

"People are really hungry to understand what they should be doing on a personal level," he explains. "Diet is a very individualized thing."

Nutrition Expert analyzes your diet for carbohydrates, protein, fat, sodium, cholesterol, amino acids, and various vitamins and includes a 500-food database that you can personalize by adding your favorites.

Barney says the program is easy to use and adapts to your changing needs. Once you reach your weight loss goal, you can redesign your profile to develop a maintenance program.

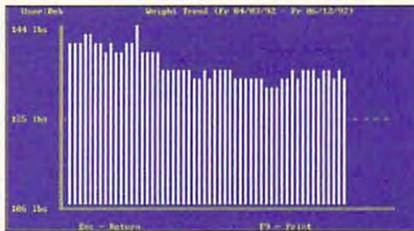
Only a combination of good nutrition and fitness habits will lead to better health, Harnad believes, so he developed another program, Training Expert, to help you plan a fitness routine.

Training Expert compiles a personal profile based on your height, weight, and training goals and prescribes a customized workout designed from 75 varied fitness routines.

Both programs—designed to be used together—include graphic features to help track your progress.

Searching for Discipline

Craig Leonard, a technical sergeant with the 114th Fighter Squadron in the Oregon Air National Guard, had trou-



Diet Balancer charts your progress.

Diet		Fruits	
Date	1 Month	1 Month	1 Month
145	145	0.4	0.4
142	142	0.1	0.1
139.7	139.7	0.1	0.1
136	136	0.7	0.7
132	132	0.7	0.7
128	128	0.7	0.7
124	124	0.7	0.7
120	120	0.7	0.7
116	116	0.7	0.7
112	112	0.7	0.7
108	108	0.7	0.7
104	104	0.7	0.7
100	100	0.7	0.7
96	96	0.7	0.7
92	92	0.7	0.7
88	88	0.7	0.7
84	84	0.7	0.7
80	80	0.7	0.7
76	76	0.7	0.7
72	72	0.7	0.7
68	68	0.7	0.7
64	64	0.7	0.7
60	60	0.7	0.7
56	56	0.7	0.7
52	52	0.7	0.7
48	48	0.7	0.7
44	44	0.7	0.7
40	40	0.7	0.7
36	36	0.7	0.7
32	32	0.7	0.7
28	28	0.7	0.7
24	24	0.7	0.7
20	20	0.7	0.7
16	16	0.7	0.7
12	12	0.7	0.7
8	8	0.7	0.7
4	4	0.7	0.7

Diet Balancer tells what's good for you.

ble finding the discipline to maintain his weight at military standards, so he turned to his computer and DietPro by Lifestyle Software Group. Leonard finds that it's hard to cheat when you have to account daily for every morsel of food you eat.

"I have problems maintaining my discipline, [but] I've found that this program really works," Leonard says. "I've made recommendations to the

medical hospital at the base to include [DietPro] in its library for anyone who is having problems [with weight control]."

Every morning, Leonard uses the program to plan his day, and each evening, he makes sure that everything he ate is listed in the computer. At the end of each week, he prints a compilation of his exercise and eating habits for that week. He checks his progress and can tell what nutrients he lacks or where he has over-indulged.

DietPro analyzes 36 nutrients in more than 5000 foods from the Department of Agriculture's food list and from fast-food chains. You can also enter your own foods and recipes, an option that Leonard enjoys.

"It's a pretty powerful option," he says. "Not everyone consumes everything, so to be able to [analyze] your own recipes is useful."

DietPro also offers an extensive list of activities and allows you to develop a fitness plan based on your own personal profile.

"You have to take the average ...profile with most programs," Leonard explains, "but with DietPro, if you have a low metabolism, you can adjust the program to account for that."



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Scared Healthy

For some, weight loss goals may be dictated by health, not just a desire to look and feel better. That's how Dieter's Edge 2000 was born.

"Seven years ago, my doctor scared me into a diet, and I lost 60 pounds," says Fred Shadko, developer of this program. "I wrote a little program to help me with that. When I showed it to other people, they were also interested."

Distributed by LivingSoft, Dieter's Edge 2000 can help you balance your intake of protein, fats, and carbohydrates as well as achieve targeted minimums and maximums of cholesterol, sodium, fiber, vitamins, and other food components. The program has a database of more than 2000 items, including products from seven fast-food chains.

One unique capability of the program is that it can determine your personal break-even point based on how your body reacts to your diet and exercise in a 30-day period, Shadko says. Your break-even point is the number of calories that your body needs to maintain your current weight and activity level. Once you have determined this, you can adjust your calorie intake to safely lose weight.

Evelyn Richards, a retired Xerox salesperson, used Dieter's Edge 2000 for nearly five months and lost about 40 pounds. She found that entering her personal data was fun.

"It got to be kind of a game," Richards explains. "It was very motivational to see the numbers change and the graphs come up and to see how I was doing. I looked at the graphs daily because I set daily goals."

Entering this personal nutrition and fitness data was also a motivational factor for certified financial consultant Rusty Welch, who has written off nearly 30 pounds using Dieter's Edge 2000. Learning about the nutritional content of his favorite foods was also re-

warding, he says.

"I had previously just counted calories, and this really opened my eyes to overall nutrition," Welch explains. "It was a real education."

To help you stay within the nutritional boundaries you've established, Dieter's Edge 2000 also includes a treat feature, which will calculate the allowable portion size of any food you want to eat. For example, if you crave a hot-fudge sundae, this program will tell you what size sundae you can eat without blowing your diet.

"The single biggest hazard is people getting discouraged," Shadko explains, "so we give them the ability to have a treat."

Reversal of Fortune

As a pediatrician, Dr. Fackler understands the importance of good health, but two years ago, his was questionable. Since then, Fackler has adjusted his lifestyle, using Parsons Technology's Diet Analyst. He has reached his personal weight goal, lowered his cholesterol from about 240 to 180, and reversed the clogging of one artery.

"It's not a diet program; it's a lifetime eating program," Fackler says. "It has taught me to select the healthy foods and ignore the others. This is the first program that I have been able to stick with."

Diet Analyst helps you manage your health program by tracking 26 nutrients from a database of 1700 foods, including brand-name products and menu items from 13 fast-food chains. You can also monitor your exercise

ExerCitement from Computer Athlete turns exercise into an arcade game.

regimen and generate a variety of reports, such as an exercise log, an account of your current nutritional status, and a compilation of the data for a single day or a number of days.

Fackler uses his Diet Analyst twice each day for about five minutes. He records everything he eats—even the binges and mistakes—so that he can accurately determine how he's doing. Fackler also recommends the program to his older patients and their parents.

Nutrition Counts

As a personal trainer, Tona Hilwig recommends ways to help clients develop a personal weight loss program. Diet Balancer by Nutridata Software helps her clients understand the nutritional content of foods, she says. It teaches them to think about what they eat and how they can maintain a healthy diet.

Diet Balancer tracks 26 nutrients, including calories, fat, cholesterol, and fiber, and has a database of more than 1700 foods, including products from 13 fast-food chains. You can also add your favorite foods to the database. If you must minimize certain things in your diet, such as fat or sodium, Diet Balancer can help you plan meals. The program also includes a selection of prepared menus.

One feature that is important to Hilwig and her clients is the graphic section that can track your performance for up to 60 days.

"The charts show them what they should be doing and how they are progressing," she explains, speaking of her clients. "It helps them see how close they are to their goals."

Reach Your Goal

Once you've reached your weight loss goal, these software products can help you maintain a healthy lifestyle.

Sharon Brehm began using Diet Expert by Expert Software to help maintain her weight and plan a healthier diet. Through the program, she has learned the fat and nutrient content, as well as the caloric value, of different foods.

Diet Expert's database lists the nutritional content of 2300 foods and can help you track items that you may be trying to avoid, such as sugar, salt, and cholesterol. The program analyzes your current diet for 30 nutrients to help you overcome excesses and deficiencies, and it analyzes your current fitness plan to develop an exercise regimen based on your age, sex, weight, and frame.

"I liked the low price and flexibility of the program," Brehm says. "If you just wanted to plan a few meals, you could



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Sim City 2000 Design Contest

Maxis and COMPUTE Publications are looking for the very best, original cities designed with the new Sim City 2000 from Maxis. All winning cities will be included on one of COMPUTE's Winning Cities Disks. Each winner will receive \$50 plus a software package from Maxis and a game hint book from COMPUTE. So put on your city manager's hat and design your best cities.

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1. Entries must be your original work and never have been distributed by electronic means. All winners will be required to affirm this in writing.
2. Submit as many entries as you want, but we cannot consider cities which have been distributed on disk or are available on any BBS or commercial telecommunications service such as CompuServe or America On-line.
3. All entries must be received no later than April 1, 1994. Print your name, address, daytime phone, and social security number along with your disk to Sim City 2000 Contest, COMPUTE, 324 West Wendover Avenue, Greensboro, NC 27408.
4. Entries must be created with either the MS-DOS or Macintosh versions of Sim City 2000. Cities created with the original Sim City will not be accepted. Entries may be submitted on either a Macintosh 3-1/2 inch floppy disk or a MS-DOS 3-1/2 inch or 5-1/4 inch floppy disk. A separate copy of this entry form must be submitted for each city submitted. Readable photocopies of this entry form are acceptable.
5. The staff of COMPUTE magazine will handle the judg-

ing. The decisions of the judges is final as to all aspects of any entry, including similarity to any entry. There will be at least five winners, but there can be as many as twenty winners depending on the quality of the entries. Winners will be selected on the basis of their originality, uniqueness, complexity, balance, general appeal and use of the new features in Sim City 2000.

6. Winners will be notified by mail by September 30, 1994.

7. The contest is opened to residents of the United States and Canada, except Quebec. Full-time, part-time & previous employees of COMPUTE Publications International Ltd., General Media International Ltd. and Maxis, their immediate families and their advertising agencies, are ineligible for the contest.

8. Contestants must assign the copyright in their entries to COMPUTE using the attached form. All winning entries become the property of COMPUTE Publications International Ltd. Sorry, we cannot return any entries.

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use it for a few days, but if you wanted to drastically change your eating habits, you could plan meals for up to a year."

Monitor Your Progress

Other software programs that help monitor your progress toward better nutrition and fitness include NutritionPro by ESHA Research; Santé by Hopkins Technology; Nutri-Calc by CAMDE; NutriBase by CyberSoft; and Diet Simple, Diet Simple Plus, and Diet Easy by N-Squared Computing.

NutritionPro calculates the nutritional values of 2000 foods and can track excesses and deficiencies in your diet. You can also plan a fitness workout cycle from a database of 110 fitness activities. NutritionPro is also available in a scaled-down student version.

Santé monitors your progress by analyzing your food intake for 30 nutrients. It maintains a database of 3000 foods. The program also determines your daily calorie need based on a personal profile and can help you develop a weight loss plan. Colorful charts and graphs display suggested caloric and nutrient breakdowns based on the most recent government recommendations.

Nutri-Calc assesses foods and recipes for 30 components and compares the results to U.S. recommended daily allowances or your own dietary goals. The program comes with a database of 1600 foods, including fast foods and prepared foods, and you can add your favorite foods and recipes. You can also buy an additional food database that includes 1800 more listings. One of Nutri-Calc's advantages is that it will display ratios such as calcium to phosphorus or polyunsaturated fat to saturated fat.

NutriBase, an unusually comprehensive diet tracker, lists the nutritional content of more than 30,000 foods,

Fitness I/O

Although you know that exercise is a necessary component of weight loss, does the thought of spending endless hours doing the same mindless routines with the same old fitness equipment discourage you? Your computer can put the spark back into your exercise routine with programs from Computer Athlete and Computer Directions.

ExerCitement by Computer Athlete links your exercise equipment and home computer to create an arcade-game fitness program. ExerCitement is compatible with all brands of exercise bikes, stair-climbing machines, treadmills, cross-country ski machines, and rowing machines. There are only two requirements: Your exercise equipment and your computer must be located in the same room, and your computer must have a game port.

You control the game with two directional buttons attached to the machine by Velcro; a photoelectronic eye and a reflector measure your speed. A 12-foot cable connects your computer's game port to the exercise equipment base and communicates your movements to the computer.

As you start exercising, you become a contestant in a race where your motions directly correspond to those of the computer athlete. The program has five different race sequences (one for each of the machines mentioned above). For example, you could cycle down a winding road, row through open waters, or bound across the craters of an alien planet—the race scenario used with the stair-climbing machine. However, you can choose any game, regardless of the equipment you own. Besides choosing the game you play, you can also designate the speed of the race; it can be set fast enough that even expert arcade players are challenged.

You score points in each race by dodging obstacles, avoiding menacing characters, and demolishing your opponents. For every 1000 points earned, you move to the next

level and a new world.

ExerCitement runs off a floppy disk and requires 512K of RAM. For more information about the program, contact Computer Athlete at 5193 Betonywood Place, Dublin, Ohio 43017, or call (800) 860-4506. ExerCitement sells for \$129.95 and includes all the hardware you need to run the program.

If you prefer getting out on the aerobics floor for exercise, Fitness Partner, developed by Computer Directions, is a CD-ROM that can help you design your own exercise routines.

When you begin, the computer will create your personal profile based on your sex, age, fitness level, and weight loss or muscle-toning goals. Then the computer automatically selects from 75 full-motion video exercises to design your workout, setting the speed and number of repetitions for each exercise. Fitness Partner can design up to nine routines, one for each day of the week and two alternates, for up to ten users.

Fitness Partner also lets you custom-design your own workout. You can choose exercises for the warmup, workout, and cool-down sections; pick the style of background music; and set the speed and number of repetitions for each individual exercise.

Roni Smaldino, a certified aerobics instructor, leads you through each routine, providing audio coaching and words of encouragement. If you don't understand a particular exercise, you can stop the workout and go to the learning mode for a personal demonstration.

Fitness Partner requires a multimedia-compatible computer, including a CD-ROM drive, VGA-plus color capabilities, a digital sound card, and Windows 3.1 or higher. Fitness Partner lists for \$69.95. For more information about this CD-ROM product, contact Computer Directions at 2712 West Shaw Avenue, Suite 234, Fresno, California 93711, or call (800) 600-2348.

including the offerings of 44 national chain restaurants.

N-Squared Computing usually develops programs for professional use but has also produced three scaled-down programs for use by individuals. Diet Simple, Diet Simple Plus, and Diet Easy each contain a

database of 2025 foods (other versions of Diet Easy listing 5000 and 8500 foods are also available).

Diet Simple tracks 28 components in the foods you select and graphs the results by the percentage of the U.S. recommended daily allowance that is satisfied. Diet Simple Plus, an extension

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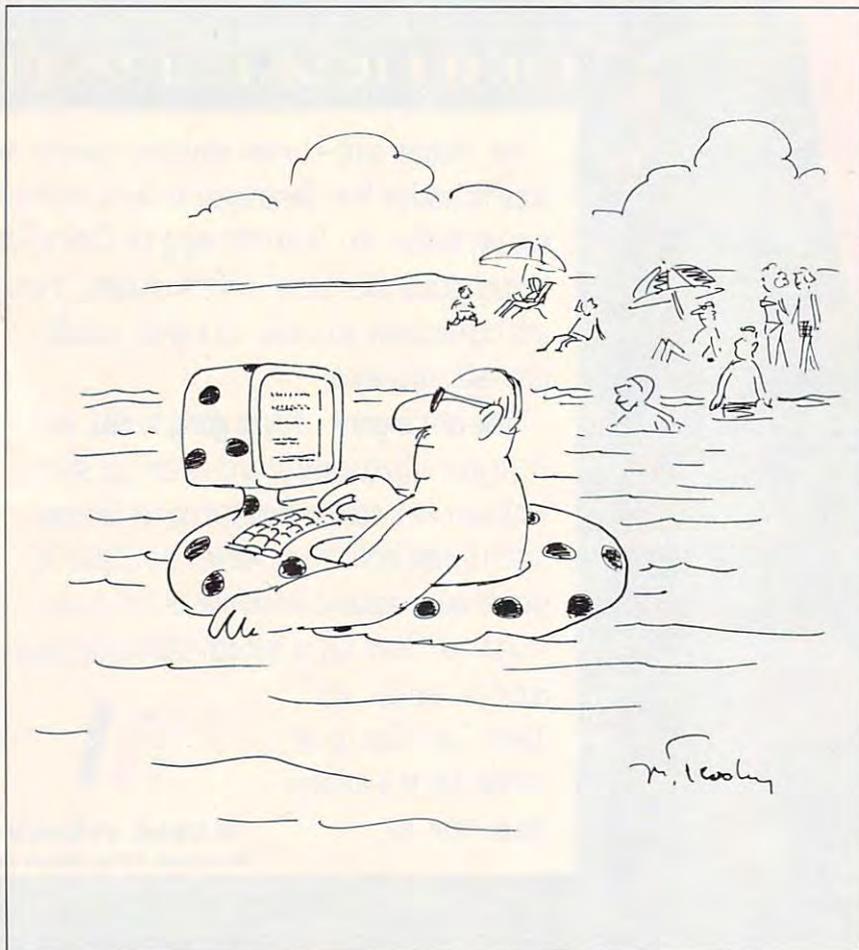
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of Diet Simple, tracks 58 items. Both programs also include text explanations and recommendations to help you overcome deficiencies and excesses.

Diet Easy creates menu plans, tracks your progress, and maintains a database of your favorite recipes. It also helps you create weight loss and exercise plans and can generate graphical printouts. N-Squared also makes diet programs Nutritionist III and Nutritionist IV for use by professional dieticians.

Dedicate Yourself

Although tracking every crumb of food that you consume and every movement that you make in your fitness routine may seem tiresome, dedication is the key to success with these software programs. As with any traditional weight loss program, hard work is the primary requirement—but your computer can help make the struggle easier.

"I've probably got umpteen calorie-counting books, but when you can sit down at the computer and enter what you've eaten, it's much simpler," says Jennifer James Chadwick, who is halfway to her goal of losing 20 pounds with the help of Dieter's Edge 2000. "It's so painful with the calorie-counting books, but it's much less painful with the computer. The hardest part is to overcome human nature. You have to make yourself be consistent." □

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With Passion Patrician

My beloved Patrician
 Since I saw you last, we hear rumours that you meet in ornate backrooms of alehouses frequented by pirates who sell arms. Are you mad? Do you know not of my father is so upset he threatens to cancel the wedding. You won't lose just the dowry... the council will not support a man who breaks the laws of God, no matter how much aid you have given the church and the poor. I am so vexed - I must see you soon.

A. Scon

My beloved Patrician

I write with urgency to tell you the which is stricken with the plague already your trading must have gone back to me that we might retort the heat of our passion and advance the marriage plans. Further bad news... recently, a certain W. Arblay has begun business in the town and claims he will be Mayor, not you! The miserable cur! On your return you should be advised to throw a huge feast for the townfolk.

With Love
 A. Scon

The Patrician is an epic saga of power and money set in medieval Europe. Trading and strategy are key to taking your rightful place in the Hanseatic League - the most powerful group of highly organized traders who transformed international trading in the middle ages.

In your pursuit to become a member of this social elite, you begin your climb to the top maneuvering your status from humble merchant to elected Mayor and ultimately Alderman. But the road to the top won't come easily, with bribery, blackmail, lavish feasts and financial "donations" becoming your tools.

As the Patrician (an ancient roman aristocrat) you'll travel the high seas visiting sixteen seaport towns, each with different trading potential. Be careful though, your expedition will find you confronting pirates and using the primitive but devastating weapons of the time. Every decision you make has a bearing on what happens later, so you must be a skilled strategist in all aspects of your life, including personal relationships.

Complex, involving and addictive, you'll find The Patrician is in a league of its own!

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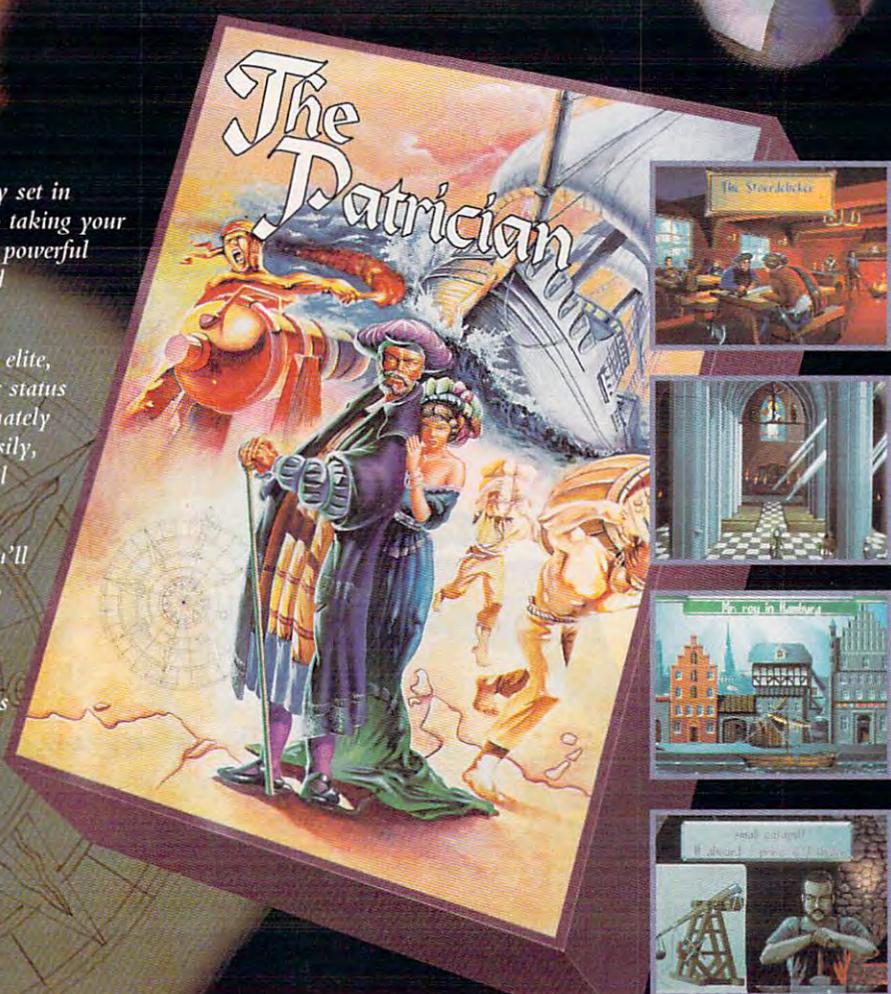
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DESKTOP VIDEO FAST FORWARD LURCHES AHEAD

BY DAVID ENGLISH

When Microsoft's Video for Windows was released, many industry pundits predicted a revolution in desktop video. A year later, most computer users aren't even aware of Video for Windows. So what happened?

Too few people are buying Video for Windows or the video input cards that let you bring video clips into your computer. There seem to be two reasons for this. First, as originally released, the program pretty much restricted you to a stamp-sized video image (160 pixels x 120 pixels). It's hard to get excited about video images so small you can barely see them. Second, the actual video files take up a huge amount of space on your hard drive. Even compressed, a 30-second video clip takes up about 4MB—and that's at the 160 x 120 size and a slightly jerky 15 frames per second. So is it time to declare the revolution over, even before it begins?

Some revolutions take time and occur quietly, almost without notice. The main effect of this quiet revolution has been on CD-ROM titles. If you have a CD-ROM drive and regularly try out new titles, you probably have the drivers for Video for Windows and QuickTime for Windows without even knowing it. Many of the CD-ROM titles released in 1993 (and an even larger percentage of those scheduled for 1994) are using video clips. When you install one of these CD-ROMs, you receive the playback drivers for the video clips, but you don't get the video capture utilities. The video input cards include the video capture utilities, so there's no longer any reason to buy the Video for Windows package.

The PC industry is making real progress in overcoming desktop video's too-small image size and too-large storage requirements. You can buy several video input cards (Creative Labs' VideoSpigot, Media Vision's Pro MovieSpectrum, and Intel's Smart Video Recorder) that let you work with 320- x 240-pixel video clips. Cards that offer the Holy Grail of full-screen video (640 x 480) are still expensive but are quickly falling in price. Sigma Designs' \$449 ReelMagic card, which should be available by the time you read this, will boast full-screen

playback with MPEG compression—but has no provision for recording video.

What else is needed to bring you and me into this new world of desktop video? Powerful but easy-to-use video-editing programs. The first two of what will be many such programs are Adobe Premiere (Adobe, 415-961-4400, \$295) and MediaMerge (ATI Technologies, 416-882-2600, \$295). Both let you combine video clips with a variety of special effects and save the result as a new video file.

Adobe Premiere 1.0 is a subset of the highly respected Adobe Premiere 3.0 for the Macintosh, which offers a larger set of professional features for a hefty \$795. The

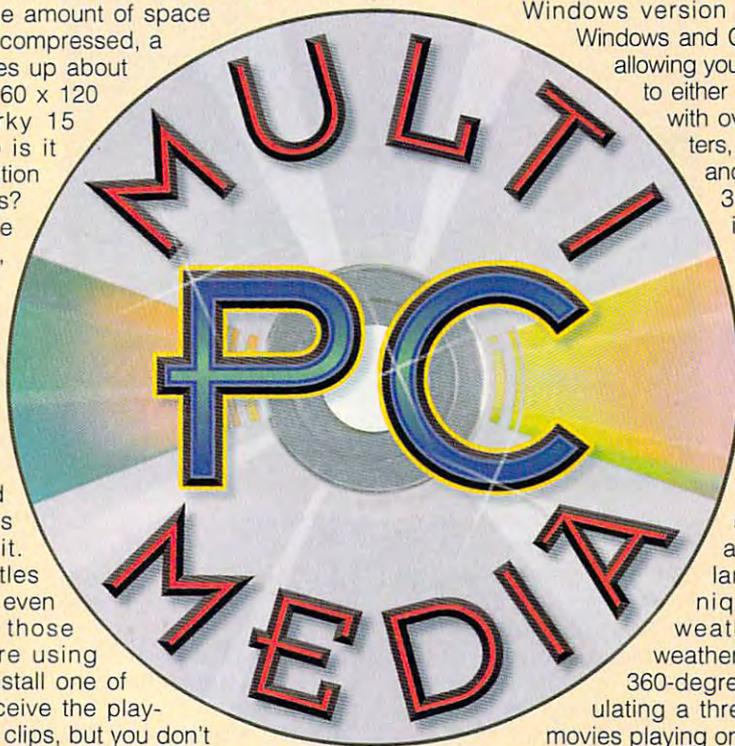
Windows version supports both Video for

Windows and QuickTime for Windows files, allowing you to mix the formats and save to either format. The program comes with over 35 image-processing filters, including antialias, emboss, and sharpen edges, as well as 35 effects and transitions, including cross-dissolve, zoom, and venetian blinds.

Even though it doesn't have all the features of the Macintosh version, the Windows version is still a powerful program. The manual shows you how to insert one video image into another (for a picture within a picture), superimpose a person against a background (similar to the Chroma key technique used to place a TV weatherperson in front of a weather map), and even create a 360-degree video presentation (simulating a three-dimensional space with movies playing on each of five walls).

Compared to Adobe Premiere, MediaMerge is easier to use, but that's mainly because it offers fewer features. For example, MediaMerge offers only nine transitions—though you can alter their direction, color, and duration. In its favor, MediaMerge offers a separate WAV file audio editor, an integrated text animator, and a CD-ROM full of videos, animations, sounds, photos, and backgrounds that you can use in your video productions.

With a new generation of cards that offer full-screen video and with powerful editing programs such as Adobe Premiere and MediaMerge, desktop video should finally arrive for the PC—a bit late for the revolution, but just in time for www.commodore.ca





MULTIMEDIA PC

By Richard O. Mann

If you haven't already bought a CD-ROM drive for your PC, chances are that you'll buy one soon.

Market researchers estimate that over 6 million CD-ROM drives will be sold in 1993 and a staggering 18 million will be sold in 1994. If you're one of the 18 million who'll be buying in 1994, you've got some homework to do. If you buy a drive to work with your existing sound card, you'll face the whole lineup of drives; if you buy it as part of a multimedia kit, your choices will be more limited. Even if you buy your drive as part of a kit, you'd better know something about the drive that's included—it's too easy to get stuck with less-than-adequate equipment.

