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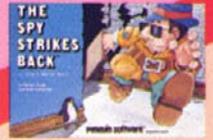
Strategy



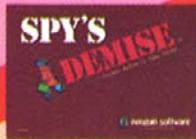
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At Penguin, we don't rely on the same old game formulas, adding to the mish-mash of look-alike games already on the market. We look for creativity, originality, and innovation. Games like **Minit Man**, challenging you with two types of arcade action simultaneously; **Coveted Mirror**, an adventure with animation and arcade games throughout; **The Spy Strikes Back**, an arcade game with strategy and a touch of adventure; **Pensate** and **Tactic 9**, games that make you think; and **Expedition Amazon**, an intriguing and humorous fantasy game.

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Dungeon Fun Fans Note: Level 3 is under construction, and shall be ready for computer bilingual descent next issue. While you're waiting, delete line 5575 from Level 2 and everything will work much better.

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Advertising: East Coast sails, Paul McGinnis Company, 690 Broadway, Massapequa, NY 11758, (212) 490-1021; Midwest and Rocky Mountain sails, Market/Media Associates, 435 Locust Road, Wilmette, IL 60091, (312) 251-2541; West Coast sales, Mighty Mike Antich, Softline, 7250 Laurel Canyon Boulevard, Box 60, North Hollywood, CA 91603, (213) 980-5074.

Softline, Volume 3, Number 1. Copyright © 1983 by Softtalk Publishing Inc. All rights reserved, okay? ISSN:0745-4988. Softline is published on the fifteenth day of

every other month by Softtalk Publishing Inc., 7250 Laurel Canyon Boulevard, North Hollywood, California; (213) 980-5074.

Composition by those wonderful people at Photographics, Hollywood, California. Printing by the friendly folks of Volkmuth Printers, Saint Cloud, Minnesota.

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GAME LIBRARY

Like a bastion of computer culture before the onslaught of micro mediocrity, a shining beacon of gaming goodness cutting through the murky miasma of just so-so software, the Game Library deals only with the right stuff. It lives to serve.

All Recommended programs are the best of the current releases and carry the very highest recommendation. The programs in the Stacks were once so-called and have since graciously stepped aside to make room for new blood. In neither of these categories would you be risking wasting your money. New Arrivals includes any damn fool thing that meets that single criterion, and the items are largely unseen except where obviously otherwise.

RECOMMENDED

The Coveted Mirror. Berns, Thomason. *Apple*. Warm-hearted, well-puzzled, pretty hi-res graphics adventure, interspersed with minigames and a couple of simple arcade-type sequences. Talk to everyone in a medieval village to find missing piece of magic mirror, all on borrowed time.

Penguin Software, 830 Fourth Avenue, Geneva, IL 60134. \$19.95.

Exodus: Ultima III. British. *Apple, Atari*. By far the best in the *Ultima* (so far) trilogy. Role-playing fantasy with good plot, everything integrated, clues everywhere—and there's a lot more to everywhere than meets the eye. Multiple heroes. Many hours of colorful, animated, solid role-playing fantasy in Lord British's inimitable style.

Origin Systems, Box 58009, Houston, TX 77058. Atari. 48K, \$54.95.

Gnosis VII. *Apple*. Unique logic game. No graphics, doesn't need 'em. Determine the secret names of seven gods who move between seven towns. Player must make a living, worship, learn skills, earn sanctuary by figuring out which god rules what and which towns that god is currently influencing. Mind-stretching. Program is totally open, with line guide to key routines printed in manual.

Magnetic Harvest, Box 255, Hopkins, SC 29061. \$19.95.

Infidel. Berlyn. *Most computers*. Infocom's Egyptological adventure: Find pyramid, uncover pyramid, find entrance to pyramid . . . then it gets tough. A November release, kicking off the company's Tales of Adventure series.

Infocom, 55 Wheeler Steet, Cambridge, MA 02138. \$49.95.

I.Q. Baseball. *Apple*. Beautifully executed, amusing baseball trivia game. Major and minor league levels—minor is still about the majors but fine for duffers; major league's only for superbuffs. Answering correctly moves players around the diamond—singles, doubles, and triples, depending on difficulty of question. Rain delays and a relief pitcher, too. Davka, 845 North Michigan Avenue, Chicago, IL 60611. \$24.95. Supplementary disks by team (American and National leagues and World Series), \$14.95.

Masquerade. Johnson. *Apple*. Illustrated adventure with diabolical puzzles, wonderful graphics in minor plot. But the puzzles are all hard but satisfying. Last one's a dog. Shaggy.

Phoenix Software, 64 Lake Zurich Drive, Lake Zurich, IL 60047. \$34.95.

Music Construction Set. Harvey. *Apple*. In the same vein as its pinball predecessor, this gem puts two-voice music through the Apple's speaker, or up to six voices through Mockingboard-equipped machines. No knowledge of music is required to write, edit, or transpose music. Also lets you use music from within your own programs. Bravo.

Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. \$35.

Ringside Seat. Saracini. *Apple, Commodore 64*. For boxing fans only—nostalgia and fascination, pitting great boxers against one another. Carefully rated in every possible facet of the skill, the boxers spar according to their real-life records; player is the manager. Comes with many real boxers from all divisions, and player can make more. Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94903. \$34.95.

Spare Change. Zeller, Zeller. *Apple*. Slapstick comedy in an arcade-type game. Not Broderbund's most timeless work, but thoroughly enjoyable. Whimsical theme and multiple cartoons fill in the gaps.

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. \$34.95.

NEW ARRIVALS

Fiction

Bandits. Ngo, Bertoni. *Apple, VIC-20*. Just about the only differences between this cart and the 48K original are fewer, simpler colors and a limited repeat-shot function. Also, incredibly, the animation is actually smoother at the highest levels. Best arcade action available for this machine. Sirius, 10364 Rockingham Drive, Sacramento, CA 95827. \$39.95.

Bats in the Belfry. Moore. *Apple*. A four-story schoolhouse requiring the expertise of Swat & Squash Exterminators to net all its bats, including the vampire variety, before they reach the belfry. That's where you come in. Mind the trap doors and spiders. Phoenix, 64 Lake Zurich Drive, Lake Zurich, IL 60047. \$29.95.

Capture the Flag. Edelstein. *Atari*. Two-player 3-D maze chase game. ("Wayout: The Special Edition.") Still the most impressive graphics of its type. Sirius, 10364 Rockingham Drive, Sacramento, CA 95827. \$39.95.

Combat Leader. *Commodore 64*. Conversion of Atari strategy game with 70 individually rated tanks, scrolling battlefield, and eight speed levels. Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94043. Disk or cassette. \$39.95.

Final Orbit. Thompson, Bertoni. *VIC-20*. Leonard Bertoni translates Dan Thompson's elegant scrolling style for the VIC. Includes pinball game, *Bumper Bash*, as second feature. Sirius, 10364 Rockingham Drive, Sacramento, CA 95827. \$39.95.

Flight Simulator II. Artwick. *Apple, Atari (48K), Commodore 64*. High-speed color-fill 3-D graphics representations of 80 U.S. airports, day, dusk, or night flying, with user-adjustable weather conditions, as seen from the fully instrumented cockpit of a Piper Cherokee. Dogfight game included. SubLogic, 713 Edgebrook Drive, Champaign, IL 61820. \$49.50.

Flip and Flop. Nangano. *Atari, Commodore 64*. Multiscreen, scrolling maze of tiles in which you are alternately a hopping kangaroo and a swinging monkey. Thirty-six levels of play; scored by Jerry White. First Star, 22 East Forty-first Street, New York, NY 10017. Atari disk and 32K cassette, \$29.95; 16K cart, \$39.95. Commodore disk and cassette, \$29.95; cart, \$34.95.

Gumball. Cook. *Apple*. It's player versus production line in this nicely animated catch-'em-if-you-can. Takes strategy too. Cartoons add to the fun. Broderbund, 17 Paul Drive, San Rafael, CA 94903. \$29.95.

Julius Erving and Larry Bird Go One-On-One. Hammond. *Apple*. Arcade simulation basketball game is the result of a collaboration between cager stars Dr. J. and the Bird and programmer Eric Hammond. You get to assume the moves and strategies of these sports giants as you go up against hot and cold shooting spells, fours, backboard shattering, and player fatigue. Then hold out for more money. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. \$40.

Lucky '7' Adventure. *Commodore 64*. Blackjack, slot machine, roulette, and four more gambling challenges populate this disk, along with shifty dealers and lucky ladies. Pioneer, 217-620 View Street, Victoria, B.C., Canada V8W 1J6. \$31.95, Canadian.

Mad Rat. Zintsmaster. *Apple*. Logan Zintsmaster presents for your inspection: three blind mice in a department store with multilevel horizontal escalators, elusive cheeses, and restless cats. Phoenix, 64 Lake Zurich Drive, Lake Zurich, IL 60047. \$24.95.

