain your interest and belief; and the interface is so natural and intuitive that you feel as though you have actually lived through Bobbin's life.

Loom is not as interactive as, say, *Rocket Ranger*. You don't start out with a map of the world and go wherever you want in any order you want. But the story is good enough that you'll rarely notice how you're being channeled through the sequence of events. As with Lucasfilm Games' adaptation of the popular *Indiana Jones and the Last Crusade*, *Loom* usually offers more than one solution to each problem.

In fact, *Last Crusade* does something I've wanted to see for a long time. If you come into the game bent on quick, violent solutions, you'll end up playing a violent game. If you come in with a more clever, puzzle-solving style, you'll end up playing a subtle game of wits. You can win either way. The game becomes what you want it to be.

That's a level of interactivity that almost no other games have achieved before—responding to the player's moral choices, not by punishing bad behavior, but rather by letting players experience the moral universe they seem to want to live in. When a game allows *that*, it has the possibility of making the player a true participant in the creation of the story.

By the way, *Loom* and *Last Crusade* are the last story games from Lucasfilm that I'll be reviewing for a while. The very things that I've praised in this column have led me to collaborate with Lucasfilm on what we hope will be a new generation of storytelling games.

In the meantime, I'll continue to write this column, telling you what I think is good—and bad—in the world of computer games. If anything, working as a designer myself will help me be all the more aware of remarkable achievements by the best of today's game designers. □

NEW GAME INTERFACES

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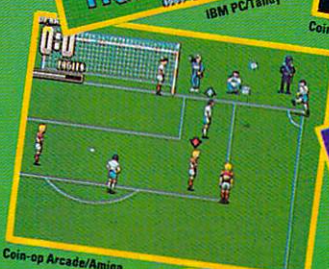
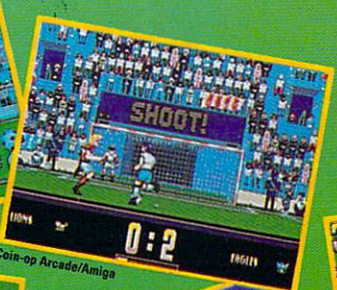


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NIGHT

NIGHTMARE ON GAME STREET

Shay Addams

One dark and stormy night, Pete Scisco called from *COMPUTE!*: "You're our last hope, Shay. We've sent three reviewers to the House on Haunted Hill, and they've all vanished—not one returned to write up the gruesome events of *Uninvited*, let alone report on *Maniac Mansion* and *Twilight Zone*. I should have known from the start to assign a piece on horror games to someone from the Addams family."

So into the gloomy night I lurched, the full moon rising eerily over my shoulder as I made my way to the decrepit old house on the hill. Glowing eyes peered out from every window, and the front door screeched when I pushed it open, then slammed shut behind me. In the entry hall, I surveyed a moldy stack of computer games. What had I gotten myself into?

Whether by magic or sheer luck, I survived the night, the next day, and the rest of the next two weeks. And I had to escape from some of the most horrific situations yet seen in the computer world. These are the games that Freddy Krueger would play if he had a computer on Elm Street.

When you play these four games, you may not be as lucky. So, in addition to all the morbid minutiae on the computer games, I've included clues to some of their most difficult puzzles.

Uninvited

And so begins my tale. From the entry hall hung with cobwebs, I headed for the first open door, slammed it, and locked it. From the corner of the room came an eerie glow. There sat a computer, cloaked in the thick cloak of Gothic atmosphere that could only mean one thing: The computer was running *Uninvited*.

Onscreen, the ominous house on the hill is reminiscent of the old Bates' place in *Psycho*. Inside, you'll find your little brother, but, take it from me, you'd better be prepared for the host of ghosts, fiends, and devils, too. Their idea of hospitality is to rip your body into a bloody mess.

Before rescuing your brother, you have to deal with the wayward wizard who haunts the place. You need to master a few spells of your own. You'll discover magic words like *Abraxus* and *Magisterium* as you examine books and other items in this possessed piece of real estate. The spells are vital to solving several puzzles, but, to cast them, you must form sentences with the correct magic words. Other problems, such as unlocking doors, hinge on rounding up keys and other objects and then figuring out how and where to use them.

ICOM plans to release an EGA version of *Uninvited* this fall, so the graphics will look a lot sharper and more colorful. In the CGA version, the game shows the main scene in a large window, which you can't move or resize. When you open an object, a fresh window opens to show the object's contents, which can be moved by grabbing them and dragging them to

or from another window. You can open an envelope, for example, and slip the letter into your wallet.

Instead of typing commands such as *examine rock*, you click on an object in the picture window, then on a command in the menu bar above. The Operate command offers additional freedom—with a few quick clicks you can use an object in one window to affect an item in another. Color distinguishes objects worth investigating from those that are purely ornamental.

A small map always shows the current room's doors, which you may pass through by clicking on the door in the main picture or on the corresponding door in the small map. You can examine something by double-clicking on it, an extremely convenient feature. Devised by ICOM Simulations, this style of game interface has been dubbed *interactive graphics*.

Spot animation enhances some scenes—such as those in which a devilish imp dances across the room, taunting you with a key that you've just got to get your hands on. Sound and music are minimal, and the EGA version doesn't support any music boards, either: Still, the fluid interface, solid logical puzzles, and something's-lurking-around-the-next-corner feel make *Uninvited* most inviting. And the lady who stuck her rotting face right up to the screen was the only ghoul in any of these games that made me actually jump.



Beware of the rotting lady, the scariest ghoul to leap out of *Uninvited*.

Maniac Mansion

The zombie that crawled in through window of my safe haven, however, was even scarier than that woman in *Uninvited*. Just when I thought I was a goner, my hand hit a secret button, and a hidden door opened. The dim passageway was illuminated by a lone computer running *Maniac Mansion*.

Whenever some TV character approaches a basement door, I always know there's an axemurderer waiting on the other side. *Don't go in there alone!* I always shout. But do they listen? No, and that's why they're dead now and can't play computer games like *Maniac Mansion*—a game that quickly turns into a riotous send-up of slasher and science-fiction films.

In a secret lab in the mansion's basement,

NIGHTMARE



Rescue your girlfriend from Dr. Fred's dastardly clutches in *Maniac Mansion*.

a mad scientist plots to take over the world. Dr. Fred's plan requires sucking the brains out of your teenage girlfriend. From seven neighborhood pals, you pick a pair to join you in your rescue mission. *Maniac Mansion's* most distinctive feature lets you control three characters and send them to different locations. To solve some puzzles, however, the characters must work together. Depending on the characters you choose, there are as many as five ways to solve the game. While exploring the mansion, you'll bump into other members of Dr. Fred's bizarre extended family: Weird Ed, Nurse Edna, the Purple Tentacle. There are enough oddballs to make the Addams' family look like yuppies. Fright turns to laughter when, for example, that bright red liquid oozing from the refrigerator turns out to be ketchup.

Maniac Mansion is an animated adventure. You move a character around the screen, grabbing things, examining them and so on. Following ICOM's lead, the Lucasfilm interface has 14 verbs in a menu below the picture. By clicking on these actions in concert with items in the picture, you Pick Up, Open, and Use things. The New Kid command permits you to hop from one character to the next.

As your character reaches the edge of the screen, the picture scrolls smoothly to show the rest of the room you're exploring. *Maniac Mansion's* 3-D graphics reduce the flat feel that you find in other graphics adventures because your character can walk from back to front as well as from left to right in a room. Cutaway

scenes help the plot unfold by showing what's happening in other parts of the house. Simple background music and sound effects entertain your ears, while visual effects enhance the action for your eyes: Shine a flashlight in a dark room, for example, and you'll see only the illuminated square where the beam falls. The interface, graphics, and warped comedy make *Maniac Mansion* a must-explore for fans of both horror and humor.

Don't Go Alone

Laughter was furthest from my mind, though, when a flock of vampire bats stormed me in the secret passageway. I hit the tunnel stairs as if my pants were on fire, and when I got to the second floor I ducked into a bedroom. Another computer. Another game. I should have taken my mother's advice when I told her about this assignment: *Don't Go Alone*.

That's the name of Accolade's latest fright fest, and you'll be surprised to find all the monsters and evil spirits that inhabit the house called Nostrodomo. Your grandfather swears the house is haunted, and all you need to do is prove him right and defeat the Demon of all Demons that's causing the trouble. Proving your grandfather right may not seem tough, but no one will believe you unless you defeat the bad guy.

You and your team of four experts—chosen from a list of 16 characters, including scientists, psychics, and adventurers—must explore the house, wiping out spirits, ghosts, and demons as you go. Each of your team members react differently to each creature. Characters go from scared to petrified, and, if they get too terrified, your whole team is transported to a new section of the house. Ultimately, you could all face the same fate as your grandfather: You could go insane with fear.

Your success depends on the mental strength of your team, not the physical prowess. You rely on chemical formulas that work against spirits. You also learn how to recognize possible allies from the world of ghosts and ghoulies.

Like many of these other horror games, *Don't Go Alone* is driven primarily through direction icons and other graphics devices. You can drag out your mouse, pull out your joystick, or tap away at your keyboard. ▸

Hints for the Haunted

To decode boldfaced answers, count one letter back. A complete solution and maps to some games are available in the Quest for Clues series, published by Origin.

Uninvited

To get the key in the entrance hall: Operate **tfmg** on **mfgu dibjs**. Operate **by** on **mfgu dibjs**. To operate the doll

in Master Bedroom: Say "**Tqfdbo lfbgpe Bcsbybl**." To open the safe in lab: **tfwfouz-ojof, gpsuz-tfwfo, fjhiuz**.

Maniac Mansion

To get wall-safe combination: Send one character to Weird Ed's room. After Ed takes him to dungeon, send someone to Ed's Room to open the **qjhhz cbol** and get a **ejnf**. Use the **ejnf** in the slot on the telescope, press

the right button to turn it to the right, and use the telescope to read the combination.

Dream Zone

To the crowd in the bar, say **Esjolt** are on the **ipvff**. When you meet Hairy and Grajunk, give Hairy **dboez** and give Grajunk **hvn**. In the key tower: Swap **spdl** with **lfz**.

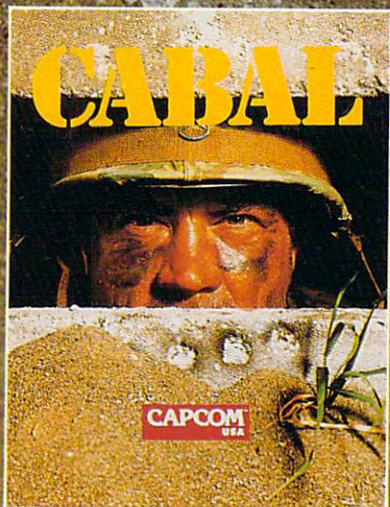
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NIGHTMARE

Dream Zone

I was so absorbed by the secret formulas that I didn't notice the giant, oozing sponge making for me like a slug with a vengeance. I could see a ladder to the attic, and I took it as my only escape. Among the rafters, resting in some massive cobwebs, a computer flickered like a torch as it booted up *Dream Zone*.



Save yourself with a little psychotherapy and a lot of courage in *Dream Zone*.

In this Serling-esque game, a recurring nightmare drives you out of your mind, so you visit the renowned psychiatrist, Dr. Fraud.

The shrink explains that a monstrous demon seizes control of your mind when you fall asleep. Then the good doctor gives you a sleeping potion with one unusual side effect: Unless you slay the demon tonight, you'll stay in your nightmare zone forever.