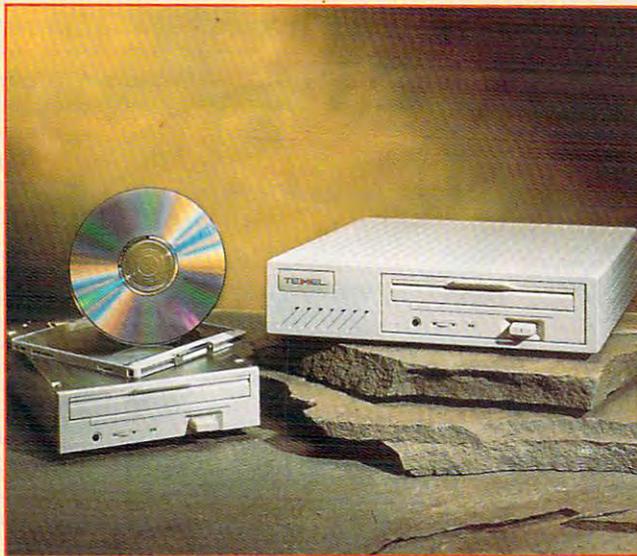
The problem is that CD-ROM drives come shrouded in a cloud of technobabble: Average seek time, sustained throughput, SCSI-2, XA specs, multisection capability, and High Sierra compatibility are just some of the terms you'll see. Relying on different measures, at least three major manufacturers claim their drives are the fastest on the market, while others emphasize the particular performance specification that makes their products look the best.

There are no absolutes, and there's no way to pick out the fastest, most reliable, or overall best value. But doing a little homework

to understand the terms will help you identify the drives that'll best fit into your system.

Lesson 1: Speed

Double speed. This is the most important measure and the easiest to understand. The original CD-ROM drives spun their platters at the same speed used by audio CD players. By 1992, it was obvious that



simply wasn't fast enough, so drive makers upped the rotational speed, resulting in double-speed drives. Double-speed drives can still play audio CDs at the regular speed, but they can literally double the speed at which they grab data and feed it out to the computer.

Increased speed is always pleasant, but it's essential when using Video

for Windows, Microsoft's live-action video and sound program used in dozens of the most popular new multimedia CD-ROMs. If you want to enjoy the video footage in the encyclopedias, most of the atlas and travel discs, and hundreds of new discs that will appear in 1994, you need a double-speed drive. Many of the old single-speed drives will stutter when playing a long

second (KBps). Although most manufacturers will quote a burst mode rate (the fastest rate at which a single read's worth of data can be put out), the one that matters is the sustained transfer rate. The sustained transfer rate indicates the speed of a continuous flow of data resulting from many disc reads.

The sustained transfer rate is a function of the disc rotation speed. Single-speed drives run at 150 KBps; double-speed drives achieve at least a 300-KBps rate. Toshiba's latest drive runs at 330 KBps, and Plextor has hit 335 KBps. In certain applications, such as ones that use Video for Windows, the increase of 30 KBps to 35 KBps can be surprisingly significant.

Average access time.

Also called average seek time, this measures the time in milliseconds (ms) it takes the drive to receive a data request, move the head to the data location on the disc, and retrieve the data. It's possible to monkey with this one, because there's no real standard on how far the head has to move.

Access time is only the second-most-important measurement. Real-world use of CD-ROMs often involves sequential reads right down the data tracks, requiring little or no head movement, making the access time extremely fast. Remembering that hard

burst of video.

Unless your CD-ROMs are primarily text oriented and you're a patient sort who doesn't mind several-second delays in information flow, get a double-speed drive.

Data transfer rate.

Transfer rates measure the amount of data fed from the drive to the computer bus, measured in kilobytes per

HOW TO CHOOSE

disks offer access times under 20 ms, the fastest CD-ROM drive's 200-ms access time seems rather poky. But compared to the 1000-ms to 400-ms times of drives from two or three years ago, it's quite respectable. If a CD-ROM drive has an access time of 200 ms to 250 ms, it's considered fast.

CPU utilization percentage. It's important that interacting with the CD-ROM drive not monopolize your computer's CPU, which needs to be doing other tasks between the times it talks to the drive. This measure isn't always published by the vendors, but it's still significant. In fact, the Level 2 MPC specifications (explained later) require no more than 50-percent utilization.

If the drive takes too much system time, everything else slows down. Higher transfer rates require more CPU time, so newer, faster drives have to struggle to keep the utilization within bounds. The standard was raised from 40 percent to 50 percent in Level 2 MPC to accommodate the new generation of superquick drives.

Buffer size. A buffer reads data ahead, stores the data on a chip, and feeds it out to the CPU when requested. Without the buffer, all reads would have to come directly from the disc, which is much slower. Buffers range from

64K to 256K. For single-user systems, smaller buffers are perfectly adequate; the larger buffers have noticeable effects only in multiuser networked sessions.

Lesson 2: Data Formats

Originally, CDs were designed to play music. The standards for data on music discs were embodied in the

Video for Windows required an update to ISO9660, codified in the "orange book." This standard—which wasn't given its own new name—encodes audio information into the normal computer data and ships it out to the computer bus, where Video for Windows separates it. Such interleaved audio data speeds up CD-ROM drive access; the old system had

XA yet, but drive makers are building it into their drives as it currently exists. XA requires that the software be written to the standard.

Lesson 3: Photo CD

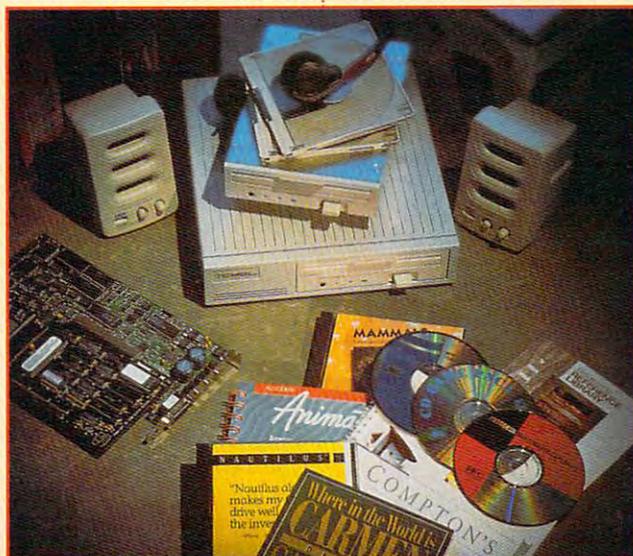
The new Kodak Photo CD system records photographs in digital form on a CD-ROM. Kodak's Photo CD standard is a takeoff on the XA standard, making it relatively easy for drive makers to add this additional compatibility.

The buzzword here is *multisession capability*. Originally, a Photo CD could only be written to one time, even if the disc ended up being only partially filled. An update to the standard allows appending images to existing photos on a CD. Current drives have the extra intelligence to find second and additional sessions.

Lesson 4: MPC Standards

The Multimedia PC Marketing Council sets the minimum hardware configuration required to successfully run software that's MPC compatible. The original MPC standard, set in 1990, has proven inadequate to support today's more demanding CD-ROM-based software, so the council set the new MPC Level 2 (MPC-2) standard in the summer of 1993.

MPC-2 mandates a 486 processor; 4MB of RAM; a 160MB hard disk; a double-

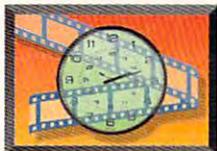


"red book." When computer data came to CD-ROMs, the High Sierra or ISO9660 standard (in the "yellow book") controlled the format. This standard allowed for higher speeds than audio required while still allowing playback of red book audio tracks through a separate channel to the headphones or stereo jacks on the sound card.

to read the disc twice—once for the sound and once for the data.

The orange book is the current standard. The next step is the XA standard, which involves full interleaving of audio and data, with the audio then going directly to an audio chip for processing. It also provides compression of video data. The bugs aren't fully out of

A CD-ROM DRIVE



MULTIMEDIA PC

How to Play Audio CDs on Your CD-ROM Drive

Your computer's CD-ROM drive is a high-priced CD player optimized for the special needs of computer data storage, but it can still play standard audio CDs.

If all you need is a basic CD player program, you can use Windows' own Media Player (MPLAYWE.EXE). It lets you start, stop, and pause your CD, as well as move from track to track. Most multimedia kits and CD-ROM drives also come with utility programs that play audio CDs.

You can augment these basic programs with full-fledged computer CD-player programs that allow you to enter artists' names and track titles. Once you've cataloged a CD, the player remembers it. You can pick from the displayed track titles to create your own indi-

visualized program.

CD Player 3.0 (Graphical Bytes, 516-283-4473, \$55) puts a familiar CD-player control panel on your Windows desktop with VCR-like control buttons. To record a CD on an audiocassette, use the fit-to-tape feature to compute how best to put the tracks onto various lengths of tape.



Sound-Works

(The Software Toolworks, 800-434-3088 or 415-883-3000, \$49.95) is a DOS application that runs memory resident in 15K and can be unloaded when not needed. It's old-fashioned and also a tad slow to work with, but it plays CDs and catalogs your collection nicely. It comes with a Works application that serves as a graphical, icon-based menu system for DOS.

speed, XA-ready, multisession-capable CD-ROM drive; a 16-bit sound card; and a 16-bit Super VGA video card capable of 65,000 colors in 640 x 480 mode. The standard doesn't specify local bus, but it would be difficult to meet the required specs without it.

The CD-ROM drive must achieve a sustained transfer rate of at least 300 KBps. MPC-2 machines should be able to play digi-

tized video in a 320 x 240 window at 15 frames per second. The fast CD-ROM drive is a key component in achieving that goal.

We're talking about a powerful computer here, one that'll set you back a fair piece of change. It's smart to buy your CD-ROM drive and sound card to match the MPC-2 specs, even if you're still running a mere 386. It'll pay off in the long run. Certainly not all current CD-ROM software

requires that kind of power, but with Video for Windows entering the equation, you're going to be needing that 486.

Lesson 5: Catching the Right Bus

Most CD-ROM drives run off a SCSI (pronounced "scuzzy") bus, usually controlled by a SCSI controller on the sound card. Creative Labs, the manufacturer of Sound Blaster sound cards and associated multimedia upgrade kits, is the most visible holdout. Sound Blaster kits control their CD-ROM drives through an IDE bus. If you plan to control your CD-ROM drive from a Sound Blaster card, you'll have to buy a compatible drive that runs from an IDE controller.

The advantages of the SCSI bus are speed, a widely known standard, and the ability to add as many as seven devices to any SCSI board. You could run a tape drive, a Bernoulli box, a scanner, a hard disk, and another SCSI device without using a slot for a controller card for each device.

Also, look for compliance with the new SCSI-2 standard.

Lesson 6: Physical Matters

You can select either an external or an internal drive strictly on the basis of availability of drive bays and desktop space; there's no performance difference. But remember that even an external drive requires a controller card inside the case.

There are two ways to handle getting a disc into

the CD-ROM drive. Most common is a caddy system, involving a removable carrier that holds the CD-ROM as it's inserted into the drive. Less common is a motorized assembly, where a metal tray slides out of the drive's housing to directly accept the CD-ROM.

Because CD-ROM drives are optical devices (they reflect laser beams off tiny spots on the disc's surface), keeping the drive clean is essential. Although the drawer-system drive manufacturers would probably dispute it, using a caddy probably reduces the risk of internal contamination of the laser mechanism. Many drives include a device that physically cleans the laser lens each time you slide a CD-ROM into or out of the drive.

Midterm Exam: Choosing a Drive

You've now done your homework on general considerations for buying a CD-ROM drive. How do you put it together to select a drive? Try this:

1. Determine if you need double speed and low access time. Will you be using current educational and reference CD-ROMs, such as multimedia encyclopedias? If so, you need double speed. If your use will be exclusively for searching text bases and other nonmultimedia tasks, a slower drive will suffice.

2. Determine if you need the new specs, including XA and Photo CD multisession capability. Basically, if you need double speed, you might as well get the rest of it. (It's hard to find a fast drive that doesn't meet

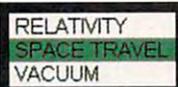
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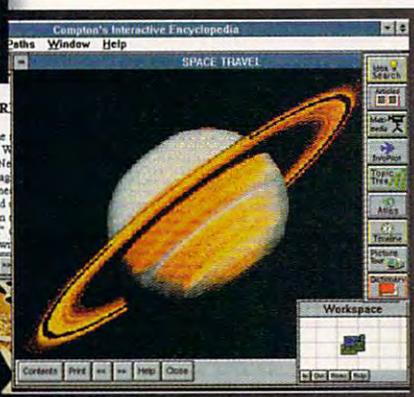
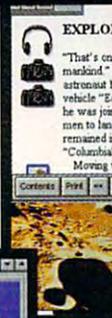
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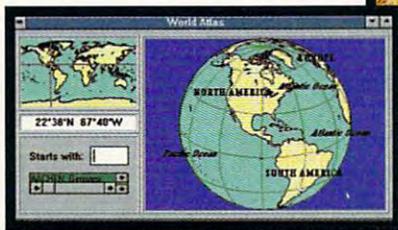
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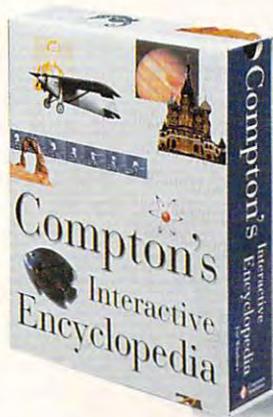


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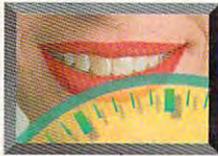
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these specs.)

3. Determine which bus to use. This one's easy: Use the SCSI-2 bus unless you have or plan to buy a Sound Blaster sound card.

4. Determine the physical setup you need. To keep the drive's innards clean, choose an internal drive if possible—preferably one that uses a caddy.

Now that you know the specs you need, the choice boils down to fine distinctions between drives—such as exact speed figures—and price. You also need to determine if you want to buy the drive as part of a multimedia upgrade kit. If you don't have a sound card yet, give serious consideration to the upgrade kits, which give you a CD-ROM drive, a sound card, and usually an attractive bundle of CD-ROM titles. (If you're opting for a kit, it's not unreasonable to make your choice based on the CD-ROM titles that come with the kit.)

The Drives

In spite of the prediction that we'll be buying 18 million CD-ROM drives in 1994, there aren't many vendors manufacturing drives. As you read the ads, look at the multimedia kits and multimedia-ready computers. You'll see the same basic dozen or so drive manufacturers. Here's a summary of the product lines of several of the major CD-ROM drive manufacturers.

Toshiba XM-3401 series. Available as internal drives (XM-3401B, \$695), external drives (TXM-3401E, \$895), or portable drives operating with sup-

plied parallel port adapters (TXM-3401P, \$925), these fine double-speed drives show up in many kits and multimedia systems. Toshiba (714-583-3000) touts them as the fastest on the market, based on their unmatched 200ms average access time. They also achieve a 330-KBps sustained transfer rate, which is the second fastest on



the market. All three use the SCSI-2 interface and are XA ready and Photo CD multisection capable.

NEC MultiSpin family. NEC (800-NEC-INFO or 708-860-9500) introduced the very first double-speed drive, calling the technology MultiSpin. Both the internal drive (MultiSpin 84, \$630) and the external drive (MultiSpin 74, \$695) require a disc caddy and utilize a double-door system on the drive to ensure dust protection. Both deliver a 300-KBps sustained transfer rate with a 280-ms average access time. They're XA ready and Photo CD multisection capable, and they

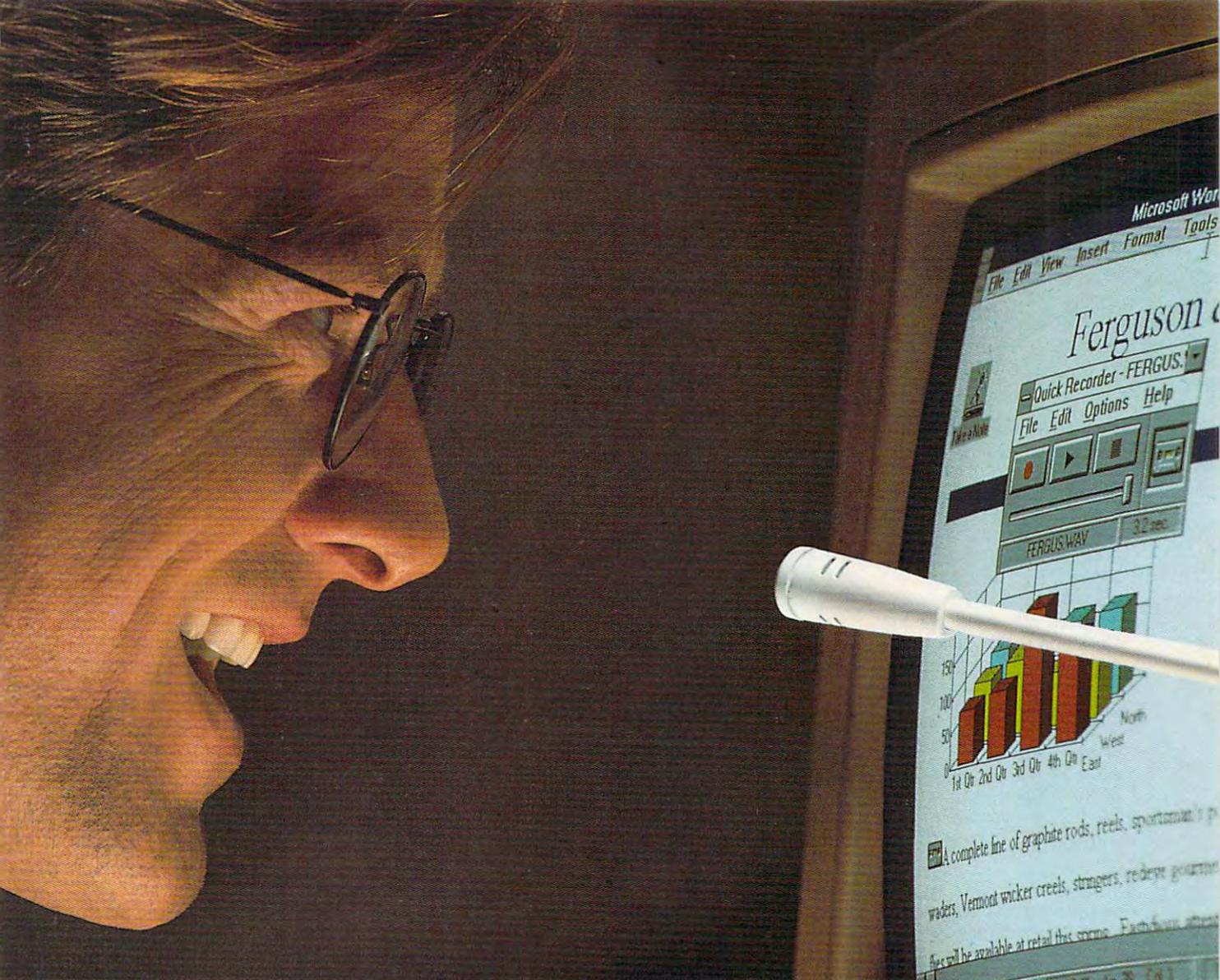
offer a switchable setting to either a SCSI-1 or a SCSI-2 bus. The MultiSpin 38 (\$560) is a parallel-port portable drive, which loads the disc through a top door. The first double-speed portable drive, the MultiSpin 38 maintains a 300-KBps sustained transfer rate but has a slower 400-ms average access time. It can operate with an optional battery pack. NEC offers an upgrade plan for owners of its earlier models who trade in working models of the C D R - 3 7 portable (\$179), CDR-74 external (\$249), and CDR-84 internal (\$229).

Plexstor Double-Speed Plus drives. Plexstor (408-980-1838), formerly called Texel, also claims its drives are the fastest on the market, based on its 335-KBps sustained transfer rate with a 240-ms average access time. Both the internal DM-3028 (\$499) and the external DM-5028 (\$599) use a caddy system and have drive doors for dust protection. (The doors make using the drives a little difficult until you learn how to gently pull the door down with the lip of the caddy, once again making disc loading a one-handed task.) The drives are SCSI-2 compliant, XA ready, and Photo CD multisection capable. Plexstor drives are also available in a variety of bundles that include software, Media Vision's Pro AudioSpectrum sound cards, and speakers.

Philips LMS drives. Philips LMS (719-593-7900), formerly Laser Magnetic Storage International, is the only major CD-ROM drive manufacturer based in the United States. Its CM206 internal drive (\$499) is a double-speed drive that delivers a 300-KBps sustained transfer rate and a 350-ms average access time. The CM206 uses the 16-bit PC/AT bus directly rather than a SCSI adapter, which LMS says is faster. The drive uses a motorized tray that comes out of the drive to accept a disc, rather than a caddy. An unusual feature allows playing audio CDs with a simple button push—without any special software.

MicroSolutions Backpack 160550. MicroSolutions (815-756-3411) makes a series of Backpack portable peripherals, including a portable CD-ROM drive (\$499). The drive plugs directly into the parallel port of any computer. It's a single-speed drive, delivering a 150-KBps sustained transfer rate and a 350-ms average access time. It's XA and Photo CD multisection compatible and uses a top-loading, no-caddy system. Because of its slower speed, it's not appropriate for the more demanding multimedia applications, such as those using Video for Windows. If your road work, however, requires access to textual information and simple graphics, this could be a good choice.

Editor's note: Just as we were going to press, NEC announced its new MultiSpin 3X and MultiSpin 4X readers. The 3X readers are triple-speed CD-ROM dri-



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MULTIMEDIA PC

How to Cache Your CD-ROM Drive

To see the value of a disk cache, try starting up Windows with your cache disabled. On my fast 486 DX2/66, it takes just over two minutes to load Windows without a cache. With SMARTDRV, the relatively poky Microsoft cache utility supplied with Windows and DOS, the same task takes only 37 seconds.

The slowest drive on your system is the CD-ROM drive; caching it should accelerate it to warp speed. Unfortunately, SMARTDRV doesn't cache CD-ROM drives; you need a third-party program for

that. I looked briefly at three of them.

Super PC-Kwik (included in WinMaster 1.5 from PC-Kwik, 800-274-5945 or 503-644-5644, \$129.95) is the slowest because it's the most conservative with your data. It doesn't default to delayed disk writes and request sorting, as the others do. It's also difficult to install, requiring you to somehow get its driver loaded physically within 64K of the CD-ROM driver. On one system, I couldn't get it to work at all; on another, it took a half-dozen tries before I got it

loaded properly.

Lightning CD (Lucid, 800-925-8243 or 214-994-8100, \$79.95) is faster but also suffers from a difficult installation. The manual says in one place that the program will disable SMARTDRV, but it doesn't. Its driver must install after the CD-ROM device driver, but the installation program doesn't necessarily put it there. It took three tries to get this one running, but when it runs, it earns its name. Lightning CD comes with keyboard and video speed enhancers and a directory

tree deletion tool.

Norton Speedrive 4.0 (Symantec, 800-441-7234 or 408-252-3570, \$99) is similarly fast. Its installation was the simplest, but it also required a manual tweak to the AUTO-EXEC.BAT file that wasn't obvious until my hard drive started locking up occasionally. It adds a couple of handy Windows applets to monitor and test cache performance. Because of its safer installation routine, I would recommend Norton Speedrive for those who dislike having to fuss with the system files.

ves (internal, \$500; external, \$600; portable, \$455), while the 4X reader is a quadruple-speed CD-ROM drive (external, \$995).

Multimedia Upgrade Kits

At press time, only Media Vision and Creative Labs were offering Level 2 MPC upgrade kits.

Media Vision kits. Media Vision (800-348-7116 or 510-770-8600) is the manufacturer of the market-leading Pro AudioSpectrum 16 sound card and related products.

The Pro 16 Multimedia System II (\$1,199) is the high-end kit, featuring a double-speed NEC 84JD-1 drive with a 300-KBps sustained transfer rate and a quick 250-ms average access time. It includes the Pro AudioSpectrum 16 sound card and the following titles: Compton's Interactive Encyclopedia for

Windows, Battle Chess Enhanced, Mantis, Civilization, Macromedia Action!, Mayo Clinic Family Health Book, PC Karaoke, and Where in the World Is Carmen Sandiego? Deluxe.

The Fusion Double CD-16 (external, \$799; internal, \$699) features the double-speed NEC 55J drive with a 300-KBps sustained transfer rate and a 350-ms average seek time. It's fully MPC-2 compatible. The kit includes a Pro AudioSpectrum 16 sound card and four CD-ROM titles: Compton's Interactive Encyclopedia for Windows, Battle Chess, Arthur's Teacher Trouble, and The 7th Guest.

Creative Labs kits. Of course, Creative Labs makes the famous Sound Blaster series of sound boards. It also sells a series of multimedia upgrade kits featuring Sound Blaster sound card products. Note

that the CD-ROM drives in these kits are not SCSI-bus compatible.

The Sound Blaster DigitalEdge CD kit (\$999) features a double-speed, MPC-2-compatible drive with a 300-KBps sustained transfer rate and a 350-ms average access time. The drive uses a front-loading tray. The sound card is the new Sound Blaster Pro 16 with Advanced Signal Processing, a real powerhouse. The bundled software titles include VoiceAssist (voice recognition software), Aldus PhotoStyler SE Photo CD software, The Software Toolworks Multimedia Encyclopedia, Microsoft Works for Windows, Microsoft Bookshelf, Macromedia Action!, and AuthorWare Star.

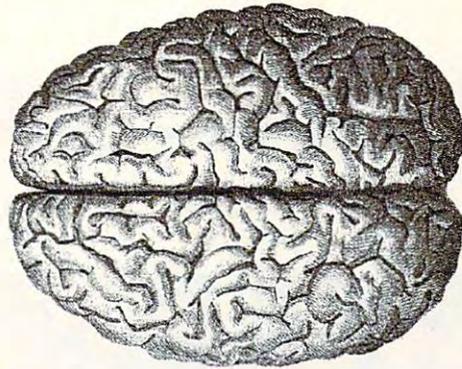
The Sound Blaster Education CD 16 kit (\$750) is built around a double-speed, MPC-2-compatible drive with a 300-KBps sustained transfer rate and a

320-ms average access time. The sound card is the Sound Blaster 16. Creative Labs went all out in bundling software for this kit. The package includes Aldus PhotoStyler SE, The Software Toolworks Multimedia Encyclopedia, Sherlock Holmes Consulting Detective, Lemmings, Secret Weapons of the Luftwaffe, Loom, The Secret of Monkey Island, and Indianapolis 500, the Simulation.

The Final Exam: Parting Words

Buying a CD-ROM drive to bring your computer into the era of faster multimedia applications isn't as difficult as it seems. A little education cuts through the smoke screen of letters, numbers, speeds, and compatibilities. With a little research, you'll be ready to choose one of those 18 million CD-ROM drives waiting to be bought in 1994. □

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THIS IS YOUR BRAIN NEUROJACKED INTO CYBERNET IN SPECTRE VR.™

FULL MOTION VIDEO FROM CD-ROM: THINK OF IT AS AN INTERMEDIATE STEP BETWEEN CYBERSPACE AND LIFE AS YOU'VE KNOWN IT.



SMART WALLS ARE COVERED WITH LIVE ACTION VIDEO. ACID POOLS WILL TRY TO TRAP YOU. MAYBE YOUR SCATTER SHOTS CAN HELP UNTRAP YOU.

ANY QUESTIONS?

GO AHEAD, JACK INTO A WHOLE OTHER WORLD.  THAT IS, IF YOU THINK YOU'RE READY TO HANDLE NANOSECOND PRESSURE FROM

SMART-WEAPON ENEMIES THAT LEARN YOUR EVERY MOVE THEN STRIKE FROM ANY DIRECTION.  THE CYBERWORLD HAS NEVER BEEN SO FRIGHTENINGLY REAL. BUT THERE'S

HOPE: AT LEAST YOU'LL HAVE AN ARSENAL THAT'S JUST AS SMART AND POWERFUL AS THAT OF YOUR OPPONENTS.  THE QUESTION: CAN YOU NAVIGATE THE MATRIX

AS QUICKLY AS YOUR BRAIN PROCESSES THE STIMULATION ON YOUR SCREEN?  THE ANSWER: FIND OUT AS YOU HOVER ABOVE THE CYBERARENA, OR SUBMERGE

INTO NEGATIVE CYBERSPACE.  YOU CAN EVEN ALTER THE LANDSCAPE, YOUR OPPONENTS AND YOUR WEAPONS WITH VRCHITECT™ 

 SO, JACK INTO SPECTRE VR WITH ONE PLAYER, A NETWORK OF UP TO EIGHT, OR EVEN MODEM PLAY ON THE PC. AND GET READY FOR A WHITE

HOT ELECTRONIC ADRENALINE RUSH. BUT BE FOREWARNED; REALITY WILL NEVER BE QUITE THE SAME AGAIN.   **VELOCITY™**



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NEW MULTIMEDIA PRODUCTS

Edited By Polly Cillpam

Reading Can Be Fun

Digital Theater has announced a series of edutainment CD-ROMs, called The Learning Carnival. The first entry in the series, The Reading Carnival, is designed to get children ages 6-10 actively involved in reading—and keep them entertained while they learn. Children can enjoy a variety of activities while they explore sections on Animals Facts, Superhero Stories, and Fascinating Facts.

