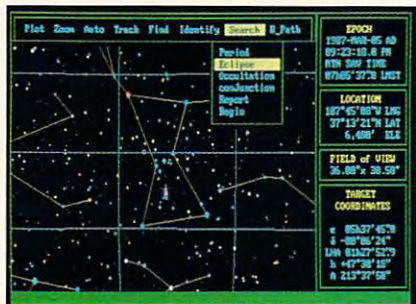


starfield with an unfamiliar bright star in the middle, near the constellation Orion. That's the sun, seen from your viewing position of about 2.5 billion miles out in space. You can zoom in to a maximum magnification of 32,000 and look at individual planets and, with an accelerated time frame, watch them ro-



LodeStar Plus II offers precision over speed. The expanded version has an SAO star catalog of over 270,000 stars.

tate. The software also includes maps of the planetary surfaces. Although Earth and Mars are hardly more than large dots with crude features, Jupiter is big enough for you to watch the Great Red Spot slide by.

You can also switch to an Earth-based view to watch eclipses and events like the apparent merging of Jupiter and Venus on June 17, 2 B.C. The point of *Dance*, however, is to pull back into space, arrange the viewing position you like (you can change the angle from which you're looking into the solar system), invoke the command that outlines the orbits, and start the dance of the planets. Everything is visual and obvious, and by the time you're finished with the manual, Kepler's Laws and the geometry of elliptical orbits ought to be second nature. The five parameters it takes to define an orbit will no longer be mathematical gibberish, but self-evident statements.

Dance comes with orbital data not only for our nine planets, but for their 61 satellites (including Pluto's) and for 4650 asteroids and 1300 comets. Pick out a particular comet, track it into the future, and see if Jupiter ever swallows it or vectors it into the sun. You can track 20 orbits simultaneously, although for results anytime soon, you'll want to get a coprocessor.

Dance will even give you a 3-D view of the orbits. The package comes with red-and-blue goggles like the ones used for watching 3-D movies. They work best for examining comet orbits, which are often rotated away from the plane of the planets' orbits. You can make up your own comets, input their orbit parameters, and watch what hap-

PRODUCT BOX

Chartwheels II

\$150.00
Astrolabe
350 Underpass Rd.
Brewster, MA 02631
(508) 896-5081

Dance of the Planets

\$195.00
A.R.C. Software
P.O. Box 1955
Loveland, CO 80539-1955
(303) 663-3223

EZCosmos 3.0

\$69.95
Future Trends Software
1601 Osprey Dr., Ste. 102
Desoto, TX 75115
(214) 224-3279

LodeStar Plus II

\$199.95
\$229.95 with SAO Database
Zephyr Services
1900 Murray Ave.
Pittsburgh, PA 15217
(800) 533-6600
(412) 422-6600

The Sky 4.1

\$75.00 for Level I
\$99.00 for Level II
\$175.00 for Level III
Software Bisque
912 12th St., Ste. A
Golden, CO 80401
(303) 278-4478

pens. The only thing *Dance* left out is a spaceship option so you can figure in the results of acceleration and fuel consumption.

For those of you who wonder what it's all about, there's also astrological software on the market. We looked at *Chartwheels II* (\$150 from Astrolabe) and found that it does indeed track the positions of the planets. You won't learn astronomy, though, since it's only concerned with the zodiac for cast-

ing astrological charts and showing the influence of the planets at a particular moment.

Planets do, in fact, exert influence—gravitationally on each other anyway. Gazing at the results with the help of astronomy software could help open up the heavens for you, if that's what you're after. At the very least, you'll no longer fumble your way through the night sky.

Galileo would approve. □



FAST FORWARD

David English

YOU CAN MIX MULTIMEDIA AND LAPTOPS

Laptop innovation is moving so fast that the last thing most manufacturers want to see is a set of standards that will lock them into yesterday's technology. Perhaps in a few years, when the size of the laptop has stabilized, manufacturers will agree on standards that will allow you to add various peripherals and upgrade your LCD screen or hard

Stereo (Msound International, 1965 West 4th Avenue, Vancouver, British Columbia, Canada V6J 1M8; 604-732-4849; \$249.95) is a sound-card-in-a-box that plugs into your parallel port and includes a built-in amplifier and stereo headphones. Msound can emulate present sound card standards and can be upgraded to emulate future standards. Currently, Msound ships with drivers for the Ad Lib sound card and the Covox Speech Thing, as well as utilities that can convert Macintosh and Tandy sounds to Msound's native for-

work with all Ad Lib-compatible games. (I couldn't get *Red Baron* or *Stellar 7* to recognize Msound's Ad Lib driver.) The company is working to line up support for Msound's own sound format.

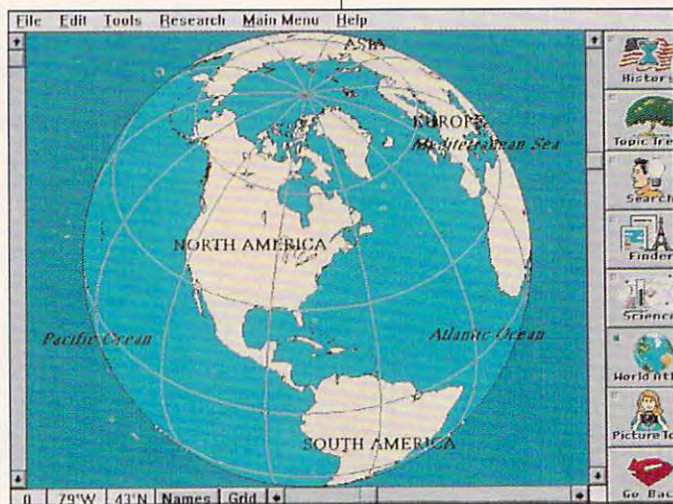
Msound is well worth looking into, whether for a laptop or desktop computer. And when Msound releases its *Multimedia Windows* drivers, you'll be able to use your computer to hear a flood of new multimedia titles.

What's that you say? How can you run the new multimedia software without a CD-ROM player? And how in the world are you going to hook a CD-ROM player to a laptop computer? Glad you asked. For just \$179, you can buy the T338 MiniSCSI Parallel-to-SCSI Host Adapter (Trantor Systems, 5415 Randall Place, Fremont, California 94538; 415-770-1400). The MiniSCSI plugs into your parallel port and instantly adds a SCSI port to your computer. It's small and lightweight (just 2.5 ounces) and works with most SCSI-based CD-ROM players and hard drives. You can daisy-chain as many as seven SCSI devices together with a single MiniSCSI. The MiniSCSI draws all of the power it needs from the first device in your SCSI chain.

There's a downside. The MiniSCSI is rated only about half the speed of a high-end multimedia CD-ROM player. According to Jim Switz, marketing manager at Trantor, that's not as bad as it sounds. Because it's difficult for any CD-ROM player to sustain a high speed, the MiniSCSI is generally able to keep up. At the worst, you'll see about a 30-percent reduction in speed.

With these two new devices, even if you have a laptop or slotless desktop, you can still participate in the multimedia revolution. □

Today you can have a sound card and a SCSI interface without the need for a bus slot, which allows you to run CD-ROM applications such as Compton's MultiMedia Encyclopedia from any laptop computer.



drive. But that's the future—none of the laptop manufacturers I've talked to see that scenario unfolding anytime soon.

With today's models, once you buy your laptop, you lock yourself into today's technology with little chance to change with the times.

What's the answer? Your parallel port. Peripheral manufacturers have discovered how to tap into your parallel port and still let you use your printer. Plug a small box into your parallel port, plug your printer cable into the box, and it's instant expansion.

How would you like to add digital stereo sound to your laptop or desktop PC? Msound

mat. The company is working on drivers for the Sound Blaster and *Multimedia Windows*.

Msound provides high-quality sound. Msound has a dynamic range of 96 dB and a signal-to-noise ratio of 60 dB, and can handle sounds with frequencies of 20 Hz to 20 kHz. Unlike the Sound Blaster, Msound doesn't offer sound-in (just sound-out), but it does offer a built-in expansion bus for add-on modules.

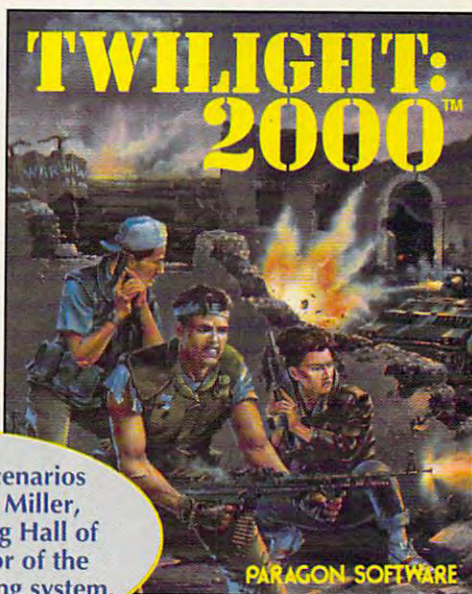
The package also includes a sample disk of sounds. There was a bit of distortion in some of them, but the stereo effect was terrific. Unfortunately, the Ad Lib driver doesn't

Take Control Of The Future

PARAGON SOFTWARE AND GDW PRESENT GAMES ON THE CUTTING EDGE OF TECHNOLOGY



Both featuring scenarios written by Marc Miller, Adventure Gaming Hall of Famer and creator of the Traveller role-playing system.



Twilight: 2000 places you in the aftermath of World War III, travelling through terrain devastated by high-tech weaponry and nuclear radiation.

- Create your character with the skills and abilities you want
- Command three other party members who respond to your orders based on their personalities and objectives
- State-of-the-art graphics include 3-D simulation and 2-D scaled overhead sequences
- Hundreds of weapons and vehicles make each encounter unique

Your mission: rebuild and defend the city of Krakow, Poland against an onslaught of marauders and military madmen determined to win a war the world lost.

Based on the role-playing classic from Game Designers' Workshop, **MegaTraveller 2: Quest For The Ancients** contains state-of-the-art innovations, including a completely re-designed, icon-driven interface, combat system and role-playing engine.

- The sequel to the hit MegaTraveller 1: The Zhodani Conspiracy with over 100 of named, detailed worlds to explore
- New PAL role-playing engine lets you control one character while commanding four others; advanced character generator guarantees variety with each game
- Weapons and starship classes of all kinds; a dazzling array of characters with whom to interact

Your mission: save a world threatened by a mysterious artifact built by the Ancients, a legendary super-race thought dead for 300,000 years.



IBM screens shown. Actual screens may vary.



PARAGON SOFTWARE™

Marketed by MicroProse Software, Inc.

For IBM-PC/Tandy/compatibles. Can't find these games? Call 1-800-879-PLAY for prices and ordering information.
© 1991 Paragon Software and Game Designers' Workshop.

Circle Reader Service Number 110

www.commodore.ca

SOME OF



The greatest hero for the Hyborean Age was a fierce barbarian born of the harsh northlands,

CONAN THE CIMMERIAN



ou have heard the tales of Conan's adventures. Only now will you have the opportunity to live the life of this fierce barbarian from the land of Hyborea.

Our odyssey begins with murder most foul. When Conan's village is massacred by the ravaging hordes of Thoth Amon, high priest of the vile cult of Set, Conan vows to avenge the death of his family and friends.

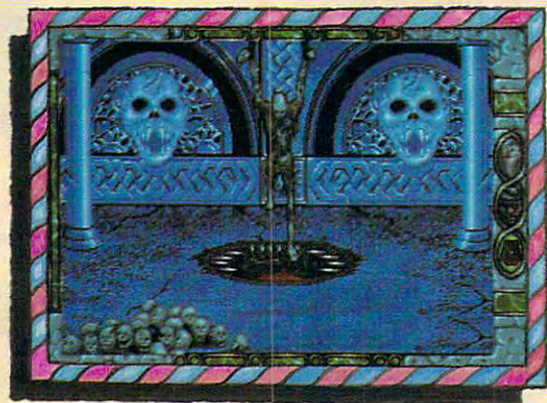
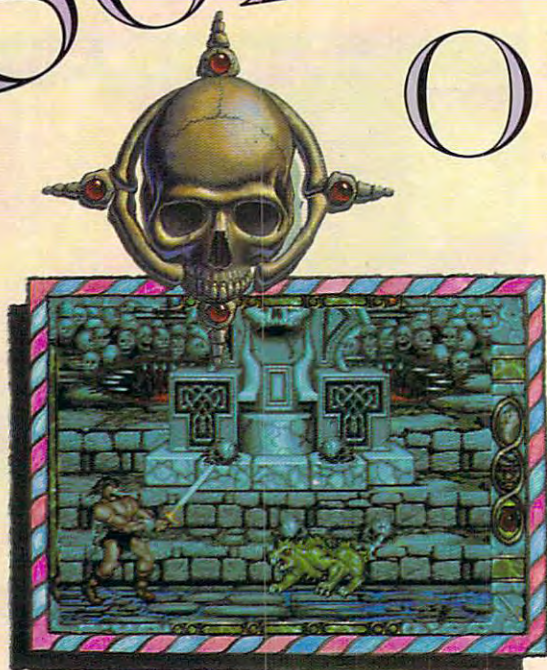
In your search for vengeance, you as Conan, will explore Hyborea to seek out its hidden secrets and learn of its powers. Visit over 200 locations – taverns and inns, crypts and dungeons, temples and tombs, lavish homes and poor hovels – to learn the mysteries of Hyborea's sorceries to help Conan overcome its many natural and supernatural perils.

Only with luck, courage and constant struggle will Conan have the chance to force a reckoning with the powerful Thoth Amon.

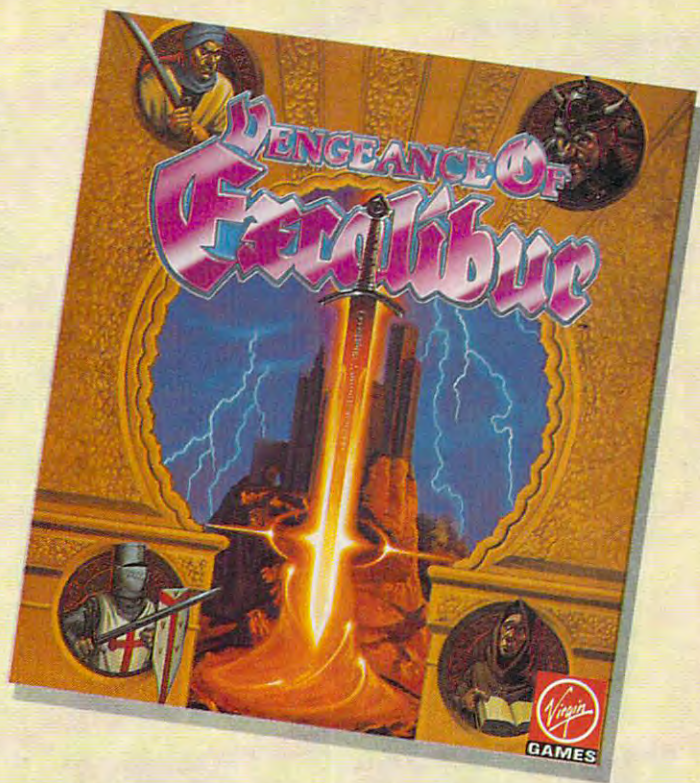
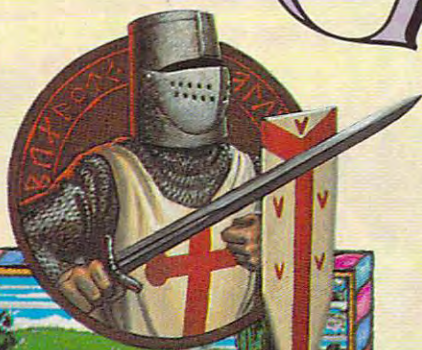


AVAILABLE FOR THE IBM AND AMIGA THIS SUMMER.
SUGGESTED RETAIL – \$49.99

TM and © 1991 Conan Properties Inc.
Cover illustration © 1990 Boris Vallejo.
© 1991 Virgin Games, Inc. All rights reserved.
Virgin® is a registered trademark of Virgin Enterprises, Ltd.
Virgin Games, Inc. 18061 Fitch Ave., Irvine, California 92714



THING D



In Spirit of Excalibur, the Knights of the Round Table fought to defend medieval Britain from the evil sorceress, Morgan Le Fay. Morgan, dabbling in dark arts beyond even her ability to control, had summoned a great Lord of Demons, the Shadowmaster.

With Morgan's death, the Shadowmaster was freed to work his evil will against the unprepared folk of Britain. Striking in the night, he imprisoned the King with a spell, stole the greatest treasures of the realm and kidnapped Nineve, the court enchantress. With the loss of the sword Excalibur and the newly recovered Holy Grail, Britain begins to sicken and die. The Shadowmaster must be stopped!

Command knights and whatever followers they are able to recruit to track the Shadowmaster through hazardous, beautiful and mysterious medieval Spain. Explore the hundreds of villages and cities, fortresses and castles, dungeons and palaces and all the secret places where the Shadowmaster may dwell.

Seek what aid you can as you acquire and learn the use of the sorceries of Moorish Spain, for only with the aid of enchantments and the loyalty of strong allies will you stand a chance of ridding the world of the demonic Shadowmaster once and for all.

AVAILABLE FOR THE IBM, AMIGA, ATARI ST AND MAC THIS SUMMER.
SUGGESTED RETAIL - \$49.99

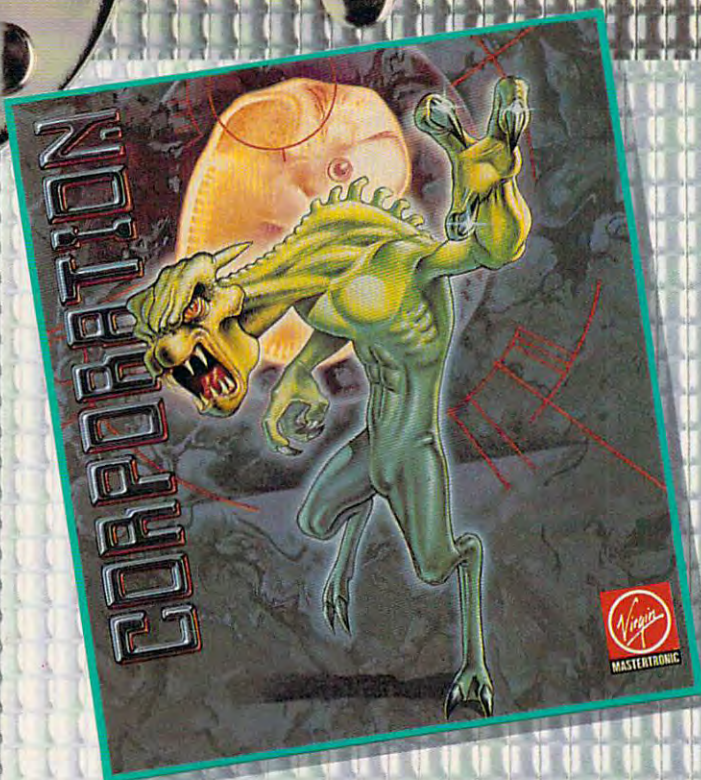
Developed by Synergistic Software.
© 1991 Virgin Games, Inc.

Virgin® is a registered trademark of Virgin Enterprises, Ltd.
Vengeance of Excalibur is a trademark of Virgin Games, Inc.
Virgin Games, Inc. 18061 Fitch Ave., Irvine, California 92714



SOME NE

ALSO TAKING OVER A
**SEGA
GENESIS**
NEAR YOU
THIS FALL



ARE YOU TOUGH ENOUGH TO TAKE ON THE 21st CENTURY AND SAVE MANKIND FROM HIS UNTIMELY DESTRUCTION BY A GENETICALLY ENGINEERED WAR MACHINE?!

Talk about your work-related stress! As a ZODIAC special agent, your job is to crack the complex security systems of the Universal Cybernetics Corporation and track down the mutant robot they have designed as the ultimate killing machine.

You'll arm yourself with a whole arsenal of weapons - everything from hologram projectors to special vision enhancement visors to thermal infra-red image intensifiers. If all else fails - you'll have to rely on your own psychic powers!

FEATURES INCLUDE:

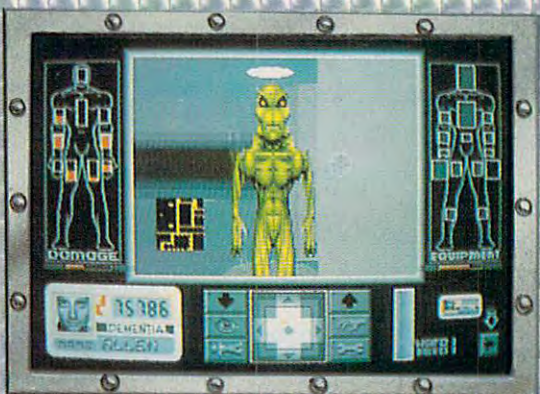
- 16-level 3-dimensional environment complete with fast, smooth scrolling
- Realistic action control of six characters: 2 male, 2 female and 2 droid
- 360 degree vision
- Environmental sound effects

"Tension and unease, with danger lurking around every corner.... This Number One European Hit will keep you on your toes and coming back for more."

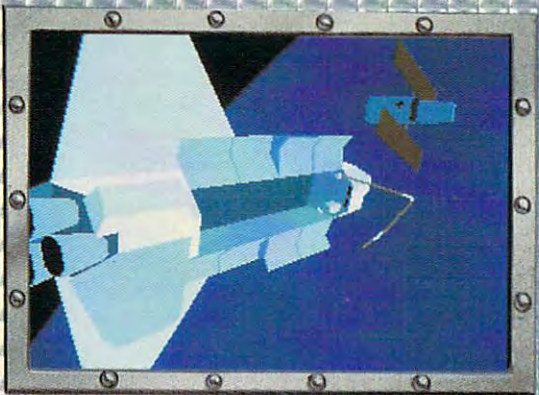
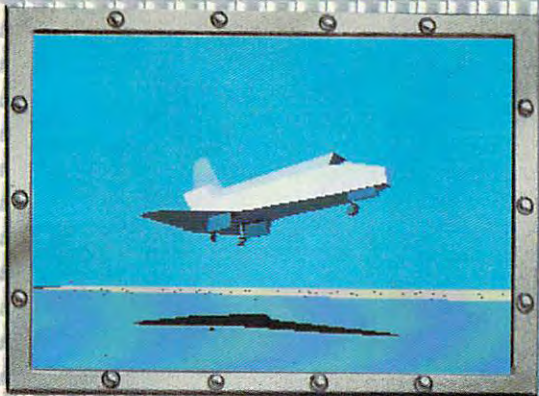
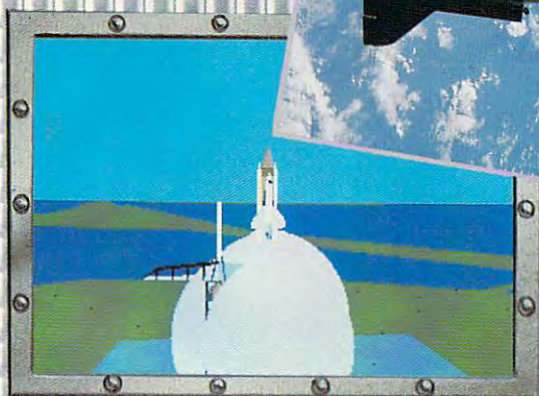


AVAILABLE FOR
THE IBM, AMIGA AND ATARI ST THIS SUMMER.
SUGGESTED RETAIL - \$49.99

TM and © 1991 Virgin Games, Inc. and Core Design.
All rights reserved.
Corporation & Virgin® are registered trademarks of
Virgin Enterprises, Ltd.
Virgin Games, Inc. 18061 Fitch Ave., Irvine, California 92714



THING W



The space flight simulator to end all simulators, **SHUTTLE** is the most accurate and comprehensive simulation of NASA's Space Shuttle ever produced for the home computer.

With the aid of Mission Control, you will master such challenges as deploying and repairing satellites, launching spy satellites, maneuvering your craft in zero gravity, attaining the correct re-entry trajectory, and pulling off complicated landings.

Advanced polygon and elliptical graphics, along with actual land and star maps were used to create the breathtaking 3D panoramas of the Orbiter and its environment, which can be viewed from any angle at any time.

Other features include:

- Authentic control panel display
- Detailed comprehensive training and reference manual
- Numerous training, scientific and "Star Wars" (SDI) Missions
- Multiple help levels from "novice" to "veteran"
- Various launch and landing sites
- Orchestral quality music
- Fold-out Shuttle flight deck poster

AVAILABLE FOR
THE IBM, AMIGA AND ATARI ST LATE SUMMER.
SUGGESTED RETAIL - \$59.99

AdLib™ and Roland™ sound boards supported on IBM
Shuttle™ and Virgin® are registered trademarks of
Virgin Enterprises, Ltd.

Virgin Games, Inc. 18061 Fitch Ave., Irvine, California 92714

Circle Reader Service Number 179



ENTERTAINMENT

COMPUTE CHOICE. Prove your right to the skies by flying the latest Yeager flight simulator.

Denny Atkin

CHUCK YEAGER'S AIR COMBAT

"Bandit on your six! Break!" the navigator yelled from the rear seat. As tracers shot past the cockpit window, I did a vector roll and pulled away from the attacker. I leveled out my F-4E Phantom, wondering if every raid against the Vietcong would see this much action. I'd just taken damage from the MiG-21 I shot down over Hanoi, and now I had to deal with more bogeys?

I scanned the horizon looking for the enemy aircraft. I spotted him, locked on a Sidewinder heat seeker, and moved in for the kill. Wait, there was something strange about this plane. It appeared to be . . . a piston-engined WWII fighter! "That's a Focke-Wulf 190," my navigator exclaimed incredulously. I glanced around . . . three, no four FW-190 fighters and a formation of Me-262s, the first German jet fighters!

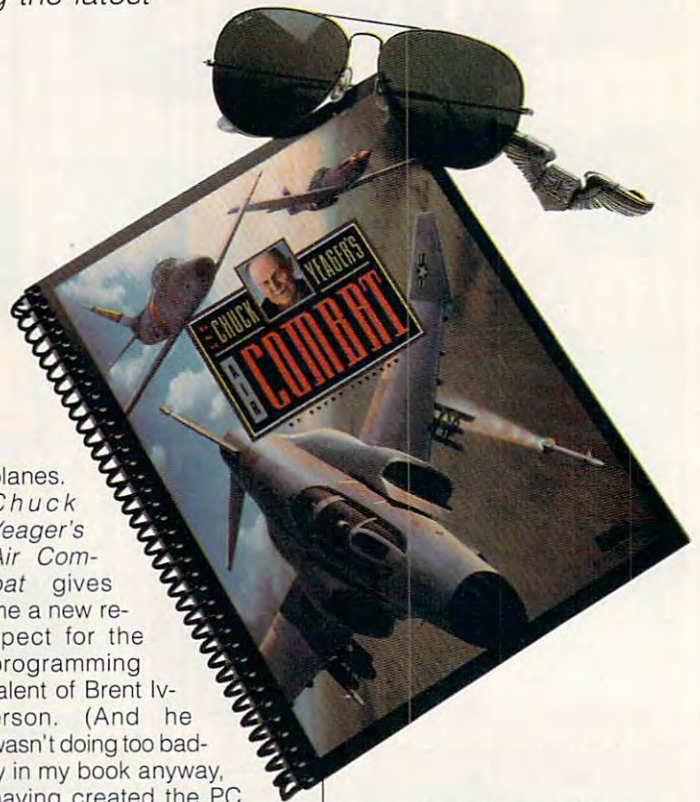
Humming the "Twilight Zone" theme, I closed in on the bogey and let go of the Sidewinder; it shot right past him. I guess a heat seeker isn't the best weapon to use against an old prop job. I did a low yo-yo to reposition when suddenly a group of tracers ripped into my wing. Looking over, I saw an Me-163 rocket plane! I jinked to the left and lit into him with my 20-mm Gatling gun. He blew up with a spectacular explosion. Surveying my plane, I realized I'd taken some pretty heavy damage. One nice thing about WWII planes—they were pretty slow compared to my Phantom. I lit the afterburners and headed for home with growing appreciation of antique war-

planes. *Chuck Yeager's Air Combat* gives me a new respect for the programming talent of Brent Iverson. (And he wasn't doing too badly in my book anyway, having created the PC version of *DeluxePaint*.) When I saw the spec sheet for this program, I thought it might be a fun arcade game, but I didn't believe there was any way a program could realistically simulate aircraft from three different wars without making any compromises. I was wrong. The original Yeager simulation, *Chuck Yeager's Advanced Flight Trainer*, is one of the best-selling entertainment programs for the PC. This program lives up to its predecessor's flight-model realism and surpasses it in speed, sound, and graphics quality. And it provides much more challenging gameplay.

Yeager offers three gameplay options. You can choose to fly a historic mission over World War II Europe, Korea, or Vietnam; create your own mission; or test-fly a plane. Fans of historical air combat will enjoy the first option, which allows you to fly 16 accurate air-combat missions over Korea and 17 each over Europe and

Vietnam. The Create Mission option allows you to design your own combat scenario, either a realistic encounter between planes of the same era or a fantasy combat between aircraft of different eras. Test Flight lets you simply take to the skies in your choice of aircraft and practice your flying skills without having to worry about enemy aircraft.

The program simulates a total of 17 different aircraft types. You can fly 6 of these models, and enemy aircraft can be any of the 17. The planes available from World War II are the North American P-51D Mustang and the Focke-Wulf 190A-8; from Korea, the North American F-86E and the Mikoyan-Gurevich MiG-15 Fagot; and from Vietnam, the McDonnell Douglas F-4E Phantom II and the Mikoyan-Gurevich MiG-21MF Fishbed. Other planes featured in the simulation, which you may have to defend as allies or face as enemies, are the P-47D Thunder-



bolt, the Messerschmitt Me-109E, the Me-110 twin-prop fighter, the Me-163 rocket plane, the Me-262 jet, the B-17 Flying Fortress, the B-29 Superfortress, the Yakelov Yak-9, the MiG-17F Fresco, the F-105D Thunderchief, and the B-52 Stratofortress (known as the BUFF to its pilots.)

As you'd expect from a simulation bearing the Yeager name, each of these planes is simulated very accurately. When you choose which plane you're going to fly, you aren't forced to use a generic cockpit; the program displays an instrument panel accurate to that type of plane. The more modern the plane you're flying, the more sophisticated the instrument panel. Each plane is realistic from a performance standpoint as well. For instance, the Me-163 Komet rocket plane will run out of fuel after a few minutes of combat and have to glide back to base, making it a sitting duck, just like the actual aircraft. You'll find that different fighters have different climb rates, turning radii, and maximum altitudes. No more of the "every plane flies about the same" syndrome you've encountered in too many other simulations. If you're used to less realistic simulators, you might find yourself in trouble after trying to do maneuvers that aren't actually possible in some planes at certain altitudes.

The game presents you with an incredible variety of historical missions. Many are of the fighter-escort and ground-attack genres, as you'd expect, but many others are unique and unexpected. In Korea, for instance, one mission puts you in the role of Lt. Kim Sok Ho, the North Korean pilot who defected with his MiG-

15 in order to collect a \$100,000 reward. You've got to avoid both Korean and American pilots in that scenario. Other scenarios bring their own surprises—you may spend most of your time in what's supposed to be a ground-attack mission engaging in air-to-air combat. Make sure you pay attention to the mission's goals, though. I shot down three German planes in one mission, only to be chided by General Yeager for not destroying enough ground targets.

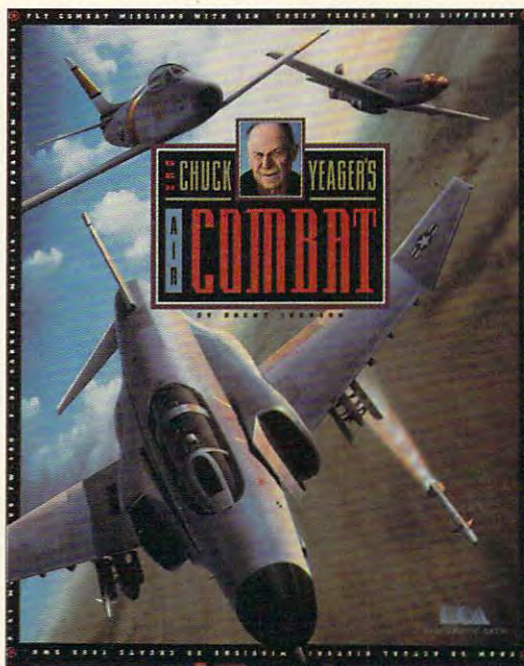
General Yeager offers helpful hints and warnings during combat. If you seek further assistance, a tutorial videotape narrated by Yeager is available from EA.

Each mission stands alone; the program doesn't let you fly a campaign or save your pilot to disk so you can keep a running total of your kills.

The historical missions are thoroughly enjoyable, but I had the most fun using the Create Mission option. If you've had a bad day, take a Vietnam-era MiG-21 up against four or five WWII B-17 Bombers—it's a piece of cake. If you're up for a challenge, try to shoot down a Mach-2 F-4E Phantom in a 500-mph P-51 Mustang. It can be done, but it's not easy.

The game has a nice replay option. You can pause the combat and watch what just happened, or you can save the entire mission to disk and watch it later. There are variable playback speeds, and you can have the camera follow any of the aircraft.

Yeager's VGA graphics are beautiful. Each cockpit is a nicely rendered VGA bitmap, while the world and other aircraft are done using fast filled-polygon graphics. Down to the ejection seat and canopy



that fall away from your plane after you punch out, *Yeager* misses no detail. A digitized Chuck Yeager voice congratulating you or chiding you after each mission crowns a complement of well-done sound effects. One truly neat feature is that the game will actually run under *Windows* on a 386SX or higher machine; other than a scrambled digitized voice, all features work fine under *Windows* 3.0. With realistic flying characteristics, fast-action combat, an infinite variety of possible missions, and top-notch graphics and sound, it's hard to find anything to complain about. The terrain could be a little more detailed and less flat, and it would be nice if you could keep a running total of your pilot's kills. Even without these features, though, *Chuck Yeager's Air Combat* is the most enjoyable combat flight simulator I've ever played. □

IBM PC and compatibles, 640K RAM; CGA, EGA, MCGA, VGA; supports Ad Lib, Sound Blaster, Game Blaster—\$59.95

**ELECTRONIC ARTS
1820 Gateway Dr.
San Mateo, CA
94404
(415) 571-7171**

GAMEPLAY

Orson Scott Card

ABSTRACT WAR GAMES

You don't have to approve of war to enjoy playing war games. Besides, there are different kinds of war games. Some are combat games—those arcade games where you kick or blast your way through an endless onslaught of enemies in order to reach a higher level where you have to kick or blast your way through even *more* enemies. Victory depends on the reflexes and skills the player develops—by playing, you train yourself into a perfect "soldier" for that game.

Some war games are strategic, like the excellent *Command H.Q.* (Microplay), in which you play on a large map, manipulating nations

and armies. The whole war is your responsibility.

Some war games are tactical, a sort of middle ground in which you maneuver the individual units of a larger force. Your game is usually a single battle consisting of many engagements and firefights. Your units may be as large as divisions or as small as tanks or individual soldiers—but you, as the player, control many of them, not just one or two.

The boundaries between these kinds of war games are never firmly fixed. Insofar as the Ultima games are war games, are they combat games because you control the individual combat decisions of a very small team? Or tactical, because you maneuver and control several players?

Does it matter? Well, it does if you're playing war games for real. When, at the Marine University in Quantico, I sat in on a war game session led by Captain John Schmitt (author of what may be the most concisely brilliant book of strategy ever written), it really mattered whether you thought strategically as well as tactically—because someday what you did in the game might show up on the battlefield.

Likewise, the best of the officers playing the game took into account the individual abilities of soldiers in their made-up squads. "I'd put my two best marksmen here and have them move very slowly into position *there* during the night. I know they could get there because I trained them to do it." Combat ability, tactics, and strategy—every step along the continuum is important.

But there's another continuum, too, when it comes to war games: abstraction versus simulation. Chess, for instance, is a highly abstracted war

game. Sure, we speak of "knights" and "castling," but there's no sense in which our use of bishops and queens reflects real warfare! And as for moving castles . . . well, enough said.

So when I tell you that *Full Metal Planet* (Infogrames, copyrighted and distributed in the U.S. by Data East) is a fairly abstract tactical game, that doesn't mean that it isn't a good war game. It does mean that you won't get the thrill of kicking your way through a whole bunch of enemies—combat is only scarcely more graphic than seeing one piece take another in chess. Yet you get another kind of thrill—the excitement of maneuvering your forces defensively and offensively against very tough computer opponents or other human players, under a very tight time limit of no more than 25 moves.

Unrealistic? No, just abstract. The graphics are gorgeous, somewhat impressionistic and yet grittily real. It's a bleak alien landscape, where your corporation and up to four computer opponents and three other humans are trying to gather as much ore as possible, all the while blasting or capturing the other corporations' equipment and trying to keep its men from doing the same to you.

The rules of movement are quite abstract, and the battles themselves are simple. The playing field is a hex grid with a sea whose unpredictable tides can drastically alter your movement capability. It sounds simple, but the complications are as intricate as chess.

Whether you prefer twitch games or games like *Full Metal Planet* is just a matter of whether you want your reflexes to play the game for you or you sometimes want the game to reach your brain. □

Combat ability, tactics, and strategy—every step along the continuum is important. But there's another continuum, too . . . abstraction versus simulation.



THE IMAGE BANK

All the graphics, all the action, all the stats!

SSI sets the standard with TONY LA RUSSA'S ULTIMATE BASEBALL. When the premier manager of pro baseball puts his name on a game, you know it has to be the very best: State-of-the-art graphics and ultra realistic action. Ballparks with different fence distances, wind conditions and turf surfaces. And all the stats:

49 batting, 14 fielding and 44 pitching stat categories! Sorted any way you like. You make the call.

TOPPS BUCKSHOT™
INSIDE GAME PLAYERS™
SPORTS Wilson Mizuno

TO ORDER: Visit your retailer. VISA/MC orders, call 1-800-245-4525 (in USA & Canada). By mail, send check or money order to Electronic Arts, P.O. Box 7530, San Mateo, CA 94403. To receive SSI's complete product catalog, send \$1.00 to: SSI, 675 Almanor Ave., Suite 201, Sunnyvale, CA 94086.

Tony La Russa's ULTIMATE BASEBALL®

TONY LA RUSSA'S ULTIMATE BASEBALL comes with the stats of yesteryears' legendary superstars. You can also enter the numbers for any player on any pro team — or even those on your local league. Choose to play a game with top-notch arcade action, or let the computer play through a 162-game season in a few hours!

► IBM

► C-64/128
(Not all features are available for C-64/128 version)

Watch for
upcoming
Data Disks!

STARTING LINEUP VS. L.A. ANGELS	
1	1. P. M. 1.00
2	2. P. M. 1.00
3	3. P. M. 1.00
4	4. P. M. 1.00
5	5. P. M. 1.00
6	6. P. M. 1.00
7	7. P. M. 1.00
8	8. P. M. 1.00
9	9. P. M. 1.00

KEY INDIVIDUAL PITCHING STATISTICS	
1	1. P. M. 1.00
2	2. P. M. 1.00
3	3. P. M. 1.00
4	4. P. M. 1.00
5	5. P. M. 1.00
6	6. P. M. 1.00
7	7. P. M. 1.00
8	8. P. M. 1.00
9	9. P. M. 1.00

STATISTICAL LEADERS	
1	1. P. M. 1.00
2	2. P. M. 1.00
3	3. P. M. 1.00
4	4. P. M. 1.00
5	5. P. M. 1.00
6	6. P. M. 1.00
7	7. P. M. 1.00
8	8. P. M. 1.00
9	9. P. M. 1.00

PITCHER		BATTER	
1	1. P. M. 1.00	1	1. P. M. 1.00
2	2. P. M. 1.00	2	2. P. M. 1.00
3	3. P. M. 1.00	3	3. P. M. 1.00
4	4. P. M. 1.00	4	4. P. M. 1.00
5	5. P. M. 1.00	5	5. P. M. 1.00
6	6. P. M. 1.00	6	6. P. M. 1.00
7	7. P. M. 1.00	7	7. P. M. 1.00
8	8. P. M. 1.00	8	8. P. M. 1.00
9	9. P. M. 1.00	9	9. P. M. 1.00



STRATEGIC SIMULATIONS, INC.

PITCHER		BATTER	
1	1. P. M. 1.00	1	1. P. M. 1.00
2	2. P. M. 1.00	2	2. P. M. 1.00
3	3. P. M. 1.00	3	3. P. M. 1.00
4	4. P. M. 1.00	4	4. P. M. 1.00
5	5. P. M. 1.00	5	5. P. M. 1.00
6	6. P. M. 1.00	6	6. P. M. 1.00
7	7. P. M. 1.00	7	7. P. M. 1.00
8	8. P. M. 1.00	8	8. P. M. 1.00
9	9. P. M. 1.00	9	9. P. M. 1.00

www.electronicarts.com

MART

m e m o r a

The Making of a Com

When Access Software introduced the award-winning *Mean Streets* two years ago, its exciting movie sequences were state-of-the-art technology. Now, the Access geniuses are taking game technology another quantum leap forward with *Martian Memorandum*.

This time, in what is rightfully called *full-motion video*, Access gives us movie sequences with synchronized sound. When you play the game, the twelve speaking characters talk directly to you as you conduct your interviews, even if you don't have a sound board. They move as they speak and roll their eyes with disgust, shrugging, laughing, and blazing with anger. They're not animated cartoons or photos with dialog boxes; they're people you have to deal with to get anywhere in the game.

You won't believe your eyes and ears. It's a breakthrough that parallels the development of "talkies," when soundtracks were added to movies.

But aside from the programming artistry that represents a giant step for the technology, this is a computer game good enough to deserve being the first computer talkie.

Martian Memorandum's setting is A.D. 2039. You take the role of Tex Murphy, a San Francisco gumshoe in the Sam Spade tradition (complete with the trench coat and 1940-style theme music), who is hired by wealthy

Marshall Alexander to find his beautiful daughter, Alexis, who is missing and may have been abducted.

The faint trail eventually leads through her boyfriend's incredible South American jungle fortress to the seedy back alleys of a casino district on Mars. As you meet more people and unravel the web of intrigue, you find there is much more involved than just a missing heiress. If you are successful, you may save humanity from self-destruction.

It's a gritty, hard-boiled private eye yarn in a futuristic, science fiction setting. As the macho hero, you mix it up with mutant villains, sexy secretaries, gamblers, hired muscle, and an eclectic variety of characters, each of whom is trying in his or her own way to influence the fate of the universe.

There's also a healthy dose of humor, particularly in the descriptions of the various objects you'll examine as you search for clues.

The story line is unusually deep for a game. The game's electronic wizardry—after the awe wears off—allows you to get caught up with the people, their motivations, and the scope of the problem you're desperately trying to solve.

The designers weren't content, however, with presenting this richly detailed story in graphics and sound that no one else can match. They had one more innovation in mind; they guarantee you

can finish the game. You'll be able to uncover the final solution without a hint book and without frantic phone calls to customer service.

How can they guarantee this? They've developed a new system to give you context-sensitive help at just the level you want. If you want minor hints at the tough spots, you can get them onscreen. But if you aren't playing for the thrill of outsmarting the programmers, persist in asking for help, and the game will eventually spell out for you exactly what to do.

This may be the first adventure/mystery game some of us have ever finished. If you enjoy simple mysteries and puzzles but have given up on adventure games in frustration with their seeming impossibility, you'll want to try *Martian Memorandum*. You only have to endure as much frustration as you choose to accept.

The Making of *Martian Memorandum*

Like its predecessors, *Countdown* and *Mean Streets*, *Martian Memorandum* is the product of a talented team of creative technical geniuses hidden away in an industrial park near the Salt Lake City International Airport. Although they're unquestionably brilliant computer people, they work, talk, and think more like moviemakers.

Martian Memorandum's story and con-

IAN

ndum

puter Movie

cept are the joint creation of financial vice president Chris Jones and programmer Brent Erickson. Jones directs the game's movie sequences and acts several parts.

The visuals are born when the designers explain the story to their artist, who creates a storyboard with a rough sketch for each game screen. The results of this intensely creative process are pinned on the wall of a long hallway, and production begins.

Videotaping is much like a standard movie or television shoot, with makeup and sound people, a videographer (cameraman), the director, and actors shooting multiple takes directly onto videotape. The difference is one additional person: Erickson lurks in the background, mentally digitizing the scene and fitting it into his program, making sure the degree of detail, motion, and position of the actors will work within computer memory and program constraints.

Ninety-five percent of what you see onscreen in *Martian Memorandum* is digitized video or still photos. Every move that Tex Murphy and the other characters make was created from digitized video of actors. The derelict train in the rail yard murder scene is a photo of an abandoned string of rail cars a few hundred yards from the Access office. Whenever the appropriate image exists, they'll find a way to capture it and fit it

into the game.

Like moviemakers, they create futuristic sets in miniature. After lighting the model set just as carefully as stage directors light a sound stage, they videotape it. Jon Clark, a multitasking artist with 15 years of experience in theater set design, creates the models using a surprising variety of toys, balsa wood, scraps of plastic models, wires, and anything else that comes to hand. Jon also runs the studio's professional sound equipment.

The digitized images of the sets then go to Doug Vandegrift, a cartoonist with a theater background known for his work on "The Muppet Babies" cartoon series. Vandegrift's PC tool chest lets him blend in other images, including his own drawings. He works with the lighting, backgrounds, and whatever else may need touch-up in the original image.

The detailed exterior scene of the Martian casino row, for example, started as a colorful, detailed model built by Clark. Vandegrift blended in a stark Martian mountainscape background and neon signs that came from photos of Las Vegas augmented by his own artwork. The result is a movie scene that looks real without the flat, uniformly colored and lighted look of a cartoon panel.

The live action sequences and characters that talk in full-motion video appear onscreen in three- to four-inch win-

How virtual
can it get before it's
real? Access
brings together
RealSound and live
action for an
unprecedented
adventure experience.



By Richard O. Mann

dows over the scene's set. They could do full-screen video, but it takes so much disk space that it isn't practical yet.

In fact, the real technical breakthrough allowing full-motion video with sound is not the video or the sound technology. It's fast disk decompression. Full-motion video is a series of frames projected on the screen, just like motion pictures. Each frame is stored on disk and drawn on the screen at the right speed.

Images take a vast amount of disk storage. To make this game work, Erickson invented a system that compresses the video files by approximately 87 percent and then decompresses them on the fly in a fraction of a second, sending them to the screen as needed, right on time, frame by frame, synchronized with the sound files. Without the lightning-fast decompression routine, this game could not exist.

The RealSound technology that gives us music and voice through ordinary PC speakers is the brainchild of Steve Witzel, vice president of marketing at Access. It's so mature and solid at this point that it's easy to record the soundtrack on the videotape and digitize it using the proven RealSound utility program. If you have expensive MIDI sound equipment, the soundtrack

of *Martian Memorandum* will complete the illusion of being in a movie.

All of these diverse elements feed into Erickson's dimly lit, CD-sound-filled office, where the master programmer melds them together into a finished product. Since the game was created in close partnership with Jones from



Martian Memorandum is your ticket to an interplanetary adventure.

the start, Erickson is qualified to serve as the movie's cutter and editor. His job is a lot harder, though, because he's also writing the computer code that causes everything to happen.

An Entertainment Experience

The designers of *Martian Memorandum* are striving to make it more than a game; they see it as an entertainment experience. The intention is to

make the player identify with the hero and feel surprise, anger, delight, and tension as he or she solves the mystery. The only concession to the fact that it's a computer game is your limited ability to question and interact with the people you meet in the game. At each step along the way, you are given three to five possible things to say in these conversations. (Such conversations may go on for ten or more exchanges; they are not perfunctory interviews.) Sometimes off-the-wall questions you'd like to ask aren't among the choices, but such occasions are rare.

As games become more realistic, merging full-motion animation and digitized sound, the gap separating real experience from the game action narrows. *Martian Memorandum* isn't quite virtual reality yet, but it's closer to it than any other computer game. □

Martian Memorandum \$59.95
ACCESS SOFTWARE
4910 W. Amelia Earhart Dr.
Salt Lake City, UT 84116
(800) 800-4880
(801) 359-2900

Requires VGA and hard drive with approximately 8MB free. Mouse recommended. All sound boards supported but none is required.



64/128 VIEW

New 64 titles were scarce at the Consumer Electronics Show, but there's still some fun coming our way.

Tom Netsel

The 1991 International Summer Consumer Electronics Show closed its doors recently in Chicago after 55,629 attendees logged many extra miles on their Nike and Reebok Frequent Hiker plans. It took a lot of shoe leather to visit each of the 1,019 exhibits that filled a half-million square feet of exhibit space, and finding new 64 titles in this electronic mid-way was something of a challenge.

There were plenty of PCs and Amigas displaying new software, but there were no 64s. Many companies say they no longer get enough return on their investment to continue producing products for the 64.

After much asking, probing, and poking around, however, I did manage to locate some new products. ReadySoft says its multidisk *Wrath of the Demon* should be out in September, but look for it on cartridge, too. "With the introduction of the Commodore Game Console in England, cartridge games developed for that system will work just fine on a 64," says ReadySoft Senior Vice President Elizabeth Arnold.

This state-of-the-art game contains more than 3MB of graphics data, 600 screens of action, and 1400 frames of animation. Look for more cartridges and disks coming from the U.K., since ReadySoft has joined Empire Software and will be importing some of its products. Another title due out in late fall is *Guy Spy*.

At Electronic Arts, affiliated labels SSI and Mindcraft have new offerings that

should be exciting. Step up to the plate with Strategic Simulations' *Ultimate Baseball*. That's the working title, but whatever it's called, this simulation lets you play, manage, or watch one game or a whole 162-game season.

War game fans haven't been forgotten. Look for an SSI war game coming soon. It's called *Medieval Lords*.

Gateway to the Savage Frontier is the first of a new AD & D series from SSI. It takes place in a mysterious territory in the world of Forgotten Realms. Starting in the town of Yarter, venture over a vast wilderness on a quest for four magical statuettes.

Later this year, look for *The Magic Candle, Vol. 2* from Mindcraft. In this sequel explore the dreaded realm of Gurtex in search of the dark secrets of black candles. A new user interface lets you capture conversations, eliminating the need for constant note taking. Astound friend and foe with new spells, such as Glamour, Courage, and Terrify.

The Electronic Zoo is bundling 20 popular games from Great Britain and sending them to the U.S. as *Star Collection*. These hits should be available now.

Konami is another company supporting the 64—and now one of the more active ones. Over the next few months, look for five new games based on popular movies and hit television programs. Look for such exciting titles as *Bart Simpson's Adventure*, *Simpsons' Arcade Game*, *Teenage Mutant Ninja Turtles: The Arcade Game*, *Back to the Future III*, and *Predator 2*. □

CONTENTS

64/128 VIEW G-1

The 1991 Summer CES had little for the 64, but new products are heading our way. By Tom Netsel.

COMMODORE CLIPS G-2

Gazette goes online with QuantumLink, Commodore earnings are up, and more. By Tom Netsel.

A GUIDE TO COMMODORE USER GROUPS (PART II) G-4

User group listings for Nevada-Wyoming and around the world. By Kandi Sykes and Dana Stoll.

REVIEWS G-10

Back to the Future II, *Fastfingers*, *Nightbreed*, and *Power Drift*.

FEEDBACK G-16

Questions and answers.

GEOS G-19

GEOS telecommunicating. By Steve Vander Ark.

MACHINE LANGUAGE G-20

Use binary fractions. By Jim Butterfield.

BEGINNER BASIC G-21

Crashproof your programs. By Larry Cotton.

PROGRAMMER'S PAGE G-22

Programming tips for the 64. By Randy Thompson.

D'IVERSIONS G-24

Has the robot revolution started? By Fred D'Ignazio.

PROGRAMS G-25

<i>Spanish Vocabulary Quiz</i>	G-25
<i>SpeedSwap</i>	G-28
<i>Credit Control</i>	G-29
<i>Plotter</i>	G-31
<i>Showdown</i>	G-32
<i>Medium Density Driver</i>	G-34
<i>RapidFormat 128</i>	G-35
<i>MLX</i>	G-38

COMMODORE CLIPS

Tom Netsel

GAZETTE GALLERY

Each month *Gazette Disk* features a collection of the best 64/128 artwork submitted by our readers. We pay \$50 for each piece of art we accept for "Gazette Gallery" and an extra \$50 for the one selected as Picture of the Month and featured on this page. To submit your original artistic creations, send them to Gazette Gallery, COMPUTE Publications, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

Gazette Goes Online

Two of the biggest names in the Commodore world are joining forces to offer 64 and 128 users an exciting new dimension to their computing activities. COMPUTE's Gazette will soon be online at Quantum-Link (8619 Westwood Center Drive, Vienna, Virginia 22180; 800-827-8444).

You've read Gazette for years; soon you can access Gazette electronically on the only Commodore-specific online service. With your comput-

er, modem, and Q-Link's free terminal software, you'll be able to access many of your favorite Gazette features. Check Gazette and Q-Link as details become available about our upcoming debut.

Check This Out

Sparks Electronics (P.O. Box 0475, St. Joseph, Missouri 64504-0475) has released *S.E.C. Check Register 128* (\$16) for the 128 in 80-column mode. Designed to manage personal or small business checking accounts, *S.E.C. Check Register* can contain up to 750 entries.

Special emphasis is given to data entry, recurring payees, check printing, and printing of register data. Recurring payee files can contain up to 54 names and addresses, but users can load others into the current register for an unlimited number of payees.

Earnings Up at Commodore

Commodore International Limited reported \$10.6 million in income on sales of \$246.3 million for the third fiscal quarter of 1991, which ended March 31. This represents a substantial increase in earnings and a 16-percent increase in sales compared to the year-ago quarter. An extraordinary charge of \$9.2 million relating to a previously announced court settlement of litigation was recorded in the quarter, resulting in net income of \$1.4 million.

For the nine months that ended March 31, 1991, income increased tenfold to \$54.1 million compared with \$5.0 million in the prior year. Sales increased 21 percent to \$830.7 million, compared with \$689.2 million in the year-ago period. Net income for the nine months increased ninefold to \$44.9 million, or \$1.37 per share.

Every product line contribut-

ed to revenue growth in the quarter. Unit sales of Amiga computers increased 30 percent, while the 64 product line registered unit growth of 48 percent, largely due to expanded sales in new markets.

The Krynn Epic Continues

Strategic Simulations announces the release of *Death Knights of Krynn* (\$39.95) for the 64. (SSI products are distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404.) This game is the sequel to the popular *Advanced Dungeons & Dragons* fantasy role-playing game *Champions of Krynn*.