NATO Commander. Meir. *Atari, Commodore 64.* Real-time war game scrolls all over Europe during a Soviet invasion as you orchestrate the efforts of the NATO forces to prevent World War III. MicroProse, 10616 Beaver Dam Road, Hunt Valley, MD 21030. Disk or cassette. \$34.95.

New York City. Segal. *Atari, Commodore.* The first day of your vacation in the Big Apple and you have to cope with automats, muggers, bank robbers, and goodness knows what all. Practice evasive scrolling through traffic; watch your gas and money. Synapse, 5221 Central Avenue, Richmond, CA 94804. Atari, disk and cassette. Commodore, disk. \$34.95.

Oil's Well. Mitchell. *Apple, Atari, Commodore 64.* A double-jointed drill bit snakes through subterranean passages in search of oil pellets, putting the bite on sundry steel-munching creatures before they perforate your pipe. Sierra On-Line, Sierra On-Line Building, Coarsegold, CA 93614. Apple, \$29.95. Atari and Commodore, disk, \$29.95; cart, \$34.95.

Pro Golf. *Apple, Atari, Commodore 64, IBM.* Tom Weiskopf, long-time PGA champ, picks out the eighteen toughest holes in the tour just for you, with your handicap varying according to wind conditions and such. Tom gives you tips on each hole. HomeComputer Software, 1307 South Mary, Suite 209, Sunnyvale, CA 94087. \$39.95.

Queen of Hearts. Lyon. *Apple, Atari.* A pinball game from the masters of strategy gaming. Considerably faster than *Tigers in the Snow*. Strategic Simulations, 883 Stierlin Road, A-200, Mountain View, CA 94043. \$34.95.

Quizardry. Garrett. *Commodore 64.* A graphic adventure. Tell the Quizard the capital of Outer Mongolia, among other things, to collect the six keys of knowledge and get out of his dungeon. Pioneer, 217-620 View Street, Victoria, B.C., Canada V8W 1J6. \$36.95, Canadian.

Rainbow Walker. Coleman. *Atari, Commodore 64.* Q*bertesque action for the younger set. Cedric, aided by his magic shoes, tries to recolor a rainbow and avoid borbuls, whirling devils, gruebirds trying to take the light out of his life. Synapse, 5221 Central Avenue, Richmond, CA 94804. Atari, disk and cassette. Commodore, disk. \$34.95.

The Return of Heracles. Smith. *Atari.* You get to sign up and play nearly every hero of Greek mythology to help you execute the twelve tasks of Zeus in this involving hi-res fantasy. Dynamite bouzouki music. Quality, 6660 Reseda Boulevard, Suite 105, Reseda, CA 91335. \$32.95.

Sentinel. Brandenburg. *Commodore 64.* Billed as the first real 3-D game for the C-64. You're in the cockpit of your starship. Radar signals approach of nasty life forms. Uh-oh. . . . You also get to refuel, land, and meet interesting creatures. Synapse, 5221 Central Avenue, Richmond, CA 94804. Disk and cassette. \$34.95.

Seafox. Hobbs, Wise. *VIC-20.* Mike Wise puts this Apple submarine favorite on a cartridge, with depth charges, mines, torpedoes, and friendly dolphin intact. Broderbund, 17 Paul Drive, San Rafael, CA 94903. \$34.95.

Space Knights. Heller, Kurcina. *Atari.* This consists of an illustrated science fiction novel and a disk of several related game programs. Reston Publishing, 11480 Sunset Hills Road, Reston, VA 22090. \$24.95

Speed Racer. Warling. *Commodore 64.* He's a demon on wheels. . . . Avoid pedestrians as you speed down urban street for "heavenly" points, or run over everything for "devilish" points. T&F Software, 10902 Riverside Drive, North Hollywood, CA 91602. \$29.95.

The Standing Stones. Schmuckal, Sommers. *Apple.* Role-playing dungeon funsters Peter "Apple Adventure" Schmuckal and Dan Sommers give you 200 monsters, fifteen levels, games within a game, a few yuks, and a three-dee effect as you quest after that darn Holy Grail. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. \$40.

Wordrace. Simon, Freedman, Cohon, Dyzier, Lindsay. *Commodore 64.* Includes a four-level vocabulary game (beginner to impossible), history game, and sports trivia game. Don't Ask Software, 2265 Westwood Boulevard, Suite B-150, Los Angeles, CA 90064. Disk and cassette. \$34.95.

Nonfiction

Games for your Atari/VIC-20/Timex-Sinclair 1000/2000. Trade paperbacks featuring twenty-odd listings of arcade-style games, brain teasers, and word games, plus hints for writing programs and extending listings. Dell, 1 Dag Hammarskjold Plaza, New York, NY 10017. \$5.95 each.

Magic Computer Input/Output Mug. Now here's something we hope you'll really like. When you pour "hot liquid" in the mug, the "programmer on duty" message disappears, and the monitor screen comes "on" and reveals the message "programmer off duty." Ten-ounce size, white English porcelain. Sweet Gum, 15490 Seventh Avenue N.W., Suite 204, North Miami, FL 33169. \$8.95; \$2 shipping and handling.

Magstik. *Apple, IBM.* Look, ma, no springs! This is billed as the first and only magnetic self-centering joystick in captivity. Dual side-by-side push buttons, human-engineered case. Tech Designs, 3638 Grosvenor Drive, Ellicott City, MD 21403. \$64.95.

VIC Games. Nick Hampshire. Listings for thirty-six arcade, strategy, and educational word games for the VIC-20. Sound, music, graphics, and utility programs, too. Hayden Book Company, 50 Essex Street, Rochelle Park, NJ 07662. \$12.95.

"**The Interactive Experience,**" by Michael Berlyn and Marc Blank, excerpted in September/October *Sofline*, will be published next spring in *Digital Deli: The Ultimate Computer Book*, by Workman Publishing, 1 West Thirty-ninth Street, New York, NY 10018.

Reference

Humpty Dumpty. Reilly. *Atari.* RAM-resident screen dump prints directly to the screen in modes 0, 7, 7+, 8, 9, 10, and 11. Will dump in several sizes and in reverse image, and print while a Basic program is running. Kidstuff Software, 3736 Ferndale, Fort Wayne, IN 46815. 24K, dot-matrix printer. \$34.95.

Computer Bridge by Thomas Throop. A discourse on the development of bridge programming. Evaluates *Bridge Challenger*, *Bridge 2.0*, *Goren Bridgemaster*, and *Bridge Tutor*, with a chapter on considerations in developing bridge programs. Hayden Book Company, 50 Essex Street, Rochelle Park, NJ 07662. \$9.95, paperback.

Sorcerer's Apprentice. Bellin. *Commodore 64.* Hi-res graphics utility manipulates sixteen colors, auto-fill, automatic lines, rectangles, circles, squares, and ellipses, with memory move for duplication. Joystick-controlled. First Star, 22 East Forty-first Street, New York, NY 10017. \$49.95.

3-D Graphics Development Package. Chandler. *Commodore 64.* Allows creation of quick 2-D and 3-D animations and drawing routines for use in programs. For novice and professional programmers. Pioneer, 217-620 View Street, Victoria, B.C., Canada V8W 1J6. \$99.95, Canadian.

THE STACKS

Checkmarks denote games recently translated to other computers.

Adventure

Deadline and Witness. Blank, Lebling. *Most computers.* The first Interlogic Mystery, *Deadline* has player as detective search for clues, interrogate suspects, show clues and findings to suspects to get revealing reactions. Complete interaction, real-time. *Witness* does the same, but on an introductory level. All text, but who cares? Infocom, 55 Wheeler Street, Cambridge, MA 02138. \$49.95 each.

Enchanter I. Blank, Lebling. *Most computers.* The first of a planned trilogy that will succeed the *Zorks*. Above-ground exploration of castle and its environs in search of lords of darkness. Enchanters use magic logically to solve puzzles, which are great. A delight to play and read. Infocom, 55 Wheeler Street, Cambridge, MA 02138. \$49.95.

Planetfall. Meretzky. *Most computers.* A lighthearted and strongly involving sci-fi text adventure with characters who care. Was Steve Meretzky an adventurer or a writer first? It's hard to tell—that's how rich the text is. Fascinating exploring, good puzzles, well-written text. Infocom, 55 Wheeler Street, Cambridge, MA 02138. \$49.95.

Zork I, II, III. Blank, Lebling. *Most computers.* Classic trilogy of incredibly graphic text adventures by the masters of the genre. Pure logic, intelligent rapport, wit. A complete Underground Empire, at your service. *I* and *II* are archetypal; *III* is unique, with highly challenging puzzles. Infocom, 55 Wheeler Street, Cambridge, MA 02138. \$39.95 each.