The Reading Carnival features 150 separate screens, six stories, a 630-word pronunciation glossary, eight spelling games and reading quizzes, 18 creative problem-solving games, 60 screens of natural animal photography, and a 20-screen interactive coloring book.

Digital Theater
(404) 446-1332
\$49.95

Circle Reader Service Number 530

Culture at Your PC

Here's your chance to sit back and be entertained—and learn about fine art at the same time. Having Cameron's Fine Art Poster Catalog on CD-ROM is like owning a museum full of masterpieces. There are 550 bitmap works of art, 100 WAV-format stereo music files, and over 30 AVI-format video files of sculptures.

The art is categorized into several different segments. Pictures at an Exhibition is a tour of 100 replicas of the world's most famous artists, including Old Masters, Impressionists, Post Impressionists, and Contemporary painters.



Get cultured with Cameron's Fine Art Poster Catalog on CD-ROM.

Each one comes with a short history of the painting and painter (including the museum currently displaying the work of art). While viewing the art, you're entertained by a classical music clip, which includes a notation of the musical title and composer.

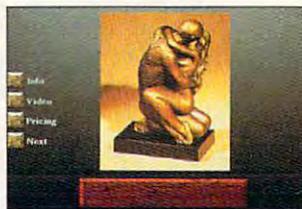
Sculptures on Video displays historical facts on pieces ranging from the T'ang Dynasty to Rodin; it plays a video clip of the sculpture rotating with accompanying music.

Cameron Enterprises
(800) 765-1-ART
\$49

Circle Reader Service Number 531

Little Critters on CD-ROM

Explore the world of baby animals with Kid's Zoo, an adventure for prereaders and early readers on either disk or CD-ROM. Children as young as 3 can learn about the animal kingdom and its young. The program includes an interactive encyclopedia that lets children explore mammals, birds, fish, reptiles, amphibians, and invertebrates through a variety of avenues—animal type, size, lifespan, speed, and even footprints. They can also learn through a series of games that assess their understanding of animal names, appearances, habi-



tats, and sounds. Some of the activities involve matching an animal to the sound it makes or matching an animal to its geographical habitat.

Using the program's paw pointer, children can learn about baby animals through eight activities, including a talking storybook, Baby Animal Movie Theater, and five multilevel games that encourage children to learn and explore as they're challenged by the various levels of the different activities. Upon completion of each game, children are rewarded with congratulations, applause, and a computer-rendered movie created with the program's interactive movie technology.

Knowledge Adventure
(818) 542-4200
\$79.95 (CD-ROM version)
\$59.95 (disk version)

Circle Reader Service Number 532

More for Your Money

The Sound Galaxy PRO 16 Multimedia Upgrade Kit is quite a bargain. The kit costs hundreds of dollars less than the separate components, and you get five popular CD-ROM titles. The package includes Aztech Labs' new NX PRO 16 sound card, a Mitsumi AT-bus CD-ROM drive, headphones, and a microphone.

Aztech Labs claims the

NX PRO 16 is the most compatible sound card on the market; it supports the Sound Blaster Pro, Microsoft Windows Sound System, Ad Lib, Disney Sound Source, and COVOX Speech Thing.

The bundled CD-ROM titles include Microsoft Works, Macromedia Action! 2.0, Battle Chess CD-ROM Enhanced, Toolworks Encyclopedia, and Toolworks Atlas.

Aztech Labs
(510) 623-8988
\$639

Circle Reader Service Number 533

High-Tech Show and Tell

Ask Me Multimedia Center has recently introduced a new multimedia software package, called SUPER Show & Tell. It's Windows based, it allows the user to



Create multimedia presentations

create interactive multimedia presentations in a free-form environment, it's user-friendly, and it supports all popular graphics, animation, sound, and digital video formats.

The program's key attraction is its universal appeal. For example, it's



Around here nice guys don't finish last - they don't even finish. Better know how to drive or Catfish Louie and company will take turns making your Backroad Racer a pile of twisted, burning wreckage. Then taunt you as you watch instant replays of your wipeouts. Video clips give hints and make threats while you try to outrun cops and race on four different tracks. Use 3-D animated instructions to build a model of your car so it's easier to identify the torched remains. Available for IBM on CD-ROM.



The model makes the game better. The game makes the model better.™

Video clips just like this one make the game extra bad. But in a good way.

After you
build your
car you can
follow all
traffic laws
and be a safe
& courteous
driver.



{Of course, you could also go play an action-packed game of hopscotch with your sister.}





NEW MULTIMEDIA PRODUCTS

appropriate for business and home office users (including sales and marketing), home PC hobbyists, and teachers.

Businesspeople can use the program's colorful charts, still-frame pictures, and text with sound and motion to make their presentations more effective. Hobbyists can use it to create interactive résumés or home photo albums. Teachers can use it to make their own interactive educational tools.

Ask Me Multimedia Center
(612) 531-0603
\$149

Circle Reader Service Number 534

Take the Plunge

Wish you could explore the world's oceans? Oceans Below, from The Software Toolworks, has just the journey for you, and you won't even get wet. Choose your favorite ocean, prepare for the trip, and learn all about the undersea world from the floor up.

Select from over 200 topics of information, as well as over 45 minutes of video clips, synchronized sound, photographs, and original music. Learn about local sea life, explore shipwrecks, and feed or ride any of the fish in the habitat you've selected. It's like going to the aquarium without leaving the comfort of your own home.

The Software Toolworks
(415) 883-3000
\$49.95

Circle Reader Service Number 535

96 COMPUTE JANUARY 1994

Using Technology to Humanize History

Few museums are as emotionally moving as the Museum of Tolerance in Los Angeles, and multimedia plays a large part in communicating that emotion. This is an interactive museum focused on World War II and general issues of intolerance. Its goal is to provide in-depth information for a wide audience.

The main floor is filled with exhibits, while the second floor allows visitors to interact with 30 different computer workstations. The workstations free visitors to research what they're interested in via user-friendly touchscreens.

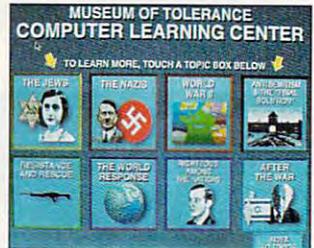
Visitors can view video footage with first-person accounts and testimonies of Holocaust survivors and liberators.



The Museum of Tolerance features 30 multimedia workstations.

Eight main topics include 5000 different subjects. The database contains 39 volumes of Time/Life Books, MacMillan's *Encyclopedia of the Holocaust*, and *Encyclopedia Judaica*, as well as hundreds of specialty articles not available anywhere else in the world. There are also 57,000 archival photographs, documents, and maps. You can work your way down through a learning tree to the topic of your choice, or you can pick a particular element of that topic and swim laterally through the database for a more focused look at a subject of particular interest.

Museum of Tolerance
(310) 553-9036
Admission prices vary



according to age and group size. School groups are admitted free.

Circle Reader Service Number 536

Multimedia Bonanza

Trying to build your own MPC system? Aris Entertainment may have the solution for you, and it costs only \$14.95. The company has begun shipping MPC Wizard 2.0, which gives CD-ROM and Windows 3.1 users the most up-to-date VGA and sound drivers for their multimedia systems.

Like its predecessor, MPC Wizard 1.0, MPC Wizard 2.0 contains the largest collection of VGA and sound drivers for Windows 3.1 on a single CD-ROM. This latest version adds nine Microsoft Video for Windows runtime videos, 20MB of additional drivers, 60 color photographic images, and 60 audio tracks. You also get Aris's standard Media-Clips interface to view the pictures, hear the sound tracks, and watch the Video for Windows live-action videos. All the videos, sound clips, and images may be used royalty-free in any presentation, as long as credit is given to Aris.

Aris Entertainment
(310) 821-0234
\$14.95

Circle Reader Service Number 537



Explore undersea life with Ocean's Below.

The elusive Detective of the Macabre,
EDWARD CARNBY RETURNS!

ALONE IN THE DARK 2™

Over 200,000 mystery enthusiasts have been captivated by the inscrutable Alone in the Dark 1 virtual adventure. Brace yourself for **ALONE IN THE DARK 2!**

Featuring:

- 50 hours of gameplay
- 70 enigmatic characters
 - 15 perplexing and challenging levels
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- Frightfully eerie soundtrack

Delve into a chilling mystery as Edward Carnby, embarking on his second nerve-twisting adventure! The realm of the macabre has never gripped tighter as you put your sleuthing skills to the test and piece together the mysteries of **ALONE IN THE DARK 2!**

Free *Mystery Examiner* Offer

Find yourself lost in another time with Volume Two of the 1924 *Mystery Examiner*, a replica period newspaper detailing the events that shape the **ALONE IN THE DARK** series. Send a self addressed, stamped, business-size envelope to:
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1341 Ocean Avenue, Box 417
Santa Monica, CA 90401



Lose Yourself In Virtual Mystery as You Return to the World of Alone in the Dark!



MULTIMEDIA SPOTLIGHT

By David English

SOUND BLASTER DIGITALEGE CD

Why do so many people buy Creative Labs' multimedia upgrade kits? Because Creative Labs virtually invented the standard PC sound card.

Today, the Sound Blaster is *the* standard for DOS games. Almost every other sound card either claims to be Sound Blaster compatible or will soon be offering Sound Blaster compatibility. Technically, only cards from Creative Labs and Media Vision (which bought the compatibility rights in a court settlement) can claim 100-percent compatibility. With Windows, compatibility is less of an issue, as any card that meets the MPC standard should work with any Windows program that supports sound.

If you haven't already bought a multimedia PC or upgraded your PC with a multimedia upgrade kit, you should consider only MPC Level 2 upgrade kits. The Level 2 kits include a sound card with 16-bit sampling and a double-speed CD-ROM drive. The 16-bit sound card will simply improve the quality of your sound, but the double-speed drive is absolutely necessary to handle today's more demanding CD-ROM titles. Just weeks after the MPC Marketing Council introduced the Level 2 specifications, Creative Labs announced its first Level 2 package, called the Sound Blaster DigitalEdge CD.

The DigitalEdge CD package includes Creative Labs' top-of-the-line sound

card, the Sound Blaster 16 with Advanced Signal Processing (ASP). The ASP chip functions as a coprocessor and will allow you, in the future, to add QSound and other special audio features. In keeping with the Level 2 specs, the Sound Blaster 16 ASP offers 16-bit sampling, which gives you sound that's theoretically as good as an audio CD (theoretically, because interference from the motherboard and

CD into a standard CD player. Another nice feature is the embedded cleaning brush, which removes the dust from the drive's lens each time you load a disc into the drive. On the downside, the DigitalEdge CD drive isn't a standard SCSI drive, unlike most other CD-ROM drives. That means your choices will be limited later if you decide to upgrade your CD-ROM drive or switch to a sound card from a company other



Creative Lab's Sound Blaster DigitalEdge CD

adjacent cards can degrade the sound). Along with the usual CD-ROM, joystick, MIDI, audio-in, and audio-out connectors, the Sound Blaster 16 ASP includes an add-in connector for the Wave Blaster, a General MIDI daughterboard that costs a very reasonable \$249.

Also in keeping with the MPC Level 2 specs, the CD-ROM drive is a double-speed drive (300K-per-second throughput) with an access time of 350 ms (the specs require a rate of 400 ms or faster) and is multi-session Photo CD compatible. Despite its speed, the CD-ROM drive doesn't require a caddy—you place the CD-ROM directly into the motorized tray, just as you would place an audio

than Creative Labs.

These days, just about every multimedia upgrade kit comes with a bundle of CD-ROM-based and disk-based applications. The DigitalEdge CD's bundle includes Microsoft Works for Windows, Microsoft Bookshelf, The Software Toolworks Multimedia Encyclopedia, Macromedia Action, Authorware Star, Aldus PhotoStyler SE Photo-CD access and imaging software, a microphone, and speakers. As far as bundles go, this one is above average. Microsoft Works is especially useful for someone just starting out, Bookshelf is a terrific CD-ROM reference, Action and Authorware are powerful multimedia presentation and authoring programs,

and few upgrade kits include a microphone and speakers.

The audio utilities in the package are especially strong. The most interesting utility is VoiceAssist, a Windows-based speech recognition program that lets you use voice commands to launch and control just about any Windows application. Unlike the speech recognition program that ships with the Media Vision sound cards, VoiceAssist lets you add your own application-specific commands.

You also get SBTALKER for DOS and Monologue for Windows, two text-to-speech programs; WaveStudio, a Windows-based application that lets you record, play, and edit 8-bit and 16-bit WAV files; Creative Soundo'LE, a Windows-based application that lets you record and play back WAV files in other applications using OLE (Object Linking and Embedding); Windows Mixer, an onscreen mixer that controls the levels of your audio sources; and much more.

Many factors go into choosing the best multimedia upgrade kit. If you're looking for an MPC Level 2 package at an excellent price, take a good look at the Sound Blaster DigitalEdge CD. The ability to upgrade the sound card to General MIDI, the caddy-less CD-ROM drive, and the strong audio utilities make it a terrific package.

Creative Labs
(408) 428-6600
\$999

Circle Reader Service Number 550

PAGAN

Ultima VIII

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- Incredibly smooth and lifelike animation — 400 frames of art per character (1200 frames for the Avatar) and 10 times the art of any previous Ultima!
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Circle Reader Service Number 160

 www.electronicarts.com

PRODUCTIVITY CHOICE

This flexible spreadsheet package offers a new, more efficient way of organizing information.

Stephen Levy

IMPROV FOR WINDOWS 2.1

You may never have thought it possible, but there's a whole new way of working with spreadsheets. With Improv for Windows, the new superstar from Lotus, gone are the traditional spreadsheet rows, columns, and cells. In their place you'll find items and groups—and a more efficient way of using and looking at data.

Improv offers a tremendous advantage to those who need more than an electronic version of a paper worksheet. Because of the way it organizes data, Improv is perfect for those who need to organize the same information in a variety of ways. It's also appropriate for people who need to make presentations. By using Improv to create different views of the same data and to place charts created from the data as views, users can actually create a sort of slide show with their data.

With Improv, you have to begin thinking in terms of items and groups. An item consists of a name and all the cells associated with that name. Improv uses the term *item* to describe both rows and columns for the location of data. If you're accustomed to the traditional spreadsheet structure, this can be a bit confusing until you realize that an item and all of its related cells are not fixed in any row or column.

You also have to be concerned with the concept of dynamic placement of data. In traditional spreadsheets, the data can be dynamic, but the structure of the worksheet is static. With Improv, the data



and the placement are both dynamic; that is, you can easily present the information in different ways without rebuilding the entire worksheet. And you can save each of your views within the same worksheet.

This dynamic views function is a powerful tool and is surprisingly simple to use. Imagine a worksheet that lists income, expenses, and profits for a company by regions. These figures are listed by month for each region, so this worksheet would show you the profit per region per month. With Improv, you can easily and quickly create a second view that groups the regions together by month, allowing you a quick comparison of the regions' income, expenses, and profit. The data for each of the items stays together in each view. No matter how you move the categories around, each item's data always remains together. And charting this same information is as simple as selecting the Create Chart option from the

menu. Being able to manipulate the data in a worksheet is very handy should you need to present information one way for the sales and marketing department and another way for the accountants.

Improv's paging feature offers another unique way of organizing data. It allows you to highlight specific data and still have other information at your disposal. In our example above, we could easily move the Income/Expense/Profit category into the paging position. This would mean that only one of the three items (income, expenses, or profits) for each of the regions would be displayed at a time. To see any of the other items, you'd just click on the page arrow. Thus, the paging feature allows you to isolate the data you want to emphasize and still be able to page through other information if necessary. You could likewise isolate the months, paging through the data one month at a time. Improv's paging feature is not just interesting; it's also an in-

valuable timesaver if you need to make a presentation that requires specific data to be highlighted for one group and other data to be highlighted for another. All the while, you'll still have other data handy if you need it when you explain ideas or when your listeners request further details.

Items can also be given style attributes. And when you change the layout of the worksheet by moving a category, the styles stay with the items, regardless of how the worksheet is organized. A full complement of formatting options is available, so you can change the text color, size, style, shading, and so forth.

To make your work even easier, Lotus has included a feature called Quick Menus. These menus give you easy access to common editing commands and other pertinent commands. You invoke Quick Menus by pressing the right mouse button; a standard pull-down menu appears at the mouse pointer—right where you're currently working. This helpful and convenient feature further illustrates the effort Lotus made to make Improv both innovative and easy to use.

And the package doesn't stop there. It offers another unique feature—dynamic general formulas. Unlike formulas in other spreadsheets, formulas in Improv are easy to understand. They are expressed in words, not in cell address notation. A formula such as Profit=Income-Expenses is much easier to understand (and remember) than +E4-F4. Formulas can apply to a range automatically, so copying them over and over again isn't necessary.

Improv is also self-docu-

menting: The formulas are placed in another pane on the screen in words. When you highlight any cell or item that is the result of a formula, that formula is also highlighted. This allows you to see how the result was derived.

Creating formulas is quick and intuitive. There are a number of ways to begin creating a formula, as Lotus has tried to accommodate the different ways users work with spreadsheets. You can use the menus and choose Create Formula, or if you're a traditionalist, you can press the = or + key to start writing a formula. Improv will supply the beginning of the formula, such as Profit=. Then all you need to do is click on the appropriate items and the Formula Bar.

Improv also includes all the charting tools that spreadsheet users have come to expect. You have 20 different types of charts to pick from: 9 bar charts, 3 line charts, 2 pie charts, 3 area charts, and 3 mixed charts. Among the assortment are both two- and three-dimensional options. Additionally, all of Improv's charts are dynamic, changing as the data in the worksheet changes. It's easy to create a chart, too: You need only select the data you want charted and choose Create Chart, and it's done.

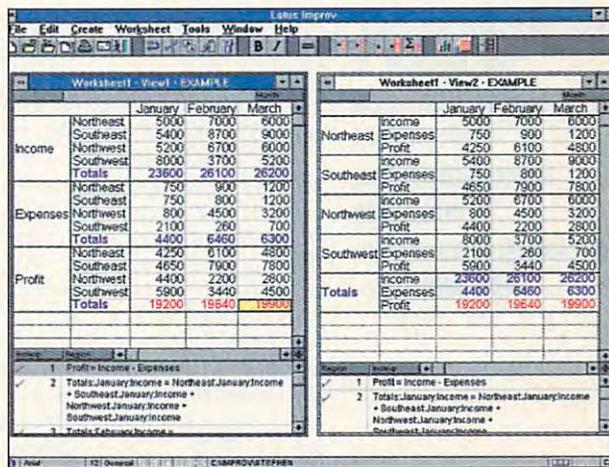
Improv doesn't neglect the powerful, advanced features experienced spreadsheet users will want. For instance, it includes LotusScripts, a tool for building applications based on Improv or extending Improv's functionality.

Of course, an important consideration when you look at any new spreadsheet is how well it imports data from other spreadsheets. Improv imports

data easily from other Lotus spreadsheets and from Excel. To import from Quattro Pro for Windows, however, you'll have to save the Quattro Pro file in a format that Improv can understand, such as 1-2-3. You can also import ASCII text files, although the imported text might need some work. Imported spreadsheets help the user of traditional spreadsheets feel right at home by using row and column numbers and letters as item names.

Lotus Improv for Windows 2.1 provides the software mar-

IBM PC or compatible (20-MHz 80386SX or faster), 4MB RAM (6MB recommended), VGA, Windows 3.1, hard drive with 12MB free, mouse recommended—\$495



ket with a unique set of capabilities for building, viewing, and analyzing data. It offers exceptional flexibility for displaying data. Spreadsheet users might find in Improv a new tool that will make their tasks quicker and easier. Those who often have to make data presentations will find Improv meets their needs. Lotus is to be commended for moving spreadsheets a big step forward. Improv's new, easy, and intuitive approach to data is long overdue. □

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Circle Reader Service Number 391

PERSONAL PRODUCTIVITY

Bradley M. Small

THE SUPPORT FOR OS/2 2.1

Last month, we took a close look at the power of OS/2. This month, we'll look at something equally important: third-party support for OS/2.

As we showed last month, OS/2 is highly compatible with Windows 3.1. The million-dollar question is how long OS/2 will be able to maintain Windows compatibility. IBM and Microsoft had a contract that involved each company's having access to the other's source code. This contract expired in September 1993. IBM will continue to be able to use the technology of 16-bit Windows (Windows 3.0 and 3.1) forever but will not have access to 32-bit Windows code (Windows NT) or any future version of Windows unless IBM and Microsoft renegotiate.

On the software side, OS/2 provides potential for growth. To start with, over 1700 OS/2 applications exist, both commercial and shareware. IBM will provide a list on request.

Will software continue to be written for OS/2? Peter Cohen, spreadsheet PR manager of Lotus Development, told me that Lotus is committed to developing for OS/2. "We've demonstrated this commitment with the [OS/2] products that we've delivered over the last few months." Lotus has released 32-bit OS/2 versions of cc:Mail, Lotus 1-2-3 2.0, Freelance Graphics, and Lotus Notes. And by the time this column goes to press, Lotus will have released Ami Pro for OS/2, making it the first company to have a full suite of OS/2 desktop applications.

WordPerfect has released and is shipping WordPerfect 5.2 for OS/2. It supports all of the features of the current DOS and Windows versions, and it comes with a 32-bit ver-

sion of Grammatik for OS/2.

In the OS/2 version, WordPerfect adds the document summary to the file's detail view. There are other important features like drag-and-drop printing and document registration that give it advantages over other versions of the product.

WordPerfect for OS/2 is a Mirrors port of the Windows version. Mirrors is a library used for porting existing Windows apps to 16-bit OS/2. Since the port is 16-bit rather than 32-bit, there is a performance hit. However, this product is intended as an interim solution until the full 32-bit 6.0 version is developed sometime in 1994.

Another important OS/2 developer is DeScribe, maker of the OS/2 word processor of the same name. DeScribe is a 32-bit product boasting many of the same features as the high-end DOS and Windows word processors and a few special features all its own. DeScribe has been available for OS/2 since version 1.1.

Hilgraeve has the top-selling communications product for OS/2, HyperAccess 5 3.1. It boasts network support (giving you the ability to use shared modems over a LAN), all of the popular download protocols, scripting with script learning, and many other features. Using host mode, you can control the host computer and even run DOS and OS/2 text-mode applications over the telephone lines from a remote computer.

Stac Electronics, the creator of Stacker, has released version 3.1 for OS/2 FAT systems. It provides on-the-fly file compression. It comes with both OS/2 and DOS drivers. Currently, OS/2 can't read PC-DOS or DOS 6 compressed volumes. Stac Electronics offers a special package for owners of DOS 6 that includes a conversion utility to convert Dou-

bleSpace volumes to Stacker volumes which are readable under both DOS and OS/2.

Soft Touch Systems makes a set of file- and disk-related tools called the GamaTech Tools. This is an essential package for OS/2. It handles both HPFS (the optional High Performance File System for OS/2) and FAT (the standard DOS file system). These utilities optimize, repair, and provide general maintenance for files and disks. They also provide file locking, system protection against boot-sector modification, and more.

Of course, Borland International has released an excellent OS/2 2.0 C/C++ compiler (a COMPUTE Choice Award finalist). Borland is currently working on an upgrade for the added functionality of OS/2 2.1. With the popularity of Borland development tools, more applications should soon appear as a result of Borland's interest in the operating system.

An indispensable book on getting the most out of OS/2 is *OS/2 2.1 Unleashed* by David Moskowitz, David Kerr, and others (published by Sams, 11711 North College, Carmel, Indiana 46032).

The major drawbacks of OS/2 are the question of future Windows compatibility and the hardware demands. With Windows-to-OS/2 ports becoming commonplace, perhaps compatibility isn't so much of an issue anymore.

On the hardware front, OS/2 requires at least a 386 and 4MB of RAM as well as 15MB to 40MB of disk space for installation. This is the minimum that will provide you with all of OS/2's capabilities. As you add more memory, you'll see more speed and efficiency. When you consider the requirements for Windows NT, OS/2's requirements are modest by comparison. □

Third-party support and compatibility are major concerns of users considering OS/2.

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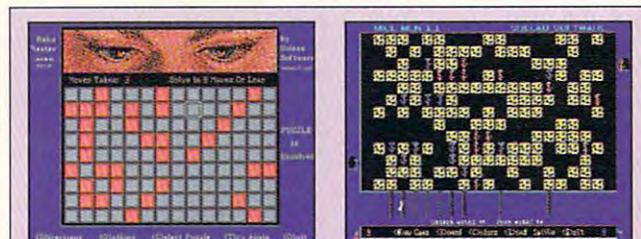
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MiceMen

MiceMen is another exciting, fun-filled, animated strategy game. Push and pull columns of cheese blocks to get your mice to the other end of the maze before the computer opponent beats you to the punch.

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ART WORKS

Robert Bixby

IN CAPTIVITY

There are a number of options for capturing a screen either in Windows or in DOS. The quickest and easiest way to save a Windows screen is to press PrintScreen in Windows. That saves the entire Windows screen to the Clipboard. You can then save it as a CLP file or paste it into Windows Paintbrush (the technique for this is covered in "Built-in Windows Power Tools" in the November 1993 COMPUTE), edit it, and then save it as a BMP or a PCX file. You can save only

ing not only a viewer and editor but also an image catalog that displays thumbnails of images. You can also capture from DOS, edit pictures, and convert images individually or as a batch. Collage Complete comes with a two-disk sample clip art collection.

Collage Complete for Windows has two separate icons: one for the capture program and one for the image-editing and -cataloging program. You have the option of capturing the active menu, title bar, menu bar, client, or window, the whole screen, custom co-

ordinates, multiple selections, or last coordinates. You can set the timer from 0 to 300 seconds. You can capture images to any of ten formats (including TIF, PCX, BMP, and GIF) in any of the following color levels: 16 gray

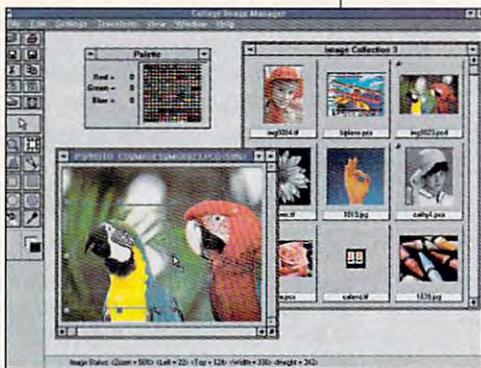
manipulation program is the most complete, but its interface is a little overwhelming. Graphics Tools (Delta Point, 2 Harris Court, Suite B-1, Monterey, California 93940; 408-648-4000; \$99.00) offers a slightly expanded features list including autotrace and a bonus CD-ROM that contains 700 pieces of clip art, 100 photographs, and demonstration versions of other Delta Point programs. Delta Point is known for its charting program, Delta Graph and Freeze-Frame (\$69.95), another image-capture and file-conversion application.

Graphics Tools will capture and convert among more formats than Collage Complete, but it gives less control over the image as it is captured. The image is captured as a TIF file, for example, but you cannot tell it to capture in monochrome or 16 million colors. You can capture freehand, a window, specified coordinates, an area, or full screen. If you elect to capture a window, you can refine the capture to a menu, an icon, or a dialog box by clicking on the object you want to capture. The only way to capture a DOS screen with Graphics Works is from within Windows.

Whatever you choose, you'll find that graphics manipulation has entered an era of extreme interoperability.

Have a DTP tip you'd like to share? Let me know about it by calling (900) 884-8681, extension 7010203 (sponsored by Pure Entertainment, P.O. Box 186, Hollywood, California 90078). The call costs 95 cents per minute, you must be 18 or older, and you must use a touch-tone phone. Or write to "Art Works" in care of this magazine. And if you don't have a tip, call to let me know what you're up to, what software you're using, and how I can be of assistance. □

Image cataloging adds another level of convenience to Collage Complete.



the active window by pressing Alt-PrintScreen.

Clif Karnes has written a program called Clip-In (which he may soon release as shareware) that will capture to the Clipboard individual elements of the Windows screen, such as a scroll bar, a dialog box, an icon bar, or an area you define yourself.

With so many alternatives available, commercial publishers have to go a long way to earn your dollar.