Besides the doctor, other characters help or hinder your quest. You gather clues from some characters. From others, you must render assistance as you tiptoe through this dreamscape's creepy castle, church, and circus. Some people are as unfriendly as others are helpful, and the

variety of the cast—as well as the vividly colored graphics and spot animation with which they're depicted—are *Dream Zone's* hallmark.

The parser is a simple verb-noun affair. You can execute many actions, however, by clicking with your mouse on one of ten buttons below the picture, then on an object in the scene. Click on the Get button, for instance; then click on an object. For players who prefer keyboard control, the function and cursor keys have also been dedicated to these actions. You can type directional commands or click on the appropriate icon to move from room to room. Novices will value the Visible Objects option, which displays all movable items in icon form and distinguishes them from background elements.

Dream Zone's great graphics, colorful characters and locales, and hassle-free interface make this nightmare so much fun, I didn't want to wake up.

Back to the Safety of Home

The House on Haunted Hill wasn't going to give up easily. Just because I'd made it to the attic didn't mean it couldn't chase me one level further. Sure enough, a headless ogre was quietly chewing on a hockey mask. I slipped onto the roof before he could catch my scent. I climbed to the edge, looking for a drainage pipe or rose trellis to help me down. But none appeared. So, finally, I resorted to the direct approach: I jumped.

I don't know who scraped me off the front sidewalk. I don't know who got me into my warm, safe bed. All I know is this: Next time Pete calls me with an assignment, the article better be about a Hawaiian-luau simulation. ☐

Shay Addams, a fearless champion of the weird and the eerie, edits and publishes game tips in the Questbusters series.

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The program isn't copy-protected, but you can only install it on a hard disk twice.

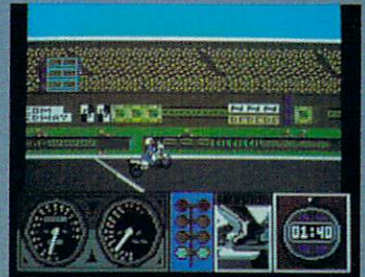
SANTA CLAUS IS COMING TO TOWN

Better watch out!

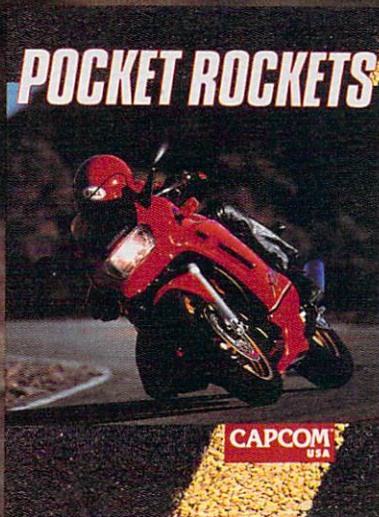
After a test ride on *Pocket Rockets*, the high-speed motorcycle simulation game, Santa picked up a new sleigh that will make this year's rounds faster than ever. And whether you've been naughty or nice, you could win this Suzuki 600 Katana during "Santa's Sleigh Giveaway" in January.

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Then, enter "Santa's Sleigh Giveaway" from Capcom U.S.A. Besides the chance to win a new Suzuki motorcycle, you could get a Bell full coverage helmet, or Capcom computer game software. Look to enter in all Capcom computer game packages or visit your favorite computer game retailer for more information. Capcom's belated Christmas giveaway is just around the bend so don't miss out on your chance to win!



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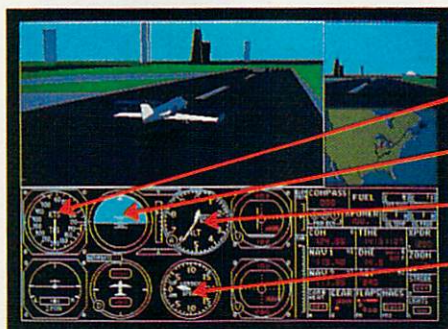
You're ready to turn in your scarf and flight goggles. During flight training, you've managed to crush a Cessna's landing gear, demolish a Lear jet, and drive an F-14 Tomcat off the end of a carrier's runway and into the Pacific.

Don't despair. You don't need pilot's training to fly a flight simulator. You just need a firm grounding in the fundamentals of flight—before you find yourself firmly grounding another plane into the tarmac.

Before you take to the skies, check your program manual and find four vital instruments: the airspeed indicator, which shows if you're traveling fast enough to stay in the air; rate of climb/descent indicator, which will let you know whether you're about to make a gentle landing or feel a sense of oneness with the runway; altimeter, handy during landing and while trying to avoid mountains; and, most important, the artificial horizon, which indicates the attitude of the aircraft relative to the ground.

To take off, advance your throttle slightly and point your plane straight down the runway. When you're lined up, go to full power. When you've reached takeoff speed (about 70 knots on a prop, 150 on jets), pull gently back on the control stick. The airplane will begin to climb. Watch your airspeed—if you're flying an F-16, you can climb straight up with no problem, but a Cessna will lose speed, stall, and plunge toward the ground if you climb too sharply. If your speed starts to drop, push the stick forward a bit.

Climb to 3000 feet and level off. Push the stick forward until the artificial horizon is centered (you'll see equal amounts of ground and sky on the instrument) and throttle back to about 70 percent. Once your speed steadies, you may notice you're still climbing. Don't push the plane's nose down to stop the climb. Contrary to instinct, you use your plane's throttle



Important Instruments

to control climb and descend. Reduce your throttle setting slightly until your plane is flying straight and level.

Fly straight for a while and practice using throttle and pitch to adjust your speed and climb. If you want to speed up, point the plane's nose down slightly. You'll notice your airspeed picking up, but you'll probably see your plane start to lose altitude, too. Compensate for the altitude loss by increasing your throttle setting.

When you're ready to attempt a landing, push right on the stick and begin a 180-degree turn back toward the airport. Don't bank too sharply, or you'll find yourself losing altitude. When you've completed the turn, it's time to start your descent. You'll be doing a visual landing.

Reduce power, but keep the plane's nose up. When your speed drops to about 30 knots over stall speed, lower your flaps one notch. Adjust your throttle to maintain airspeed. At about six miles out, begin your descent by gradually decreasing your throttle. Watch your rate of climb indicator and maintain about a 500-foot-per-minute descent.

Your goal is to touch down near the threshold (where the runway starts). There's an easy trick to doing this. Line the threshold up on the bottom center of your wind-screen. If it appears to move up the wind-screen, you're descending too fast. Add power slightly until it seems to stay in one place. If you can master this little

trick, your plane will practically fly itself onto the runway.

As you enter the last leg of your approach, make sure your landing gear is down and keep a close eye on the altimeter to make sure you have enough altitude. Make shallow turns until you're directly aimed at the runway. Use your rudder pedals for minor course adjustments.

The final landing procedure is called the *flare*. At about 30 feet above the runway, begin pulling back on the stick *slowly*. Your goal is to be flying straight and level just before you touch down. Your plane will begin to slow, and as it does its nose will drop. Pull back on the stick to keep your plane flying a foot or two above the runway. Your plane should lose speed until it's no longer able to fly, and it will stall and touch down. Once you're safely on the ground, cut your throttle and hit the brakes. If it doesn't look like you have enough runway to stop, gun the engine, take off, and go around again. An aborted landing isn't as embarrassing as driving your plane off the runway and into a lake.
Denny Atkin

If you have game tips or shortcuts of your own, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift. □

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PERSPECTIVE JUNIOR

A picture is worth a thousand words, the saying goes. If this is true, then *Perspective Junior* is the *War and Peace* of PC software. This presentation-graphics program includes features usually found only in packages costing several times its \$149 retail price. And *Perspective Junior* sports a user interface so intuitive that you'll be creating and printing presentation-quality graphics within an hour of installing the program.

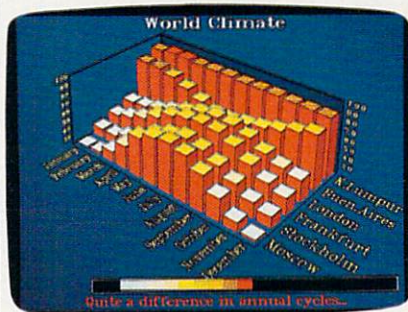
Installing *Perspective Junior* is a breeze. The installation program asks what type of display and printer you have, and then it configures itself accordingly. *Perspective Junior* supports the installation of multiple printers, allowing you to use, for example, a dot-matrix printer for draft copies and a laser printer for final printouts.

When you start *Perspective Junior*, a sample graph is displayed along with a listing of top-level options, which are selected using function keys. These include setting a graph type, changing the viewing angle for a graph, accessing the program's Data Manager, printing and storing files, and customizing the program to match your operational preferences. Top-level operations and their associated function keys are listed either across the top of your screen or down its left side, depending on the keyboard configuration you specified during installation.

Pressing the F5 function key, for

example, calls up the program's Data Manager, which you use to enter the information you want incorporated into a graphic: data values, headings, legends, titles, and the like. The row/column format of the Data Manager's data-entry table should be familiar territory for anyone who's ever worked with an electronic spreadsheet.

After entering values and/or text into the data-entry table, you specify which row/column cells should be applied to specific elements of your graphic. For example, you could tell *Perspective Junior* to use a text string entered in row 1, column 1 (R1C1) of your data table for the main title of the current graphic. Likewise, you might specify that the numeric values stored in a block of cells be used as the base data for this graph.



Add depth to your bar graphs with *Perspective Junior*.

In addition to manual data entry, *Perspective Junior* lets you import data from a number of popular PC programs directly into its Data Manager. Compatible file types include WKS or WK1 files (from *Lotus 1-2-3*), DIF files created with *Microsoft Excel*, *Multiplan SYLK* files, and ASCII files.

Perspective Junior operations are dynamic: Any changes you make to a

graphic's underlying data are immediately reflected in the graphic itself.

This dynamic interaction greatly simplifies the process of creating and editing a *Perspective Junior* graphic.

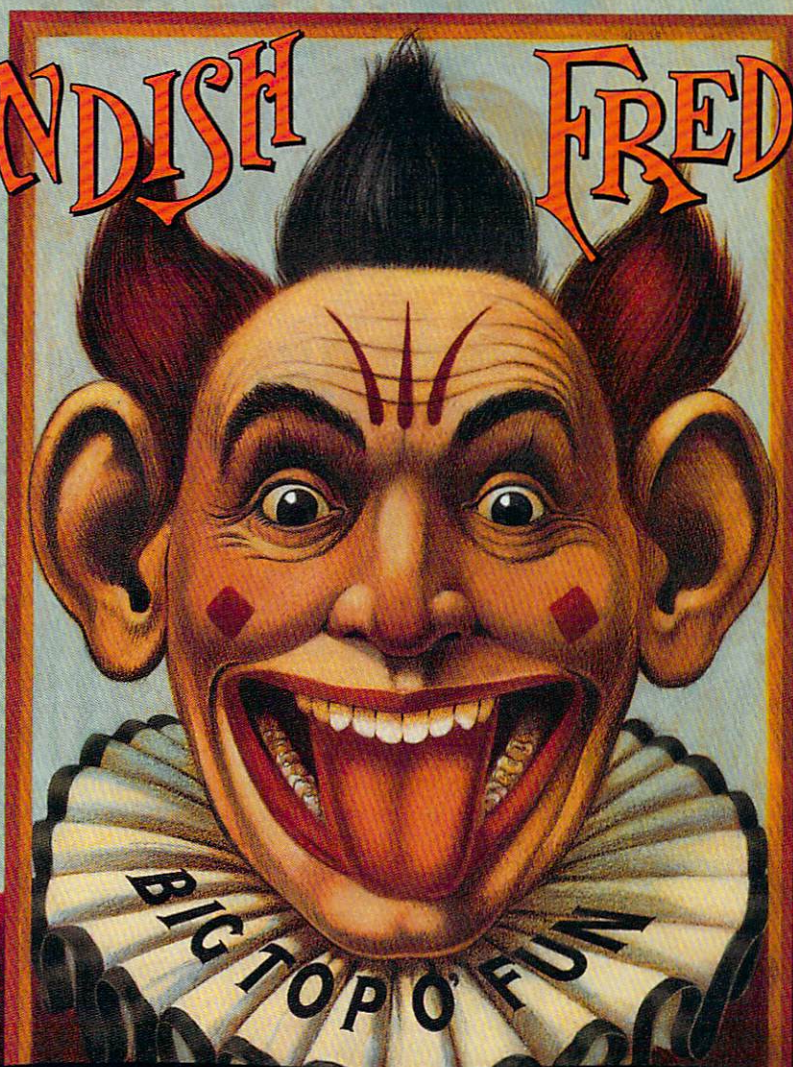
When you finish entering your initial information into the program's Data Manager, for example, pressing the Escape key returns you to the top-level options screen and replaces the original sample graph with one that reflects your data table's current contents. If you then return to the Data Manager, edit the data table's contents, and go back again to the top-level screen, *Perspective Junior* automatically revises the current graph to reflect these changes. Similarly, pressing the F1 function key to access the Graph Type option and select a different type of graph causes *Perspective Junior* to immediately redraw your screen using the new graph type. Refining a *Perspective Junior* graph or chart is such a simple procedure that there's a chance you'll go overboard: Try not to enhance a graphic to such a degree that form obscures content.