Death Knights of Krynn begins a year after the conclusion of *Champions of Krynn*. At a victory party on the anniversary of the evil force's defeat, the celebration is interrupted by an unwelcome party crasher. The undead Sir Karl sweeps in on a Death Dragon and steals a revered Dragonlance. The adventure begins as the champions set out to track Sir Karl and recover the stolen item.

Your favorite characters from *Champions of Krynn* can be imported to *Death Knights of Krynn*, along with their accumulated items and wealth. This is a new feature not previously offered in AD & D fantasy role-playing games.

Big Al and Pals

Return to Chicago's golden age of gangsters and take on the Mob in *The Untouchables* (\$14.95) from Ocean of America (distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, California 94404).

Guide Eliot Ness's band of mob-busters through five levels of arcade action: the Warehouse Bust, the Border Raid, the Alley Shootouts, the Railway Station Confrontation, and the Rooftop Duels. □

"Gazette Gallery" presents
Lutanist,
by Jack (DocJM)
Modjallal of
Encino, California,
as this
disk's Picture of
the Month.



FOR ORDERS AND INFORMATION IN USA & CANADA CALL **1-800-759-6565**
 Order Hours: Mon-Thurs, 9am-7pm/Fri, 9am-5pm/CLOSED Sat/OPEN Sun, 9:30-6(ET)

WE CAN RECONFIGURE ANY OF OUR COMPUTER PACKAGES TO YOUR SPECIFICATIONS. CALL FOR DETAILS!

WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS - DISCOUNTS FOR QUANTITY ORDERS - RUSH, 2ND DAY & NEXT DAY AIR SERVICE AVAILABLE!

MONTGOMERY GRANTTM

COMPUTE
GAZETTE
9/91

OUTSIDE USA
& CANADA CALL

(718)692-0790

ESTABLISHED
1967

OR
WRITE TO:

MONTGOMERY GRANT: MAIL ORDER DEPT.
33 34th ST., DEPT. A, BROOKLYN, N.Y. 11232
FAX #7186923372 / TELEX 422132 MGRANT

RETAIL OUTLET

PENN STATION, MAIN CONCOURSE
(Beneath Madison Sq. Garden) NYC, NY 10001

Store Hrs: MON-THURS 9:30-7/FRI 8:30-5/CLOSED SAT/OPEN SUN 9:30-7

FOR CUSTOMER SERVICE OR ORDER STATUS CALL: (718) 692-1148

CUSTOMER SERVICE HOURS: MON-THURS 9am-5pm/FRI 9am-4pm/SUN 10am-4pm

**64C
BACK
IN
STOCK**

Commodore®

64C[®]

Includes:
Quantum Link Software

\$139⁹⁵

SAVE BIG \$\$\$
WHEN YOU BUY ONE OF OUR ALL IN ONE PACKAGES

64C TEST PILOT PACKAGE

- Commodore 64C Computer
- Commodore 1541 Disk Drive
- Joystick
- Quantum Link Software

**5 SOFTWARE
PACKAGES INCLUDED:**

- Advanced Tactical Fighter
- Infiltrator II • Harrier
- Crazy Cars • Tomahawk

\$289

COMMODORE 64C COMPLETE PACKAGE

- Commodore 64C Computer
- Commodore 1541 Disk Drive
- 80 Column Printer
- 12" Monitor
- Quantum Link Software

\$359

COMMODORE 64C COLOR PACKAGE

- Commodore 64C Computer
- Commodore 1541 Disk Drive
- 80 Column Printer
- Color Monitor
- Quantum Link Software

\$449

PERIPHERALS FOR COMMODORE CALL

COMMODORE 1541II
DISK DRIVE

\$159

COMMODORE 1571
DISK DRIVE

- 1750 Clone RAM Expansion.....\$189
- Aprotek 2400 Baud Modem for 64/128.....\$99.95
- Cardco G-Wiz Interface.....\$49.95
- Commodore 1660 Modem.....\$14.95
- 64, 64C Power Supply.....\$29.95
- Excellerator Plus FSDII Power Supply.....\$19.95

- Micro C-128 Power Supply.....\$59.95
- Super Snapshot 5.0.....\$59.95
- Xetec S. Graphix Jr. Interface.....\$29.95
- Xetec S. Graphix Sr. Interface.....\$49.95

OTHER ACCESSORIES FOR YOUR COMMODORE COMPUTER AVAILABLE

Commodore®
1084 MONITOR \$279

COMMODORE
AMIGATM
500
\$469

Special Purchase Blowouts!

**MONOCHROME
COMPOSITE
MONITORS
(RECONDITIONED)**

\$39⁹⁵

IBM[®]
**80 COL. THERMAL
PRINTER** INCLUDES
COMMODORE INTERFACE

SPECIAL!
5 Free Games
with Purchase!

\$29⁹⁵

**MAGNAVOX
13 COLOR/
COMPOSITE/RGB
MONITOR
W/SOUND! (RECONDITIONED)**

\$149⁹⁵



COMMODORE 64/128 SOFTWARE TOP HIT LIST!

Big Blue Reader.....\$31.00	Maverickv5.0.....\$29.00	Fings Modusa.....\$19.00
Carmen Time.....\$26.00	ML Baseball II Enhan.....\$27.00	Secret Silver Blades.....\$32.00
Carmen USA.....\$28.00	Newsroom.....\$14.00	Sim City.....\$21.00
Carmen World.....\$25.00	North & South.....\$20.00	Tetris.....\$14.00
Death Knights Kyrinn.....\$40.00	Paperclip Ill.....\$40.00	Turrican II.....\$20.00
Elementary Grd Building.....\$25.00	Pocket Writer.....\$19.00	Ultima VI.....\$49.00
Geo Publish.....\$33.00	Pocket Writer II.....\$34.00	Word Writer VI.....\$34.00
GEOS v2.0.....\$40.00	Print Master Plus.....\$24.00	
Jr. High Grade Builder.....\$19.00	Print Shop.....\$32.00	

PRINTER SPECIALS



STAR

PANASONIC

CITIZEN

NX-1000C.....\$166.95	KXP-1180.....\$159.95	GSX-140.....\$279.95
NX-1000C Rainbow.....\$195.95	KXP-1191.....\$234.95	GSX-145.....\$385.95
NX-1001.....\$149.95	KXP-1123.....\$239.95	(Wide Carriage).....\$159.95
NX-1020Rainbow.....\$189.95	KXP-1124i.....\$299.95	200GX.....\$159.95
NX-2420.....\$279.95		Color Option Kits.....CALL
NX-2420 Rainbow.....\$299.95		

Commodore® \$139⁹⁵
MPS-1270 Inkjet



NO SURCHARGE FOR CREDIT CARD ORDERS

Certified check, Bank Check Money Orders, Approved P.O.s, Visa, Mastercard, Amex, Optima, Diners Club, Carte-Blanche, COD's & Wire Transfers accepted. Please call before submitting P.O.s. Non-certified checks must wait 2-4 weeks for clearance. Prices and availability subject to change without notice. Not responsible for typographic errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. Shipping & Handling additional. Second Day & Next Day Air available at extra cost. Canadian orders please call for shipping rates. APO FPO orders please add 10% shipping & handling (minimum \$15). All APO FPO orders are shipped first class priority air. We check for credit card theft. DCA #800233.

Circle Reader Service Number 187

www.commodore.ca



A GUIDE TO
**COMMODORE
USER GROUPS**
PART TWO

EDITED BY KANDI SYKES
AND DANA STOLL

UNIPHOTO/PICTOR

Here's Part 2 of the list of user groups, concluding with those in New Jersey through Wyoming, APOs, and other countries.

NEW JERSEY

Info 64 Commodore User Group, c/o Jerry Fleischer, 186 Delmar Ave., Glen Rock, NJ 07452

Hillsdale Commodore 64 Users Club, 32 Esplanade Lake Dr., Hillsdale, NJ 07642

Garden State Commodore & MS-DOS User's Group, 89 Stratford Rd., Tinton Falls, NJ 07724 (BBS# 201-938-3885)

Commodore User Group of Central New Jersey, 112 Old Bridge Rd., Matawan, NJ 07747

Morris Area Commodore User Group (MACUG), P.O. Box 492, Mt. Tabor, NJ 07878

Rancocas Valley Users Group (RVUG), c/o G. C. Heath, 806 Windsor Dr., Cinnaminson, NJ 08077 (BBS# 609-267-7945)

Data Exchange-Beneficial Users Group 64/128 (D.E.-B.U.G. 64/128), 713 Second St., Dunellen, NJ 08812

Commodore E. Brunswick Users Group (CEBUG), P.O. Box 314, E. Brunswick, NJ 08816

NEW MEXICO

New Mexico Commodore User Group, P.O. Box 37127, Albuquerque, NM 87176 (BBS# 505-268-4662)

Los Alamos Commodore Users Group, 4214-A Arizona St., Los Alamos, NM 87544 (Voice# 505-662-5934)

Taos Area Commodore User's Group, P.O. Box 5686, Taos, NM 87571

The Southern New Mexico Commodore User's Group, P.O. Box 4437, University Park Branch, Las Cruces, NM 88003

Commodore Users Group of Roswell (CUGOR), 1619 N. Kansas, Roswell, NM 88201

NEW YORK

New York Commodore Interest

Group (NYC=ig), 115 Essex St., Box #146, New York, NY 10002

Kids' Computer News, St. Hilda's & St. Hugh's School, 619 W. 114th St., New York, NY 10025

Folklife Terminal Club, Box 555-R, Co-op City Station, Bronx, NY 10475

Brooklyn Commodore User's Group, c/o Grodman, 1111 Shore Pkwy., Brooklyn, NY 11228 (Voice# 718-331-3835)

Queens Commodore Users Group (QCUG), P.O. Box 129, Ozone Park, NY 11417 (BBS# 718-366-7445)

Commodore Users Group of Greater New York, 190-25 Woodhull Ave., Hollis, NY 11423

N.C.C.C., P.O. Box 233, Sea Cliff, NY 11579

Commodore Long Island Club, 15 Rochelle Ct., Amityville, NY 11701 (BBS# 516-489-4061)

Brentwood 64/128 Computer Club, Public Library, 2nd Ave. & 4th St., Brentwood, NY 11717

Mohawk Valley Computer User Group, c/o William Nowak, 3818 Stinson Ave., Tribes Hill, NY 12177

Tri-City Commodore User's Group (TCCUG), P.O. Box 12742, Albany, NY 12212-2742

Hudson Valley Commodore Club, P.O. Box 2190, Kingston, NY 12401

The Commodore Computer Club of Syracuse, 233 Williams St., Minoa, NY 13116 (BBS# 315-656-3544)

Oswego Commodore User Group, 402 Mahar Hall, State University College, Oswego, NY 13126

Commodore User Group of Massena (COMA), Star Tech, 280 E. Orvis St., Massena, NY 13662

The Niagara Falls Commodore/IBM Club, 2405 Willow Ave., Niagara Falls, NY 14305

Rainbow Computer Users Group, c/o St. James United Methodist Church, 4661 Por-

ter Rd., Niagara Falls, NY 14305

Geneva Commodore Users' Group, 25 Pine St., Geneva, NY 14456

Commodore Users Group of Rochester (CUGOR), P.O. Box 23463, Rochester, NY 14692 (BBS# 716-621-5908)

NORTH CAROLINA

Triad Commodore Users Group, P.O. 10833, Greensboro, NC 27404

Bailey's User Group (BUG), P.O. Box 70, Holly Springs, NC 27540

Commodore Users Group of Lincolnton, Rte. 3, Box 457, Lincolnton, NC 28092

Salisbury Compute, Charles A. Huffman, 280 Deal Creek Dr., Salisbury, NC 28144

Asheville-Buncombe User Group (A-BUG), P.O. Box 15511, Asheville, NC 28813

NORTH DAKOTA

Central Dakota Commodore Club, P.O. Box 1584, Bismarck, ND 58502-1584

OHIO

The Commodore Club of Central Ohio (CCCO), P.O. Box 292392, Columbus, OH 43229 (BBS# 614-523-3459)

Ashtabula County Commodore Users Group (ACCUG), 1034 Michigan Ave., Ashtabula, OH 44004

Basic Bits Commodore Group (BBCG), P.O. Box 447, N. Ridgeville, OH 44039

NorthEast Ohio Computer Users Group (NEOCUG), P.O. Box 196, Wickliffe, OH 44092

Portage County Commodore Family User Group (PCCFUG), P.O. Box 901, Ravenna, OH 44266

Akron Area Commodore Users Group (AACUG), P.O. Box 9293, Akron, OH 44305-9293

Trumbull Commodore Users Group (TRUMCUG), P.O. Box 8632, Warren, OH 44484

Mahoning Valley Commodore Club, P.O. Box 1180, Young-

stown, OH 44501

Canton/Alliance/Massillon Users Group (CAMUG), P.O. Box 2423, N. Canton, OH 44720 (BBS# 216-453-3319)

Computer Erie Bay Users Group (CEBUG), P.O. Box 1461, Sandusky, OH 44870

Shelby Computer User Group, P.O. Box 512, Shelby, OH 44875

Western Cincinnati Commodore Club (WESTCOM), P.O. Box 89, Amelia, OH 45102-0089 (Voice# 513-753-7387)

Cincinnati Commodore Computer Club, c/o Cure of Ars School, Berwick and Roe Streets, Cincinnati, OH 45227 (Voice# 513-248-0025)

Southwestern Ohio Commodore Users Group (SWOCUG), P.O. Box 46644, Cincinnati, OH 45246

Dayton Area Commodore Users Group (D.A.C.U.G.), 1117 Lavern Ave., Kettering, OH 45429 (BBS# 513-878-1408)

Chillicothe Commodore Computer Users Group (ChilCUG), P.O. Box 6014, Chillicothe, OH 45601

Hancock User's Group (HUG-64), P.O. Box 632, Findlay, OH 45839-0632 (BBS# 419-423-6648)

OKLAHOMA

Commodore User's Group of Lawton, P.O. Box 3392, Lawton, OK 73502

Commodore Users of Bartlesville, 1920 SW Santa Fe, Bartlesville, OK 74003 (BBS# 918-336-3872)

Tulsa Area Commodore Users Group (TACUG), P.O. Box 52473, Tulsa, OK 74169-1842 (BBS# 918-428-2284)

Osage/Kay Commodore User's Group (OKCOM), 317 Woodbury, Ponca City, OK 74601

OREGON

geoMETRIX, 20224 S. Sprague Rd., Oregon City, OR 97045-9641

Commodore East County (C.E.C.), 1714 SE 35th Ave., Portland, OR 97214-5039

Crash-64 Salem Area's Commodore User's Group, P.O. Box 241, Salem, OR 97308 (BBS# 503-585-3092)

Lane County Commodore User Group (LCCUG), P.O. Box 11316, Eugene, OR 97440

Coos Computer Club, 2175 Everett St., North Bend, OR 97459-2336 (Voice# 503-756-4408)

PENNSYLVANIA

A-K Valley Computer Club, 1762 Fairmont St., New Kensington, PA 15068

Bettis Commodore Users Group, 592 Arbor Ln., Pittsburgh, PA 15236

Castle Commodore Computer Club, P.O. Box 961, New Castle, PA 16103

North Coast Commodore Users Group Erie, P.O. Box 6117, Erie, PA 16512-6117 (BBS# 814-459-1947)

Centre Area Commodore Computer Club, c/o Neil Dowlin, 1104 S. Atherton St., State College, PA 16801-6001

Blue Juniata Commodore Users Group, 23 Oakland Ave., Lewistown, PA 17044 (BBS# 717-248-4877)

Huntingdon County Hackers, P.O. Box 132, Mill Creek, PA 17060

Harrisburg Area Computer Group, 721 S.

29th St., Harrisburg, PA 17111 (BBS# 717-558-9080)

White Rose Commodore Users Group, P.O. Box 7501, York, PA 17404-0501

Lehigh Valley Commodore User Group, c/o Fred Knerr, P.O. Box 2, New Tripoli, PA 18066 (Voice# 215-298-2516)

Scranton Commodore Users Group (S.C.U.G.), P.O. Box 244, Scranton, PA 18501-0244 (BBS# 717-489-8001)

EPA Commodore Users Group, Edward H. Cohen, 1712 Aidenn Lair Rd., Dresher, PA 19025

Horsham Amiga/64, 20-A Lumber Jack Cir., Horsham, PA 19044

Main Line Commodore Users Group (MLCUG), 1046 General Allen Ln., West Chester, PA 19382 (BBS# 215-354-9750 and Voice# 215-388-1581)

Worldwide Commodore Users Group (International Headquarters and Shareware Registry), P.O. Box 337, Blue Bell, PA 19422

Buxmont Commodore and IBM Users Group, 1206 Cowpath Rd., Hatfield, PA 19440

Antelope Valley Commodore Users Group, P.O. Box 4436, Lancaster, PA 17603 (BBS# 805-272-9140)

RHODE ISLAND

Narragansett Commodore Users Group, P.O. Box 8707, Cranston, RI 02920 (BBS# 401-737-9774)

SOUTH CAROLINA

Greenville Commodore Users Network (GCUN), P.O. Box 5272, Station B, Greenville, SC 29606

SOUTH DAKOTA

Amiga and Commodore 64 Users Group, P.O. Box 18, Vermillion, SD 57069 (Voice# 605-624-3471)

TENNESSEE

Clarksville Commodore Users Group, P.O. Box 2171, Clarksville, TN 37042-2171

Multi-User Computer Club, 213 Holly Ave., S. Pittsburg, TN 37380-1313 (BBS# 615-837-8352)

Chattanooga Commodore Users, 1406 Blackwell Dr., Chattanooga, TN 37412

East Tennessee Commodore Club, P.O. Box 495, Knoxville, TN 37901

Raleigh-Bartlett Hackers CUG, c/o James Patrick, 3457 Gatewood Dr., Memphis, TN 38134

TEXAS

Society of Computer Owners and P.E.T. Enthusiasts (SCOPE), P.O. Box 833095, Richardson, TX 75083-3095

Texas Commodore User's Group, P.O. Box 623, Royse City, TX 75089

Central Texas Computer Users Group, 902 Carlisle, Killeen, TX 76541-7321

Commodore Houston Users Group (CHUG), c/o Ben Daily, P.O. Box 612, Tomball, TX 77375-0612 BBS# 713-445-2484 and Voice #713-664-2484

Southmost In Texas Commodore User's Group (SITCOM), c/o Charles Duncan, 74 Laura Ln., Brownsville, TX 78521

Amistad Commodore Users Group, P.O. Box 421212, Del Rio, TX 78842

Top of Texas Commodore (TOTCOM), Box 2851, Pampa, TX 79066-2851

Tri-State Commodore Users Group (TriCUG), P.O. Box 8971, Amarillo, TX 79114-8971 (BBS# 806-355-3031)

Commodore Users of Texas (CUT), 7007 Memphis Ave., Lubbock, TX 79413 (Voice# 806-792-7121)

El Paso Commodore User Group, P.O. Box 370934, El Paso, TX 79937 (BBS# 915-590-7678)

UTAH

Mountain Computer Society, 3898 Cheryl St., West Valley, UT 84119

Moab Commodore User's Group, 860 S. Antiquity Ln., Moab, UT 84532

VERMONT

Springfield Area Computer Club (SACC), 6 Bellows Rd., Springfield, VT 05156

Maple Valley Commodore Users Group, c/o Dave Swainbank, P.O. Box 106, St. Albans, VT 05478 (BBS# 802-524-9387)

VIRGINIA

Washington Area Commodore User Group (WAC), P.O. Box 3602, Fairfax, VA 22038-3602

Dale City Commodore Users Group, P.O. Box 2675, Dale City, VA 22193-0265 (BBS# 703-361-7565)

Fredericksburg Commodore Club, P.O. Box 8438, Fredericksburg, VA 22404-8438

Middle Peninsula Commodore User Group, P.O. Box 391, Gloucester, VA 23061 (BBS#s 804-642-3697 and 804-642-4293)

CURVE, P.O. Box 28284, Richmond, VA 23228 (BBS#s 804-266-1763 and 804-737-7936)

The Richmond Area Commodore Enthusiasts (TRACE), 2920 Pinehurst Rd., Richmond, VA 23228

Peninsula Commodore User Group of Virginia, 211 Nina Ct., Newport News, VA 23602 (BBS# 804-838-2118)

Henry County Commodore Computer Club, c/o Doug Wilcox, 1047 Graves St., Martinsville, VA 24112

Lynchburg User Group, Rte. 2, Box 180, Lynchburg, VA 24501

Commodore Users of Lynchburg (CUOL), P.O. Box 3386, Rivermont Station, Lynchburg, VA 24503

WASHINGTON

Renton Computer Group, 11308 SE 269th St., Kent, WA 98031

E/T, P.O. Box 1767, Bothell, WA 98041-1767

South King County Commodore User Group (SKCCUG), P.O. Box 5241, Kent, WA 98064-5241

NW Commodore User Group, 2565 Dexter N #203, Seattle, WA 98109 (BBS# 206-281-7661)

PSACE, 1313 5th Ave. W, Seattle, WA 98119-3410

University of Washington Commodore User Group (UWCUG), P.O. Box 25878, Seattle, WA 98125 (BBS# 206-281-7661)

Commodore Bellingham User's Group (CBUG), P.O. Box 2756, Bellingham, WA 98227 (BBS# 206-647-7120)

The Lowest Prices in the World on Commodore-Ready Printers! Really!!

stair
THE COMPUTER PRINTER

ONLY
\$159⁹⁵

**Full color &
Commodore-ready!**

NX-1000C Rainbow

Print in full color! Near-letter quality at 36 cps and high-speed draft at 144 cps features the new paper parking function. Convenient front panel controls. Great for extra-impact graphics and text. This is the Commodore-ready version—no additional interfaces or cables are required. Sug. Retail

**NX-1000C Rainbow Color Printer,
Commodore Ready 75783** ~~\$249.95~~
LOWEST PRICE EVER! \$159.95



ONLY
\$139⁹⁵

**Ready to plug into your
Commodore and go!**

Printer Accessories

**Black Ribbon for NX-1000C/NX-1000C
Rainbow Color Printer 75471** \$5.95
**Color Ribbon for NX-1000/NX-1000C
Rainbow Color Printer 75485** \$9.95
**Dust Cover for NX-1000C/NX-1000C
Rainbow Color Printer 77789** \$8.95

NX-1000C

This is the Commodore-ready version of the NX-1000. You can just plug it in and start printing—no additional interfaces or cables are required.

Sug. Retail
NX-1000C Printer 75060 ~~\$479.95~~
LOWEST PRICE EVER! \$139.95

Quality TENEX Power Supplies



From
\$34⁹⁵

Lifetime Warranty!

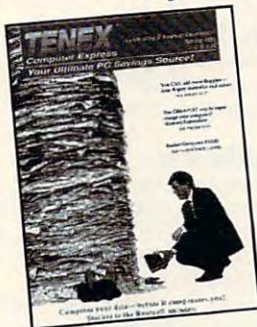
TENEX MW 701-A. Conservatively rated at 5V and 1.8A, this unit for the C64 features a double-fused system. Its new heat-sink design allows cooler operating temperatures inside the case. Lifetime warranty. Sug. Retail \$49.95

TENEX MW 701-A 84513 \$34.95

TENEX MW 705. Perfect for your C-128! This is a heavy-duty, switching power supply rated at 3 amps at 5VDC. Lifetime warranty. Sug. Retail \$69.95

TENEX MW 705 90686 \$49.95

**Don't miss out on the hottest new
products and great prices on the most
popular hardware and software!!
Call Today for your **FREE** catalogs!!**



IBM Compatibles

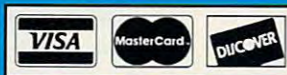


**Commodore
& Amiga**

TENEX
Computer Express

TENEX Computer Express
P.O. Box 6578
South Bend, IN 46660
(219) 259-7051 — FAX (219) 259-0300

We gladly accept mail orders!



No Extra Fee For Charges!

***Shipping, Handling, Insurance**
Order Amount Charge
less than \$19.99 \$4.50
\$20.00-\$39.99 5.75
\$40.00-\$74.99 6.75
\$75.00-\$98.99 7.75
\$99.00-\$149.99 8.75
\$150.00-\$299.99 9.75
\$300.00 & up SCALL

ORDER TODAY CALL 1-800-PROMPT-1

COMMODORE 64 and COMMODORE 128 are registered trademarks of Commodore Electronics, Ltd. AMIGA is a registered trademark of Commodore Amiga Inc., NOTE: Due to publishing lead-times, product prices and specifications are subject to change without notice. * APO, FPO, AK, HI, CN, VI, GU, and foreign orders are subject to additional shipping charges. G50

Circle Reader Service Number 170

www.commodore.ca

Club 64, 6735 Tracyton Blvd. NW, Bremerton, WA 98310

University Place Commodore Home Users Group (UPCHUG), P.O. Box 11191, Tacoma, WA 98411-1101 (BBS# 206-565-0690)

Lewis County CBM Users Group, c/o Al Kistenmacher, 2476 Pell-McDonald Rd., Chehalis, WA 98532

Tri-City Commodore Computer Club (TC CUBED), P.O. Box 224, Richland, WA 99352-0224 (BBS# 509-588-6822)

WEST VIRGINIA

Bluefield User Group (BUG 20/64), P.O. Box 1190, Bluefield, WV 24701

Commodore Home User's Group (CHUG), 81 Lynwood Ave., Wheeling, WV 26003

WISCONSIN

Lakeshore Commodore Core, 519 Westwood Dr., Sheboygan Falls, WI 53085

Computer Hobbyists Involved in Personal Systems (CHIPS), P.O. Box 1006, West Bend, WI 53095

Wisconsin Association of Vic/C= Enthusiasts (WAVE), 1020 Kurtis Dr., Elm Grove, WI 53122

Milwaukee Area Commodore Enthusiasts (M.A.C.E.), P.O. Box 26216, Milwaukee, WI 53226

Madison Area Commodore Users Group (MACUG), P.O. Box 1305, Madison, WI 53701-1305 (BBS# 608-277-9775 and Voice# 608-831-6995)

Price County Computer User Group, 630 Knox St., Prentice, WI 54556

WYOMING

Cheyenne Association of Computer Enthusiasts (CACE), P.O. Box 1733, Cheyenne, WY 82003-1733

Casper Commodore Users Group (CCUG), c/o Crazy Mountain Software, 511 E. 2nd St., Casper, WY 82601

U.S. ARMED SERVICES ABROAD

The Muenster Garrison User's Group, c/o Mr. Maki, 583rd Ord Co., APO, NY 09078

Commodore Computer Users Group—Heidelberg, P.O. Box 232 (147th Postal), APO, NY 09102

Chicksands Computer Club (C cubed)—England, c/o Erik Pedersen, Box 148 6950th ESG, APO, NY 09193

USER GROUPS OUTSIDE THE U.S.

AUSTRALIA

Commodore Computer Users Group (QLD), P.O. Box 274, Springwood Qld., Brisbane, Queensland 4127, Australia

Commodore Hornsby User Group, P.O. Box 1578, Hornsby Northgate, N.S.W. 2077, Australia (BBS# 61-02-484-2874)

C64 Computer User, P.O. Box 826, Young, N.S.W. 2594, Australia

Melbourne Commodore Computer Club, P.O. Box 177, Box Hill, Victoria 3128, Australia

Southern Districts Commodore Users Club, 186 Elizabeth Rd., Morphett Vale, S.A 5162, Australia (BBS# 61-08-322-2716)

BELGIUM

C64 User Group, Thauvoy Jesabel, Chee. De Malines, 3, B-1970 Wezembeek-Opem, Belgium

BRAZIL

Tcs Computer Club, Rua Job Lane 650, 04639 Santo Amaro, Sao Paulo, Brazil

CANADA

Alberta

Commodore Users of Edmonton (C.U.E.), 9550 83rd St., Edmonton, AB, Canada T6C 3A1 (BBS#s 403-466-7656, 403-454-2832, 403-459-7522, and 403-484-9200)

British Columbia

Cariboo Commodore 64 User Group, c/o Nick Sardy, P.O. Box 634, 150 Mile House, BC, Canada V0K 2G0

Chilliwack Community Computer Club, P.O. Box 413, Sardis, BC, Canada V2R 1A7

Port Coquitlam Computer Club, 1752 Ren-ton Way, Port Coquitlam, BC, Canada V3B 2R7 (BBS# 604-942-0947)

New Brunswick

Moncton Users Group, Box 2984 STN A, Moncton, NB, Canada E1C 8T8 (BBS# 506-387-7963)

North American Commodore User Group Association (NACUGA), c/o Dave Quinn, Box 2984, Sta. A, Moncton, NB, Canada E1C 8T8

Ontario

Brampton User's Group (BUG), P.O. Box 384, Brampton, ON, Canada L6V 2L3 (BBS# 416-455-3610)

Ottawa Home User Group, P.O. Box 4165, Sta. C, Ottawa, ON, Canada K1Y 4P3

TPUG, 5334 Yonge St., Ste. 116, Willowdale, ON, Canada M2N 6M2 (BBS# 416-733-2933)

Quebec

Commodore 64 De l'Estrie, c/o Keith Andrews, 805 Belmont, Sherbrooke, PQ, Canada J1H 5P4 (Voice# 819-565-8750)

Saskatchewan

Commodore User's Group of Saskatchewan (C.U.G.S.), c/o Barry Birch-er, 182 Coldwell Rd., Regina, SK, Canada S4R 4K8 (BBS#s 306-543-7683 and 306-949-8605)

Saskatoon Commodore Users Group (SCUG), c/o O.B. Harvey, 2614 A Haul-tain Ave., Saskatoon, SK, Canada S7J 1R6 (BBS# 306-249-4959)

COLOMBIA

Commodore Club Medellin, c/o Hector Ivan Londono, Apartado Aereo 1231, Medellin, Colombia

ComSoft Commodore 64/128/ Amiga User Group, c/o D. F. Cardenas or E. Lopez de Mesa, Apartado Aereo 9872, Cali, Colombia

COSTA RICA

Club Commodore de Tibas, Marvin Vega, P.O. Box 516, Tibas, San Jose, Costa Rica

EGYPT

Commodore 64/128 User Group, 15 Dr. Ma-hegobe Thabet St., Agoza-Giza, Egypt (Voice# 020-347-6149)

ENGLAND

Independent Commodore Products User Group, P.O. Box 1309, London, N3 2UT, England

Independent Commodore Products Users Limited, 45 Brookscroft, Linton Glade, Croydon, CRO 9NA, England

INDIA

Bombay Commodore Club, c/o Haji Bilal Malbarwala, Apna Ghar Housing Soci-ety, Bldg. No. 46, B Wing, Lokhandwala Complex, Versova, Andheri (West), Bom-bay 400 058, India

JAPAN

Commodore Fan Club, c/o Koji Sugimura, 2-1-10-1107 Higashi-Taishi Yao Osaka, Ja-pan 581

MEXICO

Arcano 17-Commodore Group, Calle Plata 3307, Villa San Alejandro, Puebla, Pue. 72090 Mexico (BBS# 91-22-480-722)

Club Commodore de Juarez, Calle del Man-antial #1448, Ciudad Juarez, Chihuahua, Mexico 32500 (BBS#s 011-52-16-17-3130 and 915-544-5549)

Club de Usuarios Commodore de Chihuahua (CUCC), R. Calderon #801, Chihua-hua, Mexico 31240 (BBS#s 14-13-12-91 and 011-52-14-13-12-91)

NEW ZEALAND

Christchurch Commodore User Group, P.O. Box 4665, Christchurch, 8000, New Zealand (BBS# 0064-03-355-3896)

Waikato Commodore Computer Users' Group (W.C.C.U.G.), P.O. Box 787, Ham-ilton, New Zealand

PAKISTAN

RAOASIM Commodore User Group, 465-C, Satellite Town, Gujranwala, Pakistan

TIGLON, c/o Ahmed Jamal, P.O. Box 7237, A.H. Rd., Karachi-74400, Pakistan

PERU

SoftSpa, c/o Diego or Juan Tejero Acha, Av. Central mz. AT #5, Los Alamos de Mon-terrico, Lima 33, Peru

SWITZERLAND

Computer Anwender Club, Postfach 29, 8042 Zurich, Switzerland

If your group is not listed, contact us at this address:

Commodore 64/128 User Group Update
COMPUTE's Gazette
324 W. Wendover Ave., Ste. 200
Greensboro, NC 27408

GAZETTE DISK LIBRARY

VALUE-PACKED SOFTWARE AT AFFORDABLE PRICES

All Gazette disks are menu-driven for ease of use—and they feature complete documentation. Just load and you're ready to go!

SpeedScript

\$11.95

COMPUTE Publications' most popular program ever. Powerful word processing package includes *SpeedScript* for the 64, *SpeedScript 128*, spelling checkers for both 64 and 128 versions, plus an additional dozen support programs, including mail-merge and word-count utilities.

Gazette Index

\$7.95

Every article and department from *Gazette*—July 1983 through December 1989 issues—is indexed: features, games, reviews, programming, "Bug-Swatter," "Feedback," and the other columns. Disk features pull-down menus, help screens, superfast searching/sorting capabilities, and much more.

Best Gazette Games

\$9.95

Best dozen arcade and strategy games ever published in *Gazette* all on one disk. All games for Commodore 64. Titles: *Crossroads II: Pandemonium*, *Basketball Sam & Ed*, *Delta War*, *Heat Seeker*, *Omicron*, *Powerball*, *Q-Bird*, *Trap*, *Arcade Volleyball*, *Mosaic*, *Power Poker*, and *Scorpion II*.

Gazette's Power Tools

\$9.95

Fourteen of the most important utilities for the 64 ever published in *Gazette*. For serious users. Titles: *MetaBASIC*, *Disk Rapid Transit*, *Mob Maker*, *Ultrafont+*, *Quick!*, *Disk Editor*, *Basically Music*, *PrintScreen*, *1526 PrintScreen*, *Fast Assembler*, *Smart Disassembler*, *Comparator*, *Sprint II*, and *Turbo Format*.

The GEOS Collection

\$11.95

Gazette's best 13 programs for GEOS and GEOS 128 users. Selection includes utilities, applications, and games. Titles: *Super Printer Driver*, *Skeet*, *File Saver*, *Help Pad*, *Word Count*, *Directory Printer*, *Quick Clock*, *SlideShow*, *File Retriever*, *Screen Dumper*, *Font Grabber*, *GeoPuzzle*, and *GeoConverter*.

128 Classics

\$11.95

Thirteen of *Gazette*'s best 128 programs, including utilities, games, and applications. Titles: *MetaBASIC 128*, *RAMDisk 128*, *80-Column Disk Sector Editor*, *MultiSort*, *Block Out*, *Miami Ice*, *The Animals' Show*, *Cribbage*, *XPressCard*, *Sound Designer*, *Video Slide Show*, *Math Graphics*, and *3-D BarGrapher*.

SPECIAL OFFER!

All 6 DISKS FOR ONLY \$49.95!

A \$13.00 SAVINGS!

All prices include shipping & handling.

SpeedScript	<input type="checkbox"/> \$11.95
Gazette Index	<input type="checkbox"/> \$ 7.95
Best Gazette Games	<input type="checkbox"/> \$ 9.95
Gazette's Power Tools	<input type="checkbox"/> \$ 9.95
The GEOS Collection	<input type="checkbox"/> \$11.95
128 Classics	<input type="checkbox"/> \$11.95
Special 6-Disk Offer	<input type="checkbox"/> \$49.95

Subtotal _____

Tax* _____

Outside U.S. or Canada** _____

Total _____

Name _____

Address _____

City _____ State _____ ZIP _____

Amount enclosed \$ _____ Method of payment ☐ Check or Money Order

☐ VISA or MasterCard

Mail to Gazette Disks (for orders over \$20)
324 W. Wendover Ave., Ste. 200
Greensboro, NC 27408

Credit card no. _____ Exp. date _____

Signature (required) _____

Daytime phone number _____

* Residents of North Carolina and New York add appropriate sales tax. Canadian orders, add 7% goods and services tax.

** For delivery outside the U.S. or Canada, add \$1 for surface mail or \$3 for airmail. All orders must be in U.S. funds drawn on a U.S. bank.

BACK TO THE FUTURE II

Join Marty McFly as he travels through time again in *Back to the Future II*. The movie tells the comic, disjointed story of time travel in Doc's DeLorean time machine. The software is mostly an arcade game with a couple of puzzles added.

The object of the game is to make your way through five levels of play to retrieve a sports almanac stolen by old Biff in 2015 and given to young Biff in 1955. Three of these five levels are simple arcade games, and two are logic puzzles. While the idea is intriguing, the program promises more enjoyment than it delivers. The documentation, which is brief but well written, ties the game to the movie by describing the film's opening scene and then provides the user with background information about each play level.

The game opens with some elegant graphics sequences. On the first level you must maneuver a hoverboard (a flying skateboard) through the streets of Hill Valley in the year 2015. Your mission is to reach the town hall before running out of time or depleting your energy.

Maneuvering the hoverboard is simple and fun. You can move freely in all directions, accelerate, brake, and jump. It is essential to learn to time these last two maneuvers accurately, since you must sometimes wait for power points as they drop from the sky. Try learning to attach yourself to the back of a passing car for a joyride.

When you reach the pond at the end of the last street, you'll know how to get to the town hall and complete the mission if you've seen the movie. Anyone who hasn't

seen the movie will still quickly figure out how to complete the first task. Running out of time never seems to be an obstacle. Your time is extended whenever you reach the end of any of seven streets that lead to the town hall.

Maintaining your energy

um earns you the most points.

To aid you along the way, speed, acceleration, and power bonuses regularly drop from the sky. Do not miss an opportunity to gather power points, as these will restore all lost energy.



Marty McFly can hitch a ride through danger-filled streets.

level, on the other hand, is considerably more difficult. A roving gang on hoverboards, old Biff with his cane, stray dogs, cars, mobile trash cans, and radio-controlled hovercraft harass you along the way. Coming in contact with any of these enemies lowers your energy level. You can punch your opponents on the hoverboards, but it seems better to avoid gang members rather than confront them.

Cars, dogs, and hovercraft are sufficiently powerful to knock you from your hoverboard in one shot if you run into them head-on. Manholes, slick spots, and curbs do limited damage. Along the way you can pick up caps, shoes, soda cans, newspapers, or plutonium for extra points. Perhaps because of the obvious danger, scooping up the plutoni-

The best overall strategy is to remain near the middle of the screen, pick up all items in the street, avoid all items on the sidewalks, and use quick, lateral movements to evade obstacles. Background graphics are bright, colorful, and well conceived, but sprites are jagged with muddy colors. It is fascinating, however, to watch the coordination of so many sprites with the smoothly scrolling backgrounds, but the program is not without flaws. Your hoverboard can move faster than the background, so when you reach the edge of the screen, you have to wait for the background to catch up. Occasionally, the action on the screen overwhelms the computer, making the soundtrack and character movement erratic.

The second level is a log-

ic puzzle in which you must get Marty's girlfriend, Jennifer, out of a house without her being detected. You control both Jennifer and the other people in the house by opening doors two at a time. When a door is opened, a room's occupant will move to an adjoining room. At no time should Jenny share a room with anyone.

The house is viewed from above, making it difficult at first to differentiate the characters, but Jenny is the one on the far left. You are expected to race the clock while planning your solution, but the Run/Stop key turns off the clock, so running out of time is never a problem. This level is a nice change of pace because it requires more planning than reflex action. The puzzle, however, is not very challenging. The third level is a return to arcade action with a special emphasis on violence. The object is to reach the end of the street safely, avoiding armed villains, flying barrels, rocks, and Frisbees. Your various karate kicks and punches can eliminate most enemies, but the individual with the semiautomatic weapon is virtually impossible to conquer or pass. This level's use of gratuitous violence is a disappointment, and its connection to the movie's story line is tenuous. The fourth scene also is linked weakly to actual movie action, but it takes a more imaginative turn. Here you are to solve a sliding block puzzle while racing the clock. One added twist is that the block puzzle is animated.

The fifth level is another street race in which you must retrieve the stolen almanac. The toughest part of this level is reaching it. Saving games in progress is not a feature of this program, so you must complete the first

The Gazette Productivity Manager

(Formerly PowerPak)

Harness the productivity power of your 64 or 128!

Turn your Commodore into a powerful workhorse, keep track of finances, generate reports in a snap, manage your money in minutes—all with the new 1991 *Gazette Productivity Manager*! Look at all your 64/128 *Productivity Manager* disk contains.

GemCalc 64 & 128—

A complete, powerful, user-friendly spreadsheet with all the features you'd expect in an expensive commercial package (separate 64 and 128 versions are included). Most commands can be performed with a *single keypress*!

Memo Card—Unleashes the power of a full-blown database without the fuss! **Nothing's easier**—it's a truly simple computerized address file. Just type in your data on any one of the index cards. Need to edit? Just use the standard Commodore editing keys. Finished? Just save the data to floppy. What could be easier?

Financial Planner—Answers all of those questions concerning interest, investments, and money management that financial analysts charge big bucks for! You can plan for your children's education and know exactly how much it will cost and how much you need to save every month to reach your goal. Or, decide whether to buy or lease a new car. Use the compound interest and savings function to arrive at accurate estimates of how your money will work for you. **Compute the answer at the click of a key!**

DON'T MISS OUT ON THIS POWERFUL WORKHORSE!



**ORDER YOUR
1991 GAZETTE
PRODUCTIVITY
MANAGER
TODAY!**

(MasterCard and Visa accepted on orders with subtotal over \$20).

☐ **YES!** Please send me ☐ *Productivity Manager* disk(s) (\$14.95 each).

_____ Subtotal

_____ Sales Tax (Residents of NC and NY please add appropriate sales tax for your area. Canadian orders, add 7% goods and services tax.)

_____ Shipping and Handling (\$2.00 U.S. and Canada, \$3.00 surface mail, \$5.00 airmail per disk.)

_____ Total Enclosed

_____ Check or Money Order _____ MasterCard _____ VISA

Credit Card No. _____

Signature _____ (Required)

Daytime Telephone No. _____

Name _____

Address _____

City _____

State/Province _____ ZIP/Postal Code _____

Send your order to Gazette 1991 Productivity Manager,
324 W. Wendover Ave., Ste. 200, Greensboro, NC 27408.

 www.commodore.ca

four levels each time you play before you get a chance to tackle the final one. As an arcade game the program succeeds, but as a computer reproduction of the movie, it falls far short. The movie worked because the action was supported by dialogue which gave the viewer a disjointed sense of time travel. If *Back to the Future II* included a level that allowed the player to interact with other characters in order to help Marty find his way through time, the game would be vastly improved. Instead, the characters and time settings add nothing to the action, and they seem to have been chosen only as a vehicle for standard arcade fare. If joystick action is your thing, you'll enjoy this program. If, however, you're expecting to step into Marty McFly's shoes and warp through time, the game will leave you flat.

JIM SMITH

Commodore 64 or 128—\$29.95

IMAGE WORKS
Distributed by Konami
900 Deerfield Pkwy.
Buffalo Grove, IL 60089-4510
(708) 215-5100

Circle Reader Service Number 316

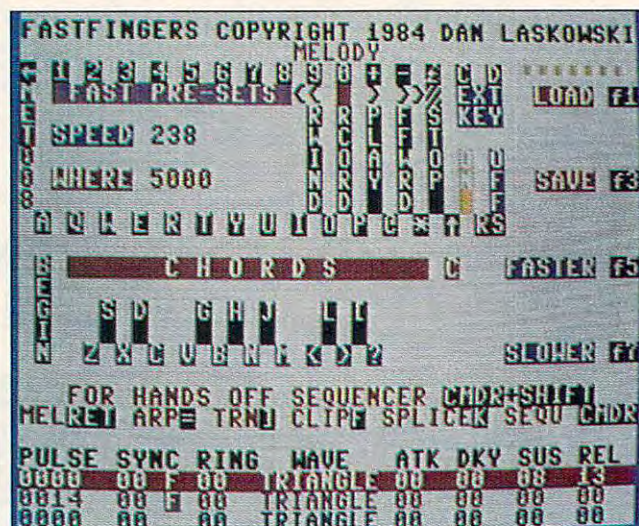
FASTFINGERS

Students of sound, take note: If you're interested in shaping sounds or learning about synthesis and if you have access to a Matel Intellivision keyboard, check out *Fastfingers*.

Dan Laskowski developed this program (originally in 1984) with two basic thoughts in mind: to explore the sound synthesis abilities of the 64 SID chip and to allow the 64 to act as a lead synthesizer when attached to a full-size external keyboard by

means of a special connector. He is making the program available again on a direct basis, but it should be noted that it is in limited supply with even fewer keyboard connectors. Availability of the Intellivision keyboard is uncertain. At this

tain keys on the two bottom rows (referred to in the manual as *piano buttons*) are reserved for playing. Octaves are changed by selecting them from the Sound Shaper menu. Other keys access preset sounds, chords, and a sound se-



Learn more about sounds and music with Fastfingers.

writing, Laskowski has three of them and will sell an entire package for \$119. With an eye (or is it ear?) toward reaching student musicians, he offers special rates to music educators.

Because it is somewhat dated, *Fastfingers'* presentation is not as slick as those of some other programs. Its four menus are a bit crowded and clunky-looking, but you get used to them. The sounds, which are the important part, are amazing. *Fastfingers* was written before the MIDI explosion, yet Laskowski programmed it for 256 sounds and even coaxed an extra suboctave out of the SID chip.

While developing sounds and recording a track on disk are clearly easier with an external keyboard (not tested here), the computer keyboard is sufficient. Cer-

quencer; permit loading and saving sounds from disk; and allow you to record, play back, and control sounds you've created.

This first menu, Play Mode, is the default when no control keys are pressed. Pressing (and holding) Shift pulls down the Sound Shaper and Effects menu, the Control key pulls down the Sound Banks, and Control/Shift accesses the Sound Shaper.

The preset sounds are simply eight sounds taken from the sound bank for easy access. You can use these, replace them with others from the bank, or create your own and install them. One-finger chords are available: three major chords, three minor ones, and six others. The chords can be canceled at the press of a key, which causes all three voices

to play the same note in unison. The sound sequencer allows you to trigger arpeggios to play automatically.

To simplify things, Laskowski makes use of the familiar style of a cassette recorder's buttons to record, rewind, fast-forward, and play your works. On playback, adjustments can be made to speed and sound. With this you can create melodies, arpeggios, and even record a "walking bass line" by means of the transposer function. Once you have laid out your sounds the way you want them, recorded your melody, and arranged your transposer and arpeggio, you can save the whole arrangement to disk. This Save is an old-fashioned save which dumps everything onto a disk under the lump title Sounds. This limits you to one file per disk, and the manual recommends dedicating the disk to Sounds only, although you could probably use it to save something not connected with *Fastfingers*.

If this is sounding too technical for you, it gets more so. Now we come to the heart of this program: building sounds. While not sophisticated enough to include an on-disk tutorial (this is only a one-disk program), the *Fastfingers* manual guides you through modifying existing sounds and creating new ones. One chapter shows you how to play with such effects as Flang, Pulse Width Kick, Glide, Thicken, Weow, Swirl, Wah (1&2), Tremolo, Pswirl, Vibrato, Phase Shifter, and Digital Distortion. Effects are software effects used to simulate or replace hardware effects, and they work on all three voices.

Another chapter teaches you about building sounds,

beginning with the selection of voice 1, 2, or 3. You learn about adjusting the oscillators up and down in semitone increments, selecting waveforms, using harmonics, using (or bypassing) filters, and adjusting the ADSR (Attack, Decay, Sustain, and Release). Students of sound with the patience to check out each minor adjustment will have a wealth of sound to explore.

The dearth of new software for the 64 has sent developers back to their closets to have another look at older programs to see if there's something to dust off and reissue. *Fastfingers* is one such program, and the question arises, does it still stand up? We are compelled to give a qualified Yes.

There are musical programs with far slicker presentations. The tutorial and animation in the Sight and Sound 3001 series leap to mind. *Fastfingers* lacks feedback in that it doesn't tell you what sound (preset or sound bank) or even what octave is in current use. It seems to us, particularly if you are using this setup in performance as Laskowski says you can, you ought to have an onscreen reminder of what you've selected. On the other hand, the range of sounds is almost mind-boggling. Providing for the use of a 48-key external keyboard is a unique touch that may send some young musicians hunting through the classified ads to pick up a used one.

Laskowski is first a musician, a fact that becomes obvious when talking with him or reading his manual. Although certainly not the only person to envision the 64 as a synthesizer, he is the only one to take it to this degree. In *Fastfingers* he has

taken an unusual slant on the 64 and developed a 64 oddity, a program that's certainly not for everybody, but will certainly intrigue those with an interest in music.

DAVE and ROBIN MINNICK

Commodore 64 or 128—\$29.95,
\$69.95 with keyboard connector

DAN LASKOWSKI
9078 Copperfield Ct.
Windsor, ON
Canada N8S 4H3
(519) 948-3915

Circle Reader Service Number 317

NIGHTBREED

From out of the dark shadows of your mind came the mystical thriller *Nightbreed*, a movie that had people holding tightly onto their seats. Now, it's your joystick that you'll want to grab tightly because *Nightbreed* is now an arcade game on your 64.

You assume the role of Boone, a guy with some psychiatric problems, and begin your journey at the gates of Necropolis, a local graveyard. The object of the game is to save the *Nightbreed* from an evil organization that calls itself *Sons of the Free*. Who are, or what is, *Nightbreed*? *Nightbreed* is a race of beings older than mankind, who possess the power to change shape and form.

Once the game begins, you'll constantly be challenged with different objectives. Even though it's an arcade-type game, you must complete many different tasks before progressing to a different level of play.

At the bottom of the screen is the game's status panel. Here you'll find valuable information to help you during play. There's a list of objects in Boone's possession, as well as a power level that indicates his injuries, life number, and status as ei-

FREEWARE FOR COMMODORE 64/128 GAMES, GAMES, GAMES!

- (6102) *ADVENTURE ROAD / 1* - Contains 4 adventure games: Scary, Africa, Adventure & more.
- (6123) *ADVENTURE ROAD / 2* - 10 text/graphic adventure games including SLEUTH.
- (6124) *ADVENTURE ROAD / 3* - 8 text/graphic adventure games including HACKER.
- (6049) *C-128 GAMES / 1* - 40 column Galactic, Castle and Damsels. 80 column Star Trek.
- (6054) *C-128 GAMES / 2* - 80 column Norad, Wargames, not Lunar Land. Print Spock&Kirk.
- (6088) *C-64 GAMES / 1* - Action games like Robbers, Whirly Bird, Blue Thunder & more.
- (6089) *C-64 GAMES / 2* - Lotto, Attack Force, Star Trek, Joust, Derby, Defcon & more.
- (6097) *IN THE MALL / 1* - Contains 14 arcade games. Try your skill on these gems.
- (6099) *IN THE MALL / 2* - Contains 14 arcade games. Includes Moondog, Skiing, & more.
- (6142) *IN THE MALL / 3* - 12 more arcade games including BOULDER DASH and KANGA.
- (6100) *IN THE PITS / 1* - Contains 7 car games. Includes Dragster, Dodge Cars & more.
- (6101) *LADY LUCK / 1* - Contains 10 casino games. Roulette, Craps, BJ, Poker & more.
- (6202) *LADY LUCK / 2* - 10 gambling games including ONE ARMED BANDIT, and 21.
- (6203) *LADY LUCK / 3* - 17 gambling games including DODGE CITY POKER and KENO.
- (6098) *ON THE BOARDS / 1* - Contains 11 board games. Includes Yahtzee, Battleship & more.
- (6119) *ON THE BOARDS / 2* - 12 board and card games including battleship and chess.
- (6120) *ON THE BOARDS / 3* - 17 more board and card games including CRIBBAGE and BINGO.
- (6118) *PUB/BOARD GAMES* - Darts, Bowling, Pool, Checkers, Backgammon, Chess, and more.
- (6204) *THE FINAL FRONTIER / 1* - 10 action filled space games including METEOR SHOWER.
- (6205) *THE FINAL FRONTIER / 3* - 18 action filled space games including CANYON RUNNER.
- (6207) *THE FINAL FRONTIER / 4* - 18 action filled space games including SPACE DEFENDER.
- (6104) *THE SPORTING LIFE* - Contains Golf, Miniature Golf, Baseball 64, Boxing and Trap.
- (6208) *THE SPORTING LIFE / 2* - 19 games relating to sports including BOWLING and BOXING.
- (6108) *VICTORY SOFTWARE / 1* - The first disk of shareware games by Victory Software.

Call or write for FREE catalog of
1,000's of programs for your PC!
(800) 233-2451

Mon - Fri 9am - 5pm PST

To order, please check the desired disk and include \$2.99 for each disk ordered. Include shipping and handling of \$4 per order. CA residents add 7% sales tax. Buy 5 disks and get the 6th one free!

Please send order, payment, name, address and daytime phone # to:

Paradise Software

We accept Check, MO,
Mastercard & Visa.
Sorry—No COD's.

Hours: Mon-Fri, 9am-5pm PST

7657 Winnetka Ave, Ste 328-C, Winnetka CA 91306

(818) 700-0784 Msg/Fax (800) 233-2451 Orders Only

Circle Reader Service Number 129

ther monster or man.

You control Boone with a joystick to punch, kick, or shoot your way past the many different creatures that pursue you. Each confrontation with a monster will have different challenges for you to overcome. For example, I found the Fatman fairly simple to overcome, yet the

Sons of the Free were challenging, using everything from rocket launchers to grenades in an attempt to stop me. Also, you'll find each enemy has a unique power that makes it dangerous. The Fatman moves slowly, but he vomits, and the vomit is poisonous to the touch. Since this is an arcade-type



Should Boone defeat the grenade tosser, he still must defuse the time bomb before he can continue his quest to save the *Nightbreed*.

thriller, you can expect other gross experiences throughout the game.

In your path you'll encounter such graveyard charmers as the Snakeman, the Hopper, Flying Teeth, a Head Monster, and a Roof Crawler. This last fellow delights in dropping rocks on you.

One unique feature you will find is the passkey which allows you to skip certain parts of the game. The key is a password-type system that uses graphics instead of text. You create a passkey from various pieces displayed on the game's background scenes. Using the correct key allows you to skip to certain points in the game.

Making a map of the game is also useful. The game can be confusing if

you don't know where you've been or where you need to go. As with many games of this type, you can move in a variety of directions and encounter a number of foes as your hero attempts to complete his quest. A map helps you avoid many blind alleys.

At first glance I thought that *Nightbreed* was going to be a simple arcade game and that completing it would be an easy task. I was wrong. It provides plenty of nonstop action that should have you grasping your joystick for quite a few hours of nerve-wracking play.

The graphics are very well done, and the game remains true to the movie's theme. If you're looking for a good action-packed game, then turn down the lights,

grab some popcorn, and boot up a copy of *Nightbreed*!