Collage Complete (Inner Media, 60 Plain Road, Hollis, New Hampshire 03049; 603-465-3216; \$199) is the successor to the fast and flexible Collage Plus. My only complaint about Collage Plus: It was difficult to get a look at the pictures captured. Collage Complete eliminates that problem by provid-

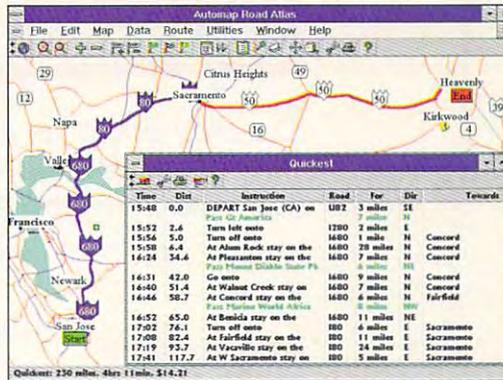
ing scale, 256 gray scale, 16 colors, 256 colors, 16 million colors, or monochrome. It supports TWAIN, so you can use your TWAIN-compliant scanner to scan images directly into Collage Complete.

Pizazz Plus 4.0 (Application Techniques, 10 Lomar Park Drive, Pepperell, Massachusetts 01463; 508-433-5201; \$149) has the simplest collection of tools under Windows of the three, but it can save to an incredible range of formats, most identified by applications, for which the image is custom formatted. It also has a recorder that remembers the transformations you perform on a graphic and can reproduce them on another graphic. The macro (called a recipe) can then be saved to disk.

Pizazz's DOS capture and



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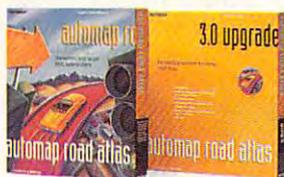
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DISCOVERY CHOICE

Dazzling graphics, full-motion animation, and crystal-clear sound effects bring dinosaurs to life as you learn the facts about these fascinating ancient creatures.

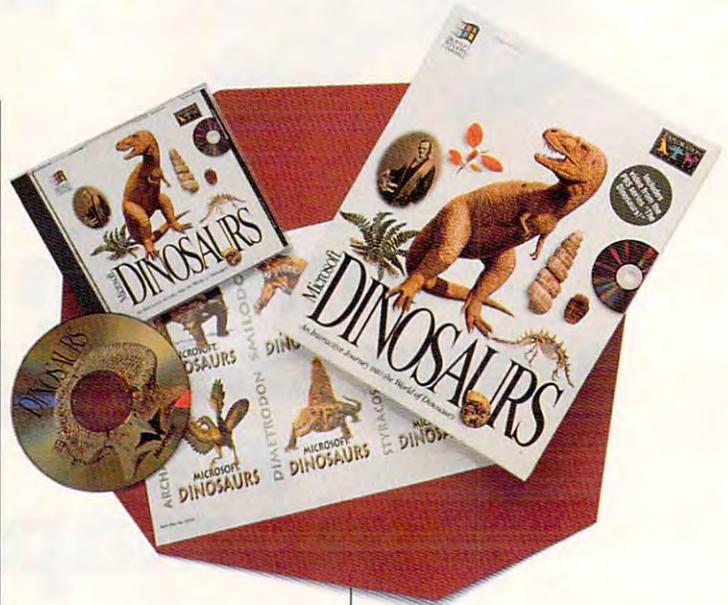
Scott A. May

MICROSOFT DINOSAURS

They say everything old eventually becomes new again. It must be true, because you can't get much older, yet more in fashion, than dinosaurs. From children's playful TV pals to big-screen terrors, these ancient creatures seem to fascinate us more than ever. Despite the renewed interest, however, myths and misconceptions persist. Microsoft helps bridge the gap between paleontology and pop culture with *Dinosaurs*, a brilliant interactive journey that takes you back in time.

True to its larger-than-life subject matter, this multimedia Windows CD-ROM packs a huge amount of information—nearly 400MB, including full-motion video, fantastic audio, and a gallery of beautifully scanned artwork. The main program weighs in at over 200MB, featuring a dazzling display of more than 1000 illustrations, 200 hypertext articles, and 800 pop-up windows. For dinosaur lovers, about the only thing better than this would be living next door to New York's American Museum of Natural History.

Big numbers are impressive, but they don't guarantee a good program. Atop this mass of megabytes sits a fabulous interface that allows the curious to explore in four ways: Atlas, Timeline, Families, and Index. For the timid, there's also Guided Tour, which is hosted by "Dino" Don Lessem, founder of The Dinosaur Society and editor of the *Dino Times*. His soft, folksy style uses humor to hook our curiosity and expert knowledge to keep us following his



lead on 16 different tours. You can abandon a tour at any time if you find a subject that piques your interest. Unfortunately, there are no video bookmarks, which would allow you to quickly return to specific points of interest.

Atlas takes you where dinosaurs roamed, areas divided into six geographic regions: North America, South America, Europe, Africa, Asia, and Australia. Learn how each species adapted to its particular climate and social order. A fascinating sidebar, *The Shifting Earth*, offers a crash course in plate tectonics. Here you'll see how land movement created new continents, restricting animal migration and possibly dooming some species to early extinction.

In addition to the interesting sidebars that offer explorers more information, most of the program's screens sport special hot spots—hypertext links to additional information. Click next to *Dimetrodon*'s sail to learn how this "reptile radiator" helped regulate the giant lizard's body temperature. Branch off yet again to discov-

er creatures with similar radiator sails, such as the warm-blooded *Spinosaurus*. Like any good reference, these hot spots allow your imagination to wander. There are no wrong moves or dead ends, and to backtrack, you simply click on the back icon.

Timeline begins with a graphic representation of the earth's history, divided into four major eras: Precambrian, Paleozoic, Mesozoic, and Cenozoic. Each era is then broken into small chunks of time, called periods. You'll learn that all dinosaurs lived during the Mesozoic era—divided into the Triassic, Jurassic, and Cretaceous periods—roughly 160 million years, yet merely a drop in the cosmic bucket. When viewing such a grand scale, you can't help but be humbled by man's meager stake on terra firma. The Mesozoic era holds many hypertext links to the Atlas section, particularly the Cretaceous period, when dramatic plate movement and rising seas helped isolate many species. The end of this era saw the end of the dinosaurs. The

program offers several dramatic theories to explain the cause of their extinction, as well as clues to some species that may have survived.

The section on families proves especially interesting for fledgling dinosaur explorers. It teaches the difference between the two main orders of dinosaurs—saurischians and ornithischians—designated, remarkably, by hip structure. You'll also discover that some creatures often mistaken for dinosaurs were actually reptiles, such as the flying Pterodactylus and Quetzalcoatlus. The who's who of dinosaurs is in this section, including the meanest (Tyrannosaurus Rex, of course), biggest (the plant-eating Sauro-pods), and smallest (the chicken-sized Compsognathus), among others.

Are you tongue-tied by these strange, multisyllabic names? You're not alone. That's why the designers included spoken pronunciations, one of the program's best features. Click on the speaker icon next to particular words or phrases, and you'll hear them pronounced in crystal clarity. Cindy Shrieve provides the voice; she also speaks the introductions to sidebar stories.

The fourth navigational option, Index, allows speedy access to every major article and species. Entries are both alphabetized and graphically displayed. Browsing through Index is also an excellent way to find articles on subjects you might otherwise miss, such as the fascinating art of skeletal reconstruction.

The program's multimedia highlight—six full-motion mini-movies—was added almost as an afterthought just prior to

release. Culled from the PBS series "The Dinosaurs," most feature quality animated watercolors, sound effects, and narration. The centerpiece film, *The Hunt*, was taken from Phil Tippett's 1984 work, *Prehistoric Beasts*. Filmed with stop-motion models, intricate backgrounds, and horrific sound effects, this exquisite animation depicts a deadly encounter between a Triceratops and a T. rex.

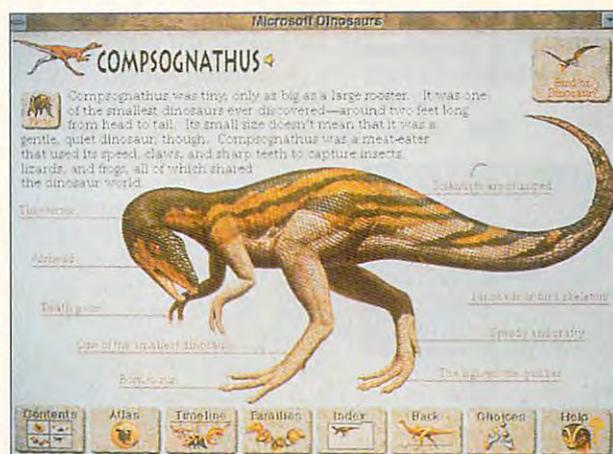
The program detects your current Windows graphics mode—either 16- or 256-color VGA—and loads the appropriate version. As you'd expect, the 256-color VGA graphics are stunning, from the stone-textured icons to the scanned artwork and digitized photos. The big surprise is the outstanding quality of the 16-color VGA version: Apart from only a slight loss of detail due to the dithering process, the graphics are just as attractive using a 16-color palette. This is especially good news for users with unaccelerated video cards, as well as those who simply don't want to switch video modes to run the program. Somewhat of a system hog, the program task-swaps well but prefers your system's undivided attention. Running resource-heavy applications in the background will slow Dinosaurs to a crawl.

Microsoft forgoes a printed manual in favor of online graphic help screens. Overview Movie is a special feature that helps new users; a talking tour of the program's main functions, it's delivered in the humorous style of a vaudeville revue. Another helpful option is the ability to print virtually any screen or active window, in either gray scale

or full color. The overall quality is excellent, but because these are screen dumps, graphics will print better when they're displayed in 256-color mode.

Believe it or not, there's more: Attached to each dinosaur profile is a Fact Card, a printable index card containing a full-color picture, an information chart, an interesting fact, and a scale drawing. And there's the dinosaur art

IBM PC or compatible (80386SX compatible), 4MB RAM, 16- or 256-color VGA, hard drive with 2.5MB free, MPC-compliant CD-ROM drive, mouse, MPC-



gallery, complete with 50 high-quality pictures that can be exported via the Clipboard or turned into wallpaper for a Windows background. There are even two built-in screen savers, your choice of stomping dinosaur feet or dinosaur heads. Finally, a slide-show option displays randomly selected program screens for those who simply can't decide where to begin.

Both highly entertaining and educational, Microsoft Dinosaurs is a wonderful blast from the past. The next time you're asked what the storage capacity of a CD-ROM is, just smile and say, "About 160 million years." □

compatible sound card, Windows 3.1 or higher—\$79.95

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GAME INSIDER

Shay Addams

THE YEAR OF THE SIM

MicroProse, acquired recently by Spectrum HoloByte, has quietly killed its animated adventure game department. In early fall it shipped Bloodnet, a role-playing game from the Paragon design team, but Dragonsphere will be the last such quest, and the company is also dubious about a follow-up to Darklands.

MicroProse will return to producing the kind of games that made it famous: simulations such as F-14 Fleet Defender, which should be on the shelves now, and strategy games like Sid Meier's Civilization. The Civil War sim Meier was working on has been put on hold until at least the fall of 1994 while he finishes CPU Bach for the 3DO. And he may decide to do an add-on for Civilization (or even a brand-new version) first—maybe something like Civilization in Space. MicroProse's new Coaches Club Football simulation and a space strategy game called Masters of Orion should already be in the stores.

More sims. Simulations continue to multiply, perhaps because so many kinds of games—planes, tanks, city builders—fall into this category. One of the most unique is Detroit, Impressions' ultimate automobile simulation. Detroit re-creates various aspects of the automobile industry by providing the tools for designing and mass-producing your own car. Marketing plays an important role in this resource-management challenge.

Interplay is doing CD-ROM versions of Maxis's SimCity, SimEarth, and SimAnt. The company is revamping each game extensively and adding digitized video. A 40-person film crew is currently shooting

footage for the CD-ROM version of SimCity, which is due out in the spring. The SimAnt CD-ROM should be on the shelves now. Interplay also released a CD-ROM version of Alone in the Dark recently, and at press time the company was saying that it hoped to ship an Interplay tenth-anniversary CD-ROM with Wasteland and nine more of its biggest hits by Christmas. Stonekeep, Interplay's landmark role-playing game, is now set for a spring release.

Not a simulation. The computer game industry is a bizarre one. You'd expect the hottest title from a company called Strategic Simulations to be a simulation, or at least a strategy game. But it's actually the latest release in the AD&D role-playing series, an all-new world set in the time of *The Arabian Nights*. Al Qadim is the name of the fantasy world, and Genie's Curse is the first role-playing game that takes you there. Unlike most AD&D games, it's a one-character quest. Your character is pregenerated, allowing you to jump right into the action.

You can get a batch of adventures in Legend Entertainment's Spellcasting Party Pak, which contains all three of Steve Meretzky's wacky Spellcasting games. Two recent Legend adventures, Eric the Unready and Gateway 2, have been released on CD-ROM. For something new from Legend, try Companions of Xanth, which sports a new, easier-to-use interface. Legend's Bob Bates calls the adventure, based on the works of popular fantasy writer Piers Anthony, the company's "most beautiful" adventure.

Better late than never? You may have noticed that a few of the games I reported on in recent columns have inexplicably missed their ship dates—

not an unheard-of event in the world of computer games, certainly, but that's no excuse for less-than-accurate coverage by a game insider such as myself. Sir-Tech has rescheduled Jagged Alliance from last fall to this spring, for instance. The second title in its Realms of Arkania series, Star Trail, is now planned for January or February. LucasArts' The Dig, Brian Moriarty's graphic adventure, is now set to hit the shelves in late spring. (I did learn that the mysterious Hollywood type involved in the project is none other than *Jurassic Park* producer Steven Spielberg. After deciding that a story he wanted to produce for the screen might work better and cost less as a computer game, he teamed up with Moriarty at LucasArts.) However, last month, when I said TIE Fighter would dock in time for Christmas, that was *my* mistake—I confused it with B-Wing, the X-Wing mission disk. TIE Fighter is a spring product.

Buttoned down for a dogfight. The most effective flight peripheral I've seen in years is the new CH Flightstick Pro. Based on the classic CH Flightstick, it's armed with three extra buttons atop the stick and a coolie hat that serves as a four-way switch. All the advanced flight sims support the new buttons for game-specific functions such as dropping bombs or switching guns. Most of them use the coolie hat to shift between views from the cockpit. I've seen similar features on more expensive joysticks that weren't as well engineered, and I highly recommend the Flightstick Pro. (The extra buttons require a two-stick game card; many inexpensive multifunction cards only support one stick.) If this stick doesn't improve your scores, you may as well go back to Pong. □

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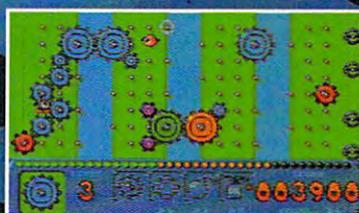
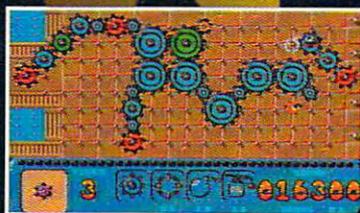
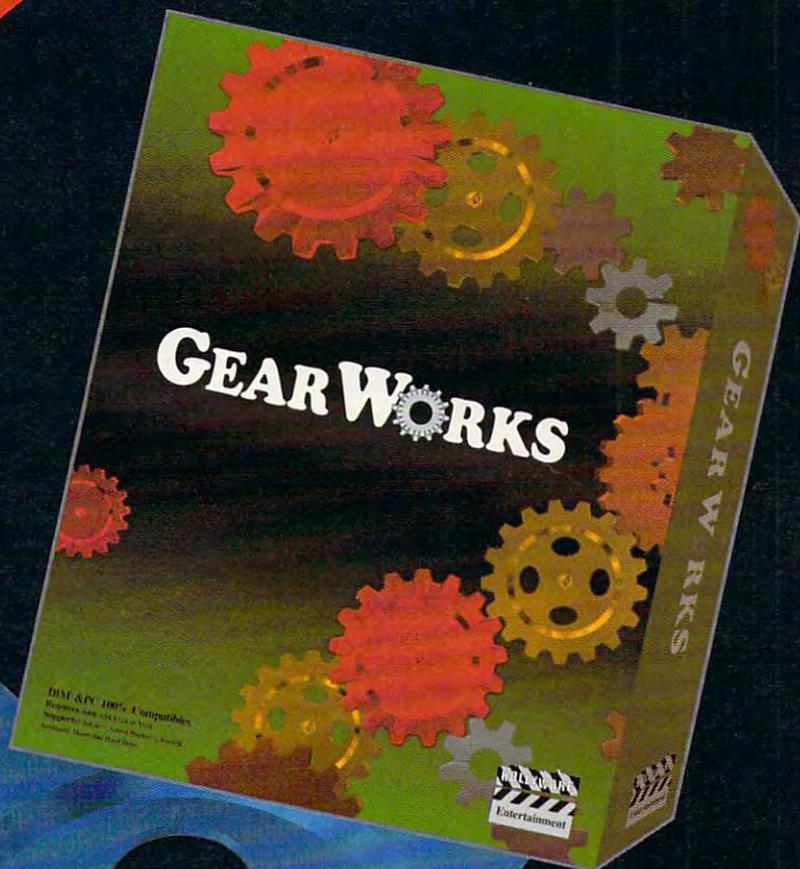
Gear Works is the most unique puzzle game to hit the market in years. In Gear Works you will connect gears of various sizes and colors together in order to transform Twelve Wonders of the Ancient and Modern world into time pieces, while racing against time and friction. Watch out for the Pottins, two gremlin like creatures, that will torment you by rusting the gears and breaking off the mounting pegs.

Game features: Various gear types, over one hundred puzzles to solve, bombs to blow up incorrectly placed gears and a gun to shoot those pesky Pottins off the play area.

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ENTERTAINMENT CHOICE

Lead fleets of starships in interstellar battles as you fight to save the Federated Worlds in this realistic space-opera simulation.

Keith Ferrell

RULES OF ENGAGEMENT 2

Can software re-create science-fiction experiences? This is a question that's been addressed by most of the major entertainment software publishers at one time or another. For some publishers, it's the question. Omnitrend, for example, has devoted most of its energies over the past decade to creating interactive interpretations of a particular type of science fiction, the space opera. Its latest game, Rules of Engagement 2, may well be the finest science-fiction simulation ever developed.

Space opera is one of the grand traditions of literary science fiction. Like its antecedent, the horse opera, space opera works from several givens. Fleets of mighty starships substitute for the cavalry and the bad guys. Space operas often are set along frontiers, with colony worlds serving the roles played by prairie towns. Climactic battles are preceded by smaller confrontations, the stakes rising with each new conflict.

Of course, horse operas are pretty much restricted to rifles, pistols, and the occasional Gatling gun, while the space opera at its most ambitious can hurl whole solar systems into different continua. *Crashing Suns*, for instance, is the title of one of the earliest space operas.

At its best, space opera is more than just adventure fiction. Good space opera should be good science fiction as well, taking place in a carefully designed and delineated universe that is self-consistent within the bounds of the story that contains it.



Space opera—or what passes for it—has played a large part in the interactive entertainment explosion. And that's not surprising, as space opera has played perhaps the dominant role in all electronic media forms of science fiction. "Star Trek" is essentially a space opera, and the Star Wars saga is little more than that. Interactive space opera has tended to follow the Star Wars pattern: lots of arcade action, speed, bells and whistles, and little attention to or reflection upon what actual interstellar combat might be like.

That sort of reflection and attention is exactly what Omnitrend has brought to its science-fiction simulations. Its simulations follow three separate, though interlocked, tracks, all set within the same universe. One of the Omnitrend series, *Universe*, deals with interstellar exploration, trade, and settlement. Then there's the *Breach* series, which focuses on ground-combat troops. And third is the *Rules of Engagement* group, which puts players in charge of fleets of military starships.

All of the games take

place in the same self-consistent universe, and a very strange and dangerous place that is. Like most good science-fiction universes, this one has a history. According to the Omnitrend scenario, over the next century the human race develops faster-than-light travel and begins the colonization of planets in our local galactic area. Humans being a fractious species, factional differences develop, and humanity splits into two groups: the Federated Worlds (you) and the United Democratic Planets (them).

There are also aliens of various levels of malevolence and competence. And, in the best science-fiction tradition, there are remnants of an ancient and very advanced species. This is a remarkably well thought out universe, full of details that lend just enough credibility to suspend disbelief. As illusions go, the Omnitrend universe is quite convincing.

Of the games set in this universe, *Rules of Engagement 2* is by far the most ambitious. It's a campaign-oriented game: You start out as a ca-

det and work your way up the ranks, facing larger challenges and commanding more powerful forces with each advancement. A beginner campaign is included, but you'll quickly find yourself facing large combat and command challenges.

Command, not incidentally, figures largely in the game. In the more advanced scenarios, you'll find yourself with whole fleets of ships at your disposal. It's your responsibility to select individual ship commanders from the roster of those available. All the characters have their own traits, competencies, and vulnerabilities—any one of which can affect how they respond to your orders.

Once you embark upon a campaign, you're in the center seat of the flagship, which can be a lowly transport traveling solo or a mighty dreadnought leading a fleet, depending upon the mission configuration. (Actual ship selection is up to you, but each scenario gives you only a certain number of configuration points to spend, which means that you can't get the best ship every time.)

The command interface is a marvel: Not only is it effective and sensible, but it also has a design that serves to enhance the game's illusion. This thing feels like a starship command center.

You're presented with a variety of ship systems: tactical, navigational, communications, damage control, and docking. Within each system are subsystems specific to tasks at hand, such as selecting missiles for combat or loading and unloading cargo. Your monitor screen can be divided into command quad-

rants, with the quadrants displaying different systems or subsystems within a larger group. Tactical command, for example, gives you access to fire control, defensive shields, positioning relative to the enemy, and more. Included in communications are both transmission and reception. Navigation houses the helm, maps, and long-range sensors. You'll learn quickly which arrangements work best in different situations.

You'll also learn—with luck, rapidly—to coordinate the systems during combat. Often, your enemies are better armed and equipped than you. The simulation gives you the tools necessary to crack each scenario, but it requires you to learn as you go; of course, that further enhances the game's career advancement motif.

If you also play Omnitrend's Breach series, you can interlock the games, moving from Rules of Engagement 2's starship command to Breach's ground-force command as you board and seek to capture enemy installations. The next release of Universe will also interlock with Rules of Engagement and Breach.

Documentation is extensive, thorough, and refreshingly well written. You'll want to pay attention to the breakdown charts of ship and system capabilities; there's information there that will affect your weapons selection and possibly turn the tide of desperate battles.

And the battles do get desperate. Systems can be damaged or knocked out; capabilities can be diminished. Allies respond in realtime, and the clock is always running. You

may need full power in three minutes, to borrow a cliché from another space opera, but if the simulation runs six minutes before full power is available, you may be out of luck. There are no TV space-opera miracle workers here.

Rules of Engagement 2 is a high-level simulation that demands good equipment. It will run on a slow 80386, but a faster machine makes it sing. (Actually, it talks, if you have sound support.)

Scenario design has become an important pastime

16-MHz IBM PC 80286 or faster (25-MHz 80386SX or faster recommended), 640K RAM (2MB recommended), VGA, hard drive with 8MB free; supports Microsoft-compatible mouse, math coprocessor,



for Omnitrend fans, and with Rules of Engagement 2, the company has gone so far as to prepare a special developer's kit, which you can purchase directly from Omnitrend. Additional scenarios for the game are already popping up on bulletin boards and online services.

Rules of Engagement 2 is a serious simulation and a masterpiece of interactive science fiction. Software space opera doesn't get any better than this. It's a game—and a vision of the space-operaic future—that would do Poul Anderson, Jack Williamson, or E. E. Smith proud. □

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and Sound Blaster, Ad Lib, Roland, and Pro AudioSpectrum sound cards—\$69.95

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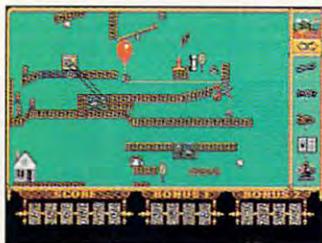
GAMEPLAY

Denny Atkin

COASTERS AND RUBE GOLDBERG

And now for something completely different! Only computer gamers could find themselves in a rut because they've spent too much time exploring dark dungeons, flying F-16s, and playing professional football. If you want to try something really different, both Disney and Sierra/Dynamix offer breaks from the ordinary. And amazingly, in today's world of 20MB games, each of these games ships on

The Even More Incredible Machine presents you with 160 Rube Goldberg-esque challenges.



a single high-density floppy.

Coasting along. Disney's Coaster takes you off the flight line and into an amusement park, but at the speeds and altitudes you'll reach here, you may forget you're not still flying a jet fighter. This program, originally announced last year, is a construction set that lets you build, test, and ride your own roller coasters.

You'll start out in the Coaster Design section, where you can create your ride from scratch or modify one of a number of existing designs on a 640 x 480 VGA screen. You've got straight track, curves, loop-the-loops, and corkscrews to choose from. Sections can be different lengths, they can climb or plunge at angles up to 60 degrees, and they can twist up to 50 degrees in curves. Sections of track can be lifters or accelerators, or they can be equipped with brakes. You'll

need a mouse for this section of the program, which has to be one of the easiest-to-use construction sets I've ever encountered.

Track design is fun, but you've got to be careful. One of the most difficult aspects is making sure that the final section of track can actually wrap around and meet the platform again. If you ever created your own track layouts with model trains or electric racecars when you were a kid, you'll recognize this difficulty—you create what would have been the perfect layout, except there's no way to get the track back to where you started building it.

Once your track is laid out, it's off to the Ride screen. Just select Ride from the pull-down menu, and you're in the coaster car. Note that if you haven't installed the upstops, which keep the car from flying off the track, or if your track ends in midair, you won't be able to get anyone to board your coaster. Click the mouse button to launch, and you're in for a wild ride. Fast graphics and realistic sound effects make the ride a fun experience, but it's not very interactive. You do have buttons to accelerate or brake if you find that you haven't quite planned the proper amount of momentum in your coaster design, but that's the limit of interactivity here. Most of the game is in the designing, not the riding. After the ride's finished, you can get opinions on your coaster from a panel of evaluators. These will range from "Well, lasso me to a bronco! That was one of the best trips I've ever had!" to "I've seen better speed bumps at the post office." The Signature screen lets you examine a graph that shows the lateral and vertical g's achieved, maximum speed, longest drop, and other stats.

Once you've perfected your design techniques on Earth, you can try again with moon or Jupiter gravity, which can make for some interesting design problems.

Coaster is a winner in many respects. The only problem is that the graphic updates are too fast on a speedy PC, making loops nothing more than a blur. If you're the type who enjoys building for building's sake—if your fondest childhood memories involve Legos and Tinkertoys—you'll love this little game. It's a bargain at only \$24.95.

TIM's back. From Jeff Tunnell Productions comes Sierra/Dynamix's latest puzzler, The Even More Incredible Machine. If you played The Incredible Machine, you know what to expect, as TEMIM offers 160 new levels with everything that made the first game fun. If you're not familiar with the series, TIM and TEMIM essentially put you in the role of Rube Goldberg. You have to create complex, interconnected contraptions to accomplish goals that range from popping balloons to saving a little white mouse from a hungry cat. You connect pulleys, motors, jack-in-the-boxes, ropes, balloons, and many other parts to try to set off reactions that will accomplish your goal. The puzzles range from really easy to, at the end, well, really puzzling. My favorite aspect, though, is that the game is smart enough to let you win even if you pick a solution that may not have been what the programmers intended. Many times, I've solved the puzzles and had parts left over. TEMIM is extremely easy to learn, and both young kids and adults will find hours of enjoyment here. I know I did—I installed TEMIM at 9 p.m. and didn't get to bed until after 3 a.m., and many, many levels of play had passed. □

**BEWARE,
THE SOUL OF YOUR MACHINE IS IN MORTAL DANGER!**

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Dracula



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TRAVEL TO EXOTIC LANDS, MEET STRANGE CREATURES AND BLOW THEM AWAY!



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You've always considered yourself a soldier of fortune with a knack for survival and a thirst for green. Your mission? Anything for a price. But this time it's different. The stakes are a little bit greater and the danger is all too real. You and your team are on a desolate moon, surrounded by less than friendlies, with only one goal besides the mission itself; stay alive long enough to enjoy your newfound wealth.

Hired Guns is an adventure that can accommodate up to four players simultaneously. It features furious non-stop action, first person 3-D view and auto-mapping of the 1.7 million cubic meters of play area. Choose from 12 different richly developed characters to suit your needs for the mission at hand. Journey through this desolate land, all the while testing your survival skills. And remember: TAKE NO PRISONERS!



Hired Guns is available on IBM compatible and Amiga formats.