Once you've finished designing a chart or graph, the image can be sent to your system printer or plotter. The program includes two special print drivers that allow you to print *Perspective Junior* charts and graphs to disk as image files in either GEM or TIFF format for export into programs such as *Ventura Publisher* or *Page-maker*. A special *Options Pak* (\$79), also available from Three D Graphics, includes additional plotter support and special drivers for converting your graphic images into 35mm slides.

Perspective Junior also allows you to organize multiple charts and graphs into a computerized slide show. Once created, a slide show can be looped to cycle through itself unattended, mak-

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ing it an ideal tool for automated sales presentations.

The program's manual walks you through each step required to design, create, revise, and print a chart or graph. It includes a separate chapter on the program's SlideShow Manager, as well as a comprehensive and well-organized index that lets you easily locate information on specific program features and operations.

Perspective Junior packs a lot of power into a \$149 program. Even if you're only beginning to experiment with presentation graphics, you can't go wrong with *Perspective Junior*. It's a program that should meet your needs far beyond the experimentation stage.

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EARL WEAVER BASEBALL 1.5

FAST LOOKS

Numerous software companies have tried to create the ideal baseball game, to find the balance between an arcade-style game and a statistics-based simulation. Electronics Arts' *Earl Weaver Baseball* is one of the best, but the new version is better.

The enhancements include a bigger viewing area focusing on the pitcher and batter, a new keyboard interface that allows players to move through the startup menus and game options easier, getting to the on-field action quicker.

What sets *EWB* apart from the others is the feeling of actually managing a team. You can warm up pitchers in the bullpen, position fielders, and call for a mound conference. Other nice touches include the ability to play in current, historic, or imaginary ball parks and print out lineups and box scores. An optional commissioner's disk lets you set up your own league, teams, and ball parks. Additional player-statistics disks are also available, including one for the 1988 season.

The only drawbacks are the lack of realistic sounds and the inability to control your fielders (you only direct their throws). Otherwise *EWB* repre-

sents an excellent mix of strategy and action. I'm sure we'll see others attempt to best it, which is good news for computer baseball players.

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CHUCK YEAGER'S ADVANCED FLIGHT TRAINER 2.0

Remember the good old days when you could pick up a flying game and zoom through the sky without knowing anything about aerodynamics? If you could wiggle your joystick up, down, left, and right, you were off into the wild blue yonder. But some of us demanded more, some of us wanted (gasp) realism. So we ended up with true flight simulators based on civilian aircraft and real flight characteristics, and jet-fighter games based on military aircraft, with compromises favoring handling over the excitement of combat.

Finally, *Chuck Yeager's Advanced Flight Trainer* came along to bridge the gap. While it lacked combat scenarios, the program simulated both military and civilian aircraft, each with very realistic flight characteristics. Many pilots said this program had more of a realistic feel than any other program, including Microsoft's *Flight Simulator*.

However, the original version of *Advanced Flight Trainer* had a somewhat outdated feel. The biggest problem was poor graphics support—*AFT* was one of the last CGA-only games. Electronic Arts locked onto this and other problems and launched *Chuck Yeager's Advanced Flight Trainer* which supports EGA and VGA graphics.

New graphics show up everywhere. First to catch your eye are the new cockpit designs. World War I biplanes and high-tech jet fighters no longer share an identical cockpit lay-

out. The outside views have been enhanced with more realistic terrain features and race-course layouts. And from the outside, a P-51 now looks like a P-51, not a box with a propeller.

You can watch your flight from every imaginable camera angle and use videolike effects to change your perspective and zoom in or out. You can also choose these views after your flight, using the Replay function. This improved feature replays the entire flight, and you can fast-forward to the interesting part and then go back and see it again from another angle.

AFT 2.0 adds even more choices to the wide variety of aircraft you could fly in the first release. The original version included 15 diverse aircraft, including the Sopwith Camel, the SR-71 spy plane, the Cessna 172, and the Bell X-1. Now the count is up to 18 as you can go for a spin in the new F-117A Stealth Fighter, take an experimental plunge in the X-15, or try your hand at a dead-stick landing in the Space Shuttle.

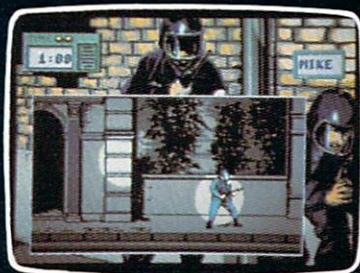
With the new planes come new locations. Six new race courses, including the famous Reno Unlimited, offer plenty of low-altitude challenge, as well as occasional carnage. The program keeps track of your best times through the gates—if you make it that far.

Besides the races, there are also several locations to test your nerve and skill. Two that have kept me awake long after I should have crashed for the night are the Canyon and the Bridge. In the Canyon, you fly down between two twisting lines of mountains, which is not as easy as it sounds. The Bridge is even more fun. Here you fly a figure-eight pattern; you first fly under a suspension bridge and then come back around and fly directly over the roadway, avoiding the suspension cables on both sides of you. It's a neat place to fly when things are getting a little too serious. Try whipping under the bridge in the Space Shuttle, then putting her down in the middle of the river to get you back in the right frame of mind.

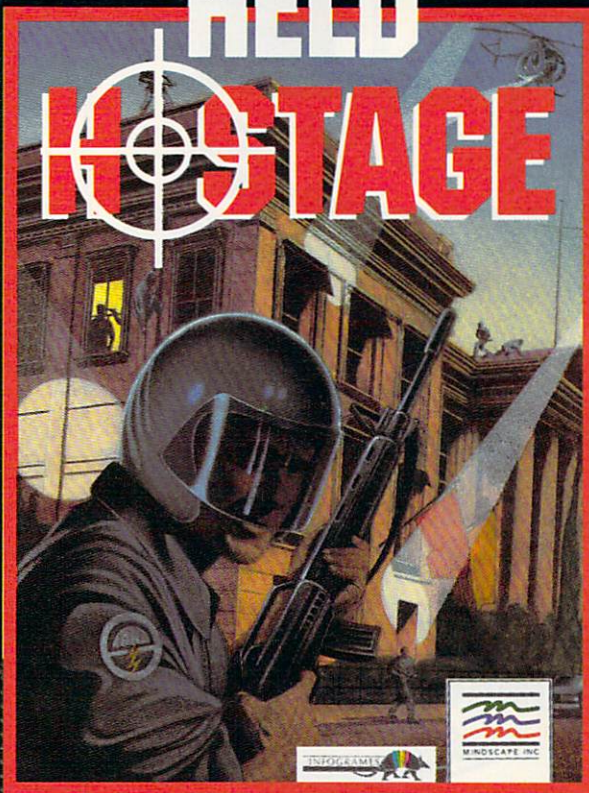
Unfortunately, the improvements in *AFT 2.0* come at the expense of screen update speed. Players with slow XT computers will have control problems. Even more frustrating is the lack of consistency. The refresh rate speeds up and bogs down, depending on what's onscreen. It's hard to get a good feel for how an aircraft handles when an aileron roll takes roughly twice as long when the screen is crowded. Even on my 10-MHz AT clone, the Thunderbirds and Blue Angels scenarios are almost unplayable.

Had Electronic Arts called the

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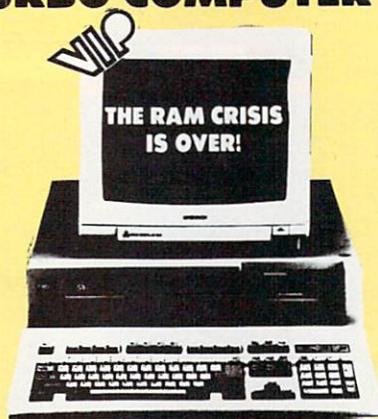
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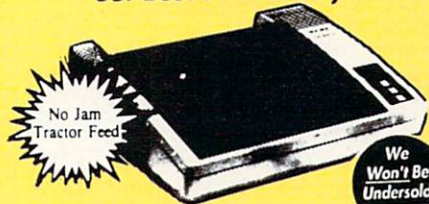
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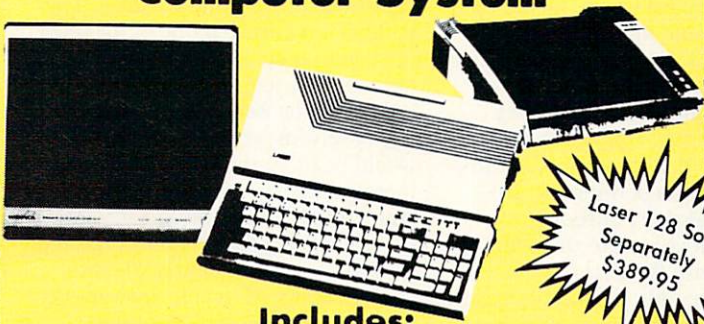
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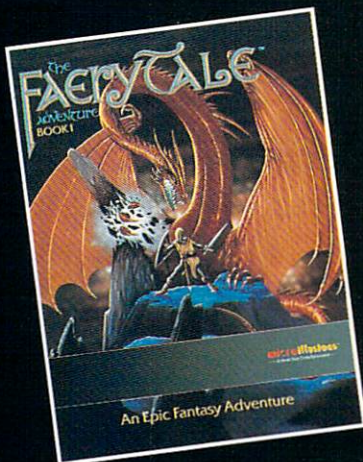
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game *Chuck Yeager AT* and marketed it for fast AT-class machines and higher, they would have gunned down most of this criticism.

If you have a fast machine and liked the first version or are a fan of flight games in general, I'm sure you'll be impressed with the great graphics and unique features in *AFT 2.0*. But if your computer operates at 8-MHz or less, the remaining copies of version 1.0 have been marked down to less than \$20. That could be the best software deal in town.

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UNDERSTANDING AIDS & ALCOHOL

There's more to education than math drills and learning your ABC's, and educational software is beginning to branch into more serious, controversial areas. Substance Abuse Education has released a series of programs dealing with topical issues, including AIDS, babies and infant safety, sex, teen pregnancy, alcohol and substance abuse, and smoking. I looked at two of these programs, *Understanding AIDS* and *Alcohol*. *Understanding AIDS* doesn't include a printed manual. Instead, upon booting the disk, you see several short introductory screens. When you get to the main menu, start with the first item, the instructions. The online instructions are thorough, and I had no trouble operating the program.