Arcade

✓ **Astro Chase.** Herrera. *Atari.* Flashy style and attention to detail in this new variation on an old theme. The game is standard operating procedure (save Earth, or else), but alien variety, really tremendous graphics, and rich sound push this one past the point of being "just another computer game." Parker Brothers, 50 Dunham Road, Beverly, MA 01915. \$36.

Choplifter. Gorlin. *Apple, Atari, Commodore 64, VIC-20.* The most awarded computer game in history has virtually no variety in repeat play, but it's a grabber nonetheless. Broderbund, 17 Paul Drive, San Rafael, CA 94903. \$34.95.

Crossfire. Sullivan. *Apple, Commodore 64, IBM, VIC-20.* There's just one level, but only a masochist would want more; no game is the same. Smoothly programmed classic challenges some of today's bests. Sierra On-Line, Sierra On-Line Building, Coarsegold, CA 93614. \$29.95.

Frogger. Harris. *Atari.* Benton: *Commodore 64.* What would any computer be without this classic conversion of the arcade hit? Disk or cartridge, it doesn't matter; both versions do full justice to the original. Sierra On-Line, Sierra On-Line Building, Coarsegold, CA 93614. \$34.95. Parker Brothers, 50 Dunham Road, Beverly, MA 01915. \$36.

Hard Hat Mack. Abbott, Alexander. *Apple, Commodore 64.* Despite the competition, *Mack* holds its own. Fast and smooth animation coupled with a stiff challenge make up for its three-screen limit. One original concept in the area of nonviolence: You can't kill those who hound you; you can only try to avoid them. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. \$35.

Lode Runner. Smith. *Apple, Atari, Commodore 64.* Here's a game that brings a new meaning to the word *variety*. One hundred fifty levels. If there are any reasons to be addicted to a game, Doug Smith has found them all and included them in this baby. Play the game; cheat if you want; construct your own levels. The Apple never looked so good. Broderbund, 17 Paul Drive, San Rafael, CA 94903. \$34.95.

Miner 2049er. Hogue. *Most computers.* The game that even software pirates decided to buy. Ignore the plot; it doesn't make too much sense anyway. Boot it up (or plug it in) and have a ball. Three levels even on the lowest-end machines, ten on the high ones. Bill Hogue broke new ground when this one debuted; it's subsequently become the most translated game in microdom. Big Five, Box 9078-185, Van Nuys, CA 91409, \$49.95. Micro Fun, 2310 Skokie Valley Road, Highland Park, IL 60035. \$39.95.

✓ **Night Mission Pinball.** Artwick. *Apple, Commodore 64, IBM.* User-adjustable classic; ten play modes and forty parameters, for your customizing pleasure. Twenty-page manual. SubLogic, 713 Edgebrook Drive, Champaign, IL 61820. Disk or cassette, \$29.95.

Shamus: Case 2. Mataga. *Atari.* The movie industry could learn something from this game—a sequel that surpasses the extremely popular original. Shamus is back in the same survival game, facing the Shadow and aquatic mutants. Several dozen screens means you'll have something to do on rainy days. Having crammed the whole program into 24K, William Mataga makes Atari gamers wonder what he could do with a full 48K. Synapse, 5221 Central Avenue, Richmond, CA 94804. \$34.95.

Zaxxon. Fortier, Garcia. *Apple, Atari, TRS 80.* Here's one of the best computer adaptations of a coin-op game ever. No favoritism; Atari and Apple versions are both excellent, and the TRS-80 version is easily the best game currently available for that machine. Extraordinary special effects for a computer game: never has such an impossible effect been simulated so well. Watch for this one at Oscar time. Datasoft, 9421 Winnetka Avenue, Chatsworth, CA 91311. \$39.95.

Fantasy

Knight of Diamonds. Greenberg, Woodhead. *Apple.* Second scenario in the *Wizardry* series has more puzzles to solve. Requires strong characters developed in *Proving Grounds*. Sir-tech, 6 Main Street, Ogdensburg, NY 13669. \$39.95.

Legacy of Llylgamyn. Greenberg, Woodhead. *Apple.* Topnotch episode of a topnotch game features super atmosphere, neat puzzles, and an eerie transformation of *Wizardry* characters to their own progeny. Sir-tech, 6 Main Street, Ogdensburg, NY 13669. \$39.95.

Wizardry: Proving Grounds of the Mad Overlord. Greenberg, Woodhead. *Apple, IBM.* Original of the *Wizardry* series. *Proving Grounds* is essential for creating characters for all other scenarios. Most involving of all role-playing games, *Wizardry* characters are very personal and traverse the dungeon in groups of six, interacting and supporting each other under player's guidance. Sir-tech, 6 Main Street, Ogdensburg, NY 13669. \$49.95.

Strategy

✓ **Archon.** Reiche, Freeman, Westfall. *Atari, Commodore 64.* Arcade games too fast? Strategy games too slow? This Atari masterpiece combines the best of both worlds. As someone who found chess to be boring beyond belief, author Paul Reiche did something about it, along with fantasy game pros Jon Freeman and Anne Westfall. If you want to take an opponent's square, you fight for it—in hi-res. Skilled spell-casters will have the upper hand in this thoroughly enjoyable battle between light and dark forces. Have a good supply of adrenaline ready. Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. \$40.

Geopolitique 1990. Ketchledge. *Apple.* As the chief executive, you call the shots. In the diplomatic first part of this two-phase game, the United States and Soviet Union struggle for economic and political world dominance. In phase two, you play "what if" in a conventional war situation. Seven scenarios ranging from today's global situation to the hypothetical 1990s are yours for the choosing. Strategic Simulations, 883 Stierlin Road, A-200, Mountain View, CA 94043. \$39.95.

North Atlantic '86. Grigsby. *Apple.* Be either the Soviet aggressor or the commander of NATO forces in this hypothetical battle. The Soviets have taken control of Germany and Norway and now plan to swallow Great Britain and the North Atlantic. *Possible, realistic, and scary* are the words to describe the scenario. The Soviets' attempt to take Iceland and NATO's efforts to keep England supplied make for some interesting parallels between this confrontation and World War II. Strategic Simulations, 883 Stierlin Road, A-200, Mountain View, CA 94043. \$59.95.

Pensate. Besnard. *Apple.* Computer-age abstract strategy game is fast moving and fun for those to whom thinking is good entertainment. Penguin Software, 830 Fourth Avenue, Geneva, IL 60134. \$19.95.

TAC. Bosson. *Apple, Atari, Commodore 64, IBM.* It stands for Tactical Armor Command. Detail is what sets this strategy game apart from the rest. This is no board game on screen; tanks and turrets actually move and turn! Distinguished by its quick execution of commands (no more fixing sandwiches while the computer deploys forces) and variables so numerous that the game could be played only on a computer. First-rate graphics and sound effects add to its playability and addictiveness. Avalon Hill Microcomputer Games, 4517 Harford Road, Baltimore, MD 21214. \$40.

SL

The END of DINKETY-DINK-DINK.

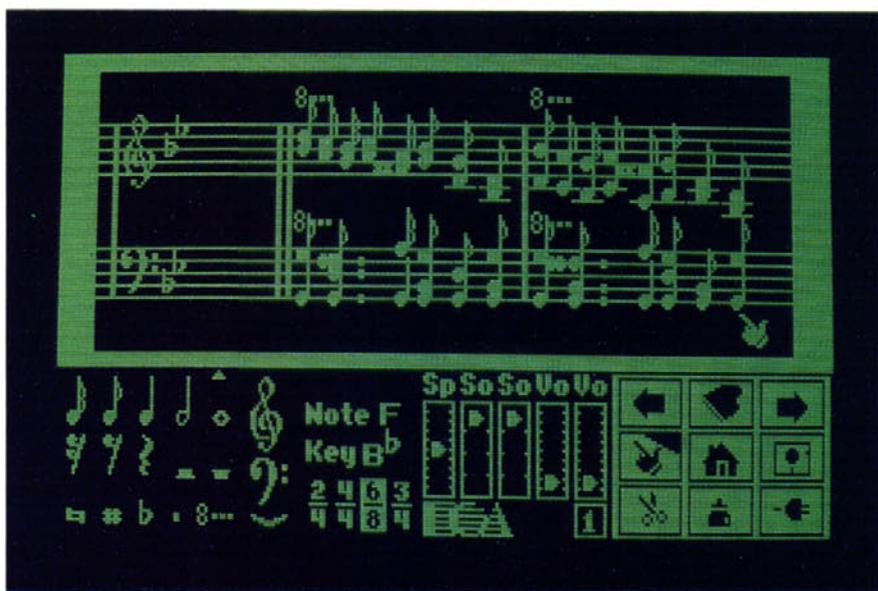
Announcing the first computer music program that actually sounds like music.