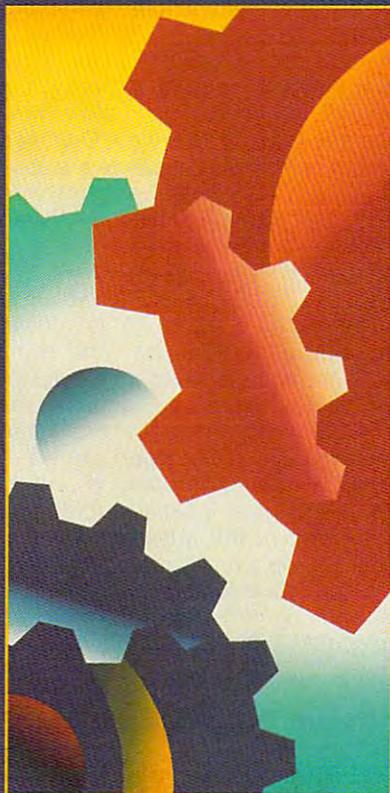


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BUILDING THE ULTIMATE GAME MACHINE

ARTICLE BY PAUL C. SCHUYTEMA

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Your face is washed in green from the infrared sensors; all around it's dark, silent except for the rhythmic whooshing of your rotor blades. Your left hand pulls back on the collective, increasing the lift of your Comanche helicopter. Your right hand thumbs your view left, then right; and the chopper lifts slightly, maintaining a steady hover in the South American night. Your feet, secured in control pedals, shift slightly, altering the speed of your tail rotor, twisting your craft starboard. A valley lies ahead—low passage into enemy radar territory. You push your joystick forward, cycling through your weapons systems with a thumb button. Only feet above the shallow river, airspeed nearly 200 miles per hour, you swoop in for battle.

A scene from the latest action movie? A training simulator for the new army? No, it's only a home computer resting on a desk in a small Midwestern town, and you're just playing a game.

What parents jokingly (and fearfully) called an obsession for their children—mindless, countless hours glued to a television set, Nintendo controller in hand—has evolved into a sophisticated, intelligent adult hobby. With the continued evolution of the PC and the savvy marketing strategies of the game-publishing industry, the PC game market has blossomed. Entertainment marketing leaders realized years ago that we adults, admittedly or not, want to play, and that we want more than just jumping, shooting, and collecting power pills: We want a complete experience.

But why is it that on your machine the latest, superhyped game is a dud? Your system probably doesn't have the power to entertain. PC games have evolved to a level of sophistication not even dreamed of a few years ago. It has only been in the past three years or so that PC games have begun to eclipse the playability of the Sega Genesis or the Super Nintendo systems. Even as late as a year ago, if you really wanted to play a great, fluidly animated football game, you had to look to cartridge systems. Now, thankfully, all manner of simulations and adventures abound on the PC, providing enough depth to entertain intelligent adults for months on end.

The Price of Power

Of course, the cutting edge of entertainment software comes at a price. Nowhere in the PC software industry does a group of products ask more from its hardware. A typical flight simulator will push your computer to its

limit, making it breathe a sigh of relief when it merely has to calculate the sales statistics for a company of 500 employees. The games hitting the market now require the most powerful processors, hefty chunks of RAM, and large tracts of hard disk real estate.

In addition to the hardware requirements, the PC game market is rich with support systems, from peripherals such as sound cards or voice recognition systems to advanced, programmable flight controllers and even entire cockpit systems.

So what is a person to do? What is the ultimate PC game system? If you're a serious



The CH Flightstick puts power in your hands and delivers ultimate control.

hobbyist looking to set up a solid, long-lasting computer system, there are a few guideposts that will help you on your way. Follow these steps to build the ultimate game machine; then sit back and enjoy gaming as it was meant to be.

Get a Solid Foundation

First, you'll want a solid base on which to build. Your CPU and memory capabilities are of utmost importance. Look into a 486DX2/66 computer system. Currently, the Pentium chip is still too new to be an absolute safe bet, but a 486 will provide you with enough computing muscle to handle even the most demanding game programs.

To support your CPU, you'll need RAM and hard disk space—and the more of it, the better. Don't even consider settling for anything less than 4MB of RAM. Ideally, you'll need a system with 8MB–16MB. You can have more than 16MB, but if you do, you run the risk of running into addressing problems and the potential for program crashes. So think twice before heading off to buy 32MB.

Your hard disk is probably your most vital asset, so choose a brand-name drive such as Quantum, Maxtor, Western Digital, or Seagate. As opposed to RAM, where too much

might not be a good thing, hard drive space is never, ever a hindrance. Buy as large a drive as you can afford. Consider a 200MB hard drive as the smallest to accept, with 400MB or more and a fast access time (less than 18 ms) as your best bet, unless you can afford better.

Budget for the Best View

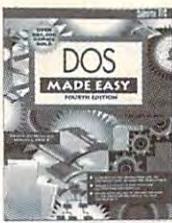
After storage, your monitor system is the most crucial component of your game system. Seek out the best non-interlaced monitor you can afford. One that's 15–17 inches is best, and make sure that it supports VESA standard modes. You'll also need a video card to control your monitor; there are plenty of good choices here. To shoot for the best, get a local-bus motherboard that supports the VL-Bus (see the November issue of COMPUTE for an overview of the various PC bus standards). This will allow your VL-compatible video card to operate at 33 MHz on an 80486/66 system (considerably faster than the 8-MHz ISA plain-vanilla video system used on most computers).

All computers come with a floppy drive, and a single 3½-inch drive is becoming the standard. Because of this, a 5¼-inch drive is no longer a necessity. You will, however, want a CD-ROM drive to sit in that vacant drive bay. Many systems now come bundled with CD-ROM drives at very reasonable prices, but be sure you get one that has a fast access time (under 300 ms) and is Photo CD compatible.

Currently, CD-ROM drives offer three different methods of getting the disc into the drive. First is the removable case: Much like the CD-ROM's own jewel box, it consists of a plastic housing with a metal shutter into which you place the disc; you slide the entire unit into the drive. The second method features a lightweight tray that slides out from the drive on which you place the disc, much as you do with audio CD players. The third allows the entire drive to slide out, flipping open its lid so you can insert the CD-ROM. While the first method can be annoying, it's a good choice if you'll have children using your system. A youngster is likely to force and break one of the integrated trays, necessitating a costly repair. The caddies are only a few dollars each, and you can buy several in which to store your most-used CD-ROMs or your children's CD-ROMs.

Software Tricks Expand Your System

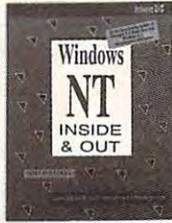
In addition to getting the right hardware, you'll need some software tools



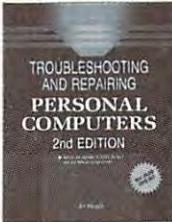
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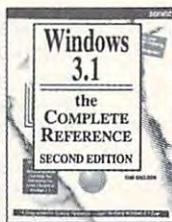
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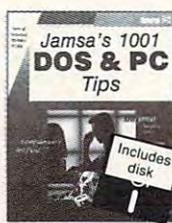
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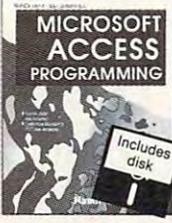
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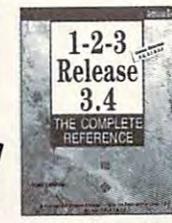
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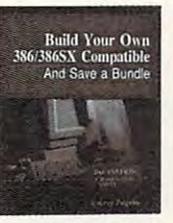
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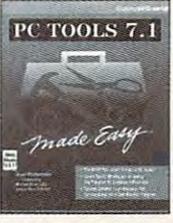
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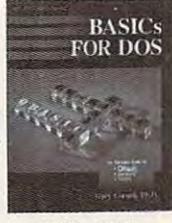
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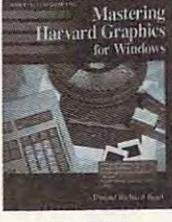
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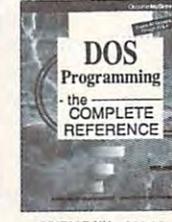
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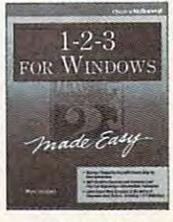
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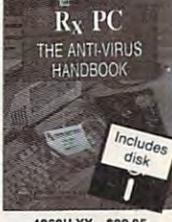
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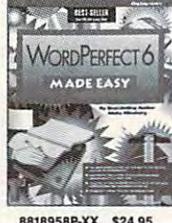
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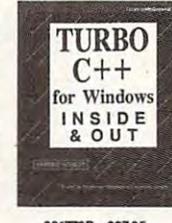
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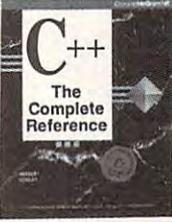
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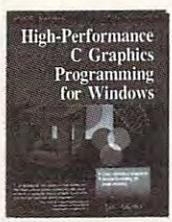
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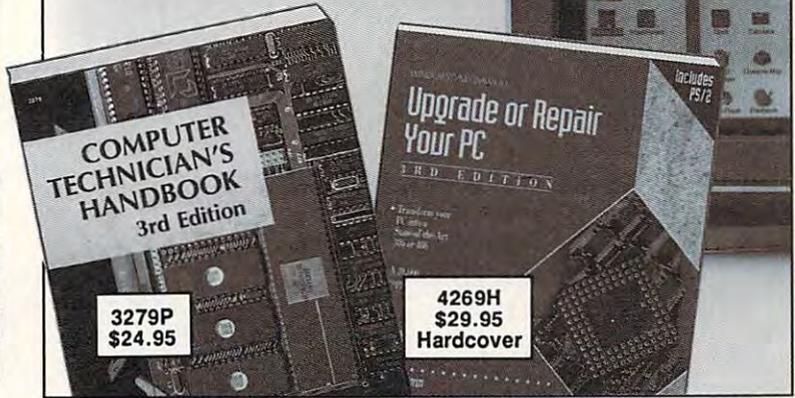


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Cache of Ultimate Games

Each month, the technology envelope is expanded, and games are able to do more to bring us a complete experience. Below is a list of essential games—some of the best software out there just waiting to feed off the power of your ultimate game system.

Betrayal at Krondor

A fantasy game set within the fictional world of Raymond Feist's Riftwar saga, this game uses Dynamix's 3Space system (borrowed from the company's flight simulator programs), and the rotoscoped animation gives combat a hauntingly realistic feel. The game is played in chapters, and the depth of the characters and subplots is amazing. An 80486/66 allows you to set the movement increments to the smallest setting, creating the illusion that you're truly walking in this alien world.

Dynamix
Distributed by Sierra On-Line
(800) 326-6654
\$69.95

Comanche Maximum Overkill

This near-future helicopter simulator, which utilizes fractal mathematics to generate incredibly realistic terrain, has recently been improved by the addition of a mission disk. Now you can fly over icy streams and hot desert canyons, battling more tenacious opponents than before. Playing Maximum Overkill on an 80486/66 with the full array of Thrustmaster controls is an experience that shouldn't be missed.

Nova Logic
(818) 774-0600
\$69.95
Mission Disk One—\$39.95

Front Page Sports: Football Pro

For years, the animation required to make an entire football team look realistic was beyond the power of the PC; hence, we had years of programs with blocky running backs or simply numbers floating above the field. FPS: Football Pro and high-powered PCs have changed that. Now you can view rotoscoped players in realistic detail. FPS: Football Pro is an armchair quarterback's dream come true, with complete playbook editing, allowing you to create any type of offense or defense imaginable. With the ulti-

mate game setup, the play is smooth and fluid, and you rarely have to wait for the program to access the hard disk.

Dynamix
Distributed by Sierra On-Line
(800) 326-6654
\$79.95

Links 386 Pro

This photorealistic golf game is starved for computer power, but an 80486/66 is more than enough to satisfy it. Teeing off at Banff Springs, one of Access's latest courses, you have a breathtaking view of snow-capped mountains. Birds chirp in the background as your ball lands in the fairway, chipping distance from the green. As the view changes, the screen redraws in under five seconds on even the most realistic detail levels.

Access
(801) 359-2900
\$69.95
Banff Springs course—\$29.95

The 7th Guest

This is a milestone of computer technology, coming on two compact discs. The game places you inside an exquisitely rendered Victorian mansion. You must solve dozens of puzzles based on old Victorian parlor games and follow the adventures of six ghosts as they try to find the secret of the seventh guest. A fast computer is a must for this game, along with a fast CD-ROM drive and an advanced video card.

Virgin Games
(800) 874-4607
\$79.95

Strike Commander

Origin's latest cinematic endeavor is a visually stunning F-16 flight simulator set in an interactive story in which you fly with a band of near-future mercenaries for hire. This game asks more from your computer than any other game released to date, but it rewards you with gorgeous graphics, a unique panning view made just for the Thrustmaster flight control system, and gameplay that will provide hundreds of hours of boggy-chasing enjoyment. With an 80486/66, you can perform quick, intuitive snap rolls and Immelmans without bogging down the processor.

Origin
Distributed by Electronic Arts
(800) 245-4525
\$79.95

VistaPro 3.0

While not a game, VistaPro is a fascinating product that allows you to render landscapes based on actual U.S. Geological Survey data. Using fractal technology and a wide assortment of options and controls, such as tree lines, haze altitudes, and cloud patterns, you can create superrealistic vistas of natural beauty. VistaPro allows you to create animations that take you on a journey through a virtual world. Rendering a scene at the highest detail levels takes just five minutes on an 80486/66.

Virtual Reality Laboratories
(800) 829-VRLI
\$129.95

World Circuit

Get ready for a feeling of speed so mesmerizing that after playing, your real car will seem like a hopelessly underpowered slug. World Circuit is a Formula One driving simulation and easily the most advanced driving game yet produced. You can drive the complete international circuit of races, with each course painstakingly re-created, and you can adjust your gearing ratios and tire type for various race and weather conditions. World Circuit even allows you to control the frame rate of the animation behind the wheel.

MicroProse
(410) 771-0440
\$59.95

X-Wing

Fly the same type of star fighter that Luke Skywalker flew to save the rebellion. This game is more of an advanced space-flight simulator than an action game, allowing you to tweak and adjust power configurations for maximum speed, protection, or firepower. All of the familiar sounds from *Star Wars*, from the plasma burp of the X-wing cannons to the banshee wail of a passing TIE fighter, truly throw you into the fiction of the game.

LucasArts
(800) STAR-WAR
\$69.95

Arriving soon...

TOWER!

Tower cab simulator.

Photo-realistic graphics and features like a 360° scrollable view and easy access information displays put you right in the middle of all of the action.

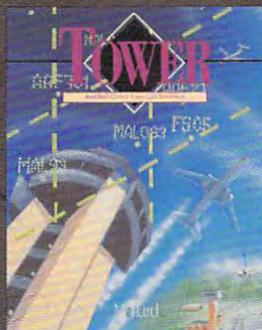


Tower puts you in the controller's chair high atop the tower cab of a major airport to choreograph the movement of the incoming and outgoing air traffic.

You control runway activity, ground crews and terminal traffic through a 360° scrollable out-the-window view with your keyboard or mouse. Local radar displays and easy-access information displays give you crash reports, news stories and more. You can also link, via modem, with Microsoft's® Flight Simulator® and Mallard's Air Traffic Controller™.

Character-style game play allows you to work your way up the 'corporate ladder' of each airport gaining perks, acquiring passwords to new levels and getting promoted accordingly. Points are scored depending on varying levels of traffic at different airports, types of pilots, time of day, weather conditions and the problems and emergencies that face the controller on the job every day.

So if you think you're up to the challenge of directing traffic of a 'big league' international airport, get to your local software retailer for the arrival of **Tower!** From the publisher of today's hottest flight simulation enhancement products, Mallard Software. Who else?



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to build a solid game platform. First on the list is Microsoft's DOS 6. This recent update of the ubiquitous operating system implements two features essential for serious gaming: memory management and the ability to set up single CONFIG.SYS and AUTOEXEC.BAT files to handle multiple configurations. Today's top game software products are notorious memory hogs, and they need as much conventional memory (below 640K) as possible. DOS 6's MemMaker utility will optimize your startup files and give you the most memory possible. Also, many games require you to create a boot disk to provide enough memory for the game to run. DOS 6's ability to create multiple configurations, selectable by a menu at startup, is a true PC godsend. You may configure a default work setup, a game setup that uses EMS and one that doesn't, and so on.

If you're a power user who wants to play with the monster games, then MemMaker probably won't free enough memory. You'll need Quarterdeck's QEMM 7 memory manager utility, which not only will free up more than enough memory but will even optimize parts of your multiply configured system.

Finishing Touches

While the system I've been describing would make a great business system (yes, a game computer can also double as a true power user's workaday system), it's missing some of the essential components needed to transform it into an engine capable of simulating anything from jet flight to medieval sword combat. Without these finishing touches, your game machine will leave you cold.

Foremost of the trimmings are a sound card and a pair of quality speakers. For sound, consider a 16-bit card which features full Sound Blaster compatibility (still the standard for digitized effects and samples). Your best bets are either of the two 16-bit Sound Blaster cards or Media Vision's Pro AudioSpectrum 16-bit card. If you want even better sound, consider purchasing a Roland LAPC-1 or SCC-1 sound module to work in conjunction with your sound card. The result is unbelievable sound quality.

To get the most out of your sound system, you'll need self-powered speakers. Several companies now offer three-speaker systems (a sub-woofer and two satellite speakers) specially designed for PC use, and Roland manufactures the MA-12 speaker system, which will put more punch on your desktop than is heard in most home

Tips

- If you're going to set up your system with a hard disk compression program, be sure to leave a healthy allotment of uncompressed megabytes for gameplay. Many games don't take kindly to compression utilities.
- With DOS 6's multiple configuration option and the ability to create menus in your startup files, you can create a layered menu system to access your library of games, thus bypassing DOS's somewhat cryptic commands.
- If you're putting together your system a piece at a time, pay close attention to the IRQs and DMA specifications of CD-ROM controllers, game cards, and sound cards. Write the information on an index card and tape the card to the side of your monitor, since some installation programs require you to provide that information as part of the installation process.
- If you're a true game junkie, consider adding a removable hard drive to your ultimate system. You can back up your game directories on the disk and easily copy them back to your hard drive if you ever need to reinstall them.
- Buy the best joystick you can afford; a cheap one is just that—cheap. If you can, try several out before you buy. Life is too short to play with inferior equipment.
- Purchase a small light for your desk. Playing games by the monitor's light is great for effect, but fumbling for copy protection keywords or a certain key on the keyboard requires just a touch more illumination.
- Consider purchasing a joystick platform, either for your desk chair or desktop. Control will be much more ergonomic, and hence your gaming will be more fun.
- Also consider a truly comfortable chair (you don't want to feel like you're at the office, do you?). I use a canvas sling lawn chair; it may look odd, but it feels just right.

audio systems. Another good source of powered speakers is your local music shop. There, ask for help with self-powered studio monitors.

Finally, your system will need some form of input device other than your keyboard. Most systems now include a mouse, which is good for menu

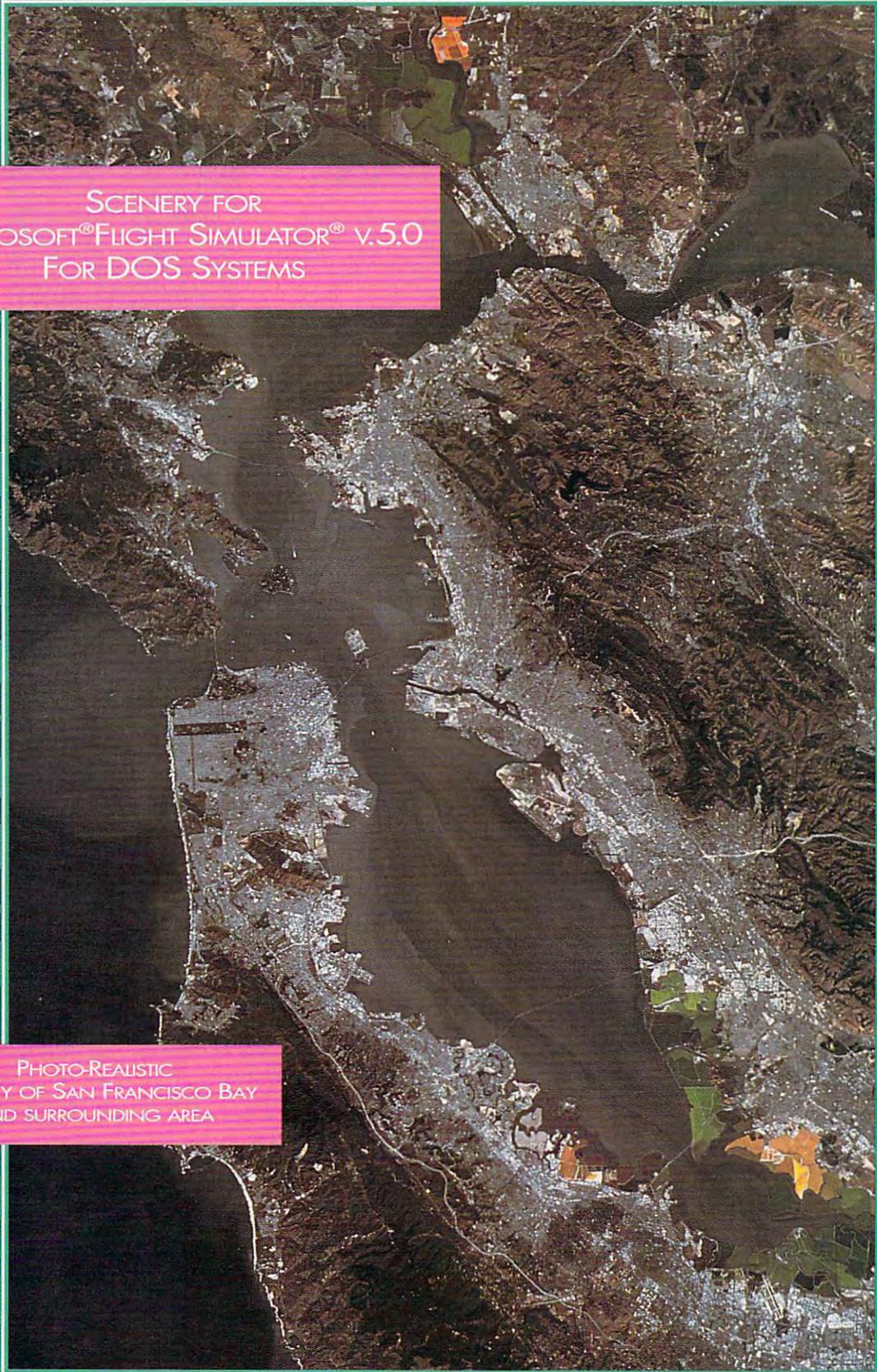
selection but not for serious gameplay. You'll need a joystick for that. If you're running a high-powered 80486 system, you'll be best served by a dedicated joystick controller card, such as the ones offered by CH Products or Thrustmaster. While many systems, as well as many sound cards, are supplied with integrated game ports, the ports are just not fast enough for smooth control on a speedy PC system.

For a basic joystick, none is better than the CH Flightstick. The quality and control will make you glad you spent the few extra dollars. For more advanced control options, especially if you enjoy flight or space simulators, you can choose from a wide array of options, such as the CH Flightstick Pro. CH Products also offers the Virtual Pilot, a smooth, hefty flight yoke (such as those found in Cessnas and other private planes) with a throttle control. The yoke is also excellent for driving games, but it's a little slow for fast-paced games such as X-Wing or the Wing Commander games.

Thrustmaster offers a complete system centered on its new Mark II weapons control system. The Mark II is a throttle control built for the left hand; it features seven customizable buttons. It's essentially a self-contained computer; you can write simple programs to completely configure the joystick/throttle system to the specific game you're playing. Thrustmaster also offers a flight control system in a military-style joystick featuring four buttons and a coolie hat at the top, enabling a flight sim jock to change the view with a simple flip of the thumb. For the ultimate in realism, you can get one of the company's rudder pedals for foot control of an airplane's rudder, enabling you to make such moves as supertight turns, slips, and precise targeting.

The ultimate game system is more than just a cutting-edge game machine; it's also an extremely powerful utilitarian computer, one which will give you years of use for under \$3,000. Shop carefully, and if you're purchasing components separately, check with the manufacturers to assure compatibility.

A solid, high-performance PC system is the cornerstone of the exciting hobby of PC game playing, and it's a hobby that offers escape, excitement, challenge, and nearly endless variety. If you want to have serious fun, you need to have a serious system. Budget for these minimum ultimate game machine system requirements, and your personal computer will have the power to entertain. □



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900 MHz breakthrough!

New technology launches wireless speaker revolution...

Recoton develops breakthrough technology which transmits stereo sound through walls, ceilings and floors up to 150 feet.

By Charles Anton

If you had to name just one new product "the most innovative of the year," what would you choose? Well, at the recent *International Consumer Electronics Show*, critics gave Recoton's new wireless stereo speaker system the *Design and Engineering Award* for being the "most innovative and outstanding new product."

Recoton was able to introduce this whole new generation of powerful wireless speakers due to the advent of 900 MHz technology. This newly approved breakthrough enables Recoton's wireless speakers to rival the sound of expensive wired speakers.

Recently approved technology.

In June of 1989, the *Federal Communications Commission* allocated a band of radio frequencies stretching from 902 to 928 MHz for wireless, in-home product applications. Recoton, one

of the world's leading wireless speaker manufacturers, took advantage of the FCC ruling by creating and introducing a new speaker system that utilizes the recently approved frequency band to transmit clearer, stronger stereo signals throughout your home.

150 foot range through walls!

Recoton gives you the freedom to listen to music wherever you want. Your music is no longer limited to the room your stereo is in. With the wireless headphones you can listen to your TV, stereo or CD player while you move freely between rooms, exercise or do other activities. And unlike infrared headphones, you don't have to be in a line-of-sight with the transmitter, giving you a full 150 foot range.

The headphones and speakers have their own built-in receiver, so no wires are needed between you and your stereo. One transmitter operates an unlimited number of speakers and headphones.



Recoton's transmitter sends music through walls to wireless speakers over a 75,000 square foot area.

Crisp sound throughout your home. Just imagine being able to listen to your stereo, TV, VCR or CD player in any room of your home without having to run miles of speaker wire. Plus, you'll never have to worry about range because the new 900 MHz technology allows

stereo signals to travel over distances of 150 feet or more through walls, ceilings and floors without losing sound quality.

One transmitter, unlimited receivers. The powerful transmitter plugs into a headphone, audio-out or tape-out jack on your stereo or TV component, transmitting music wirelessly to your speakers or headphones. The speakers plug into an outlet. The one transmitter can broadcast to an unlimited number of stereo speakers and headphones. And since each speaker contains its own built in receiver/amplifier, there are no wires running from the stereo to the speakers.

Full dynamic range.

The speaker, mounted in a bookshelf-sized acoustically constructed cabinet, provides a two-way bass reflex design for individual bass boost control. Full dynamic range is achieved by the use of a 2" tweeter and 4" woofer. Plus, automatic digital lock-in



Breakthrough wireless speaker design blankets your home with music.

tuning guarantees optimum reception and eliminates drift. The new technology provides static-free, interference-free sound in virtually any environment. These speakers are also self-amplified; they can't be blown out no matter what your stereo's wattage.

Stereo or hi-fi, you decide. These speakers have the option of either stereo or hi-fi sound. You can use two speakers, one set on right channel and the other on left, for full stereo separation. Or, if you just want an extra speaker in another room, set it on mono and listen to both channels on one speaker. Mono combines both left and right channels for hi-fi sound. This option lets you put a pair of speakers in the den and get full stereo separation or put one speaker in the kitchen and get complete hi-fi sound.



These wireless stereo headphones have a built-in receiver.

Factory direct savings. Because of our commitment to quality and our factory direct pricing, we sell more wireless speakers than anyone! For this reason, you can get these speakers far below retail with our 90 day "Dare to Compare" money-back guarantee and full manufacturer's warranty. Through this limited time offer, the Recoton transmitter is only \$69. It will operate an unlimited number of wireless speakers priced at only \$89 and wireless headphones at \$59 each. So take advantage of this special offer to fill your home with music. Your order will be processed in 72 hours.

Recoton Transmitter.....\$69 \$4 S&H

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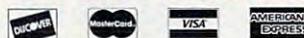
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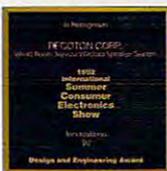
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Individual left, right & mono switch and Individual bass boost control (on back)

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Don't take our word for it. Try it yourself. We're so sure you'll love the new award-winning Recoton wireless speaker system that we offer you the **Dare to Compare Speaker Challenge**. Compare Recoton's rich sound quality to that of any \$200 wired speaker. If you're not completely convinced that these wireless speakers offer the same outstanding sound quality as wired speakers, simply return them within 90 days for a full "No Questions Asked" refund.