The second menu item lets you learn facts about AIDS. There are eight submenus that cover almost everything currently known about the disease. You can learn about the history of the disease, who is at risk, how AIDS is spread, how to avoid getting the virus, and current methods of treatment. Sensitive issues are dealt with frankly, using precise terminology.

After learning the facts, you're given the opportunity to take a self-test. The program updates your score on the screen as it quizzes you on your understanding of the previously covered material.

Understanding AIDS has many

strong points. The online glossary of terms is very informative, as is the online manual. I learned some interesting facts about AIDS-treatment drugs currently being tested. Although this information has been published elsewhere, it was handy to have all the facts in one place. You're given immediate feedback to your responses, and the program is entirely self-paced.

One of the strongest areas of the program was the references-and-resources section, which contained hotline numbers and other ways to obtain additional information or help.

As a teacher, I'm passionately in favor of education in the areas covered by Substance Abuse Education's software. However, I'm concerned with the level of maturity needed to take advantage of this package. Although the AIDS issue is far too serious and important to be presented in a game format, software designed to replace a textbook by simply presenting the material on a computer screen can't compete against flashier programs.

There is almost no interaction with the program, other than typing an occasional *yes* or *no*. The software is comprehensive, factual, and direct, but it didn't hold the interest of the eighth graders I used it with. The same test questions are given during subsequent uses of the disk, although the program varies their order. Furthermore, many of the questions are variations of the same scenario. The authors have created one of the most intelligent programs on the market, but they've used no imagination in doing so. The issues addressed are highly serious; arcade-style graphics would be inappropriate. But to get a message across, you must first capture your audience's attention.

SAE's *Alcohol* program is geared toward a young audience. The program is designed to help answer questions or correct misconceptions teenagers may have about the use of alcohol. The format remains about the same as that of the AIDS program, except this time a great effort was made to incorporate interesting graphics screens. For instance, facts about how alcohol enters the bloodstream or affects the brain are accompanied by excellent graphics depicting the passage of the alcohol. These graphics are frequent, varied, and interesting. The program requires significant interaction from you.

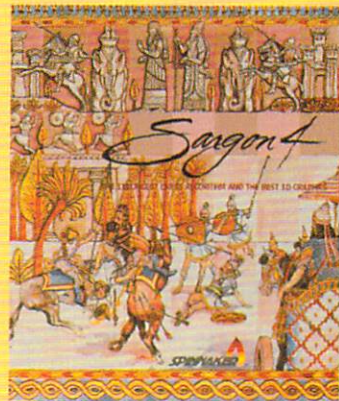
Using this program, you'll cover a lot of information pertaining to the use and effects of alcohol. Most of the information is fascinating; for instance, the program includes descrip-

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tions of how alcohol's effects can vary depending on your body weight or recent food intake, how initial pleasant feelings may progress to severe mental and physical impairment, and of the laws pertaining to driving under the influence and statistics on alcohol-related traffic deaths.

The program treats teenagers as adults. They're encouraged to make their own decision about whether or not to drink. It helps them determine what constitutes normally harmless social drinking and what types of drinking behavior can lead to problems.

A feature I liked was the statement of the publisher's goals for your completion of the software. They were numerous, nonjudgmental, and thorough. Also, there is an option to enter any special questions you have. These questions can be looked over by a teacher or parent who can then help find solutions. Plan to spend at least an hour if you want to cover all the material on either program in one sitting.

Although I was disappointed with some aspects of *Understanding AIDS*, I feel that it and the *Alcohol* program are still worth buying. The issues dealt with here are important, and if one of

the programs in this series helps someone decide not to drink and drive, or if it helps someone realize what AIDS is so he or she can treat the issue more intelligently, then the money for the programs is well spent.

KRISTEN STERNBERG

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(*Alcohol*); \$49.95 (*Understanding AIDS*)
Apple II—\$39.95 (*Alcohol*); \$49.95
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FOR THE RECORD

Face it, our lives are filled with clutter. Consider for a moment the number and types of critical items each of us is required to remember or keep track of on a regular basis: birthdays, anniversaries, emergency telephone numbers, tax records, insurance policies, loan repayment schedules, automated-teller access codes, automobile registra-

tions, Social Security numbers. The list goes on, and on, and on, ad nauseum. Think about it too long and the sheer bulk of data and details associated with this so-called Information Age threatens to overwhelm you.

Before surrendering your sanity, however, you should know that help is available. *For the Record*, from Nolo Press, is a nifty, inexpensive book-and-software package designed to help you manage all the minutiae associated with life in the late twentieth century.

At the heart of *For the Record* is the program's preprogrammed database. You use this database to record and track information in 27 major categories, ranging from Business Interests to—I'm not kidding here—Death Plans. *For the Record* further divides each major category into 1-18 subcategories. Category 24, Personal Information, for example, includes subcategories for Employment History, Military Record, Past Residence and Marriage, among others. In a true tip of the hat to our modern culture, there's even a subcategory called *Significant Relationship*, in which you can record important dates and other items relating to a nonmarital, live-in liaison.

4

5

6

HELP OUR KIDS KEY



Kids are key to America's future. And so are computers. By the year 2010, virtually every job in our nation will require some computing skills. That means preparing all of our youth today to take on technology tomorrow.

Our students' math and science scores are far below those in other countries. To excel in our high tech times, our kids need to catch on to computers. They're tools that can inspire them to think more independently. More creatively.

The Computer Learning Foundation is a non-profit organization that's taking the lead in computer literacy efforts nationwide. We're bringing together companies, state departments of education, national non-profits and local groups.

Our Computer Learning Month in October is a focus for thousands of community and classroom programs. We've involved millions in discovering the benefits of computing.

All data entry occurs at this subcategory level. Here, you actually create a record by entering information into predefined data fields. The information requested is specific to each subcategory. In the Military Record subcategory, for example, you enter such information as Branch, Service Number, Date Entered, Date Discharged, Rank Achieved, Commendations, and so on. You can create an unlimited number of records for each subcategory. Although all fields are predefined, *For the Record* is fairly comprehensive in the types of information requested in its subcategories. Should you feel the need to expand on a given item, there's a Notes feature that lets you attach up to a full screen of text to individual records.

A recurring theme in virtually every subcategory is the Location of Documents field. This field symbolizes the overriding rationale behind this program. When used properly, *For the Record* lets you create and maintain an index (for want of a better metaphor) to the various items and information that, taken together, comprise your life. If, for example, I needed to quickly find my son's birth certificate, a quick look under the Your Family category would reveal

Child's Guardian		
Child's name	Sarah Meredith Heron	
Personal guardian	John Reynolds McCormack	Phone:
Address	1233 Tierra Vista Way, San Rafael, CA 94022	Day (415) 555-1478 Eve (415) 555-8274
Is the personal guardian named in your will? <input type="radio"/> yes <input type="radio"/> no		
Is the financial guardian appointed in your will? <input type="radio"/> yes <input checked="" type="radio"/> no		
Financial guardian	Betty Randolph Ketchum	Phone:
Address	1304 Evergreen Avenue, San Francisco, CA 94110	Day (415) 555-1786 Eve (415) 555-2324
Does your will establish a trust for the child? <input type="radio"/> yes <input type="radio"/> no		

For the Record's 300 data screens ask you all the right questions.

that the document is stored in our safe deposit box at the local bank.

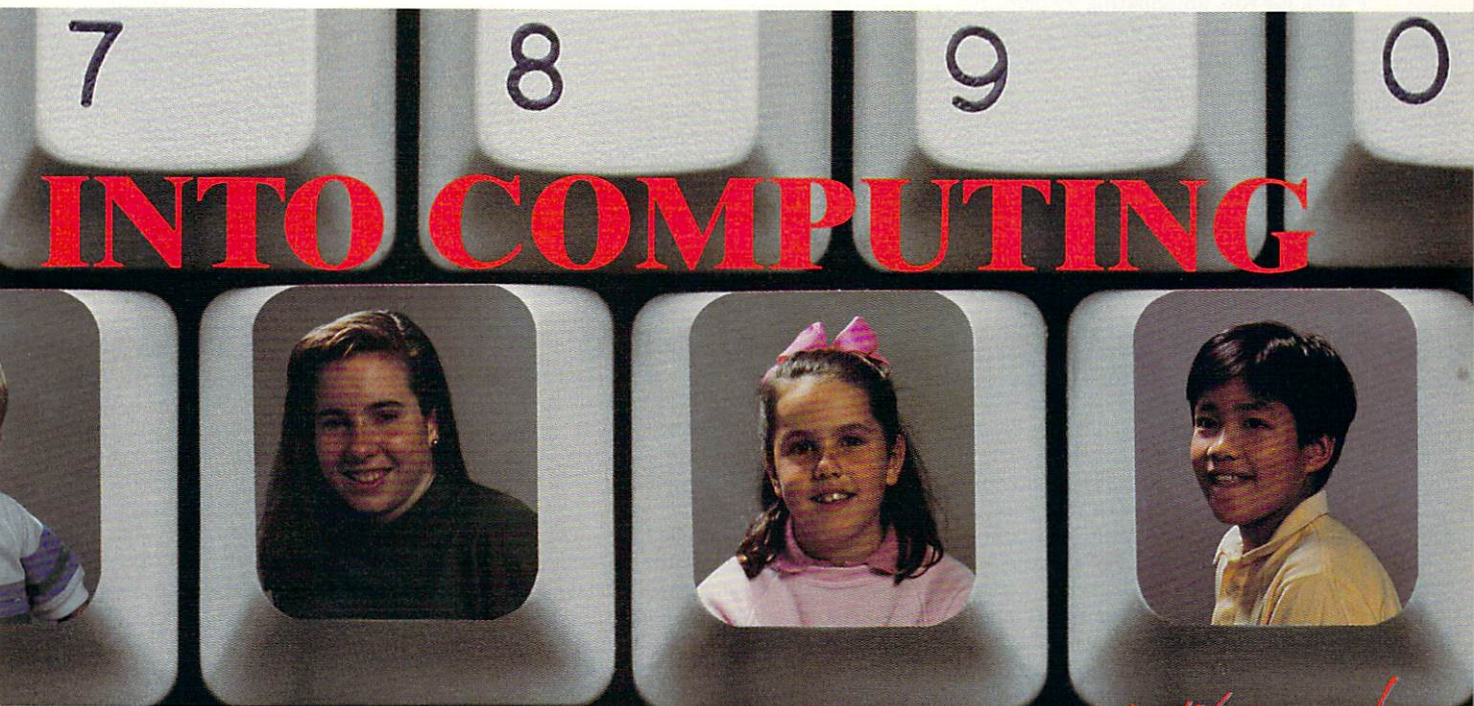
After records are entered, it's a simple matter to generate a printout of the information. You can choose to print a single record, all records in a specified category or subcategory, or the complete contents of a database. (Be warned, however, that this last option can literally take hours if your recordkeeping is anywhere near comprehensive.) Any notes attached to a record are included with that record during a print operation.

For the Record is totally menu-driven. Selecting a category from the program's Main Menu displays a sec-

ond menu, listing any subcategories associated with that item. If the subcategory for which you are entering data contains information that might be related to other subcategories, the program displays an <XREF> message at the bottom of the screen. A single keystroke calls up a listing of these ancillary subcategories. If you're unsure of a specific operation, online help is available. Though not context-sensitive, the program's help messages are comprehensive and well organized.