LET'S FACE IT. Up till now, music programs for your home computer have all sounded, well, pretty lame. There were the ones that resembled little electronic music boxes, remember? And then there were those that sounded like so many burps.

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to the little piano in the lower right and listen, because you'll hear the whole thing played back.

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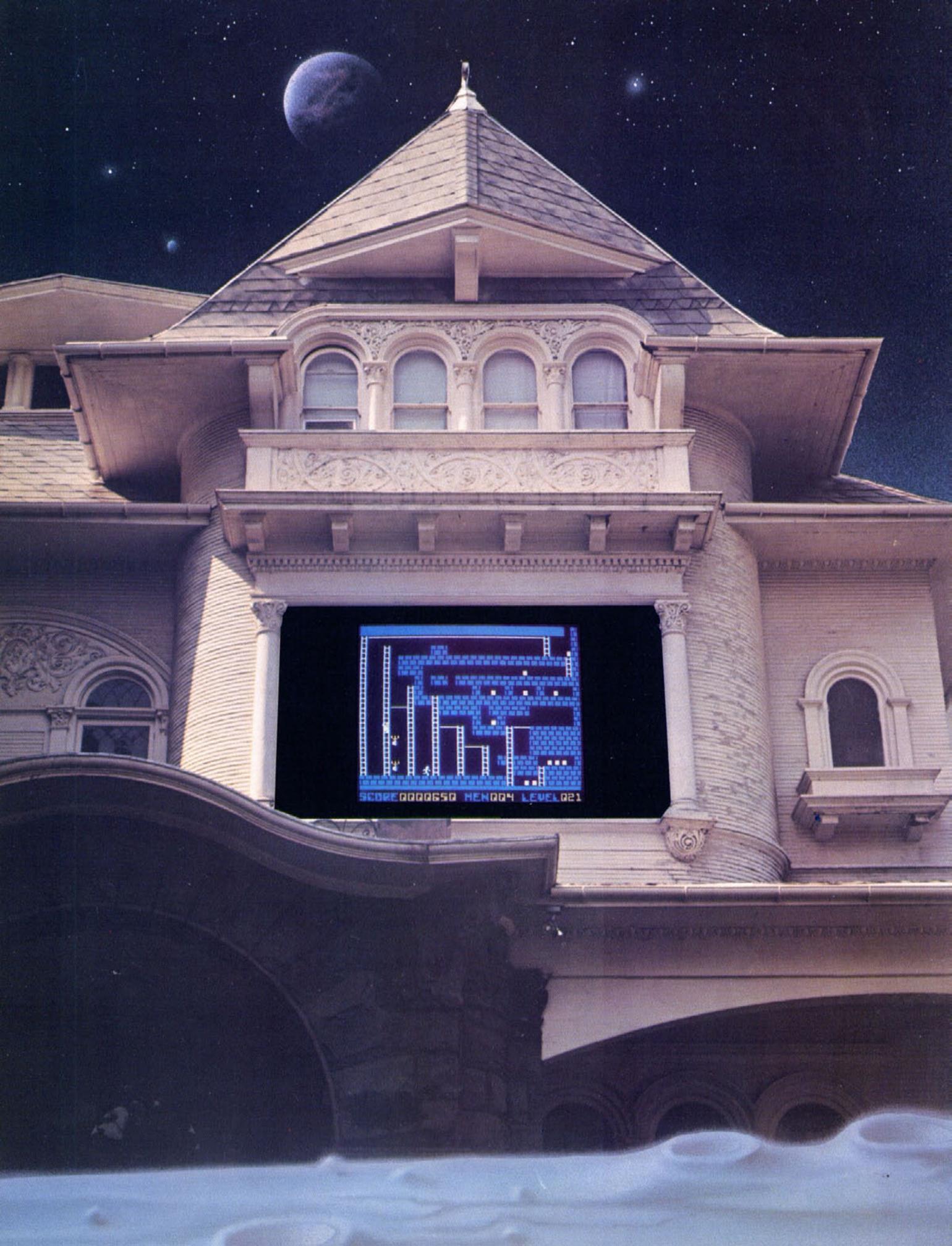
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THE PLAYFULNESS OF THE LONG DISTANCE GAMER

by Andrew Christie and Michael Ferris

The mansion, originally inhabited by one of the richest and most powerful families in Los Angeles, is more than a hundred years old. Some eighty years ago, it was cut in half and moved down Wilshire Boulevard to its present location, while a party went on inside. In later years, it served as the teevee abode of *The Addams Family*.

Today, Games Network system codesigner Steve Klein leaned back in his chair in his office on the third floor and thought. His partner, Barry Megdal, had measured the entire mansion, getting all the specifications and analyzing the data to find available spaces where Games Network president Larry Dunlap could have conceivably hidden a bag of two hundred silver dollars. That was certainly one way. Yeah, that was a good, scientific approach, analyzing the house. But Klein decided to analyze Larry Dunlap.

Now if Klein were president of The Games Network, and if he had the kind of mind he knew Dunlap had, where would he have hidden the bag? He would have put it in the most obvious place, but not in plain sight. He would have been sure to have included an element of extreme deviousness, preventing anyone from stumbling on it. Nowhere on the third floor (techies), or the second floor (executives), or within the first floor realm of marketing. The most obvious place had to be the reception area, right inside the front door. Counterbalancing that sheer simplicity, there had to exist therein something on the order of a hidden compartment behind a secret panel. There had to be, and there was. Klein won The Game Network's Halloween party scavenger hunt.

I Want My Game Teevee! Fact: The Yankee Group, which makes its living by releasing studies and making projections, has just released a study in which it projects that the paraphernalia of home computer telecommunications will become as common as vanilla yogurt by 1985. Four and a half million homes will have computers equipped with modems; another 1.5 million homes will have telephones that are com-

puters; a lot of terminals will be receiving cable-delivered software; 12 percent of the projected 28.5 million video-game machines will have direct-connect telephone modems.

Jeeppers!

So to see if it was true, we called up our best friend, Wally Flotsky, who got to be part of an experiment last year in which a big company wired all the homes in his neighborhood with all that neat stuff. His folks could buy stuff without going to the store, and put money in the bank without going to the bank, and read the paper without reading the paper. Then the company came and took it all back after a couple of months and gave all the people forms to fill out saying what part they'd liked best. When everyone in Wally's neighborhood filled out the forms, the company was kind of surprised. In the space for their number-one favorite thing about the experiment, almost everybody had written "the games."

If the corporations now sinking billions in telecommunications want to stay solvent, they're going to have to get frivolous. The future of telecommunications is in the hands of tiny alien hordes, little hi-res figures with broadswords, and their friends. Long-distance gaming is going to be the thing that changes the way life is lived in the world.

On Your Marks. . . . January 1, 1984, will mark the kickoff of the Orwellian new year, the breakup of the Bell System, and the official first day of operation for The Games Network—seemingly unrelated events.

On that day, participating cable services in Orange County, California, will offer their subscribers an additional channel. On that channel, for an installation fee and a flat monthly rate covering the rental of a full-stroke keyboard with 64K of memory and two joystick ports, they can select from a menu of twenty computer games, play them as long as they like, and compete with other players on the system for high-score contest prizes. The following month, they can choose from a new menu

of games. Also at their fingertips will be an electronic score sheet, dice rolling, and other such generic game facilities. TGN plans to spread across the country during 1984, installing their hardware and training operators at the facilities of the hundreds of cable companies they have already contracted with, making refinements to their system and program offerings as they go. The games offered will be from many companies, written for many computers; play 'em all you want.

How simple. How sweet. How come no one thought of it before? And who exactly is it who thought of it now?

In November 1980, Larry Dunlap bought an Apple II and two games to play on it—*Snack Attack* and *Apple Panic*. In the course of play, he had occasion to observe that the games he was playing looked better than any other games he had seen, certainly better than VCS-type games, and wasn't it a shame that the price of Apples meant the majority of the population would probably never see such games? He was impressed. He wanted to be in this business.

At this same moment in history, some people were starting to think about putting the performances of rock groups on film or videotape, on the theory that there might perhaps be a market for rock beyond radio, records, and concerts. The rise of computer games and rock 'n' roll video were also seemingly unrelated events.

Dunlap had been the leader of a sixties rock group, going on to manage the group and then a lot of other folks in the music business. As personal manager of a lot of bands, he had recently found himself spending a lot of time in television studios. Thom Keith, in 1962, the first man to produce regularly scheduled cable television broadcasts, was doing likewise. Together, they had made some early rock videos featuring Dunlap's band. Keith was dreaming of bigger things for cable; Dunlap wanted in on computer games. The result was sort of inevitable.

"I stuck my neck out and said it could be done on cable," says Keith. The two founded International Cable Casting, parent company of The Games Network, in November 1982.