JEFFERY SCOTT HALL

Commodore 64 or 128—\$14.95

OCEAN OF AMERICA
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(415) 571-7171

Circle Reader Service Number 318

POWER DRIFT

For a fast-paced, hard-edged race through five different road courses, try *Power Drift*. Pit your skills in this arcade-style release from Activision against 12 other racers who are out to win at all costs. Speed through hairpin turns at over 200 kph and

plunge over hills into steep drops, just get to the finish line first.

At the start of the game, choose the race terrain you want and a driver. Terrains include city, beach, desert, countryside, and riverside. There's also a wide selection of male and female drivers from which to choose.

As the starting lights turn from red to green and the race begins, the other drivers will leap ahead of you. Push forward on your joystick to accelerate. This will take you to about 130 kph. Change from low to high gear by pressing the firebutton. In high gear your car reaches its maximum speed of 224 kph. Pulling back on the joystick acts as a brake, but with a little practice you'll

SAVE TIME AND MONEY

Yes, save time and money! Subscribe to the *Gazette Disk* and get all the exciting, fun-filled *Gazette* programs for your Commodore 64 or 128—already on disk!

Subscribe today, and month after month you'll get all the latest, most challenging, and fascinating programs published in the corresponding issue of *COMPUTE*.

New on the *Gazette Disk*! In addition to the programs that appear in the magazine, you'll also get outstanding bonus programs. These programs, which are often too large to offer as type-ins, are available only on disk—they appear nowhere else.

As another *Gazette Disk* extra, check out

"Gazette Gallery," where each month we present the very best in original 64 and 128 artwork.

So don't waste another moment. Subscribe today to *COMPUTE's Gazette Disk* and get 12 issues for only \$49.95. You save almost 60% off the single-issue price. Clip or photocopy and mail completed coupon today.

Individual issues of the disk are available for \$9.95 (plus \$2.00 shipping and handling) by writing to *COMPUTE*, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

YES! Start my one-year subscription to *COMPUTE's Gazette Disk* right away for only \$49.95.*

☐ Payment enclosed (check or money order)

☐ Charge ☐ MasterCard ☐ Visa

Acct. No. _____ Exp. Date _____

Signature _____ (Required)

Name _____

Address _____

City _____

State/Province _____ ZIP/Postal Code _____

Mail to *COMPUTE's Gazette Disk*, P.O. Box 3250, Harlan, IA 51593-2430

*Residents of NC and NY, please add appropriate sales tax for your area. Canadian orders, add 7% goods and services tax.

www.commodore.ca

be able to maintain top speed throughout the entire course. Just watch for other drivers.

As you progress around the course, your time, speed, position, and lap number are posted at the top of the screen. To advance to the next round, you must place in the top three finishers. Racing in the higher rounds is more difficult and there's a greater possibility of ramming other drivers. When this happens, the result is a dramatic spin-out with you hurtling across the course. When your car finally comes to a halt back on the road, try to make up lost time. Don't overdo it or you'll end up in another spin-out.

As long as you keep placing within the top three, you'll

continue advancing to higher levels. Finish back in the pack and the race is over. One of the best features of this game is that it restarts very quickly. You don't have to sit and wait for it to reload every time. At the end of a game you can try another course and change drivers if you want.

Power Drift's graphics are colorful and interesting, but if you have any intention of placing in the top three, you won't have time to notice your surroundings or the scenery as it flies by. One interesting effect is the road; it seems to be suspended in air. There are no guard rails and on hills the road often drops like a rollercoaster. Watch out for those blind drops though. A car could

be just over the crest and if you bump one at high speeds, you could go crashing off the road.

There is a steady, pounding pulse to the background music that keeps you racing through the turns and hills. Even when you're adding your name to the list of high scorers, the powerful beat continues. It complements the action as you move through the courses.

The player's guide is easy to understand. It explains how to load the program and how to use the joystick. All you have to know is which direction to push or pull the joystick and how to change gears. It's all clearly explained in the manual.

In all, *Power Drift* is not a game to play for hours on

end, but it is fun. There's plenty of white-knuckle action as you speed around each course and drift through the corners. Tension builds as you progress. The first few races are fairly easy and the courses somewhat forgiving, but accidents become more frequent and the amount of driving skill needed increases as you advance to higher levels.

So, wait for the green light, happy racing, and don't forget to buckle up!

ALISON CHRISTENSON

Commodore 64 and 128—\$29.95

ACTIVISION
3885 Bohannon Dr.
Menlo Park, CA 94025
(415) 329-0800

Circle Reader Service Number 319

COMPUTE's *SpeedScript* Disk

ONLY
\$11.95

A powerful word processing package for Commodore 64 and 128 owners

A Great Deal for Commodore Users!

- *SpeedScript* for the 64
- *SpeedScript* 128—80-column version
- Spelling checkers
- Mail merge
- Date-and-time stamp
- 80-column preview for the 64
- Turbo save and load
- Plus more than a dozen other *SpeedScript* support utilities all on one disk (including full documentation)

YES! Send me _____ copies of COMPUTE's *SpeedScript* Disk.

I've enclosed \$11.95 plus \$2.00 postage and handling. (Outside U.S. and Canada add \$1.00 for surface mail or \$3.00 for airmail.)

ORDER NOW!

_____ Amount
_____ Sales Tax*
_____ Total

Name _____

Address _____

City _____ State _____ ZIP _____

Mail personal check or money order to

Commodore *SpeedScript* Disk
324 W. Wendover Ave., Ste. 200
Greensboro, NC 27408

Residents of North Carolina and New York, add appropriate tax for your area. Canadian orders, add 7% good and services tax.

Please allow 4-6 weeks for delivery. Program available only on 5¼-inch disks.

Questions and
answers
about converting
programs
from Commodore
format to
IBM, KoalaPads,
calendars,
BBs, and more

Three Questions

Is it possible to convert Commodore type-in programs to IBM-compatible format in a relatively easy way for those with limited knowledge of GW-BASIC or machine language programming?

As I am changing over to a PC, am I right in assuming that an alternative version of *COMPUTE* that is PC specific and excludes the Gazette section will be available?

From my current address label on my magazine, do I surmise correctly that my subscription is current through June 1991?

C. W. M. ANDERSON
SANDTON, SOUTH AFRICA

Commodore BASIC and GW-BASIC are similar in many respects, and some elementary programs entered in one language will run if entered into the other. Simple print statements, mathematical formulas, and commands such as GOSUB, GOTO, IF-THEN, and FOR-NEXT pose few problems when making the change from one version to the other. Problems arise, however, when it comes to colors, machine language routines, PEEKs and POKEs, and other commands that are machine specific. Some commands in BASIC 7.0 for the 128, for example, would cause a 64 to crash. There are ways around many of these problems, but it usually takes a good working knowledge of BASIC to make the conversion work.

*If you are subscribing to *COMPUTE's* Gazette edition, you already are receiving all the PC-related material that we publish each month. There's no reason to change your subscription unless you want to drop the 64/128 coverage; the price is the same. Some *COMPUTE* subscribers, however, do not get the 64/128 material.*

The month and year printed on address labels indicate the final edition of your current subscription. Since the June issue was the last one you were scheduled to receive, I hope you renewed your subscription in time to read this reply.

What's a Koala?

I subscribe to *Gazette Disk*, and I enjoy your "Gallery," but, forgive me, what is a Koala? I gather that it is more than a marsupial. Do you need light pens or a mouse to create graphics with it?

One more comment. Could you explain why your new GOS (Gazette Operating System) menu on *Gazette Disk* will not allow me to directly load any previous *Gazette Disk* programs? It gives the disk information, but the selection turns blue and sits there.

JOSEPH RUFFINI
NORANDA, PQ
CANADA

A KoalaPad is a graphics tablet that connects by cable to a 64's joystick port. With its accompanying software, you can create colorful pictures on-screen by moving your finger or a stylus across the pad's surface just as if you were drawing a picture with pencil and paper. The pad is no longer in production, but used units can often be found. Its multicolor format is a popular one with Commodore artists.

The new Gazette Operating System is compatible with pre-GOS disks, so you should be able to run programs from them. Load and run the menu program that contains GOS; then swap disks. Now click on the disk icon. When the disk menu appears, click on Directory. GOS will read the current disk's directory and print it in a window. Scroll through the titles and click on the program

you wish to run. The red band highlighting your selection will turn blue. Click again on the disk icon and select Run Program when this window opens. GOS has been streamlined to make it operate faster than it did originally, but you should still be able to access and run other disks. It also lets you copy disks and files, delete and rename files, obtain disk and program information, print files, and perform numerous other applications with joystick or cursor keys.

Wide Open Spaces

I have recently started typing in a few Gazette programs with *The Automatic Proofreader*. Since I am not a programmer, my understanding of what I am typing is rather limited. Because the listings in your magazine are printed in columns, it is not always clear when to leave spaces.

HANS SPARREBOOM
TOFIELD, AB
CANADA

When entering programs in Commodore BASIC, spaces are usually optional. Programmers may put spaces between words, variables, or commands in their listings to make them more readable, but the computer doesn't require them. Most programmers do not include spaces simply because it saves space, computer memory, and typing time. If they leave them in and a column line begins with a space, our listing program will usually print the word SPACE within brackets. Since most spaces are optional, The Automatic Proofreader ignores them also unless they fall between quotation marks. To illustrate, load and run Proofreader; then enter the following statement.

100 IF A\$ <> "Y" THEN 100

OMNI TIME CAPSULES



Now the magazine of the future can be kept for the future. Store your issues of OMNI in a new Custom Bound Library Case made of black simulated leather. It's built to last, and it will keep 12 issues in mint condition indefinitely. The spine is embossed with the gold OMNI logo, and in each case there is a gold transfer for recording the date.

Send your check or money order (\$8.95 each; 3 for \$24.95; 6 for \$45.95) postpaid USA orders only. Foreign orders add \$1.50 additional for postage and handling per case.

To: OMNI MAGAZINE
Jesse Jones Industries, 499 E. Erie Ave.
Phila., PA 19134

CREDIT CARD HOLDERS (orders over \$15)
CALL TOLL FREE 1-800-972-5858
Or mail your order, clearly showing your account number and signature. Pa. residents add 6% sales tax.
SATISFACTION GUARANTEED

SOFTWARE CLOSEOUTS For Commodore 64 & 128

SSI BARGAINS, Your Choice \$15 each
Phantasia III, Wargame Construction, Queston, B-24, Queston II, Roadwar 2000, Panzer Strike, Demon's Winter, Eternal Dagger, 1st Over Germany, Heroes of the Lance.

AVALON-HILL DEALS \$10 each
Darkhorn, Gulf Strike, Dreadnaughts, Macbeth, Under Fire, Wooden Ships, Dr. Ruth, Parthian Kings, Jupiter Mission, Panzer Jagd, TAC, Tsushima, Legionnaire, Panzers East, Maxwell Manor, Quest for Space Beagle, Guderian, Computer Stocks & Bonds, Super Sunday, Ripper.

INFOCOM BARGAINS, Your Choice \$5 each
ACCOLADE LIQUIDATION, Your Choice ONLY \$5 each!!
Ace of Aces, Fight Night, Jet Boys, Dambusters, Comics, Hardball, Killed Until Dead, Law of the West, PSI 5 Trading Company.

SSG BARGAINS, Your Choice \$16.50 each
American Civil War Volume 1, 2 or 3, Fire King, Halls of Montezuma, Panzer Battles, MacArthur's War, Rommel Battles for North Africa.

ACTIVISION BARGAINS, Your Choice \$14.50 each
Christmas Model Kit, Crossbow, Ocean Ranger, Master of the Lamps.

OTHER GREAT DEALS

Super Expander 64 Cartridge \$5.00
Partner 128, by Timeworks (C128 only) \$17.50
Alf, by Box Office \$5.00
Aliens, by Activision \$12.50
Assembler, by Commodore \$5.00
Printed Word -or- The Tool, by Valueware \$2.75 each
Congo Bongo, by Sega (cartridge) \$7.50
Entertainer -or- Educator, by Valueware \$3.75 each
Electronic Address Book, by Batteries Included \$7.50
GO, by Hayden (4,000-year-old Chinese board game) \$5.00
Home Manager, by Valueware \$5.00
Masterpiece, by GRL (drawing & painting graphics system) \$14.50
Practical 64, by Practicorp \$12.50
Practical II, by Practicorp \$17.50
Spite & Malice -or- Slinky, by Cosmi \$2.75 each
Heswriter 64, by HesWare (cartridge) \$5.00
Turtle Toyland Jr. -or- Tri-Math, by HesWare \$4.50 each
Attack of the Mutant Camels, by HesWare (cartridge) \$3.50
Magic Madness, by Artworx \$5.00
LEATHER GODDESSES OF PHOBOS, by Infocom **WOW!! \$5.00**
MINDSHADOW, by Activision **WOW!! \$5.00**
Tag Team Wrestling, by Datasoft \$9.50
Computer Diagnostics, by Real Software \$14.50
Alter Ego, by Activision (specify male -or- female) \$19.50

TO ORDER, SEND CHECK OR MONEY ORDER TO:

COMPUSET

DRAWER 5160, SAN LUIS OBISPO, CA 93403-5160
Include \$4 for shipping charges in US, \$8 for Canada, CA orders add 6% sales tax.

1-800-676-6616

CREDIT CARD ORDERS ONLY, PLEASE!!!! \$25 Minimum

To receive our complete catalog of over 2,000 closeout items for all computer types, send \$2 in cash or stamps to the above address. The catalog is FREE with any order. To check for an item not listed here, call (805) 544-6616.

Circle Reader Service Number 161

World Geography for Commodore 64 and Apple II



Full-color 3-D rotating globe!

World Geography is the fun way to learn the world's countries, flags, capitals, populations, languages and currencies in an entertaining 1- or 2-player educational game for the whole family.

"The entire presentation is outstanding... This is really an achievement!"

—Commodore Magazine

"An awesome achievement... the execution is flawless."

—COMPUTE!'s Gazette

C64 only \$19.95, Apple II \$24.95 postpaid!

Also available in Spanish and German
Injured Engine (C64 only) \$14.95

An engine diagnostic simulation by IMAGIC

Fish-Ed (C64 or Apple II) \$17.95

Elementary spelling and number concepts

Speller's Duel (C64 only) \$12.95

Spelling program in a game show format

Full refund if not completely satisfied!

800 829-5551

Outside US call 408 462-1551

BOBCO Interactive Software
200 7th Ave., Suite 111, Santa Cruz, CA 95062

Circle Reader Service Number 112

In English the line reads, "If A-string does not equal the letter Y, then go to line 100." This line could be used in a statement to halt a program until the letter Y—and only the letter Y—on the keyboard is pressed.

Proofreader should print MJ in the upper left corner of your screen when you press Return. Now go back, delete all the spaces, and press Return again. You should still get MJ, indicating the line is still entered correctly. Spaces make code easier to read, but often they are optional to the 64.

Now go back and insert a space after the first quotation mark and in front of the Y and try it. Proofreader will return a different value this time because "Y" is not the same thing as "Y" and it would affect how the program runs.

Diary Needed

I'm an active 14-year-old looking for a 64 program that is a diary.
BRIAN S. MULCAHEY
HAMILTON, OH

Almost any word processor could be used as a diary. You could write as little or as much as you want and then save each entry with a filename that represents the date, such as SEP20. There is a program called Notepad 64 (November 1988) that could prove useful. This machine language program resides in

EMERGENCY COMMODORE START-UP KITS

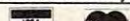
Save a lot of time and money by repairing your own Commodore computer. All chips are direct socket plug-ins (no soldering). Each kit includes all you need to "start up" /revive your broken computer. Originally "blister-packed" for government PXs worldwide, this series is now available to you. Total cost savings per kit far exceeds purchasing chips on an individual basis.

Kit #3 Part #DIA15 C-64

Symptoms: No power up • Screen lockup • Flashing colors • Game cartridge problems

Contains: IC #PLA/906114, Diagnostic #6, Fuse, Chip puller, Schematic, Utility cartridge and Diag. Test Disk with 9 programs.

An \$87.50 value for only \$29.95



We Ship Worldwide

Kit #4 Part #DIA16 C-64

Symptoms: Control Port Problems • Sound problems • Keyboard problems • Serial device problems

Contains: IC #6526A, IC #6581, Diagnostic #6, Fuse, Chip puller, Basic schematic, Utility cart., and Diag. Test Disk with 9 programs.

A \$79.80 value for only \$29.95

Kit #5 Part #DIA17 1541/1571

Symptoms: Drive runs continuously • Motor won't stop • Read errors • No power up

Contains: IC #6502, IC #6522, 901229 Fuse, Chip puller, Basic schematic, Diagnostic #6 and Diag. Test Disk with 9 programs.

A \$70.10 value for only \$29.95



Fax: 914-357-6243

THE GRAPEVINE GROUP, INC.

3 Chestnut St., Suffern, NY 10901

1-800-292-7445 or 914-357-2424

Circle Reader Service Number 128

Heart Attack. Fight it with a Memorial gift to the American Heart Association.

THE AMERICAN HEART
ASSOCIATION
MEMORIAL PROGRAM

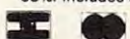


American Heart Association

This space provided as a public service.

COMMODORE DIAGNOSTICIAN II

Originally developed as a software package, then converted to a readable format, the Diagnostician has become a fantastic seller. With over 32,000 sold worldwide, the Diagnostician II utilizes sophisticated cross-reference grids to locate faulty components (ICs) on all C64 and C1541 computers (C128/64 mode). Save money and downtime by promptly locating what chip(s) have failed. No equipment of any kind needed. The Diagnostician II has just been updated with 30 changes to take advantage of the new 64C combination chips/RAM changes found on new CBM boards. Success rate from diagnosis-to-repair is 98%. Includes basic schematic.



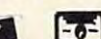
\$6.95
(Available for Amiga computers at \$14.95)

The Grapevine Group, Inc.

3 Chestnut Street, Suffern, NY 10901

1-800-292-7445 or 914-357-2424 • Fax: 914-357-6243

We Ship Worldwide



Hours: 9-5 EST

Circle Reader Service Number 197

memory while your computer is working on another BASIC program. This means you can call it up at the touch of a key, jot down some thoughts, and then continue with your BASIC program. You can also save the notes with any filename you like. One limitation to the program, however, is that each note can be no more than 1000 characters in length. That's enough to fill one screen. Back issues of this disk and any other Gazette Disk prior to October 1990 can be ordered from our Greensboro, North Carolina, office for \$5, plus \$2 for shipping and handling.

Worldwide User Group

I am working to start a worldwide association of Commodore user groups. As support for the 64 dwindles, user groups play a more important role in supplying users with help and information. I believe an association of user groups would be beneficial, especially for smaller groups.

I would love to hear from user groups who would like to help me organize this group or who would like to join it. Just drop me a line, and I'll bring you up-to-date on what's happening so far.

JOSH JACOBY
98-1689 HAPAKI ST.
AIEA, HI 96701

Keep Gazette posted about your activities, Josh. User groups represent a great resource of information for Commodore users, and we encourage their growth. In this issue we finish our two-part listing of user groups in the U.S. and other countries. If you are not already a member, we recommend you contact a group in your area or see about joining one by mail.

Back to the Boards

Rick Lembrée's article on

BBSs (March 1991) was an excellent introduction to what has become one of the last bastions of dedicated Commodore users. Using a BBS is the best way possible to support each other and enjoy the potential of the still-powerful 64s and 128s.

Volunteering as a sysop is a rewarding experience, not only for the knowledge gained, but for the enjoyment of knowing that you are providing others with a medium for sharing and communicating. If you want to try your hand at running a board, there still are plenty of potential members out there who would eagerly join a new board. I especially urge Commodore users to participate on a local BBS. Any computer user who doesn't is missing out on an excellent resource of knowledge and entertainment that is easily available to anyone with a modem. I'm sure many COMPUTE readers would be interested in reading more articles about operating a BBS, as well as about the many features different boards have to offer.

FREDERICK T. MERRITT
ST. PAUL, MN

At the end of your BBS article in the March issue, the supplier of the C-Net system was listed incorrectly. The correct name is Perspective Software. The BBS number for support of this package is (313) 981-1524. Also, I feel that this system was not given enough credit as a commercial BBS available for the 64.

JEFF FENSTERMAKER
NEWBURY, OH

Thanks for bringing the correction to our attention, Jeff. Because C-Net was last on our list of commercial systems for the 64 does not mean it was considered the least. We sim-

ply tried to list as many of the current BBS products as we could find for our readers' convenience, and on any list someone has to be last. The listing was not meant to be an endorsement by either Mr. Lembrée or Gazette.

Bug-Swatter

Several readers wrote in to say that they have experienced problems with *Cross Aid* (March 1991) when they try to use Shift-D to delete misspelled or unwanted words. The documentation was not clear in stating that you must first enter maintenance mode by entering the word that's to be deleted, followed by Shift-Return. The delete function can be invoked by pressing Control-D to erase the word.

Several readers also informed us of a problem with *Castalia* (May 1991). We discovered it has a peculiarity that affects some machines at some times. The problem causes the screen to go blank when you first run the program. If you experience this situation, there is no danger or programming fix required; just try running the game again. On the 128, the problem is especially easy to fix. If the problem occurs, it only does so when an attempt is made to run the program for the first time after powering up. If this happens, reset the computer to 64 mode by holding down the Commodore key while pressing the reset button. You should have no problem the next time the program loads.

If you have a question, comment, or problem, we want to hear from you. Send your letters to Gazette Feedback, COMPUTE Publications, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. □

Steve Vander Ark

GO ONLINE WITH GEOS

This won't come as a big surprise to many of you. If you haven't already discovered it, you've certainly read articles on the subject or heard computer users expound about it. It is telecommunicating, and it is great.

It's great, but it's also confusing, intimidating, and a whole lot of other things that keep many people from plugging in a modem and dialing up a bulletin board system (BBS). I avoided telecommunications for these reasons for a long time. I was afraid I would make a fool of myself trying to learn my way around. I thought I'd find a hostile world full of people who were in the know and wouldn't be too happy dealing with a novice poking around at 300 baud.

Boy, was I wrong. When a friend finally convinced me to hook up his modem on my 128 and I timidly dialed a local BBS number, I had no idea what a giant leap I was taking. Over the next four months, I discovered a lot of new computer friends who didn't give a hoot that I needed to call up a menu every time or that I accidentally logged myself off when I meant to upload a file. They offered support, advice, a little good-natured teasing, and friendship.

Now I'm online all the time. This electronic alternative reality is populated by a wide variety of users. They call using IBMs, Macs, Amigas, and, of course, Commodores.

That's where GEOS comes in. It wasn't long before I discovered a number of people on various local BBSs who shared my enthusiasm for GEOS, and we began comparing notes. We exchanged ideas, gave each other hints for using various applications,

and swapped utilities downloaded from other BBSs.

But telecommunicating with GEOS requires some special rules. GEOS has its own unique way of running a Commodore computer, and terminal software and bulletin boards aren't designed to handle the differences. The stumbling block is the structure of GEOS disk files. A file exists on a disk as a scattering of individual blocks of data, linked together with predefined coding. GEOS uses a different code from the one built into the 64's system, which means that if you try to use normal Commodore file commands on a GEOS file, the system won't know how to put the various chunks back together. That's why you can't copy a GEOS file using a normal file copier; the same is true for uploading or downloading.

In order to send or receive a GEOS file by modem, it must be converted temporarily into Commodore DOS-compatible format. William Coleman has written a conversion utility called *Convert*, which has become something of an unofficial standard for handling GEOS files online. This utility should be the first GEOS file you download. It can be loaded and run with BASIC and will convert a program or sequential file to one that can be used by GEOS. Once you have *Convert*, you're in business.

Any GEOS file you download using your normal terminal program will be a standard sequential or program file until you switch into GEOS and run *Convert*; the whole process takes a matter of a few seconds. *Convert* can work both ways. If you have a GEOS file that you'd like to upload, you can convert it into a sequential or program file that your terminal program can handle. *Convert* can be found on Quan-

tumLink and on many local BBSs. (*File Converter* is a similar program published in *COMPUTE!'s Gazette*, April 1989.) If you'd rather stay in GEOS without returning to the Commodore DOS, there is one terminal program available which operates within the GEOS environment. It includes the *Convert* utility as an option, which makes handling GEOS files a breeze. This program is called *geoTerm*. It, too, was written by Coleman, with versions available for the 64 and the 128. Each version includes many features, including a 9K capture buffer for the 64 and a 30K buffer for the 128, programmable function keys, built-in utilities to convert the buffer to and from true ASCII and PET ASCII, as well as the above-mentioned *Convert* program.

The screen can be run in 40, 53, or 80 columns. You can also access either drive for uploads or downloads, scratch files, and so on.

Whether you use *geoTerm*, available from *RUN* magazine, or another terminal program, you'll find many GEOS users out there who are glad to hear from you. BBS Post, a bulletin board in Michigan, has a GEOS file area. The sysop, Bismark, says he gets more calls for the Commodore area on his IBM board than for any other. I've put many of the public domain utilities mentioned in this column on BBS Post. If you call long distance, you may download GEOS files on your first call. The number is (616) 531-1346.

For the price of a long distance call, it's not a bad place to start. But there are probably people on bulletin boards right in your hometown who would love to hear from you. Why not give them a call?

Steve Vander Ark can be reached on QuantumLink. His handle is SteveV14. □

Telecommunicating with GEOS requires special attention. Here are some tips to make the process easier.

MACHINE LANGUAGE

Jim Butterfield

GIVE IT A NUDGE WITH BINARY FRACTIONS

BASIC uses a number system called *floating point* (or *scientific notation*), which is powerful but complex to code in machine language. Often, you can accomplish what you need through the use of fixed-point binary fractions.

In conventional base 10 mathematics, if you divide 7 by 3, the answer is 2 with a remainder. But if we continue the division, we establish that 7 divided by 3 gives 2.33333 . . .

Exactly the same thing happens in binary calculations. In binary, we might write $7/3$ as $\%111$ divided by $\%11$; using any of several division methods, we produce a first result of $\%10$ with a remainder of 1. But if we don't stop at the "binary point" equivalent of a decimal point and provide somewhere to store the extra fractional result, we will generate $\%10.01010101 . . .$ and cut off the endless fraction.

In hexadecimal notation, $1/2$ works out neatly as \$.80, but $1/3$ is the repeating series \$.555 . . .

You've noted that you must trim an endless value at some point. In machine language coding, that amounts to deciding how many bytes you will use to hold the fractions. Roughly speaking, each byte gives the equivalent of 2.4 decimal digits of accuracy.

Binary fractions fit nicely into the whole scheme of math coding. Such numbers add, subtract, multiply, and divide in the same way as integers. For example, you might want to multiply a value by 8 and then divide by 5 to convert miles to kilometers.

Perhaps the most popular use of binary fractions is to

nudge an integer value higher. For example, suppose you started with zero and added a value of $1/3$ repeatedly. The integer part would bump to the next higher value every three operations. This kind of nudging has many applications in programming.

A programmer might be handling one or more sprites; each sprite is expected to move from time to time. How do we control its speed? Suppose we want it to move gradually, without leaping across the screen. Let's say we just want to nudge its position. By repeatedly adding fractional values to its location, we will eventually cause the sprite's location to move to the next pixel at regular intervals.

When working in high-resolution graphics, it's often desirable to draw a line that's not quite horizontal (or vertical). Binary fractions will help us do the job.

To create a line that's almost horizontal, you want to step across the horizontal (x) coordinates, but how do we plot the vertical (y) coordinates for each line? Nudge the y coordinate value. If the line were 50 pixels wide by 10 pixels high, you'd nudge the y coordinate by a value of $1/5$; as you sweep across the 50 x pixels, the y coordinate would travel exactly the 10 pixels that are needed.

Let's write a small program that should be good on almost any Commodore 8-bit computer that will show this kind of calculation. You'll place a value to be nudged at address \$2100 with a fraction byte at \$2101. You'll place the nudge value at \$2102 and \$2103, then step through and show the result.

For easy display, you'll start the value at \$31 (decimal 49). This corresponds to the ASCII character 1; you can print it to show how it changes.

2000 LDA #31
2002 STA \$2100

You will add $1/2$ (\$.80) to your starting value; that allows easy rounding of the result. A hi-res graphics line would look better with this kind of rounding, for example.

2005 LDA #80
2007 STA \$2101

Now store your nudge value in \$2102 and \$2103. We will choose a value of $1/3$, hex \$00.55

200A LDA #00
200C STA \$2102
200F LDA #55
2011 STA \$2103

Now we have our values in place. We'll count our loop through 16 items (the initial value plus 15 steps).

Since we started at ASCII 49 (1), we should end up five full values further along, at ASCII 54 (6). We will use X as our loop counter.

2014 LDX #00

Following is the loop. Print first and then add; then test to see whether the loop should be repeated.

2016 LDA \$2100
2019 JSR \$FFD2
201C CLC
201D LDA \$2101
2020 ADC \$2103
2023 STA \$2101
2026 LDA \$2100
2029 ADC \$2102
202C STA \$2100
202F INX
2030 CPX #10
2032 BNE \$2016
2034 RTS

That's the whole program. To use this routine while in BASIC, type in SYS 8192 to watch the character 1 as it's nudged through its range. □

Move sprites,
draw lines, nudge
integers, and
do other clever
things with
the help of binary
fractions

BEGINNER BASIC

Larry Cotton

MAKE YOUR DATA ENTRY CRASHPROOF

The following general-purpose "crashproof" data entry subroutine can be inserted into any BASIC program in which you're asking an inexperienced user to enter data.

The first decision is whether to use INPUT or GET. INPUT is easier to program, but it's vulnerable to errant keyboard presses, such as cursor up/down, Del, Clr, and so on. It's also rudely unforgiving of unexpected input data. GET requires more programming and is vulnerable to garbage collection, a rather nasty habit Commodore computers have.

For a few simple daily entries, however, garbage collection shouldn't be a problem. So let's use GET.

First, let's have all keys repeat. It's helpful when testing the program, and it can be fun. Here's the first line which does that and clears the screen:

```
10 POKE650,128:PRINTCHR$(147)
```

Now decide on a cursor. I prefer a nonblinking one. It implies more patience. As for its appearance, take your pick. To determine which cursor shape to use, select a character from the front of the keyboard keys. Then in immediate mode, enter

```
PRINT ASC("X")
```

This will return the value of your preferred character. (See 64 *Programmer's Reference Guide* for a complete listing.) I like a thick horizontal line made by pressing the Commodore key and P simultaneously. This returns a character string (CHR\$) value of

175. Two keys we want to recognize are the Return key (signaling completion of an entry) and the Inst/Del key (for correcting a typing error). These are defined as constants R\$ and D\$ respectively. C\$ is the cursor. The CHR\$ values are from *Reference Guide*.

```
20 R$=CHR$(13):D$=CHR$(20):  
C$=CHR$(175)
```

Now we'll write the crashproof data-gathering subroutine itself, which yields raw data in string form which is given the arbitrary designation of B\$. Strings can contain letters, numbers, punctuation—the works. The subroutine can begin anywhere, so let's use line 100. Then change B\$ to X\$. Using VAL with X\$, you may extract the whole string or just the numbers. You can select a portion of X\$ by using RIGHT\$, LEFT\$, or MID\$. End the program for now.

```
30 GOSUB100:X$=B$:END
```

The first thing to do with the input routine is clear out B\$; then reset the line length to zero. More on that later.

```
100 B$="" :L=0
```

Now print your cursor (defined in line 20). The semicolon ensures that anything after the cursor will be printed on the same line.

```
110 PRINTC$;
```

Here's where we use the GET statement.

```
120 GETA$:IFA$="" THEN120
```

The computer goes into a loop until the user presses a key. When any key is pressed, that single character becomes A\$. A\$ will be examined four times. The first time checks for the Return key:

```
130 IFA$=R$THENPRINTD$A$;  
RETURN
```

If the Return key is pressed, the cursor moves back one space, deleting itself, and then moves to the next line. The subroutine ends with a RETURN statement.

The second check is for the Del key, which indicates that the user is backtracking and erasing previously typed data.

```
140 IFA$=D$THENGOSUB210:  
GOTO110
```

At line 210 we start another short subroutine that will do the actual deleting. Then we want to go back to line 110 to print the cursor again. This time we're not ready to jump out of the subroutine yet; we're just deleting characters.

The third check is important but fairly complicated. We want to limit the characters which can be typed. We'll do that by examining their CHR\$ values. Luckily, the values we need are in the range of 32 to 95, inclusive. According to the ASCII and CHR\$ code chart in *Programmer's Reference Guide*, this will encompass the space, all punctuation, all the numbers, all the letters of the alphabet (capitals only), and a few odd-ball symbols, such as the British pound sign, brackets, and the left- and up-arrow keys. You can restrict that further if you wish. Here's the check:

```
150 IFA$<CHR$(32)OR A$>CHR$(95)OR A$=HR$(34)THEN120
```

Next month I'll repeat this line with a detailed explanation of it. Meanwhile, try to figure out why we don't want CHR\$(34) and what we'll do next to make your programs virtually crashproof in the hands of computer novices. □

Make your programs so user-friendly that even beginners will have no trouble entering valid data.

PROGRAMMER'S PAGE

Randy Thompson

GEZA'S PAGE

Every so often someone sends me a tip that really sparks my interest, and I may center an entire column around such a tip. Just last week I got a letter from Geza Lucz of La Jolla, California, that contained 16 great tips. Unfortunately, we don't have room for all of them, but here are 4 of the best.

Although the byline at the top of this column is mine, the credit and the "Programmer's Page" award money go to Geza. Thanks for the code!

OCEAN

This program makes the 64's characters roll like the waves in the ocean. There are sound effects, too.

```
JX 100 FOR I=49152 TO 49
      258:READ D:C=C+D:
      POKE I,D:NEXT
KX 110 IF C<>16497 THEN
      {SPACE}PRINT "ERR
      OR IN DATA STATEM
      ENTS":STOP
CP 120 SYS 49152
DA 130 POKE 54278,240:PO
      KE 54276,129:POKE
      54273,34:POKE 54
      272,75
GK 140 FOR I=1 TO 15:POK
      E 54296,I:FOR J=1
      TO 50:NEXT:NEXT
MP 150 FOR I=15 TO 1 STE
      P -1:POKE 54296,I
      :FOR J=1 TO 200:N
      EXT:NEXT
SR 160 FOR I=1 TO 600+IN
      T(RND(1)*1000):NE
      XT
KR 170 GOTO 130
XB 180 DATA 120,169,35,1
      62,192,141,20,3,1
      42,21,3,169,1,141
      ,18,208,133,251,1
      33,254
XH 190 DATA 173,17,208,4
      1,127,141,17,208,
      169,129,141,26,20
      8,88,96,173,25,20
      8,141
JB 200 DATA 25,208,48,7,
      173,13,220,88,76,
      49,234,166,251,23
      2,232,232,232,232
      ,232
EH 210 DATA 232,232,142,
      18,208,134,251,22
      8,254,208,4,230,2
```

```
51,230,254,166,25
3,232
CD 220 DATA 138,41,15,17
      0,134,253,189,91,
      192,141,22,208,76
      ,188,254,200,201,
      202,203
BS 230 DATA 204,205,206,
      207,207,206,205,2
      04,203,202,201,20
      0
```

FREEZE!

This short machine language routine freezes program execution whenever you hold down the 64's Shift key. You can load and run almost any program and use Shift as a Pause key. If you need to pause a program so you can go off and answer the phone, the Shift Lock key keeps the software frozen until you're ready for it. This freeze feature is also great for programmers who need to pause the computer when listing their programs to the screen.

```
EX 100 FOR I=49152 TO 49
      191:READ D:POKE I
      ,D:NEXT:SYS 49152
HF 110 DATA 120,169,26,1
      62,192,141,20,3
KG 120 DATA 142,21,3,88,
      96,120,169,234,16
      2
EF 130 DATA 49,141,21,3,
      142,20,3,88,96,32
SR 140 DATA 135,234,174,
      141,2,224,1,240,2
      46
HP 150 DATA 76,49,234,0
```

COMMAND HIGHLIGHT

Another practical utility is this program that highlights all of the commands in a BASIC listing. Line numbers and variables appear in the usual blue color, while BASIC commands appear in white.

```
CC 100 FOR I=49152 TO 49
      230:READ D:C=C+D:
      POKE I,D:NEXT
CH 110 IF C<>11843 THEN
      {SPACE}PRINT "ERR
      OR IN DATA STATEM
      ENTS":STOP
CP 120 SYS 49152
MG 130 DATA 169,11,162,1
      92,141,6,3,142,7,
      3
```

```
EB 140 DATA 96,16,36,36,
      15,48,32,201,255,
      240
GP 150 DATA 28,133,251,1
      34,252,132,254,16
      6,253,224
QB 160 DATA 5,240,7,169,
      5,133,253,32,210,
      255
DG 170 DATA 165,251,166,
      252,164,254,76,36
      ,167,133
PQ 180 DATA 251,134,252,
      132,254,166,253,2
      24,154,240
DJ 190 DATA 7,169,154,13
      3,253,32,210,255,
      165,251
PP 200 DATA 166,252,164,
      254,76,243,166,20
      8,14
```

GETTING DIZZY?

A close relative of the ocean trick, this program is definitely *not* recommended for the 64 owner with a weak stomach.

```
RS 100 FOR I=49152 TO 49
      266:READ D:C=C+D:
      POKE I,D:NEXT
EG 110 IF C<>13471 THEN
      {SPACE}PRINT "ERR
      OR IN DATA STATEM
      ENTS":STOP
HK 120 POKE 16383,0:SYS
      {SPACE}49152
RJ 130 DATA 120,169,31,1
      62,192,141,20,3,1
      42,21
BE 140 DATA 3,169,0,141,
      18,208,173,17,208
      ,41
KX 150 DATA 127,141,17,2
      08,169,129,141,26
      ,208,88
AE 160 DATA 96,173,25,20
      8,141,25,208,48,7
      ,173
GS 170 DATA 13,220,88,76
      ,49,234,230,254,1
      65,254
QP 180 DATA 41,3,208,21,
      166,251,232,138,4
      1,15
KR 190 DATA 133,251,170,
      189,78,192,141,17
      ,208,189,94,192
JC 200 DATA 141,22,208,7
      6,188,254,24,25
AE 210 DATA 26,27,28,29,
      30,31,31,30,29,28
FG 220 DATA 27,26,25,24,
      203,204,205,206,2
      07,206
GG 230 DATA 205,204,203,
      202,201,200,200,2
      01,202,203,0,0,0,
      0,0
```

Here's a whole page of nifty tips for the 64 submitted by one reader.

Best-Selling Commodore Books from COMPUTE

Machine Language Routines for the Commodore 128 and 64

By Todd D. Heimark and Patrick G. Parrish
For both beginners and advanced ML programmers.
585 pages. \$18.95

Mapping the Commodore 64 and 64C

By Sheldon Leemon
Comprehensive memory map and programmer's guide.
324 pages. \$18.95

Music System for the Commodore 128 and 64

The Enhanced Sidplayer

By Craig Chamberlain
Includes programs, utilities, and sample music.
Book/Disk only. 274 pages. \$24.95

Order your copies today.

Send the appropriate amount plus \$2 shipping and handling for each book (\$4 Canadian, \$6 foreign) and applicable sales tax* to:

COMPUTE Books
C/O CCC
2500 McClellan Ave.
Pennsauken, NJ 08109

*Residents of NC, NY, and NJ add appropriate sales tax for your area.
Canadian Orders add 7% goods and services tax.
All orders must be paid in U.S. funds drawn on a U.S. bank. Please allow 4-6 weeks for delivery.

JUL91CP

Big Blue Reader 128/64

Read & Write IBM PC Disks!

Big Blue Reader 128/64 is a fast, easy-to-use, menu driven program for novice and expert alike. Transfers word processing, text, ASCII, and binary files between Commodore 64/128 and IBM PC compatible 360K 5.25" and 720K 3.5" disks. Includes both C64 & C128 programs. Requires 1571 or 1581 Disk Drive. Does not work using 1541. BBR 128 Version 3.1 upgrade, \$18+ original BBR disk.

Big Blue Reader 128/64 only \$44.95

Bible Search 3.1

The only Bible Study Program with:

- 1) Entire Old and New Testament on (4) 1541/71 or (2) 1581 disks.
- 2) An Exhaustive English Concordance on (2) 1541/71 or (1) 1581 disks; includes more than 700,000+ references.
- 3) Incredible five (5) second look-up time, per/word, per/disk.
- 4) Instant, automatic spell checking of more than 12,800 words.
- 5) Boolean Search operators including AND, OR & NOT logic.
- 6) Search entire Bible in 5 seconds with 1581 or Hard Drive (v3.5).
- 7) A Money Back Guarantee!

Includes: Easy-to-use, C64 and C128 (40/80 column) programs, printer and disk output, users guide, disk case, and more.

Available on (7) 1541/71, or (4) 1581 disks. (Demo disk \$5)

KJV \$49.95 ☆☆☆☆☆ NIV \$59.95

Any questions? Call or write for more information.

NOW Available! AMIGA Bible Search

Order by check, money order, or COD. US Funds only.

FREE shipping in North America. No Credit Card orders.

Foreign orders add \$5 S/H (\$12 whole Bible)

SOGWAP Software ☎ (219)724-3900

115 Belmont Road; Decatur, Indiana 46733

1990 Gazette Index

NEW!

Everything's included!

Features, games, reviews, education/home applications, programming, bug-swatter, feedback, and columns!

A superb interface includes pull-down menus, help screens, and keyboard, joystick, or mouse control. Features include super-fast searching and sorting capabilities. An options screen allows you to choose text colors, drive number, and input device. And there's **full documentation on disk.**

Choose from three modes of operation—*browse* for quick scanning, *view* for detailed information and descriptions, and *edit* for adding items from upcoming issues—and print to any printer. There's even a turboload option for maximum disk-access speed.

ORDER YOUR 1990 GAZETTE INDEX TODAY!

(MasterCard and Visa accepted
on orders with subtotal over \$20.)

☐ **YES!** Please send me 5 1/4-inch disk(s) (\$7.95 each).

Subtotal

Sales Tax (Residents of NC and NY please add appropriate sales tax for your area. Canadian orders, add 7% goods and services tax.)

Shipping and Handling (\$2.00 U.S. and Canada, \$3.00 surface mail, \$5.00 airmail per disk.)

Total Enclosed

Check or Money Order ☐ MasterCard ☐ VISA

Credit Card No. _____ Exp. Date _____

Signature _____ (Required)

Daytime Telephone No. _____

Name _____

Address _____

City _____

State/Province _____ ZIP/Postal Code _____

Send your order to 1990 Gazette Index, 324 W. Wendover Ave., Ste. 200, Greensboro, NC 27408.

www.commodore.ca

D'IVERSIONS

Fred D'Ignazio

ROBOTS IN DISGUISE

I was on my way to Dubuque, Iowa, last week to train a group of intrepid teachers in the art of scavenged multimedia. As I left the airplane for a layover in Chicago's O'Hare Airport, I felt the urge to make a brief stop at the nearest men's room. After I conducted my business, I made my customary stop at a washroom sink. The sink was broken. No handles on the water faucet. No water. I turned to another sink. Its handles were also missing. I turned to another sink. All the handles were missing.

Suddenly I heard the sound of running water. I turned around. Two men were standing in front of two sinks. Two water faucets were gushing gurgling water into two sink bowls. The sinks weren't broken after all!

I slipped back into the bathroom, quietly placed my bags onto the bathroom floor, and tried to appear natural and inconspicuous until the two men at the sinks had departed.

OK, I thought, how did they make the sinks work? My first guess was foot pedals. After all, there were no faucet handles, and I hadn't noticed either man touching anything on the sink. It *had* to be pedals.

I crouched in front of one of the sinks. No pedal. Maybe the pedal was tucked underneath the sink bowl. I reached under the bowl, searching for the mysterious device.

Suddenly a man walked into the room. He immediately halted when he saw me under the sink. I'm sure he was wondering what a small, bearded man in a raincoat was doing in an airport bathroom crawling around under a sink.

"Sink inspector," I said, smiling and trying to appear nonchalant. "We have to do this pe-

riodically." I kind of mumbled the last part because the fellow took a brief, critical look at this "sink inspector," smirked, and shot out of the bathroom.

I stood up, still trying to figure out how to work the sink's faucets. Maybe if I stuck my foot under the sink it would work. I lifted my leg, leaned way back, and thrust the toe of my shoe across the sink's porcelain underbelly.

Three teenagers entered the bathroom, jostling each other and laughing. However, after they saw me stroking the sink with my foot, they sank into immediate, puzzled silence.

"It itches," I said, pointing at my foot. "This is the only way to scratch it." I kept probing the fixtures beneath the sink with my toes, desperately hoping I'd soon see water flowing into the basin.

The teenagers did their business and approached a couple of sinks. Water instantly sprang from their sinks' faucets into the bowls.

I rushed over to the teenagers' sinks. "It's a miracle," I exclaimed. I dropped to my knees and looked underneath. "How'd you do that?"

"Little sensor right here, dude," said one of the teenagers, pointing at a small red oval on the wall that had escaped my acute observational powers. "It's easy. You stand in front of the sink; you get water. You move away; the water stops." The teenager stared at me and grinned. "You from some other country, maybe?"

When I was growing up in the 1950s and 1960s, computers were big, new, and frightening. In those days we were afraid that computers would one day be turned into spy machines. They would spy on us average citizens and report to "the people in power." Much of this image came from the book *1984* by George Orwell.

The future turned out to be completely different. Computers shrank from barn-sized behemoths into cornflake-sized chips. As they shrank, they disappeared—into washing machines, microwaves, automobiles, watches, toaster ovens, and bathroom scales.

Instead of a single big brother running a single big computer, we now have zillions and zillions of little computers acting as little brothers. Little computers are now quietly watching us from inside refrigerators, teller machines, filling stations, vending machines, and bathroom sinks. They help us go about our business and then patiently wait for the next human being to come their way.

For years we've been waiting for the robot revolution. We've pictured it as an electromechanical second coming with robots who look like humans, rolling off factory lines to rescue human beings from the grind and toil of daily life.

Maybe the robot revolution has already started. Except it's totally different from what we imagined. Instead of giving robots a human shape, we are quietly giving them the shape of the comfortable, familiar appliances. Remember General Electric's motto: We bring good things to life.

Maybe the being I met in that O'Hare bathroom was almost alive, a primitive precursor on a new evolutionary ladder. Maybe it was a little like *Australopithecus* or Neanderthal man, a robot from the dawn of a new generation of intelligent robots. These robots won't have to have legs, arms, or hands. They won't have to resemble humans. That would be too scary!

Instead they'll just keep evolving at a faster rate, while retaining the outward appearance of our familiar, cozy, old appliances. Except they won't have any handles! □

The robot revolution may have started in a way totally different from what we imagined.

SPANISH VOCABULARY QUIZ

By Christopher M. Stoy

Learning a foreign language can be difficult. Not only do you need to learn a new set of grammar rules, but you must also learn an entirely new vocabulary. The only way to do this is by continually repeating the new words until they become second nature.

Finding someone to quiz you on your new vocabulary can be equally difficult. After all, who wants to sit around asking you drill questions all day? That's the beauty of a computer. Your 64 is happy to help out, with software such as *Spanish Vocabulary Quiz*. This Spanish tutorial will quickly help you learn Spanish words, and it'll never complain about your poor pronunciation or your gringo accent.

Getting Started

Spanish Vocabulary Quiz is written in BASIC with a small machine language subroutine. To help avoid typing errors, use *The Automatic Proofreader* when entering the BASIC portion; see "Typing Aids" elsewhere in this section. When you've finished typing, be sure to save a copy of the program.

Enter the machine language routine with *MLX*, our machine language entry program; see "Typing Aids" again. When *MLX* prompts, respond with the following values.

Starting address: C000

Ending address: COBF

Save the machine language routine with the name SPAN.ML before you exit *MLX*. Now format a blank disk and place *Spanish Vocabulary Quiz* on it. Use this disk to store the word files you create.

Options

The options menu contains five choices: 1. English Words 2. Palabras de Español 3. Load a Word File 4. File Options 5. Quit

The first two options quiz you on English or Spanish words, respectively. If there is no word file in memory, you'll automatically be taken to option 3.

To load a file, enter its name at the

prompt and press Return. To see a list of files on the disk, type a dollar sign (\$) and press Return. When a file has been loaded, you'll be given a set of simple instructions. Press Return to begin the quiz.

You'll be given a word in English (or Spanish) and asked to translate it. Type your answer at the prompt and press Return. If you make a mistake, use the Ins/Del key to delete a character or press Shift-Ctrl/Home to erase the whole word and start over. To enter accented letters such as á, é, í, ó, or ú, hold down the Commodore key and type the letter. Likewise, to get the tilde (ñ) character, hold down the Commodore key and press N. To write an upside-down exclamation point (!), press the Back Arrow key. Make an upside-down question mark (?) by pressing the slash (/) character.

You're given three chances to guess the word. After three incorrect guesses, the program provides the answer. If you wish to see the answer before making three guesses, type a question mark at the prompt and press Return. To exit the quiz before all the words are asked, enter an asterisk at the prompt and press Return.

Scoring

After the quiz you'll be given the number of words you identified correctly and your percentage of correct answers. Your score depends not only on how many words you answered correctly but also on how many guesses it took you. Every incorrect answer will decrease your score. For example, in order to obtain a perfect score of 100 percent, you must answer every question correctly on the first try. A good way to study is by going through the same list repeatedly until you can score 100 percent.

File Options

The menu of file options offers several choices.

1. Create a Word File
2. Append to a Word File
3. Edit a Word File
4. Return to Main Menu

Create a file when starting a new word list. First, enter the name of the file.

Next, enter the English word and then the Spanish form. You'll then have a chance to make any corrections, enter more words, or stop.

Select Append to add words to the current list in memory. It's a good idea to limit your list to 20 words or less.

Edit a Word File lets you make corrections to the current word file. The first word in the list will be displayed in English and Spanish. Press E to edit the word. When editing, move the flashing cursor over the English word, make your changes, and then press Return. Do the same for the Spanish word. To move on to the next word, press C to continue. The program will display the next word in the list. When you've finished editing, press Q to quit to the options menu and save any changes you've made.