For the Record supports multiple databases. You might, for example, create a second database for those business-related items you wish to isolate from your personal records. To work with a file other than the default database, you simply include that file's name on the command line when you load the program. For added security, you can even assign password protection to individual categories within a database.

Unfortunately, all is not perfect with this program. *For the Record's* manual is loaded with useful information on both program operations and a wide range of topics relating to the items recorded in your databases—information management, investment advice, financial issues, and,



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in some cases, legal considerations. Unfortunately, the writers place most of the responsibility for tracking down that information squarely on the user's shoulders. The manual's table of contents doesn't include page numbers, a major oversight. Even more unforgivable, its index is nothing more than a listing of subcategory headings, cross-referenced to the category (Main Menu item) under which they appear in the program.

My only other major complaint with the program is its lack of printer support. The MS-DOS version demands an Epson, an IBM-graphics, or a compatible printer. The Macintosh version works only with an Image-writer, Laserwriter, or compatible printer. Luckily, my Okidata Laserline 6 can emulate an IBM graphics printer, or I'd have been out of luck.

Despite these two complaints, I like *For the Record*. It has superimposed some welcome structure on my previously chaotic recordkeeping habits. Sure, a traditional database program could accomplish the same thing while allowing for greater customization. But why should you invest the time, energy, and programming skills required to accomplish this? The good folks at Nolo have already done that work for you, anticipating 95 percent of your needs in the process.

JACK NIMERSHEIM

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SLOW-HAND POOL

Depending on if you have the time and the patience, *Pool*, from Heartland Software, may be your game.

This billiards game for the PC offers colorful graphics, easy playing instructions, simple commands, and a variety of game scenarios. But if you decide to play, bring something else to do because, without the suggested math coprocessor, shooting the cue ball is a new adventure in waiting.

Pool comes with a brief instruction book, but it's hardly necessary. Commands at the bottom of the screen tell you pretty much all you need to know. You can choose either

eightball or nineball pool or one of several practice screens.

In the normal game mode, you choose the difficulty level of your game, your shot, the angle, and the ball speed, and you can add English. Commands to aim your shot are handled by the directional arrows. Your shooting strength ranges from a soft touch, 1 on the keyboard, to a stronger 5. The strongest shot, used mostly in breaking, is 0. Press the F9 key and you can play Iowa Fats, the computer opponent.

Heartland Software recommends a math coprocessor or a fast 286 or 386 for fast action. I played the game on a 12-MHz 286 machine. Breaking for a game of eightball regularly took more than a minute as the computer calculated angles and speed. As the game progressed and balls were eliminated, waiting time decreased. Although *Pool* has realistic play, the pool-hall feel is lost during the long delay.

JEFF SLOAN

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RETURN OF THE DINOSAURS

Dinosaur alert! The pressure is on to save your friends and neighbors from prehistoric destruction. Professor T. Rex has invented a Time Transporter and unwittingly turned a dinosaur loose to terrorize your town. Now there's a crack in time and you have only one week to save your hometown in *Return of the Dinosaurs*.

Everyone relies on you to unravel the clues and to identify the escaped dinosaur by name, by period (Triassic, Jurassic, or Cretaceous), and by the place where it lived. Once you know which dinosaur is on the loose, use the Time Transporter to return the creature to his proper place in the past.

As you travel around the town, people send you messages laden with cryptic clues and hints about the dinosaur, plus a lot of town gossip you'd be better off ignoring. If you can decipher the information properly, you'll move to the next location without delay, saving time and money. With

four graphics settings to explore, there are plenty of places to look. To get your next message, you might have to open a bank account, sit in the movie-house balcony, or talk to some men repairing a silo on a farm. You might even get to sail toy boats in the pond at Museum Park.



Send this wandering thunder lizard back home in *Return of the Dinosaurs*.

Jot down each clue about the dinosaur in your online electronic notebook. You'll need at least three pieces of information to identify the dinosaur at level 1 and more as you move up toward level 4. When you think you have enough information, consult the DinoFile database. Use the search and sort routines to eliminate the dinosaurs that don't fit the clues. When all the facts are in, you should be left with just one name. Read about that dinosaur in the database to find his proper period and place; then use the Time Transporter to send him home.

Don't think of *Return of the Dinosaurs* as just a graphics adventure game; it also offers significant educational value. The creatively written messages force you to read carefully and to think intuitively before taking the next step. At the lowest level, the messages are simple, requiring only modest inference. But as play progresses, properly interpreting the messages becomes much more difficult. Not only must you decide where to go for the clue, but you must also use indirect hints about objects you have to buy and places you have to visit before you pick up the next clue. A snarling dog, for example, implies that you should pick up dog food from the market. Use the food to lure the dog away from the person with the next message. If you make many mistakes or forget what you've read, you'll end up wandering aimlessly around town, and the week will end before you've returned the dinosaur to the past.

It's the DinoFile database that really sets *Return of the Dinosaurs* apart. This extensive database contains a wealth of data about 70 different dinosaurs. There are 15 fields of

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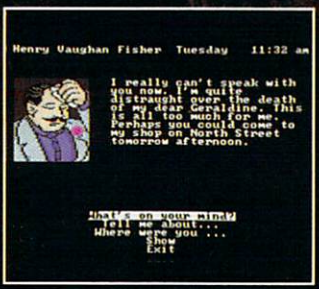
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information, including diet, locomotion, size, weight, English name, and notes of interest. You can search by key words or by specifying your own search string. The Make the List Smaller option performs *and* searches, but *or* searches aren't supported. Among the other options are a handy Back Up command to undo a selection and a List option that lets you look through the fields manually. The DinoFile database remembers the results of your searches and sorts, even after you've returned to the play mode. This makes the program much easier for young people to use, and it comes in very handy if you forget the name of the dinosaur that has escaped while you are halfway to the Jurassic period.

To gather your clues, you'll need money. There's food to buy and buses and taxis to pay, and using the Time Transporter can be expensive. You can find money lying around, but the best way to earn cash is to use the DinoFile to answer questions for the local newspaper. That's not so easy, though. Solving the harder questions definitely requires a sophisticated approach to the DinoFile.

I have only two complaints about this otherwise excellent program. For some reason, there are 19 special-use

keys, many with similar functions at different times. A more unified approach to the interface would make learning the program a whole lot easier for users of any age. Also, several of my testers found the use of nonstandard database commands in the DinoFile somewhat frustrating. While they did eventually learn how to get around in it, they spent a significant amount of time on personal instruction.

Return of the Dinosaurs combines educational content with attractive graphics in an entertaining and exciting game. Using the DinoFile gives you plenty of practice in the sophisticated application of a database even as it provides information about dinosaurs. *Return of the Dinosaurs* will be a popular program with the young people in your house or classroom. Ask nicely, and they might even let you play!

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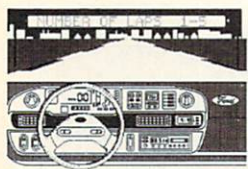
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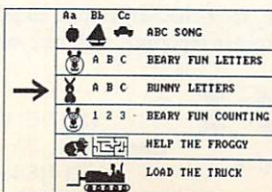
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comes to bat, the program displays a personal statistic. The statistics range from simple batting averages to RBI rankings on a team. As in every good drill and practice, everyone gets positive feedback. And if a particular player hasn't gotten a question right for a while, the program doesn't report a bad statistic—it improves the odds of getting one right by asking a previous question.

Drill questions must be selected carefully. It's the challenging questions that make the game fun. To keep

All Star Drill exciting, teams should have about a .300 batting average. Keeping the students' morale up when they are missing two out of three questions may be difficult, but the program's attractive graphics, sense of competition, and positive feedback make a big difference.

Where does the drill material come from? This program is designed as a review tool for material students have already covered in class. Before letting the kids onto the field, you must design your own multiple-choice

or short-answer questions and input them into the program. While the multiple-choice format is more difficult for a teacher or a parent to design, it makes for the most exciting play. An excellent review strategy would have individual students design question disks for each other, or classes could challenge one another.

All Star Drill's question editor is straightforward, but it has some irritating limitations. Questions are identified only by number, and there is no way to see which numbers have already been used or to match questions with numbers without printing or manually going through the entire file. Also, the input routines in *All Star Drill* are inconsistent. ESC accepts changes in one mode, and puts a strange character on the screen in another. Even worse, it's impossible to edit a question without retyping the entire entry.

Teacher controls on timing would be very helpful as well. Students have 20 seconds to respond to a short-answer question and 30 seconds to pick the right answer to a multiple-choice question, regardless of difficulty, subject matter, or previous scores. Questions are always asked in the same order, with no way to handicap a better player. This makes it difficult to have a fair game between a parent and a child unless the rules are modified manually, perhaps requiring the parent to deliberately miss every other question.

All Star Drill is best used in a classroom. With a teacher experienced in running review sessions of this type, the program will provide the score-keeping facility needed to keep the game moving. Teachers who don't have a bank of short, open-ended or multiple-choice questions available must either purchase one of the pre-made question disks or be prepared to spend significant amounts of time writing, testing, and typing in questions. If you're a busy parent searching for an easy-to-use drill-and-practice program for your children, look elsewhere. There are other programs available that are more suitable for home use and which will give you better drill-and-practice value for the money.

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WAR IN MIDDLE EARTH

Just last year, my six- and seven-year-olds and I, reading night after night, finally finished J. R. R. Tolkien's nearly 1200-page saga, *The Lord of the Rings*. In the right hands, I thought, this would make a fantastic computer game.

Now comes *War in Middle Earth*, a strategy game that's a happy mixture of *The Lord of the Rings* and *Balance of Power*. What better way to revisit Middle Earth than to entice my boys away from their familiar realms of split-second joystick fluency and lure them back to the peculiar narrative, legend, folklore, and geography we'd discovered with Tolkien?

The instruction manual has been compiled with articulate care, with only a few typos to the contrary, and with admiration for Tolkien. It includes an alphabetical listing of the place names you'll find on the accompanying grid map and of the people

and races of Middle Earth. You'll need to know, for instance, something about hobbits, rangers, orcs, trolls, dwarves, elves, and the fell force of Nazguls and Balrogs.

To win the game, you must guide the hobbit Frodo to Mount Doom, where he must destroy a magic ring of great power before the evil Wizard Sauron gets it. The Ring can only be destroyed within the Crack of Doom, where it was forged by Sauron himself.

If Sauron's minions capture any three of the good forces' fortresses or seize the Ring and return it to their stronghold at Barad-Dur, it's all over for Middle Earth. But if you can bring the Ring to Mount Doom, you win.

You control the game using the mouse, joystick, or arrow keys. You can watch the game in three views: animation, where you see 80 animated monsters, heroes, and armies close up against thousands of digitized backgrounds; campaign, a detailed scrollable map with forces identified as figures or shields; and full map, allowing you to pinpoint power positions (your forces are blinking blue dots, evil powers blink red, and neutral powers blink green).

You begin in the animation view,

where you see Frodo walking east of the Shire with Sam and Pippin. Since Gandalf, the magician, isn't there to meet (and protect) the hobbits, it's best to head east to Rivendell, where you can catch up with him. As you meet friends and strangers along the way, you can stop and talk to them or continue on.

Onscreen icons let you control game speed, save and restore games, reveal positions of troops, indicate evil forces, direct soldiers under your command, view character status, and move from one map view to another.

It doesn't take a genius to discover that your armies will do better on neutral territory than they will at enemy strongholds. Main characters can fight even after they've been wounded, but armies either survive or die as a unit. You may manually decide when to charge, engage, withdraw, or retreat; or you may allow the computer to randomly control combat.

If you do win, don't expect any fireworks. The anticlimax is surprising considering the dazzling animation and artwork in the rest of the game.