As president of the company, Dunlap's personal style and

background are evident in TGN's modus operandi. The company sees itself as doing for games what radio did for rock: making hits, creating stars, bringing back golden oldies for generations yet unborn, generally giving sales a shot in the arm.

The idea of The Games Network developing its own games was discarded early on.

"We knew we would need all the labels [software companies], so we stayed out of the hit-making business," recalls Dunlap. There was no question of even considering the use of the limited VCS games, even before the roof fell in on that market; as for the full-scale video arcade games, though technically feasible (as cable has the ability to transmit the necessary continuous flow of data), they would be a secondary consideration. "Arcade games don't necessarily play well in the home, and vice versa," reasons Dunlap. "The arcades are in trouble; the game machines are in trouble . . . micros have grown on their own, separate from the other two areas. We think they're the next big thing."

Two guys with a great idea are not sufficient unto themselves in bringing substance to airy imaginings. In picking a team, Dunlap and Keith picked people from the business they knew—entertainment—and who had the same kind of enthusiasm for this new enterprise. From the realm of computers came Randall Wise, program director in charge of subscriber services. He was running his own computer company before he came to TGN and is a D&D aficionado. He's in charge of evaluating games for their playability, interest, action, and graphics, and keeping a good mix available on-line. He is the equivalent of the A&R man for Capitol Records. He realizes his job is subjective, a fact he strives to be constantly aware of, to some degree. In other words, "We have to have programming for an audience ranging from age three to age seventy, which means I have to pick stuff that may not appeal to me personally but that others would like."

Jim Summers, vice president of program acquisition and a former talent agent, negotiates the contracts with the game creators and companies. When they started, Wise and Summers simply got out the Apple

CALL INTO HIS PARLOR

The GameMaster is the keeper of a strange and fabulous house.

While it might look like an Alpha Micro minicomputer if you were to visit its earthly location, it's actually a gnarly old Victorian mansion in the ether of your mind's eye, complete with parlor, catacombs, library, and game rooms.

A sinister old man greets you at the door. "What could he know about computer games?" you wonder. You swallow the lump in your throat and step into a future where people are invisible . . . but you can see them talking.

That's because you enter the GameMaster's mansion by way of a 300-baud modem and walk its halls and visit the rooms from the keyboard of your computer. Just like any home away from home, you can pick up your messages in the mailroom, leave a note on the bulletin board, or pick up a recipe in the kitchen.

Mostly, however, you can play games.

Don't be put off by your host with the bulging eyes and leering grin. The GameMaster means you no harm. In fact, he will do everything in his power (272K) to make you feel at home in his house of games. He may even let you win.

Interactive game playing between sports located at their own computers, either across town or across country, is what the GameMaster mansion was created for. Behind the Great Oz-like mask of the GameMaster himself are a handful of humans who run the on-line games service out of Evanston, Illinois.

There are more than twenty games on the system, from a solitaire version on football on which to practice to *Empyrean Challenge*, a multi-player extravaganza that takes eight hours to log all the players' turn.

GameMaster members can choose from sports games, military conflict games, transportation strategy games, and fantasy games, as well as chess and backgammon. The games are text, with the exception of

the games in the board room. Graphics capabilities, involving software drivers, are planned for the future.

Right now, the most popular game is *Nuke Strike*, a nuclear battle of the superpowers. "It's a real-time, two-player game where you're trying to send your satellites over your opponent's country to find out where his ICBMs are," according to Harlow Stevens, Jr., one of the founding fathers of the three-year-old game system.

"Then you decide if you want to launch a first strike or counter-strike. It's popular now because of the movie *WarGames*," he says. Stevens puts the GameMaster through his paces by monitoring the house most of the time, and sometimes spending twelve hours a day doing it.

Nuke Strike is played in the war room, located in the lower level of the five-story, thirty-nine-room mansion. As if neighbors could complain of battle thunder, crowds, and diesel fumes—not to mention nuclear radiation—all the game rooms are located in the basement.

Down in this crowded cellar, also in the war room, one of the great air campaigns in history, *Eagles Over Britain 1940*, is replayed. It's German Luftwaffe fighters on the attack while the RAF vice marshall tries to keep from committing his Hurricanes and Spitfires too soon.

Across the hall from the war room, the state room houses a seven-player version of Avalon Hill's *Diplomacy*. Turns are processed every three days, so strategies can be discussed diplomatically (of course) between players in the lower level alcove or one of the private conference rooms on the third floor.

The GameMaster doesn't have any games with high scores, but there are contests all the time. The best landing in the commercial-airline *Airflight Simulator*, located in a corner of the engine room, can win some time credits on the system. All winnings are posted on the house bulletin board in the alcove of the fourth floor.

Blue Book, *Softalk* magazine's Bestsellers list, and Softsel's Hot 100 report and started making phone calls.

Having thus acquired insight into the software entertainment biz, they see the microcomputer software houses as being currently in the transition stage between a group of small businesses run by people who all knew each other when they started out, who were "open" and interested in helping one another in their struggle to survive, and a "closed" industry, consolidating its operations and squaring off in competition in the marketplace. Most of the houses thought The Games Network was a great idea and agreed to license certain titles for a minimal fee and a percentage of future revenues or gave TGN blanket rights to all their programs.

"We got in at just the right time," reflects Randy Wise. Such was not the case with the arcade industry giants, who made plain the need for large amounts of cash up-front before anyone talked about anything and who considered that they were being asked for a favor, which they might choose to bestow. To Summers and Wise, the arcade companies gave the appearance of a dinosaur sinking in quicksand, demanding maitre d' service before deigning to grab the rope.

"The arcade people have to be educated," says Wise tolerantly. The fact that most of them currently fail to grasp is that a month on the network could serve as a video preview, as MTV is to records, and give a second life to older games, as HBO does for movies. "Exposure on the network will help them, and help the other licensees of their games."

"But if they have a game we want," adds Summers, "we'll take a year to get the contract signed if we have to."

Larry Dunlap nods. "Our policy was that people should like us. The companies should see a profit. Artists should get their royalties. We felt there was no point for us to approach it any other way."

How-To. Having settled what they wanted to do and ensured the availability of the games, they were left the technical matter of how it was going to be accomplished.

"We knew we wanted a totally new computer, a different memory

Playing-time credits can also be won in the chamber room, located underneath the mansion itself and reached from the lower level. A series of catacombs and dark minidungeons have been dug out over the years.

"When they enter, players are given a primary artifact that has four categories," explains Stevens. "Down in the dungeons, if you match any of the four, you win credits of \$2 to \$100 worth of system time." Assuming you get out alive.

Fantasy game lovers head straight for the time room in the corner of the lower level and get transported into the realm of *Eamon*, a role-playing game with fifteen scenarios. "You can stay on *Eamon* as long as you want," says Stevens, "then freeze it and save it on-line." When you return, you can start where you left off or begin a brand-new scenario.

For a more mental challenge involving word skills, the newly opened mind room next door holds several Concentration, Password, and Jotto-type games. Formerly known as the arcade room, it was once a catch-all for games that didn't fit in any other room.

Moving upstairs, we come to the first-floor foyer where all players enter the mansion. A guest's arrival and his desire for a game partner are announced over the house public address system. After a right turn to pick up their electronic mail in the mailroom, most visitors make a quick left and scan the parlor for any action. The parlor is one of the most popular rooms in the house; six people at a time can cozy up around the fireplace and chat.

Some very interesting celebrations have been held here. "There've been some birthday parties where somebody brings an imaginary cake, then everybody sings and gives presents," says Stevens. "When winter rolls around, you can get the housekeeper to put some more wood on the fire.

"Somebody might open the bar for happy hour," he adds, "then get everybody to tune to the same radio station and pretend to dance."

Stevens himself often hosts the soirees in the parlor, but lately a crew of GameMaster helpers has also been doing the job. Members are given a discount on system time in exchange for being around to shake out new members. A small vocabulary of system commands allows them to help out if someone gets lost or stuck somewhere in the house.

I/O, keyboard I/O, and operating system. But we also knew that the best and the most games run on Apples," recalls Wise. "We disapprove of the Apple copycat business, and we also wanted to avoid the whole question of our customers downloading our games from cable onto a disk. We wanted a machine we could convert Apple games to."

Enter Steve Klein and Barry Megdal. They delivered a working unit, but then things underwent some rethinking. The launch of TGN, originally scheduled for considerably earlier this year, was delayed while Wise struggled to convince enough people in the company that the prototype hardware—"a little box with dedicated game keys"—was going to be obsolete before it was produced: They needed a full keyboard. What the two Cal Tech engineers came up with was the Window, a 64K computer with a separate microprocessor for the keyboard and two angled game keys on each end, three custom chips inside, the ability to drive 4,000 colors, a three-voice sound generator that can relieve Apple games of their traditionally anemic audio component, and bilingual joystick control—switch-type (Atari/Commodore) or potentiometer (Apple). The keyboard microprocessor provides continuous function when a key is held down, giving the keyboard itself semijoystick capability.