Spanish Vocabulary Quiz

```

XE 0 REM COPYRIGHT 1991 - COMP
    UTE PUBLICATIONS INTL LTD
    - ALL RIGHTS RESERVED
RH 10 REM SPANISH VOCABULARY Q
    UIZ V1.2
RC 20 REM{8 SPACES}BY CHRIS ST
    OY
SF 30 :
EP 40 GOTO 2200:REM SETUP
SC 100 T=0:PRINT "{HOME}{BLK}"A
    N$"{5 DOWN}":POKE 49153
    ,5:POKE 49157,5
RX 105 PRINT "{6}"AWS:SPC(20-LE
    N(AWS))"{WHT}>";LN=17:
    GOSUB 200
GB 110 ON -(WDS="?")-2*(WDS="*
    ") GOTO 145,700
MQ 115 SYS 49152
KH 116 LC=LEN(ANS):IF LEN(WDS)
    >LEN(ANS) THEN LC=LEN(W
    D$)
KH 117 PC=INT(PEEK(49212)*100/
    LC)-INT(PEEK(49213)/2)
DP 120 IF PC>70 THEN PRINT"
    {DOWN}{WHT}<MUY BIEN! C
    ORRECT!":SC=SC+ABS(T-3)
    :C=C+1:GOTO145
PB 125 T=T+1:IF T=3 THEN 145
DM 126 IF T=1 THEN POKE 49157,
    245
XH 127 IF T=2 THEN POKE 49153,
    6:POKE 49157,229
JX 130 IF PC>30 THEN PRINT"
    {DOWN}{1} ALMOST. TRY A
    GAIN.{DOWN}":GOTO 140
PE 135 PRINT "{DOWN}{2} SORRY,
    {SPACE}WRONG. TRY AGAIN
    .{DOWN}"
XP 140 GOSUB 410:GOTO105
BX 145 W=W+1:RN%(I)=1:PRINT"
  
```



```

{6}{DOWN}THE ANSWER IS
{SPACE}{WHT}"ANS"{6}."
GOSUB 1000:IF W=X THEN
{SPACE}700
SX 150 FL=1:GOTO 400
GX 200 WDS="":POKE 198,0:PRINT
"<";
DF 205 GET KE$:IF KE$="" THEN
{SPACE}205
XK 206 POKE54296,15:POKE54296,
0
HQ 210 IF KE$=CHR$(13) THEN PR
INT:RETURN
ED 215 IF KE$=CHR$(17) OR KE$=
CHR$(19) OR KE$=CHR$(14
5) THEN 205
FA 217 IF KE$=CHR$(147) THEN F
OR ZZ=0 TO LEN(WDS):PRI
NTCHR$(20);:NEXT:GOTO 2
00
GC 220 IF KE$<>CHR$(20) THEN 2
35
HF 225 IF LEN(WDS)=0 THEN 205
AC 230 WDS=LEFT$(WDS,LEN(WDS)-
1):PRINT"{2 LEFT}<
{LEFT}";:GOTO 205
PJ 235 IF LEN(WDS)>LN THEN 205
KR 240 WDS=WDS+KE$:PRINT"
{LEFT}"KE$"<";
GE 245 GOTO 205
GM 300 IF X<1 THEN 1300
BP 315 PRINT"{CLR}{WHT}{DOWN}"
TAB(11)"QUIZ "QT$ "WORD
S"
DX 320 PRINTTAB(11)"{1}{18 T}"
HH 325 PRINT"{2 DOWN}{6}
{2 SPACES}I WILL GIVE Y
OU A WORD IN {WHT}"QT$ "
{6},"
HD 330 PRINT"{DOWN} THEN I WIL
L ASK YOU TO ENTER THE
{SPACE}WORD":PRINT"
{DOWN} IN {WHT}"OT$"{6}
."
JM 335 PRINT"{2 DOWN}{WHT}EXAM
PLE:"PRINT"{DOWN}"QT$;
SPC(13);OTS
GG 340 PRINT"{3}{7 T}"SPC(13)"
{7 T}":PRINT"{6}"EQ$:PR
INT"{UP}"TAB(20);EOS:GO
SUB 1000
XH 345 FOR Z=1 TO X:RN%(Z)=0:N
EXT:W=0:SC=0:C=0
XF 400 I=INT(X*RN(0))+1:IF RN
%(I)=1 THEN400
CF 405 PRINT"{CLR}{DOWN}{YEL}T
YPE YOUR ANSWER, THEN H
IT [{WHT}RETURN{YEL}].
{2 DOWN}"
SF 410 PRINT"{WHT}"QT$;SPC(13)
;OTS:PRINT"{3}{7 T}"SPC
(13)"{7 T}":RETURN
HD 500 QT$="ENGLISH":OTS="SPAN
ISH":EQ$="THE WORD":EOS
="LA PALABRA"
PG 505 GOSUB 300:IF X=0 THEN 2
100
QX 510 AW$=EN$(I):AN$=SP$(I):G
OSUB 100:IF FL THEN 510
BB 513 IF F=1 THEN 500
PC 515 GOTO 2100
HK 600 OT$="ENGLISH":QT$="SPAN
ISH":EOS="THE WORD":EQ$
="LA PALABRA"
SQ 605 GOSUB 300:IF X=0 THEN 2
100
CX 610 AN$=EN$(I):AW$=SP$(I):G
OSUB 100:IF FL THEN 610
XK 613 IF F=1 THEN 600
SJ 615 GOTO 2100
DX 700 FL=0:IF W=0 THEN F=0:RE
TURN
GR 703 PRINT"{CLR}{11 DOWN}
{WHT}"TAB(12)"CONGATULA
TIONS!!"
JM 705 PRINT TAB(9)"{DOWN}{6}Y
OU COMPLETED THE LIST."
GR 710 FOR Z=1TO192:POKE53280,
Z:NEXT:FORZ=1TO8:PRINT"
{DOWN}":NEXT:PRINT"
{HOME}{9 DOWN}"
GJ 715 PRINT"{3 SPACES}{YEL}YO
UR SCORE:{WHT} ";INT(SC
/(3*W)*100);"%
PP 720 PRINT"{DOWN}{3 SPACES}
{YEL}YOU GOT{WHT}"C"
{YEL}CORRECT OUT OF
{WHT}"W"{YEL}{LEFT}."
KQ 730 PRINT"{2 DOWN}
{4 SPACES}{6}WOULD YOU
{SPACE}LIKE TO TRY THIS
LIST"
RK 740 PRINT"{DOWN}{4 SPACES}A
GAIN ({WHT}Y{6} OR
{WHT}N{6})?{WHT} ";
CS 750 GET KE$:IF KE$="" THEN
{SPACE}750
JA 755 IF KE$="Y" THEN PRINT"Y
":F=1:RETURN
KK 760 IF KE$<>"N" THEN 750
HM 765 PRINT"N":F=0:RETURN
RF 1000 PRINTTAB(7)"{2 DOWN}
{YEL}PRESS [{WHT}RETUR
N{YEL}] TO CONTINUE.":
POKE 198,0
FM 1005 GET KE$:IF KE$<>CHR$(1
3) THEN 1005
DS 1010 RETURN
XP 1100 POKE 53272,21:POKE 532
80,14:POKE 53281,6:PRI
NT"{7}{CLR}":END
AJ 1200 INPUT#15,ER,ER$,DT,DS:
FL=0
JC 1205 IF ER=62 THEN PRINT"
{CLR}{RED}{9 DOWN}"TAB
(13)"FILE NOT FOUND.":
FL=1:RETURN
FB 1210 IF ER>19 THEN PRINT"
{RED}{2 DOWN}DISK ERRO
R # "ER;ER$"{8 DOWN}":F
L=1
BQ 1215 RETURN
RP 1300 PRINT"{CLR}{WHT}{DOWN}
{TAB(12)"LOAD A WORD F
ILE"
XJ 1315 PRINTTAB(12)"{3}{16 T}
"
PF 1320 PRINT"{2 DOWN}{6}
{4 SPACES}ENTER NAME O
F FILE AT THE PROMPT."
QM 1325 PRINT"{DOWN}{3 SPACES}
TYPE [{WHT}$ {6}] TO VI
EW DIRECTORY."
FC 1330 PRINT"{DOWN}{3 SPACES}
PRESS [{WHT}RETURN{6}]
ALONE TO RETURN TO"
RC 1335 PRINT"{DOWN}{3 SPACES}
{WHT}OPTIONS {6}MENU."
RP 1340 PRINT:PRINT"{2 DOWN}
{7}NAME OF FILE:{WHT}>
";:LN=15:GOSUB 200
FX 1345 IF WDS="" THEN 2100
QJ 1350 IF WDS="$" THEN 1410
GF 1360 FL$=WDS:OPEN15,8,15:OP
EN2,8,2,"0":"+FL$+",S,R
"
PA 1365 GOSUB 1200:IF FL=1 THE
N CLOSE2:CLOSE15:GOSUB
1000:GOTO 2100
JJ 1390 INPUT#2,X:FOR S=1 TO X
:INPUT#2,EN$(S),SP$(S)
:NEXT
CQ 1400 CLOSE2:CLOSE15:GOTO 21
00
FP 1410 PRINT"{CLR}{6}PRESS [
{WHT}SHIFT{6}] TO PAUS
E.":SYS 49250:PRINT:GO
SUB 1000:GOTO 1300
BB 1600 PRINT"{CLR}{WHT}{DOWN}
{TAB(11)"WORD FILE OPT
IONS":PRINTTAB(11)"{3}
{17 T}"
MQ 1605 PRINTTAB(16)"{DOWN}{6}
OPTIONS":PRINTTAB(16)"
{2}{7 T}"
GX 1610 PRINTTAB(8)"{DOWN}
{WHT}1. CREATE A FILE"
:PRINTTAB(8)"{DOWN}2.
{SPACE}APPEND TO A FIL
E"
AB 1615 PRINTTAB(8)"{DOWN}3. E
DIT A FILE"
CD 1620 PRINTTAB(8)"{DOWN}4. R
ETURN TO {WHT}MAIN MEN
U{2 DOWN}"
BK 1630 PRINT"{6}{6 SPACES}ENT
ER YOUR CHOICE{WHT}:
{4 SPACES}{3 LEFT}";
GJ 1635 GET KE$:IF KE$<"1" OR
{SPACE}KE$>"5" THEN 16
35
SS 1640 PRINT KE$:ON VAL(KE$)
{SPACE}GOTO 1700,1700,
1800,2100
XA 1698 REM CREATE/APPEND A FI
LE
RE 1700 KE=VAL(KE$):IF KE=2 AN
D X=0 THEN 1300
QE 1705 PRINT"{CLR}{WHT}{DOWN}
{TAB(12)"MAKE A WORD F
ILE":PRINTTAB(12)"{3}
{16 T}"
JX 1707 IF KE=2 THEN 1720
FB 1710 PRINT"{DOWN}{4 SPACES}

```



```

{6}NAME OF FILE{WHT}:"
;:LN=15:GOSUB 200:IF W
D$="" THEN 2100
ES 1715 FL$=WD$+LEFT$(NL$,16-L
EN(WD$)):F=F+1:F$(F)=F
L$:X=X+1:KE=2:GOTO 1705
HX 1720 X=X+1:PRINT"HOME"
{4 DOWN}"TAB(10)"{YEL}
FILE:{WHT}";FL$
KX 1725 PRINTTAB(7)"DOWN"
{YEL}NUMBER OF WORDS S
O FAR{WHT}:"X-1
JQ 1730 PRINT"{6}{2 DOWN}
{4 SPACES}FIRST, ENTER
THE {WHT}ENGLISH{6} W
ORD AT"
RE 1735 PRINT"{3 SPACES}THE PR
OMPT, THEN ENTER THE
{WHT}SPANISH."
RK 1740 PRINT"{DOWN}{8} ENGLIS
H WORD: {WHT}";:LN=17:
GOSUB 200:EN$(X)=WD$:I
F WD$="" THEN 1763
KQ 1745 PRINT"{2 DOWN}{8} SPAN
ISH WORD: {WHT}";:LN=1
7:GOSUB 200:SP$(X)=WD$:
IF WD$="" THEN 1763
BF 1750 PRINT"{2 DOWN}{YEL} IS
THIS CORRECT ({WHT}Y
{YEL} OR {WHT}N{YEL})?
{WHT} ";
QJ 1755 GET KE$:IF KE$="N" THE
N PRINT"N":GOTO 1705
PX 1760 IF KE$<"Y" THEN 1755
SR 1763 IF WD$="" THEN PRINT"
{BLK}";X=X-1
FD 1765 PRINT"Y":PRINT"RIGHT"
{YEL}{DOWN}ENTER ANOTH
ER WORD ({WHT}Y{YEL} O
R {WHT}N{YEL})?{WHT} "
;
PH 1770 GET KE$:IF KE$="Y" THE
N PRINT"Y":GOTO 1705
SE 1775 IF KE$<"N" THEN 1770
PC 1780 PRINT"N":OPEN15,8,15:I
F KE=2 THEN PRINT#15,"
S0:"+FL$:GOSUB 1200
HJ 1785 IF FL THEN CLOSE 15:GO
SUB 1000:GOTO 2100
RM 1790 OPEN2,8,2,"0:"+FL$+"",S
,W":GOSUB 1200:IF FL T
HEN CLOSE 2:GOTO 1785
XD 1791 PRINT#2,X:FOR S=1 TO X
:PRINT#2,EN$(S):PRINT#
2,SP$(S):NEXT:GOSUB 12
00
HE 1792 IF FL THEN CLOSE 2:GOT
O 1785
QB 1793 PRINT"{CLR}{6}{9 DOWN}
TAB(14)"FILE SAVED.
{2 DOWN}"
XA 1794 CLOSE2:CLOSE15:GOSUB10
00:GOTO 2100
KP 1800 IF X=0 THEN GOSUB 300:
GOTO 2100
GP 1810 S=1:FL=1:PRINT"{CLR}
{WHT}{DOWN}"TAB(15)"ED
IT A FILE"
QJ 1815 PRINTTAB(15)"{3}{11 T}
"
QF 1820 PRINT"{DOWN}{YEL} FILE
: {WHT}";FL$:SPC(17-LE
N(FL$))"{YEL}# OF WORD
S:{WHT}";X
RP 1825 PRINT"{DOWN}{3}{40 Y}"
PA 1830 PRINT"HOME">{8 DOWN}
{6} ON WORD:{WHT}
{4 SPACES}{4 LEFT}";S
AH 1835 PRINT"{2 DOWN}{8}
{2 SPACES}ENGLISH WORD
: {WHT}";EN$(S);LEFT$(
SC$,22-LEN(EN$(S)):PR
INT
MS 1840 PRINT"{8}{2 SPACES}SPA
NISH WORD: {WHT}";SP$(
S);LEFT$(SC$,22-LEN(SP
$(S))):PRINT
GD 1845 PRINT"{2 DOWN}{YEL}{
{WHT}E{YEL}} TO {WHT}E
DIT{YEL} WORDS"
MK 1850 PRINT"{DOWN} [{WHT}C
{YEL}] TO {WHT}CONTINU
E{YEL} LISTING"
QH 1855 PRINT"{DOWN} [{WHT}Q
{YEL}] TO {WHT}QUIT
{YEL} TO {WHT}OPTIONS
{YEL} MENU{DOWN}"
GQ 1860 GET KE$:IF KE$="" THEN
1860
RK 1865 ON -(KE$="E")-2*(KE$="
C")-3*(KE$="Q")GOTO189
0,1870,1880:GOTO1860
PM 1870 S=S+1:IF S < (X+1) THE
N1830
JD 1875 S=1:GOTO1830
XA 1880 IF FL THEN 2100
QM 1885 KE=2:PRINT"{BLK}":GOTO
1780
DA 1890 PRINT"HOME">{11 DOWN}"
TAB(16);"{WHT}";:POKE1
9,65:INPUTTE$:POKE19,0
:PRINT
HS 1891 PRINT"{DOWN}"TAB(16);"
{WHT}";:POKE19,65:INPU
TT$:POKE19,0:PRINT
RK 1892 IF TE$<>EN$(S) OR TS$<
>SP$(S) THEN EN$(S)=TE
$:SP$(S)=TS$:FL=0
BQ 1893 GOTO 1830
RK 2100 PRINT"{CLR}{DOWN}"TAB(
9)"{WHT}SPANISH VOCABU
LARY QUIZ"
BS 2105 PRINTTAB(9)"{3}{23 T}"
PR 2110 PRINTTAB(16)"{DOWN}{6}
OPTIONS":PRINTTAB(16)"
{BLU}{7 T}{DOWN}"
ER 2115 PRINTTAB(8)"{WHT}1. EN
GLISH WORDS":PRINTTAB(
8)"{DOWN}2. PALABRAS D
E ESPAÑOL"
RF 2120 PRINTTAB(8)"{DOWN}3. L
OAD A WORD FILE":PRINT
TAB(8)"{DOWN}4. FILE O
PTIONS"
BP 2125 PRINTTAB(8)"{DOWN}5. Q
UIT"
FS 2130 PRINT"{2 DOWN}{6}
{4 SPACES}ENTER YOUR C
HOICE{WHT}:"
FC 2135 GET KE$:IF KE$<"1" OR
{SPACE}KE$>"5" THEN 21
35
XX 2140 PRINT KE$:ON VAL(KE$)
{SPACE}GOTO 500,600,13
00,1600,1100
XX 2200 POKE53280,0:POKE53281,
0
QQ 2202 IF LV=1 THEN POKE 56,5
6:CLR:GOTO 2245
XR 2205 PRINTCHR$(14)"{6}{CLR}
TAB(9)"{2 DOWN}{WHT}S
PANISH VOCABULARY QUIZ
"
PP 2210 PRINTTAB(9)"{3}{23 T}"
FX 2215 PRINTTAB(12)"{DOWN}{6}
COPYRIGHT 1991"
BG 2216 PRINTTAB(4)"{2 DOWN}
{WHT}COMPUTE PUBLICATI
ONS INTL LTD{2 DOWN}"
EM 2220 PRINTTAB(10)"{YEL}ALL
{SPACE}RIGHTS RESERVED
"
JM 2230 PRINTTAB(13)"{3 DOWN}
{WHT}PLEASE WAIT..."
GC 2240 IF LV=0 THEN LV=1:LOAD
"SPAN.ML",8,1
XH 2245 DIM EN$(30),SP$(30),RN
$(30),F$(120)
DC 2255 POKE 56334,PEEK(56334)
AND 254:POKE 1,PEEK(1
) AND 251:SYS 49217
CD 2265 POKE 1,PEEK(1) OR 4:PO
KE 56334,PEEK(56334) O
R 1
SF 2270 READ A:IF A=-1 THEN228
0
FM 2275 FOR I=0 TO 7:READ B:PO
KE 14336+A*8+I,B:NEXT:
GOTO2270
CD 2280 POKE 53272,(PEEK(53272
)AND 240)OR 14
JC 2285 SC$="{21 SPACES}":GOTO
2100
PE 2435 DATA 30,36,0,102,102,1
02,102,62,0
EA 2440 DATA 31,0,24,0,0,24,24
,24,24
KX 2445 DATA 47,0,24,0,24,48,9
6,102,60
BD 2450 DATA 98,6,24,0,56,24,2
4,60,0
KA 2455 DATA 106,54,72,124,102
,102,102,102,0
MF 2460 DATA 112,6,8,60,6,62,1
02,62,0
QK 2465 DATA 113,6,8,60,102,12
6,96,60,0
KP 2470 DATA 120,6,8,102,102,1
02,102,62,0
GA 2475 DATA 121,6,8,60,102,10
2,102,60,0
EJ 2480 DATA 158,219,255,153,1
53,153,153,193,255
SG 2485 DATA 159,255,231,255,2

```



```

55,231,231,231,231
SP 2490 DATA 175,255,231,255,2
31,207,159,153,195
SA 2495 DATA 226,249,231,255,1
99,231,231,195,255
QE 2500 DATA 234,201,183,131,1
53,153,153,153,255
SB 2505 DATA 240,249,247,195,2
49,193,153,193,255
HJ 2510 DATA 241,249,247,195,1
53,129,159,195,255
FG 2515 DATA 248,249,247,153,1
53,153,153,193,255
BP 2520 DATA 249,249,247,195,1
53,153,153,195,255
GJ 2525 DATA -1

```

SPAN.ML

```

C000:A9 05 85 FC A9 05 85 FB 80
C008:A0 00 8C 3C C0 8C 3D C0 A2
C010:8C 3E C0 AE 3E C0 B1 FB BE
C018:C9 3C D0 01 60 DD 00 04 36
C020:F0 10 CA DD 00 04 F0 07 4E
C028:E8 E8 DD 00 04 D0 06 EE 72
C030:3D C0 EE 3C C0 EE 3E C0 21
C038:C8 4C 13 C0 00 00 00 EA 8A
C040:EA A9 00 85 FB 85 FD A9 95
C048:D8 85 FC A9 38 85 FE A2 4A
C050:08 A0 00 B1 FB 91 FD 88 C3
C058:D0 F9 E6 FC E6 FE CA D0 07
C060:F0 60 A9 01 A2 08 A0 00 2E
C068:20 BA FF A9 02 A2 BC A0 F7
C070:C0 20 BD FF 20 C0 FF A2 B8
C078:01 20 C6 FF 20 CF FF 20 BB
C080:CF FF 20 CF FF 85 FB 20 19
C088:CF FF 05 FB FF 25 A9 0D CE
C090:20 D2 FF AD 8D 02 29 01 79
C098:D0 F9 20 CF FF AA 20 CF BC
C0A0:FF 20 CD BD A9 20 20 D2 A0
C0A8:FF 20 CF FF F0 D4 20 D2 1A
C0B0:FF D0 F6 A9 01 20 C3 FF EF
C0B8:20 CC FF 60 24 30 00 00 65

```

Christopher M. Stoy lives in
Ebensburg, Pennsylvania. ☐

SPEEDSWAP

By Larry Hagney

Most of us don't use *SpeedScript* to write the Great American Novel. Usually we confine our efforts to smaller endeavors such as letters, reports, term papers, program documentation, and such. As a result much of the text memory available to *SpeedScript* remains empty.

Suppose you're using *SpeedScript* to write a term paper. In the midst of your efforts, you remember a couple of paragraphs in a document that you wrote a couple of months ago and decide they would fit perfectly with this paper.

To incorporate that material takes more than a little effort. First, you save your paper to disk, load in the old document, copy the relevant section into the text buffer, erase the old document, load in the term paper, and then finally insert the saved text in the appropriate area of your paper.

Well, those days are gone forever. With *SpeedSwap* patched into your copy of *SpeedScript* 3.2 for the 64, two text documents can coexist in memory. The problem mentioned above is now simple to solve. Just move to your alternate screen and load the old document. Now both documents are independently accessible. Material can be copied from one document to the other, or one text area can be your workscreen while the second serves as a storage area for various reference materials.

Getting Started

SpeedSwap is a BASIC program which contains a short (227 bytes) machine language routine. To avoid typing errors, enter the program using *The Automatic Proofreader*; see "Typing Aids" elsewhere in this section. When you've finished typing, save a copy of the program to a disk containing *SpeedScript*. Your copy of *SpeedScript* must be saved with the filename *SPEEDSCRIPT* because *SpeedSwap* automatically loads and runs that filename.

When you run *SpeedSwap*, it lets you allocate memory for each of two text areas, identified onscreen as area 0 and area 1. Default sizes of 21,504 and 21,760 bytes are displayed in white text. Pressing *CRSR-down* decreases the size of text area 0 in 256-byte chunks, while increasing text area 1 by a similar amount. *CRSR-up* performs the opposite function. Note that the total number of bytes of both text areas is always 43,264. This is 256 bytes less than *SpeedScript* normally makes available because *SpeedSwap* allocates a 256-byte safety zone between each text area.

If you're not sure how many bytes to allocate for a file that's already on disk, corresponding disk block sizes are also displayed. Once the text areas are adjusted for your needs, press *Return* to boot *SpeedScript*. *SpeedSwap* sets up its machine lan-

guage routine which loads *SpeedScript*, patches itself in, and then runs the word processor.

Only One Command

With *SpeedSwap* patched into *SpeedScript*, you have complete, independent control over two areas of text memory. Only one command is needed to switch between the two. Press the *Ctrl* key and *Commodore* logo key simultaneously to toggle between text area 0 and text area 1.

When *SpeedScript*'s screen first appears, you'll see a 0 in the command line, indicating that you are now working in text area 0. Press the *Ctrl* key and the = key simultaneously to see the amount of memory allotted to this area.

Press *Ctrl-Commodore* to access area 1, indicated by a 1 in the command line. Area 1 provides 43,264 bytes minus the number of bytes in area 0 for text storage.

Each text area is completely independent of the other. Text can be printed from, loaded into, or saved from one area, without disturbing or being affected by the other. You can erase all text in one area while text in the other area remains untouched. Each area also supports its own text and background colors.

In short, every *SpeedScript* command behaves as though the active text area is the only text area. One notable exception is *SpeedScript*'s text buffer; text from one area can be copied into the buffer and inserted into the other text area. Similarly, *HUNT* and *REPLACE* phrases are also portable to each area. One handy *SpeedSwap* feature is cursor positioning. When you return to a text area, you'll find the cursor in the same position as you left it. This is convenient when using one text area for viewing reference materials and the other for writing.

Keep in Mind

The changes *SpeedSwap* makes to *SpeedScript* are not permanent, so load and run *SpeedSwap* whenever you want to use it. There are a few cautions that you should bear in mind, however. Do not attempt to load a document into a text area for which you haven't allocated enough space. For in-

stance, if area 0 has 21,504 bytes allocated and you attempt to load a 100-block document, text area 0 will be filled, but the rest of the document will spill over into area 1. The text in area 1, however, cannot be accessed. You must erase all text in area 1 before you can use that screen.

This could be avoided by allocating 25,600 bytes to area 0 prior to loading the 100-block document. Also, if you attempt to load a file too large for area 1, *SpeedSwap's* machine language will be overwritten by the text, and *SpeedScript* will crash.

Also, if you plan on using *SpeedSearch* (May 1987) to search any *SpeedSwap*-generated files, be aware that documents saved from area 0 will have a normal load address of 9472. Documents saved from area 1, however, will have a load address of $X * 256$ where $X = (\text{number of area 1 bytes} / 256) + 37$. However, the load address is irrelevant to *SpeedScript*, any *SpeedScript* enhancement program, or any other program designed to process *SpeedScript* text files.

If you plan to exit *SpeedScript* and then return from BASIC, be sure that text area 0 is active when you quit. Otherwise, text could be damaged.

SPEEDSWAP

```
DB 10 REM COPYRIGHT 1991 COMPUTE PUBLICATIONS INTL LTD
- ALL RIGHTS RESERVED
GP 20 POKE808,234:PRINT "{CLR}
{N}{H}{8}";:DIMX,Q$,A,B,
C,S,E,E$:X=121:E$="DATA
{SHIFT-SPACE}ERROR IN LI
NES"
AQ 30 S=828:E=934:GOSUB180:IFC
<11409THENPRINT$190$-"
250:STOP
XC 40 SYSS:PRINT "SPEEDSCRIPT 3
.2 SPEEDSWAP":PRINT "{4}
{DOWN}COPYRIGHT 1991"
MA 50 PRINT "COMPUTE PUBLICATIONS
INTL LTD":PRINT "ALL R
IGHTS RESERVED{DOWN}"
BH 60 S=53000:E=53226:GOSUB180
:IFC<25771THENPRINT$26
0$-"390:SYS906:STOP
GF 70 PRINT "PRESS CRSR UP/DOWN
TO SELECT SIZE
{7 SPACES}(IN BYTES) OF
{SPACE}EACH TEXT AREA."
CM 80 PRINT "PRESS RETURN TO LO
AD SPEEDSCRIPT."
XG 90 PRINT "PRESS CTRL/C= FROM
```

```
WITHIN SPEEDSCRIPT
{3 SPACES}TO SWAP TEXT A
REAS.{DOWN}"
EQ 100 FORA=.T01:PRINT "TEXT AR
EA"ASPC(8)"DISK BLOCKS"
:NEXT
MS 110 PRINT "TOTAL BYTES 43264
{3 SPACES}TOTAL BLOCKS
{SPACE}169{WHT}{UP}"
DF 120 PRINT "{2 UP}"SPC(11-(X<
77))X*256-9472SPC(13-(X<
137)-(X<47))" "X-37
PK 130 PRINTSPC(11-(X>166))529
92-(X+1)*256SPC(13-(X>1
06)-(X>196))" "206-X
SP 140 GETQ$:ON-(Q$="{DOWN}"OR
Q$="{UP}")GOTO170:IFQ$<
>CHR$(13)THEN140
BP 150 POKE53041,X:X=X+1:POKE5
3209,X:POKE53218,X:POKE
53224,X:POKE53226,X
GB 160 SYS906:PRINT "{CLR}{8}LO
ADING SPEEDSCRIPT..."P
OKE808,237:SYSS:END
QC 170 X=X+(Q$="{DOWN}")-(Q$="{
UP}")X=X-162*((X=40)-
(X=203)):POKE646, -(X=12
1):GOTO120
GD 180 C=:FORA=S TOE:READB:PO
KEA,B:C=C+B:NEXT:RETURN
AR 190 DATA120,169,0,141,14,22
0,169,27,141,17,208,169
,91,141,20,3,169
DM 200 DATA3,141,21,3,169,1,14
1,26,208,141,18,208,88,
96,169,58,172
MG 210 DATA135,3,205,18,208,20
8,8,169,1,172,136,3,140
,32,208,140,33
PG 220 DATA208,141,18,208,201,
1,240,8,169,1,141,25,20
8,76,188,254,169
BM 230 DATA1,141,25,208,76,49,
234,0,12,0,120,169,0,14
1,26,208,141
BG 240 DATA32,208,141,33,208,1
69,49,141,20,3,169,234,
141,21,3,169,1
SQ 250 DATA141,14,220,88,96
BX 260 DATA169,5,162,8,168,32,
186,255,169,11,162,205,
160,207,32,189,255
MA 270 DATA169,0,133,10,141,8,
32,32,213,255,169,76,16
2,207,141,134,10
EB 280 DATA142,135,10,142,11,3
2,169,121,141,177,9,169
,37,141,9,32,173
MF 290 DATA29,13,141,235,207,1
73,44,13,141,236,207,32
,55,9,76,13,8
JE 300 DATA162,49,142,38,216,1
73,11,32,201,207,240,1,
202,142,38,4,173
CF 310 DATA141,2,201,6,208,103
,165,2,160,0,145,57,132
,162,165,162,41
DB 320 DATA16,240,250,162,3,18
```

```
9,12,32,157,220,207,202
,16,247,162,3,189
BE 330 DATA19,32,157,227,207,2
02,16,247,160,16,185,8,
32,190,216,207,153
MC 340 DATA216,207,138,153,8,3
2,136,16,240,162,1,181,
57,188,233,207,157
EC 350 DATA233,207,152,149,57,
202,16,242,173,29,13,17
2,235,207,140,29,13
RB 360 DATA141,235,207,173,44,
13,172,236,207,140,44,1
3,141,236,207,160,0
RS 370 DATA177,57,133,2,32,246
,9,76,228,255,83,80,69,
69,68,83,67
MH 380 DATA82,73,80,84,0,122,0
,207,0,0,0,40,0,122,0
,0
DK 390 DATA0,0,0,122,0,122
```

Larry Hagney lives in Las Cruces, New Mexico. □

CREDIT CONTROL

By George R. Reid

When the temptation to use a convenient credit card becomes too great to ignore, a program such as *Credit Control* can be a welcome financial guide and advisor. Successful credit card management depends on three requisites: a careful budget, accurate accounts, and financial discipline.

Credit Control is a simple program for the 64 that can help you plan your expenditures and alert you against overspending. It also provides some general fiscal advice.

Getting Started

Credit Control is written entirely in BASIC. To help avoid typing errors, use *The Automatic Proofreader*; see "Typing Aids" elsewhere in this section. Be sure to save a copy of the program when you've finished typing it in.

Taking Charge

Have your monthly credit card statement and any late purchase receipts on hand when you run *Credit Control*. When you first use the program or if your financial situation later changes, move the highlight cursor to the Statistics menu option and press Return. A series of prompts will guide you. Simply enter your card's finance charge

PROGRAMS

rate, your monthly payment date, your self-imposed monthly credit purchase limits, and your credit limit. After you make these entries, you'll return to the main menu.

To record your credit transactions, select the Data Entry option. You'll be asked to enter the month and day of each transaction and the seller's name and description of items purchased. (Keep the name and description to 13 characters or less.) For your first entry, enter the date and balance due from your last monthly credit statement. Then enter any credit purchases or payments made since the statement date.

At the end of each transaction, you'll be given several options. You may enter another transaction, make changes to previous entries, return to the main menu, or display your current entries. After you've entered all of your credit card transactions, return to the menu and select the Storage option to save your data. You may want to save the data with a name that is similar to your credit card's. Use any valid filename up to 12 characters in length. *Credit Control* appends a prefix of CDF to each filename for easy identification, but omit these letters when loading the data back into your program.

Taking Control

After you charge an item or make a payment on your account, load your file from the Storage option, select Data Entry, and then enter the transaction. If you make a payment, place a minus sign immediately before any payment amounts or returns. These will appear as subtractions from the account balance. Save the file when data entry is complete. *Credit Control* takes care of everything else.

On the menu screen you'll be informed of your credit card balance. You'll also receive some friendly advice on credit management, if necessary. A listing of transactions and balances can be made at any time. Error corrections can be made easily for the last two entries. Earlier errors can be rectified by making a new entry that adds or subtracts the proper amount to correct the balance.

Each credit card's account can be maintained in a separate file. However,

if you begin the system with a realistic self-imposed monthly spending limit, *Credit Control* will advise you when to get rid of those extra cards. Also, be aware that you don't have to accept the card company's suggested monthly payment amount. *Credit Control* will advise you on payment size and other factors, too.

Keep all your credit slips handy in an envelope or simple file. Then get into the habit of regularly entering them. Follow the program's financial advice, enjoy *Credit Control*, and don't abuse your credit with overuse.

CREDIT CONTROL

```

XE 0 REM COPYRIGHT 1991 - COMP
    UTE PUBLICATIONS INTL LTD
    - ALL RIGHTS RESERVED
EX 10 REM CREDIT CONTROL -BY G
    . REID. CC
KC 20 MX=61:X=0:L=1:OS="10.5":
    PS="10TH OF MONTH":M=10:
    CL=1000
AK 30 DIM DS(MX,4)
AA 40 PRINT "{CLR}"
AJ 50 FORXX=1TO5:PRINT "{DOWN}"
    :NEXT:GOSUB980
MR 60 PRINT "{HOME} {2 DOWN}";TA
    B(13) "{GRN}CREDIT
    {SHIFT-SPACE}CONTROL{7}"
CX 70 PRINTTAB(13) "*****"
    ****
CP 80 PRINT CHR$(14)
BP 90 SYS$="{RVS}{CYN}":SZ$="
    {OFF}{7}"
GE 100 NS(1)="DATA ENTRY":NS(2)
    ="DISPLAY"
AS 110 NS(3)="STORAGE":NS(4)="
    STATISTICS"
SM 120 NS(5)="EXIT"
ER 130 FOR C=1TO5:PRINTTAB(13)
    NS(C):NEXT
GK 140 PRINT "{6 UP}":C=1:PRINT
    TAB(13)SY$NS(1)SZ$
XD 150 GETG$:IFG$=" "THEN150
KR 160 IFG$=CHR$(13)THEN200
CE 170 IFG$="{DOWN}"THEN PRINT
    "{UP}";TAB(13)NS(C):C=C
    +1:PRINTTAB(13)SY$NS(C)
    SZ$
MK 180 IFC=6THENPRINT "{UP}";:G
    OTO140
DX 190 GOTO150
AE 200 ON C GOTO330,570,730,21
    0,1240
AQ 210 PRINT "{CLR} {2 DOWN}STAT
    ISTICAL DATA ENTRY":PRI
    NT
QE 220 PRINT"ENTER YOUR NEW: -"
XS 230 PRINT "{DOWN}ANNUAL FINA
    NCE CHARGE RATE"
GA 240 PRINT"CURRENT IS--";OS:

```

```

INPUT OS:IFVAL(OS)<1THE
N210
FS 250 PRINT "{DOWN}MONTHLY PAY
    MENT DATE"
AX 260 PRINT"CURRENT IS--";PS:
    INPUT PS
CP 270 PRINT "{DOWN}BUDGETED MA
    XIMUM MONTHLY CREDIT"
AQ 280 PRINT"PURCHASES AMOUNT
    {SPACE}$"
FA 290 PRINT"CURRENT IS--";M:I
    NPUT M:IFM<1THEN270
SJ 300 PRINT "{DOWN}ASSIGNED CR
    EDIT LIMIT"
FF 310 PRINT"CURRENT IS--";CL:
    INPUT CL
DH 320 GOTO40
GQ 330 X=X+1:Y=0:IS="--":IFX>M
    X-1THENPRINT "{CLR}
    {DOWN}FULL FILE":X=L:GO
    TO430
DE 340 PRINT "{CLR} {2 DOWN}ENTE
    R MONTH & DAY OF PURCHA
    SE":GOSUB420
HQ 350 PRINT "{CLR} {2 DOWN}ENTE
    R SELLER'S NAME/DESCRIP
    TION":GOSUB420
BD 360 PRINT "{CLR} {2 DOWN}ENTE
    R AMOUNT (CHARGED OR PA
    ID) $"
QE 370 PRINT"(PAYMENT MUST BE
    {SPACE}MINUS E.G.
    {2 SPACES}-56){DOWN}":L
    =X:GOSUB420
XQ 380 B2=B2+VAL(D$(X,3)):B2=I
    NT(B2*100+.5)/100:D$(X,
    4)=STR$(B2)
HX 390 IFVAL(D$(X,3))<0THENB4=
    B3:B3=B2
RS 400 IFX=LTHEN430
BD 410 X=X+1:GOTO520
DR 420 INPUTIS:Y=Y+1:D$(X,Y)=I
    S:IS="--":RETURN
RG 430 PRINT "{DOWN} E=ENTER: C
    =CHANGES: M=MENU: D=DIS
    PLAY"
CB 440 GET NS:IFNS$=" "THEN440
SE 450 IF NS$="E"THEN330
FG 460 IF NS$="C"THEN500
MG 470 IF NS$="M"THEN400
QQ 480 IF NS$="D"THEN570
DD 490 GOTO440
BA 500 PRINT "{CLR} {DOWN}HIT RE
    TURN AFTER CHANGES OR T
    O BY-PASS{2 SPACES}AN E
    NTRY"
JC 510 X=X-1:IFX<1THENX=1
JS 520 PRINT "{DOWN}ENTER NEW D
    ATA AT CURSOR: -"
EB 530 B2=VAL(D$(X-1,4)):PRINT
QE 540 PRINT"#";X:TAB(5)"DATE:
    {3 SPACES}";D$(X,1):IN
    PUT D$(X,1)
XF 550 PRINTTAB(5)"SELLER: ";L
    EFT$(D$(X,2),13):INPUT
    D$(X,2)
KA 560 PRINTTAB(5)"AMOUNT: ";D
    $(X,3):INPUT D$(X,3):P

```



```

RINT:GOTO380
HJ 570 G=1:C2=18:C1=C2
CH 580 PRINT"{CLR}{DOWN}";C$=P
      RINT" NO DATE{2 SPACES}
      SELLER/DETAIL{2 SPACES}
      AMOUNT BALANCE"
AA 590 PRINT" -- ----
      {2 SPACES}-----
      {2 SPACES}-----
      -"
SK 600 FOR C=GTO L
DM 610 PRINTC;TAB(4)LEFT$(D$(C
      ,1),6);TAB(10)LEFT$(D$(C
      ,2),13);
FE 620 PRINTTAB(23);:F$=D$(C,3
      )
BC 630 GOSUB640:F$=D$(C,4):GOS
      UB640:PRINT:GOTO680
HF 640 F$="{5 SPACES}"+"F$:F$=
      RIGHT$(F$,3):IFLEFT$(F$
      ,1)=". "THEN670
XP 650 IFMID$(F$,2,1)=". "THEN
      F$=F$+"0":GOTO670
CH 660 F$=F$+"00"
MM 670 PRINTRIGHT$(F$,8);:RETU
      RN
MQ 680 IF C<C1THEN720
HG 690 PRINT"{DOWN}RETURN"
ME 700 GET PA$:IFPA$=""THEN700
DB 710 C1=C1+C2
MP 720 NEXT:PRINT:GOTO430
JS 730 PRINT"{CLR}{2 DOWN}":IN
      PUT"ENTER FILE-NAME";C$
QD 740 PRINT" L=LOAD:
      {2 SPACES}S=SAVE"
MR 750 GET X$:IFX$=""THEN750
MH 760 IFX$="L"THEN900
AF 770 IFX$<>"S"THEN750
AQ 780 PRINT"WISH TO {YEL}SAVE
      {7} ";C$;" ? Y/N"
DG 790 GETX$:IFX$=""THEN790
MP 800 IFX$<>"Y"THEN40
CP 810 OPEN 1,8,2,"@0:CDF"+C$+
      ",S,W"
GS 820 Q$=CHR$(13)
CM 830 PRINT#1,P$Q$O$Q$M,Q$Q$Q
      $CL
JF 840 C=1:Y=1
CX 850 IF C>LTHEN890
HR 860 A$=D$(C,Y):PRINT#1,A$:Y
      =Y+1
GG 870 IF Y>4THEN Y=1:C=C+1
RX 880 GOTO850
DH 890 CLOSE 1:PRINT"{CLR}
      {DOWN}SAVED "C$:GOTO50
HS 900 OPEN 1,8,2,"@0:CDF"+C$+"
      ,S,R"
PK 910 INPUT# 1,P$,O$,M,L,CL
FJ 920 C=1:Y=1
DD 930 IF C>LTHEN970
BS 940 INPUT#1,A$:D$(C,Y)=A$:Y
      =Y+1
PK 950 IF Y>4THEN Y=1:C=C+1
BC 960 GOTO930
JG 970 CLOSE 1:X=L:B2=VAL(D$(C
      -1,4)):GOTO570
ME 980 U=VAL(D$(X,4))
MG 990 UM=INT((U-M)*100+.5)/10

```

```

0
XG 1000 PRINT:PRINT"{YEL}SELEC
      T{7} WITH CURSOR AND R
      ETURN"
KQ 1010 PRINT"{2 DOWN}";TAB(10
      )"-----"
GC 1020 PRINT"{GRN}YOUR CURREN
      T BALANCE IS $";
BR 1030 IFU>MTHENPRINT"{3}"U"
      {7}":GOTO1050
BC 1040 PRINTU:IFU=<0THENPRINT
      " CONGRATULATIONS!":GO
      TO1230
PH 1050 IF(CL-U)<CL*.2 THEN PR
      INT" YOUR CREDIT LIMIT
      IS $";CL
AD 1060 IFVAL(D$(X,3))<0THEN10
      90
HD 1070 PRINT" TO AVOID FINANC
      E CHARGE AT ";O$;"% AP
      R,"
JA 1080 PRINT" PLEASE PAY BY "
      ;P$;"{7}"
FA 1090 IFU=<M THEN1230
DD 1100 PRINT"{1}BALANCE EXCEE
      DS $";STR$(M);"-BUDGET
      BY";UM
RF 1110 R=VAL(O$)/12/100:IF(U/
      M*)>.99999THEN1210
MF 1120 N=LOG(1/(1-(U/M*))) /L
      OG(1+R)
QE 1130 PRINT" IF NO FURTHER P
      URCHASES, IT TAKES"
HE 1140 PRINTINT(N*10+.5)/10;"
      MONTHS TO PAY OFF.{7}"
KD 1150 IF N<1.15THEN1230
JK 1160 IF VAL(D$(X,3))<(.25*M
      )THEN IF U<B4THENPRINT
      " GOOD TREND...BUT"
FQ 1170 IF N>2 THEN1220
KQ 1180 PRINT"{3}INCREASE YOUR
      BUDGET TO $";INT(M*N)
      ;
PQ 1190 IF N<1.15THEN1230
BA 1200 PRINT" OR":GOTO1220
KD 1210 PRINT"{3} CANNOT BE RE
      PAID.{2 SPACES}BUDGET
      {SPACE}OF $";M;"IS
      {4 SPACES}VERY LOW.
      {2 SPACES}REPEAT!"
AK 1220 PRINT"{YEL}HIDE
      {SHIFT-SPACE}YOUR
      {SHIFT-SPACE}CARD AWAY
      !{7}"
CQ 1230 RETURN
AG 1240 PRINT"{2 DOWN}DID YOU
      {SPACE}SAVE YOUR DATA?
      {3 SPACES}Y/N"
JG 1250 GETS$:IF S$=""THEN1250
MA 1260 IF S$="Y"THEN PRINT"
      {CLR}":END
HP 1270 GOTO40

```

George R. Reid is a professor of business. He lives in Savannah, Georgia, and has excellent credit. □

PLOTTER

By Daniel Lightner

Have you ever designed a screen on the 64 that you would like to use in a program that you're writing? Poking those character values into the proper screen memory locations is a fast and efficient way to do it, but determining those poke values is another story. *Plotter* is just the utility to help you determine those values.

Typing It In

Plotter is written entirely in machine language. To enter it, use *MLX*, our machine language entry program; see "Typing Aids" elsewhere in this section. When *MLX* prompts, respond with the following values.

Starting address: C000

Ending address: C207

Be sure to save a copy of the program before you exit *MLX*.

Putting It to Work

To use the program, enter *LOAD*"PLOTTER",8,1 and then press Return. When it has finished loading, don't run it. Instead, type *NEW*, press Return, and then enter *SYS49152*. If all has gone well, the program will announce its presence.

To see how *Plotter* works, place the cursor on any character, anywhere on the screen. Press f1. Two numbers should appear in the upper left corner of the screen. The first number is the screen location of the cursor, and the number following the comma is the poke value of the character stored at that location.

If you load *Plotter* from the 64's opening screen and go through the preceding steps, you should see that *Plotter* has been enabled and the word *READY* should be near the bottom of the screen. Place your cursor over the letter *R* in the word *READY* and press f1. At the top of the screen, you may see 1904,18. If your cursor isn't on line 24, you may get a different first number, but you should get an 18, which is the value to poke to the screen to print an *R*.

Now press the space bar to delete the letter *R*. Move the cursor to any

blank line on the screen, enter POKE 1904,18, and press Return. (Use the numbers at the top of your screen if they are different.) The R should now be back in the word *READY*. Press f7 to clear those values; then move the cursor to another location and press f1 again.

How Does It Do That?

Plotter wedges itself into the 64's hardware interrupt routine and then turns control of the 64 back to the BASIC editor. The program waits in the background, quietly scanning the keyboard for f1 to be pressed. When it detects f1, it copies the characters and colors from the first eight bytes of screen memory. *Plotter* writes the screen location of the cursor and the value of the character under the cursor to the top left corner of the screen. It then scans f7 for a keypress. When the program detects that the f7 key has been pressed, *Plotter* replaces the characters at the top of the screen that may have been overwritten.

You can disable *Plotter* by pressing Run/Stop and the Restore key simultaneously. It would be good practice to disable *Plotter* before using the disk drive. You can activate it again with SYS49152.

PLOTTER

```
C000:A0 00 B9 B0 C1 20 D2 FF 48
C008:C8 C0 54 D0 F5 AD 14 03 47
C010:8D 11 03 AD 15 03 8D 12 B9
C018:03 78 A9 2B 8D 14 03 A9 8D
C020:C0 8D 15 03 58 A9 00 8D 2F
C028:20 CB 60 AE 20 CB E0 00 95
C030:D0 16 A6 CB E0 04 F0 03 2D
C038:6C 11 03 A2 01 8E 20 CB 0D
C040:A5 CE 8D 36 CB 6C 11 03 92
C048:A5 CF C9 01 F0 13 AE 20 2B
C050:CB E0 01 F0 12 E0 02 F0 28
C058:14 E0 04 F0 07 E0 03 F0 56
C060:09 6C 11 03 4C 34 C1 4C D6
C068:D4 C0 4C 88 C1 A9 03 8D DE
C070:20 CB A5 D1 85 FB A5 D2 01
C078:85 FC 18 A5 D3 65 FB 85 0B
C080:FB A9 00 65 FC 85 FC A5 5E
C088:FC A6 FB 8D 34 CB 8E 33 AB
C090:CB A2 09 8E 35 CB A0 B0 75
C098:AD 33 CB DD A5 C1 AD 34 D8
C0A0:CB FD A6 C1 90 0F 8D 34 88
C0A8:CB AD 33 CB FD A5 C1 8D 36
C0B0:33 CB C8 D0 E3 98 CA F0 EC
C0B8:10 C9 B0 F0 03 8D 35 CB 5E
C0C0:2C 35 CB 30 04 A9 00 F0 D9
C0C8:05 29 7F 20 7B C1 CA 10 91
C0D0:C5 6C 11 03 A9 02 8D 20 33
C0D8:CB A0 00 A9 00 85 FB A9 BA
```

```
C0E0:04 85 FC A9 21 85 FD A9 C4
C0E8:CB 85 FE B1 FB 91 FD C8 97
C0F0:C0 08 D0 F7 A0 00 A9 00 C6
C0F8:85 FB A9 D8 85 FC A9 29 9B
C100:85 FD A9 CB 85 FE B1 FB 3F
C108:91 FD C8 C0 08 D0 F7 A9 16
C110:03 8D 00 D8 8D 01 D8 8D B5
C118:02 D8 8D 03 D8 8D 04 D8 92
C120:8D 05 D8 8D 06 D8 8D 07 55
C128:D8 A2 04 86 FE A2 00 86 B2
C130:FD 6C 11 03 A5 CB C9 03 13
C138:F0 03 6C 11 03 A9 00 8D DF
C140:20 CB A0 00 A9 00 85 FB 2F
C148:A9 04 85 FC A9 21 85 FD FC
C150:A9 CB 85 FE B1 FD 91 FB E0
C158:C8 C0 08 D0 F7 A0 00 A9 6A
C160:00 85 FB A9 D8 85 FC A9 DF
C168:29 85 FD A9 CB 85 FE B1 60
C170:FD 91 FB C8 C0 08 D0 F7 23
C178:6C 11 03 8C 31 CB A0 00 99
C180:91 FD E6 FD AC 31 CB 60 2B
C188:A9 20 8D 06 04 8D 07 04 63
C190:A9 2C 20 7B C1 AD 36 CB AC
C198:85 FB A9 00 85 FC A9 04 8A
C1A0:8D 20 CB 4C 87 C0 01 00 72
C1A8:0A 00 6A 00 E8 03 10 27 58
C1B0:0D 0D 9A 43 4F 50 59 52 46
C1B8:49 47 48 54 20 31 39 39 72
C1C0:31 0D 43 4F 4D 50 55 54 28
C1C8:45 20 50 55 42 4C 49 43 6F
C1D0:41 54 49 4F 4E 53 20 49 71
C1D8:4E 54 4C 20 4C 54 44 0D 6D
C1E0:41 4C 4C 20 52 49 47 48 32
C1E8:54 53 20 52 45 53 45 52 E8
C1F0:56 45 44 0D 0D 50 4C 4F DB
C1F8:54 54 45 52 20 45 4E 41 7D
C200:42 4C 45 44 00 00 00 00 A6
```

Daniel Lightner lives in Sidney, Montana. He is the author of *Noah's Arc*, which was published in July 1991. □

SHOWDOWN

By Arihant Jain

Some games are very simple to play, but difficult to master. *Showdown* is such a game.

This board game for one or two players resembles Chinese checkers. The board has 32 pegs arranged in a cross-shaped grid, with one open position in the center. The object is to clear the board of as many pegs as possible. You remove a peg by jumping it with an adjacent peg, but you must land in an empty space. If that space has a peg in it, you can't jump.

Typing It In

Showdown is written entirely in BASIC. To avoid typing errors, enter the program with *The Automatic Proofreader*; see "Typing Aids" elsewhere in this sec-

tion. Be sure to save a copy of the program when you've finished typing it in.

Let's Play

When you run *Showdown*, you'll be asked whether you want to play or watch a replay of an earlier game. Since there will be nothing to watch at first, press P for play.

You'll then be asked whether you want to play singles or a combined effort. If you elect to play alone, make sure your joystick is in port 2. When two people play, two joysticks are required, and players take turns jumping pegs.

Pegs are removed automatically when you jump them. Remember that you can jump a peg only if you are next to it and the space on the other side of the jumped peg is vacant. You can only jump up, down, left, or right. Diagonal moves are not allowed.

Use the joystick to position your cursor on any peg you like. To jump, press the fire button and then move the stick in the direction you want to jump. If the move is legal, the computer will make the move and remove the jumped piece. You'll get a message if a move is illegal.

When you have removed as many pegs as possible, press the @ key to receive your score and a message about how well you played. If you are sharp and have planned your moves carefully, it's possible to remove all the pegs but one.

Watch a Replay

When you've finished a game, you'll be asked if you want to save it. Saving games will give you a chance to watch each move again and see where you went wrong. It'll also give you a chance to prove to others how brilliantly you played.

If you decide to save a game, *Showdown* will ask for a filename and then your name. The game and each move will be saved to disk.

To see a saved game, press R for replay on the opening screen and supply the filename. The game board will appear, and *Showdown* will automatically play back every move you made during that game. You can slow down the replay moves by pressing L or make them move faster by pressing F.

SHOWDOWN

```

QF 100 DIMF(2000),G(2000)
FR 110 GOSUB 880
AK 120 GOSUB1000
PC 130 S = 1475:O=1274:B=1391:
      C=1397:M=0:W=0:F=0:G=0:
      U=0
RA 140 PRINT "{CLR}{HOME}{BLK}"
      :POKE 53280,13:POKE5328
      1,12
JA 150 PRINT "{4 DOWN}
      {10 RIGHT}{RVS}
      {4 SPACES}{DOWN}{LEFT}
      {SPACE}{DOWN}{LEFT}
      {5 LEFT} {UP}{LEFT}
      {UP}{LEFT} "
HB 160 PRINT "{HOME}{7 DOWN}
      {7 RIGHT}{RVS}
      {3 SPACES}{OFF}WWW{RVS}
      {3 SPACES}{OFF}{UP}
      {6 LEFT}WWW"
RX 170 PRINT "{DOWN}{7 RIGHT}
      {RVS} {DOWN}{LEFT}
      {DOWN}{LEFT} {DOWN}
      {LEFT}{3 SPACES}{OFF}W
      {RVS}W{OFF}W{RVS}
      {3 SPACES}{UP}{LEFT}
      {UP}{LEFT} {UP}{LEFT}
      {8 LEFT}{OFF}";
SP 180 PRINT "WWW{DOWN}
      {7 LEFT}WWW WWW"
XS 190 PRINT "{8 RIGHT}WWW{WWW}"
HX 200 PRINT "{DOWN}{9 RIGHT}
      {RVS} {OFF}WWW{RVS}
      {OFF}"
FA 210 PRINT "{9 RIGHT}{RVS}
      {5 SPACES}"
PX 220 IFH=-1THEN 1190
GQ 230 V=2
KX 240 IFV=3THEN V=1
SM 250 IFI=0THENV=2
MG 260 JO=USR(V):GETAS
HS 270 IF(JOAND15)=1THENW=-40:
      GOTO480
FC 280 IF(JOAND15)=4THENW=-1:G
      OTO480
SR 290 IF(JOAND15)=8THENW=1:G
      OTO480
JJ 300 IF(JOAND15)=2THENW=40:G
      OTO480
HE 310 IF(JOAND16)=0THEN GOTO3
      40
EE 320 IF AS ="@" THEN 610
BH 330 GOTO 240
DQ 340 JO=USR(V):IF(JOAND15)=0
      THEN GOTO340
DD 350 IF(JOAND15)=1THENW=-40:
      GOTO400
BH 360 IF(JOAND15)=4THENW=-1:G
      OTO400
AJ 370 IF(JOAND15)=8THENW=1:G
      OTO400
DX 380 IF(JOAND15)=2THENW=40:G
      OTO400
KQ 390 GOTO 240
QS 400 Y=S+W:R=0:IF PEEK(S)=21
      5THEN R=R+1

```

```

KF 410 IFPEEK(Y)=87THENR=R+1
GG 420 IFPEEK(S+W+W)=32THENR=R
      +1
KF 430 IFR=3 THEN 450
BX 440 GOTO 530
JE 450 M=M+1:POKES,32:POKES+W,
      32:GOSUB560:POKE S+W+W,
      215:S=S+W+W:V=V+1:U=U+1
XH 460 F(U)=1:G(U)=W
PB 470 GOTO 240
JS 480 J=0:Z=PEEK(S):Y=S+W :IF
      PEEK(Y)=87THENQ=87:J=J+
      1
AH 490 IFPEEK(Y)=32THENQ=32:J=
      J+1
FD 500 IF J=1 THEN 520
SB 510 GOSUB 530
KH 520 POKES,Z-128:POKES+W,Q+1
      28:S=S+W:U=U+1:F(U)=0:G
      (U)=W:GOTO 240
QM 530 PRINT "{HOME}{22 DOWN}IL
      LEGAL MOVE":GOSUB 560
DQ 540 PRINT "{HOME}{22 DOWN}
      {12 SPACES}"
SG 550 GOTO{2 SPACES}240
HR 560 REM
EE 570 POKE54296,15:POKE54277,
      64:POKE54273,162:POKE54
      272,37
SQ 580 POKE54276,17:FORT=1TO20
      0:NEXT
HJ 590 POKE54276,16:FORT=1TO50
      :NEXT
HP 600 RETURN
MK 610 J=32-M:F(U+1)=-1:G(U+1)
      =0
BX 620 PRINT "{CLR}{2 DOWN}";J;
      "PEGS REMAINING{2 DOWN}
      "
AR 630 IFJ>10THEN PRINT"POOR!":
      W=-1:GOTO700
FG 640 IFJ>7THEN PRINT"SATISFA
      CTORY PLAY!":W=-1:GOTO7
      00
HA 650 IFJ>5THEN PRINT"GOOD!":
      W=4:GOTO700
RH 660 IFJ>3THEN PRINT"GREAT!":
      W=5:GOTO700
BQ 670 IFJ>2THEN PRINT"WELL PL
      AYED!":W=11:GOTO700
FH 680 IFJ>1THEN PRINT"MISSED!
      ":W=6:GOTO700
BX 690 IFJ>0THEN PRINT"DID IT!
      ":W=6:GOTO700
EB 700 PRINT "{3 DOWN}WANT TO S
      AVE? (Y/N)"
QF 710 GETK$:IF K$=""THEN710
JB 720 IF K$<>"N"ANDK$<>"Y"THE
      N 710
KQ 730 IFK$="N" THEN 800
XF 740 INPUT"FILENAME";N$:INPU
      T"YOUR NAME";M$
SR 750 OPEN15,8,15:OPEN2,8,2,"
      @0: "+N$+",S,W"
HG 760 PRINT#2,M$:FORV=1TOU+1
JB 770 PRINT#2,F(V)
RM 780 PRINT#2,G(V):NEXT V
JS 790 CLOSE2:CLOSE15

```

```

AA 800 PRINT "{3 DOWN}WANT TO P
      LAY? (Y/N)"
FB 810 IFW<0THENGOTO840
JD 820 QZ=4*40:FORK=QZ+55336TO
      QZ+55336+W:POKEK,V:V=V+
      1:IFV>255THENV=0
QP 830 NEXT K
AM 840 GET M$:IF M$="" THEN 81
      0
CG 850 IF M$="N"THENPRINT"
      {CLR}":END
PB 860 IF M$="Y" THENGOTO 120
JQ 870 GOTO 840
MK 880 JJ=49152:JH=INT(JJ/256)
      :JL=JJ-JH*256:POKE785,J
      L:POKE786,JH
SC 890 FORK=JJTOJJ+67:READ Y:P
      OKEK,Y:NEXT
RQ 900 DATA 120,70,97,176,21,1
      69,127,141
FS 910 DATA 0,220,173,1,220,20
      1,255,240
QE 920 DATA 4,169,31,208,13,17
      3,0,220
PC 930 DATA 16,8,169,255,141,0
      ,220,173
XC 940 DATA 1,220,41,31,73,15,
      208,4
HH 950 DATA 133,97,240,23,133,
      98,169,136
BA 960 DATA 133,97,169,0,133,9
      9,133,100
CX 970 DATA 133,101,133,102,19
      8,97,6,98
CF 980 DATA 16,250,88,96
CE 990 RETURN
QB 1000 PRINT "{CLR}{2 DOWN}PLA
      Y, WATCH A REPLAY (P/R
      )"CHR$(142)
ER 1010 GETF$:IFF$=""THEN1010
RR 1020 IFF$="P" THEN 1050
KR 1030 IFF$="R"THEN 1120
HS 1040 GOTO 1010
JQ 1050 PRINT "{CLR}{2 DOWN}ONE
      OR TWO PLAYER GAME? (
      1/2)"
GR 1060 GET I$:IFI$=""THEN106
      0
PB 1070 IFI$="1"THEN I=0:GOTO1
      00
DG 1080 IFI$="2" THENI=1:GOTO
      {SPACE}990
QH 1090 GOTO 1060
JQ 1100 H=0:PRINT "{2 DOWN}JOYS
      TICK IN PORT 2"
SP 1110 PRINT"PRESS "CHR$(34)"
      @"CHR$(34)" TO END":FO
      R E=1 TO 900:NEXT:RETU
      RN
JF 1120 U=0:N=0:INPUT"FILENAME
      ";N$
QR 1130 OPEN15,8,15:OPEN2,8,2,
      "0: "+N$+",S,R":INPUT#2
      ,M$
MK 1140 GOTO 1330
EA 1150 INPUT#2,F(U),G(U)
DS 1160 IFF(U)=-1 THEN U=U-1:G
      OTO1180

```



```

KF 1170 U=U+1:GOTO 1150
FR 1180 H=-1:PRINT "{CLR}":GOTO
150
XD 1190 S=1475:TI%=200
XH 1200 FOR V=0TOU
GJ 1210 E=S+G(V):GETAS
KR 1220 IF F(V)=0 THEN POKES,PE
EK(S)-128:POKE E,PEEK(
E)+128:S=S+G(V)
EG 1230 IF F(V)=1 THEN POKES,32
:POKEE,32:POKEE+G(V),2
15 :S=S+G(V)+G(V):GOSU
B560
JP 1240 IFA$="F" THEN TI%=TI%-50
MF 1250 IFA$="L" THEN TI%=TI%+50
CJ 1260 IF TI%>1000 THEN TI%=100
0
RA 1270 IF TI%<0 THEN TI%=0
HR 1280 FORA=1TOTI%:NEXTV
:PRINT "BY:";M$
QH 1290 PRINT "{2 DOWN}{RVS}PRE
SS SPACE BAR TO CONTIN
UE"
HJ 1300 GETAS:IFA$<>" " THEN 13
00
JA 1310 CLOSE2:CLOSE15
SR 1320 RESTORE:GOTO 110
XM 1330 INPUT#15,EN,EM$,ET,ES
XQ 1340 IF EN=0 THEN PRINT EM$:GO
TO 1360
AH 1350 GOTO 1150
XH 1360 CLOSE15:CLOSE2:GOTO 11
20

```

Arihant Jain lives in Ludhiana, a city in northwest India. □

MEDIUM-DENSITY DRIVER

By Matthew Spinks

Over the years, I've done a good deal of graphics work on my computer that has included plotting graphs and drawing pictures. I've always been frustrated by the high-resolution graphics system used by the 64. It's generally more trouble than it's worth when all you want to do is plot a simple graph or picture.