Recoton's Design and Engineering Award



TECHNOLOGY UPDATE



How to get surround sound without buying the theater...

An amazing new surround sound decoder turns your existing stereo system into a multi-channel home theater.

By Charles Anton

As much as I love renting videos, it's just not the same as seeing a movie in a theater. I remember the first time I saw *Top Gun*. I nearly jumped out of my seat when the planes flew overhead. One of the reasons movies seem so real is because surround sound makes it seem like you're actually there. Now there's an incredible new device that lets you use a stereo receiver to get that same surround sound in your home.

It takes more than just four speakers to get surround sound; there needs to be some way of separating the signals. The new Chase Technologies HTS-1 decoder does just that, and in a revolutionary way that rivals the best Dolby Pro-Logic and THX systems available.

Wins over critics. Gary Reber, editor and publisher of the most authoritative magazine on home theater systems, *Wide-screen Review*, stated, "...passive matrix decoders such as the new Chase HTS-1 work great as Dolby Surround™ extractors, and sound exceptionally natural when used for motion picture soundtracks and music."

Passive circuit. In 1972, legendary audio pioneer David Hafler invented a passive circuit to extract the "L minus R" difference signals in

stereo soundtracks. Because the circuit was patented, it was only available on expensive Hafler products. Now that the patent has expired, Chase can make this amazing decoding system available at a fraction of the cost!

Breakthrough technology. The HTS-1 is able to decode the Dolby Surround™ signal in a videotape or laserdisc because the spatial and depth cues have been matrixed into the "L minus R" portion of the two-channel stereo soundtrack. By decoding passively, the HTS-1 avoids costly and noisy signal processing. Plus you don't need any additional amps! Just connect the HTS-1 to your existing stereo system, add two speakers for the rear, and you'll experience the magic of home theater at a fraction of the cost of other systems.

Concert sound. The HTS-1 also decodes the ambience found in all music recordings. This sense of space, or "concert hall acoustics," is present in all CDs and cassettes, especially live recordings. John Sunier, the leading authority on surround sound and producer of *Audiophile Audition*, a nationally syndicated radio program for audio enthusiasts, says, "...the new Chase HTS-1, when used



Surround sound/home theater has become the rage of the 90's because it adds depth and realism to stereo sound, giving you the home theater experience. It makes you feel like you're actually at a concert or movie theater. To "fill a room" with surround sound, you need more than two channels. That's the beauty of the HTS-1; it provides four channels of sound from any two-channel stereo source.

Free center channel. By connecting your VCR or laserdisc player to your TV, you get sound from your TV speaker; this acts as the fifth or "center channel." Adjusting your TV's volume gives you as much or as little "center channel" localization as you desire, without extra speakers or amps. There are also no extra costs with the "fifth" channel. When used with the HTS-1, you'll have a true state-of-the-art five-channel system.

Passive. The HTS-1 is passive, meaning it requires no AC current. It actually sounds better than active decoders, producing more clarity, more detail, no noise, a greater sense of space and zero distortion. This superior system is a breakthrough unique to Chase.

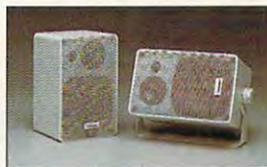
Active. All Dolby Pro-Logic decoders (even the built-in units) are active, meaning they decode and amplify the signal electronically. This can induce noise and distortion, hindering the home theater experience. This is an example where "more is less." Spending thousands of dollars on an active system will not give you the performance of the HTS-1 decoder. Try it for yourself.

to decode the hidden ambience in all musical recordings, definitely outperforms all the Dolby and THX processors which could cost you up to \$3,000... I am impressed!"



The HTS-1 decoder makes your movies come to life, bringing the theater experience home.

Easy installation. Hooking up the HTS-1 is easy. Simply connect the speaker outputs of your receiver or amp to the HTS-1, then connect speaker wire to the front and rear speakers. The rear channel speakers don't have to be big. In fact, we recommend the Chase ELF-1 in either black or white finish to match your decor. They can be mounted with enclosed color-matched mounting brackets or can be flush mounted on the wall. They are also water and weather-proof, so they can be used indoors or out.



The ELF-1 rear channel speakers integrate perfectly with the HTS-1.

Risk-free home trial.

Let's face it—the best way to evaluate surround sound is in your home, not in a showroom. That's why we're offering this risk-free home trial. We're so sure you'll be delighted with the quality of these products and the surround sound experience that we are giving you 30 days to try them for yourself. If they're not everything we say, return them for a complete "No Questions Asked" refund.

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MICROSOFT PUBLISHER 2.0

A blank page can be an intimidating thing; it can stymie even an experienced designer. To reduce such design stress, Microsoft has introduced its second version of Publisher with a host of helpful features for the growing number of page-layout laypeople.

Publisher 2.0 includes 35 new standard templates and 17 new PageWizard smart templates that automatically make everything from business reports to paper airplanes. The program abounds in automation, with features such as automatic text-wrapping around pictures and shaded objects. The Table tool gives you a choice of 21 formats with which to create tables, and the Shape tool lets you draw 36 different shapes, which you can manipulate in size and proportion to exactly fit your designs.

Even some of Publisher's help features are automatic. First-time help prompts you with help screens when you first use tools or features, and Print Troubleshooter tracks each print job and suggests problem remedies. Publisher is by far the most "helpful" program I've seen, offering eight variations of online assistance.

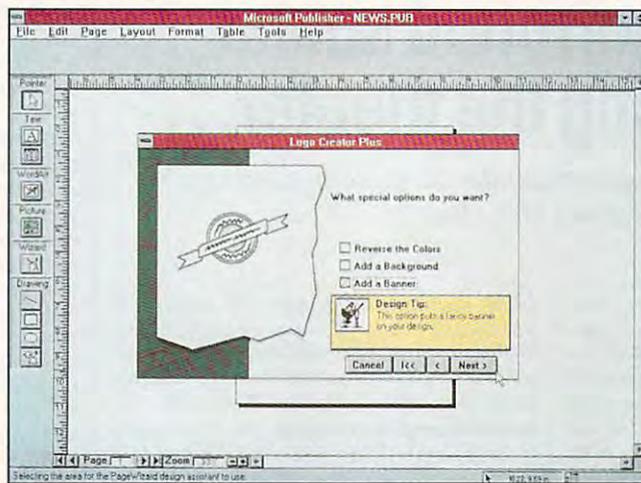
The program comes with 20 TrueType display fonts and more clip art and decorative borders than I care to count. All of this convenience is nice, but it promotes an if-I-can-do-it-I-should-use-it mentality. Microsoft realizes the potential for clutter and advocates restraint in the user's guide.

If the PageWizard templates could eliminate excessive design, they would be

truly magical. But Publisher does the next best thing by starting you off with professional designs, including instructions and tips for tailoring the publication to your needs. Normally, design should follow content (form follows function), but you can get good results with

run multiple copies of Publisher, however, which is almost as good.

Lining up objects accurately in Publisher can be difficult because you see only their outlines when you pick them up. This is fine for simple shapes, but text and pictures often need to be



Microsoft Publisher 2.0 includes a set of improved PageWizards which can automate the creation of documents.

these templates as long as you realize that you can't simply dump your text and pictures in and get automatic quality.

Much of the power of Publisher is hidden behind its easy-to-use interface. The program offers many features that high-end applications such as PageMaker have only recently included, such as drag-and-drop text editing, object embedding and linking, grouping and ungrouping capability, and incremental nudging of elements. Irregular-shape text-wrapping and the Shape tool are features PageMaker 5.0 doesn't even offer.

Yet, Publisher does have its limitations. It can't open more than one document at a time, which seems odd for such an otherwise powerful Windows program. You can

aligned by details within their frames. Judging alignment by their outlines is difficult guesswork.

You can rotate text in WordArt 2.0, an OLE program that's included with Publisher. Pictures must be rotated in other applications, such as Microsoft Draw, another OLE program. Publisher itself can only rotate line objects made with its drawing tools. WordArt can handle most of your text rotation, since it now supports TrueType fonts. But the smallest text that it can use is 12 points, so you can't place photo credits or other small text vertically.

Although Publisher can display and print 24-bit images (with proper hardware), its palette for line and fill characteristics is limited to 16 uneditable colors. High-

quality color output is possible in spite of Publisher's limited color, but if you need specific spot colors or do four-color publishing on a regular basis, you might be better served by a high-end program with full-color capability. If you don't need color or if your final output will come from a color inkjet or laser printer, the program's range of hues may be adequate. How often you use color, to what degree, and who does your printing should all be criteria in considering Publisher versus other programs.

Publisher works well as a design-for-dummies publishing program, but it would be a mistake to discount it as strictly an amateur's application. It's quite capable of producing professional results, with or without using autopilot. Just be sure that when you switch to manual, you don't overdo it.

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BALLPOINT MOUSE 2.0

Notebook computers are amazing. It's hard to believe that you can cram a 486 motherboard with 16MB of memory and a 200MB hard disk into such a tiny package. In fact, notebook designers have been able to miniaturize everything except the person using the computer. It's the user interface that presents the biggest challenges in these tiny PCs.

The screen, keyboard, and pointing device on notebooks all must be large enough to be usable but small enough to be port-

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ble. Screens have made great strides in the last few years; keyboards haven't improved much and probably won't. Pointing devices are where the current action is, and with Windows running on nearly 60 percent of all notebooks, a good, solid pointing device is a must.

Most people would agree that, for a notebook computer, the trackball is the portable pointing device of choice. It comes closest to the mouse in terms of accuracy and control, and it occupies very little space.

Microsoft has just introduced its newest entry into the trackball fray: the Ballpoint Mouse 2.0. It's smaller and sleeker than its version 1.0 big brother, and the trackball itself is much improved. In fact, with its silky smooth action and skid control, it rivals desktop trackballs. It's easily the best trackball I've ever used.

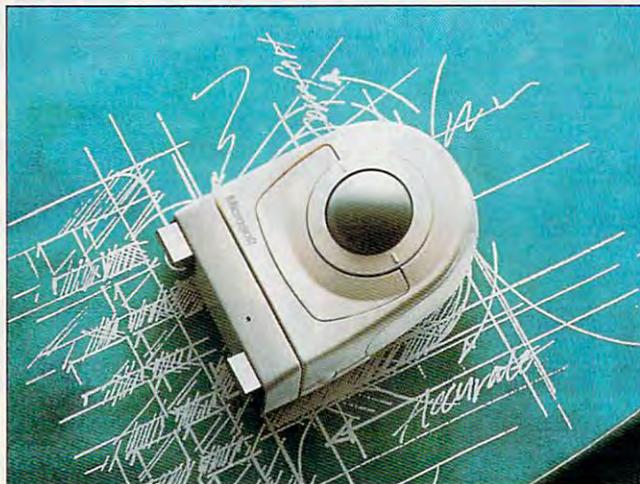
Right out of the box, you can tell the Ballpoint is different. Its new design fits your hand the way a pointing device should. The edges are smooth, and the underside sports a nonslip runner grip. The buttons are larger than they were with the 1.0 Ballpoint, and their position is different. Instead of the left and right buttons being on top of each other on one side of the mouse, the left button is on the far side and the right button is on top. There's a third button opposite the left button that becomes the main button for southpaws. (It can be reconfigured as the right button if you prefer.)

Like most other laptop trackballs, this device clips on the side of your notebook. It has small hangers that will fit most notebooks and allow you to close the case with it attached. The

Ballpoint uses a PS/2 connector, and there's also a QuickPort version that simply snaps into any QuickPort-equipped computer. No serial-port version is available, however.

The Ballpoint also comes with a new release of the Microsoft Mouse Driver, ver-

key to move the pointer to the middle of the screen. Although Screen Wrap seems more like something you'd want to use as a practical joke, the other features are all useful, especially on a notebook. It's worth noting that you can use this version of the driver with your



Microsoft's new Ballpoint Mouse 2.0 sports larger, more conveniently placed buttons and includes an improved driver.

sion 9.01. With this new driver, you can not only adjust the buttons, as discussed above, but also control the size of the cursor; add mouse trails; make the pointer grow when you move the mouse; and adjust what Microsoft calls color, which in this case means choosing black, white, or reversed for the mouse pointer.

In addition to these features there are some other interesting options in the new driver. With Magnify, you can use a hot key to enlarge the area under the mouse pointer. With Snap-To, the mouse pointer automatically moves to the default button in a dialog box. Set Screen Wrap to on, and the pointer will move off one edge of your display and appear at the beginning of the opposite edge. Locate uses a hot

mouse, too, if you want to take advantage of the latest enhancements.

Many notebooks these days come standard with pointing devices, but if yours doesn't, this well-designed, smooth, and sure-footed trackball may be your best pointer bet.

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DISCOVER SPACE

The heavens have been an endless source of fascination throughout human history. But the hard science that underlies our understanding of the cosmos is often daunting. Many of the concepts of astronomy are

more easily understood if learned visually—a task for which computers are perfectly suited. Brøderbund's Discover Space lets your computer show you the sun, moon, planets, and stars, as well as the ships we've used to explore them. Its text and many pictures, illustrations, and animations put astronomical concepts into context and explain them with abundant use of comparison and analogy.

But what sets Discover Space apart from so many educational programs is its usefulness even after you've seen all its images and animations. The program's Skyline feature can plot 7000 stars, 110 deep space objects, 90 constellations, and the nine planets, all positioned as they would be seen from any point on earth. Not only that, but the plot can be made at any time, on any day in the past, present, or future. Discover Space can animate the stars to show how they appear to travel across the heavens and print a time- and location-specific star map, so you'll know exactly where to find what you're looking for in the night sky.

Discover Space can also show you the phase of the moon for virtually any date, trace the path of 33 past and future solar eclipses, and calculate the damage caused by an asteroid striking the Earth. You determine the asteroid's size and velocity, and the program will superimpose the resulting crater over one of several U.S. sites to give you an idea of the destruction such a catastrophe would cause.

You can run Discover Space in VGA or 256-color SVGA mode, but the latter requires a VESA driver. Running in SVGA not only gives

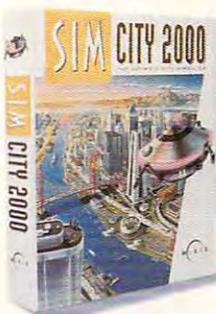


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better color representation but also allows for more and better animation. Although some animations were noticeably faster on a 486, Discover Space ran well on a 33-MHz 386DX machine with 4MB of memory. Running in SVGA slowed operation slightly, but the loss of speed was well worth the gain in image quality.

While sound isn't essential, the program supports several popular sound cards, and the music and background noises make it considerably more impressive. Viewing skylines in SVGA mode with outdoor sounds is almost like looking out an open window.

Neither the program's operation nor its content is difficult to grasp, yet it's by no means just a children's program. Whether you're interested in astronomy, space travel, or science fiction or just like looking at the stars, Discover Space offers an abundance of stellar information and entertainment.

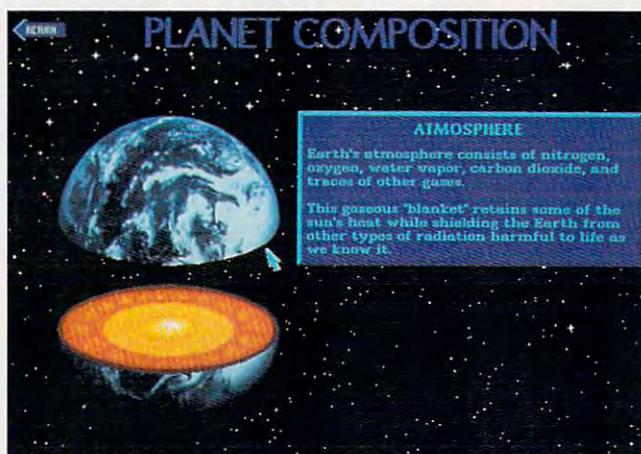
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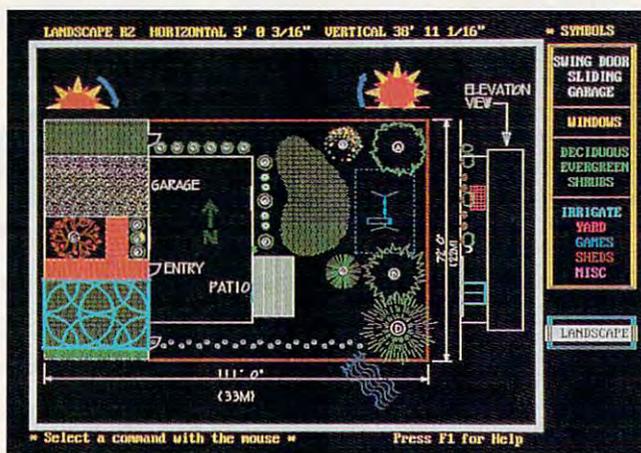
THE HOME SERIES, RELEASE 2

T-squares and architect's scales begone! Autodesk's The Home Series, Release 2, lets you create architectural drawings on your home computer, view them in 3-D, and quickly and easily make as many changes as you like.

The series consists of four programs: Home, Kitchen & Bath, Deck, and Landscape. They're stripped-down versions of Autodesk's Generic CADD 6.0



Broderbund's Discover Space uses animation and SVGA graphics to teach about astronomy and the planets.



Autodesk's Home Series lets you design or modify elements of your home using specialized CADD programs.

and use built-in macros to eliminate much of the full program's complexity. The programs use the same basic interface, but each includes special commands and symbols. Kitchen & Bath, for example, has a much wider variety of cabinet and appliance symbols than does Home.

The programs also differ in how their output can be used. Deck is probably the most useful for true do-it-yourselfers who intend to handle everything from designing to

building. While all of the programs render very accurate plan and elevation drawings, Deck produces more detailed drawings and allows you to selectively view and print their layers. The other three programs seem best suited for drawing basic spatial plans, which professionals can import directly into their high-end CADD (Computer Aided Drafting and Design) applications and use to develop complete sets of drawings and specifications.

Even as only initial planning tools, The Home Series programs can be tremendously useful. They scale your drawings for you, so miscalculations won't throw off your plans (unless, of course, you use incorrect measurements). The many symbols included in the series are automatically scaled to your drawings when you place them. It's much easier to get a sense of proportion if you can look at a drawing of a house full of furniture and fixtures or a kitchen complete with cabinets and appliances.

The Home Series won't make you an architect. A basic knowledge of home design and familiarity with architectural drafting is necessary. The programs' documentation repeatedly warns that you need to consult architects, builders, and inspectors to be sure your designs are safe, workable, and up to local building codes. Nevertheless, Autodesk tries to give you enough basic information to get started.

The manuals list common building materials and standard dimensions and offer advice on functionality and aesthetics. Landscape's instructions discuss balance, order, unity, proportion, variety, and seclusion as considerations in creating your backyard environment.

If you have much drafting experience, you'll notice that the programs don't strictly follow architectural conventions. If, for example, you're using interior measurements in your drawing but your architect or builder assumes you've specified conventional exterior dimensions accounting for wall thickness, you could have some serious problems.

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The Home Series is to get an accurate spatial impression of your new or remodeled home or yard. If you can't get that from the programs' two-dimensional plan views, you can render them as 3-D eye-level or over-view drawings. By changing your point of view, you can "enter" any room or area you like using the 3-D Plan module. It's possible to move around the room using the eye-level view, but 3-D Plan is a memory- and processor-intensive subprogram and may run quite slowly on some systems. You may also have to play with your configuration and eliminate some TSRs to get it to run properly.

CADD experience isn't necessary to effectively use The Home Series. In fact, if you've worked with full-blown CADD programs, you'll probably be frustrated by limitations built into these four programs for the sake of easy use. Still, you should plan to spend some time with the manuals; their tutorials are quite helpful. It'll probably take you longer than Autodesk's estimated 30 minutes to figure out a Home Series program, but once you do, it won't take half that long to decide you never want to go back to the drawing board.

PHILLIP MORGAN

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OMNID

Why are CD-ROM discs so great? They hold tons of data. Why are they so bad? They're s...l...o...w. And I mean *really* slow. The average CD-ROM drive has an access time of 350 ms

while the average IDE hard disk has an access time of about 15 ms. When it comes to throughput, the average CD-ROM drive moves data at about 150K per second, while most modern hard disks pump info at 1MB or more per second.

How do you make a CD-

comes with its own dedicated interface card. It's worth mentioning that Creative Lab's CD uses a proprietary interface rather than the industry-standard SCSI.

There are several goodies packaged with the OmniCD. First, the drive is Photo CD compatible. Included

for about a month, I can't find a single thing to complain about. In fact, the only negative is that it doesn't use a SCSI interface. But even that's something of a virtue, because its proprietary interface makes it compatible with the zillions of Sound Blaster Pro and ASP cards already out there. At \$299, this is a deal that's hard to beat.

CLIFTON KARNES

Creative Labs
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\$299

Circle Reader Service Number 438



The Creative Labs OmniCD double-speed CD-ROM drive is available in a variety of bundles, including one with PhotoStyler.

ROM drive faster? The best way is to double its speed, and that's just what Creative Labs has done with the OmniCD. Instead of moving data at the 150K rate of single-speed drives, it double-times data at 300K per second. The OmniCD isn't the only double-speed drive available, but it's one of the least expensive. And it's completely compatible with The Multimedia PC Marketing Council's recently released Level 2 Specification, which calls for a 16-bit sound card and a double-speed drive.

Installing the OmniCD is painless. If you have a Sound Blaster Pro or ASP 16, the CD interface is already built into your sound card. So you just plug the drive's control and audio cables into the card, plug a power connector into the drive, and install the CD drivers, and you're in business.

If you have another brand of sound card or no sound card, the OmniCD

in the package is a special version of Aldus PhotoStyler, one of the best bitmap graphics editors around. You'll also find several utilities, including CD Player, which makes playing audio CDs easy.

After installing the OmniCD, the first thing you're likely to notice is that it doesn't use a standard CD caddy. Caddies are a pain, and I'm glad that the OmniCD and several other second-generation CD drives are opting for the caddyless design.

"All this is great," I hear you say, "but how fast is it?" Well, as you'd expect, it's about twice as fast as a regular drive but feels even faster. The difference between using the OmniCD and a single-speed drive is dramatic. With the OmniCD, images snap onto the screen, full-motion video sequences are suddenly fluid, and searches are quicker. Everything is easier and more enjoyable.

After using the OmniCD

THE LOST VIKINGS

Arcade fans suffering from game-console envy can finally find relief in The Lost Vikings, a superb platform-style action game that survives the voyage to the PC completely intact.

You control a trio of bickering Viking warriors, displaced in time and space by an evil alien zookeeper. Your goal is to guide them home, through 37 levels of increasingly weird worlds, blocked by puzzles and deadly adversaries. Each Viking has his own unique ability to jump, attack, or defend. Because you can control only one Viking at a time, success requires switching between characters, combining their strengths to survive.

Gameplay, while not terribly original, is instantly engaging and constantly challenging. Background graphics are colorful and varied, highlighted by expressive character animation and huge multiscreen playfields. The trio's subtle comic interplay also adds delightful personality to the action. Controls are equally responsive for keyboard or joystick,



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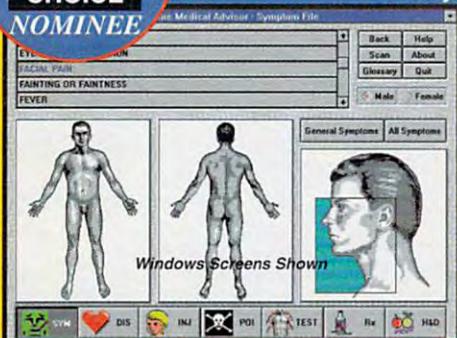
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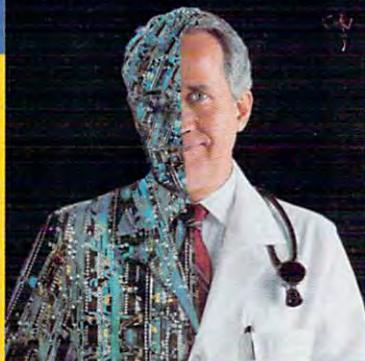
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REVIEWS

with excellent support for the four-button Gravis PC Gamepad controller.

The best compliments paid to The Lost Vikings are that it looks as good and plays as well as the Amiga and SuperNintendo versions. That's high praise indeed and an encouraging sign for the future of arcade games on the PC.

SCOTT A. MAY

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Circle Reader Service Number 439

READY, AIM, FILE!

Ready, Aim, FILE! 2.5b is a Windows file and program manager that allows you to use 256-character filenames. With its system of file cabinets and folders, you can organize files by subject rather than by disk directory structure. You have



If you're looking for a Nintendo-esque platform game for your PC, Interplay's *The Lost Vikings* fits the bill.

six cabinets, and within each cabinet you may have as many folders as you wish, but you may view only three at a time.

RAF displays onscreen buttons for performing common operations you would otherwise do in Program Manager and File Manag-

er—launching programs, moving, copying, deleting, searching, and so forth. RAF can't actually replace Program Manager as a shell; instead, it runs on top of it.

While RAF allows 256-character filenames, it still must create its own DOS names

(like 307277.DOC). The manual warns against using DOS or Windows to change these filenames, since the program could get confused (and so could you). A smarter program would protect you from accidentally or illegally changing these filenames outside the program. If you use RAF at all, you probably should use it whenever you're using Windows.

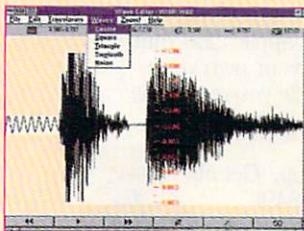
Within Windows applications, Open, Save As, and Import can use the long filenames. RAF is preset to intercept these commands with over a dozen programs. However, in my experience, Open didn't always work properly with Word for Windows, one of the preset programs. You must do some setup to make the intercept feature work with other Windows programs, and this isn't a task for novices.

RAF has some nice ideas, like Version Control (which lets you track changes in a file by saving without replacing). But it's rough

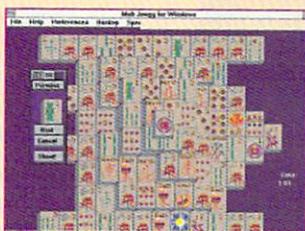
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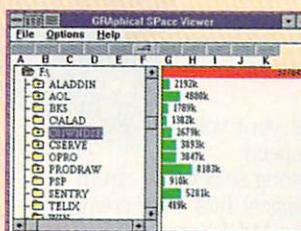
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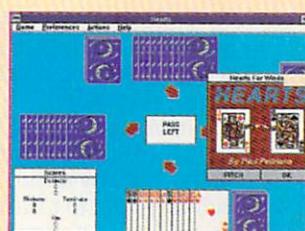
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REVIEWS

around the edges and weak in areas: incomplete screen redraws, help text wider than its window, and a file viewer that displays only text files.

To its credit, RAF has an uninstall feature. Unfortunately, it doesn't go through your 256-character filenames prompting you to rename them to DOS names, so if you don't rename them before uninstalling, you're left with the strange, indecipherable filenames.

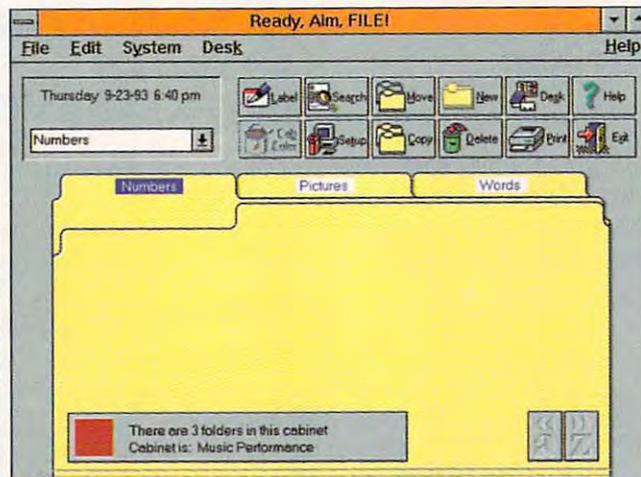
While RAF seems to be aimed at novices, inexperienced users are likely to get in trouble with it. VSoft offers a 30-day money-back guarantee, so you might want to give it a try and see if it fits your needs.

J. BLAKE LAMBERT

VSoft
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134 COMPUTE JANUARY 1994



Ready, Aim, File! replaces long lists of obscure DOS filenames with folders and 256-character filenames.