Software companies will begin receiving Window development hardware in February. Already, game programmers who have been to TGN's mansion and viewed the test system in operation have expressed an interest in writing exclusively for the system—skip the translation, Jack. What one has in the Window is tantamount to a very jazzy cousin of the Apple, with the mini-Moog sound capabilities of a Commodore 64 and the graphics power of an Atari 800. "Think of a game with Apple animation, against a background of sky with sixteen shades of blue going down to the horizon," suggests Wise.

Summers and Wise emphasize that the process of game selection is very similar to the workings of the talent department of a record company: Don't walk in off the street with your game in hand.

"We deal with publishers only. Like the record companies, if we tried to deal with each individual programmer, we'd be running 250

The mix of home computers that call up the mansion used to be about 25 percent Apples. "Now it's neck and neck with Commodore 64s. Two out of every three new machines are 64s," says Stevens. Naturally, he's excited about the new Atari XLs with built-in modems.

"People are getting more of an awareness of telecommunications these days," he says, and it's coming at a good time for the GameMaster. After a slow year, things are picking up again. Stevens and his partners are also looking for venture capital to start up franchise systems across the country so more people can log on without the expensive long-distance phone time.

Except for a few smaller games in the old arcade room, the mansion hasn't changed much, just improved. "That's the nice thing about being on-line," says Stevens. "You have the luxury of making changes on the fly. We're constantly updating the games as we get user feedback."

The latest news on the GameMaster system is the installation of the whopping *Empyrean Challenge*, a multiplayer, intergalactic strategy game similar to *Megawars* or *StarWeb*.

"It's a very complex and exciting game," assures Stevens, "adapted from a play-by-mail game by a company in Idaho."

As the ruler of a planet, *Empyrean Challenge* players have resource points at their disposal. These are used to allocate such global functions as population control, farming, industrial espionage, and defense and to generally keep up your people's morale.

The GameMaster does all the processing; all a player has to do is make simple decisions affecting the fate of entire worlds.

"It takes between six and eight hours of continual processing time to put through one turn, once all the turns are in," says Stevens. "We hit the button at midnight and the Alpha crunches all night. Walk in the next morning and it's still running turns."

A strange and fabulous house indeed. SL

Your home computer connected to 300-baud modem can access the GameMaster mansion. Basic membership for one year is fifteen dollars, which includes system documentation and four hours of playing time. Fifty dollars gets you the documentation and ten hours of time. After your initial time has been used up, it's three dollars an hour, anytime, any day. Long-distance phone charges are your own business. To subscribe, write GameMaster, 1723 Howard, Suite 219, Evanston, IL 60202; 312-328-9009. MF

demos a day. If you don't have a publisher, please go through an agent."

Tomorrow Belongs to Games. The Games Network is potentially a two-way cable system—meaning that the player can send a signal back to the point of the program's transmission. However, most American cable operations are one-way systems. For this reason, the corporate giants behind the infant telecommunications industry have been tailoring their telebanking, teleshopping, and telenews services to run over telephone wires. Part of the idea at TGN is to change all that, modestly pointing the way to the cable telecommunications revolution.

Says cable pioneer and TGN's executive vice president, fantasy director, and director of international affairs, Thom Keith, "I always perceived cable TV as a two-way medium and had been searching for both the technical and programming concepts that would make its implementation viable; it all came together with the advent of the new computer technology."

The Games Network in the United Kingdom will have two-way capability immediately, with Western Europe and Scandinavia to follow.

"Europe has cable fever," Jim Summers enthuses. "With few exceptions, what they mostly get on teevee is government-approved, and that only a few hours a day. They're very hot for the cable services that are negotiating with these countries to provide twenty-four-hour programming, and we're having even less trouble than those traditional cable services because The Games Network transcends cultural barriers, language barriers, religious barriers, political barriers—all those things that government regulatory agencies look at and say, 'This is not acceptable to our people.' We escape that."

The Canadian TGN will be on-line in 1984, and Australia and New Zealand have expressed an interest.

On the technical front, problems with certain types of adventure games that involve near-constant disk access will be surmounted as the Window is expanded to incorporate as much random access memory as there is on an Apple disk.

On yet a different front, TGN continues to assist medical researchers at Daniel Freeman Hospital in Inglewood, California, in studying the use of games for the disabled. Occupational therapists have identified computer games as motivators and catalysts to social interaction. TGN is creating a database of occupational therapy games, selected for aid in memory, linear sequencing, shape discrimination, and color differentiation.

All in all, this is what you call a going concern.

Game Consciousness. "The point," says Larry Dunlap, "is to have fun, and don't worry about marketing. Almost everyone working here came from the entertainment industry and was looking for a way out of it. The entertainment industry is run by MBAs. They don't understand that you can't buy creativity. The first principle is art.

"When we initially went looking for funding, we approached the major movie studios, who are prohibited from owning cable services and would therefore, you would think, jump at the chance to be a part of this. They wouldn't hear of it. They insisted we either sell out to them outright or prove ourselves a success before they would consider any kind of investment. They really don't understand."

Since then, the folks at TGN have had the gratifying experience of watching their stock, on the occasion of its first public offering in late August, more than double in price in the course of a single day, at a time when the fortunes of computer and video game companies were going down in flames.

"When we started out, we had the idea that we wanted to be around computer games; we wanted to be a game company," muses Dunlap. "Now we're in cable . . . telecommunications . . . heck. . ."

He pauses, relights his pipe, and grins.

"We just wanted to play games."

So. Here comes 1984, ushering in an era that may be historically comparable only to a time forty years ago when the radio networks decided to get in on a thing called television. SL

A NEW LINE

GameLine was created by William von Meister, founder of the Source, and is not to be confused with the games review portion of this magazine ("We won't consider it conflicting," says the judicious von Meister). It is the other major game networking service, requiring your telephone, a GameLine modem, a credit card, and an Atari VCS, and it will download your personal selection from the near-infinite number of 4K games currently available for the Atari 2600 (choice of six per month) in twenty seconds (longer if there's interference on the line).

Why should you care? Because right after Christmas a GameLine Master Modem—plugging right into the game I/O of most home computers—will deliver real, sure-'nuff computer games in the same fashion.

"The modem shouldn't be more than fifty bucks," von Meister surmises, and it will have full electronic mail capability. The latest offerings in that line consist of SportsLine—all scores and news of major weekly events—and StockLine—just what it sounds like.

Selections are made by using a joystick to toggle around a screen display of a keypad. Once you've entered your personal I.D. number and game selection, you dial your GameLine modem number (a local call if you're in a major metropolitan area, toll-free if you're not), and you're all set. Currently, each single game play session costs one dollar. If it's a designated competition game, you're asked if you want your final score to be entered in the contest (current competitions are on *Demon Attack* and *Jawbreaker*). If yes, you can stand to win a college scholarship or a lot of other glitzy stuff. You can compare your score to the local, regional, and national rankings and see if you qualify for the play-offs at selected sites around the country.

You'll also get a voting membership in the GameLine Academy of Video Arts, an organization formed to recognize excellence in the video-gaming industry.

Reach out and play someone. SL

COVER CONTEST

The games want to have a party. They feel they have cause to celebrate now that they're stars of modem, phone, and video.

They'll have a wonderful time, logging on and playing each other 'til the wee small hours; exchanging bauds and just burning up the wires . . . but hey: They have to get a guest list together. And for that they need your help. For all their kilobytes, they are, after all, random impulses recorded on inert media and just can't keep names and faces straight. See if you can identify the partygoers frolicking here by the names of the games from which they are temporarily on leave.

Scoring: Fifty points for every correctly identified game; ten points off for every unidentified game; minus twenty points for every one incorrectly identified (a most embarrassing faux pas at any social occasion). The most perfect lists will go into a random drawing, from which shall emerge the winner—who shall win those games, or choice of games of equal value, or the cash equivalent (\$424.40).

Send your guest list to Softline Partygame, Box 60, North Hollywood, CA 91603. Postmark deadline: December 16, 1983.