At the other extreme of the graphics spectrum, the resolution of the normal text screen is usually too low to provide the detail required by straightforward graphs or pictures. What is needed is a graphics mode between the two extremes, a mode which offers a reasonable resolution but avoids the complexity associated with bitmapped graphics.

Such a graphics mode does exist. If you enter `PRINT CHR$(190):PRINT`

`CHR$(188):PRINT CHR$(187):PRINT CHR$(172)`, you'll see four characters on the screen. Each one fills one quadrant of a whole text cell. These characters enable the normal text screen to be turned into a medium-resolution graphics screen which has twice the resolution of the ordinary text screen. This format provides new screen dimensions of 80 points horizontally by 50 points vertically, an overall resolution of 4000 plot points.

This medium-density graphics mode has an attractive, chunky feel to it and is excellent for plotting graphs and drawing simple pictures. It also allows text and graphics to coexist peacefully. Unlike bitmap mode, the medium-density graphics mode requires no extra memory to store graphics data, and it requires only a small graphics driver. Perhaps best of all, the medium-density graphics mode is simple and easy to use.

Entering the Program

Medium-Density Driver is a short routine written entirely in machine language. To enter it, use *MLX*, our machine language entry program; see "Typing Aids" elsewhere in this section. When *MLX* prompts, respond with the following values.

Starting address: 033C
Ending address: 03D3

When you've finished typing, be sure to save a copy of the program before exiting *MLX*.

The driver sits safely in the cassette buffer, leaving the overused area at 49152 (\$C000) free for your own programs. This lets you plot individual points to the normal text screen.

After you've typed in a copy of the driver, you can then use it to create your own medium-density graphic screens. To use it, simply load the machine language program with the ,8,1 extension and type `NEW`. This `NEW` command is necessary because it resets some important BASIC pointers.

The Plot Thickens

To plot graphs or pictures, simply use the command `SYS828, x, y, on/off, color`. Here *x* and *y* are the screen coordinates for points to be plotted. The

range is 0-79 on the *x*-axis and 0-49 along the *y*-axis. On/off is a flag which determines whether or not a point is plotted or erased. If on/off = 1, a point will be plotted. If on/off = 0, a point will be erased. Color, of course, is the color of the point to be plotted and should be in the range 0-15, representing the standard Commodore colors.

For example, to plot a white point at the top left-hand corner of the screen, enter the following command:

SYS828, 0, 0, 1, 1

Similarly, to erase a point at the opposite corner (the bottom right-hand corner), the command `SYS828, 79, 49, 0, 1` would be used. Note that despite the fact that we are erasing a point, the color must still be specified. This is necessary because the program checks all parameters, and if any value falls outside the ranges mentioned or if any parameter is missing, you'll get a `SYNTAX ERROR`.

Points to Ponder

Because the medium-density graphics mode uses the normal text screen and color memories, setting the color of one point will also affect the color of the neighboring three points. Some care must be taken when plotting in more than one color to achieve the desired effect. Although this may seem like a drawback at first, it does have the advantage of allowing text and standard Commodore graphics characters to be integrated onto the graphics screen.

Text can be printed and character values can be poked to the screen in the normal way. Note, however, that with the graphics driver you can neither erase text or nongraphics characters nor plot over text or other characters. This prevents text and other graphics from being accidentally erased.

A Demonstration

Demo is a short demonstration program written entirely in BASIC. It will give you some idea of how you can use the driver. To help prevent typing errors, use *The Automatic Proofreader* to type it in; see "Typing Aids" elsewhere in this section.

Demo plots Lissajous figures. These are a series of curves found by combining perpendicular harmonic motions. They are commonly exhibited by feeding two harmonic frequencies into an oscilloscope's X and Y input circuits. (Don't worry. You don't have to understand Lissajous figures to see how the program works. They're easier to demonstrate than to explain.)

Before running the demonstration, make sure *Driver* is already in memory. When running the demonstration, try experimenting with the values the program asks for. Entering 1,2 will produce entirely different results than will 2,1.

The patterns produced will be in monochrome, but you can easily add color by changing the value of the color variable, C, in line 270. For a rainbow of color, try *Demo* with these lines added.

```
262 C=C+1
264 IF C=16 THEN C=0
```

Now that you have an idea of how *Medium-Density Driver* works, try creating some figures or patterns of your own.

MEDIUM DENSITY DRIVER

```
033C:A0 03 8C D2 03 20 00 E2 8D
0344:8A AC D2 03 D9 BE 03 B0 C5
034C:6E 99 D3 03 88 10 EB A9 A0
0354:02 8D D7 03 4E D5 03 90 4A
035C:06 0E D7 03 0E D7 03 4E 38
0364:D6 03 90 03 4E D7 03 AE 5F
036C:D5 03 20 F0 E9 AD D6 03 E7
0374:18 65 D1 85 D1 90 02 E6 2E
037C:D2 20 24 EA A0 00 B1 D1 61
0384:A2 0F DD C2 03 F0 04 CA 36
038C:10 F8 60 AD D4 03 F0 1A 6E
0394:E0 0F F0 15 AD D3 03 91 92
039C:F3 8A 2C D7 03 D0 0A 18 C9
03A4:6D D7 03 AA BD C2 03 91 F2
03AC:D1 60 8A 2C D7 03 F0 F9 6E
03B4:38 ED D7 03 4C A7 03 4C D0
03BC:08 AF 10 02 32 50 20 7C 64
03C4:7E E2 6C E1 7F FB 7B FF 51
03CC:61 EC 62 FE FC A0 00 00 65
```

DEMO

```
CX 100 REM DRIVER DEMONSTRATIO
N
BF 110 REM COPYRIGHT 1991 - CO
MPUTE PUBLICATIONS INTL
LTD - ALL RIGHTS RESER
VED
JB 120 REM MAKE SURE DRIVER IS
IN MEMORY!
DK 130 :
KX 135 PI=3.14159
```

```
JS 140 POKE 53280,11:POKE 5328
1,11
GK 150 PRINTCHR$(147)CHR$(5)
RD 160 PRINTTAB(11)"LISSAJOUS
{SPACE}FIGURES"CHR$(17)
RX 170 PRINT"PRESS ANY KEY AFT
ER VIEWING FIGURE"
QE 180 PRINTCHR$(17)"ENTER ANY
TWO NUMBERS, EACH"
BH 190 INPUT"WITH VALUES LESS
{SPACE}THAN 5";X,Y
DR 200 IF X>5 OR Y>5 THEN 180
HP 210 PRINTCHR$(147)
XM 220 FL=1:GOSUB 260
MR 230 POKE 198,0:WAIT 198,1
QP 240 FL=0:GOSUB 260
SF 250 END
RR 260 FOR T=1 TO 2*PI*100/(10
*PI*(X+Y))
JK 270 SYS 828,(1+SIN(X*T))*40
,(1+COS(Y*T))*25,FL,C
SD 280 NEXT
SK 290 RETURN
```

Matthew Spinks, who wrote *Loader-Maker* (May 1991), lives in Erica, Victoria, Australia. □

RAPIDFORMAT 128

By Mahmood Hasan Merchant

A number of fast formatting programs have been around for the 64 ever since the 1541 disk drive was introduced by Commodore. These programs greatly improve the performance of the drive in terms of time saved.

Commodore probably took a lesson from these programmers and added a much more efficient format routine into its 1571 disk drive. The drive formats a double-sided disk in 41 seconds, but wouldn't we all appreciate an even faster procedure? *RapidFormat 128* should do the trick.

RapidFormat 128 is an easy-to-use, prompt-driven program for the 128 that cuts almost in half the time required to format all 70 tracks of a double-sided disk. It will format a single-sided disk in a mere 12 seconds.

Getting Started

RapidFormat 128 is written entirely in BASIC. To help prevent typing errors, use *The Automatic Proofreader* to type it in; see "Typing Aids" elsewhere in this section. When you've finished typing, be sure to save a copy of the program. When you type RUN, the data

will be read and written to disk as *RapidFormat*, a machine language program.

Once *RapidFormat* has been generated, it can be loaded and activated with the command RUN "RAPIDFORMAT". At this point you should remove the disk containing the program and insert the disk which is to be formatted. You are prompted to indicate whether you wish to format only the top side (for 1541 use) or both sides of the disk. If you frequently need to access your files both in the 64 and 128 modes, then it may be a good idea to format only the top side of the disk. This will prevent the annoying *Illegal Track or Sector* error message which results when part of the file being accessed lies on a disk's second side.

To V or Not to V?

Next you have to specify whether you wish to verify the format. If verification is enabled, each sector on every track is read and checked for errors. If any are spotted, they are reported by the program. However, choosing this option will slow down the formatting somewhat. To format a disk at maximum speed, omit the verify option.

This option is provided to meet the needs of various users. Write errors occur rarely with the 1571, and if you have reasonable faith in the head alignment of your drive (1571s are more trustworthy in this regard than older 1541s), then you may save time by choosing not to verify. As long as the disk used is at least of average quality, there shouldn't be any problems.

If, however, the idea of not verifying makes you nervous, then you have the option. I would strongly advise you to verify if you are using generic or low-quality disks or if you wish to format both sides of a disk which is certified only for single-side use. In these cases, the caution and the extra time are probably worth it.

Enter a name for the disk as you would in a conventional format routine. Be sure it is no longer than 16 characters and is followed by a 2-character ID. This ID is written as a sort of signature to every sector on the disk, and its main purpose is to indicate to the drive when a disk has been changed.

Once you press Return, the disk will

PROGRAMS

start to format. Make sure that the disk containing *RapidFormat* is not in the drive. To be safe, put write-protect tabs on disks that contain programs or valuable data. *RapidFormat* checks for write-protect tabs. If it finds one, the disk will not be formatted, and an error message will be displayed. Using write-protect tabs on all valuable disks is a good practice to follow.

How It Works

RapidFormat works by reprogramming the disk drive. It transfers a section of code to the buffer at address \$0500. Once activated, the program copies the standard format routine from the drive ROM to the internal RAM and makes a few changes to it.

If the verify option is not chosen, these routines are bypassed. Additional time is saved by using a fixed value to space out sectors on all tracks. The standard format routine writes and rewrites on each track to calculate the individual length of gaps between sectors.

This modification, coupled with faster changing of tracks, brings about the speed improvement of *RapidFormat*. Disks formatted with this program work just as well as those formatted using the standard routine.

RAPIDFORMAT 128

```
SH 10 BANK1:SCNCLR:COLOR0,15:COLOR4,15:COLOR5,2
EC 20 PRINTCHR$(18)"
    {16 SPACES}786/110
    {17 SPACES}";
PC 30 PRINT"{11 SPACES}RAPIDFORMAT - 1571{11 SPACES}";
MQ 40 PRINT" COPYRIGHT 1991 -
    {SPACE}COMPUTE PUBS INTL LTD ";
DE 50 PRINT"{11 SPACES}ALL RIGHTS RESERVED{10 SPACES}";
AG 70 SA=7169:EA=8153:DT=16
DA 80 PRINTCHR$(17)SPC(14)"READING ML!"CHR$(17)CHR$(17)
PF 90 FORI=0TODT-2:READ D$:D=D
    EC(D$)
GS 100 CHAR1,11,10:PRINT"LOADING AT:{2 SPACES}";HEX$(SA+I)
QM 110 POKESA+I,D:CK=CK+D:NEXT
    :READ D$:D=DEC(D$):CK=CK+D
DB 120 IFD<>CKTHENBEGIN
QK 130 :PRINTCHR$(17)"DATA ERR
```

```
OR IN LINE";
KD 140 :PRINTPEEK(65)+256*PEEK(66):STOP
FR 150 BEND
PR 160 SA=SA+DT-1:CK=0:IFSA<=E
    AGOTO90
JK 170 PRINTCHR$(17)CHR$(17)"PRESS "CHR$(18)" RETURN
    {SPACE}";
XA 180 PRINTCHR$(146)" TO SAVE 'RAPIDFORMAT'";:INPUTD
    $
XA 190 BSAVE"RAPIDFORMAT",B1,P(7169) TO P(EA+1):PRINT
    D$$
MB 200 END
QR 210 :
JS 220 :
FC 1000 DATA 49,1C,0A,00,99,22,93,22,A3,35,29,22,12,20,52,86
BH 1010 DATA 20,41,20,50,20,49,20,44,20,46,20,4F,20,52,20,05
HM 1020 DATA 4D,20,41,20,54,20,2D,20,31,35,37,31,20,92,22,31
HK 1030 DATA 3A,20,4E,24,B2,22,22,3A,56,24,B2,22,22,3A,49,EF
QK 1040 DATA 44,24,B2,22,22,3A,53,24,B2,22,22,00,74,1C,14,A9
XE 1050 DATA 00,99,A3,35,29,22,12,20,20,20,28,31,39,39,30,29
XM 1060 DATA 29,20,20,4D,41,48,4D,4F,4F,44,20,4D,45,52,43,B5
XE 1070 DATA 48,41,4E,54,20,20,20,92,22,00,9E,1C,1E,00,99,B0
KF 1080 DATA 22,11,11,46,4F,52,4D,41,54,20,54,59,50,45,3A,A9
BS 1090 DATA 20,20,12,20,31,20,92,20,20,42,4F,54,48,20,53,35
FG 1100 DATA 49,44,45,53,11,22,00,BE,1C,28,00,99,A3,31,34,FB
SX 1110 DATA 29,22,12,20,32,20,92,20,20,54,4F,50,20,53,49,50
PQ 1120 DATA 44,45,20,4F,4E,4C,59,22,00,D4,1C,32,00,99,A3,6B
XC 1130 DATA 31,35,29,22,11,31,9D,9D,9D,22,3B,3A,85,53,24,5D
XB 1140 DATA 00,EC,1C,3C,00,8B,A8,53,24,B2,22,31,22,AF,A8,6C
PX 1150 DATA 53,24,B2,22,32,22,89,35,30,00,FF,1C,41,00,8B,74
PH 1160 DATA 53,24,B2,22,32,22,A7,53,24,B2,22,30,22,
```

```
00,12,F5
AJ 1170 DATA 1D,43,00,53,24,B2,C7,28,C6,28,53,24,29,AB,34,E5
XB 1180 DATA 38,29,00,38,1D,46,00,99,22,11,11,56,45,52,49,0F
EJ 1190 DATA 46,59,3F,20,28,59,2F,4E,29,22,A3,31,35,29,22,9B
GS 1200 DATA 4E,9D,9D,9D,22,3B,3A,85,4E,24,00,50,1D,50,00,70
AB 1210 DATA 8B,A8,4E,24,B2,22,59,22,AF,A8,4E,24,B2,22,4E,DF
EX 1220 DATA 22,89,31,30,00,6A,1D,55,00,56,24,B2,22,30,22,88
BB 1230 DATA 3A,8B,4E,24,B2,22,59,22,A7,56,24,B2,22,31,22,CE
XR 1240 DATA 00,7D,1D,57,00,56,24,B2,C7,28,C6,28,56,24,29,9D
MX 1250 DATA AB,34,38,29,00,94,1D,5A,00,99,22,11,11,4E,41,B7
XX 1260 DATA 4D,45,22,A3,31,33,29,3B,3A,85,4E,24,00,AD,1D,1A
PK 1270 DATA 64,00,8B,C3,28,4E,24,29,B2,30,B0,C3,28,4E,24,64
HD 1280 DATA 29,B1,31,36,89,31,30,00,C2,1D,6E,00,99,22,11,44
BB 1290 DATA 49,44,22,A3,31,33,29,3B,3A,85,49,44,24,00,D4,5E
PM 1300 DATA 1D,78,00,8B,C3,28,49,44,24,29,B3,B1,32,89,31,35
AX 1310 DATA 30,00,DE,1D,82,00,9E,37,37,32,30,00,FB,1D,8C,BF
EH 1320 DATA 00,99,A3,31,34,29,22,11,11,12,20,46,4F,52,38
RK 1330 DATA 4D,41,54,54,49,4E,47,20,92,22,00,26,1E,96,00,C2
EK 1340 DATA 9F,31,35,2C,38,2C,31,35,3A,98,31,35,2C,22,55,D6
GA 1350 DATA 34,22,53,24,56,24,49,44,24,22,2C,22,4E,24,3A,14
FE 1360 DATA A0,31,35,3A,99,44,53,24,00,00,00,A6,BA,A0,0F,A3
XD 1370 DATA A9,00,20,38,F7,85,B7,20,C0,FF,A6,B8,20,C9,FF,59
ME 1380 DATA 20,7D,FF,55,30,3E,52,01,00,20,CC,FF,A9,05,A0,EB
RB 1390 DATA 00,85,FB,84,FA,A2
```


,0A,86,FE,A9,AF,85,FC,
A9,1E,CE
XA 1400 DATA 85,FD,A5,BA,20,3E
,E3,A9,6F,20,D2,E4,A9,
4D,20,26
BH 1410 DATA 03,E5,A9,2D,20,03
,E5,A9,57,20,03,E5,A5,
FA,20,8D
DH 1420 DATA 03,E5,A5,FB,20,03
,E5,A9,20,20,03,E5,A0,
00,B1,B2
EF 1430 DATA FC,20,03,E5,C8,C0
,20,90,F6,20,26,E5,18,
A5,FC,16
EE 1440 DATA 69,20,85,FC,90,02
,E6,FD,18,A5,FA,69,20,
85,FA,3E
RR 1450 DATA 90,02,E6,FB,C6,FE
,D0,AF,4C,E7,FF,4C,46,
05,20,9F
CJ 1460 DATA C2,05,20,7C,87,A2
,00,86,0B,A2,24,86,0A,
AD,02,22
BD 1470 DATA 02,85,1F,F0,08,A9
,B0,85,02,A5,02,30,FC,
A2,01,F4
CR 1480 DATA 86,0A,A9,E0,85,02
,A5,02,30,FC,C9,02,90,
03,4C,1D
HG 1490 DATA 0A,E6,20,05,F0,A9
,24,A6,1F,F0,02,A9,47,
A0,07,20
RR 1500 DATA 8C,7A,02,4C,73,A7
,AD,00,1C,29,10,D0,05,
A9,08,F6
SM 1510 DATA 4C,B5,99,A9,60,85
,20,A5,0A,85,51,85,67,
20,4B,24
MG 1520 DATA F2,85,43,20,50,06
,A5,1F,F0,10,20,F8,93,
18,A5,5C
BR 1530 DATA 51,69,23,85,51,20
,50,06,20,F5,93,A6,0A,
E8,E0,49
AG 1540 DATA 24,D0,12,86,14,20
,E7,87,C6,14,D0,F9,A2,
12,86,0B
PG 1550 DATA 0A,A9,01,4C,B5,99
,86,0A,BD,08,94,85,44,
AD,00,AD
GP 1560 DATA 1C,29,9F,05,44,8D
,00,1C,20,DF,87,20,DF,
87,A5,87
HJ 1570 DATA 1F,D0,03,4C,46,05
,C6,64,C6,64,20,F8,93,
20,DF,87
JC 1580 DATA 87,20,DF,87,20,F5
,93,4C,46,05,20,FE,05,
A9,E9,01
RC 1590 DATA A0,06,8D,77,07,8C
,78,07,A9,01,8D,CD,06,
A9,0A,79
HQ 1600 DATA 8D,20,06,A9,08,8D
,26,06,A9,C5,A0,07,8D,
B9,07,7F
PX 1610 DATA 8C,BA,07,A9,60,8D
,EE,07,AD,03,02,D0,05,
A9,4C,54

KX 1620 DATA 8D,9A,07,60,B1,14
,91,2C,C8,60,AD,04,02,
AC,05,9C
AM 1630 DATA 02,85,12,84,13,A9
,93,A0,9B,85,14,84,15,
A9,06,88
DC 1640 DATA A0,50,85,2D,84,2C
,A0,00,20,F8,05,D0,FB,
E6,15,D5
FF 1650 DATA E6,2D,20,F8,05,C0
,9E,D0,F9,60,00,00,00,
00,00,B7

Mahmood Hasan Merchant is an economics student at the London School of Economics and Political Science. He is from Pakistan. □

TYPING AIDS

MLX, the machine language entry program for the 64 and 128, and *The Automatic Proofreader* are utilities that help you type in Gazette programs without making mistakes. These labor-saving utilities are on each Gazette Disk and printed in issues of Gazette through June 1990.

If you don't have access to a back issue or to one of our disks, write and we'll send you free copies of both of these handy utilities. We'll also include instructions on how to type in Gazette programs. Please enclose a self-addressed, stamped envelope. Write to Typing Aids, COMPUTE's Gazette, 324 West Wendover Avenue, Greensboro, North Carolina 27408.

Gazette is looking for utilities, games, applications, educational programs, and tutorial articles. If you've created a program that you think other readers might enjoy or find useful, send it on disk to

Gazette Submissions Reviewer
COMPUTE Publications
324 W. Wendover Ave.
Ste. 200
Greensboro, NC 27408

Please enclose an SASE if you wish to have the materials returned.

ONLY ON DISK

In addition to the type-in programs found in each issue of the magazine, Gazette Disk offers bonus programs and original 64 and 128 artwork. Here are the programs featured this month.

Super Cataloguer 128

Diego Martin Zamboni
Mexico City, Mexico

Catalogue all of your software (up to 2500 titles) quickly and easily with this outstanding utility for the 128. An 80-column monitor is required.

Read a disk directory, select which files you wish to add to the list, and then save them, sort them, search through them, and delete names at the touch of a key. If you can't recall the contents of a file, the program will list it to the screen. It even works with sequential, user, and relative files.

Super Cataloguer 128 is also a great disk manager. You can edit filenames and delete files, whole disks, or even portions of disks. The program provides memory information, prints lists in several modes, and much more. This is one utility all 128 users should have.

Spanish Vocabulary Quiz

Christopher M. Stoy
Edensburg, PA

To help you use *Spanish Vocabulary Quiz*, one of this issue's type-in programs, see page G-25, we have included ten vocabulary files, containing dozens of English words and their Spanish equivalents. Load and use any of these files from the program's main menu.

Machine Language Entry Program for Commodore 64

Ottis R. Cowper

Type in and save some copies of *MLX*—you'll want to use it to enter future ML programs from *Gazette*. When you're ready to enter an ML program, load and run *MLX*. It asks you for a starting address and an ending address. These addresses appear in the article accompanying the *MLX*-format program listing you're typing.

If you're unfamiliar with machine language, the addresses (and all other values you enter in *MLX*) may appear strange. Instead of the usual decimal numbers you're accustomed to, these numbers are in *hexadecimal*—a base 16 numbering system commonly used by ML programmers. Hexadecimal—hex for short—includes the numerals 0–9 and the letters A–F. But even if you know nothing about ML or hex, you should have no trouble using *MLX*.

After you've entered the starting and ending addresses, you'll be offered the option of clearing the workspace. Choose this option if you're starting to enter a new listing. If you're continuing a listing that's partially typed from a previous session, don't choose this option. A functions menu will appear. The first option in the menu is Enter Data. If you're just starting to type in a program, pick this. Press the E key and type the first number in the first line of the program listing. If you've already typed in part of a program, type the line number where you stopped typing at the end of the previous session (be sure to load the partially completed program before you resume entry). In any case, make sure the address you enter corresponds to the address of a line in the listing you are entering. Otherwise, you'll be unable to enter the data correctly. If you pressed E by mistake, you can return to the command menu by pressing Return alone when asked for the address. (You can get back to the menu from most options in the program by pressing Return with no other input.)

Entering a Listing

Once you're in Enter mode, *MLX* prints the address for each program line for you. You then type in all nine numbers on that line, beginning with the first two-digit number after the colon (:). Each line represents eight data bytes and a checksum. Although an

MLX-format listing appears similar to the "hex dump" listings from a machine language monitor program, the extra checksum number on the end allows *MLX* to check your typing.

When you enter a line, *MLX* recalculates the checksum from the eight bytes and the address and compares this value to the number from the ninth column. If the values match, you'll hear a bell tone, the data will be added to the workspace area, and the prompt for the next line of data will appear. But if *MLX* detects a typing error, you'll hear a low buzz and see an error message. The line will then be re-displayed for editing.

Invalid Characters Banned

Only a few keys are active while you're entering data, so you may have to unlearn some habits. You *do not* type spaces between the columns; *MLX* automatically inserts these for you. You *do not* press Return after typing the last number in a line; *MLX* automatically enters and checks the line after you type the last digit.

64 MLX Keypad

7	8	9	0
4 U	5 I	6 O	F P
1 J	2 K	3 L	E :
A M	B ,	C .	D /
0 Space			

Only the numerals 0–9 and the letters A–F can be entered. If you press any other key (with some exceptions noted below), you'll hear a warning buzz. To simplify typing, a numeric keypad function is included. The keypad is active only while entering data. Addresses must be entered with the normal letter and number keys. The figure below shows the keypad configuration. *MLX* checks for transposed charac-

ters. If you're supposed to type in A0 and instead enter 0A, *MLX* will catch your mistake. There is one error that can slip past *MLX*: Because of the checksum formula used, *MLX* won't notice if you accidentally type FF in place of 00, and vice versa. And there's a very slim chance that you could garble a line and still end up with a combination of characters that adds up to the proper checksum. However, these mistakes should not occur if you take care while entering data.

Editing Features

To correct typing mistakes before finishing a line, use the Inst/Del key to delete the character to the left of the cursor. If you mess up a line badly, press Clr/Home to start the line over. The Return key is also active, but only before any data is typed on a line. Pressing Return at this point returns you to the command menu. After you type a character, *MLX* disables Return until the cursor returns to the start of a line. Remember, press Clr/Home to quickly get to a line-number prompt. To make corrections in a line that *MLX* has redisplayed for editing, compare the line on the screen with the one printed in the listing and then move the cursor to the mistake and type the correct key. The cursor-left and -right keys provide the normal cursor controls. (The Inst/Del key now works as an alternative cursor-left key.) You cannot move left beyond the first character in the line. If you try to move beyond the rightmost character, you'll reenter the line. During editing, Return is active; pressing it tells *MLX* to recheck the line. You can press the Clr/Home key to clear the entire line if you want to start from scratch or if you want to get to a line-number prompt to use Return to get back to the menu.

Display Data

The second menu choice, Display Data, examines memory and shows the contents in the same format as the program listing (including the checksum). When you press D, *MLX* asks you for a starting address. Be sure that the starting address you give corresponds to a line number in the listing. Otherwise, the checksum display will be meaningless. *MLX* displays program lines until it reaches the end of the program, at

which point the menu is redisplayed. You can pause the display by pressing the space bar. (MLX finishes printing the current line before halting.) Press the space bar again to restart the display. To break out of the display and get back to the menu before the ending address is reached, press Return.

Other Menu Options

Two more menu selections let you save programs and load them back into the computer. These are Save File and Load File. When you press S or L, MLX asks you for the filename. You'll then be asked to press either D or T to select disk or tape.

You'll notice the disk drive starting and stopping several times during a load or save. This is normal behavior. MLX opens and reads from or writes to the file instead of using the usual LOAD and SAVE commands. Also note that the drive prefix O: is added to the filename (line 750), so this should not be included when entering the name. This also precludes the use of @ for save-with-replace, so be sure to give each version saved a different name.

Remember that MLX saves the entire workspace area from the starting address to the ending address, so the save or load may take longer than you might expect if you've entered only a small amount of data from a long listing. When you're saving a partially completed listing, make sure to note the address where you stopped typing.

MLX reports the standard disk or tape error messages if any problems are detected during the save or load. It also has three special load error messages: INCORRECT STARTING ADDRESS, which means the file you're trying to load does not have the starting address you specified when you ran MLX; LOAD ENDED AT address, which means the file you're trying to load ends before the ending address you specified when you started MLX; and TRUNCATED AT ENDING ADDRESS, which means the file you're trying to load extends beyond the ending address you specified when you started MLX. If you see one of these messages and feel certain that you've loaded the right file, exit and rerun MLX, being careful to enter the correct starting

and ending addresses.

The Quit menu option has the obvious effect—it stops MLX and enters BASIC. The Run/Stop key is disabled, so the Q option lets you exit the program without turning off the computer. (Of course, Run/Stop—Restore also gets you out.) You'll be asked for verification; press Y to exit to BASIC, or press any other key to return to the menu. After quitting, you can type RUN again and reenter MLX without losing your data, as long as you don't use the Clear Workspace option.

The Finished Product

When you've finished typing all the data for an ML program and saved your work, you're ready for the results. Refer to the corresponding article for details on loading and running the program.

An Ounce of Prevention

Don't take chances—use *The Automatic Proofreader* to type the new MLX, and then test your copy thoroughly before first using it to enter any significant amount of data. Make sure all the menu options work as they should. Enter fragments of the program starting at several different addresses; then use the display option to verify that the data has been entered correctly. Test the save and load options to ensure that you can recall your work from disk.

64 MLX

```
SS 100 REM VERSION 1.1: LINES 8
      30,950 MODIFIED, LINES 4
      85-487 ADDED
EK 100 POKE 56,50:CLR:DIM IN$,
      I,J,A,B,A$,B$,A(7),N$
DM 110 C4=48:C6=16:C7=7:Z2=2:Z
      4=254:Z5=255:Z6=256:Z7=
      127
CJ 120 FA=PEEK(45)+Z6*PEEK(46):
      BS=PEEK(55)+Z6*PEEK(56)
      H$="0123456789ABCDEF"
SB 130 R$=CHR$(13):L$="{LEFT}"
      S$=" ":D$=CHR$(20):Z$=
      CHR$(0):T$="{13 RIGHT}"
CQ 140 SD=54272:FOR I=SD TO SD
      +23:POKE I,0:NEXT:POKE
      {SPACE}SD+24,15:POKE 78
      8,52
FC 150 PRINT "{CLR}"CHR$(142)CH
      R$(8):POKE 53280,15:POK
      E 53281,15
EJ 160 PRINT T$ "{RED}"{RVS}
      {2 SPACES}{8 @}
```

```
{2 SPACES}"SPC(28)"
{2 SPACES}{OFF}{BLU} ML
X II {RED}{RVS}
{2 SPACES}"SPC(28)"
{12 SPACES}{BLU}"
FR 170 PRINT "{3 DOWN}
      {3 SPACES}COMPUTE!'S MA
      CHINE LANGUAGE EDITOR
      {3 DOWN}"
JB 180 PRINT "{BLK}STARTING ADD
      RESS{4}";:GOSUB300:SA=A
      D:GOSUB1040:IF F THEN18
      0
GF 190 PRINT "{BLK}{2 SPACES}EN
      DING ADDRESS{4}";:GOSUB
      300:EA=AD:GOSUB1030:IF
      {SPACE}F THEN190
KR 200 INPUT "{3 DOWN}{BLK}CLEA
      R WORKSPACE [Y/N]{4}";A
      $:IF LEFT$(A$,1)<>"Y"TH
      EN220
PG 210 PRINT "{2 DOWN}{BLU}WORK
      ING...";:FORI=BS TO BS+
      EA-SA+7:POKE I,0:NEXT:P
      RINT"DONE"
DR 220 PRINTTAB(10)"{2 DOWN}
      {BLK}{RVS} MLX COMMAND
      {SPACE}MENU {DOWN}{4}";
      PRINT T$ "{RVS}E{OFF}NTE
      R DATA"
BD 230 PRINT T$ "{RVS}D{OFF}ISP
      LAY DATA":PRINT T$
      {RVS}L{OFF}OAD FILE"
JS 240 PRINT T$ "{RVS}S{OFF}AVE
      FILE":PRINT T$ "{RVS}Q
      {OFF}UIT{2 DOWN}{BLK}"
JH 250 GET A$:IF A$=N$ THEN250
HK 260 A=0:FOR I=1 TO 5:IF A$=
      MID$( "EDLSQ",I,1) THEN A
      =I:I=5
FD 270 NEXT:ON A GOTO420,610,6
      90,700,280:GOSUB1060:GO
      TO250
EJ 280 PRINT "{RVS} QUIT ":INPU
      T "{DOWN}{4}ARE YOU SURE
      [Y/N]";A$:IF LEFT$(A$,
      1)<>"Y" THEN220
EM 290 POKE SD+24,0:END
JX 300 IN$=N$:AD=0:INPUTIN$:IF
      LEN(IN$)<>4 THENRETURN
KF 310 B$=IN$:GOSUB320:AD=A:B$
      =MID$(IN$,3):GOSUB320:A
      D=AD*256+A:RETURN
PP 320 A=0:FOR J=1 TO 2:A$=MID
      $(B$,J,1):B=ASC(A$)-C4+
      (A$>"@")*C7:A=A*C6+B
JA 330 IF B<0 OR B>15 THEN AD=
      0:A=-1:J=2
GX 340 NEXT:RETURN
CH 350 B=INT(A/C6):PRINT MID$(
      H$,B+1,1);:B=A-B*C6:PRI
      NT MID$(H$,B+1,1);:RETU
      RN
RR 360 A=INT(AD/Z6):GOSUB350:A
      =AD-A*Z6:GOSUB350:PRINT
      " ";
BE 370 CK=INT(AD/Z6):CK=AD-Z4*
```



```

CK+Z5*(CK>Z7):GOTO390
PX 380 CK=CK*Z2+Z5*(CK>Z7)+A
JC 390 CK=CK+Z5*(CK>Z5):RETURN
QS 400 PRINT"{DOWN}STARTING AT
{4}";:GOSUB300:IF INS<>
NS THEN GOSUB1030:IF F
{SPACE}THEN400
EX 410 RETURN
HD 420 PRINT"{RVS} ENTER DATA
{SPACE}":GOSUB400:IF IN
S=NS THEN220
JK 430 OPEN3,3:PRINT
SK 440 POKE198,0:GOSUB360:IF F
THEN PRINT INS:PRINT"
{UP}{5 RIGHT}";
GC 450 FOR I=0 TO 24 STEP 3:BS
=SS:FOR J=1 TO 2:IF F T
HEN BS=MIDS(INS,I+J,1)
HA 460 PRINT"{RVS}"BSL$;:IF I<
24THEN PRINT"{OFF}";
HD 470 GET AS:IF AS=NS THEN470
FK 480 IF(AS>"/"ANDAS<"")OR(AS
>"@ANDAS<"G")THEN540
GS 485 A=- (AS="M")-2*(AS=",")-
3*(AS=".")-4*(AS="/" )-5
*(AS="J")-6*(AS="K")
FX 486 A=A-7*(AS="L")-8*(AS=":
")-9*(AS="U")-10*(AS="I
")-11*(AS="O")-12*(AS="
P")
CM 487 A=A-13*(AS=SS):IF A THE
N AS=MIDS("ABCD123E456F
0",A,1):GOTO 540
MP 490 IF AS=RS AND((I=0)AND(J
=1)OR F)THEN PRINT BS;:
J=2:NEXT I=24:GOTO550
KC 500 IF AS="HOME" THEN PRIN
T BS:J=2:NEXT I=24:NEX
T:F=0:GOTO440
MX 510 IF(AS="{RIGHT}")ANDF TH
ENPRINT BSL$;:GOTO540
GK 520 IF AS<>L$ AND AS<>D$ OR
((I=0)AND(J=1))THEN GOS
UB1060:GOTO470
HG 530 AS=LS+SS+LS:PRINT BSL$;
:J=2-J:IF J THEN PRINT
{SPACE}L$;:I=I-3
QS 540 PRINT AS;:NEXT J:PRINT
{SPACE}SS;
PM 550 NEXT I:PRINT:PRINT"{UP}
{5 RIGHT}";:INPUT#3,INS
:IF INS=NS THEN CLOSE3:
GOTO220
QC 560 FOR I=1 TO 25 STEP3:BS=
MIDS(INS,I):GOSUB320:IF
I<25 THEN GOSUB380:A(I
/3)=A
PK 570 NEXT:IF A<>CK THEN GOSU
B1060:PRINT"{BLK}{RVS}
{SPACE}ERROR: REENTER L
INE {4}":F=1:GOTO440
HJ 580 GOSUB1080:B=BS+AD-SA:FO
R I=0 TO 7:POKE B+I,A(I
):NEXT
QQ 590 AD=AD+8:IF AD>EA THEN C
LOSE3:PRINT"{DOWN}{BLU}
** END OF ENTRY **{BLK}
{2 DOWN}":GOTO700
GQ 600 F=0:GOTO440
QA 610 PRINT"{CLR}{DOWN}{RVS}
{SPACE}DISPLAY DATA ":G
OSUB400:IF INS=NS THEN2
20
RJ 620 PRINT"{DOWN}{BLU}PRESS:
{RVS}SPACE{OFF} TO PAU
SE, {RVS}RETURN{OFF} TO
BREAK{4}{DOWN}"
KS 630 GOSUB360:B=BS+AD-SA:FOR
I=BTO B+7:A=PEEK(I):GOS
UB350:GOSUB380:PRINT SS
;
CC 640 NEXT:PRINT"{RVS}";:A=CK
:GOSUB350:PRINT
KH 650 F=1:AD=AD+8:IF AD>EA TH
ENPRINT"{DOWN}{BLU}** E
ND OF DATA **":GOTO220
KC 660 GET AS:IF AS=RS THEN GO
SUB1080:GOTO220
EQ 670 IF AS=SS THEN F=F+1:GOS
UB1080
AD 680 ONFGOTO630,660,630
CM 690 PRINT"{DOWN}{RVS} LOAD
{SPACE}DATA ":OP=1:GOTO
710
PC 700 PRINT"{DOWN}{RVS} SAVE
{SPACE}FILE ":OP=0
RX 710 INS=NS:INPUT"{DOWN}FILE
NAME{4}";:INS:IF INS=NS
{SPACE}THEN220
PR 720 F=0:PRINT"{DOWN}{BLK}
{RVS}T{OFF}APE OR {RVS}
D{OFF}ISK: {4}";
FP 730 GET AS:IF AS="T"THEN PR
INT"T{DOWN}":GOTO880
HQ 740 IF AS<>"D"THEN730
HH 750 PRINT"D{DOWN}":OPEN15,8
,15,"I0":B=EA-SA:INS="
0":+INS:IF OP THEN810
SQ 760 OPEN 1,8,8,INS+"P,W":G
OSUB860:IF A THEN220
FJ 770 AH=INT(SA/256):AL=SA-(A
H*256):PRINT#1,CHR$(AL)
;CHR$(AH);
PE 780 FOR I=0 TO B:PRINT#1,CH
R$(PEEK(BS+I));:IF ST T
HEN800
FC 790 NEXT:CLOSE1:CLOSE15:GOT
O940
GS 800 GOSUB1060:PRINT"{DOWN}
{BLK}ERROR DURING SAVE:
{4}":GOSUB860:GOTO220
MA 810 OPEN 1,8,8,INS+"P,R":G
OSUB860:IF A THEN220
GE 820 GET#1,AS,BS:AD=ASC(AS+Z
$)+256*ASC(BS+Z$):IF AD
<>SA THEN F=1:GOTO850
RX 830 FOR I=0 TO B:GET#1,AS:P
OKE BS+I,ASC(AS+Z$):IF(
I<>B)AND ST THEN F=2:AD
=I:I=B
FA 840 NEXT:IF ST<>64 THEN F=3
FQ 850 CLOSE1:CLOSE15:ON ABS(F
>0)+1 GOTO960,970
SA 860 INPUT#15,A,AS:IF A THEN
CLOSE1:CLOSE15:GOSUB10
60:PRINT"{RVS}ERROR: "A
$
GQ 870 RETURN
EJ 880 POKE183,PEEK(FA+2):POKE
187,PEEK(FA+3):POKE188,
PEEK(FA+4):IFOP=0THEN92
0
HJ 890 SYS 63466:IF(PEEK(783)A
ND1)THEN GOSUB1060:PRIN
T"{DOWN}{RVS} FILE NOT
{SPACE}FOUND ":GOTO690
CS 900 AD=PEEK(829)+256*PEEK(8
30):IF AD<>SA THEN F=1:
GOTO970
SC 910 A=PEEK(831)+256*PEEK(83
2)-1:F=F-2*(A<EA)-3*(A
>EA):AD=A-AD:GOTO930
KM 920 A=SA:B=EA+1:GOSUB1010:P
OKE780,3:SYS 63338
JF 930 A=BS:B=BS+(EA-SA)+1:GOS
UB1010:ON OP GOTO950:SY
S 63591
AE 940 GOSUB1080:PRINT"{BLU}**
SAVE COMPLETED **":GOT
O220
XP 950 POKE147,0:SYS 63562:IF
{SPACE}ST>0 THEN970
FR 960 GOSUB1080:PRINT"{BLU}**
LOAD COMPLETED **":GOT
O220
DP 970 GOSUB1060:PRINT"{BLK}
{RVS}ERROR DURING LOAD:
{DOWN}{4}":ON F GOSUB98
0,990,1000:GOTO220
PP 980 PRINT"INCORRECT STARTIN
G ADDRESS (":GOSUB360:
PRINT")":RETURN
GR 990 PRINT"LOAD ENDED AT ";:
AD=SA+AD:GOSUB360:PRINT
DS:RETURN
FD 1000 PRINT"TRUNCATED AT END
ING ADDRESS":RETURN
RX 1010 AH=INT(A/256):AL=A-(AH
*256):POKE193,AL:POKE1
94,AH
FF 1020 AH=INT(B/256):AL=B-(AH
*256):POKE174,AL:POKE1
75,AH:RETURN
FX 1030 IF AD<SA OR AD>EA THEN
1050
CR 1040 IF (AD>511 AND AD<6528
0) THEN GOSUB1080: F=0
: RETURN
HC 1050 GOSUB1060:PRINT"{RVS}
{SPACE}INVALID ADDRESS
{DOWN}{BLK}":F=1:RETU
RN
AR 1060 POKE SD+5,31:POKE SD+6
,208:POKE SD,240:POKE
{SPACE}SD+1,4:POKE SD+
4,33
DX 1070 FOR S=1 TO 100:NEXT:GO
TO1090
PF 1080 POKE SD+5,8:POKE SD+6,
240:POKE SD,0:POKE SD+
1,90:POKE SD+4,17
AC 1090 FOR S=1 TO 100:NEXT:PO
KE SD+4,0:POKE SD,0:PO
KE SD+1,0:RETURN

```


REVIEWS

Take a sneak peek at what's up in *The Treehouse*, get the jump on *Reader Rabbit II*, and peruse in-depth reviews of many more.

THE TREEHOUSE

Once your child encounters *The Treehouse*, Brøderbund Software's excellent follow-up to the award-winning *Playroom*, the fun and learning start right away. An interactive chalkboard boasts six-color click-and-drag drawing capability. A small clock tells time. But besides these surprises, you get four detailed games.

Unlike anything else for kids, *Treehouse*'s music synthesizer screen displays an orchestra pit with illustrations and simple descriptions of the instruments. The program also plays a sample note from each instrument. But this is no simple play-back machine. It's truly interactive and inspired. Children can store songs in a song-book and print them out, look at a few notes, or read two lines of music. They can choose which instrument will play their music, with such exotic choices as bottles and kazoes. Best of all, children can write music by selecting note and rest length and then clicking on a piano key.

In addition, *Treehouse* includes a very clever music maze game that plays simple musical phrases (two or three notes) and then requires you to pick the correct one out of four options. A correct choice earns a note, and completion of the maze is rewarded with a song.

Another *Treehouse* game teaches counting, with chips or cash as options. The third part consists of an animal guessing game, which teaches deductive reasoning, and an animated puppet theater that encourages storytelling. All of the games boast excellent graphics and sound. The synthesized music especially is very true to life, provided you have an

Ad Lib or Sound Blaster card.

The Treehouse should be on store shelves by early autumn. Get your copy before the leaves begin to fall.

BETH ANN MURRAY



Give your child an educational boost with an entertaining visit to this arboreal playroom.



Reader Rabbit II playfully teaches youngsters word association.

Scheduled Release: October 1991
IBM PC and compatibles, 512K RAM
for CGA, 640K for VGA; hard drive optional, supports mouse, supports Ad Lib, Sound Blaster, Sound Master, and Tandy 3-voice sound—\$59.95

BRØDERBUND SOFTWARE
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3500

Circle Reader Service Number 350

READER RABBIT II

This excellent successor to *Reader Rabbit* combines whimsy and word skills in just the right measure to keep your child interested

and words that begin or end with two-letter blends (like *match*). Help your bunny pal and his mole miner friends put together words and fill a rail car with word crystals. Youngsters will enjoy the rewards of collecting the crystals, and they will begin to recognize the relationships that lead to a more complex vocabulary.

A second game, *Vowel Pond*, teaches long and short vowel sounds in the guise of a happy fishing trip. Help Reader Rabbit net a day's catch by identifying words that match a particular vowel sound. For extra assistance, children will also see a word that matches the appropriate vowel sound. For instance, if they are looking for words that contain a short *u*, they'll see the word *stuff*. As a parade of fish swim by, the player must select the ones that carry the appropriate-sounding word emblazoned on their sides. Pick the correct fish, and it goes into the net; pick the wrong fish, and it's the one that gets away.

Another word sound game, *Match Patch*, asks kids to identify word patterns and associations. These include simple rhymes among words that share the same letters (like *pat* and *fat*), word opposites (like *find* and *lose*), homonyms (like *to* and *too*), and harder rhymes among words that share the same sound but not the same letters (like *time* and *rhyme*). Each of these levels draws upon different vocabulary and pattern recognition skills.

Rounding out this rollicking rabbitry foursome is *Alphabet Dance*, which teaches word order. This is an essential skill necessary for sorting and for working with alphabetized lists and references like

and learning. The entire game has fantastic graphics appeal, and its fanciful demeanor hides, but doesn't detract from, its educational content.

Reader Rabbit II consists of four games, all designed for early readers. The first, *Word Mine*, teaches the formation of compound words

dictionaries. The game takes place at a barn dance. The object is to line up the dancing partners as directed. Start out with simple first-letter ordering among words that directly follow one another (like *Frank*, *Gertrude*, *Harvey*, and *Ismelda*), and move on to harder groups that don't follow in direct sequence (like *Alfred*, *Karen*, *Paul*, and *Yolanda*). For more of a challenge, kids can order names according to the second letter in the name, and by the first and second letters in the name. Each successive level builds upon the skill learned from the level before. For assistance, a list of the alphabet appears at the top of the screen disguised as a banner above the dance floor.

Aimed at a slightly older audience (from five to eight years of age) than its predecessor, *Reader Rabbit II* promises to be as much a classic as the original *Reader Rabbit*. Even in this video age, word skills are as important as ever. Here's a chance to give your kids a head start or to reinforce what they're learning in the classroom.

PETER SCISCO

Scheduled Release: August 1991
IBM PC and compatibles, 512K RAM
(640K required for Tandy 16-color
graphics)—\$59.95

THE LEARNING COMPANY
6493 Kaiser Dr.
Fremont, CA 94555
(800) 852-2255

Circle Reader Service Number 351

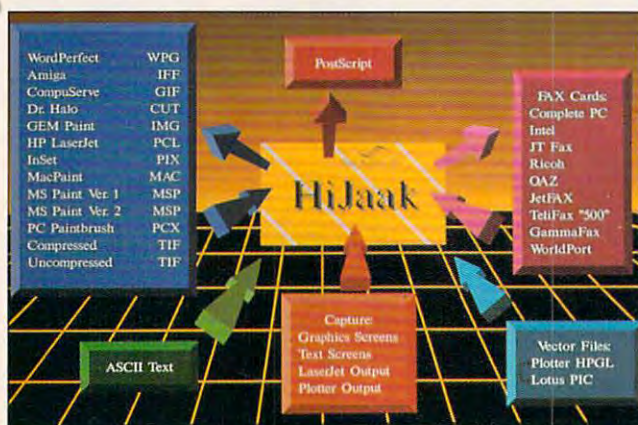
HIJAAK

Tame the Tower of Babel that PC graphics formats have become—that's the goal of *HiJaak*, an all-purpose graphics-translation program and unparalleled

screen-capture utility. Despite a buggy user interface and lack of a screen-preview program, its reasonable price and encyclopedic list of both raster and vector formats make it a formidable product.

HiJaak's installation program is a little terse, with no options and no explanation of its functions. It doesn't tell

TSR mode requires three other programs: RPM.EXE, LOADRPM.COM, FREERPM.COM, as well as *HiJaak* itself. RPM is the Resident Process Manager, which serves as a sort of master menu to save screens, print them, or run *HiJaak*. LOADRPM turns RPM and *HiJaak* into memory-resident programs. FREERPM re-



Through myriad options, *HiJaak* renders almost all graphics formats accessible.

you that an installation is successful, and it doesn't start *HiJaak* or mention that you must choose a configuration from the main menu the first time that you run it (although the manual's instructions make this very clear). The program takes up about 1.5 megs of disk space and requires 320K of free RAM, or 5K of RAM if run in TSR mode, which uses the hard disk to hold the foreground application at bay temporarily. *HiJaak* loses no features in TSR mode, so actually only 5K of RAM is needed to run it, albeit with a performance penalty exacted in more disk accesses.

HiJaak can be run completely in TSR mode and is not limited to the screen-capture utility in this mode. That's the good news. The bad news is that running in

moves everything from memory. I'd much prefer that all of these functions be rolled into *HiJaak* itself. And I'm sure inexperienced users would prefer that RPM be described in better detail; the manual gives it short shrift. I had many more problems with RPM than with other TSRs, but it was still useful. I'm especially fond of its ability to save the state of *HiJaak* at any moment, even in the middle of a dialog; I never lost my place when I popped back from the foreground application.