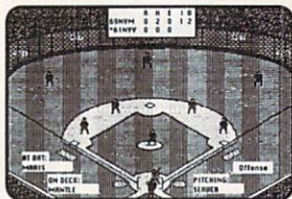
But this is an exception in an otherwise impressive game. This is not only an excellent strategy/adven-

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ture game, but it's also a faithful addition to the Middle Earth story line. It's obvious that the folks at Melbourne House know what they're Tolkien about.

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BATTLETECH: THE CRESCENT HAWK'S INCEPTION

A suit of armor is more than a metal shell in the thirty-first century; it's a BattleMech, a 20- to 25-ton armored robot with a MechWarrior inside. As Jason Youngblood, you train for your own command of a fighting machine.

Battletech: The Crescent Hawk's Inception, is another in Infocom's new line of role-playing, graphics adventures. While traditional role-playing games put you in charge of a half-dozen gold-hungry, monster-slaying warriors, sorcerers, monks, and dwarves, *Battletech* starts you off with just one character—Jason Youngblood, an aspiring MechWarrior. As the game progresses, Jason can form alliances with other MechWarriors and add new characters to the party.

Your first objective in *Battletech* is to guide Jason through cadet training at the Pacific BattleMech Training Facility. Success earns Jason the title of MechWarrior with the Commonwealth Corps and prepares him to command his own BattleMech. The BattleMech is equipped with a variety of on-board weapons such as lasers, short-range missiles, and submachine guns. In addition, Jason can modify his Mech with better armor and more destructive high-tech weaponry such as particle-projection cannons and flamers.

To guide you as you play Jason, the game screen is divided into three windows. The largest shows an overhead view of your characters and the surrounding terrain. A smaller window displays descriptive battle reports and occasional animated closeups of

the action below. A third window lists your characters and indicates the strength of their attributes—body, dexterity, and charisma—in small bar graphs.

During Infantry or BattleMech combat, this list of characters is replaced with an action menu. Use this menu to move your character, select weapons, scan for other Mechs, target specific enemies, fight, or flee if you find yourself heavily out-gunned. Throughout the game, all selections are made with the cursor keys or the standard numeric keypad to highlight the desired menu choices. The game doesn't support a joystick or a mouse, but the menu system is so easy to use that you won't miss them.

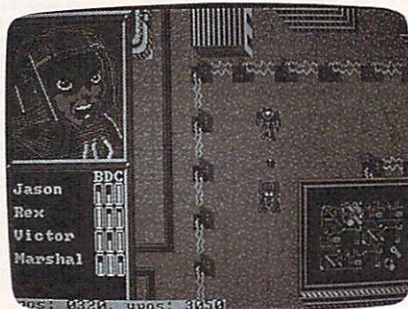
As you find in most role-playing games, as Jason, you must accumulate wealth so you can buy many of the items and skills your characters need. You start with just 35 money units and, although money can be earned in the *Battletech* arenas, you gain true wealth only by investing wisely in the stock market. You can spend money on combat classes that will improve your proficiency with bows and blades, pistols and handguns, or rifles and submachine guns. Or choose medical and technical training so you can tend to the wounded and service-damaged Mechs.

I like *Battletech* partly because you can customize the way you play it. By selecting Change Game Settings from the main menu, you can increase the movement rate of your characters from one space per keypress to two or even four spaces per keypress. This helps Jason move quickly through large open areas. Another option lets you select combat speed. Similarly, you can adjust the frequency of animated outtakes during combat. Also, before most battles you can ask the computer to control Jason's Mech. Although this option may be useful against humans with machine guns, for serious battles with heavily armed Mechs, you're better off controlling the action yourself.

Battletech stands apart from most other role-playing games because it includes several automated, noninteractive sequences. These provide background information and move the plot along. For example, early in the game, Jason is sleeping at the barracks between training missions. He's awakened, it seems, by alarms signaling a hostile takeover of the citadel by Marik terrorists. He infiltrates the complex and is about to attack the Marik leader when he really wakes up. He had been dreaming. Later, Jason finds himself in a weapon store during

a holdup attempt; this time, however, it's no dream. Fortunately, Jason has developed the skill and courage necessary to foil the robbers. Out of gratitude, the shopkeeper rewards Jason with some much-needed weaponry.

As you'll discover, when you complete your MechWarrior training and begin venturing away from the training center, the world of *Battletech* is huge and it can take weeks, perhaps even months, to explore all of it. However, surprising plot twists, along with *Battletech's* colorful graphics and



Learn to command your own thirty-first-century fighting machine in *Battletech*.

futuristic science-fiction backdrop, should make your career as a MechWarrior an exciting one.

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"*Reel Fish'n*, Bubba, no question 'bout it. It's the only one I've seen

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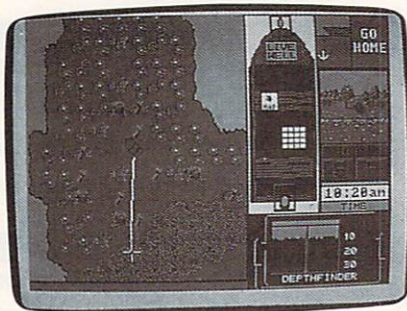
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"Or don't show up, the way I've been fishin' lately."

"Don't feel like the Lone Ranger."

"But when those fish do strike, you've got a pretty fair chance of catching 'em, Bubba Lee. The nudge and tug that a real bass gives is simulated pretty good here, with a combination of fast visual feedback and a soft clicking sound. You've got about as much time to set your software hook as you would the real thing. And they're just as hard to land."

"All this fun has a price, though, Jim Bob. You gotta pay for all that fishin'. That takes some patience in the beginning. You have to pick what days you want to work and what days you want to fish. The more you work, the more money you have to put into your fishing equipment. Like that purple worm it looks like I'm going to have to replace."

"Don't tell me you snagged my

worm! Good gosh, man, where'd you learn to fish?"

"Not on *Rich Tauber's Bass Champ*, that's for sure. That thing's as lively as last week's bait."

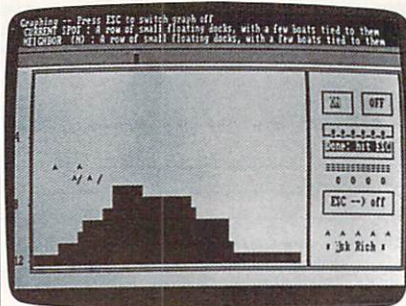
"Hey, now—they had good intentions, Bubba. The folks down at Shadowfax take their fishing just as serious as them fellers down at Interstel. It's the software that lets you down."

"Yeah, you're right, Jim Bob. I guess I'm still mad at losing that lure. But you know, that *Bass Champ* game doesn't really have what I'd call first-class graphics. The first time I booted it up, I couldn't tell my rod from my boat. It's more a text adventure than a simulation."

"Where they do shine is in the number of lakes they offer. 'Course, you got to pay extra for them. But, unlike *Reel Fish'n*, the lakes in *Bass Champ* are real places: Lake Mead, Toledo Bend, Truman Lake."

"I have no doubt about that, Jim Bob, but the lakes look more like the 15th level of *Arkanoid* than they do a natural body of water."

"The game does lack the natural feel that *Reel Fish'n* has, for sure, Bubba Lee. Instead of casting with your mouse, settin' your hook with a pull, reelin' and runnin' with a twist of your wrist, you press the F key to flip your lure, the S key to set your hook, and then you wait and see if you've been lucky enough to pull in a state record."



You can ask Rich for professional advice in *Rich Tauber's Bass Champ*.

"Yeah, it just seems you're bound by software parameters, rather than by your fishing skill."

"What it comes down to is that *Reel Fish'n* is interactive, and *Bass Champ* is passive. And bassin' ain't a passive sport."

"Nah—it just looks that way to folks on shore."

"Right. You know Bubba, I guess the *Bass Champ* folks just got stuck on some DOS hooks."

"Oh, that's bad, Jim Bob. But we oughta give 'em credit for those realistic fish you see on the screen."

"Yeah. First time a fish ever talked to me."

"I for one am darned glad fish don't talk, Jim Bob."

"You're tellin' me. 'Course, you got that rooster in *Reel Fish'n*. He sounds like the crack of dawn for sure. At least on the Amiga version."

"Yeah, but I've been playin' the IBM version. On my game, that rooster sounds awful foul."

"I can't believe you said that, Bubba Lee."

"I owed you one, Jim Bob."

"Speaking of owing, you owe me a buck eighty-five for that worm."

"You'll get it. Just pass me a crankbait and one of them there Slim Jims. We gonna fish or cut bait?"

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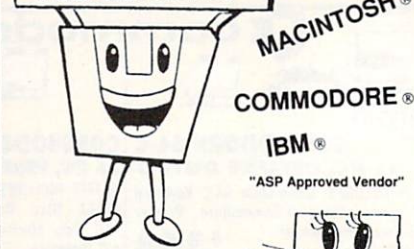
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Following the summer's blockbuster screen hit *Batman*, Data East is releasing *Batman, The Caped Crusader*. Assume the role of the cowed crime fighter as you travel through the streets of Gotham City, battling foes such as the Penguin and the Joker. Versions for the IBM PC and compatibles and the Atari ST sell for \$39.95. *Batman* for the Commodore 64/128 retails for \$24.95, while the Apple II



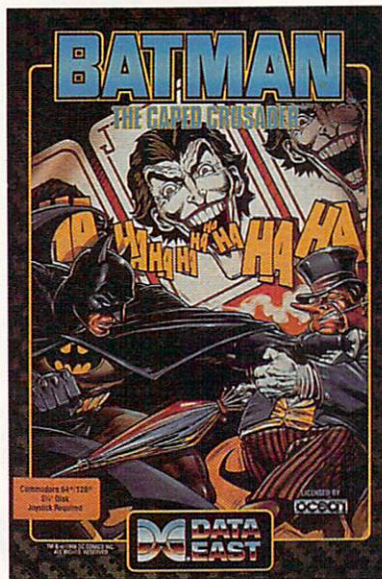
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Hard Disk Direction

Athena Software has introduced *Disc Director*, a utility program that reorganizes your hard disk. It eliminates wasted disk space by finding unused duplicate files, empty and inefficient directories, and orphan files.



The *Disc Director* helps users reorganize and reclaim hard disk space.

The menu-driven program features online help. Besides fine-tuning your hard drive, you can use the program to attach comments (up to 78 characters long) to directories, files, and drives.

Disc Director works with IBM PCs, ATs, PS/2s, and compatibles, including laptops. It requires a minimum of 512K and supports CGA, EGA, VGA, monochrome, and Hercules. The program has a suggested retail price of \$79.

Athena Software, 663 W. Aspen Way, Louisville, CO 80027

Circle Reader Service Number 204.

Indy's Double Crusade

Talk your way out of a Nazi prison, wade through a sea of rats, and hop about Europe and the Middle East in your quest for the Holy Grail just like Indiana Jones.

Right on the heels of this past summer's blockbuster hit from the big screen come two new Lucasfilm Games releases based on *Indiana Jones and the Last Crusade*. Both games—one a graphics adventure, the other an arcade-action game—closely follow the script of the movie.

In the graphics adventure, you play Indy as he searches for his father, Henry, who has been kidnapped by Hitler and other Nazis, and continues with the quest for the Grail.

The graphics adventure is intellectually challenging because the game tracks Indy's IQ; the higher your IQ

score, the more successful you are. You also find new and creative ways out of tight and harrowing situations. Packaged with the game is Henry's Grail Diary, replete with clues, sketches, and notes.



Indy punches out a Nazi in *Indiana Jones and the Last Crusade*, an arcade-action game.

The arcade-style game takes Indiana Jones through three levels of action where he must fight Nazis, dodge lightning, and leap from ledge to ledge in search of his father and the elusive Holy Grail.