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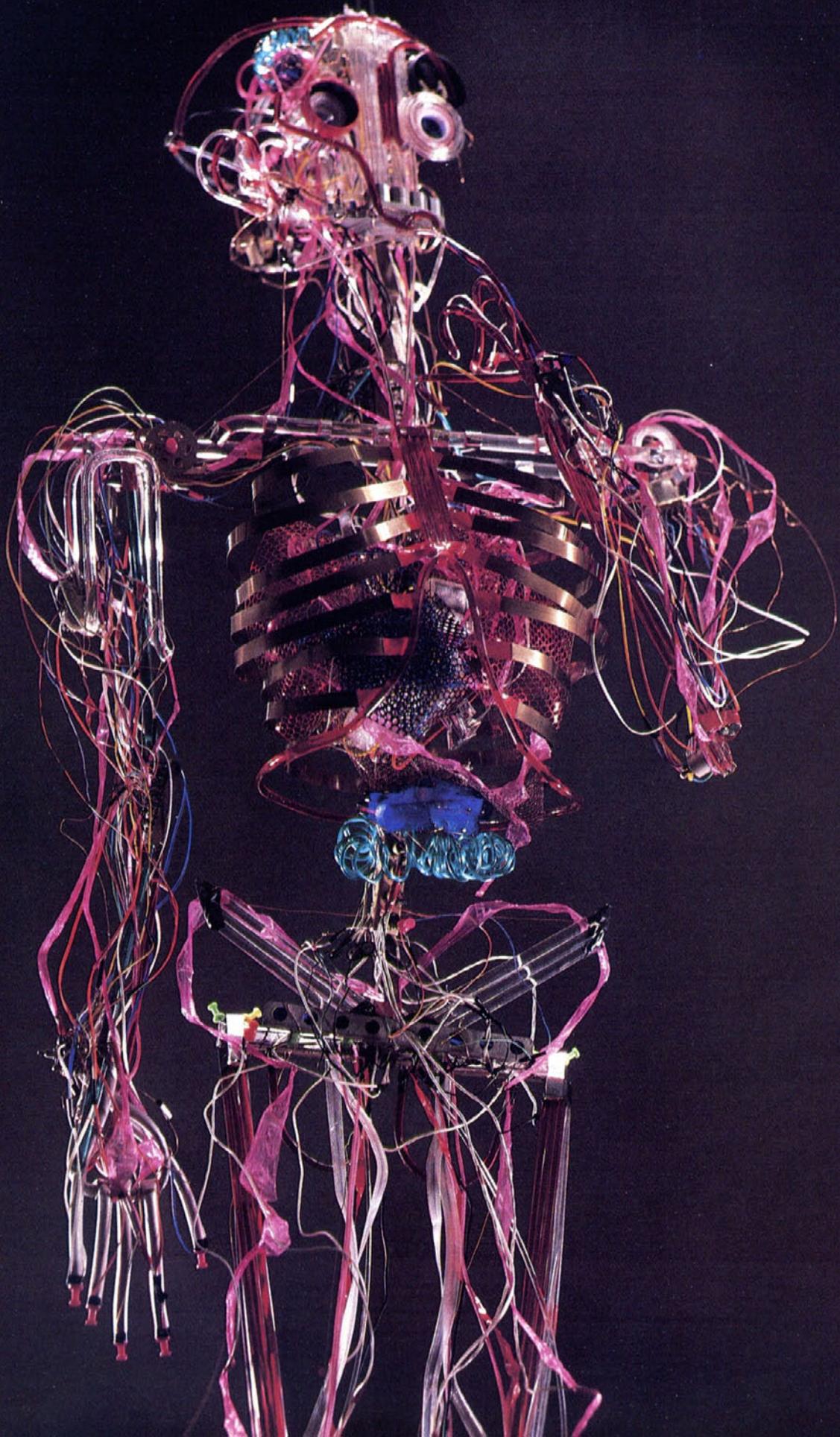
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ANATOMY OF A GAME

It was a dark and stormy night. Suddenly, a shot rang out. A door slammed. The maid. . .

Hey, get out of here! Go chase some rabbits, or something! Get lost! Beat it, you mutt!

Sorry about that.

Now, where were we? Oh, yes—how to write a machine language game. Last issue, if you will recall, we outlined briefly the game we will do, dabbled with assembling, and in general got ourselves in the mood for this Brobdingnagian effort. This time, we'll take a close look at graphics, and the core routines we'll need for the game. But first, a further word on stuff we're not going to explain—and where, if you don't know this stuff, to find it.

Assemblers. You should check the manual for your particular assembler for directions. The Apple assembler we'll be using is *Lisa 2.6* (available from Lazerware, Corona, California). For the Commodore 64 we'll use the *MAE Assembler* (available from Eastern House, Winston-Salem, North Carolina). If the assembler you're using has radically different syntax, and you don't quite know how to convert this code to your assembler, ask a friend, ask at the store you bought it from, or call the manufacturer. Please don't call your humble correspondent, as he doesn't own every assembler in existence, nor would he really want to.

Elementary Graphics. There have been a lot of books and articles on the basics in graphics. Because we really need to cover a lot of ground, it will be assumed that you either know some of this stuff or can pick it up along the way. So, if you are starting from scratch, read all the magazines you can find and check out the books listed at the end of the article.

The Heat Goes On. So, here we are, back in the thick of it. Since these articles will cover both the Apple and the Commodore 64 (C-64), all discussions will take the following format.

First, we'll present the theory or algorithm or explanation behind the piece(s) of code. Then the Apple code will follow. And then the C-64 code will tag along. When both sets of code are similar (anything that is not absolutely machine-dependent), the bulk of the explanation will be in the Apple version. And sometimes we'll just present one version, with a list of changes (if any) for Apple/C-64.

Okay, so enough already. Let's get down to some serious stuff. What kind of basic routines do we need? We need to be able to enable the hi-res graphics display, clear the hi-res screen, plot points, and draw lines, to start with.

Enabling and clearing the hi-res screen is fairly easy; see Listing 1 in Programs in Pulp, page 31.

After that we need routines to plot dots on the hi-res screen, because we'll need to draw lots of lines later on. We'll just present the routines, Listing 2 on page 31, without much explanation. See the references if you get too thoroughly lost.

So, those are the basic routines. The C-64 routines are a lot shorter because the screen is laid out somewhat sequentially, unlike the Apple screen. On the other hand, the Apple screen allows slightly faster bit-mapped animated shapes. But never mind all that.

We need a line-drawing routine now. What do we do? Do we have to compute slopes, and do incremental math, and all of that messy stuff? Or is there a simple solution? Of course there's a simple solution. It's easy to understand and short, but it's recursive and therefore slower. Later, we'll speed it up, but to avoid getting really complicated now, we'll just go with the flow and preserve algorithmic elegance.

A Recursive Line-Drawing Algorithm. It's easy to understand.

```

rlinedraw (B,E)
  if B = E then hplot (B)
  else
    begin
      M = midpoint (B,E)
      rlinedraw (B,M)
      rlinedraw (M + 1,E)
    end

```

And if that's not readable enough, try this on for size. We have two end points, B and E (each with X and Y coordinates, of course). We would like to draw a line between the two of them. So, what do we do?

Well, if they're the same point, it's easy; just plot the point. But what if they're not (the usual case)? First, get the midpoint. Now draw two lines, one from the first point to the midpoint (B to M) and one from the midpoint plus 1 (otherwise we'd get caught in an infinite loop or, at best, draw every single point twice) to the end point (M + 1 to E). And we keep repeating the divide and conquer strategy until everything is reduced to points, and that we can handle.

That's the beauty of recursion. But you pay for it in speed. Since this routine is using itself over and over again, it has to save its variables over and over again too. Otherwise, this would happen:

Example: Point B is 20,20 and point E is 50,10. We call *rlinedraw* ((20,20), (50,10)). The midpoint M is (35,15). So then we would call *rlinedraw* ((20,20), (35,15)). But then what happens? After that's done, E is set at the value of M. We've lost E! What do we do?

Well, in a recursive subroutine like this, every time it's called with parameters like B and E and M it goes through and saves the old values (if any) on a stack before binding the new values to the variables. Then, when the subroutine is done, it restores the old values from the stack. And that is what takes up most of the extra time.

So after all of that, let's see this code (Listing 3 on page 33). It's the same for both computers.

And Now for Something Completely. . . . Look at it for a while. Stuff like that needs to soak in before you can completely understand it. We'll go through it again later, when we speed it up a lot by unwinding it. We'll explain that later, too, but basically you can make any recursive routine nonrecursive by adding the proper loop control structure and a bunch of other garbage to squeeze some speed out of it. This recursive line draw works, though, and for now it will work just fine.

Well, here we are at the end again. Next time, we'll start to do dramatic things, now that we have a base of graphics routines to work with. We can do the moving horizon line! Banking left and right! Pull up! Dive! Roll! All this and much, much more. And then, we'll . . . but that would be teasing you too much.

So comprehend, study, and dream. No one ever said it would be easy, but we'll get there. And when you get good, you can write this.

Maybe. So be amazing. See you in sixty days. S

Apple graphics: *Apple II Computer Graphics*, by Ken Williams and Bob and Liza Kernaghan, Brady Books. Commodore 64 graphics: *Commodore 64 Programmers' Reference Guide*, Commodore (distributed by Howard W. Sams and Company). Machine language programming: *Assembly Language Programming for the Apple II*, by Robert Mottola, Osborne/McGraw Hill; *Assembly Lines*, by Roger Wagner, Softalk Book; *Machine Language for Beginners*, by Richard Mansfield, COMPUTE! Books; *Using 6502 Assembly Language*, by Randall Hyde, Datamost.