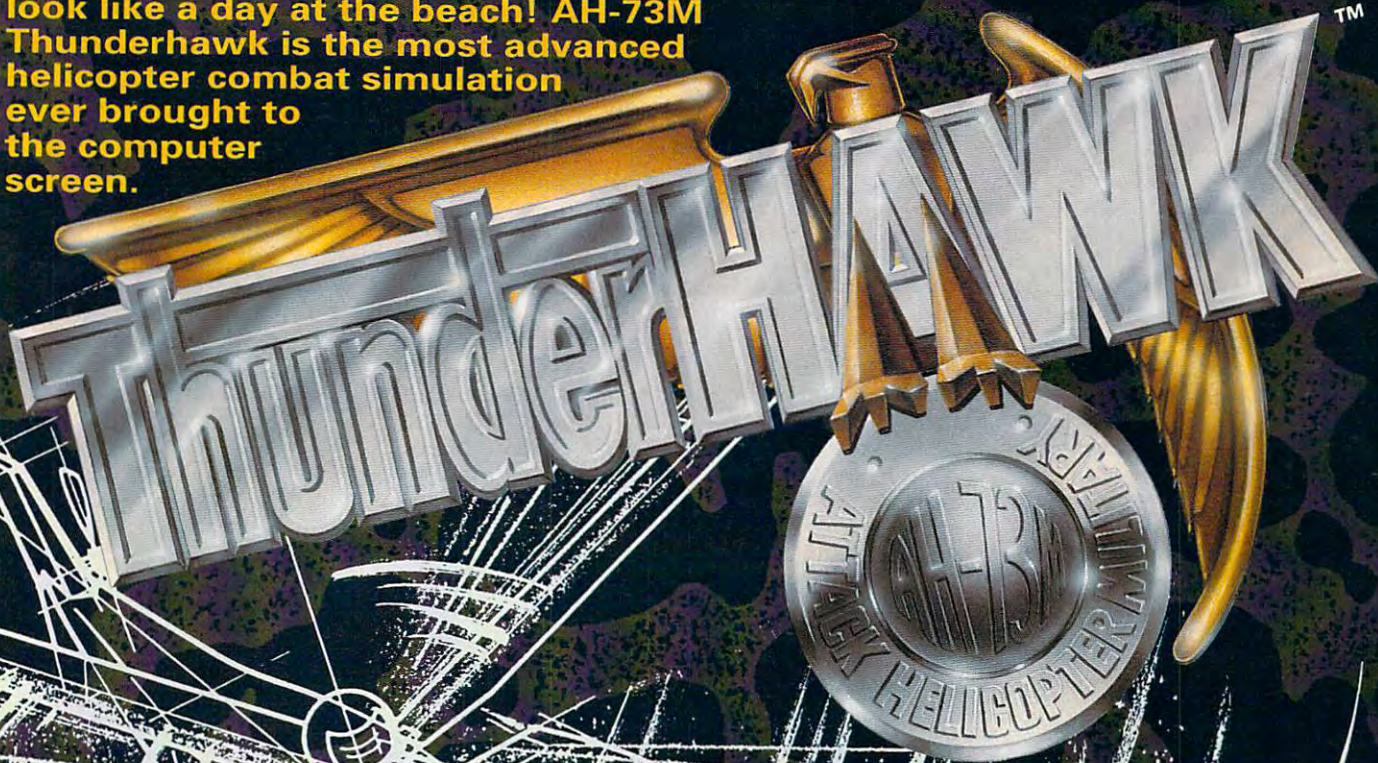
Discussion of RPM is about the only thing the manual stints on, except perhaps for the index (for example, neither *Windows* nor BMP could be found there, even though the program supports *Windows* bitmap files). Otherwise, the manual is a

model of its kind, blessedly covering even the most challenging topics with dogged thoroughness, never underestimating the reader's experience or intelligence. Two other unusual aspects of the manual deserve mention here. An initial chapter titled "Condensed Instructions" allows power users to be up and running quickly and completely explains the support policy. And because of the wild profusion of PC graphics formats, the manual's more-the-merrier approach is welcome; it covers every detail. The section for each graphics format, for example, starts with a box giving the address of the organization that developed it and a Vital Statistics box summarizing answers to the most frequently asked questions about the format.

HiJaak stands out for both its wide variety of supported formats and its world-class screen-capture/print abilities. If you need to produce screen shots for publication or in-house documentation on laser printers, *HiJaak* is the way to go. If you need support for literally every popular graphics format used on the PC, *HiJaak* will do the trick. A partial list of supported formats includes Amiga IFF, ASCII text, *AutoCAD* DXF, CompuServe GIF, GEM metafile and image files, HPGL plotter files, Lotus PIC, *MacPaint*, *MacDraw*, *Windows* metafiles, TIFF, *WordPerfect*, and about 20 fax formats. *HiJaak* offers solid support for translating a large number of files at once. Use the point-and-click interface to queue up several files chosen from a directory list (a mouse is reasonably well supported) or run *HiJaak* from the command line. I found the latter option to be much quicker

THE ULTIMATE FLYING MACHINE...

Congratulations – it's 1995 and you've been selected for the hottest seat in helicopter history: the cockpit of the Pentagon's new AH-73M Thunderhawk™. So zip up your flight suit, adjust your sunglasses, and control your nerves 'cause this one makes Nam look like a day at the beach! AH-73M Thunderhawk is the most advanced helicopter combat simulation ever brought to the computer screen.



Thunderhawk™ soars above the rest with these features:

- A helicopter armed with the latest in weaponry, electronic countermeasures, functioning displays and computer-aided targeting systems.
- Realistic missions involving actual military conflicts and contingency plans.
- A true interactive "world" outside your cockpit, with other locations and characters that respond to your actions.
- Campaign scenarios with a multitude of missions.



Available soon for IBM and Amiga.
Thunderhawk is a trademark of Virgin Games, Inc.
Virgin is a registered trademark of Virgin Enterprises, Ltd.
©1991 Virgin Games and Core Design. All rights reserved.
Virgin Games, Inc. 18061 Fitch Ave.
Irvine, CA 92714 1(800)VRG-INO7

than the new mousing interface—the command line seemed more flexible. Running *HiJaak* from the command line allows you to create a text file containing execution options, but, notably, neither the point-and-click method nor the command line method lets you change settings for different files of the same type. In other words, if you have a group of DXF files you want to convert to CGM format and you want some of them to be translated with gray scaling, others to be translated using full colors, and others to black-and-white only, you must run three separate batches. (Inset promises to address this shortcoming, and *HiJaak* may have these abilities before this review sees print.) Oddly, you can't see any of the files you convert; unlike *ImPort* by Zenographics, *HiJaak* offers no way to see either the input or the output file without firing up a graphics program that can accept that file format.

HiJaak has the rare ability to convert from vector files (such as those produced by CAD and draw programs) to raster format, although not the reverse (by nature, raster-to-vector conversions are exceedingly tricky). This means you can effortlessly move, say, an *AutoCAD* or *Lotus 1-2-3* image into a paint program, such as the *Paintbrush* program that comes with *Windows*. I experienced no problems with such conversions, although I suppose there are some potentially nasty problems with shaded or 3-D *AutoCAD* images.

If you're among the growing number of LaserJet users who have a fax card installed in your PC, you'll appreciate the inclusion of fonts designed for just this purpose. You can mimic or

replace the basic fonts HP supplies on its LaserJets, and the default font is 300 dpi, the same resolution as that of HP laser printers. LaserJet users will also appreciate its brilliant handling of LaserJet soft fonts. You can convert HP soft fonts into a format usable by *HiJaak* for a perfect rendering of the image. I've never seen this ability in any other conversion program, even though HP's font format is well known. *HiJaak* is indispensable for the true LaserJet power user.

A simple *Windows* capture utility lets you snag *Windows* 3.0 images in *HiJaak*'s own file format, which can then be translated into any of the supported output formats. The utility's interface is a bit confusing, and there's no help file, but the manual explains its use well. To activate the utility, choose its Install item, which puts up a dialog box explaining what keys to press. The icon then courteously disappears until you've pressed the hot keys to capture the screen, at which time the capture utility reappears with a request for a filename. That's all there is to it.

However, the conversion process terms both *Windows* and *OS/2 Presentation Manager* BMP files as PM Bitmaps, which isn't very clear. You must choose PM Bitmaps, then select the *Windows* option to get *Windows* bitmap files. Another side note is that *Microsoft Paintbrush* is one of the output options but it doesn't work for the version of *Paintbrush* that comes with *Windows* 3.0. Inset plans a fix. It doesn't matter, though, because the *Paintbrush* in *Windows* 3.0 imports PCX files directly, and *HiJaak* performs flawlessly on PCX files.

HiJaak has a mountain of

options. The conversion dialogs hide them artfully, and the defaults are usually well chosen, so you may never need them. Nonetheless, every input and output option comes with a screenful (or more) of options whenever they're necessary. For example, vector file formats seldom have consistent handling of fonts and typefaces, and *HiJaak* allows you to re-map (change) your typefaces. CGM files, for example, contain only font numbers. Since one person's font 1 might be a Times Roman while another person's might be a Dingbat, font remapping can prove useful.

Colors are another source of disparity. *HiJaak* not only maps color schemes to your satisfaction, but it also has automatic conversions to black-and-white or gray scale—useful shortcuts for owners of fax machines or laser printers.

I called Inset's tech support with a number of problems and was dealt with quickly and reasonably—even on Monday morning, a notoriously difficult time to reach support lines. It's a toll-free call, and Inset charges nothing for its support. The manual promises that, should you call while all technicians are busy, at least one attempt will be made to return your call within an hour. At least three attempts to reach you will be made within "a reasonable period." Further, a ten-page booklet of release notes details shortcomings in both *HiJaak* and the products it supports. This includes work-arounds where the other product is at fault and common pilot errors with CompuServe GIF files. This all amounts to the best support you can get for \$199. I'm very impressed. *HiJaak* is flawed, but neverthe-

less a major achievement. Its features are comprehensive, its uses myriad, and its support so good that even the worst problems I encountered had a satisfactory work-around. That's the sign of a mature and well-developed product, even if it does have a few minor failings.

TOM CAMPBELL

IBM PC and compatibles; 480K RAM; CGA, EGA, MCGA, VGA, or Hercules; hard drive—\$199

INSET SYSTEMS
71 Commerce Dr.
Brookfield, CT 06804-3405
(203) 740-2400 (U.S.)
(800) 828-8088 (outside U.S.)

Circle Reader Service Number 352

THE SECRET OF MONKEY ISLAND

Obviously, *The Secret of Monkey Island* was designed as much for fun as for nail-biting adventure. That it manages to provide a healthy amount of both is testament to the resounding success of its design.

"We believe that you buy games to be entertained, not to be whacked over the head every time you make a mistake," reads the manual to Lucasfilm Games' *The Secret of Monkey Island*. "We think you'd prefer to solve the game's mysteries by exploring and discovering, not by dying a thousand deaths."

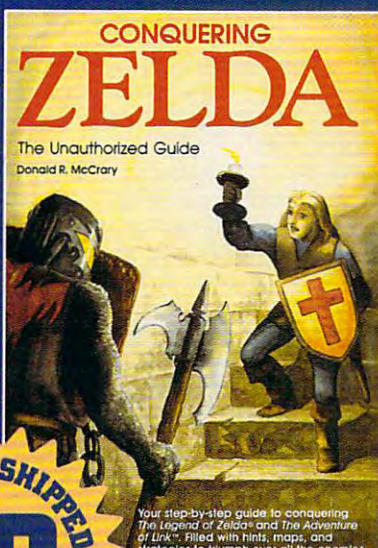
They got that right. Blessed forgiveness is only one of several virtues that make *The Secret of Monkey Island* such a thoroughly delightful adventure game. It loses none of its edge in excitement or challenge by offering multiple chances at success, and in doing so it gains a friendly accessibility that keeps it from becoming frustrating and irritating the

CONQUER NINTENDO®

WITH THESE BOOKS FROM COMPUTE

THE OFFICIAL GUIDE TO MEGA MAN

Defeat the power-mad scientist, Dr. Wily! Make your way through Monsteropolis! Defend all of Mankind! Finally, here it is—the complete playing guide to all three of the best-selling Mega Man games. 144 pages, \$7.95

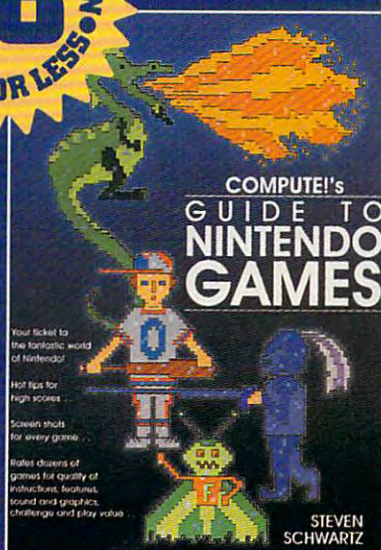


CONQUERING ZELDA: THE UNAUTHORIZED GUIDE

Finally—the hints and techniques you need to conquer two of the most popular Nintendo games. *The Legend of Zelda®* and *The Adventure of Link™*. Step-by-step instructions to rescue the princess! 128 pages, \$7.95

COMPUTE'S NINTENDO SECRETS

More strategies, hints, tips, reviews, and ratings for dozens of the newest, most popular Nintendo games. Maxout scores on Super Mario Bros. 3, Batman, Ninja Gaiden II, and more. 198 + 8 color pages, \$8.95



COMPUTE'S GUIDE TO NINTENDO GAMES

Packed with hints and tips for better play and dozens of reviews of available game cartridges for the Nintendo Entertainment System. 272 pages, \$9.95

ALL ORDERS SHIPPED IN 48 HOURS OR LESS

YES!

☐ I want more hints and tips.

Please send me the books checked below.

- ☐ **COMPUTE's Guide to Nintendo Games (2214) \$9.95**
- ☐ **COMPUTE's Nintendo Secrets (2346) \$8.95**
- ☐ **Conquering Zelda: The Unauthorized Guide (2397) \$7.95**
- ☐ **The Official Guide to Mega Man (2417) \$7.95**

Subtotal

Sales tax (Residents of NC, NY, & NJ add appropriate sales tax. Canadian orders add 7% goods and services tax.)

Shipping and Handling: \$2 per book US; \$4 Canada; \$6 foreign.

Total Enclosed

☐ Check or money order ☐ MC ☐ VISA

Signature _____ (Required)

Acct no. _____ Exp. Date _____

Name _____

Street Address _____ (No P.O. Boxes please)

City _____ State _____ ZIP _____

All orders must be paid in U.S. funds drawn on a U.S. bank. Orders will be shipped via UPS Ground Service. Offer good while supplies last.

**MAIL TO Compute Books
c/o CCC
2500 McClellan Avenue
Pennsauken, NJ 08109**

Nintendo and *The Legend of Zelda* are registered trademarks of Nintendo of America, Inc. *The Adventure of Link* is a trademark of Nintendo of America, Inc.

7G91C

www.commodore.ca

way other adventure games can sometimes be.

The game begins on Melee Island, where amiable goof Guybrush Threepwood has come to seek his fortune by becoming a pirate. The first stop is the Scumm Bar, where Threepwood endures the first of many cracks about his silly name and learns firsthand from three important-looking pirates what he must do to begin a life of robbing and pillaging. In very satisfying detail, the adventure-game hero gets to dish out as many wisecracks as he takes. "You're a bunch of foul-smelling, grog-swilling pigs!" Threepwood can bark at his pirate mentors.

Initially, Threepwood must learn about and complete a series of tasks designed to acquaint him with pirating. These tasks include sword fighting and treasure hunting. Ultimately, he must assemble a crew, obtain a ship, and embark for Monkey Island in search of the secret that gives the game its title. Among other frightful encounters, Threepwood has to outfight Melee Island's hottest sword slinger, outwit a pack of frothing piranha poodles, and navigate a dark, dangerous forest.

Controlled by arrow keys, joystick, or mouse, Threepwood moves briskly through an impressively cinematic graphic landscape. Melee Island's village looks cartoonishly ominous beneath a lovely, star-strewn sky, with shady pirates and their pet rats hanging out or roaming the streets. Back in the island's inner recesses, there's an impressive circus tent glowing with inner light and a dimly lit shipyard called *Stan's Previously Used Vessels*. Unexpected and humorous touches

abound, some cornier than others: "If there's one type of piracy I don't like," says one character, "it's CONS-piracy!"

The Secret of Monkey Island is good fun and may have you laughing as you study to become a high-seas terror, so hoist the main-

essed words found immediate and effective applications for the new technology, composers and performers exploited the artistic power of the new machines just as quickly. Amateurs, too, found that these electronic tools offered them inexpensive ways to pursue music

intervals, using graphic representations of either a piano keyboard or a guitar. You select the desired exercise, listen to the series of notes, and play them back using either the mouse (no option for keyboard control is available) or an actual instrument (if you're connected through a MIDI interface). Or you can identify the chord or interval played from the list of several displayed.

The main screen is divided into several different work areas; pull-down menus present options available for choosing the desired exercise, difficulty level, volume, duration and range of notes, and type of scale or chord played. Once you've chosen an exercise and the combination of musical notes to be classified or repeated has been played, you can choose to hear the phrase again, skip over it, or display the correct answer. Good note/bad note icons track your correct and incorrect answers as you go along, and progress charts can be pulled up at any time to show how you're doing.

Play It by Ear's user interface is sleek. While crowded, the main working screen isn't difficult to navigate. Minimal written documentation is provided, though you likely won't need it if you just take a few minutes to explore the menus and control settings.

Ibis recommends a MIDI interface, but if you're using the program strictly for ear training, it's unnecessary. I tested the program on a bare-bones XT clone with no special sound capabilities, and the notes were clear and recognizable.

At \$99.95, *Play It by Ear* may be more appealing to the aspiring professional than to the novice. If you



A pirate's life means more than grog and doubloons.

sail and post a lookout. For cutlass-swinging adventure, *Monkey Island* is somewhere on your horizon.

EDDIE HUFFMAN

IBM PC and compatibles, 640K RAM, CGA, EGA, MCGA, VGA; hard drive recommended, joystick and mouse optional, supports Roland, Ad Lib, and Sound Blaster sound cards—\$69.95 for VGA, \$59.95 for other versions

LUCASFILM GAMES
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404-2499
(415) 571-7171

Circle Reader Service Number 353

PLAY IT BY EAR

Few professions have embraced the arrival of the personal computer as eagerly and as creatively as musicians. While people who crunched numbers and proc-

as a hobby or to prepare for at least a part-time career.

Three features of personal computers make them good tools for musicians: their sound capabilities, their connections to real musical instruments through MIDI interfaces, and their unlimited patience. A human music teacher can tire quickly of the repetitive drills necessary to train a musician in some of the more elementary aspects of composition and performance; a computer exists to serve the student.

Ibis Software's *Play It by Ear* is an effective training tool for both amateurs and professionals who need to either develop or hone their skills in ear training. The included exercises help you recognize and play back melodies, chords, scales, and in-

want a simple drill-and-practice program that helps you recognize and play back notes on a guitar or piano, though, *Ear's* just right. For more advanced music students who want to train their ears to discern the difference between varying mode scales (Dorian, Phrygian, and so on) or to be able to tell what interval is being played in a chord (triads, 9ths, 11ths), *Play It by Ear* offers this more sophisticated capability, too.

Serious musicians would most likely want to be able to use the program by connecting their computers to an actual instrument through a MIDI interface or to at least broaden the program's usefulness with more enhanced sound capabilities. For people with such aspirations, this program facilitates a basic element of music education and offers a bridge to their real-life musical tools.

KATHY YAKAL

IBM PC and compatibles, 640K RAM, CGA, EGA, or VGA; supports Roland or 100-percent compatible MPU-401 MIDI cards, Ad Lib, Sound Blaster—\$99.95

IBIS SOFTWARE
90 New Montgomery St., Ste. 20
San Francisco, CA 94105
(415) 546-1917

Circle Reader Service Number 354

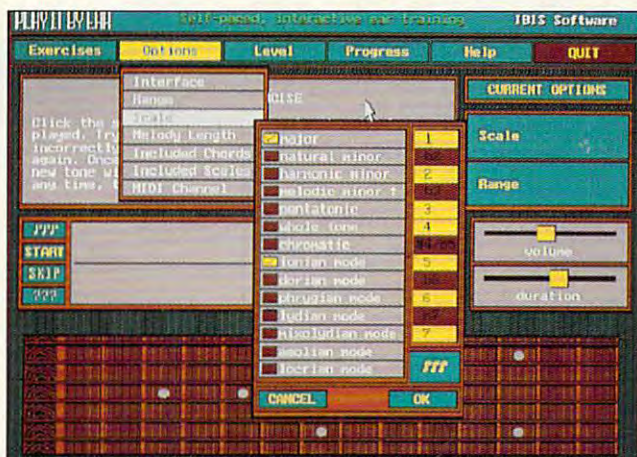
WORD FOR WINDOWS

Imagine the ultimate word-processing software. It would be easy to use, with intuitive commands. It would be so powerful that you'd never run up against a wall creating a complicated document. It would allow you to use graphics and multiple fonts, like your desktop publishing program, but would also keep up with your fastest

typing, like your text editor. A dream word processor? No, it's *Microsoft Word for Windows*.

The original version of *Word* was always respected as a powerful program, but its quirky menu interface gave it something in common with *WordStar*: You ei-

ther loved it or hated it. When I first tried *Word* back in early 1984, I was amazed at the program's power, but the user interface kept getting in my way, and I eventually fell back to a simpler word processor.



Play It by Ear nurtures musical talent.

about 4.5MB of free hard disk space to use the program.

No matter how many features a word processor has, the most important characteristic is ease of basic text editing. *WinWord* excels in this aspect. The program handles even the speediest typing with no discernible lag. Scrolling through documents is faster than I thought possible in a graphics-based word processor; the speed is especially surprising on a 286. You can highlight blocks of text in a snap with the mouse; click once with the left mouse button to start selecting text or twice to select the word under the cursor. Use the right button for columnar operations.

All commands can be accessed using the keyboard or mouse. While I found the program quite usable sans pointing device on my Grid

laptop, I was much more productive using the program with a mouse.

A row of menu items tops the screen, with a control bar called the ribbon and a ruler below that. At the bottom of the screen, a status bar keeps you informed of your current page, line, and column number. You can toggle the ribbon, ruler, and status bar off if you prefer to have the entire screen available for editing text.

Fonts, point sizes, styles, tabs, and spacing can all be adjusted with single operations on the ribbon or ruler. You'll find keyboard equivalents for all icon and menu items, but there are so many choices in *WinWord* that you'll appreciate having rarely used commands on the menu bar. (In fact, there are so many choices that the included keyboard template wouldn't fit above my PC's function keys!) If you do have trouble finding a function, *WinWord's* comprehensive context-sensitive online help is only a keypress away.

WinWord has a plenitude of features to simplify document creation. The one I've used most is the glossary, which lets you abbreviate often-used text. For instance, for this review, I created a glossary item called *ww*, standing for *WinWord*. Whenever I needed *WinWord* in my text, I just typed *ww* and hit F3. The abbreviation expanded out to the full word, complete with italics. You can also store longer blocks of boilerplate text as glossary items, such as addresses or standard greetings.

Style sheets let you record a group of character and paragraph characteristics, assign them a name, and save them. For instance, consider using *WinWord* to create a

laptop, I was much more productive using the program with a mouse.

Fonts, point sizes, styles, tabs, and spacing can all be adjusted with single operations on the ribbon or ruler. You'll find keyboard equivalents for all icon and menu items, but there are so many choices in *WinWord* that you'll appreciate having rarely used commands on the menu bar. (In fact, there are so many choices that the included keyboard template wouldn't fit above my PC's function keys!) If you do have trouble finding a function, *WinWord's* comprehensive context-sensitive online help is only a keypress away.

WinWord has a plenitude of features to simplify document creation. The one I've used most is the glossary, which lets you abbreviate often-used text. For instance, for this review, I created a glossary item called *ww*, standing for *WinWord*. Whenever I needed *WinWord* in my text, I just typed *ww* and hit F3. The abbreviation expanded out to the full word, complete with italics. You can also store longer blocks of boilerplate text as glossary items, such as addresses or standard greetings.

Style sheets let you record a group of character and paragraph characteristics, assign them a name, and save them. For instance, consider using *WinWord* to create a

Style sheets let you record a group of character and paragraph characteristics, assign them a name, and save them. For instance, consider using *WinWord* to create a

newsletter. You could create styles for headlines, sub-heads, body copy, and side-bar text. When you create a new element, you can change font, spacing, style, size, and justification with one operation instead of five. Style sheets can be stored for use in other documents.

Even more comprehensive is *WinWord's* document template feature. Each template can store boiler plate text, style sheets, glossary items, macros, and custom menu and key configurations. The 20+ sample templates included with *WinWord* simplify the creation of articles, legal briefs, brochures, contracts, dissertations, envelopes, form letters, mailing labels, memos, and other documents. They also serve as excellent examples for creating your own glossary items and macros.

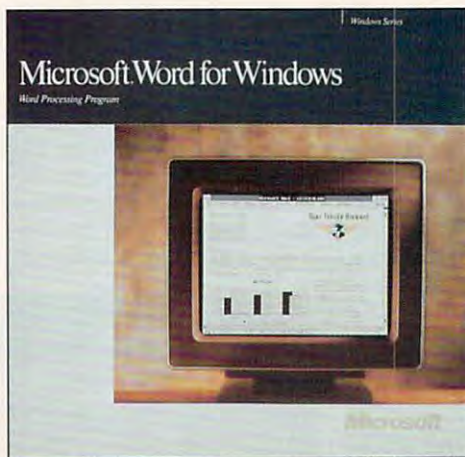
WinWord has the most sophisticated macro facility I've seen in an application program. You can create macros by recording keypresses and menu selections, as in most other programs. However, *WinWord* also has a built-in programming language called WordBASIC that lets you create truly potent macros. You can automate even the most sophisticated operations. For instance, you could create a macro for developing a résumé; that macro would bring up dialog-box requesters asking for each piece of information individually and then assemble them into a formatted résumé. You'll need some programming background to take full advantage of *WinWord's* macro facility, but if you've ever used *Microsoft QuickBASIC*, you'll feel right at home using WordBASIC. Unfortunately, the documentation for WordBASIC isn't in

the manual—you must either print a 77-page document included with the program to get basic documentation or purchase the helpful *Microsoft Word Technical Reference for Windows and OS/2* for \$22.95.

If your needs are fairly simple, you can use *WinWord* as a desktop publishing program. It supports multiple columns (side-by-side or newspaper-style snaking columns) and can insert pictures within your text. Manual kerning gives you DTP-style control over letter spacing. You can directly load TIFF-format graphics or paste them from the clipboard. *WinWord* also supports the DDE (Dynamic Data Exchange) feature of *Windows 3.0*, so you can link a graphic from another DDE-capable program into your document.

If you're using *WinWord* to create documents that will be seen and modified by more than one author, you'll appreciate the program's redlining and annotation features. Redlining allows you to make changes in a document while keeping the original text around for reference (the old text is shown with a line through it). Alternately, you can use the document-compare feature, which will mark any paragraphs that change between two versions of a document. Annotations let you attach comments or suggestions to any block of text. The comment author's initials appear in the text, and the annotation in a window below. You can lock documents so that annotations can be added but no changes can be made in the text.

WinWord has just about every other feature you could want in a word processor. You can automate the



Feature-packed, Word for Windows will satisfy casual and professional writers.

creation of columnar tables, outlines, indexes, and tables of contents. Students and researchers will appreciate the program's footnote and endnote capabilities. *WinWord* will perform math operations on groups of numbers within your text, and you can type mathematical and scientific equations and see them onscreen as they'll look when printed. Other standard functions, such as search and replace, spelling check, and mail merge, work as expected.

Writers will find the online thesaurus invaluable. It not only provides synonyms for the selected word, but it also gives you a choice of definitions for the word in different contexts and lists the part of speech. For instance, different synonyms are given for the word *clear*, depending upon whether you're using it to mean "transparent" or "to remove obstructions from."

If you're moving up to *WinWord* from another word processor or if you share documents with users of other word processors, you'll appreciate its file-conversion features. You can load and save files in DCA, *DisplayWrite*, *MultiMate*, RTF, *Windows Write*, *Word for DOS*,

Word for Macintosh, *WordStar*, *WordPerfect*, and *Works* formats. All but the most esoteric formatting codes are supported, so you should lose little or nothing in the translation.

WinWord uses the standard *Windows* printer drivers, so the quality of its output is excellent overall, but at the same time, dependent upon your printer. Generally, your printer's built-in fonts will look quite good, but the *Windows* system fonts will look rough. If you need to use fonts not resident in your printer, pick up a copy of *Adobe Type Manager*. The print-preview function lets you view single or facing pages before printing. You can choose whether or not to include summary info, annotations, and hidden text in your printed document.

WinWord's documentation lives up to the high standards set by other Microsoft products. A 25-page Getting Started booklet will walk you through installing the program. The 126-page Pocket Guide is a tutorial that will introduce you to *WinWord's* major features. The 475-page User Reference tome lists all the program's functions in alphabetical order, making it a snap to find any feature. Al-

so included is a 90-page Printer Reference Guide and a keyboard template. All the texts are extremely well written—simple enough for the novice but not condescending to the knowledgeable.

I couldn't find anything to complain about in *Word for Windows*, except perhaps the fact that the company doesn't make a version for the Amiga, the other platform I spend much of my time using. Once you've used *WinWord*, other word processors seem like simple text editors in comparison. The only negative aspects are the program's hunger for memory and its sluggish performance on machines slower than 12 MHz. However, those are more the fault of *Windows* than *WinWord* and a small price to pay for versatility and power.

If you're looking for a no-compromise word processor and have the hardware to handle it, *Word for Windows*' herculean features and connectivity with other programs make it the obvious choice for all your text-editing needs.

DENNY ATKIN

IBM PC and compatibles; 1MB RAM (2MB recommended); EGA, VGA, XGA, or 8514; hard drive; 80286 or higher processor—\$495

MICROSOFT
16011 NE 36th Way
Redmond, WA 98073-9717
(800) 426-9400

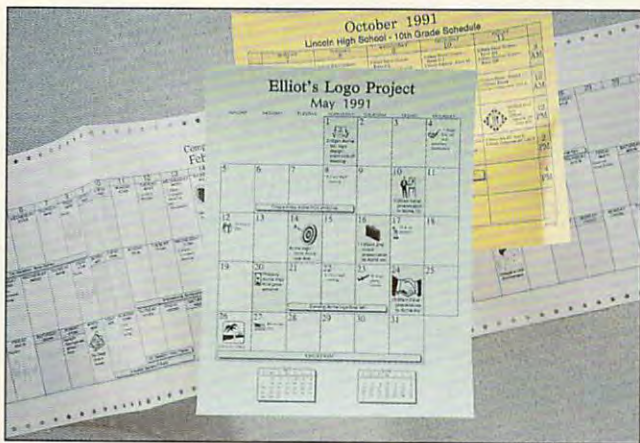
Circle Reader Service Number 355

AIR STRIKE USA

Armchair pilots looking for a simple tactical flight simulator may want to strap themselves into Cinemaware's *Air Strike USA*. In this action/strategy air-combat contest, you concentrate on making the world safe for the allies, rather



For straightforward high-speed air combat, fly *Air Strike USA*.



Useful calendars are simple to make with *Calendar Creator Plus*.

than memorizing a keyboard-load of esoteric flight commands. But while your jet is a breeze to fly, the missions, which have you taking out both ground and air targets, require quick reflexes and careful planning.

The EGA/VGA graphics feature solid, 3-D scenery and an assortment of 16-color battle maps and instrument panels. Unfortunately, no sound cards are supported. Although *Air Strike USA* won't teach you to fly a jet,

it'll provide hours of missile-pounding, machine gun-blasting action.

CLAYTON WALNUM

IBM PC and compatibles; 384K RAM for CGA, 640K RAM for EGA, VGA, or Tandy 16-color; floppy or hard drive; mouse or joystick optional—\$39.95

Also available for Amiga—\$39.95

CINEMAWARE
Distributed by Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525

Circle Reader Service Number 356

CALENDAR CREATOR PLUS

Many of today's mainstream applications are overkill when it comes to doing the smaller jobs we want our silicon partners to accomplish. Power Up has managed to create a product that not only fills a much needed niche but can help you organize the daily events in your life without giving you a learning-curve heart attack.

Calendar Creator Plus creates customized calendars to help you organize both your personal and business activities. The program allows you to set up event lists for all your activities, incorporating them into the calendar. What's more, the program includes clip art and gives you the ability to highlight special events using alternative fonts and shading. When ready to print, you can preview the calendar, graphics and all. Calendars may be printed in eleven different formats and in varying sizes, from a giant one-year calendar to miniatures small enough to fit in your pocket organizer. I found the documentation, tutorial, and quick reference card well written, concise, and easy to follow. The installation process was user-friendly.

Calendar Creator is a quality product. The only disappointments are the lack of mouse support and the lengthy printing times for the calendars themselves. Using a print spooler alleviates the latter problem, though there's no excuse for overlooking mice. Despite these minor problems, for those of you who need this type of product, I can recommend it without reservation. If you pay *Calendar Creator* the least attention, you'll always

Do you know the incredible learning a foreign

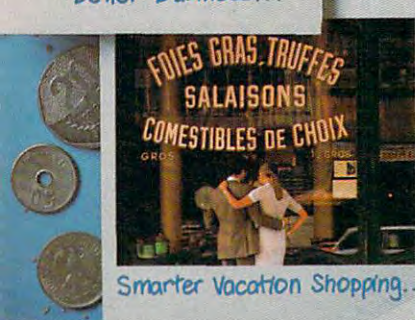
Whether for travel, business or entertainment, conversing in a foreign language will open up whole new worlds to you. And now there's a method that makes learning a foreign language simpler. Painless. And faster than you ever thought possible. The first 15 tapes of this package are the very same tapes used by the U.S. State Department to train career diplomats.

They're tried and proven effective. But it's the second 15 tapes utilizing the latest *European* learning techniques that make this system so special. This marriage of two teaching concepts literally gives you two courses in one ... the

best of both worlds in language instruction.



Better Business...



Smarter Vacation Shopping...



New Career Opportunities...



More Productive Travel Time...



More Rewarding Family Vacations...



New Friendships...

			
SPANISH 30 cassettes plus triple bonus	FRENCH 30 cassettes plus triple bonus	GERMAN 30 cassettes plus triple bonus	ITALIAN 30 cassettes plus triple bonus
\$245.00	\$245.00	\$245.00	\$245.00

BREAKTHROUGHS in language technology by European learning researcher **Dr. Georgi Lozanov** are the basis of the remarkable

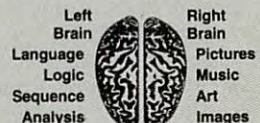
"American managers with language skills open more doors."

Wall Street Journal Editorial
July 25, 1988

Accelerated Learning Language Series.

The series is so effective, we guarantee you'll be hearing, reading, under-

standing and beginning to converse in your new language in 30 days - or your money back. This unique new system links the left side of the brain (language and logic) with the right side of the brain (music and art) for dramatically increased retention and learning speed. In the same way you remember the words to a song with little or no effort, Accelerated Learning



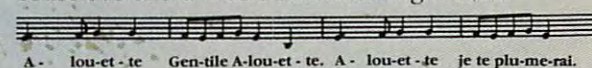
"(the superlearning method is) fascinating ... the results are extraordinary."

Prof. Lawrence Hall
Harvard University

uses Baroque music to "un-stress" the learning process.

Boost your memory with music.

Have you ever wondered why you can remember the words to a song with little or no conscious effort? Music stimulates right brain



activity. Speech is a left brain activity. When the two are combined, as in a song, you have left/right brain linkage. You've used your whole brain, so your memory is much stronger. Accelerated learning uses the same technique. You will learn the language as *stresslessly* as a child does, by hearing new vocabulary and phrases in alternately loud whispered, and emphatic intonations, all accompanied by slow, rhythmic music. The effectiveness of Baroque music as a memory aid is well documented and leaves you feeling alert and rested.

"American ignorance of other tongues has been hurting American business executives in their competition for (overseas) markets."

The New York Times
September 5, 1988

rewards of language?

			
JAPANESE 30 cassettes plus triple bonus	CHINESE 30 cassettes plus triple bonus	RUSSIAN New! Available Jan '91	BRAZILIAN Portuguese New! Available Jan. '91
\$265.00	\$265.00	\$265.00	\$265.00

Two language courses in one.

Utilizing these untapped mental capacities of your learning ability is the basis of this unique

course. Each language lesson contains a *study* tape and a *memory* tape. The study tape (along with the U.S. State Department text) explains rules and grammar of the new language. These are the tapes used by the **Foreign Service Institute** to train career dip-

lomats. The memory tapes correspond one-on-one with the study tapes — and contain the accelerated learning memory and vocabulary drills that take the boredom and drudgery out of learning.

Our 'comfort' guarantee.

To correctly converse in a foreign language you must understand the meanings and intent of a native speaker. If after 30 days of listening to the study and memory tapes you are not beginning to comfortably understand, read and converse in your new language, then return them for a *full refund*.

"I decided to concentrate on Spanish around 1965, and after I became proficient in 1967, my business with Spanish-speaking countries increased from nothing to over twenty million dollars yearly."

André Crispin
Industrialist

FREE! TRIPLE BONUS OFFER!*

Order your language course now and you'll also receive a triple bonus: An American Express International Traveler's dictionary in the language you choose to study; the 100-page book *How To Learn A Foreign Language* (used by the Peace Corps & CIA), and two extra 90-minute vocabulary tapes. This is in addition to your 15 government study tapes, 15 memory tapes and workbooks — and all for the price you would normally pay for just the 15 basic course tapes. Order now and we'll rush your tapes and bonus to you. Remember, we guarantee you'll be comfortable speaking the language in 30 days!

Ordering Information

**CALL TOLL FREE WITH YOUR CREDIT CARD ORDER
ORDER TODAY**

Or send your check, money order
(or institutional purchase order) to:

PROFESSIONAL CASSETTE CENTER
DEPARTMENT CPF
350 W. COLORADO BOULEVARD
PASADENA, CA 91105

1-800-85-AUDIO

Please add \$9.00 shipping & handling.
California residents add 6-3/4% sales tax.
Need it Tomorrow?
Ask Operator for Express Service!



***P.S.** Best Value! With a total of 32 cassettes plus study material, this offer represents the best value available today in language instruction. Compared to other programs, the Accelerated Learning series outperforms them with twice the audio and 20 times the study materials.

Another language is a major social and business asset.



know where you have to be.
GORDON OWENS

IBM PC and compatibles; 512K RAM;
CGA, EGA, MCGA, VGA, or Hercules;
two floppy drives or a hard drive—
\$69.95

POWER UP
2929 Campus Dr.
San Mateo, CA 94403
(800) 851-2917 (orders)
(415) 345-1356

Circle Reader Service Number 357

HOVERFORCE

Lord Darkenill, the slime who controls the streets of Meta-City, is making another run, selling Aftershock, a hideous bioserum. But this time the mayor is determined to terminate the flow of drugs and reclaim his city. He's commissioned you to pilot technology's perfect crime prevention weapon—the HoverKill 1000.

In this sleek craft, you'll sweep through the city at breakneck speed and realize why Accolade calls *HoverForce* the fastest game you'll ever play. It'll have you ziping around corners and making 180-degree turns, and you perform all these brilliant maneuvers with a mouse. Mastering wrist gymnastics may seem impossible at first, but soon you'll wonder why games ever used keyboards.

The HoverKill comes with several weapons, shields, and various detection devices that keep you informed of what your drug-running opponents are up to. But cleaning the streets of Meta-City is no easy task, even with the help of topnotch gadgetry. Four mutant criminals, or Alterants, control different sections of the city. You take them on one by one, interfering with their drug runs whenever possible.

These masterminds have



Drug lords meet their match when you pilot the deadly HoverKill.

help; henchmen lurk in the shadows ready to attack in what scientists call *neostereoidal rage*, a result of the Aftershock that turned them into mindless automatons. Fighting these street thugs makes up most of the action in *HoverForce*.

At night the Alterants move on to the next drop. Waste no time going after them, or it's back to face your boss, gruff Sheriff Stone, empty-handed. Watching the drug runner's large vessel go up in smoke only once is not enough. As Alterants, your foes have taken enough Aftershock to survive three lethal assaults. If you manage to beat them three times, though, you simply move on to the next quadrant of the city until finally you meet Lord Darkenill himself.

The designers graced *HoverForce* with clean, swift graphics, and fair, but serviceable sound effects. Fast-paced, full of bad guys, and insidiously playable, *HoverForce* deserves a place on the hard drives of action fans everywhere. You need only take the controls of the

HoverKill, and you'll be hooked. Hunting down Alterants is a hard habit to break.

JONATHAN BELL

IBM PC and compatibles, 640K RAM,
EGA or VGA; mouse or joystick optional,
Ad Lib, Sound Blaster, Roland MT-32,
LAPC-1, and Tandy 3-voice sound supported—\$49.95

Also available for Amiga—\$49.95

ACCOLADE
550 S. Winchester Blvd., Ste. 200
San Jose, CA 95128
(800) 245-7744

Circle Reader Service Number 358

DESIGNCAD 2-D

Many professional CAD programs come with so many bells and whistles attached that they seem unnavigable. Lightweight or stripped-down versions may be easier to use, but they usually lack the power professional designers demand. Enter *DesignCAD 2-D* from American Small Business Computers.

With this CAD package a casual user can turn graphic ideas into finished drawings in minutes, yet professionals will find that the program can easily handle

most design challenges. The features packed into *DesignCAD* are especially amazing when weighed against the program's low price.

Easy to install and configure for your computer, printer, plotter, or digitizer, *DesignCAD* sets your units of measure in either English or metric units. Files can be directed to any output device or port. If you use a mouse or digitizing tablet, these devices can easily be included during the initial installation process. You can also specify aspect ratios of screen displays and a preferred background color for EGA or VGA displays.

Once you've installed the program, a 60-page tutorial takes you through the basics. This manual guides the new user through many commonly used commands: lines, curves, arcs, circles, boxes, and polygons.

Drawing commands in *DesignCAD* use points as references. To draw a line, curve, or polygon, for example, set a number of points and then select the appropriate command. A line appears and connects the points.

You can set points in a variety of ways, most commonly by pressing a mouse button. Points can also be selected by more sophisticated methods. Various commands set points at the nearest existing point on a drawing, at specified (x,y) coordinates, or at a specified distance and angle from the last point set.

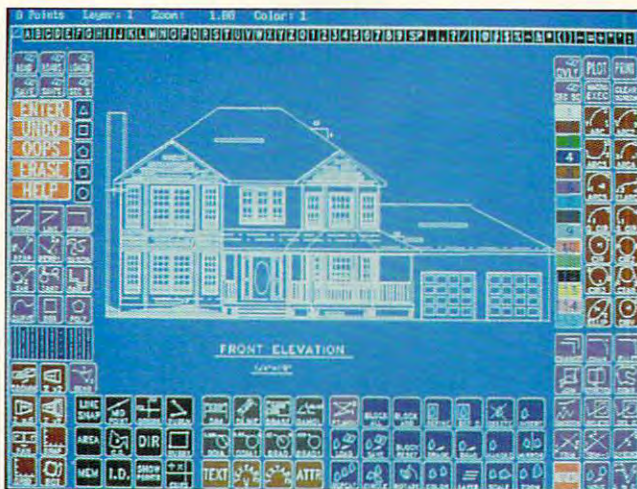
When drawing perpendicular lines for a blueprint, a mouse or digitizing tablet may be convenient, but not necessarily the best choice. Sometimes it's easier and more accurate to position the cursor with the computer's arrow keys. Regardless

of which input device you use, it's a simple matter to set a point on one line and invoke a command to create a perpendicular line. Another command adjusts lines to make them exactly vertical or horizontal.

Should you create several variations of a drawing, you can display them simultaneously on the screen. A View command lets you open windows to display any three files. You can also zoom in to show different details of the same drawing if you prefer. Other features include a user-definable icon menu that lets you customize your screen or digitizer tablet. *DesignCAD* supports high-resolution printing on dot matrix and laser printers. Furthermore, it also has its own programming language that lets advanced users create their own custom commands in a format similar to BASIC's. Frequently used symbols can be saved as macros and inserted with a click of a mouse. More than 500 symbols are supplied with the package. Extended memory and a math coprocessor are supported but not required, and a 360-page manual puts all *DesignCAD* commands at your fingertips in an easy-to-reference alphabetical listing.

Version 5 of *DesignCAD*, which should be available by press time, will support even more printers, plotters, and digitizers and offer improved dimensioning techniques, multiple file handling, the ability to run external programs from within *DesignCAD*, and many new commands. Owners of the previous version of *DesignCAD* may upgrade for \$50.

Packed with powerful commands and features, *DesignCAD*'s power nevertheless proves easy for any us-



DesignCAD 2-D delivers high-end blueprints for a low-end price.



Freakin' Funky Fuzzballs could be the sleeper hit of the year.

er to harness. Its system of menus, keyboard commands, and shortcut keystrokes makes the program immediately accessible. For anyone looking for a powerful yet low-cost CAD program, *DesignCAD* is an excellent choice.

TOM NETSEL

IBM PC and compatibles, 640K RAM, graphics display, hard drive—\$349

AMERICAN SMALL BUSINESS COMPUTERS

One American Way
Pryor, OK 74361
(918) 825-4844

Circle Reader Service Number 359

FREAKIN' FUNKY FUZZBALLS

Tired of shooting everything in sight or flying cross-country to blast some MiGs to their eternal rest? Try *Freakin' Funky Fuzzballs*, a refreshing change from most of the games on the shelves today.

The idea is simple: Collect enough keys or cards to be able to get out of the level you're in. And every so often, when you reach a new level, you'll find yourself in a different world. If you're good enough to conquer level 15,

you may qualify for the Fuzzball Hall of Fame.

Along the way, though, you'll need to replenish your energy by scarfing shakes, burgers, sundaes, and other goodies that appear. Shields and armor can go far to further your progress. Numerous magical spells, including spells for confusion, invisibility, blindness, and enlightenment add variety.

Once you get started, you'll find it hard to quit playing this game. Unique and enjoyable, *Freakin' Funky Fuzzballs* gets my highest recommendation.

RICK LEINECKER

IBM PC and compatibles, 384K RAM for CGA, 512K RAM for EGA, 640K RAM for VGA—\$29.95

SIR-TECH SOFTWARE
P.O. Box 245
Ogdensburg, NY 13669
(315) 393-6451

Circle Reader Service Number 360

COLLEGE COST EXPLORER

High school students who think they can't afford a college education should take a look at *College Cost Explorer*. With it you create a list of colleges and calculate the amount of aid available from those colleges and the amount you'll need to contribute toward your expenses. The results could surprise you.

Details on the types of forms you need to complete, deadlines for requesting aid, and the total costs including tuition, out-of-state fees (if applicable), room and board, and transportation are displayed along with the name of the college and its location. The introduction, pop-up menu, and online help

and glossary offer all the information you need to apply for financial aid to 2900 colleges and universities nationwide, and all information is updated annually. Though the process of choosing a college remains a daunting one, *College Cost Explorer* promises matter-of-fact assistance.

JOYCE SIDES

IBM PC and compatibles, 256K RAM—\$59.95 (1992 edition—\$89.95)

Also available for Apple II series—59.95 (1992 edition—\$89.95)

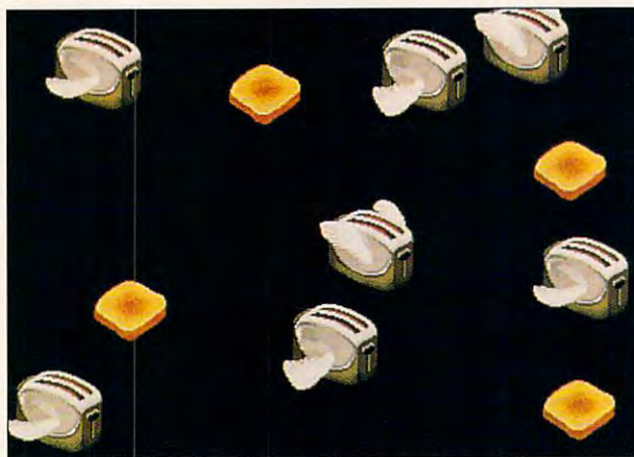
THE COLLEGE BOARD
45 Columbus Ave.
New York, NY 10023-6992
(212) 713-8118

Circle Reader Service Number 361

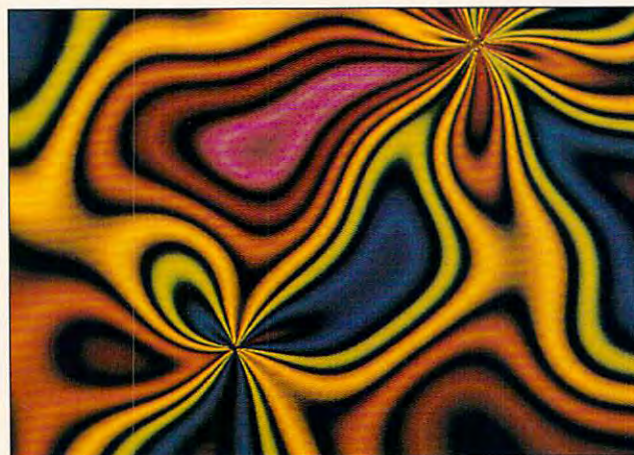
AFTER DARK/ INTERMISSION

Screen burnout occurs when a bright, unchanging image—like the typical *Windows* screen—is left too long on the monitor. The bright areas “burn in,” and the phosphors gradually die. Screen-saver programs protect your monitor’s display by blanking the screen when the computer is idle or when you move the cursor to one corner of the screen. But most people really buy a screen saver for the amusing animated graphics the programs display during blanking.

Two screen savers for *Windows*, *After Dark* and *Intermission*, offer similar features—with more than thirty sets of screen animations between the two, plus password protection. With mobile clocks, dragon kites, a choice of moiré patterns, and a swarm of bees and wasps, *Intermission* has a slight edge in graphic cleverness, but I did



After Dark’s humorous flying toasters won’t permit screen burnout.



Of the many screens that come with *Intermission*, this is perhaps the most mesmerizing.

like *After Dark*’s flying toasters. *After Dark*’s stormy cityscape is eye-catching, too. Both programs offer simple blanking to a black screen for those times when you don’t need visual distractions, and either of these programs will do a satisfactory job of saving your screen from the specter of burnout.

STEVEN ANZOVIN

After Dark
IBM PC and compatibles, *Windows* 3.0 or higher—\$49.95

BERKELEY SYSTEMS
1700 Shattuck Ave.
Berkeley, CA 94709
(415) 540-5535

Intermission
IBM PC and compatibles, *Windows* 3.0 or higher—\$49.95

ICOM SIMULATIONS
648 S. Wheeling Rd.
Wheeling, IL 60090
(708) 520-4440

Circle Reader Service Number 362

PAM: PROGRAM AUTOMATED METHOD

Despite the generic name, *PAM* is a lightning-fast relational database with industrial-strength capabilities.

PAM consists of an appli-

cation generator and a run module. Use the application generator to design your database through its associated screens and reports. Compile it (with just a few simple keystrokes); then move to the run module to run it. At no time do you write a single line of program code. It’s all done for you by the application generator.

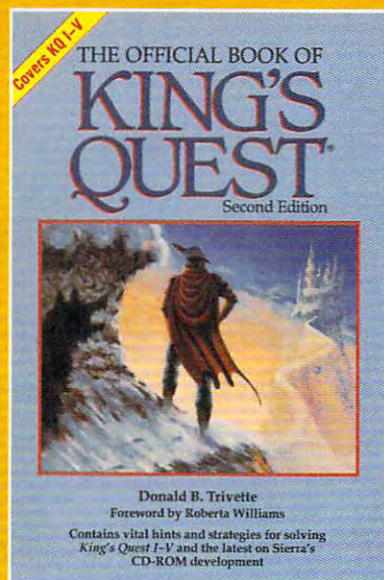
Application generators are not new. The ones included with the big-name databases are definitely more intuitive to use, but they usually carry with them a hefty overhead that slows things down, fills up your hard disk, and empties your pocketbook. This is where *PAM* earns its market share, by being faster, leaner, and less expensive than other relational databases with comparable power.

A curious but welcome throwback to earlier days of programming, *PAM* favors speed and program efficiency over glitzy, no-brainer interfaces. The code is lean and direct, leaving out the high overhead associated with holding the user’s hand every step of the way to productivity.

To learn *PAM*, set aside a good four- to six-hour block of time to work through the excellent tutorial—250 of the manual’s 355 clearly written pages. As you progress through the lessons, you’ll learn *PAM*’s arcane keystrokes, and while there’s nothing intuitive about them, they are definitely learnable. And a word of advice: Don’t skip the tutorial—you’ll only frustrate yourself.

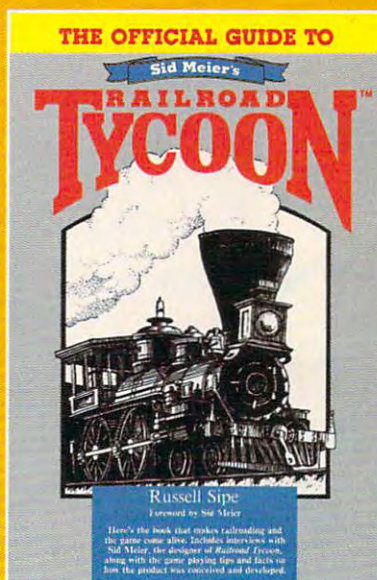
I do have a few complaints. In text fields, you can’t use the backspace key. You’re stuck with the left arrow and delete combination. A fast typist or data entry operator hits the back-

GET THE OFFICIAL CLUES TO THE HOTTEST GAMES!



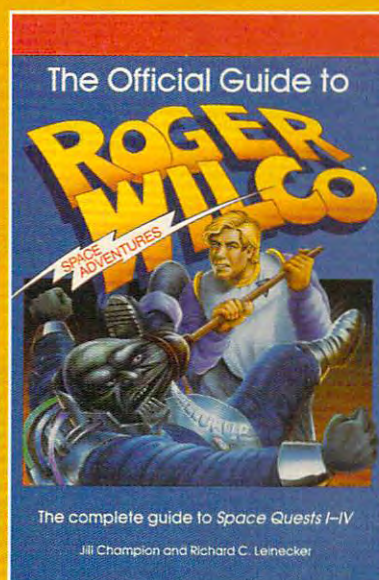
THE OFFICIAL BOOK OF KING'S QUEST, SECOND EDITION

Here's the source for hints, tips, and background for the newest adventure, *King's Quest V*. This new volume includes more clues, maps, and inside details, along with more ways to add even more fun to all five of the best-selling King's Quest games. Covers *King's Quest I - V*.



THE OFFICIAL GUIDE TO SID MEIER'S RAILROAD TYCOON

This is the book that makes railroading and the game come alive. Inside players will find interviews with Sid Meier, the designer of *Railroad Tycoon*, along with facts on how the product was conceived and developed. Also includes formulas the program uses to determine income and expense.



THE OFFICIAL GUIDE TO ROGER WILCO'S SPACE ADVENTURES

For the first time, Space Questers can learn what goes on in the mind of the most legendary janitor in the universe. Inside, you'll find complete maps for every Space Quest scenario, point values for every reaction, and Roger's walk-through to the finish of all the games. Covers *Space Quest I - IV*.

YES!

☐ I want more hints and tips! Please send me the books checked below.

- ☐ The Official Book of King's Quest, Second Edition (2452) \$12.95
- ☐ The Official Guide to Roger Wilco's Space Adventures (237) \$14.95
- ☐ The Official Guide to Sid Meier's Railroad Tycoon (2443) \$12.95

_____ Total Number of Books

_____ Total Cost of Books Ordered

_____ Sales Tax (Residents of NY, NC, and NJ add appropriate sales tax for your area. Canadian orders add 7% goods and services tax.)

_____ Shipping and Handling: \$2 per book U.S.; \$4 Canada; \$6 foreign.

_____ Total Enclosed

☐ Check or Money Order ☐ MC ☐ VISA

Signature _____ (Required)

Acct. No. _____ Exp. Date _____

Please Print

Name _____

Street Address _____

City _____ State _____ Zip _____

All orders must be paid in U.S. funds drawn on a U.S. bank.