AMERICANS IN SPACE

If you're a manned space flight enthusiast, Americans in Space is a must-have package for your multimedia PC. This comprehensive CD-ROM stylishly chronicles the U.S. manned space pro-

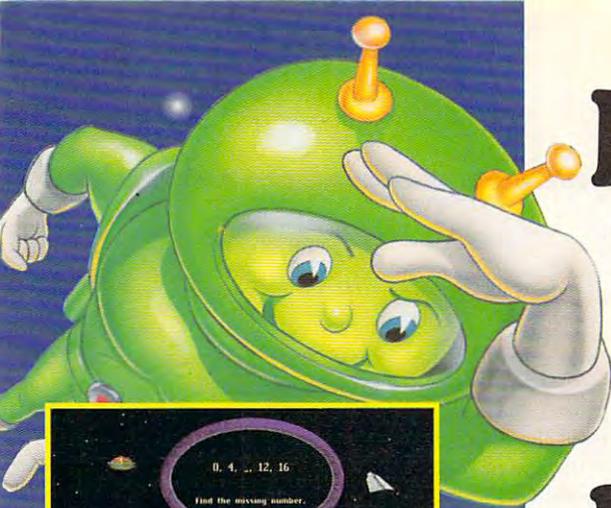
gram from its beginnings to the present day space shuttle and the upcoming space station. Watching and listening to a riveting blend of still pictures, animation, and narration, you can either follow the progress of America's manned space projects across the historical time line or zoom directly in on a

particular subject of interest.

Upon launching the software, you have three options. Beginners can consult the Pilot's Manual for usage information. Once you've been briefed on piloting the program, you can travel to Mission Control for access to over 500 photographs and over an hour of video and narration. Finally, the Express Tours selection offers overviews entitled The Race to the Moon, Turning Points, Disasters, Living in Space, and Cruising the Planet.

The Americans in Space user interface makes navigation a breeze. In both Express Tours and Mission Control, you choose options from a simulated control panel using the mouse.

There are eight selections in Mission Control: Prologue, Mercury, Gemini, Apollo, Skylab, Apollo-Soyuz, Space Shuttle, and Space Station. If you click on Apollo-Soyuz, you're given only one selection, since the program had only a single mis-

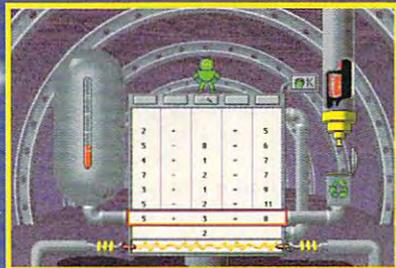


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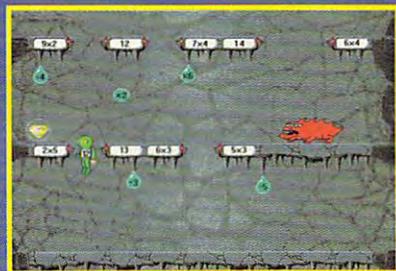
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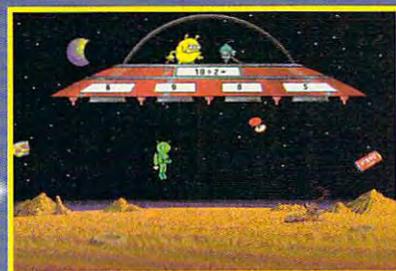
Oh no! The Trash Alien has captured Spot and left behind a trail of litter. In Trash Zapper, your mental math skills are needed to help clean up the mess.



The Number Recycler can convert trash into fuel but Blasternaut needs your problem-solving abilities to make it work. Recycle all the trash and you're ready to go!



You've tracked the Trash Alien to his home planet. But you haven't saved Spot yet! Use your mental math skills to help Blasternaut calculate his way through the Cave Runner game.



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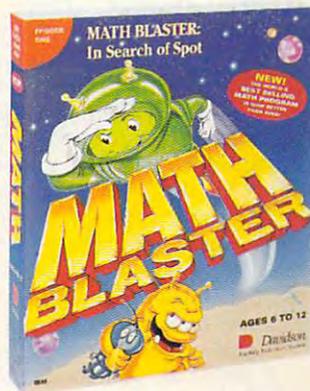
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sion. But if you choose Gemini, you're then able to select from any of the ten Gemini missions, as well as from a project overview. The overview summarizes the purpose and history of the selected program and can be printed for future reference. You can choose to watch a slide show or movie about the program. There are three Gemini movies: The Gemini Launch Sequence, Gemini-Agena Rendezvous Test, and Gemini Reentry and Splashdown. The high-resolution images are beautiful and finely detailed throughout the program.

When you select an individual mission, the mission patch is displayed along with descriptive text, and several options are presented which let you view mission statistics, astronaut profiles, or a slide show of the mission. All relevant facts such as mission dates are presented on the control panel.

The Express Tours selection presents narrated slide-show histories of various aspects of the space program. You can view a full-screen slide show, but there's no provision to stop and start the show when using this option. With the simple slide show, you view smaller pictures on the control panel at your own pace, and you can blow up pictures you're particularly interested in to full-screen size.

The Americans in Space package includes versions for both MPCs and Macintoshes. With over an hour of full-motion video, more than 500 images, and narration to accompany it all, this is a fascinating multimedia presentation. We can highly recommend this wonderful space program.

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FREDDY PHARKAS, FRONTIER PHARMACIST

If you drop everything to catch *Blazing Saddles* on the late show—for the 10th or 12th time—then Freddy Pharkas, Frontier Pharmacist is the game for you. Al Lowe, creator of the megahit Leisure Suit Larry series, straps on his spurs to give the Wild West a sharp and painfully funny poke in the ribs. Depending on your tastes and social sensibilities, this could be one of Sierra On-Line's most enjoyable graphic adventures yet.

Like Mel Brooks's classic western parody, Lowe's creation allows no saddlesore stereotypes to go unscathed. True to form, Lowe also manages to slap, tickle, and goose just about every ethnic, religious, and sexual persuasion on both sides of the Rockies. Although not as entirely adult themed as the Leisure Suit Larry games, there are many innuendos that may make you cringe applied to both man and beast. Authentic western outhouse humor also plays a role, showcasing Lowe's perennial sixth-grade disposition. It's all in great fun, and a solid new direction for this talented comedy writer.

The game gets off to a hilarious start with the sing-along "Ballad of Freddy Pharkas," describing how our hero gave up a career as a gunslinger for his first true love: pharmacy. Freddy sets up shop in a friendly,

but very weird, gold-rush town, where he catches wind of a plot to destroy the tiny mudhole. To save the day, you must solve a sequence of puzzles involving everything from stampedes (of snails, no less) to outbreaks of terminal flatulence. Most solutions are object-oriented, merely requiring you to collect and combine various graphic elements. The fun isn't just in solving the puzzles but in jumping through increasingly outrageous hoops along the way.

The game's best challenges unfold in Freddy's backroom laboratory. Armed with the superbly written *Modern-Day Book of Health and Hygiene*, you must diagnose various maladies and correctly mix the prescribed remedy. It's a fun break from the action, and by happy coincidence, it also doubles as the game's copy protection. Other diversions include realtime gun duels, sly card sharks, cantankerous tinhorns, and a borderline-tasteless interlude with a sheep. What little free time you do have is spent courting the shy, lovely schoolmarm.

Fashioned with Sierra's new graphic interface, gameplay flows smoothly. You navigate the game with a series of western-related icons: cowboy boots (walk), wire-rimmed spectacles (look), a gloved hand (touch—or grope, as the case may be), and a saddlebag (inventory). Graphics are good, rendered with suitable cowpoke panache, slightly hampered by the use of low-resolution VGA. Ambient sound effects help accent the humor, but it would be nice to see (and hear) an all-talkie CD-ROM version.

Are you tired and run-

down from the usual graphic adventures? Slingsight gags and one-liners, Freddy Pharkas, Frontier Pharmacist delivers the cure for what ails you.

SCOTT A. MAY

Sierra On-Line
(800) 326-6654
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Circle Reader Service Number 442

COACTIVE CONNECTORS

The Coactive Connector box promises that the network device is "so easy, you can install each computer in five minutes. By yourself." If you've ever tried to network computers before, you'll greet that claim with skepticism. But it's absolutely true.

The Coactive Connector for DOS and the Coactive Connector for Windows are networking products for small offices. Any combination of up to 32 DOS and Windows personal computers is possible. There is also a Coactive Connector for Macintosh which ties Macintosh computers and Apple LaserWriter printers into your DOS/Windows network—a handy way to get inexpensive cross-platform connectivity.

Physically, the Coactive Connectors for DOS and Windows are small units that plug into the parallel ports of your computers. The port can still host a printer. The advantages of the Coactive Connectors are ease of installation, simple setup and administration of the network, and low cost per computer networked. *Low cost* translates to \$149.95 per DOS computer and \$29.95 per Mac added to the network.

We extensively tested a three-computer Coactive

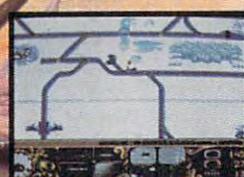
ARCTIC BARON

The year is 2022 and global warming is threatening the very existence of mankind. Scientists put "Operation Blind" into effect to reverse the process, but something goes seriously wrong! The Earth is plunged into a nuclear winter and the sun becomes permanently eclipsed.

Centuries after the disaster, a new world order has been established and the Viking Union hold the power. They dominate the rail network and the only source of money – coal – and aren't going to easily give up their monopoly.

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 **Silmarils**

 **READYSOFT**

Connector network here, running two machines with Windows and one machine using just MS-DOS. The only difference between the Coactive Connector for DOS and Coactive Connector for Windows is the software.

Installation is easy. The manuals, entitled *How to Hook This Stuff Up*, are full of clear drawings showing step-by-step hookup. We transferred files from machine to machine, printed files from all computers on the network using a printer attached to just one computer, and ran programs installed on one computer from all the others on the network. No problems were encountered.

The Coactive Connectors are an excellent selection for a small office's first network. Larger networks cost hundreds of dollars more and require technicians to install. Some also need an additional computer to act as a file server, which is a computer dedicated to storage of programs and files available to everyone on the network. The Coactive Connectors eliminate the file server by sharing the resources of your present computers.

The major disadvantage is relatively slow speed. This is true of any peer-to-peer network which is sharing resources instead of using a separate file server. If your network usage calls for many users transferring vast amounts of data, go to a full-fledged, Novell-type network. Otherwise, the Coactive Connectors will have you networking literally in minutes.

RALPH ROBERTS

Coactive Computing
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Circle Reader Service Number 443

SPACE HULK

The Space Marines are looking for a few good men. So are the Genestealers, though admittedly not for the same purpose. Welcome to the dark, feral world of *Space Hulk*, a fast-paced, ultraviolet adapta-



Electronic Arts' Space Hulk is an ultraviolet blast-fest that's reminiscent of the action in the Alien films.

tion of the Games Workshop's popular tabletop game. Fans of the movie *Alien* will quickly identify the action as a bug-hunt supreme, playing space tag against the deadliest of prey. The winners move on to greater glory; losers decorate the walls with red.

The manual sets up the savage story line about a race of superbeings bent on universal domination. Hidden in huge, abandoned ships known as Space Hulks, the Genestealers spread their mutated seed throughout the galaxies. Summoned by the Emperor, you play an Imperial Captain, charged with leading squads of elite Terminators on ship-to-ship missions to "cleanse and burn."

There's plenty here to keep you busy: five basic and nine advanced tutorials, 16 single and multisquad

scenarios, and the exhausting 22-mission Deathwing Campaign. Mission objectives vary but usually require securing specific areas; retrieving artifacts; and, most importantly, getting them before they get you.

Your role is to direct the action from two distinct van-

side, with names like Lightning Claws, Heavy Flamer, and Storm Bolter. Victims explode with a sickly satisfying belch of blood and body parts that don't magically disappear but pile up like last week's garbage. It's demented, to be sure, yet irresistibly exhilarating when the action erupts in nonstop, heart-pounding carnage.

The realtime strategic planning screen offers an overall view of each mission. Here you can program movement and firing commands for each Terminator in your assigned squads. This multitasking feature is not only a tremendous boon to your mission success but also cranks up the intensity several notches. The Freeze Time tool momentarily suspends the action, allowing you to dry your palms and gather what's left of your wits.

Armed with a slick, streamlined interface and wondrously deranged special effects, *Space Hulk* is a bug blaster's nightmare come true.

SCOTT A. MAY

Electronic Arts
(800) 245-4525
\$59.95

Circle Reader Service Number 444

ECCO Professional

ECCO Professional is a Windows Personal Information Manager (PIM) that's also a database. Happily, though, it doesn't feel like a database most of the time.

ECCO is intuitive throughout, with three basic views: PhoneBook, Calendar, and Outline. To create an appointment or action item with someone in your PhoneBook, simply drag that person's name from the PhoneBook to the Calendar or To-Do list. ECCO notes the ap-

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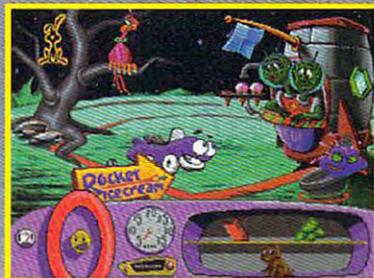
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pointment in both places, inserting a note with the phone number.

Highlight a name and click on a Dialer icon, and an autodial window pops up, a Logged Call entry appears below the name in the PhoneBook, and logging begins when you dial.

You can import either tab-separated or comma-separated values files into the PhoneBook. Just show ECCO which fields in the import file match preset ones in the ECCO file and give names to fields that don't already exist in ECCO. (Sharp Wizard and HP 95LX owners can order a free data-transfer application; others may purchase a file-conversion program that supports numerous data formats.)

You can export your information for use in a mail merge or use the ECCO Shooter, an arrow icon that sticks to the title bar of the active window. The Shooter lets you exchange data with another Windows program as if you'd used the clipboard cut-and-paste functions by selecting a program from a pop-up list. ECCO also supports object linking and embedding.

ECCO makes linking information effortless. When you drag an item (person, appointment, outline, to-do) from one view to another, a copy remains in the original location. Edit any of these copies, and the others change, too. This way you can have several methods of accessing the information later.

You can view combinations of a personal-organizer page and a spreadsheet, with a fixed column on the left and scrolling columns on the right for extra information. You can navigate quickly in the views, and you can

search, sort, and filter the items. Items in any view can be text or graphics.

The Calendar View provides daily, weekly, and monthly displays and also contains the Tickler (to-do list). You can also set simple or custom alarms and create recurring events.

has many more features than could be covered here. It takes a while to get used to some of ECCO's advanced features, but it's useful straight out of the box. If you're just looking for a simple day book, you might find Lotus Organizer or the shareware Time and Chaos

Records brings that same popular content to your multimedia PC.

Installation is easy. The drivers for the program take up about 4MB of storage on your hard drive. The program is completely menu- and button-driven, and you're given many choices on how to navigate through the masses of information contained on the disc.

The Browse Records button lets you choose any record from "Acrobatics: Longest Inverted Flight" to "Zoos: Oldest." Many of the 3621 entries are fairly detailed. There's also the traditional Guinness inclusion of obscure knowledge among the more common facts. For example, in the "Words" category, you'll find the longest Icelandic word, *Haecstaretarmalautningsmaour*, with 29 Icelandic letters (transliterating to 31 in English characters) and meaning "supreme court barrister."

Using the Word Search button, you can find records related to a specific subject. You can use *and*, *or*, and *not* operatives to narrow the search. For example, searching for *computer* brings up 30 matching records. These start with a reference to "Prehistoric Reptiles: Largest chelonians," which is listed because of a mention in the article of computed weight. In this case you could narrow the search by looking for *computer and machine*.

You can search by category using the Topic Index button, which brings up a list of 11 categories ranging from "Earth and Space" to "Sports and Games." Each of these has subcategories. "Science and Technology" provides 14 subcategories ranging from "Elements" to "Space Flight." If you choose "Elements," you're



ECCO Professional combines the best features of PIMs and outline processors; a "lite" version is now available as well.

As with the other views, Outlines can display columns of dates, names, or other useful information. It's easy to change the color or style of all items on a particular level, and you can expand and collapse the Outline as you work.

Folders let you organize items that you want to keep together. Standard folders include the PhoneBook and Scheduling folders, but you can easily create your own. ECCO lets you drag items into a folder or drag folders into or out of outlines (to view or remove them).

ECCO includes templates to help you get started with specific uses: research, sales, legalities, and project management. It handles information and ideas well, produces nice printouts in handy organizer sizes, and

a more economical choice. But ECCO's outline and database functions make it far more than a simple PIM. Arabesque is so sure you'll like it that the company provides a 60-day money-back guarantee on the program.

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given three topics: "Matter," "Subnuclear Particles," and "The 109 Elements." Each of these selections provides more information than you'd expect from a database. Under "The 109 Elements," for example, you don't simply get a periodic table, but an actual reference to such things as which elements are most common, which are the rarest, which have the highest toxicity, and so on.

Half of the fun of the paper edition is just flipping through and randomly discovering information. The Random Record Explorer button will let you do this with the disc version. There's also a Superlatives Index button, which lets you select records by superlatives such as *best*, *worst*, *oldest*, *youngest*, *windiest*, *hottest*, and *widest*.

Select the Picture Index button to start with the same 11 categories as the Topic Index. From here you can access the 1062 images on the CD.

The Movie Index button gives you a total of 37 movies. This index, to our dismay, had only four categories: "Animals and the Earth," "Human Beings," "Technology and Space," and "Transportation." We found that most of these didn't have sound—not even the entry for the howling monkey! We did like the fact that movies can be advanced frame by frame, forward or backward, to examine details, but we didn't like the lack of sound or the jerkiness of the animations that did have sound.

Although a help reference booklet isn't included with the packaging, there's extensive help on the CD itself. In most cases, though, you won't need it; the pro-

gram is very intuitively designed. Most of the information here is trivial, but it's often educational and always a lot of fun.

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Circle Reader Service Number 446



The NCR 3150 sports a fast 25-MHz 486SX processor, available active-matrix color, and a front-mounted trackball.

NCR 3150

Two years ago, NCR established itself as an important player in the notebook market with the Safari 3170. This year, it's introduced another major machine—the 3150 notebook.

The 3150 is sleek, light, and fast. It's powered by a 25-MHz 486SX processor, and has a 9.5-inch screen, local-bus video, PCMCIA Type 2 slot, a 1.44MB floppy drive, and external trackball. The 3150 also comes with 4MB of RAM (upgradeable to 20MB), and a removable hard disk of 80-170MB capacity. Video options in-

clude monochrome, passive-matrix color, and active-matrix color. The monochrome and passive matrix displays can be upgraded to active matrix.

The review unit I tested featured active-matrix LCD, an 80MB hard disk (too small for a machine of this caliber), and 4MB of RAM.

Looking at the outside of

can attach to the front of the machine. When I use a trackball, I prefer it to be on the side of the computer, and I found this front position to be awkward.

If you don't want to use the trackball, however, you can configure the cursor keys to do double-duty for mouse movement. I found this arrangement to work very well in Windows, but the key combination you have to use to switch back and forth between cursor and mouse takes some getting used to.

The 3150's active matrix screen is excellent. It's one of the best color displays I've seen on a notebook. The colors are sharp and saturated, and it's a joy to use.

This machine was built to run Windows and it shows. With the 486 processor and local bus video, Windows really moves. If you're used to laptops being sluggish with Windows, you'll really be surprised with the 3150.

The 3150 can use either nickel hydride (NiMH) or nickel cadmium (NiCAD) batteries. The computer senses which type of battery is attached, and batteries can be changed while the computer is on. Power-saving features are everywhere in this machine, but battery life is still about two hours for the color model.

The cost for the 3150 varies according to the screen and hard disk options, but prices range from \$1,995 for the monochrome model with a 80MB hard drive to \$3,805 for an active-matrix color model with a 170MB hard drive.

The 3150 is well-designed, well-built, fast, and stylish. With a removable hard drive, PCMCIA slot, upgradeable video, it's also modular and easy to en-

the 3150 you'll find a sturdy, attractive case that's dark brown with putty details. Open the case and you'll see these same colors repeated with turquoise accents on important keys. Status information is provided by small LEDs directly under the display.

The 3170's keyboard is very good for a notebook. The layout is nearly full-sized, with an inverted T for cursor keys. There are also dedicated Page Up, Page Down, Home, and End keys, all of which are a plus.

As I mentioned above, there's a trackball which you

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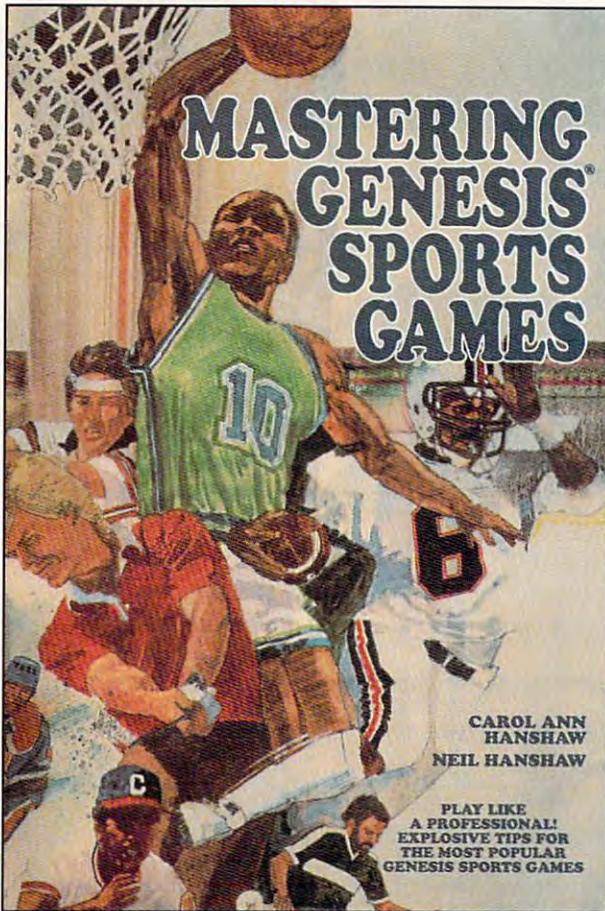
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REVIEWS

hance. You may pay more for this machine than a mail-order clone, but it might just be worth the investment.

CLIFTON KARNES

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PRINCE OF PERSIA 2

Prince of Persia 2: The Shadow & the Flame will probably be called an action game by many players. Then why do I feel I've been on such a splendid adventure?

Choreographed by Jordan Mechner (who also designed the original), this sequel has everything that Prince of Persia offers and much more. At its heart, it's the same basic game: traditional sword fighting, taking baby steps up to ledges

and giant leaps of faith beyond them, trap-evading, abyss-width estimating, ledge-grabbing, ledge-missing (oops), and of course the inevitable red-blotch-among-the-spikes-regarding. You'll be doing a lot of this last one in Prince of Persia 2.

Not to mention some head-scratching. Puzzles of timing and distance were built into the very structure of Prince of Persia, but puzzles for puzzles' sake seem to be more conspicuous here. For instance, it's quite possible to ostensibly complete a segment but then be utterly bewildered as to how to progress into the next because you haven't mastered a given mechanism or trick.

That said, there's a real sense of progression here; it's not just a series of caves with attitude. The action picks up from the moment the prince leaps through the palace window. It follows him across rooftops and as he dives for the stern of a de-

parting ship, on a long trek through caves (familiar terrain from the original game), and on into a ruined palace—a place of disembodied heads that scream when they spot you.

The lifelike animation in Prince of Persia grabbed everyone's attention. Prince of Persia 2 is as realistic as ever (though maybe just a touch less fluid, perhaps on account of the complexity of the sumptuous VGA graphics), and not simply when the character is pulling himself up a ledge or long jumping. Realistic animation comes into play even as the prince plummets to his doom or raises a fiery, blackened hand from his lava tomb.

But while graphic enough to be nasty fun, those death scenes are never really grisly. Prince of Persia 2 has an exquisite sense of balance and proportion and never goes overboard. There's honestly not much in Prince of Persia 2 I'd change, save

the shrieks the prince lets loose when he falls too far. (Die like a hero, you bozo.) This is not simply a worthy sequel but also a wonderful adventure in its own right. The old Prince of Persia has grown up, and Prince of Persia 2 is a true king.

PETER OLAFSON

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Circle Reader Service Number 448

FLASHBACK

Action-adventure games just don't get much hotter than Flashback, SSI's dazzling follow-up to last year's breakthrough hit, Out of This World. Far bigger and bolder than its predecessor, the title melds cinematic techniques with traditional puzzle-oriented, platform-style arcade fare.

The story unfolds in the year 2142, cast in the murky off-world tones of a novella by Philip K. Dick (whose

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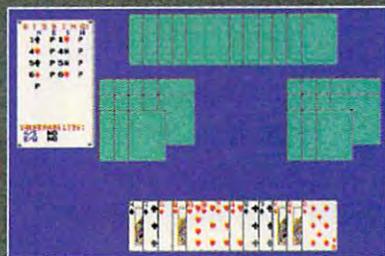
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Included free with the program is the best-selling book "The Basics of Winning Bridge" that will have you playing bridge in just one hour. You can then improve your bridge skills using the practice mode and help keys.

Other features include: "No Cheat" gameplay (the computer doesn't look at your cards to make decisions), rubber or duplicate bridge, standard bidding, simple signaling, random deals or preset input, show/hide opponents cards.



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PH006

REVIEWS

work also inspired the films *Blade Runner* and *Total Recall*). You assume the role of Conrad Hart, a scientist who awakes in the synthetic jungles of Titan, Saturn's newly colonized moon. Robbed of your long-term memory and equipped with only a pistol, a Holocube, and the instinct for survival, you embark on a violent, wildly convoluted quest to regain your identity. The entire game boasts more than 200 screens, divided among six levels, for a total of 50 to 100 hours of realtime action. It's a demanding assignment that only the hardest arcade gamers will survive.

The game's standout feature is undoubtedly its lifelike character animation, rotoscoped at a fluid, film-quality rate of 24 frames per second. This phenomenal technique, similar to that used in Jordan Mechner's *Prince of Persia* series, helps break the action free of its two-dimensional boundaries. It's so remarkable, in fact, that you might spend your first few sessions simply admiring the lead character's extraordinary range of physical movement: running, leaping, falling, tumbling, shooting, and other motions, both subtle and exaggerated.

Scattered throughout the game are more than 75 cinematic segues and noninteractive plot enhancements, designed to pull you into the dark, serpentine story line. The game successfully retains the free-form nature of its arcade roots, fashioned along a linear, sequentially structured series of challenges. In Titan's domed city of New Washington, for example, you must obtain a work permit and complete a series of progressively dangerous jobs, earning money for a trip back to Earth. Other highlights include a guest appearance on the lethal TV game show "Death Tower," a capture by mutant aliens, and an absolutely riveting final showdown with a superhuman power. Pass codes allow you to restart your adventure at the beginning of the last level reached.

Nice touches abound, like the explosive report and subtle recoil of your trusty revolver and the incredibly detailed spot animation that enlivens almost every scene. Controls are streamlined and highly responsive, whether you use the keyboard or joystick. The game has excellent support for the four-button Gravis PC GamePad. Three skill levels—increasing both the number and tenacity of your opponents—help keep the challenge fresh and the replay value high.

One of several recent technology milestones in PC arcade entertainment,

SSI's *Flashback* invites and deserves enthusiastic praise.

SCOTT A. MAY

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LIGHTNING CD

Newcomers to the world of multimedia computing expect to be dazzled, and few are disappointed. Experienced users, however, know not to expect miracles from a CD-ROM drive. Although one of the most cost-effective means of data retrieval, with drives starting as low as \$150 and discs capable of holding up to 650MB of information, CD-ROM drives are no speed demons. Even top-of-the-line CD-ROM drives find and transfer data at a speed about 15 times slower than the average hard drive.

Before you get discouraged, take a look at Lucid Corporation's excellent *Lightning CD*, a data-caching utility designed specifically for CD-ROM drives. The company claims speed increases of more than 1000 percent in best-case scenarios. Realistically, you can expect an average, consistent speed increase of 20-50 times. For many DOS and Windows/MPC applications, those little numbers can make a huge difference in the performance of your programs.

How does it work? Like all disk caches, *Lightning CD* analyzes and stores frequently used information in RAM. When a program asks for data from hard disk or CD, the computer first looks to its memory cache, and if the data is there it rockets this information to the CPU in a fraction of the normal access time. Caching won't eliminate disc access, but can substantially decrease drive activity. In the data-intensive world of CD-ROM, your computer needs all the help it can get.

Unlike some CD-caching products which store recently accessed data on your hard drive, *Lightning CD* caches directly from RAM. Of course, the more RAM you have, the more information you can store, which determines the overall effectiveness of the cache. If you can't afford at least a 2MB RAM cache—culled from either expanded or extended memory—you won't utilize the program's full power.

A cache works only with frequently repeated disk activities. Although Lucid clearly markets the product at multimedia game players, the linear structure of most CD-based games—such as role-playing or adventures—means the



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No matter how well Mr. Guccione says you’re doing, you’ll want to practice your photography skills diligently, because the game is equipped with hidden surprises to reward your dedication and curiosity.