The graphics adventure game is available for IBM PCs and compatibles, the Amiga, and the Atari ST for \$49.95. The arcade-action game has a suggested retail price of \$39.95 and has been released for IBM PCs and compatibles, the Amiga, and the Atari ST. A Commodore 64 version retails for \$29.95.

Lucasfilm Games, P.O. Box 10307, San Rafael, CA 94912

Circle Reader Service Number 205.

The Best Medicine

If you're tired of being the death of the party, look no farther than your computer for the latest in jokes and humor.

The Humor Processor, version 2, by Responsive Software, features more than 500 jokes, funny stories, and anecdotes; and it lets you create some humor of your own.

The humor is cross-referenced in the database by category, occasion, and key words. With the new Brainstorming application, you can choose from 11 joke formulas. You punch in a topic, and the program does the funny part.

The Humor Processor runs on IBM PCs and compatibles and requires 384K of memory. It retails for \$49.95.

Responsive Software, 1901 Tunnel Rd., Berkeley, CA 94705

Circle Reader Service Number 206.

Challenge the North American GO Champion!

We're proud to announce publication of **COSMOS** the strongest computer GO-playing program in North America.*

Here's a GO partner who is ready for a game at any time of day or night. If you've had trouble finding someone to teach you GO or just someone to play against, this is what you've been looking for! Play white or black, with or without handicaps, on boards of 7 x 7 up to 19 x 19. 100 selectable levels of play. Your choice of EGA, CGA, or text-mode graphics. Japanese or Chinese rules.

Cosmos will give any kyu-level player a decent game at normal handicaps, but he is a perfect tutor for beginners. Whenever you ask him, Cosmos will give you hints or explain the reasons behind the move he made. You can record your game and play it back, change your moves and explore other variations. Cosmos is both entertaining and instructive.

GO has fascinated scholars, soldiers, and shoguns for thousands of years. If not having a GO master on call has kept you from learning the game, let Cosmos introduce you to it.

(Requires IBM PC or compatible with a minimum of 512K RAM. Includes 48-page strategy booklet.)

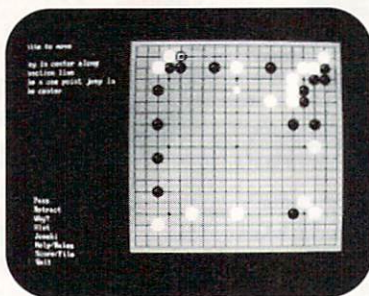
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We're Off to Link the Wizard

Users of Sharp Electronics' hand-held electronic organizer, the Wizard, can follow the yellow brick road to their PC with the Organizer Link. The product allows users to upload and download data between their IBM PC or compatible and the Wizard.

Organizer Link, model OZ-791A, includes all the necessary software and hardware to run on IBM PCs and compatibles and is available in 3½- and 5¼-inch formats. The program connects the Wizard directly to the serial port of the PC.

Users can key in data such as price lists and telephone numbers on the Wizard and transfer the information to their PC, or they can type in data on their PC and upload it to the Wizard. Data can also be drawn from or entered into popular database and spreadsheet programs using the link.

Organizer Link has a suggested retail price of \$149.99.

Sharp has also released memory expansion cards for the Wizard. The 32K card sells for \$79.99 while the 64K RAM card retails for \$129.99.

Sharp Electronics, Home Office Electronics Division, Sharp Plaza, Mahwah, NJ 07430

Circle Reader Service Number 207.

The Educational Castle

Envision Software has combined the fun of computer games with the basics of math in *Math Castle*, an arcade-style game where math whizzes are castle winners.

Using the four basic arithmetic operations, you defend your castle with correct answers.

The game has over 6000 math problems in as many as 40 levels. The PC version of the game retails for \$39.95 while the Apple version sells for \$34.95.

Envision Software, 720 S. 333rd St., Suite 203, Federal Way, WA 98003

Circle Reader Service Number 208.

You Asked for It

After many requests, *SpeedScript*, the popular word processor for Commodore, Apple, and Atari users, has been released for the IBM PC and compatibles. The book, *PC SpeedScript*, by Randy Thompson, is published by COMPUTE! Books and includes the program and source code, the documentation, and programming hints and tips.

The program has been tested and is ready to type in using *Turbo Pascal* or BASIC. Also available is an optional 5¼-inch disk that contains the *Turbo Pascal* source code files and the

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COMPUTE! Books, Chilton Trade Book Company, Radnor, PA 19089
Circle Reader Service Number 209.

Future Copter

It is the year 1997, and you're in control of an AH-64 Apache attack helicopter in *Apache Strike* from Activision Entertainment.

Your chopper, equipped with a sophisticated radar-tracking device, must fly through 3-D city streets, dodging buildings and overpasses while the enemy fires from tanks and choppers. With the radar, you can track down the enemy and attack with gunfire or missiles. As you progress to the next level, the game increases in difficulty and the enemy becomes

stronger and smarter.

The IBM PC and compatibles version of *Apache Strike* supports CGA, EGA, and Tandy 16-color graphics and RGB monitors. The game is also available for the Commodore 64/128. Each version retails for \$14.95.

Activision Entertainment, Mediagenic, 3885 Bohannon Dr., Menlo Park, CA 94025

Circle Reader Service Number 210.

More Comic Capers

Paragon Software will release *The X-Men*, its second Marvel Comics game, this fall for IBM PCs and compatibles.

The X-Men—named after Dr. Charles Xavier, a mutant with telepathic abilities—are a group of superhuman mutants who are dedicated to the preservation of good. You control the actions of Cyclops, Storm, Wolverine, Colossus, Nightcrawler, and Dazzler. They must rescue Xavier, who has been kidnapped by Magneto and Arcade. You must then find the good doctor in the amusement park of terror, Murderworld. Each mutant has a special power, and you must use these to find hidden objects that will help in the quest.

The X-Men requires 384K and

supports CGA, Tandy 16-color, and EGA graphics as well as the Ad Lib sound board. The game can be installed on a hard disk and uses a key-disk copy-protection routine.

Paragon Software products are marketed and distributed by Medalist International, a division of MicroProse Software.

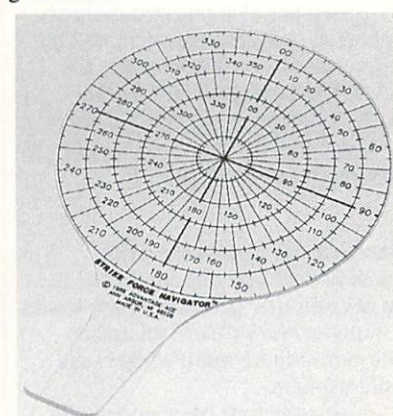
MicroProse, 180 Lakefront Dr., Hunt Valley, MD 21030

Circle Reader Service Number 211.

Navigation Made Easy

Strike Force Navigator, a navigational aid, may improve your play of many games.

Using this clear plastic compass, you can avoid getting lost in most vehicle-simulation games, such as a flight simulator. Strike Force Navigator helps you decide where you want to go, eliminating the usual guesswork.



Strike Force Navigator can help you find the shortest distance between two targets.

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OFF LINE

D A N G O O K I N

Up with the music. My first foray as *COMPUTE!*'s resident humorist requires me, I think, to take a stand.

I Believe everyone should own a personal computer. Most people don't bother—not because computers are too expensive or too hard to use, but because they don't know what a computer can do for them. The answer is obvious: Owning a computer will turn you into a geek.

I Believe in the right of new computer buyers to return to the store of original purchase and strangle the clerk who sold them something they didn't need, or lied to them, or basically behaved like a typical computer salesperson. (Actually, this is a privilege—you paid for it!)

I Believe in grass-roots, garage-level computer programming genius. Look what has happened to the major developers since they've become swamped with college computer grads. How come it took 100 programmers and three years to come out with version 3.0 of *1-2-3*? It took Jonathan Sachs ten months to do version 1.0—and it worked!

I Believe computer keyboards should have a hinged top on them to make it easier to sweep out the crud that accumulates there.

I Believe that seeing a young couple in love, walking along the beach with a dog named Bandy wearing a red bandanna, is the most sickening sight known to humankind.

I Believe in computer pranks. How many of you computer-science majors have ever written that nasty COBOL program that sends an infinite number of form feeds and BELL characters to the printer? Neat, eh? The only problem is you make enemies with the dudes running the machines.

I Believe that given the choice between waking up with Aunt Jemima or Mrs. Butterworth, I'll stick to my daily, high-calorie, computer break-

fast of Fritos and Oreos.

I Believe in tabletop fusion. But instead of using heavy water and palladium, we should dip a Commodore 64 into a vat of Jolt Cola. That will produce enough heat to power a small user group writing campaign for weeks.

I Believe that OS/2 will never go anywhere until Microsoft gives all us hackers all the docs on it—free.

I Believe that assembly language programmers are the true lunatics of the programming world, that C language programmers have an attitude problem that stems from their obsession with UNIX, that Pascal programmers are dweebs, and that BASIC programmers just don't know any better. Have I left out anybody?

I Believe UNIX is a four-letter word that's a misspelling of a term referring to a group of harem servants.

I Believe that people still using—and enjoying—*WordStar* should have their Control-key pinky fingers surgically removed. Or better, lock them in a room with a Tandy 1000 and force those stubborn ex-CP/M goons to learn *Microsoft Word* with one hand Super glued to a mouse.

I Believe that one day Brooke Shields and I will spend a quiet evening together and she won't once use the word *icky*.

I Believe in software. There are a lot of interesting computers out there—a lot of powerful hardware; but without the software, a computer is just another toy. And an expensive one at that.

I Believe that newspaper journalists and the news clowns on TV see no practical use for computers unless a 14-year-old starts World War III or some CIS major in Wisconsin brings down the ArpaNet. Then the media paralyzes the masses with fear, frightening little old ladies into smashing their infected VCRs and prompting bomb threats against Egghead stores.

I Believe that PC graphics have been pushed as far as they can go. VGA, with 16 million colors (more than the human eye can see), is all you

can ask for. And all you can afford.

I Believe that IBM has finally decided on a keyboard layout that confuses and befuddles just about everyone. There's no point in changing it now (unless Lotus decides to copyright the alphabet).

I Believe that the battle between IBM's Micro Channel Architecture (MCA) and any other bus design is pointless—90 percent of your computer is now on the motherboard, memory is in a proprietary slot. So who buys expansion cards anymore?

I Believe that the next major improvement in PC technology should be in the area of sound. The PC's speaker is feeble compared to the rest of the electronics in the machine. What about those Mac owners whose computers can gurgle, hiccup, belch,

**BELIEVE
IT OR
NOT I'LL STAND
FOR
NEARLY ANYTHING**

or sing? Give us some sound—anyone! (Or replace the obnoxious beep with a yawn.)