Mail this entire coupon to:

COMPUTE Books
c/o CCC
2500 McClellan Ave.
Pennsauken, NJ 08109

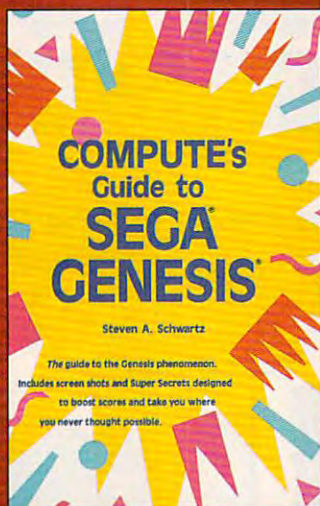
Offer good while supplies last.

10H91C



BUY BETTER—SCORE HIGHER WITH COMPUTE'S GUIDE TO SEGA GENESIS

The author of the best-selling *COMPUTE!'s Guide to Nintendo Games* rates each game's features, challenge, and playability,



and includes actual playing screens so you can find out about the best

games before you buy. Also includes strategies and super secrets to boost your scores. Sneak peeks at future games let you see what's under development. Includes 33 reviews and over 60 screen shots.

YES! ☐ I want to Conquer Sega!

Copies of *COMPUTE's Guide to Sega Genesis* at \$9.95 each. (2389)

Subtotal

Sales Tax (Residents of NC, NY, and NJ add appropriate sales tax for your area. Canadian orders add 7% goods and services tax.)

Shipping and Handling (\$2 per book U.S.; \$4 Canada and \$6 Foreign)

Total Enclosed

☐ Check or Money Order ☐ MC ☐ VISA

Signature _____ (Required)

Acct. No. _____ Exp. Date _____

Please Print

Name _____

Street Address _____

City _____

State _____ ZIP _____

All orders must be paid in U.S. funds drawn on a U.S. bank.

MAIL TO Compute Books
c/o CCC
2500 McClellan Avenue
Pennsauken, NJ 08109

Please allow four to six weeks for delivery. Offer good while supplies last. 7091C

space key automatically; it should be supported by *PAM*. And a few editing functions don't work as described in the manual.

PAM packs a rich feature set. Fields can be set to be all upper- or lowercase or to automatically capitalize the first letter of each word. Fields can have required entry or be set to accept only full fields. Automatic field duplication, incrementing, and skipping are supported. Furthermore, *PAM* offers a matrix-table function that allows spreadsheetlike "what if" calculations—only much faster. *PAM* imports and exports standard *Lotus* and *dBase* files, as well as other common formats, making your data extremely portable.

After the initial learning phase, you can easily build complex databases that compare well in functionality with the well-known database programs. Your databases may not look as elegant, but they'll do the job. And at *PAM*'s price, that's afford-



PAM puts you in direct control of your database without a GUI.

ble dependability.

RICHARD MANN

IBM PC and compatibles, 256K RAM, hard drive and floppy drive—\$65 for single database (flat file), \$145 for 3 relational databases, \$245 for 6 relational databases, \$345 for 28 relational databases

SOFTWARE COMPOSERS
4500 Newcombe Dr.
Plano, TX 75093-3913
(214) 985-8018

Circle Reader Service Number 363

IMPERIUM

Control of the Throygon Empire rests in your hands. As Emperor Amarillus, you expand your empire from its pitiful beginnings to galactic dominance. Accomplish this by colonizing productive worlds, some of which will, hopefully, produce nostrum, a drug that extends your life span and that of your compatriots. Nostrum means

life—humans usually live less than a century, but you want to rule for 1000 years.

Competing empires are led by the same motives as yours, which means you face a constant struggle. And law requires that an election be held every 50 years. So stay sharp and don't do anything rash, or your people will vote you out, and you'll be emperor no more.

Imperium requires more than just military prowess and political charm; several economic and diplomatic factors must be taken into account. Your predecessor, though, has left an intelligence report describing the responsibilities of an emperor at every game turn.

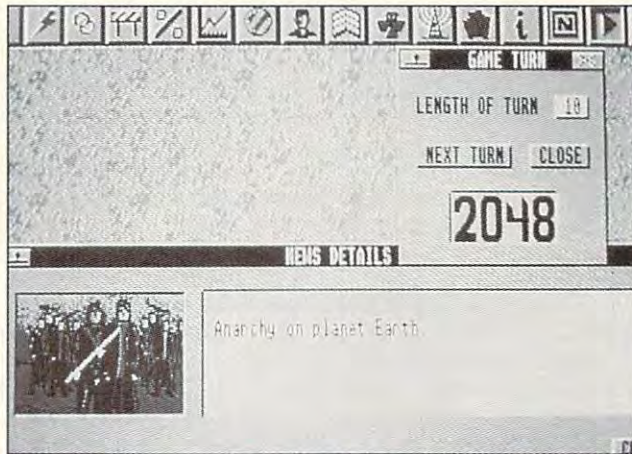
Within a single turn you make decisions about economic factors that will affect the wealth of your empire, as well as oversee the military and handle diplomatic affairs. You face decisions about which planets to subsidize so they will become more productive, which em-

pires to attack and which to befriend, and how high or low import taxes should be.

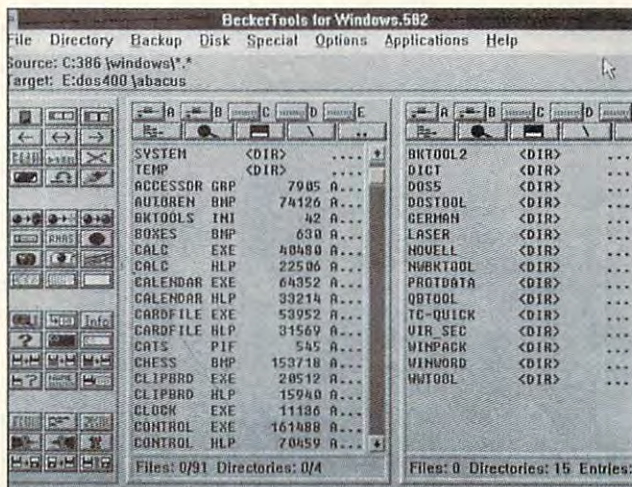
Balancing all those factors is daunting at first, but you can delegate day-to-day control to subordinates, leaving you with the responsibilities of initiative and intervention. Do be careful; some of your subordinates are incompetent or even disloyal, though they may improve with awards and promotion.

You'll need to intervene often anyway if you expect to win the game. Assuming your empire isn't destroyed (or you don't die from a lack of nostrum), *Imperium* lasts for 1000 years or until you conquer all other empires. Both veteran game players and novices should find *Imperium* addictive, but mastering the game will take time and effort no matter what your level of experience. Expect to spend several weekends mastering the subtleties of dictatorship. The developers help you out here by including a complete reference to every game function in the *Imperium* manual. Read the italicized hints and save your game often as you try different strategies.

Control your empire using the icon bar at the top of the screen. From this bar you pull down menus that provide access to areas of concern—the military, economy, alliances, colony ships, subordinates, and so on. This graphical user interface is a long way from the ease of use proclaimed by its programmers. In a world with *Microsoft Windows* and the Apple Macintosh, *Imperium's* GUI is frustrating by comparison. It requires too many keystrokes and mouse clicks to navigate. For example, *Imperium* demands at least six keystrokes to enter the copy protection information.



Anarchy poses some minor problems to your reign as emperor.



BeckerTools is a replacement for Windows' File Manager.

Unfortunately, *Imperium* has another major failing in the way of graphics. Almost everything appears in monochrome no matter what the video mode is. Does gray scale interest you when you have a VGA card? Probably not.

I will give credit, however, to the sound and graphics of the title screen. The color graphic is a fair reproduction of the package art. And if you have a sound card installed, Beethoven's *Moonlight Sonata* comes across well, too. Despite its outward appearances, *Imperium*

should keep anyone who appreciates a challenge addicted—especially those with galactic ambitions.

JONATHAN BELL

IBM PC and compatibles, 512K RAM (640K for Tandy), CGA, EGA, VGA, Tandy 16-color, or Hercules; supports Ad Lib, Sound Blaster, and Roland MT-32 sound cards; mouse optional—\$39.95

Also available for Amiga—\$39.95

ELECTRONIC ARTS
1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525

Circle Reader Service Number 364

BECKERTOOLS FOR WINDOWS

Some computing enthusiasts regard *Windows 3.0* with near reverence. Yet recent converts have been quick to point out that *Windows' File Manager* leaves much to be desired. Sure, you get conventional file and disk management options such as Copy, Move, Delete, Rename, Find files, Edit text, and Format. *Windows' File Manager* also launches applications. However, it handles these tasks in a less than elegant way. Even Microsoft acknowledges there is room for improvement in *File Manager*, and the company promises a performance upgrade by year's end, when *Windows 3.1* ships.

If you seek file manager relief now, don't despair. *BeckerTools* may be just what you need to overcome *File Manager's* deficiencies. Once installed, it offers dozens of disk and file options previously unavailable under *Windows*. For example, you can undelete files and directories, read disks in a single pass to make multiple copies, do selective backups, pack (compress) or unpack specified files and directories, find duplicate files, create a bootable System disk, and much more. Advanced users will appreciate the specialized hexadecimal, sector, and file editors. Any one of these options may be selected with the point and click of a mouse.

Setup is a breeze! *BeckerTools* installs directly from *File Manager* or from the DOS prompt. The application (along with an aesthetically pleasing screen saver called *STARLITE*) can be configured to load automatically with *Windows*. Alternatively,

you can disable automatic loading and elect to have *BeckerTools* and its screen saver sidekick added to the Accessories or Applications group.

The first time you view the *BeckerTools* window, you may experience a bit of a shock. The screen could be a clip from a movie titled *Nightmare on Icon Street*. I counted 65 3-D icons, not including scroll arrows and boxes and title bar boxes. Luckily, whenever the cursor points at an icon in the Toolbox area, the program displays a brief description of that icon at the bottom of the screen. For example, aim at the icon labeled *Info*, and the bottom line message reads *Display directory information*. Zero in on the icon with the large red X, and the bottom line discloses *Unselect all files and directories*. Toolbox options can also be invoked from pull-down menus (on the menu bar) or with keyboard command shortcuts.

The *BeckerTools* workspace is divided into five areas. The icon-rich Toolbox and two windows depicting the contents of Source and Target directories occupy most of the screen. A menu bar and two additional information fields (one showing current source and target paths, the other displaying user and system messages or icon descriptions) complete the lineup. Unfortunately, the information line at the bottom of the screen displays icon descriptions only for the Toolbox area and not for the Source or Target window areas.

Spend some time with *BeckerTools*, and navigating the workspace presents little difficulty. To complete a task, you must first set up a Source directory. This tells

the program where to look when you click on a Toolbox icon.

Next, establish a target path. Then select an icon (tool) from the Toolbox window. In this way, copying or moving files and directories from one disk or directory to another is reduced to a few simple mouse clicks. Several tools—such as Delete or Rename files and directories, Create new subdirectory, Display directory tree, and Format disks—do not require a target path.

BeckerTools offers online help and a choice of three menu displays. To minimize confusion, new users should select Beginner. Seasoned veterans of *Windows*-type interfaces may opt for the Intermediate feature level or Advanced (complete) menu display. Whatever option you run *BeckerTools* under, it performs flawlessly.

You can launch an application by selecting executable programs from a Source directory, double-clicking to pull up the Quick menu, and pressing Launch. Alternatively, you can launch as many as ten applications via a user-configurable list available from the Applications menu.

As a substitute for *Windows*' *File Manager*, *BeckerTools* offers a host of different utilities designed to please novices as well as techies. And since it does such a nice job of launching applications, you might even prefer it to *Windows*' *Program Manager*.

CAROL HOLZBERG

IBM AT and compatibles, *Windows* 3.0 or later—\$129.95

ABACUS
5370 52nd St. SE
Grand Rapids, MI 49512
(800) 451-4319

Circle Reader Service Number 365

WILL BUILDER

Few of us welcome the prospect of writing a will, and often the document remains unwritten until it's too late. While the average person probably has some hazy ideas about what's required, the specifics are a problem, and people are reluctant to pay a lawyer for advice.

Will Builder offers a partial solution. It educates, and it helps you prepare documents that you might otherwise dread preparing, whether for their supposed complexity or simply for their gloomy nature. A 240-page companion book (prepared by two attorneys) explains the processes of creating a will, assigning power of attorney, appointing an executor, and writing a living will. You'll find further explanations in the program itself, along with a rather lengthy index. The user interface looks and feels a tad primitive, devoid of many of the visual niceties we've grown to expect from software. But since the program doesn't have a lot of functional depth, it doesn't require much operational assistance.

Will Builder meets its simple goal and takes you by the hand to walk you through the process of preparing legal documents relating to the handling of your estate after your death. You can also put together documents that give other individuals named by you power to make certain decisions on your behalf about your right to die, should you become seriously incapacitated.

Will Builder will tailor your documents to meet the requirements of your home state's laws and is equipped to address many of the special issues that have become commonplace in late

twentieth-century life in this country—personal affairs like single parenthood, step-parenting, and unmarried life partners.

Done simply, this process requires answers to a few personal questions, explains what the law requires in each matter discussed, and then fills in the blanks of pre-designed legal documents based on your responses. As with any software of this sort, a disclaimer in the program suggests that you employ legal assistance if you're at all unsure of anything.

If you follow the steps carefully and thoroughly read and understand the reference material provided, your documents should be as legal as those prepared by an attorney, though the software designers cannot take responsibility for any problems that might arise. You are, in essence, choosing to act as your own lawyer by taking on this task using a software package alone.

Costing less than the average 60-minute period in an attorney's office, *Will Builder* contains more general information than a lawyer could easily dispense in that period of time. For savings like that, many of us would brave the difficulty of completing our own legal paperwork. If you're willing to be your own counsel in one area of your legal affairs or if you want to be better informed when you do consult an attorney, *Will Builder*'s worth a look.

KATHY YAKAL

IBM PC and compatibles, 512K RAM, hard disk—\$59.95

SYBAR
2021 Challenger Dr.
Alameda, CA 94501
(800) 227-2346

Circle Reader Service Number 366

ABC FLOWCHARTER

I've never liked flow charts and never thought I would. Roykore's *ABC Flowcharter*, however, has changed my mind. Drawing upon *Microsoft Windows*' advanced graphics capabilities, the attractive and flexible *ABC Flowcharter* receives high marks for functionality.

Programmers use flow charts to chart out a program before writing a single line of code. A visual representation of a program, flow charts depict certain actions with different shapes; a call for user input might appear in the form of a blue circular box, while a message written to the screen may be placed in a rectangular red box. Lines denote relationships between the shapes, and text within a shape further explains that shape's function.

If you find traditional outliners too confining, *ABC Flowcharter* provides a graphical approach to structuring information; you just move shapes around with your mouse naturally and easily. Programmers will find that this program has the power to accommodate today's complex software design—a single chart can hold over 32,000 shapes. Office managers can use *ABC Flowcharter* to map office procedures; because it's essentially a minihypertext system, *ABC Flowcharter* could assist in creating training exercises.

Say you want to create a simple training exercise. You create a series of shapes signifying the various steps needed to perform a task, along with lines denoting the logical procedure. Highlighted by red shapes, important tasks stand out; explanatory notes, denoted by blue

shapes, don't clamor for attention but wait in the wings. (Since *ABC Flowcharter* ships with 30 different shapes built in, you shouldn't run out soon.)

But wait—you realize that the user could take an entirely different course of action, and you don't want to clutter up your main chart with the new branch. No problem: Because *ABC Flowcharter* offers a three-dimensional effect, you can link the main chart with a subchart. You can uncover any shape linked to another shape with a simple click of the mouse button. Subcharts can link to subcharts, and thanks to a command that shows every aspect of your flow chart, you'll never lose track of your logic.

However, a few inconveniences and inconsistencies in *ABC Flowcharter* will drive you to distraction, especially if you work exclusively within the *Windows* environment. Written for earlier versions of the program, the manual doesn't reflect the changes made for *Windows 3.0*. The failure to place the Close command under the File menu may have been technically correct, but its omission still annoys the end user.

Otherwise well presented, *ABC Flowcharter* should serve the needs of virtually any computer user. Flow charts can prove more useful than you might expect, and if you need to create lots of them, you'll want to use *ABC Flowcharter*.

KEVIN REICHARD

IBM PC AT and compatibles, *Windows 2.11* or later, hard disk with at least 1MB of free space—\$295

ROYKORE
2215 Filbert St.
San Francisco, CA 94123-3413
(415) 563-9175

Circle Reader Service Number 367

—Wizards—

Enter Another World
Where the Living
are
Among the Few

CRUSADERS of the DARK SAVANT

The Sequel to Bane of the Cosmic Forge

Circle Reader Service Number 192

FINAL ORBIT

Fans of vertically scrolling shoot-'em-ups will enjoy *Final Orbit*, even though its plot is a variation on an old theme. Stranded on a planet, you must battle your way through nine levels to its core and destroy it before garbage bags and other intelligent waste destroy you.

Due to awkward steering controls and the sheer number of adversaries, the game is difficult even in its easiest mode. Fortunately,

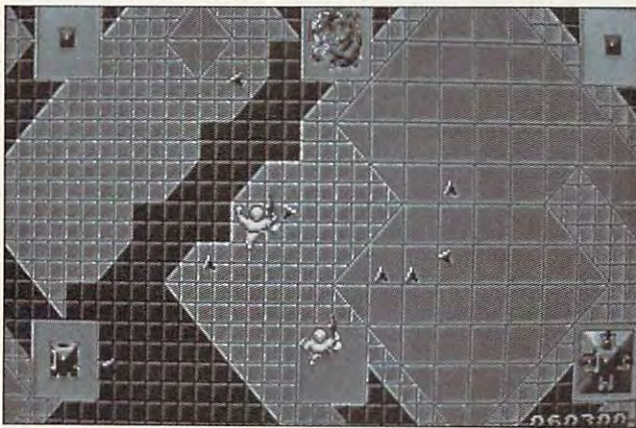
you can pick up more powerful weapons and play simultaneously with a friend. The graphics and animation are stupendous—this one will put you in orbit.

LEN POGGIALI

IBM PC and compatibles, 640K RAM, CGA, EGA, VGA, or Tandy 16-color; joystick optional, supports Ad Lib sound card—\$34.95

INNERPRISE SOFTWARE
128 Cockeysville Rd.
Hunt Valley, MD 21030
(301) 785-2266

Circle Reader Service Number 368



Final Orbit pits you against a planetful of animate garbage.

IMPORTANT NOTICE FOR COMPUTE DISK SUBSCRIBERS

COMPUTE offers two different disk products for PC readers: the *SharePak* disk and *PC Disk*. *SharePak* is monthly and has a subscription price of \$59.95 for 5¼-inch disks and \$64.95 for 3½-inch disks. A subscription to *SharePak* does not include a subscription to the magazine. *PC Disk* appears in even-numbered months and has a subscription price of \$49.95, which includes a subscription to the PC edition of *COMPUTE*. You can subscribe to either disk or to both, but a subscription to one does not include a subscription to the other.

CYBERGENIC RANGER

A massive, state-of-the-art arcade game, *Cybergenic Ranger* consumes almost five megabytes of disk space, requires at least a 12-MHz machine with EGA video (VGA is infinitely better), and deserves every bit of the pampering you give it.

The story is lovingly detailed in a professionally produced comic book, a comic that also serves as copy protection (you have to enter a randomly chosen word from the book before you can start). While the plot is pulp, the graphics are (dare I say it?) out of this world. If you've been waiting for a game whose makers had the guts to leave CGA behind, wait

REVIEWS

no longer. *Cybergenic Ranger* features scrolling backgrounds for a true arcade 3-D effect. As you move the character through scenery, objects further back move more slowly than objects near the front. Digitized music plays remarkably well through the PC speaker, though of course the Sound Blaster and Ad Lib boards offer superior sound.

While there are some ho-hum space battles, interesting travel on the surface of seven different moons and planets more than compensates. Quick-moving, 256-color monsters left me with the impression that I should have been feeding quarters into my 386; *Cybergenic Ranger* pushes the machine to the limit and is every bit as exciting as a visit to your neighborhood arcade.

TOM CAMPBELL

IBM PC and compatibles, 640K RAM, EGA or VGA, 4.9MB disk space; Sound Blaster and Ad Lib sound cards supported—\$49.95

(Editor's note—Owners of earlier versions of *Cybergenic Ranger* receive a free upgrade supporting sound cards and a joystick. Call the toll-free number listed below.)

SYMTUS
P.O. Box 912
Palacios, TX 77465
(800) 255-2374

Circle Reader Service Number 369

STUDYWARE FOR THE GRE

Some friends of mine took the Graduate Record Exam when they were fresh out of undergraduate school. Smart move. Not only do you start to lose test-taking skills shortly after graduation, but that mass of knowledge that you built up for a diploma starts to fade away pretty quickly, too. Depending on what kind of higher degree

you're after, those GRE scores can be quite important. And whenever you take the test, some studying may be in order. Based on actual current exams, *StudyWare for the GRE* allows your preparation time to be focused and well used. If you're comfortable using the computer, then *StudyWare* may be an appealing study tutor.

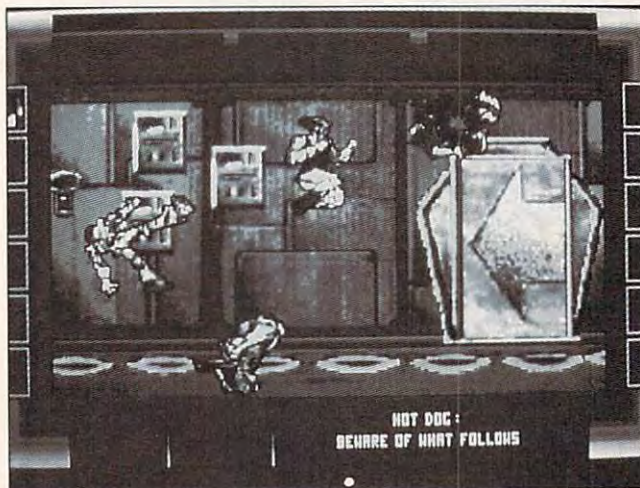
The program is broken down into two main areas of preparation: the *StudyWare* test preparations and course reviews, and an electronic version of *Cliffs GRE Preparation Guide*. (Remember *Cliffs Notes*? Those inordinately helpful little booklets with yellow and black stripes?)

You can take the *StudyWare* tests in either Test mode (which operates like a real examination, only allowing you to answer questions) or Tutor mode (which gives you immediate feedback, telling you whether you answered a question correctly and supplying the right one if you didn't, along with a brief explanation).

In many cases, *StudyWare* can supply additional information before you answer a question, to help you make the correct choice. If you're in Tutor mode and don't know the definition of a word, you can look it up in the built-in glossary. In mathematical areas, you can peruse online charts and graphs as study aids.

Available tests gauge and sharpen your quantitative, verbal, and analytical abilities. In the verbal area, for example, choose to test yourself in areas like sentence completion, analogies, and reading comprehension. Quantitative exams analyze your abilities in standard mathematical subjects.

StudyWare for the GRE



Cybergenic Ranger's striking advanced graphics bring arcade standards home to your PC.

comes with a paper copy of *Cliffs GRE Preparation Guide*; it is awkward to use this portion of the program—you must read the test questions out of that document and answer them on the electronic answer form within the software.

You can operate the pro-

IBM PC and compatibles, 256K RAM—\$49.95

Also available for Apple II—\$49.95 and Macintosh—\$49.95

STUDYWARE
4760 Murphy Canyon Rd., Ste. A
San Diego, CA 92123
(619) 495-0190

Circle Reader Service Number 370



Through dash and daring, the lead in the Space Ace space opera saves the day and gets the girl.

gram through either the mouse or the keyboard, and the user interface is elementary enough that little use of the accompanying brief manuals is required. *StudyWare* monitors your progress and reports on your level of success at the end of each section.

Gloomy projections regarding the job market for this year's graduating college seniors may prompt many of them to remain in academia instead of job-hunting immediately, in the hopes that a higher degree may help them nab a better position in the real world. If you're one of these seniors or if you're trying to return to school after being out in the work force for a few years, invest in *StudyWare for the GRE* and give yourself a decided edge.

KATHY YAKAL

SPACE ACE

In this interactive cartoon loosely derived from the popular *Dragon's Lair* series, you take on the persona of Space Ace as he struggles to stop Commander Borf from transforming Earth's population into infants. Space Ace has already been mildly affected by Borf's infant ray and so keeps metamorphosing into a weakling kid named Dexter. Reverse aging sure doesn't make his mission any easier!

Before you reach the end of your quest, you'll maneuver Space Ace/Dexter through dozens of colorful scenes. The animation is smooth and cartoonlike, and the digitized sounds, voices, and music are clear and crisp. (A sound card is required.) *Dragon's Lair* fans will not want to miss this

engaging space epic.

CLAYTON WALNUM

IBM PC and compatibles; 640K RAM; CGA, EGA, VGA, or Tandy 16-color; floppy or hard drive; supports Ad Lib and Sound Blaster sound cards; joystick optional—\$59.95

Also available for Amiga—\$59.95, Apple IIGs—\$59.95, Atari ST—\$59.95, and Macintosh—\$59.95

READYSOFT
30 Wertheim Ct., Unit 2
Richmond Hill, ON
Canada L4B 1B9
(416) 731-4175

Circle Reader Service Number 371

ARACHNOPHOBIA

On a dark and bug-infested night, deep in the steamy jungles of South America, an arachnid steals passage on a plane headed for the United States. Immediately upon arrival, it mates with harmless domestic spiders. Hordes of oversize, poisonous offspring result, ready to take on the world.

The deadly new species reproduces at an alarming rate. One town after another falls prey to the infestation. Bit-

ten humans drop like flies. Only Delbert McClintock, ace exterminator, and his Spider Infestation Control Team can eradicate the poisonous threat. Loosely based on the plot of a movie by the same title, Disney's *Arachnophobia* weaves a web of arcade action that's sure to keep you busy for several hours.

As Delbert, you maneuver your truck through seven spider-infested towns on life-threatening arachnid search-and-destroy missions. Your goal: Locate and terminate the Queen, mother of all spiders. Only when the Queen has been throttled can you proceed to the next town. But every town has several buildings to explore, and each building has loads of surprises—mostly of the eight-legged variety. Obliterate all the bugs in a building and save defenseless human victims along the way to earn extra bug bombs. Terminate every Queen on the home front, and you can clobber critters in the heart of the Amazon rain forest.

Realistic bug-crunching

—Wiz—

And the visions
Appeared
as they never had
before

CRUSADERS of the DARK SAVANT

Now with 256-color VGA Graphics

Circle Reader Service Number 192

sound effects, digitized human speech, and an eerie musical score really give you the creeps when you plug Disney's inexpensive (\$34.95) Sound Source peripheral into your computer's parallel port. Don't go on a bug raid without it! *Arachnophobia*'s animation is so well designed and the sound effects so authentic that you'll be watching where you plant your feet long after you shut down your computer.

Easy to play, *Arachnophobia* nevertheless proves difficult to win. While carrying out your mission, you must avoid the menacing little monsters, each intent on biting you. Use your Toxi-Max insecticide to fumigate every spider and egg sac. Domestic Soldiers succumb easily to a single spray of the bug gun. They also squish underfoot if you stomp them.

Heavy-footed boot techniques won't work on Queen spiders and South American beasts. These bugs require massive doses of Toxi-Max or the firepower available from an aerosol flame-thrower. Be prepared to meet your maker if you run out of Toxi-Max at an inopportune moment. Delbert's company vehicle has a never-ending supply, but when you leave a house before locating the Queen, the building repopulates with spiders! You'll need that unlimited insecticide.

Delbert can sustain up to four Soldier spider bites before dying. He can suffer only two bites from a Queen and merely a single chomp from the macho South American menace. Restore his health with a quick shot of antivenin, if you can locate the first-aid kit. Pummel an egg sac, and the directional arrow on the Bugometer compass will point you in the di-

rection of the Queen.

Follow Delbert's techniques, and you will live long and profit. Slip up once too often, and your days as an Arachnid Abatement Technician are numbered. *Arachnophobia* may not offer many intellectual challenges, but action games don't necessarily

EGA, MCGA, VGA, or Tandy 16-color; joystick optional—\$49.95

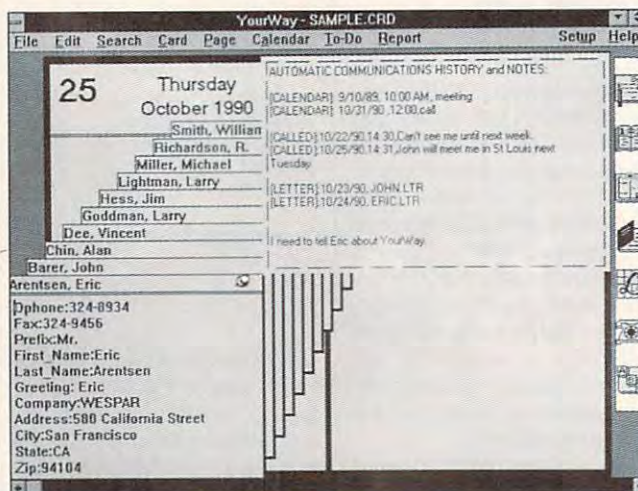
Also available for Amiga—49.95 and Commodore 64/128—\$29.95

DISNEY SOFTWARE
500 S. Buena Vista St.
Burbank, CA 91521
(818) 841-3326

Circle Reader Service Number 372



Spiders make themselves at home in *Arachnophobia*.



Automate your card file with YourWay.

require tedious puzzles. Grab your Toxi-Max and go on a bug hunt!

CAROL HOLZBERG

IBM PC and compatibles, 512K RAM (640K with Sound Source), CGA,

tion. What's that? It turns out to be a contact management-based program that handles schedules, phones, to-do lists, and basic written communication centered on the personal information database that's the hub of an office worker's day.

Viewed as traditional PIM, *YourWay* has shortcomings. Once you understand its objectives, however, you'll find that it's right on target.

YourWay is designed to automate an office worker's card file of contacts, with automatic dialing, scheduling, letter writing, and a historical record of all contacts.

It all revolves around a simple card file. (As a *Windows* 3.0 program, *YourWay* presents the cards graphically onscreen.) Simply label the fields you want on each card; thereafter the field names appear on every card. In the word processor, you can design letter templates that pull address data from the cards, or you can simply write a letter while the addressee's card is on top of the pile. In either case, the letter will be logged into the card's note field, which could be thought of as a large piece of paper folded and stapled to the back of the index card.

To call someone, pull up that card and have the computer dial for you. As you talk, add directly to the note field. The call and certain basic information about it will be logged into the note field automatically.

To schedule time, pull up the calendar; put the card for the person involved on top of the pile. Enter the event on the calendar, and an automatic notation appears in the card's note space.

Use the to-do list—presented as a drawing of a clip-

YOURWAY

Though *YourWay* is often reviewed as a personal information manager (PIM), Prisma Software prefers to call it a *Personal Productivity Worksta-*

board with four lists in priority order—to track tasks without specific deadlines. Again, entries post to the note field of the top card.

Launch applications directly from *YourWay* by putting the associated filename on an index card. If you need a certain spreadsheet when you talk to the boss on the phone, for example, put the filename on his or her card. Click on it, and *YourWay* summons the spreadsheet.

For any serious word processing, you'll want to launch your regular word processor. *YourWay* automatically passes your text to the *Windows* clipboard; just paste it into your mainline word processor and continue. While less versatile than *Write* (the program that comes with *Win-*

vidual cards and type extraneous material anywhere on a card. While useful, this feature sometimes proves disconcerting.

YourWay provides tightly integrated contact management and history, with basic functions that are easily augmented by full-function applications. While this clever program isn't exactly my way, it could easily be yours.

RICHARD O. MANN

IBM PC and compatibles, hard disk with 2MB available, 286 or higher microprocessor, *Windows* 3.0 or higher, mouse—\$199

PRISMA SOFTWARE
2301 Clay St.
Cedar Falls, IA 50613-9990
(800) 747-0319
(319) 266-7141

Circle Reader Service Number 373



Miami's no place to go on vacation in *Fountain of Dreams*.

dows), *YourWay*'s word processor possesses a surprisingly robust spelling checker and thesaurus that might prove useful.

Some may find the index cards themselves confusing. The field names are there, but they're not like those in any other database you've used before. You can enter as much text as you'd like in each field—they're all free-form text fields. You can even delete fields from indi-

FOUNTAIN OF DREAMS

Mutant rats? Homicidal beachcombers? Killer clowns? In the nuclear war-ravaged environs of Miami that serve as the setting for *Fountain of Dreams*, radiation levels may be high, but the silliness indicator jumps off the meter.

The plot calls for you to locate the source of the pre-

cious Dream Water, the only known curative for the horrible mutations threatening to overwhelm the remaining pockets of "civilization." Factional strife among the different groups vying for control of Miami adds a bit of intrigue to the story line, but this is an adventure where brawn rather than brains will carry the day. Combat occurs frequently, whether you're spoiling for a fight or not. And if one of the bizarre beasties or bad guys doesn't get you, the tedium of resolving the interminable battles might.

Not for the gun-shy, *Fountain of Dreams* is for players who prefer to approach the unknown with one eye glued to the sights of an M-16 assault rifle.

JEFF SEIKEN

IBM PC and compatibles, 512K RAM, EGA, MCGA, or VGA—\$49.95

ELECTRONIC ARTS
1820 Gateway Dr.
San Mateo, CA 94404
(800) 245-4525

Circle Reader Service Number 374

—Wiz—

*I have died
of untold guilt
and horror,
but my secret is safe—
for now*

CRUSADERS of the DARK SAVANT

As rich a tale as ever told

Circle Reader Service Number 192

NEGOTIATOR PRO

Scads of books, audiotapes, and training sessions have been dedicated to the delicate art of negotiating. Now there's a software program that promises to provide expert advice molded to fit your negotiating style and, moreover, to propose strategies that will help you work effectively to reach a mutually agreeable solution.

Negotiator Pro is based on 15 leading books, including the best-selling *Getting to Yes*, and draws on such notable experts as Roger Dawson, author of several helpful audiotape programs and books. One of the program's strengths is its hypertext system, an online help tool that lets you see definitions of highlighted terms. If another term in the definition is highlighted, you can read that explanation as well. Hypertext allows you to perform research by free association, a very pleasant experience that stimulates creative thinking. You'll find related terms, definitions, strat-

egies, and tips that you might not otherwise unearth using a printed text. You'll find the information when you need it so you can use it for maximum effect.

First, categorize your negotiating style. *Negotiator Pro* asks ten questions concerning your style of time management, use of threats, methods of revealing information, and likelihood of giving concessions. The results tell you whether you are cooperative or competitive. You repeat the process for your opponent.

How well does this system work? I left one question blank because I couldn't decide how to answer. However, when *Negotiator Pro* read my other answers, it sug-

gested how I would have answered that question—a nice touch that makes me believe that you can get a fairly good idea of personality styles based on just a few questions. However, I had limited information for my opponent and can't believe that *Negotiator Pro* could have made an intelligent guess on answers that I really wasn't sure of. Still, if you have some knowledge of your opponent, this tool could provide further useful insights.

The computer selects the most effective negotiating style and displays suggestions on the screen. For instance, I have an amiable style, as does my opponent. The computer advised this strategy: *Be somewhat like*

them; be friendly and informal. Ask personal questions. Be nonthreatening, consistent, and professional. Don't push too hard, but gently use objective criteria and time limits to help the amiable reach closure. Be reassuring and stress the benefits to all the people that would flow if your interests are fulfilled. Show how everyone benefits in a win-win outcome. This paragraph contains a lot of practical advice.

The next step involves the creation of an action plan and briefing book to guide your team through the negotiating process. The program presents an outline of 35 stages of negotiating, such as opening gambits, midpoint tactics, and approaches to closing. After you select a topic, the computer takes you to a small word processor, which allows you type your ideas, goals, and strategies.

If you're strapped for time, *Negotiator Pro* will present you with the top ten outline topics. Whichever method you choose, you can also import text from other programs, so if you assign part of the plan to others, you won't have to reenter the text—merely integrate their work with yours. When you've finished, you can print the document and present it to each member of your team. The publisher stresses this feature because if participants enter the negotiating sessions in later stages, they will have the benefit of reading this master plan to gain insight into the other side's negotiating character and your side's goals and strategies.

While clear, the manual could be better organized. It includes 35 pages of definitions and negotiating tips, but not all the hypertext

terms are listed. Why were some terms and strategies included but not others? What was the distinction? The manual does contain a wealth of information, but it is presented in alphabetical order, rather than categorized by strategies or skills. In short, the material is interesting, but not as valuable as it would be with more logical organization.

Each time you use the program, you must specify the appropriate batch file to load your computer's monitor type. This is a minor flaw, but a dated process. You also must unload all TSRs as the program uses all 640K memory. I failed to do this initially and found myself waiting literally 15 minutes as the computer displayed a *collecting memory* message on the screen, which led me to believe the computer was working. In reality, the computer was hung up. A toll call to the company for support resulted in a phone message and the promise of a return call the next day. The courteous chief programmer called with the answer the next morning. Despite the flaws with the manual and installation, *Negotiator Pro* will help you organize your thoughts, brainstorm, and gain insight into your own needs and wants as well as those of your opponents. That's a pretty good compromise.

DANIEL JANAL

IBM AT and compatibles; 640K RAM; hard disk; CGA, EGA, VGA, or Hercules—\$299, Library of Negotiations—\$49

Also available for Macintosh Plus or better—\$299

BEACON EXPERT SYSTEMS
35 Gardner Rd.
Brookline, MA 02146
(617) 738-9300

Circle Reader Service Number 375

AV

DISTRIBUTORS
UNBEATABLE

Since 1981

1-800-423-VCRS (first time)
1-800-VIDEO-97 (repeat callers)
Fax: 713-486-8300

HOURS: Mon.-Sat. 8 a.m.-9 p.m. • Sunday 10 a.m.-6 p.m. (C.S.T.)

Camcorders • VCR'S • Fax Machines • Televisions • Laser Discs

386SX-DE

- 386SX 16mhz
- 1mb memory (exp to 4)
- 5 1/4" 1.2m floppy
- 3 1/2" floppy
- Fast 0 wait
- MS-DOS 4.01
- Optional VGA monitor

**Total Solution
In One Box!**

- 40mb hard drive
- 256K VGA card
- Mouse
- Geoworks user interface
- 4-16 bit expansion slots
- Parallel port, 2 serial, game port.

Technical Support • One Year Limited Warranty with Onsite Service

///LASER Pal 386SX
w/ 80mb Hard Drive

above with:

- Built in 2400 baud modem
- Telephone answering machine
- Tilt and swivel stand
- Voice mail
- Private mail boxes
- Prodigy startup
- 2mb memory
- 14" S-VGA monitor
- Send/receive fax machine

**Largest
Distributor of
Camcorders,
VCR's,
Televisions, &
Accessories in
the Southwest.**

7 Day returns or exchanges with prior authorization from A.V. Distributors. Must include all packaging and printed material in original unaltered condition. Returns subject to restocking fee. Not responsible for typographical errors. Shipping and handling is extra.

A subsidiary of Videorama Inc. AV Distributors 16451 Space Center Blvd. Houston, TX 77058

Circle Reader Service Number 153

Advertisers Index

Reader Service Number/Advertiser	Page	Reader Service Number/Advertiser	Page	Reader Service Number/Advertiser	Page
159 900 Software	140	146 Meggido	A-7	195 Universal Memory	38, 39
175 Access Software	91	MicroLogic	25	198 Villa Crespo	139
142 Action Management	140	155 MicroLytics	63	105 Virgin Games	115
153 AV Distributors	136	138 MicroMiga	A-29	179 Virgin Games	104, 105
162 Bare Bones Software	A-13	140 MicroProse	23	178 Virgin Games	102, 103
112 BOBCO	G-17	110 MicroProse	101	172 Wedgewood Computer	A-21
207 CH Products	59	150 Micro-Tech USA	142	See P9 WOL/National Learning Systems	9
166 Citizen American Corp	13	160 Modern Language	21	See P31 WOL/Learning Adventure	31
182 Commodore	69	186 Montgomery Grant	A-3	206 WOL/International Schools	81
161 Compsult	G-17	187 Montgomery Grant	G-3	145 ZEOS International	IFC, 1
103 CompuServe	17	133 Motion Blur Publishing	A-18		
124 Computer Book Club	73	113 Mutual of New York	138		
230 Computer Business Services	141	National Videotex Network	85		
114 Computer Direct	52, 53	135 Natural Graphics	A-27		
137 Covox	138	147 NSI Computer Products	42, 43		
		181 Origin	15		
120 DCS Industries	67	129 Paradise Software	G-13		
202 Delphi	64	Parsons Technology	5		
131 DemoSource	140	143 Prodigy	34		
171 Digital Micronics	A-19	Professional Cassette	122, 123		
Disk-Count Software	141	151 Professor Jones	139		
189 Franklin Electronic	7	168 Psynopsis	95		
205 GEnie	3	116 SeXy Software	142		
149 GFXBase	A-15	167 Shark Byte Software	A-18		
123 Gold Hill	61	144 Sierra OnLine	BC		
165 Gosch Productions	A-18	192 Sir-Tech	131, 133, 135		
197 The Grapevine Group	G-17	109 Smart Luck	142		
128 The Grapevine Group	G-17	241 Software of the Month Club	142		
104 The Grapevine Group	139	126 SoftShope, Inc.	142		
164 Great Cover-Ups	A-19	163 Software Excitement	A-5		
156 Herne Data Systems	142	SOGWAP	G-23		
117 Holosoft Technologies	A-27	152 Spectrum Holobyte	11		
190 I. Leonard Co	142	SSI	109		
183 Lucky Computer	141	130 Starware Publishing	142		
127 LWS Software	138	170 Tenex	G-9		
Mark Williams	75	134 The Krueger Company	A-29		
106 McGee Software	IBC	132 The Other Guys	A-11		

Amiga Resource Disk Subscription	A-21
Amiga Resource Subscription	137
COMPUTE Books	117, 127
Gazette Disk Library	G-9
Gazette Disk Subscription	G-14
Gazette Index	G-23
Gazette Productivity Manager	G-11
PC Power Disk Subscription	77
PC Productivity Manager	89
SharePak Disk Subscription	27
SpeedScript Disk	G-15

Available exclusively by subscription!

COMPUTE's Amiga Resource edition

Your authoritative source for Amiga information

Amiga owners: Each month, the Amiga Resource edition of *COMPUTE* brings you all the news, reviews, and home office information found in the regular newsstand edition of *COMPUTE*, plus a special section devoted exclusively to Commodore's multitasking marvel—the Amiga. Whether you use your Amiga for multimedia, games, video, desktop publishing, or home office work, you'll find plenty of useful information in the Amiga Resource edition.

Amiga Resource includes:

PREVIEWS OF NEW AMIGA SOFTWARE
INDUSTRY NEWS AND RUMORS
AMIGA ART GALLERY
COLUMNS BY AMIGA EXPERTS
HARDWARE AND SOFTWARE REVIEWS
A BIMONTHLY DISK SECTION
AND MORE!



SUBSCRIBE TODAY and get a year (12 issues) of *COMPUTE* with Amiga Resource for only \$12.97!
 Or get 12 issues and 6 bimonthly disks packed with original software for just \$49.95.

Mail completed coupon to

COMPUTE's Amiga Resource
 P.O. Box 3244
 Harlan, IA 51593

or call **1-(800)-727-6937**

☐ YES! Send me a 1 year subscription to the Amiga Resource edition of *COMPUTE* for only \$12.97.

☐ Send me 1 year of the Amiga Resource edition of *COMPUTE* (12 issues) and the Amiga Resource Disk (six disks) for just \$49.95.

☐ Payment Enclosed ☐ Bill Me

Name

Address

City State ZIP

Canadian residents add \$4.91 (postage and Canadian Goods and Services Tax) for magazine only; add \$7.50 for magazine and disk. Other foreign orders add \$4.00. U.S. funds only.

If you're a *COMPUTE* subscriber who wishes to receive the Amiga Resource edition instead, send a photocopy of your cover and mailing label along with a request to Amiga Resource Subscriptions, 324 W. Wendover Ave., Ste. 200, Greensboro, NC 27408, or call toll-free (800) 727-6937.

COMPUTE's Product Mart

is a special advertising section designed to benefit you, the PC direct marketer, by letting you advertise directly to the readers that buy. We offer:

- Marketing Assistance
- Qualified Readers
- Guaranteed Audience
- Cost Effectiveness

Space closing: First day of the second month preceeding issue date (for example, November issue closes Sept. 1). Space limited to a first-reserved, first-served basis.

For ad specifications or more information call

East Coast & Midwest

Caroline Hanlon • (919) 275-9809

New England

Jack Garland • (617) 749-5852

West Coast

Lucille Dennis • (707) 451-8209

Call now to reserve your space!

Discover What The Casinos Don't Want You To Know About Video Poker!



Experience all the fast-paced excitement of casino poker slots in the most vivid, exciting video poker program ever developed for the PC. Find out what cards to hold and why. Test strategies with the Simulator. Experiment with options – bet units, coins played, payoff rates. Even print out a guide to take to the casino if you go!

Features include on-line strategy advice, complete session statistics, tip rich 40-page manual, realistic color graphics. Even if you *never* go to the casino, you'll enjoy the endless challenge of this exciting game.

"Not only does it simulate a 'casino-quality' video poker screen with excellent graphics, but it provides an online expert to help players acquire the skill they need to win."

PCM Magazine 3/91

"Strategic Video Poker is one of the most complete programs to be released. For any video poker player, [it] is the light at the end of the tunnel."

The Player 12/90

Order Now!

\$49.95

plus \$5 shipping & handling
(PA residents add \$3.30 tax)

Visa/MC call toll-free:
800-828-2259 ext. 410



LWS SOFTWARE
Dept. 4C • P.O. Box 688
Broomall, PA 19008

Requires IBM PC or compatible; 512K; VGA, EGA, CGA or Mono.

Circle Reader Service Number 127

Free! MONYProfiles Financial Calculator disk has the answers to:



How much could your savings be worth in the future?

How much income could your investments provide at retirement?

Find out with the MONYProfiles Financial Calculator disk! It's free. It's fast. It's right on the money.

With your MONYProfiles Financial Calculator disk, you can make plans for your future... at no cost. Send for it today... because not having the answers now could cost you financial well-being tomorrow.

Hurry! Quantities are limited!

☐ Please send me a **FREE** MONYProfiles Financial Calculator!

Select one: ☐ 5.25" disk ☐ 3.5" disk

Name

Phone: ☐ am ☐ pm

Street or PO Box

City

State

Zip Code

Mail your completed request to: MONYProfiles • Financial Profiles, Inc. • 5964 La Place Court • Suite 100 • Carlsbad, CA 92008 • Offer expires 10/31/91

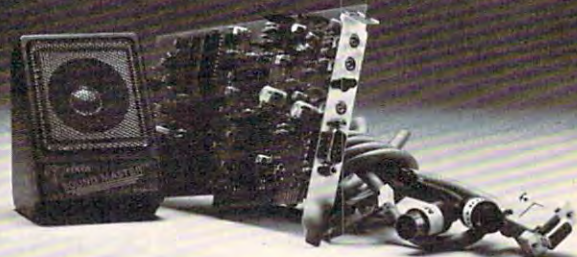


The Mutual Life Insurance Company of New York
1740 Broadway
New York, New York 10019

Circle Reader Service Number 113

SOUND MASTER® II

THE MOST COMPATIBLE SOUND CARD IN THE WORLD



- A high quality alternative to "Sound Blaster". Better sound, less noise, more features.
- 100% AdLib™ Compatible.
- Covox Voice Master® (voice commands), Speech Thing®, and MIDI Maestro™ compatible. Internal PC speaker supported.
- All digitized speech and sound formats supported, including synthesized speech, PCM, ADPCM, & CVSD.
- "Direct-to-disk" DMA digitizer, variable sample rates to 25K/sec for recording, 44K/sec for playback.
- Full duplex MIDI interface. Cables and software included.
- FM Music, MIDI, and Digitizer can function together.
- Audio amplifier with volume control. Low noise, low power electronics. Speaker included.
- Proudly Made in the U.S.A.

Your Best Choice For Multi-Media Sound.

ONLY \$229.95 (plus \$5 Shipping & Handling)

ORDER HOTLINE: (503) 342-1271 M-F 8 AM to 5 PM PST.
VISA/MC/AMEX phone or FAX orders accepted. NO CODs. 30 Day Money Back Guarantee if not completely satisfied. One year warranty on hardware.

CALL OR WRITE FOR FREE PRODUCT CATALOG



COVOX INC. 675 Conger Street • Eugene, OR 97402

Phone (503) 342-1271 • FAX 503-342-1283



Circle Reader Service Number 147 www.commodore.ca

Stockmarket•Baseball•Basketball•Lottery

DEMO
DISKS



PROF. JONES INC.

Free
Catalog

"1991"
Football

- A. Grid Master \$ 99.95
- B. Pro Football 199.95
- C. Bookie Buster 149.95
- D. Collegiate Football 199.95
- E. Bulletin Board 150.00

1991 Football Special:
items A, B, C, D, & E
\$499.95

64.3%
1990

1-800-553-2256

1940 W. State St., Boise, ID 83702

Thoroughbred•Greyhound•Standardbred

Circle Reader Service Number 151

THE GOLD SHEET

PRO FOOTBALL ANALYST

STATS & HANDICAPPING

by a CRESPI SOFTWARE

Power statistics for the armchair quarterback

Get that "Midas Touch" for your predictions.

For statistics and handicapping, nothing we have seen comes close. In actual use ourselves, we found this system accurate, easy to use, and rewarding. —Western Gambler Magazine—Las Vegas

For 35 years, The Gold Sheet has been the American Sportsman's "Bible." The information it contains is the industry standard. The Gold Sheet is the most respected football handicapping publication in the nation.

Display 60 statistics by team or category.

View Offensive/Defensive team rankings for each statistic. Devise unlimited prediction and trend formulas. Do "What If" analyses. 2 years stats included... more available.

Predict game results. Create and print "office pool" entries. Spot significant trends. Easy updates by modem, by mail, or manually.

Available at your local software dealer or order directly by calling 1-800-521-3963. \$59.95 plus \$5.00 shipping/handling. IL residents add \$3.00 tax. Allow 2 weeks delivery.

Equipment required: IBM/AT PC and Laptop or compatible with Monochrome, VGA, CGA, EGA or VGA graphics. 512K. Mouse compatible. Printer optional. Supports COWA Voice Master. All equipment mentioned are Registered Trademarks of their respective companies.



Circle Reader Service Number 198

AMIGA™ THE GRAPEVINE GROUP, INC. AMIGA™
COMPARE OUR PRICES

AMIGA UPGRADE/REPLC. CHIPS

8373 New Super Denise	54.50
Fatter Agnus (8372A) IMB with chip puller (a necessity) and new instructions	84.95
8362 Denise Half Bright	26.50
8364 Paula Chip	26.50
5719 Gary Chip	12.95
8520A CIA Chip	15.50
1.3 ROM Kickstart	24.95
2.0 ROM Kickstart	call
A500 Keyboard	109.50
A2000 Keyboard	114.95

*Tentative Price

ICD PRODUCTS

AdRAM 540 (A500) NO RAM	96.85
(Each additional Meg add \$36.00)	
AdRAM 560D	178.00
AdSCSI 2000	127.50
AdRAM 2080 (A2000) NO RAM	114.50
(Each additional Meg add \$35.00)	
AdSCSI 2080 NO RAM	186.50
(Each additional Meg add \$47.95)	
AdSpeed	204.00
Flicker Free Video	299.50
Flicker Fixer (by Microway)	229.95

AMIGA/COMMODORE
DIAGNOSTICS

Amiga Diagnostician Book/Software	14.95
C-64/A500 Service Manual	34.95
A1000/A2000 Service Manual	44.50
C-128 Service Manual	44.50
Doctor AMI (Software)	29.35
AMI Alignment System	28.50
300 Baud Modem (Complete Kit)	6.95

Utility Cartridge - In 2 key-strokes you can perform 30 basic functions (C64/128)
List Price \$19.95
Our Price \$4.95

HOT COMMODORE/AMIGA UPGRADES

* ENHANCED CHIP SET *

Super Denise 8373 Upgrade

Now utilize productivity and scan mode, etc. Super hi-res mode (1280 x 200 pixels). An absolute must with 2.0.
\$54.50 (tentative price)

Computer Saver (C-64 Protection System) — Avoid costly repairs. Over 52% of failures are caused by malfunctioning power supplies. Installs in seconds. No soldering. 2-year warranty. \$17.95

C-64 Heavy Duty 1.8 amp Repairable Power Supply — Our Biggest Seller. \$24.95

Commodore Diagnostician II — Utilizes sophisticated grids to locate faulty components on all C-64s & C1541s (C-128/64 mode). Save money and downtime by promptly locating failed chips. No equipment needed. Success rate is 98%. Over 32,000 sold. \$37.95

(Available for Amiga computers at \$14.95)

New Commodore Power Supply — Super-heavy, repairable C-64 PS with 4.3 amps. Includes ext. fuse, schematics and 1 year warranty. Comes with FREE Commodore Diagnostician II (\$6.95 value) OR "programmers utility" plug-in cartridge (\$9.95 value). \$37.95

Multistart II — NEW ROM switch for 3 ROMs for A500/2000 Keyboard Controlled. \$7.95

Diagnostic Trouble-Shooting Software (STU) — A terrific diagnostic package and absolute must for all Amigas by Custom Services, Inc. \$29.95

150 Watt "Big Foot" A500 Universal Power Supply — With fan. An absolute must for those adding on more memory. \$85.50

Emergency Amiga Startup Kit — Sold to government PXs and now available to all. Kit has major chips, parts, schematic, instructions and diagnostic software programs, etc. Everything needed to get it started. \$99.50

Megachip 2000 — Upgrade your A2000 to 2MB of chip RAM. Includes A3000 2MB Agnus chip. \$332.00 less substantial rebate. MegAChip 2000 now available for your A500. FREE Rockwell chip puller with either.

Fatter Agnus (8372) — 1MB with FREE Rockwell chip puller (a necessity) and complete instructions. \$84.95

Insider II — NO RAM Board for A1000 \$199.95
Insider II — 1.5 MB for A1000 \$278.00

* EXCLUSIVE *

Amiga 500 Printed Circuit Boards (rev. 4 & up) now available at a phenomenal price. Buy them unpopulated or populated. Don't miss out on this one!
Call for Prices

Call for FREE 36-page IBM/Amiga catalog.
Contains products you won't find anywhere else.

The Grapevine Group, Inc.
Chestnut Street, Suffern, NY 10901

C/S (914) 357-2424 Order line only Fax (914) 357-6243

Prices subject to change 1-800-292-7445 We ship worldwide
Add UPS charges to above Hours: 9-5 EST

Circle Reader Service Number 199 www.commodore.ca

\$25.
Resource
Pkg.