But once you’ve exhausted your first three Pets, you can stimulate more interest with low-cost “Pet Packs” featuring new models that keep your shoots fresh and exciting.

Of course, just one taste of the allure of being a Penthouse Photographer is enough to start anyone thinking, “People get paid to do this!”

PC/Windows® Requirements: At least a 33MHz 386 with 4mb of RAM running Windows 3.1. A Video card that supports at least 256 colors (8-bit color). 16-bit color is preferred. A sound card, for example a SoundBlaster/Pro 16 or a Pro Audio Spectrum/16. Many modern computers are already equipped with sound cards, so be sure to check your configuration first. An MPC-compatible CD-ROM drive. A double speed drive (300kb/sec) is preferred.

Macintosh® Requirements: Any Macintosh® computer with an 8 bit (or better) color or grayscale display. A minimum of 5 megabytes of RAM running system 6.0.7 or 8 megabytes of RAM running system 7.0 or higher. A CD-ROM drive. A double-speed (300 KByte) drive is preferred. Apple system software 6.0.7 or higher. QuickTime 1.6 and HyperCard 2.1 are included in your PHI CD-ROM.

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252 Access Software	73,73	232 ISL Software Corporation	166	171 Sir Tech Software	51
Adam & Eve	169	186 Jack Daniels	48	109 Smart Luck Software	166
Adventure LearningWare	162	231 Jackson Marking Products Co. Inc.	162	142 SMC/Software of the Month Club	160
229 Amish Outlaw Shareware Co.	164	Kid Secure of America	162	126 SoftShope Inc.	166
157 AMTEX Software Corporation	143	LACE	167	210 Software Support International	164
America OnLine	69	178 Logitech	13	Software Toolworks	IBC
233 Arnie's Answers	160	199 Mallard Software	121	145 SOMICH Enterprises	166
137 Automap Inc.	105	188 Mallard Software	119	201 Spectrum Holobyte	IFC,1
Bare Bones Software	164	206 Markle Foundation, The	150	154 Spirit of Discovery	23
Best Personalized Books	163	158 Maxis	125,127	203 Star Micronics	21
173 Blue Valley Software	164	113 MECC	33	130 Starware Publishing	167
Boomerang Software	160	185 MediaVision	79	Stonehenge Viewpoint	169
121 B.R.ROMS	169	249 Megatech	39	179 SubLogic	82,83
167 CH Products	42	119 MicroProse	65	202 Thinking Software Inc.	163
174 Citizen American Corp.	9	MicroSoft	91	147 Thrustmaster	161
248 Colorado Spectrum	43	146 MicroTech	31	Time Warner	77i
232 Colorado Spectrum	45	191 Needham's Electronics, Inc.	161	193 Turtle Beach Systems	134
150 CompSult	168	177 New World Computing	153	170 UNI-ROM	160
240 Comptons NewMedia	89	No-Frills Software	166	112 U.S. Robotics	27
122 Compuquest	49	NRI/McGraw Hill	17i,133i	127 Value Software Inc.	164
155 Computer Associates	15	141 Odyssey OnLine	168	180 Velocity Development Corp.	93
Computer Book Club	117	160 Origin	99	132 Virgin Games	70,71
Computer Business Services	162	156 Pacific Microelectronics	165	195 Virgin Games	62,63
225 Computer Friends	166	168 Parsons Technology	19	172 Wedgwood Rental	166
204 Computer Gallery	164	221 PC Enterprises	164	128 Windows 900	165
ComputerWise Video	169	237 PC Zone, The	29		
Comtrad	122,123	250 PC-SIG	168	Product Mart	160,161,162,163,164,165,166,167,168,169
125 Creative Labs	3	235 Pendragon Software Library	166	Classifieds	170,171
144 CyberDreams	131	Penthouse Interactive CD ROM	147,157	Catalog Corner	169
D & K Enterprises, Inc.	163	107 Penthouse Modem	165	104 COMPUTE Books	77,144,154,158
247 DataStorm Technologies	BC	207 Pixel Perfect	132		
151 Davidson	37	224 Profit Group, The	167		
106 Davidson	135	243 Psygnosis	41		
161 Delphi Internet Services	44	241 Psygnosis	113		
131 DemoSource	161,169	226 Psygnosis	114		
208 Disk-Count Software	155	227 Psygnosis	81		
Dr T's Music Software	129	Pure Entertainment	146		
176 Electronic Arts	54,55	196 Quadra Interactive	47		
184 Electronic Arts	58,59	Rain Forest, The	168		
230 Fairbrothers	164	138 Ramco Computer Supplies	168		
134 Fantazia concepts, Inc.	166	251 ReadySoft Inc.	137		
Fitness 1+	169	163 ReadySoft Inc.	145		
115 Free Spirit Software	151	246 ReadySoft Inc.	84		
198 HealthMax	35	135 Revell CD	95		
117 Hollyware Entertainment	109	212 SafeSoft Systems Inc.	164		
245 Home Automation Laboratories	168	School of Computer Training	162		
111 Humongous Entertainment	139	120 Serif PagePlus	11		
IBM	5,53	116 SeXxy Software	168		
183 Impressions	61	Sierra OnLine	57i		

COMPUTE's Editor 900 Line	157
COMPUTE Free disk	133
COMPUTE's SharePak Disk Subscription	103
COMPUTE'S Ultimate PC Power Disk	148
Kathy's Exercise Video	77

CREDITS

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REVIEWS

cache will be constantly flushed with new information, and therefore offer little benefit. Folks who use CD-based encyclopedias and other reference works, Photo-CD discs, and clip-art discs will see a more dramatic speed-up than gamers. A game might seem a little snappier, but an encyclopedia search may go from 10 seconds to less than a second on subsequent accesses.

The manual does a good job of explaining the program's many command line parameters and configuration nuances. Besides speeding CDs, the program can also cache hard disks and floppy drives. Available options include a handy write-delay feature, memory lending, performance reports, write protection, and the ability to read ahead a user-defined number of sectors. This last feature is particularly useful for full-motion video.

The program performs flawlessly under both DOS and Windows, but doesn't support OS/2. The biggest problem most veteran users will encounter is simply finding room in the system configuration for another TSR. If your system has room, you can load the program entirely into upper memory.

No disk-caching program will magically transform a slow CD-ROM drive into a speed demon, nor will it perform similar miracles on slow video cards and ancient CPUs. For those with reasonable expectations, however, Lightning CD offers immediate rewards.

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BASEBALL FOR WINDOWS

Don't be alarmed: The sound of breaking glass you hear is merely another barrier broken in the field of Windows-based entertainment software. Miller Associates' Baseball for Windows, improved from the best-selling DOS version, is stunning in its scope and quality of presentation, setting a new standard for strategy sports games.

The program incorporates four distinct modules: Baseball (the game itself), Advanced Draft, League Manager, and StatMaster. The action is purely statistical yet still manages to stir considerable excitement with optional real-time play management and press-box play-by-play. Adding to the overall ambiance are several handsomely ren-

dered 16- or 256-color ballpark background graphics.

Managerial, coaching, and statistical reporting features are overwhelming and simply too numerous to mention. Suffice it to say that every aspect of professional baseball, no matter how large or small, is here—from spring training to postseason. The program comes with three Old Timer team col-



This game proves Windows is good for more than puzzle and card games.

lections and is compatible with more than 50 season disks available by the publisher.

Multitasking allows you to play two games simultaneously or manage league affairs while a game plays in the background. The computing price is a bit steep, requiring at least 3MB RAM and a fast CPU (a 386 running at 20 MHz is the bare minimum; a 486 is great). It's power well spent, however—for hardcore baseball fans, it doesn't get any better than this.

SCOTT A. MAY

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B.A.B.Y.

If you're interested in starting a family or if you're expecting a child in the near future, you might find B.A.B.Y.: Birth and Baby Years to be a fun and informative way to pass the time before the birth of your baby and after your child is born.

The program starts with information on fertility and conception, analyzing your menstrual schedule to determine and graph peak days of fertility. Once you've found out you're pregnant, it's simple to get to the Timetable box and type in the date of your last menstruation. Instantly, the program calculates the dates for the beginning of each of the three trimesters, tells you how many days into the pregnancy you are and how many days are left and gives you your due date.

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you'll be able to take a week-by-week look at your baby's development. You can view animated displays of the changes your body will go through, and you can read in detail how your baby is developing, how much it probably weighs, and how large it is in inches.

B.A.B.Y. also covers diet, exercise, and childbirth classes. For instance, under the Pregnancy Menu, the Tracker option graphs your weight gain/loss for you. Simply type in your weight each week. The software calculates what your caloric intake should be based on your prepregnancy weight. Then B.A.B.Y. gives diagrams of good prenatal exercises and provides a calendar to keep track of your childbirth classes.

As your due date approaches, you'll want to check out the phases of labor and the animated delivery sequence. You'll learn what you might experience in recovery and what tests your newborn will undergo and what the results mean.

Most expectant parents will find the views of the baby's stages of development fascinating. Some features are more useful than others, however. Discovering your baby's due date is exciting and fun, but attempting to schedule your newborn's feeding times (is there such a thing?) may be impossible. B.A.B.Y.: Birth and Baby Years is a fun and informative way to track fertility and pregnancy, even if you're too busy after the baby is born to take advantage of its other features.

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ICON MAKE-IT

Thanks to the efforts of third-party software makers, the Windows environment is slowly loosening up and having fun. Moon Valley Software's Icon Make-It is a perfect example. The program puts you in the director's chair of

The editor interfaces directly with the animation studio, where you script your movies with up to 20 icon frames using VCR-style controls, variable-speed playback, and a preview screen. Choose from 19 special visual effects such as zoom, dissolve, shatter,

emotion Development.

Icon Make-It's greatest limitation is its incompatibility with shells other than Windows' Program Manager. It has limited success with Norton Desktop—animated icons must be reloaded with each new Windows session—and it doesn't work at all with such proprietary shells as Vitesse's Salvation. These are problems Moon Valley should quickly address, since alternative Windows shells are becoming more popular.

While it may not improve your productivity, Icon Make-It is undeniably fun to play with and adds some needed motion to a static Windows workplace.

SCOTT A. MAY

Moon Valley Software
(800) 473-5509
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Circle Reader Service Number 453



Moon Valley's Icon Make-It puts you in the director's chair of a full-featured Windows icon animation studio.

a full-featured icon animation studio.

Like a mini movie studio, the program is divided into several modules, each specializing in various stages of production. Visit the icon editor to design your own 16-color creations on a 32- x 32-pixel grid, or import 1 of the 200 icons from the built-in clip art book. You can create or modify icons with a full set of standard drawing tools plus effects such as image shifting, borders, and frame advance. You can also create animated cursors, but I found them to be more annoying than entertaining.

melt, colorize, rotate, mirror, and paint. Still want more? Try combining two movies—one in the foreground and another in the background—for a complex, multilayered effect.

Once assembled and recorded, animated icons are easily assigned to programs via a scaled-down version of Moon Valley's Icon Hear-It, which allows you to attach sound samples to your icons. Also included is a handy working demo of MCS Stereo Digital Recorder, a component-style Windows WAV sound recorder, player, and editor from An-

WAYNE'S WORLD

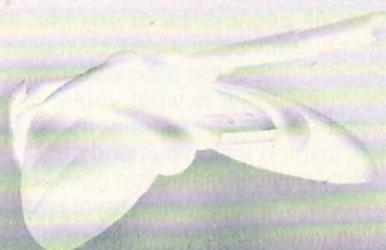
Wayne's World is excellent! NOT!

Then again, it didn't make me want to blow chunks, either.

This graphic adventure from Capstone uses an updated version of the game system used in the company's The Dark Half. It finds Wayne and Garth setting up a pizzathon to raise \$50,000 to prevent the Community Access Television station which airs their Mom's-base-ment talk show from going off the air.

No way! As if anything built on the same engine as The Dark Half could be good, dude. Way! Wayne's World really is not all that bad. You can switch between these two dubious cultural icons. The interface now has a series of icons fea-

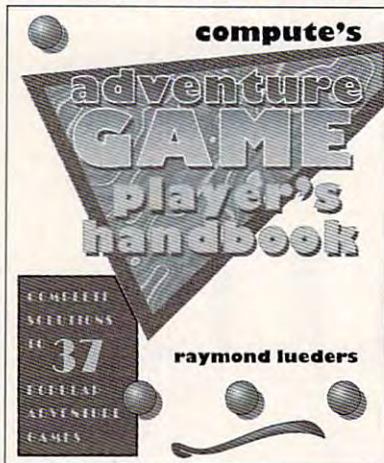
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REVIEWS

turing their goofy faces. You can make either of the two the active character. Capstone even added an Extreme Closeup! command. The map mechanism is a delightful computery thing. The game sets up the quests nicely right at the outset. Samples from the movie, such as "ex-squeeze me?" surface here and there.

I mean, what else do you want? This isn't the most ambitious game around. The graphics aren't too fancy. The intro's rather crude. There's no pretense here of doing anything but having fun, and Wayne's World is rather good at that.

And, happily, Capstone doesn't seem to have sanitized the material at all, so the richly stupid humor of Wayne and Garth comes through from the get-go. Anyone who saw and enjoyed the movie will doubtlessly get some fun out of this. Everyone else: Just party on.

PETER OLAFSON

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MEGA-LO-MANIA

What traits are most important in a computer-game god? Good judgment? Perhaps unquestioning benevolence? No, a powerful cybernetic deity is only a deity at all because he or she can and will conquer unbelievers by mashing the poor pawns into submission. If a deft crunch-fest is what you're in the mood for, Mega-lo-Mania might provide just the tonic you need.

Set against a backdrop of sweeping space, a young planet is born, populated with primitive human life which is in serious need of some guidance. Enter a rough-and-tumble bunch of deities, each wanting the world for his or her own. So how is the decision made? By war of course, using the malleable and glibble humans as pawns.

You start the game by choosing one of four rival deities, and you must battle through 27 islands of conflict, until the 28th, the "mother of battles" is reached. If you emerge victorious, you're given dominion over the planet.

The islands are played in sets of three, with each set representing an epoch of time. You start play in the Stone Age and end with nuclear and spaceflight technology. For each battle you're allocated a pool of men from the bank, 100 per epoch (but more may be accumulated by underpopulating the lower level conflicts and bringing

the balance forward). Choose a home sector, and you're ready to go off to fight some battles.

Each island varies in size, terrain type, and which enemy deities must be tackled. To win, you must completely wipe out the men your rival deity controls. You've got to use your men, the natural resources in your sector, and your tactical acumen to design and implement successful defensive and offensive capabilities.

The earliest battles are fairly easy: It's easy enough to research the rock weapon and set up an all-offensive force that will go out and hurl rocks at your opponent's fortifications. In the later epochs, resource management and defensive posturing become important. But you shouldn't forget that he who throws the first rock usually wins.

Mega-lo-Mania is an attractive game with a rather obtuse icon interface. Once you master the icons (with little help from an exceptionally poor and hard-to-read manual), the game plays very smoothly.

Unfortunately, Mega-lo-Mania isn't the strategic challenge it first appears to be. Basically, being the first to develop weapons and deploy them is tantamount to invincibility. To be first, you must have your strategy figured out before the play for a given island begins. The speed of weapon development is dictated by two things: manpower and resources. Manpower is under direct player control, but the resource-generating ability of a sector is only discovered during actual play. A dry-run peek at a sector will tell at a glance whether it will perform well or not, and if not, quitting the sector and moving on isn't a bad option.

In a strange quirk of blindness during development, Ubi Soft neglected to factor in any way to leave the game—you can't quit back to DOS! Your only option is to reboot the computer to escape the crazed god-struggle of the nether universe.

While Mega-lo-Mania suffers from a lack of depth and sloppy quality control, the game does offer an interesting gaming experience. Perhaps my favorite aspect of the game is the varying tech levels which can be present at any one time: You can make a biplane attack on a castle defended with archers, and you may be forced to use catapults to fend off an incoming jet fighter. As a nonbenevolent, no-brainer game, Mega-lo-Mania delivers.

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REVIEWS

DAUPHIN DTR-1

The Dauphin DTR-1 (Desktop Replacement-1) is about 50 percent PDA and 50 percent laptop. It comes with Pen Windows and the Ascend personal information manager built in, along with a special spreadsheet optimized for pen use and a group of demonstration programs to show how the system could make itself indispensable for a doctor, nurse, or public safety officer.

The system boasts a 25-MHz 486SLC CPU, 4MB of RAM (expandable to 6MB), and a 40MB hard disk (expanded by DoubleSpace to 73MB). The 5- x 9-inch case sports a pen-sensitive backlit passive-matrix monochrome VGA display (640 x 480), a video output port (800 x 600 with 256-color Super VGA), parallel and serial ports, and a Hayes-compatible modem (the modem and serial port are set to the same interrupt, so they can't be used simultaneously). There's also an Ethernet connector, but while the connector is standard, the Ethernet hardware is not—it's an option that you have to order separately for around \$300. The keyboard is in a separate, similar-sized unit (5½ x 9½ inches).

Since the reviewed computer had no floppy drive (an external floppy drive is available from Dauphin for \$199, and external hard disks and removable hard disks will probably be available by the time this appears) nor any PCMCIA slots, all programming and documents must be managed through the modem or through Interlink. The machine can be operated without the keyboard through the use of a special pen, which also serves as a mouse in Windows. Provided applications are set up to make sense of pen input, though my pen input was translated into a Doonesburian gobbledygook that was at first amusing, then troublesome, and finally infuriating. Did I once say that I would carry a pen-based computer someday? Is it too late to eat my words?

Pen input can be made simpler through an onscreen keyboard, but using this keyboard requires phenomenal control because, on the tiny screen, each key is about an eighth of an inch square. So to write this review, I relied on the regular keyboard. Finding it difficult to type on the keyboard because of its size, and wanting to be fair, I asked my wife to give it a try because her hands are about half the size of mine. "Too small," she agreed. Not only that, but it feels funny. The keys are stiff and insensitive, so unless you re-

ally press, driving the keys all the way down, your typing doesn't register.

Even more troublesome than the keyboard is the unit's tendency to crash. It locked up on me three times while I had it, each time when I was using the pen as a mouse in Windows. This might be a software problem with Pen Windows. I wasn't able to figure out what was causing the crashes.

The unit folds up neatly in a zippered plastic case. One might think that having the screen and keyboard separate would be a good idea, but it isn't. The screen flops all over the place, making it difficult to hold on your lap. Even on a desktop, I had to prop the screen up against something and pull the keyboard completely out of the case to type (the zipper gets between you and the space bar). A sort of stand is built into the screen half of the case, so you can prop the screen up if the unit is sitting on a flat, rigid surface. The keyboard is held in its half of the case by Velcro.

The power supply is about the size of an electric shaver, and it's very light—it doesn't get in the way or weigh you down like a lot of external power supplies. The unit will run for two continuous hours on a battery charge without the keyboard attached. If the keyboard is attached, it will run for an hour and a half. A beeper warns you when you're down to about five minutes of battery power.

The stated purpose of the DTR-1 is to replace a deskful of documents and notebooks. It's enough computer to do that, and it represents the state of the art of pen-based computing, but it needs a better keyboard and a way to physically attach the keyboard to the computer. The pen input needs to get smarter before I can see replacing anything with this computer.

ROBERT BIXBY

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WACKY FUNSTERS

What could be more fun than an irreverent send-up of five and a half arcade favorites? The real things, to be perfectly honest. Tsunami's self-described "geekwad's guide to gaming" offers a campy collection of minigames, spoofing such standards as Asteroids, Pong, and Street Fighter. Unfortunately, the designers forgot the first rule of parody: Be as good as the subject you're ridiculing. These caricatures simply can't muster the addictive quality of the original games they're based on.

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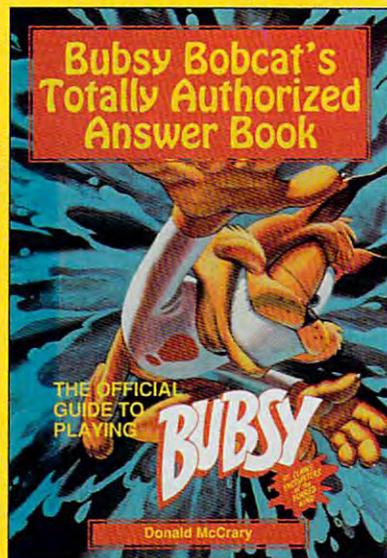
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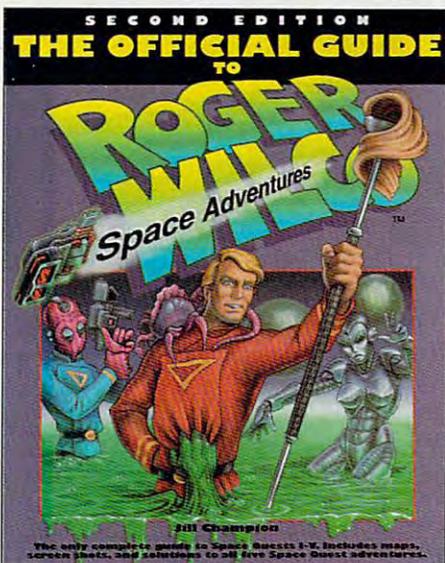
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REVIEWS

The biggest problem is the games being lampooned—most are far too old and rudimentary to interest today's audiences. Add to this below-par graphics, crude animation, and action that stresses gag content over gameplay. The program's most inspired moments, including a hilarious satire on software copy protection, actually have little to do with the games. The CD-ROM version also features more than 26 minutes of music and comedy sketches.

Clever in concept, Wacky Funsters takes broad aim at its intended targets but completely misses the mark.

SCOTT A. MAY

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Circle Reader Service Number 457

BLOODSTONE: AN EPIC DWARVEN TALE

Role-playing adventures are a dime a dozen these days. (They may even be down to a nickel.) So what distinguishes Mindcraft's *Bloodstone: An Epic Dwarven Tale* from the scores of RPGs crowding software shelves? Unfortunately, very little.

Following an annoyingly slow installation process, *Bloodstone* rewards with fluid, easy-to-learn, mouse-driven gameplay. But an efficient, *Ultima*-like overhead view of the characters is marred by the game's seemingly low-resolution graphics; the terrain is crisp but the characters themselves appear as small, indistinguishable color blobs.

Still, *Bloodstone* is not without its positives. Sound effects are sparse but superb, and the game engine features a diverse collection of magical objects and spells. Most importantly, combat is challenging and lots of fun; it'll take more than a little hacking and slashing to see your party through a monster ambush. Fortunately, *Bloodstone* does include the obligatory save-game feature so you can try, try again.

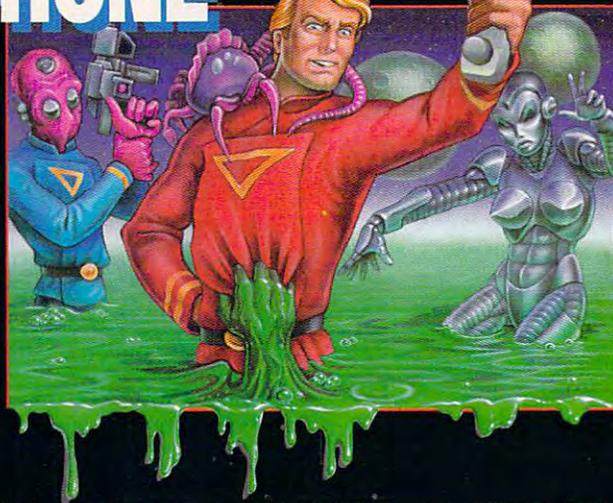
RPG die-hards will enjoy *Bloodstone's* expansive landscape and exciting melees, but overall this well-done game has little to make it stand out from a crowded pack.

RICK BROIDA

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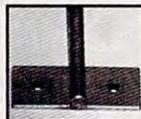
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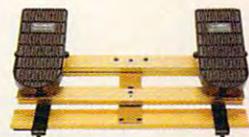
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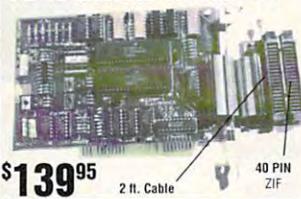
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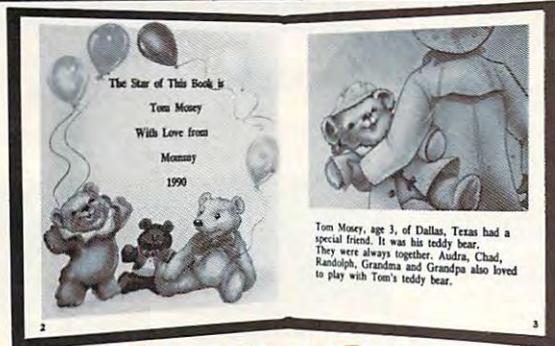
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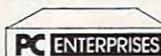
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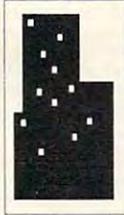
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NEWS BITS

Jill Champion Booth

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Don't Hold Your Breath

President Clinton says he hopes to be able to answer electronic mail messages individually within a year—this in response to a new exhibit, Letter to the White House, at the Computer Museum of Boston. Visitors can access President Clinton and Vice President Gore electronically to tell them what they think about, well, everything. The exhibit also allows you to see how your message is routed through the Internet's web of machines. Computer animation and other special effects display a simulated satellite view of the message as it bounces from the museum to a gateway in Boston and then through cyberspace to Washington and the White House. Once your message is received, you get a printout with Clinton's and Gore's E-mail addresses.

Women Get Wired

Women's Information Resource & Exchange (WIRE), the first international, interactive computer network dedicated to women, plans to open its gateways early this year. The network will provide an easily accessed, centralized source of women-oriented information and conversation. Women and men can log on to WIRE and discuss topics of interest with each other, network to solve problems, access information instantly, keep in touch with family and friends via E-mail, and participate in news groups and mailing lists from other systems on the Internet. For more information, contact WIRE at (415) 615-8989 or send E-mail to info@wire.net.

Mobile Companions

Moving swiftly to capture the most promising market for hand-held computing devices—the business user mar-

ket—VLSI Technology, Intel, Microsoft, and Compaq will work together to deliver the first of a new class of hand-held devices known as mobile companions. Designed by Compaq, the mobile companion is a true extension of your main desktop or notebook PC. You'll be able to carry it wherever you go and use it off and on throughout the workday for instant access to information, whether at a meeting down the hall or on the other side of the world. Scheduled to be on the market this year, mobile companions will be powered by VLSI's Polar chip set, which is based on Intel architecture, and will use the Microsoft at Work operating system for hand-held devices. While Compaq's mobile companion will be the first of its kind, other companies are expected to build similar devices based on the same technologies.

Nike Reaches an Apex

Nike may have lost some air from its pumps when Michael Jordan, the company's most famous endorser, stepped out of his Air Jordans and off the basketball court for good, but the sportswear company still keeps its sales force moving and the shoes flying with IBM ThinkPad portable computers equipped with Apex Data modems.

What made Nike choose Apex over other fax/data modems? High speed, for one thing, says Ron Edwards, Nike's director of sales operations, but also because the Apex modems are covered under the IBM service guarantee. "We have reps in obscure parts of the country, and we know that any problems with Apex products will be fixed by simply calling IBM's service number." Another plus: The fax/data modems are compatible with the

ThinkPad's "hibernate" feature, which allows you to change a battery on the fly. "The fact that Apex modems don't interfere with this is important," says Edwards.

It Could Be a Long Wait

That's the word from one OEM based in Newark, New York, that is also a major supplier of component parts to the PC industry (including Compaq, Dell, IBM, and Tandy). Roger Main, president of IEC Electronics, says consumers who are waiting for prices to drop before they buy the newest technologically advanced PCs might want to think again. He believes that prices of computers will hold steady for a while, not drop, because of a massive shortage of integral computer parts. In other words, newer models using the most advanced technology won't be available to consumers as quickly as usual. What is the reason for the delay? In the past, parts manufacturers rushed to keep up with demand but ended up overstocked with unsalable, out-of-date parts due to fast-paced technology advances. Overseas suppliers refuse to make the same mistake again, he says, and that has resulted in the shortage.

Not For Profit

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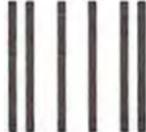
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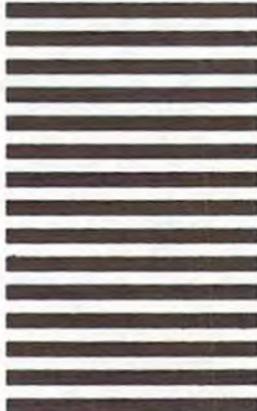
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