I Believe in having fun, which is what this column is all about. Computers can be annoying, but they can also provide you with hours of enjoyment and productivity. Work with them, have fun with them. But never, ever take them too seriously. And that goes for me, too. □



HOTWARE

SOFTWARE BESTSELLERS FROM AROUND THE COUNTRY

HOME LEARNING

- 1. Mavis Beacon Teaches Typing**
Learn to touch-type.
Electronic Arts
Apple II, Apple IIGS, Commodore 64/128, IBM, Macintosh
- 2. Where in the World Is Carmen Sandiego?**
Chase Carmen around the world.
Broderbund
Amiga, Apple II, Apple IIGS, Commodore 64/128, IBM, Macintosh
- 3. Where in the USA Is Carmen Sandiego?**
The chase moves to the USA.
Broderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh
- 4. Math Blaster Plus!**
Teaches basic math concepts.
Davidson & Associates
Apple II, Apple IIGS, IBM
- 5. Learning DOS**
Learn the ins and outs of DOS.
Microsoft
IBM
- 6. Children's Writing and Publishing Center**
A desktop publisher for kids.
The Learning Company
Apple II, Apple IIGS, IBM
- 7. Reader Rabbit**
Helps children learn to read.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh
- 8. Think Quick**
Children learn problem solving.
The Learning Company
Apple II, Apple IIGS, IBM
- 9. Alge-Blaster!**
Introduces students to algebra.
Davidson & Associates
Apple II, Apple IIGS, Commodore 64/128, IBM
- 10. Mixed-Up Mother Goose**
Kids fix jumbled rhymes.
Sierra
Amiga, Apple II, Apple IIGS, IBM, Macintosh

HOME ENTERTAINMENT

- 1. Flight Simulator**
Head for the wild blue yonder.
Microsoft
IBM, Macintosh
- 2. 688 Attack Sub**
Command a prowling sub.
Electronic Arts
IBM
- 3. The Duel: Test Drive II**
Fast-paced car racing.
Accolade
Amiga, Apple IIGS, Commodore 64/128, IBM, Macintosh
- 4. Space Quest III**
Help Roger Wilco in space.
Sierra
Amiga, Apple IIGS, IBM, Macintosh
- 5. King's Quest IV**
Rosella must save her father.
Sierra
Amiga, Apple II, Apple IIGS, IBM
- 6. Falcon**
Fly your own F-16.
Spectrum HoloByte
Amiga, IBM, Macintosh
- 7. ChessMaster 2100**
Board strategy that isn't boring.
Electronic Arts
Apple II, Apple IIGS, Commodore 64/128, IBM
- 8. TV Game Shows**
Compete in some of your favorites.
Share Data
Apple II, Commodore 64/128, IBM
- 9. Tetris**
Addictive block-building game.
Spectrum HoloByte
Amiga, Apple II, Apple IIGS, Commodore 64/128, IBM, Macintosh
- 10. Leisure Suit Larry II**
Larry Laffer's at it again.
Sierra
Amiga, Apple IIGS, IBM, Macintosh

HOME PRODUCTIVITY

- 1. The Print Shop**
Make banners and more.
Broderbund
Apple II, Apple IIGS IBM; Old version—
Commodore 64/128, Macintosh
- 2. Calendar Creator Plus**
Create many different calendars.
Power Up
IBM, Macintosh
- 3. Managing Your Money**
Manage your checkbook and more.
MECA
Apple II, IBM, Macintosh
- 4. WillMaker**
Get help in writing a will.
Nolo Press
Apple II, IBM, Macintosh
- 5. Print Magic**
Design and print small documents.
Epyx
Apple II, IBM
- 6. Resume Kit**
Help for landing the right job.
Spinnaker
IBM
- 7. PC Globe+**
Explore world demographics.
Cornwell Systems
IBM
- 8. DeluxePaint II**
Draw and create a variety of images.
Electronic Arts
Amiga, Apple IIGS, IBM
- 9. Print Master Plus Bundle**
Print posters, stationery, and more.
Unison World
Amiga, Apple II, Commodore 64/128, IBM
- 10. Personal Lawyer**
Create legally binding documents.
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NEW

IN THIS ISSUE LOOK FOR COMPUTE!'S DEMO DISK DIRECTORY

Demo Disk Order List

ACTIVISION	A1	Tongue of the Fairman MS-DOS 5 1/4
	A2	Tongue of the Fairman MS-DOS 3 1/2
BRITANICA SOFTWARE	B1	Archipelagos MS-DOS 5 1/4
	B2	Archipelagos MS-DOS 3 1/2
	B3	Designasturus MS-DOS 5 1/4
	B4	Designasturus MS-DOS 3 1/2
	B5	Jigsaw (WCGN/EGA only) MS-DOS 5 1/4
	B6	Jigsaw (WCGN/EGA only) MS-DOS 3 1/2
DATA EAS	D1	Heavy Barrel MS-DOS 5 1/4
	D2	Heavy Barrel MS-DOS 3 1/2
	D3	Super Hang-On MS-DOS 5 1/4
	D4	Super Hang-On MS-DOS 3 1/2
ELECTRONIC ARTS	E1	Abrams Battle Tank MS-DOS 5 1/4
	E2	Abrams Battle Tank MS-DOS 3 1/2
	E3	Chuck Yeager 2.0 MS-DOS 5 1/4
	E4	Chuck Yeager 2.0 MS-DOS 3 1/2
	E5	F-16 Combat Pilot MS-DOS 5 1/4
	E6	F-16 Combat Pilot MS-DOS 3 1/2
	E7	Keel the Thief MS-DOS 5 1/4
	E8	Keel the Thief MS-DOS 3 1/2
LUCAS FILM	L1	Indy—The Graphic Adventure MS-DOS 5 1/4
MICROPROSE	M1	Airborne Ranger MS-DOS 5 1/4
	M2	Airborne Ranger MS-DOS 3 1/2
	M3	Airborne Ranger Commodore 64
	M4	Dr. Doom's Revenge MS-DOS 5 1/4
	M5	Dr. Doom's Revenge MS-DOS 3 1/2
	M6	F-19 MS-DOS 5 1/4
	M7	F-19 MS-DOS 3 1/2
	M8	GunsHIP MS-DOS 5 1/4
	M9	GunsHIP MS-DOS 3 1/2
	M10	GunsHIP Commodore 64
	M11	Pirates! MS-DOS 5 1/4
	M12	Pirates! MS-DOS 3 1/2
	M13	Pirates! Commodore 64
	M14	Red Storm Rising MS-DOS 5 1/4
	M15	Red Storm Rising MS-DOS 3 1/2
	M16	Red Storm Rising Commodore 64
ORIGIN	O1	Times of Lore MS-DOS 5 1/4
	O2	Times of Lore Apple 5 1/4
	O3	Times of Lore Commodore 64/128
RADIO SHACK	R1	DeskMate MS-DOS 5 1/4 CGA
	R2	DeskMate MS-DOS 5 1/4 VGA
	R3	DeskMate MS-DOS 3 1/2
SIERRA ON-LINE	S1	Colonel's Request MS-DOS 5 1/4
	S2	Colonel's Request MS-DOS 3 1/2
STRATEGIC SIMULATIONS	S3	Curse of the Azure Bonds MS-DOS 5 1/4
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NEW

NEW

**IN THIS
ISSUE
LOOK FOR
COMPUTE!'S
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NEW



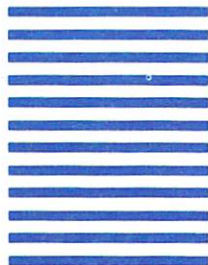
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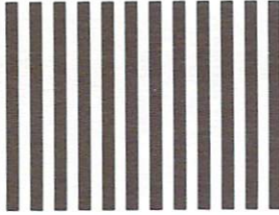
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New Compatible Games.

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Sierra's Space Quest III
The Pirates of Pestulon



Electronic Arts'
Kings of the Beach



Epyx's Omnicron
Conspiracy



Taito's
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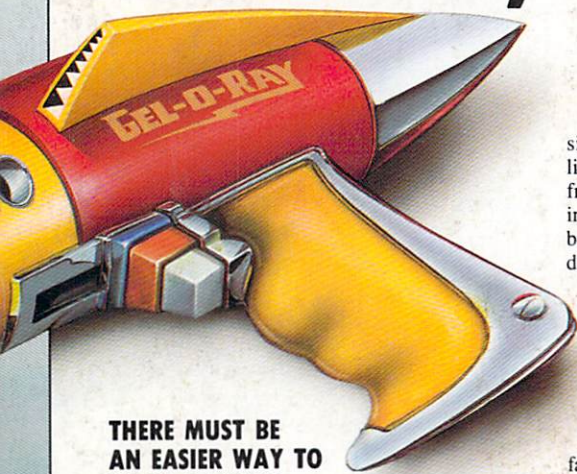
MicroProse's
Red Storm Rising



Sierra's
Silpheed

System requirements: IBM PC, XT, AT, or compatible with 256K RAM, DOS 2.0 or higher, CGA, EGA, or monochrome graphics adaptor, and headset or external speaker.
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YOU'RE IN DEEP PLASMA THIS TIME, ROGER WILCO!



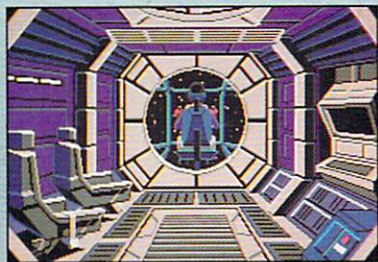
THERE MUST BE AN EASIER WAY TO MAKE A LIVING

There's never a moment's rest for galactic heroes, and when you're Roger Wilco, space-age swashbuckler and all-around nice guy, the thrills just keep on coming. It seems there's always some kind of dangerous mess to clean up.

This time it's those Two Guys from Andromeda, bestselling designers of Space Quest and Space Quest II, who have gone and gotten themselves foully abducted by the pesky pirates of Pestulon, those poaching parasites, those perverse perpetrators of petty mischief and putrid software.

If Roger can't rescue the two guys from the bowels of the Scumsoft Software stronghold, his days as a popular adventure game character are definitely numbered.

So it's simple, right? Just set course for Pestulon and storm the gates of Scumsoft.



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NOT SO FAST, SPACEWIPE!

But the Two Guys don't write games for sissies. If you can't stomach being picked up like so much trash by a wandering garbage freighter, stalked by giant rubbish rats, ground into hamburger in the belly of the Mog, zapped by a scorpazoid in the deserts of Phleebhut, or deep-fried like a chimichanga on the planet Ortega, you'd better play one of those 'nice' games. In Space Quest III, *The Pirates of Pestulon*, you're not likely to be shown any mercy.

LIFE'S NOT EASY FOR HEROES

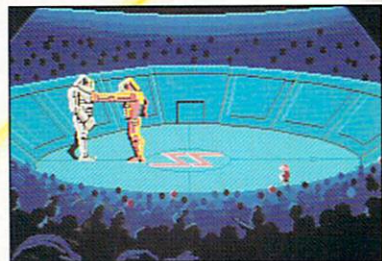
Real heroes thrive on danger, and space-faring broomjockey and freelance good-guy Roger Wilco is no exception. Is he afraid of being fried by lightning in a megathunderstorm? Is he afraid of landing in the trash shredder in the depths of the intergalactic garbage truck? Is he afraid of finishing the Belcher Combo plate at Monolith Burger? You bet your sweet asteroid!



Check out all the crazy and absurd junk, er, uh, treasures at Fester Blatz's wacky World of Wonders.

TRASH HEAPS OF PRAISE FOR OUR TWO GUYS

Game reviewers throughout the galaxy love Space Quest games: "...humorous and challenging..."; "laugh-out-loud funny..."; "genuinely entertaining..."; "...A three dimensional graphic wonder..."



Battle for your life in the arena with the Nuke 'em- Duke 'em robots. He's down! He's up! This crowd is out for blood, and it might as well be yours.

HAVE YOU GOT WHAT IT TAKES? NOW'S YOUR CHANCE TO FIND OUT

But don't take *their* word for it -- blast off for adventure, challenge, and laughs with Roger Wilco and the Two Guys from Andromeda in Space Quest III, *The Pirates of Pestulon*.



ORIGINAL MUSIC FROM SUPERTRAMP'S BOB SIEBENBERG

Space Quest III features the best and most realistic sound of any Space Quest game. The exciting original music score and the more than two dozen realistic sound effects *must* be heard to be believed.