Voice Mail MoneyMaking Toolkit

\$50.
Trade-in
Value

Get CASH From Your Personal Computer!

Press 1 for Sales,
2 for Customer
Support, 3 for a
Live Operator...

Up to 16
channels
supported
on an AT



Generate thousands of dollars monthly in your spare time by adding our voice processing hardware and software to your existing IBM 286/386 personal computer or clone.

Starting at only \$299, your personal service bureau will offer voicemail/pager rentals, talking yellow-page advertising, senior's monitoring, or outbound prospecting for profit.

Our \$25 **Entrepreneur's Toolkit** provides a complete list of proven PC based opportunities, clip-art materials, and invaluable insight into starting your own business.

After your review, we invite you to cash-in your toolkit towards over \$50 in discounts on **DemoSource** products.

To ask questions / order your toolkit!



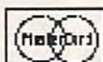
24
HRS

1 800 283-4759

LIVE

818 772-2514

COD's Welcome



A Few Home Based Ventures Featured In Our \$25 Toolkit!

NAME	DESCRIPTION	PACKAGE	DEMO KIT
Bigmouth	Voice Mailbox Rentals	\$299	818 772-7729
Voice BBS	Electronic Matchmaking	\$799	\$25
QuickLine	Write Programs in Basic	\$1125	\$25
ElderChek	Senior Citizen Check-In	\$1625	\$25

Trademarks represented belong to their respective publishers • Check state regulations before using outbound software

DemoSource

8646 Corbin Avenue • Northridge, CA • 91324 • USA

Circle Reader Service Number 131

Get the **OFFICIAL GUIDES** to these Sierra Games

The Official Book of King's Quest, 2nd Ed.

covers King's Quest I-V
\$12.95

The Official Guide to Roger Wilco's Space Adventures

covers Space Quest I-IV
\$14.95

The Official Book of Leisure Suit Larry

covers Larry I-III
\$12.95

To order, send the titles and quantities of books ordered, check or money order,* and your name and complete street address:

COMPUTE Books
c/o CCC
2500 McClellan Ave.
Pennsauken, NJ 08109

*Please add \$2 shipping & handling (\$6 foreign) for each book (residents of NC, NJ, NY please add applicable sales tax). Canadian orders add 7% goods and services tax.

All payments must be in U.S. funds. Please allow 4 weeks for delivery.

Sierra, King's Quest, Leisure Suit Larry, and Space Quest are copyright and/or trademarks of Sierra On-Line, Inc. JUL91CN8

PRE-SCHOOL SOFTWARE

NEW! TALKING SOFTWARE for Kids 0-4 Years Old

(At Last! Software Designed to
Make Your Child Smarter!)

Now! You can Easily give your Child a Learning Headstart with Kiddyware Pre-School Software.

Developed by Elementary Teachers, Kiddyware is the most Complete & Easy To Use, Pre-School Software available Today. Here's Why:

- Over 12 Fun Lessons that teach your child:
 - Alphabets & Numbers
 - Shapes, Colors & Directions
 - People, Places & Things
 - Body Parts (Eyes, Nose, Etc.)
- 137 Graphic Screens filled with Exciting Animation, Sound, Pictures, Colors and Music.
- AMAZING! 93 Word Built-In Speech & Sound Vocabulary
- TALKS THROUGH YOUR PC No Additional Hardware Required.

- NO SPECIFIC KEY-PRESSES REQUIRED!
(Kids Press Any Key To Operate)
- NO ADULT SUPERVISION REQUIRED!
Start it, Adjust it & Leave.
- Tested & Proven Effective with children Ages 0-4.

Put your child ahead of the pack! Order Kiddyware Pre-School. Don't Wait. Start your child's education today. **100% Money-Back Guarantee**
Act Now! **\$23.95** + \$3 S&H To:

Action Management, Inc.
915 S. Grand Traverse, Suite B7
Flint, MI 48502
1-800-964-KIDS
MC/VISA/COD/CHECK/MO
CGA, EGA, or VGA Req'd. Demo only \$5
Dealer Inquiries Invited



HOT!

EASY ACCESS TO OVER 6,000 TITLES

900 Software, Inc.

Presents

Shareware & Public Domain

That you can have **INSTANTLY** using your 1200 or 2400 Baud modem

FOR ALL IBM COMPATIBLE PC's

No Disk Fees • Tested Virus Free

Call Now & Get It Now! Avoid The Mail Order Mess & Risk

No need to order and wait, download and use it now. SHAREWARE, the "Try Before You Buy" concept is brought to you instantly. Most titles transferred in 7 minutes or less*

**THE BEST TITLES ...
THE MOST TITLES ... NOW!**

**Windows
3.0
Utilities**

TOP NAME SOFTWARE FROM CATEGORIES INCLUDING:

- Business
- Desktop Publishing
- Education
- Games
- Children's Programs
- Programming
- Power Users
- Special Interest
- Windows 3.0
- Desktop Organizers
- Utilities
- Graphics
- Communications
- Reference
- Computer Aided Design (CAD)

**CALL NOW! AVAILABLE 24 HOURS
1-900-RUN-SOFTWARE**

1-900-786-7638

98¢/min. - \$2.50 1st minute - * 2400 Baud Modem

"Use Your Modem To Select From A Menu
of Over 6000 Titles Organized For Easy Selection
By Even Inexperienced Modem Users"

900 Software, Inc. Voice Line (714) 289-0287
4642 E. Chapman, Suite #285 • Orange, CA 92669

Circle Reader Service Number 142

Circle Reader Service Number 143 www.commodore.ca

Lucky Computer Co.

386-25MHz
40MB VGA LAPTOP
\$2995.00 New From MICRONICS made in U.S.A.

LAPTOP SYSTEM FEATURES

- 4MB RAM exp. to 8MB, 32KCache
 - 1-16 Bit Exp. Slot (1/2 Card)
 - 42MB HD, 19ms, 1.44 Floppy
 - Integrated VGA (640x480)
 - Backlit LCD Display 32 Grayscale
 - 65W AC Power 220/110V Autoswitch
 - MSDOS 4.01 / Windows 3.0
 - 2 Serial, 1 Parallel Port, FCC Class B
- 100MB 18ms HD \$375.00 extra

Complete Systems

1MB/Mono/40MB
 286-12 \$795.00
 386SX20 \$1195.00
 386-25 \$1395.00
 386-33 \$1695.00
 Call for Complete configuration info

486-33 ISA

Complete Desktop System
 □ SUPER VGA, 4MB RAM
 □ 120 MB Hard Drive, 18ms
 □ 128K Cache, exp. to 256K
\$3195.00

Since 1984
 Locations Nationwide
 Call for the one nearest you!

4151 Beltline, Suite 120
 Addison, TX 75244
(800)966-7687
 FAX (214) 387-1580

17338 Southcenter Pkwy
 Tukwila, WA 98188

(800)367-5825
 Mon-Fri 9am to 5pm P.S.T.
 above location only

10773 SW Bvtn.-Hills Hwy
 Beaverton, OR 97005
(800)348-5825

Lucky Computer Co.



HOUS 9am to 6pm
 Mon-Sat C.S.T./P.S.T.

MICRONICS
 COMPUTERS INC.
 authorized distributor

Circle Reader Service Number 183

\$\$\$ Save - Save - Save \$\$\$

Stretch your advertising budget
 with a cost-effective ad in the
PRODUCT MART:

- 1/9 page beginners rates your company can afford
- FREE reader service number
- FREE listing in Advertisers Index
- 2nd color availability
- Designated shoppers' section for PC direct marketers—like you!
- 355,000+ paid readers every month

Call for more information and to reserve your space:

East Coast—919-275-9809

Midwest—919-275-9809

New England—617-749-5852

West Coast—707-451-8209

Earn \$4,000 Per Month From Your Home With A Computer!



FREE CBS 386 SX Computer

Find out how other couples, and individuals like yourself,
 are building a lifetime income!

To receive a free cassette and color literature, call toll-free:

1-800-343-8014, ext. 303

(in Indiana: 317-758-4415) Or Write:

**Computer Business Services, Inc., CBC Plaza, Ste. 303,
 Sheridan, Indiana 46069**

Circle Reader Service Number 230



DISK-COUNT SOFTWARE

800-448-6658 908-541-8768

Lowest Prices including shipping

We will beat any advertised price

Hours

M-F 10-7

SAT 9-1

BUSINESS & UTILITY			SOUND CARDS	
386 Max 5.1	69	Ad Lib	80	
Adobe Type Manager	61	Ad Lib Microchannel	139	
After Dark for Windows	29	Ad Lib PCMS	115	
Amer. Handbook Bus. Let	31	Ad Lib Gold	CALL	
Ami Pro 1.2	285	Ad Lib Software avail.	145	
Automenu	79	SoundBlaster MCA	219	
Becker Tools 2.0	75	SoundBlaster Prof.	CALL	
Calendar Creator 4.0	42	Midt Kit	59	
Central Point Anti Virus	77	Voice Editor	52	
Check-it!	31	SoundMaster II	149	
Copy II PC	27	Pro Audio Spectrum	249	
Corel Draw 2.0	349	Roland LAPC-1	395	
Correct Grammar/Win.	62	MIDI INTERFACE		
DacEasy Accounting	69	Music Quest Midi Card	95	
Definitions Plus	80	MCX-16	145	
Desqview 2.3	129	Roland MPU-PC	135	
D R DOS 5.0	27	Voyetra Jr-22/Pak	129	
Dvorak on Typing	31	Voyetra Sr-22/Pak	199	
Express Publisher	59	Cakewalk	169	
Facilit	37	Cakewalk Pro	169	
Form Tool Gold	119	Copyist App. 2.0	95	
Geoworks Ensemble	59	Master Tracks Pro	199	
Grammatik IV or Wind.	275	Music Printer Plus	419	
Harvard Graphics 2.3	99	JOYSTICKS		
Isak	68	CH Flightstick	44	
Home Lawyer	47	CH Mach III	32	
Label Pro Laser/Dot Mat.	49	Eliminator 3.5MHz Card	28	
Labels Unlimited 3.0	49	Gravis Joystick	35	
Laplank II	42	Kraft KC3	18	
Lotus 1-2-3 v2.3	319	Kraft Thunderstick	28	
Lotus Works	38	Quickshot Warrior	18	
Lotus 1-2-3 v2.3	319	Thrustmaster	88	
Microsoft Game Shop	36	2 Player Game Card	15	
Microsoft Quik Basic or C	35	MICE & TRACKBALLS		
Money Centers 6.5	32	Apcom Mouse Pro I-Pen	70	
Money Matters	37	CH Roller Mouse (serial)	85	
Norton Utilities 6.0 intro	31	CM 290 E Mouse	24	
PageMaker 4.0	459	Expert Mouse Serial	95	
Pascal for Windows	155	Microsoft Bus Mouse	115	
PC Anywhere IV	95	Microsoft Serial Mouse	95	
PC Kwik Powerpak	36	Mouseman Cordless	135	
PC Paintbrush IV+	114	Mouseman Serial	69	
PC Tools 7.0	109	Trackman Serial	79	
PFS: First Choice	95	MODEMS & FAX CARDS		
PFS: First Publisher	109	Freemox Fax 96	139	
PFS: Widow Works	79	Freemox 96 One-Liner	185	
Procomm Plus 2.0	61	MaxFax 9624	135	
Publish It!	139	PM 2400 Internal	129	
Publishers Paintbrush	279	Sportstar 2400 Internal	149	
Quicken 4.0	36	Sportstar 2400 External	89	
Quicken Quik Pay	54	Zoom External 2400	79	
Setback for DOS	35	Zoom Internal 2400	79	
Turbo Card 2.0	229	NEW TITLES STOCKED DAILY. IF IT'S RELEASED, WE HAVE IT!		
Word Perfect 5.1	15			
XTree Easy	30			

Master Card, Visa, Discover, and American Express cards accepted. No surcharge on credit cards. No C.O.D.'s. To order by mail: P.O. Box 3, Carteret, N.J. 07008. All products are new. We do not guarantee compatibility. No returns. Exchange on defective merchandise ONLY. NO EXCEPTIONS! Shipping charges: To the contiguous 48 states \$4. Alaska and Hawaii \$10.15 pc. \$1 ea. add. APO/FPO boxes \$6. Canada \$8.15 pc. \$1 ea. add. N.J. residents add 7% sales tax. Call for price & availability. NEW TITLES STOCKED DAILY. IF IT'S RELEASED, WE HAVE IT!

BEAT THE LOTTERY

29 Lotto Jackpot Winners Have Won \$71.3 Million With GAIL HOWARD's Systems!

ALL NEW COMPUTER ADVANTAGE™ \$49.50 + \$3 S/H The ROLLS ROYCE of Lottery Software!!! Comes Loaded With ALL State Lottery Results. Has 22 Charts & Reports. Incredibly Fast-On Screen Instant Help-Printed Manual.

SMART LUCK® COMPUTER WHEEL™ \$39.50 + \$3 S/H Has 252 Lotto Systems With Specific Win Guarantees. Find One System That Fails Its Win Guarantee, And You Get DOUBLE Your Money Back!

SMART LUCK COMPUTER WHEEL FIVE™ \$37.50 + \$3 S/H 220 Systems for pick-5 Lotteries. Has Won EIGHT Jackpots.

FULL WHEEL GENERATOR™ \$28.50 + \$3 S/H Guarantees a Jackpot If You Trap the Winning Numbers in Your Group.

COMPUTER WHEEL™ AND COMPUTER ADVANTAGE™ SAVE \$10.00! Buy BOTH For Only \$79 + \$3 S/H

We ship IBM/comp. 5.25" disk. Add \$1 for EACH 3.5" disk

SMART LUCK SOFTWARE

Dept. C-12, P. O. Box 1519
White Plains, NY 10602

1-800-876-G-A-I-L(4245) or 914-761-2333

Circle Reader Service Number 109

S-T-R-E-T-C-H

your floppy disks with MAXI Disk

Are you tired of running out of space on your MS-DOS floppy disks? **MAXI Disk** is an easy to use software utility that can give you **420k** on a 360k drive, **800k** on a 720k, **1.4 meg** on a 1.2 meg and **1.6 meg** on a 1.44 meg. Of course, **MAXI** also formats normal DOS disks (360/720/1.2/1.44). Requires DOS 3.20 or later.

\$19.95 (US), \$22.95 (CDN), plus \$2.00 postage & handling from:

Herne Data Systems Ltd., Box 250
Tiverton, ON, CANADA, N0G 2T0

Voice or FAX (519) 366-2732

Circle Reader Service Number 156



ADULT SOFTWARE

CONNOISSEUR COLLECTION

ALL NEW! In 256 Color VGA!!

Disk #CC1 • ★ YOU BE THE STAR ★ The FIRST CUSTOMIZABLE

movie allows you to write the dialog

and the title. You can star with the

partner of your choice. Incredible

scenes display with your dialog. ONLY

AVAILABLE FROM US!

Disk #CC2 • THE FIRST SOUND

MOVIE! The first computer movie

with SOUND. See the incredible 256

color VGA graphics while hearing the

actual dialog. OURS EXCLUSIVELY!

Disk #CC3 • THE BEST MOVIE!

The best computer movie available.

Only for the serious collector. 256

stunning VGA colors.

1 Movie \$29 2 Movie \$49 3 Movie \$65

All CC Disks Require VGA monitor

and hard disk —over 1 MB of action.

ADD \$3 S/H • 3.5" OR FOREIGN ORDERS ADD \$2 PER DISK • IN PA ADD TAX.

VISA/MC Orders only
800-243-1515 Ext. 600FL

24 HOURS/7 DAYS • MUST STATE AGE OVER 21

Or check/MO to: SexXy Software, 2880 Berkey Rd., Dept. 600FL, Hatfield, PA 19440

THE COMPETITION ISN'T EVEN CLOSE!!

Circle Reader Service Number 116

FREE -15 DISKS - FREE FULL OF GREAT SOFTWARE

TRYUS! Get 15/5.25" or 6/3.5" disks of our bestselling no virus software. Business-Education-Programmer's Utilities-Graphics-Desktop publishing-Games-Finance. Also ask for our special Kid's Pkg, our Mac® font pkg, or our Clip Art pkg for IBM/Mac or Amiga. Credit cards only!

PAY ONLY \$5.00 FOR SHIPPING

IBM® APPLE® APPLE GS®
MAC® AMIGA®

SMC SOFTWARE PUBLISHERS

ORDER TODAY - CALL

619 931-8111

since 1985



Circle Reader Service Number 241

IBM SHAREWARE EXCITEMENT

\$1.25 Per 5.25" Disk

\$1.50 Per 3.5" Disk

All The Popular New Programs
For XT's, AT's, and Windows.

No Minimum Order.

FREE CATALOG

In Hawaii **808-935-4614**

All Others **1-800-654-2467**

I. Leonard Co.

P.O. Box 5476, Hilo, HI 96720

Circle Reader Service Number 190

**This spot
is seen
by more than
355,000
readers
each month.**

Windows 3.0 BACKGROUNDS



**Easily
Convert
Images to
BMP, GIF,
IMG, MAC,
PCX, RLE**

MEGABYTES of color images in every product

# 601 Swimsuits	16 color 14.88	256 color 19.88
# 602, 603, 604, 605 and 606		
X-Rated	16 color 14.88	256 color 19.88
# 105 601 - 603	16 color 37.88	256 color 49.88
# 106 604 - 606	16 color 37.88	256 color 49.88
# 107 601 - 606	16 color 72.88	256 color 94.88

Send Check or Money Order to:

Starware Publishing Corporation

P.O. Box 4188 - Dept. 28

Deerfield Bch, FL 33442

(305) 426 - 4552

MUST STATE AGE 21

Include \$3 S&H

Add \$3 for foreign

Add \$3 for 3.5"

FL add 6%

Circle Reader Service Number 130



SOFTSHOPPE, INC.

ASP Member

- ☒ Selected Programs
- ☒ Latest Versions
- ☒ As Low as \$1.50

FREE CATALOG

IBM PD/SHAREWARE

POB 3678, Ann Arbor, MI 48106

Call 800-829-BEST (2378)

or 313-761-7638

Fax 313-761-7639

Circle Reader Service Number 126

MICRO-TECH USA

America's largest PD/Shareware Distributor

Currently over 200,000 programs available and growing!

Order our 200+ page catalog for just \$7.95.

Limited offer: 4 free disks of your choice.

100% guaranteed high quality and virus free.

Name _____

Address _____

City/State/Zip _____

VISA/MC # _____ Exp. Date _____

Signature _____

Catalogue \$7.95 \$ _____

Shipping and Handling \$ 4.00

Foreign Shipping, add \$6.00 \$ _____

Wash St Residents add 8.1% sales tax \$ _____

Total \$ _____

Method of payment

☐ check ☐ money order ☐ VISA/Mastercard

MICRO-TECH USA

P.O. Box 59403, Renton, WA 98058-0403

Circle Reader Service Number 150

www.commodore.ca

CLASSIFIEDS

BOOKS

DISCOUNT COMPUTER BOOKS. Thousands of titles available. Please call or write for your free catalog today. **BOOKWARE**, 147 Campville Rd., Northfield, CT 06778 (203) 283-6973 (800) 288-5662

BUSINESS OPPORTUNITIES

HOW TO MAKE THOUSANDS OF \$\$\$\$ with your own part-time **HOME COMPUTER BUSINESS.** Will teach & help you setup. Send \$1 for INFO, Box 1442-A14, Orange Park FL 32067

CATALOG

Help save the environment! For just \$2, get **EARTH PRIDE** catalog. Complete line of environmentally friendly & 100% recycled products. No animal testing! Send ck or MO to: Tobias & Co., PO Box 738, Brunswick, ME 04011

COMPUTER REPAIR

24 HOUR Computer Repair. Commodore, Amiga, IBM, Apple. A & M Computer Repair, 20 Guernsey Dr. New Windsor, NY 12553. 914-562-7271 1-800-344-4102

Auth. Comm. repairs C64/128, 1541/1571, SX64, 128D & Amiga. Selling DTK-comp computers. Quick service-30 day warranty **MOM & POP's Computer Shop.** 114 N. 16th, Bethany, MO 64424 (816) 425-4400

EDUCATION

B.S. & M.S. in COMPUTER SCIENCE

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science and Master of Science degrees in Computer Science at home. BS subjects covered are: MS/DOS, BASIC, PASCAL, C, Data File Processing, Data Structures & Operating systems. MS program includes subjects in Software Engineering and Artificial Intelligence, and other topics.

AMERICAN INST. for COMPUTER SCIENCES

2101 CC Magnolia Ave. South, Suite 200

Birmingham, AL 35205

800-767-2427

CALL (205) 933-0339

ENTERTAINMENT

SPEECH & MUSIC for IBM Comp! Uses internal speakers. For demo disk send \$2.00 to: Bravo! Software, Demo/CO 1045 Griffin Ave., Mahtomedi, Mn 55115

GAMES

PLAY-BY-MAIL! Free Rules! **DISCOUNT ROLE-PLAYING GAMES!** Free Catalogue, Great Prices! Jester Games, Dept C, 604 S. High St., Kirksville, MO 63501

HARDWARE

SOFTWARE PLUS - Your Commodore, Amiga + IBM connection! 1000's of generic + orig. prgms, hardware + computer systems. For catalog, write: **SOFTWARE PLUS**, 64 W. Cutts, Biddeford, ME 04005 or call 207-284-9426.

HELP WANTED

EASY WORK! EXCELLENT PAY! **ASSEMBLE PRODUCTS AT HOME!** **CALL FOR INFORMATION** 504-641-8003 EXT 11315

MISCELLANEOUS

THE TEE SHIRT FOR PC LOVERS! In Ash or White! Choose: "PC Habit" or "Modem Habit" S-XL: Send \$13.98 + \$2.50 p&h (XXL+\$2) to: PC Habit, Inc. 13876 SW 56 St. Suite 125C, Miami FL 33175. Guaranteed! FL res add tax.

**Call
212-724-0911
for
Classified Ad
Information**

SOFTWARE

IBM - COMMODORE 64 & 128 - AMIGA. 1000's of PD/Shareware programs on 100's of disks. Free listing or \$1 for large descriptive catalog (specify computer). **DISKS O'PLENTY INC.**, 7958 Pines Blvd., Suite 270B, Pembroke Pines, FL 33024

GAME BLAST

Get three top IBM shareware games for just \$3. Free shipping, handling + catalog disk included. Specify H/CGA/EGA/VGA and floppy disk size. Send \$3. check or MO to #1 FreeWare, P.O. Box 131, Hatboro, Pa. 19040. *Offer good till 9/30/91!*

BUY/SELL used software! Lowest Prices! Free list. Specify 64/128, Amiga or IBM. **Centsible Software**, PO Box 930, St. Joseph, MI 49085. 616-982-0327

FREE! IBM PD & SHAREWARE DISK CATALOG

Specify 5¼ or 3½. Low prices since 1988! **ASP APPROVED VENDOR**, Finto Software, Dept M, Rt 2 Box 44, Rosebud, TX 76570

IBM Compatible PD and Shareware. Programs as low as 12 cents each. Send \$1 for catalog disk to: **SMJ SOFTWARE**, Dept PC, 2912 SHERMAN AVE. ROCKFORD, IL 61101

Windows Shareware Libraries Vol #1 & #2

\$30/Vol (10 3½ disks), \$2 for file list. NY add tax. **C&D Programming** PO Box 1305 Brentwood, NY 11717. 516-434-3214

PICK-3 & PICK 4-LOTTERY PLAYERS! LIP is

the Lottery Inventory Program that gives you a fighting chance! IBM/Com. Only \$19.95 + \$2 s/h. OH add 5.5% tax. Specify 5¼ or 3½ disk. OHIO res. ACT NOW and receive FREE 3-digit database (1980-1991 over 3600 entries) **BL LIP Software** P.O. Box 5044, Poland, Ohio 44514

USED SOFTWARE—Free Brochure. Specify Amiga or C64/128. We also buy used software. Send list. **Bare Bones Software**, 940 4th Ave., #222, Huntington, WV 25701 or 1-800-638-1123.

IBM-C64/128-APPLE PD & SHAREWARE - Free catalog or \$2 for sample & catalog (refundable). Specify computer. **CALOKE IND (B)**, Box 18477, Raytown, MO 64133

SOFTWARE



HAVE YOU WON THE LOTTERY? DO YOU OWN LOTTO PICKER? WELL, WHAT DID YOU EXPECT!

LOTTO PICKER 3 for MS-DOS and **LOTTO PICKER 2.1** for Apple II and C64 computers are a must purchase if you are **SERIOUS** about winning larger jackpots and generating more frequent smaller winnings on a routine basis! **LOTTO PICKER 3** works by uncovering hidden biases that creep into every lottery game worldwide and exploiting these biases in order to provide you with qualified lottery plays to make. Your lottery card will be loaded with combinations and number patterns that have proven to be statistically significant for your areas lottery game. Works for all lotteries worldwide (including daily number games). **NEW LOW PRICE \$29.95** (+\$4.55 s/h). **SPECIAL OFFER:** Mail in the title page from a competitors manual and take a \$10 discount! **SATISFACTION GUARANTEED OR YOUR MONEY BACK!** **LOTTO PICKER - the original - the best!**

ORDER TODAY! 1-800-484-1062 s-code 0644

or 1-718-317-1961

GE RIDGE SERVICES, INC., 170 Broadway, Suite 201-CP, New York, N.Y. 10038



PROGRAM YOUR SUBCONSCIOUS FOR SUCCESS

Behavior modification program. Amazing results MS/DOS. Send \$12.95 to: **Jim's Software**, PO Box 1346, Tailors, SC 29687

Beautiful full screen super VGA pictures

Set of 4 3½" disks + catalog. New subject monthly. Send \$10 for set to: **Linken Graphics**, Dept 2, PO Box 98, Manville, NJ 08835

\$\$\$ LOAN CALCULATOR - SHAREWARE! \$\$\$

Calculate Payment, Interest, Term, etc. Print Schedules. Tax Totals. For IBM. Send \$4 (+.75 for 3.5"). **Antelope 2D**, 3190 NW Nyssa, Aloha, OR 97006.

SUPPLIES

GO FIRST CLASS! 100 Sheets of Quality Computer Paper. "PERSONALIZED" with your name and address. Add distinctive touch to your letters. Only \$14.95 + \$3.55 s/h (\$18.50). **SATISFACTION GUARANTEED!** Send to: **Print Trax**, Box 905 Dept. C, Burlington, NC 27216.

COMPUTE Classified is a low-cost way to tell over 335,000 microcomputer owners about your product or service.

Additional Information. Please read carefully.

Rates: \$38 per line, minimum of four lines. Any or all of the first line set in capital letters at no charge. Add \$15 per line for boldface words, or \$50 for the entire ad set in boldface (any number of lines.)

Terms: Prepayment is required. We accept checks, money orders, VISA, or MasterCard.

General Information: Advertisers using post office box number in their ads must supply permanent address and telephone number. Orders will not be acknowledged. Ad will appear in next available issue after receipt.

Closing: First of the second month preceding cover date (e.g. October issue closes August 1.)

CLASSIFIED DISPLAY RATES

Classified display ads measure 2¼" wide and are priced according to height. 1" = \$275; 1½" = \$400; 2" = \$525.

HOW TO ORDER

To place an ad, call Sharon Steinkemper, Classified Manager, **COMPUTE**, 1965 Broadway, New York, NY 10023-5965, at 212-724-0911, FAX 212-724-0825.

CONVERSATIONS

Peter Scisco

GAMES ARE US

COMPUTE: What's in store for computer games in the next three years?

Trip Hawkins: I think what the consumer cares about is the audiovisual realism of the experience. There's a big leap from 8-bit to 16-bit. On the Sega Genesis and the Super Nintendo, the graphics look as good as EGA graphics and even better, because the animation is very good.

C: Will we see the same kind of explosion we saw with these 16-bit systems?

Hawkins: Yes, in fact it's happening right now. It's related to two factors. The smaller factor . . . is the growth of the home office market. A lot of consumers who are home of-

fice workers are going to buy an IBM compatible, and once they make the decision to get one, they can do a lot of different things with it, including entertainment. Videogames have a far more dramatic growth pattern because of the price point of the hardware. Plus, you've got 30 million households that were brought up on the 8-bit videogame systems. You only need a fraction of those to switch over to the 16-bit [market] that's already as big as the IBM floppy disk market.

C: If 16-bit videogame systems become that successful, will developers abandon the personal computer?

Hawkins: A high-end flight simulator like *Chuck Yeager's Air Combat*—you can't do that kind of a product on a videogame system. It needs to have bitmapped graphics and a lot of memory space. You can't do really fast polygon rendering, which is the technique used in flight simulators. We're still going to bring some of our simulations technology down to the videogames, but we can't do it at the same level. Other than that, if you have a good game, you're going to put it on all of the machines.

C: Define multimedia and its role in entertainment.

Hawkins: Here's what it means to me. It has to be interactive. If it's not interactive, then why bother? There are all kinds of digital technology being brought to audio and video, which is fine. But to call it multimedia and say it's a new business—well, what's new about it? It has to be interactive to really be new.

C: Define interactive.

Hawkins: It's to be contrasted with *passive*. If I am watching television

and the information is all one way, the only way I interact with my TV is by pressing buttons on my remote.

C: How is that different from an arcade game? Just pressing a fire button—I wouldn't call that interactive.

Hawkins: There's a lot more going on than that, though the control may be simplistic. The thing about the TV remote is that's a real strong indication of people's desire to interact. Television is passive, and the passivity is brain numbing. People need to be stimulated so they're constantly changing what's on the screen.

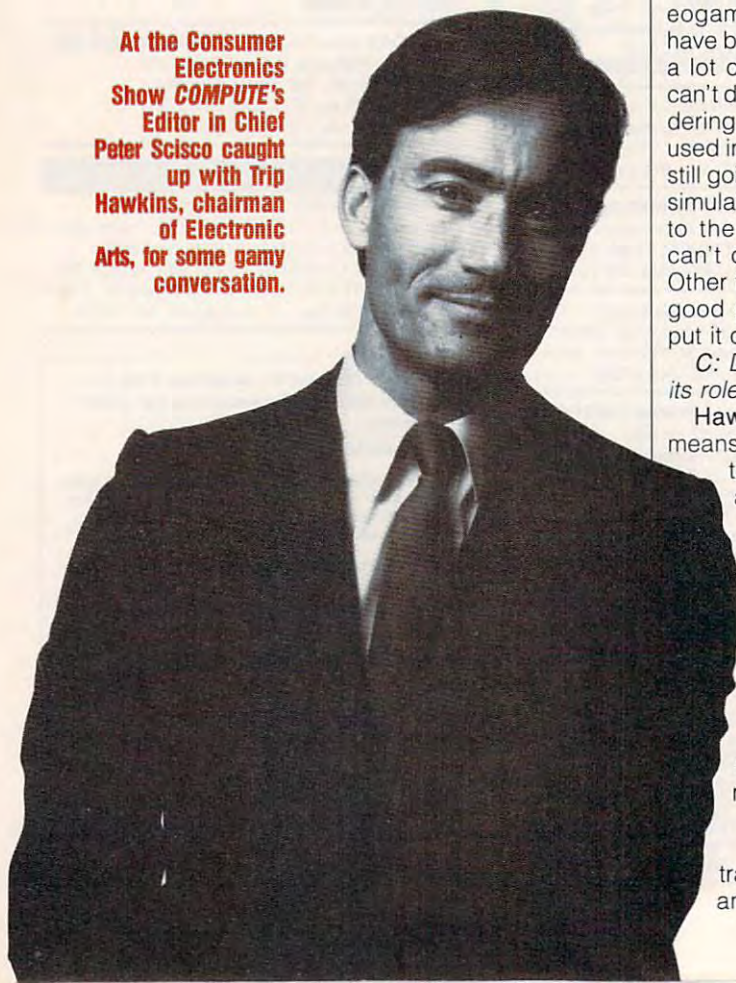
C: I see arcade games as a linear experience.

Hawkins: That may be a function of the environment more than anything else. In a coin-op situation, you're trying to get a couple more quarters out of somebody every couple of minutes. So that influences the way the games are designed. But there's nothing intrinsic about the technology that makes it have to be that way.

C: Can entertainment software play a role in education?

Hawkins: Absolutely. The brain research that's been done in the U.S. over the last 20 years has proven that interaction is the single best way to increase your intelligence. There's no question in my mind that a kid who spends a lot of time playing videogames will have superior skills in pattern recognition. This is a cultural problem. Parents look at a kid playing a videogame, and he's staring at the screen almost like in a trance—and it scares them. They don't realize that that's good. He's intense. There's a lot of brain activity going on. If parents see their kid lounging around watching the TV, they don't realize that he's not being stimulated, that there's not as much brain activity going on. □

At the Consumer Electronics Show **COMPUTE's** Editor in Chief Peter Scisco caught up with Trip Hawkins, chairman of Electronic Arts, for some gamy conversation.



USE THIS CARD TO REQUEST FREE INFORMATION ABOUT PRODUCTS ADVERTISED IN THIS ISSUE.

Clearly print or type your full name, address, and phone number. Circle numbers that correspond to the key numbers appearing on advertisements and in the Advertisers Index. Mail the postage-paid card today. Inquiries will be forwarded promptly to advertisers. Although every effort is made to ensure that only advertisers wishing to provide product information have reader service numbers, **COMPUTE** cannot be responsible if advertisers do not provide literature to readers.

Cards valid only until expiration date.

This card is for product information only. Address editorial and customer service inquiries to **COMPUTE**, 324 W. Wendover Ave., Greensboro, NC 27408.

COMPUTE'S FREE PRODUCT INFORMATION SERVICE

Name _____

Address _____

City _____ State/Province _____ ZIP _____

Country _____ Phone _____

- A. What kind of computer(s) do you own? ☐ IBM PC/Compatible ☐ Tandy ☐ Amiga
☐ Macintosh ☐ Apple II ☐ Commodore 64/128 1 2 3
- B. Do you use your computer mostly for ☐ playing games 4 5 6
☐ working in your home office ☐ working in office outside home ☐ school work 7 8 9 10
- C. How many hours a week do you use your computer? ☐ 5 ☐ 15 ☐ 25 ☐ 35+
11 12 13 14
- D. Which word processor do you use? ☐ WordPerfect ☐ Microsoft Word 15 16
☐ PC Write ☐ Wordstar ☐ DisplayWrite ☐ Other 17 18 19 20
- E. Which spreadsheet do you use? ☐ Lotus 1-2-3 ☐ Excel ☐ Quattro Pro 21 22 23
- F. Which online services do you use? ☐ CompuServe ☐ GEnie ☐ America Online 24 25 26
☐ Prodigy ☐ Q-Link 27 28
- G. What other computer magazines do you read? ☐ PC/Computing ☐ Computer Gaming World 29 30
☐ Home Office Computing ☐ Computer Shopper ☐ PC Sources ☐ PC Magazine ☐ PC World 31 32 33 34 35
- H. Do you influence the purchase of PCs where you work? ☐ Yes 36
- I. What is your total household income? ☐ >\$30,000 ☐ >\$40,000 ☐ >\$50,000 ☐ >\$75,000
37 38 39 40
- J. How many times per year do you purchase by mail order? ☐ 3-5 ☐ 6-10 ☐ >10
41 42 43
- K. What is your age? _____ years

Circle 101 for a one-year new subscription to **COMPUTE**. You will be billed for \$12.97.

101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116
117	118	119	120	121	122	123	124
125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148
149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164
165	166	167	168	169	170	171	172
173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188
189	190	191	192	193	194	195	196
197	198	199	200	201	202	203	204
205	206	207	208	209	210	211	212
213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228
229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244
245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260
261	262	263	264	265	266	267	268
269	270	271	272	273	274	275	276
277	278	279	280	281	282	283	284
285	286	287	288	289	290	291	292
293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308
309	310	311	312	313	314	315	316
317	318	319	320	321	322	323	324
325	326	327	328	329	330	331	332
333	334	335	336	337	338	339	340
341	342	343	344	345	346	347	348
349	350	351	352	353	354	355	356
357	358	359	360	361	362	363	364
365	366	367	368	369	370	371	372
373	374	375	376	377	378	379	380
381	382	383	384	385	386	387	388
389	390	391	392	393	394	395	396
397	398	399	400	401	402	403	404
405							



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 853 PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE Magazine
Reader Service Management Department
P.O. Box 5145
Pittsfield, MA 01203-9654



**USE
THIS
CARD
FOR
FREE
PRODUCT
INFORMATION**

 www.commodore.ca

Get everything you need in one place.

Join CompuServe. You'll become a member of the most comprehensive computer information service on Earth. With more experts, greater capabilities, and more interesting people than you can find anywhere else.

To find out more about us, call 1-800-848-8199 or return this card today.

Please send me your CompuServe Information Services brochure.

Name _____

Address _____

City, State, Zip _____

Telephone _____

 **CompuServe®**
www.commodore.ca



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

COMPUTE - September

BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 407

COLUMBUS, OHIO

POSTAGE WILL BE PAID BY ADDRESSEE

CompuServe®

ADVERTISING DEPARTMENT
PO BOX 20212
COLUMBUS OH 43220-9988



 www.commodore.ca

State-of-the-art equipment and materials included with ICS training!



Yes! I want to learn more! Please send me FREE FACTS, color brochure and full information about how I can train at home for the career I have chosen. **CHECK ONE BOX ONLY!**

Mail this Post-Paid Card Today!

No cost or obligation. No salesman will visit.

Computer Career Programs

- ☐ ASB Degree in Applied Computer Science
- ☐ Computer Programming
- ☐ Computer Programming/COBOL
- ☐ Personal Computer Specialist
- ☐ Computer-Assisted Bookkeeping

Associate in Specialized Business Degree Programs

- ☐ Business Management
- ☐ Accounting
- ☐ Business Mgmt.—Marketing option
- ☐ Business Mgmt.—Finance option
- ☐ Hospitality Mgmt.

Associate in Specialized Technology Degree Programs

- ☐ Mechanical Engineering Technology
- ☐ Electrical Engineering Technology
- ☐ Civil Engineering Technology
- ☐ Industrial Engineering Technology
- ☐ Electronics Technology

Career Diploma Programs

- ☐ High School
- ☐ Bookkeeping
- ☐ Secretary
- ☐ Medical/Dental Office Assistant
- ☐ Auto Mechanics
- ☐ Hotel/Restaurant Management
- ☐ Surveying and Mapping
- ☐ Drafting
- ☐ Air Conditioning & Refrigeration
- ☐ Travel Agent
- ☐ Wildlife/Forestry Conservation
- ☐ Art
- ☐ Animal Care Specialist
- ☐ Diesel Mechanics
- ☐ Electrician
- ☐ Small Business Management
- ☐ Electronics
- ☐ Legal Secretary
- ☐ Microcomputer Repair
- ☐ Catering/Gourmet Cooking
- ☐ Fitness & Nutrition
- ☐ Motorcycle Repair
- ☐ TV/VCR Repair
- ☐ Legal Assistant
- ☐ Child Day Care
- ☐ Police Sciences
- ☐ Private Security Officer
- ☐ Interior Decorating
- ☐ Gun Pro
- ☐ Fashion Merchandising
- ☐ Journalism/Short Story Writing
- ☐ Photography
- ☐ Dressmaking & Design

International Correspondence Schools, North American Correspondence Schools

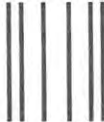
NAME _____ AGE _____
 STREET _____ APT.# _____
 CITY/STATE _____ ZIP _____
 PHONE () _____

Dept. PDZS91S Compute

280X

Ⓜ A Subsidiary of National Education Corporation

 www.commodore.ca



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 1273 SCRANTON, PA

POSTAGE WILL BE PAID BY ADDRESSEE

INTERNATIONAL CORRESPONDENCE SCHOOLS
NORTH AMERICAN CORRESPONDENCE SCHOOLS
925 OAK STREET
SCRANTON PA 18540-9888





Select
5 Books
for only \$4⁹⁵

ENROLLMENT
APPLICATION

Please accept my membership in **The Computer Book Club with the BYTE Book Club** and send the 5 volumes listed below, billing me \$4.95. If not satisfied, I may return the books within ten days without obligation and have my membership cancelled. I agree to purchase at least 3 books at regular Club prices during the next 2 years, and may resign any time thereafter. A shipping/handling charge and sales tax will be added to all orders.

Name _____

Address _____

City _____ State _____ Zip _____

Valid for new members only. Foreign applicants will receive special ordering instructions. Canada must remit in U.S. currency. This order subject to acceptance by The Computer Book Club.

CMPT991



The Computer Book Club
with the **BYTE Book Club**



Select
5 Books
for only \$4⁹⁵

ENROLLMENT
APPLICATION

Please accept my membership in **The Computer Book Club with the BYTE Book Club** and send the 5 volumes listed below, billing me \$4.95. If not satisfied, I may return the books within ten days without obligation and have my membership cancelled. I agree to purchase at least 3 books at regular Club prices during the next 2 years, and may resign any time thereafter. A shipping/handling charge and sales tax will be added to all orders.

Name _____

Address _____

City _____ State _____ Zip _____

Valid for new members only. Foreign applicants will receive special ordering instructions. Canada must remit in U.S. currency. This order subject to acceptance by The Computer Book Club.

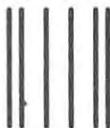
CMPT991



The Computer Book Club
with the **BYTE Book Club**

www.commodore.ca

Exceptional
Savings!



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 9 BLUE RIDGE SUMMIT, PA 17214

POSTAGE WILL BE PAID BY ADDRESSEE

The Computer Book ClubSM
with **BYTE Book Club**[®]
Blue Ridge Summit, PA 17214-9988



Exceptional
Savings!



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 9 BLUE RIDGE SUMMIT, PA 17214

POSTAGE WILL BE PAID BY ADDRESSEE

The Computer Book ClubSM
with **BYTE Book Club**[®]
Blue Ridge Summit, PA 17214-9988



 www.commodore.ca

Now! NRI training assures your success in three of today's fastest-growing computer fields

These days, success comes to those who know how to get the most from a computer. People who know how to analyze systems, design and develop software to meet specific needs, program in the languages that will get the job done.

Now NRI has the training you need to get a competitive advantage in today's rapidly expanding computer world. Choose from NRI at-home training in PC Systems Analysis, PC Software Engineering Using C, or Computer Programming...and get the computer, the software, and the hands-on skills you need for advancement, a new career, or a business of your own.

1. Learn the art of systems analysis and get ahead in today's competitive business world

The name of the game in business today is setting up systems that will increase efficiency, productivity, and profits—using a computer both as the analysis tool and the ultimate system solution.

Now, NRI's new at-home training in PC Systems Analysis gives you the computer, the software, and the analytical skills to perform this vital role for any size business.

Step by step, you learn the art of systems analysis: how to define and break down the problem, interview users, interpret and model data, prepare proposals—every skill you need to map out the optimal system solution. But that's just the beginning.

Training includes a powerful computer system and software you keep

NRI gives you hands-on experience with an AT-compatible computer system—complete with 1.2 meg floppy drive, monitor, modem, and a full meg of RAM—all yours to train with and keep!

You begin by learning BASIC, today's most popular PC programming language. Then, using the Microsoft® Works software also included in your training, you master four essential PC applications: word processing, spreadsheets, database management, and data communications.

Soon your computer becomes your most important analysis tool, allowing you to produce cost-benefit analyses, feasibility studies, long-range projections, complex databases, and more.

Send today for your free NRI catalog, and discover how NRI's new training can make you a key player on any business team.



2. Build your own software as you build a money-making career with NRI's new training in PC Software Engineering Using C

Jobs in developing custom software will boom in the 1990's, according to the Bureau of Labor Statistics—up from about 500,000 positions in 1986 to over 1.2 million by the year 2000. Now

you can get in on the rapid growth of this multi-billion dollar industry with NRI's new training in PC Software Engineering Using C.

Train with Borland C++® and a powerful AT-compatible computer

Your NRI training gives you hands-on experience with a powerful IBM PC/AT-compatible computer system, including 2400 baud internal modem, 30 meg hard drive, VGA color monitor, and advanced programming software—Borland's Turbo C++.

You learn software engineering from start to finish, mastering each of the essential phases involved in developing a full range of applications. From analysis to design to advanced programming in C, you're in command as you assemble the building blocks for success as a software engineer.

Discover how NRI gives you the experience and the know-how, the computer and the software to advance on the job or break into a

software development business of your own. Send for your free NRI catalog today!

See other side to learn about NRI training in Computer Programming—one more way NRI can give you the computer know-how you need for success →

SEND CARD TODAY FOR FREE NRI CATALOG

NRI

Schools

McGraw-Hill Continuing Education Center
4401 Connecticut Avenue, NW, Washington, DC 20008



YES! Send me the free catalog I've checked and show me how NRI can give me the state-of-the-art computer training I need for success.

☒ Check one free catalog only

- ☐ PC Systems Analysis
- ☐ PC Software Engineering Using C
- ☐ Computer Programming

Other computer career training:

- ☐ Microcomputer Servicing
- ☐ Desktop Publishing and Design
- ☐ Word Processing Home Business

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

Accredited Member, National Home Study Council

www.commodore.ca

Only NRI gives you the kind of real-world training you need for success

3. Begin a high-paying career — even a business of your own—in computer programming

Now, with NRI training in Computer Programming, you can give computers the power to carry out an astonishing range of business, professional, and personal applications. Because only NRI gives you hands-on programming experience with a powerful AT-compatible computer, plus training in four of today's hottest computer languages—BASIC, Pascal, C, and COBOL.

NRI gives you everything you need to succeed in programming, today's top-growth computer career field

Your NRI lessons first guide you step by step through the fundamentals, giving you a clear understanding of the programming design techniques used every day by successful micro and mainframe programmers. Then the fun really begins.

With your personal NRI instructor always available to help, you use your computer and software to actually design, code, run, debug, and document programs in BASIC, Pascal, C, and COBOL. Rounding out your training, you use your modem—also included in your course—to "talk" to your NRI instructor, meet fellow students, even download programs through NRI's exclusive programmers network, PRONET.

For vivid descriptions of every aspect of NRI's innovative Computer Programming course, send for your free catalog today!



NRI training—geared to the real world

Now you can enter today's rapid-growth computer fields with the practical skills, hands-on experience, and priceless confidence you need for success.

NRI's three exciting new computer courses (one described here, two on the other side) prepare you for success in today's expanding computer world by giving you first-hand experience with today's most in-demand computing tools:

► NRI's **PC Systems Analysis** course includes a powerful AT-compatible computer system that features a full megabyte of RAM, high-resolution monitor, modem, and 1.2 meg floppy drive. Plus you work with three popular software packages — MS-DOS, GW-BASIC, and Microsoft Works.



► The centerpiece of NRI's **PC Software Engineering Using C** course is also an AT-compatible system, this time featuring a VGA color monitor, 30 meg hard drive, 1 meg RAM, and a 2400 baud Hayes-compatible modem. What's more, you train with and keep in-demand software including MS-DOS and Borland's popular Turbo C++.



► Choose NRI's **Computer Programming** course and you'll get hands-on programming experience as you work with an AT-compatible computer featuring

monitor, modem, 1 meg RAM, and floppy drive. Best of all, you learn to program in four of today's hottest languages using quality software compilers—GW-BASIC, Utah Pascal, Mix C, and Utah COBOL.



SEND CARD TODAY FOR FREE NRI CATALOG

(☒ Check on the other side for the catalog you want!)



BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 10008 WASHINGTON, D.C.

POSTAGE WILL BE PAID BY ADDRESSEE

NRI School of Electronics

McGraw-Hill Continuing Education Center
4401 Connecticut Avenue, NW
Washington, DC 20078-3543

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



Train at home the NRI way...with step-by-step lessons, personal guidance from your experienced NRI instructors, plus hands-on training designed around a computer and software you keep.

Get all the facts about NRI training in your choice of three high-growth computer fields: PC Systems Analysis, PC Software Engineering Using C, or Computer Programming.

Send for your free NRI catalog today! If the card is missing, write to NRI Schools, McGraw-Hill Continuing Education Center, 4401 Connecticut Avenue, NW, Washington, DC 20008.



IBM is a registered trademark of IBM Corporation.
www.commodore.ca



MAKING THE MOST OF THE WONDER YEARS

THAT'S THE WONDER OF
NO WORDS SOFTWARE™
FROM MCGEE.™



Your child's early years—a time when everything is new, everyday an adventure. And every moment a learning experience.

Now, you can enhance the wonder of learning with your personal computer and McGee NO WORDS Software. Designed for children ages two to six, *McGee*, along with *Katie's Farm*™ and *McGee at the Fun Fair*™, takes children on

the various adventures of a lovable character named McGee.

Using animation, digitized sound and graphics from a child's perspective, these programs encourage children to interact and explore, holding them spellbound for hours as McGee's discoveries become their own.

A 1990 Parent's Choice Award winner, McGee, as well as Katie's Farm and McGee at the Fun Fair, are available for Macintosh® (black and white or color), Apple IIGS,



Amiga and IBM/Tandy machines. For the name of your nearest dealer or to order McGee programs direct, call

1-800-776-0450.

McGee NO WORDS Software. Making the most of the wonder years and laying a foundation for learning in all the years to come.

McGee™
McGee Software.
Fun for the future.



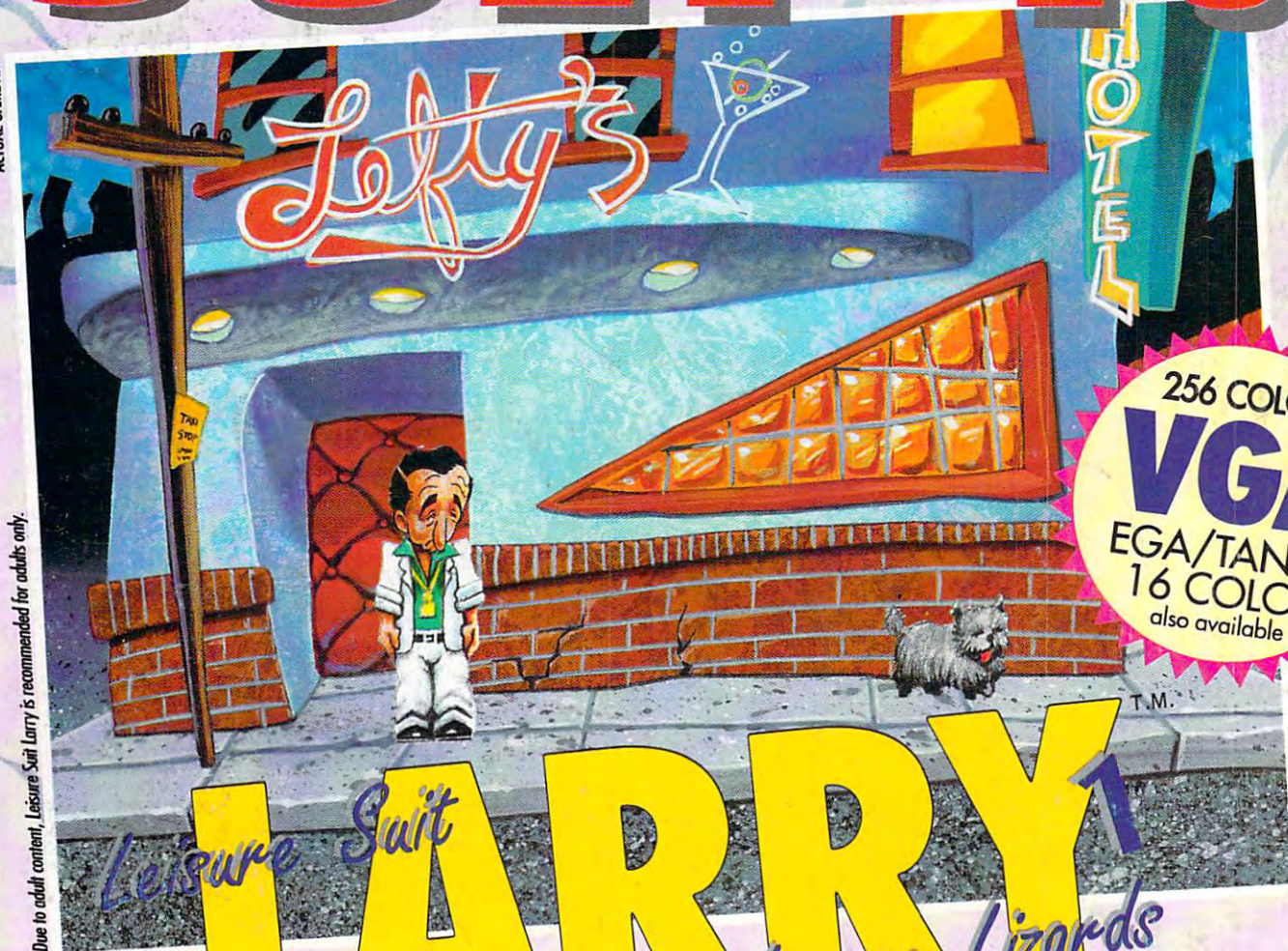
Apple and Macintosh are registered trademarks of Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corporation. Tandy is a registered trademark of Tandy Corporation. Amiga is a registered trademark of Commodore-Amiga, Inc.

Circle Reader Service Number 106

www.commodore.ca

A V A I L A B L E
JULY 1!

ACTUAL GAME ART



256 COLOR
VGA
 EGA/TANDY
 16 COLOR
 also available

Leisure Suit

LARRY

In the Land of the Lounge Lizards

The NEW, completely reillustrated version of the original Leisure Suit Larry game, **Leisure Suit Larry in the Land of the Lounge Lizards** has been enhanced for a new generation of computers.

That's right, the game that launched the legend will soon be available in eye-popping high resolution for your MS-DOS computer. All new hand-painted backgrounds and entirely redrawn animation give a totally fresh look and feel to this long-time favorite. Add a sparkling new stereo soundtrack with major sound card support, and you have a completely new experience in computer gaming for grownups.*

PLEASE NOTE: All versions ship on **high density disks** (5.25" 1.2 Megabyte, 3.5" 1.4 Megabyte), and a **hard disk is required**.

**ORDER BEFORE
 SEPT 1, 1991
 and receive**

**a FREE LARRY
 AUTOSHADE!**

Autoshade not included with Special Upgrade Offer



SPECIAL UPGRADE OFFER

If you currently own Leisure Suit Larry in the Land of the Lounge Lizards, you can upgrade to the new version for \$25. Send either Disk #1 of your present version or the front page of your game documentation plus a check or money order for \$25 (to cover the cost of the upgrade plus shipping and handling) to Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614, Attn: LSL1 Upgrade. Be sure to include your return address, and say whether you'll need 3.5" or 5.25" disks.

No upgrade orders will be accepted by

Circle Reader Service
 Number 144

www.commodore.ca

Suggested Retail Price \$59.95
 OFFER NO.
 00212

TO ORDER CALL

1-800-326-6654

Or send a check or money order for \$59.95 to
 Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614