GAMELINE

Geopolitique 1990

By Bruce Ketchledge.

Apple.

Geopolitique 1990, a game of contemporary global economic, political, and military strategies and conflict, places the player in the Oval Office. Taking the role of president of the United States, you lead the free world in competition with the Soviet menace, directing the American economy, carrying on complex international negotiations, and leading the nation in peace and war.

Geopolitique is two games in one. The simulation of global political and economic conflict, *Geopol*, eventually leads into the military simulation, *Geowar*, as it could happen in real life. Should you or the computer choose to dispense with the diplomatic niceties of "peacetime" and wage a hot war, a declaration and a flip of the disk put the world on a military footing. As president, you compete for worldwide political domination against a background of shifting alliances, earth-shaking events, and painstaking negotiations. Play your diplomatic cards well and when war comes your alliances with the minor powers of the world will be well established. Otherwise, you're on your own.

Seven separate scenarios simulate different geopolitical possibilities for the 1990s. One scenario simulates today's state of affairs.

Although *Geopolitique* is primarily a text-based game, simulating the world with a series of charts and tables, there are also several hi-res outline maps showing the United States, the Soviet Union, and sixteen other countries. Counters on the maps designate the movement of fleets or armies and the placement of political action points. But the maps are functional, not gorgeous, and the text has the same crucial quality. Both are precisely appropriate for the game.

Game play is solitaire only. The computer formulates Soviet strategy in accordance with the ideological makeup of the current politburo membership. Beware, at any time a comrade or two may be replaced and the balance of power within the politburo may change for good or ill.

As in real world international conflict, there is no single formula for victory. In *Geopol*, maintaining your national security and that of your allies without resorting to war is victory enough. Should war break out, victory is determined by enduring dominance or by a successful attack of one superpower on the home soil of the other. Even the restraints of wartime economies have been modeled to demonstrate the impact of military mobilization on national economies. The economic, political, and defensive military foundations laid during *Geopol* are at least as important as the military strategies employed during *Geowar*.

In a simulation of this scope there are some necessary limitations. No provision has been made to model the subtleties of cultural and historical orientation or even simple political pragmatism. A Soviet alliance with Canada and subsequent Canadian attack on the United States, for example, strains credulity. Nevertheless, *Geopolitique* does a good job of simulating the complexity of modern international diplomacy and military conflict. And it's fascinating gaming—even for people whose pleasure in war games has never graduated beyond *Risk*. WHH

Apple. \$39.95 from Strategic Simulations, 883 Stierlin Road, Mountain View, CA 94043; (415) 964-1200.

Exodus: Ultima III

By Lord British.

Apple, Atari.

You've conquered the evil Mondain in *Ultima*. You've thwarted the world-destroying plans of his protege, the enchantress Minax, and seen your exploits further chronicled in *Ultima II*. Now you must face your greatest challenge: to determine the nature of *Exodus*, the rumored offspring of your former foes, and find and vanquish this new, more devastating villain.

And yet the most arduous tasks before you fade into insignificance before the feat already accomplished by Lord British: the creation of a

sequel that surpasses *Ultima* and *Ultima II*, two of the most popular computer fantasy games ever.

Far surpasses.

As the best of text adventures are achieving the status of literature, Lord British has been quietly evolving a new medium for drama. At the time when the dominant form of drama involved epic conflicts among humans, monsters, and gods, Aristotle wrote the *Poetics*, a collection of observations about the nature of theater that have since shaped all forms of Western drama. Now we see the six Aristotelian elements of drama—plot, character, thought, diction, melody, and spectacle—embodied in *Exodus: Ultima III*.

Spectacle is the visual aspect of the work. Diction speaks of the ways words are used: Its importance in *Ultima III* lies in the meanings (and double meanings) of clues to be gathered in the towns and dungeons of Sosaria. These elements, while stronger in this game, have always been part of the *Ultima* series. Melody—the use of music to enhance the mood—has rarely been used to such advantage in any game. *Ultima III* has a complete score (Apple II players need a Mockingboard to hear it) that varies with the action and the environment. While the music isn't a necessary part of the game, it contributes a new dimension to the drama.

To talk too much about the thought behind *Ultima III* would be to reveal a particularly good surprise ending. Besides, where *Ultima III* really shines is in the plot. This is a masterfully unified game. In *Ultima II*, much of the detail was wasted. The entire solar system was included in the game world, but only one planet besides Earth was important. In *Ultima III*, the castle, the towns and dungeons, the moon gates, the high seas, and the hidden lands are all crucial to the successful completion of the quest. *Ultima II* had side issues; *Ultima III* has subplots.

There is a mystery to solve in *Ultima III*, and the world is strewn with clues. Clues lead you to hidden places, hidden objects, hidden people, hidden layers of meaning. It isn't difficult to discover where *Exodus* is, but how to defeat *Exodus* remains the more important mystery. Weapons are tools, and tools must be suited to their function. The destruction of *Exodus* depends on the player's ability to recognize the proper tools.

Ultima III is also technically more advanced than *Ultima II*, and this shows up most in the Aristotelian element of character. It's the first *Ultima* in which the player controls a group rather than a single adventurer. A group can have as many as four members. The characters vary in race, sex, attributes, and profession to start with; later on they will differ in experience level, hit points, and other typical role-playing characteristics.

The addition of the group to the *Ultima* playing system instantly suggests parallels to *Wizardry* and its sequels. Whatever their similarities, *Ultima III* and the *Wizardrys* are still very different games. *Wizardry* is an indoor game; all of the playing takes place within a dungeon (*Legacy of Llylgamyn* is set outdoors, but it still looks like indoors). The mazes are seen from a subjective viewpoint. *Ultima III* has dungeons (this time in color), but it's primarily an outdoor adventure. Sosaria is your battlefield (or, more accurately, a world; Sosaria has only one major continent but makes up for it with two moons).

Most of the time the player gets a bird's-eye view of the surrounding area. The view is not "omniscient" as it was in the earlier *Ultimas*, however; anything on the far side of mountains, forests, or castle walls is obscured from view, leaving a lot of surprises and a lot to the imagination (which is what fantasy is all about).

The involvement between a player and the characters in the game has always been one of *Wizardry's* strongest points, and *Ultima III*, while its characters are more involving than those of its predecessors, still doesn't achieve quite the personal quality *Wizardry* does. It's difficult to explain how *Wizardry* does this so well; where *Ultima III* lags behind may be easier to see. The advancing of characters' attributes in *Ultima III*, for

instance, is one of many puzzles to solve rather than a natural offshoot of increased experience.

On the other hand, *Ultima III* handles the roles of the characters in combat in more tactical detail than *Wizardry* does. Although normally the group moves as one, during encounters with monster groups each character is controlled individually. The strong can protect the weak, the group can use the terrain to advantage (or have it used against



them), and wizards and archers can fight from a distance, leaving close combat to the sword fighters.

Exodus: Ultima III, with a superior plot to match its superior gaming system, is a great game. It upgrades the market; in several ways it sets new standards for the fantasy gaming state of the art. Happily, it also shows us a maturing artistic discipline on the part of its imaginative author, which bodes well for fantasies yet to come. DD

Apple, Atari. \$54.95 from Origin Systems, Box 58009, Houston, TX 77058; (713) 333-2539.

Spare Change

By Dan and Mike Zeller (or is that Mike and Dan?).

Apple, Atari, Commodore 64.

It's closing time at the Spare Change Arcade, and it's time to turn off the machines, switch off the music, and go for a burger. Unfortunately, the Zerks have escaped from their coin-op machine and are trying to collect enough tokens in their piggy bank to retire from their job (being an arcade game character is no laid-back job).

The Zerks trot from one token dispenser to another, yanking out tokens at will, and throw, drop, and kick them into their bank. Candy from a baby. The only thing that can stop the Zerks is the arcade owner (smile, that's you), who desperately wants the Zerks to stay, so he can make more money the next day.

Let's think about this. Harmless, lovable creatures are trying to retire, while the money-hungry owner wants to work them forever, making big bucks in the process. Who's the bad guy here, anyway? How would Carl Yastrzemski have felt if Red Sox manager Ralph Houk had come up to him on the day of the last game of his career and said, 'C'mon, Yaz, how about going ten more seasons with us?'

Well, this is America, isn't it? The country where the goal in life and source of all spiritual fulfillment is making as much money as you can while minimizing creditors and maximizing debtors? Exactly. Conclusion: The arcade owner and the Zerks are both pursuing financial security through the collection of tokens. The only difference is that the arcade owner must collect tokens indefinitely, while the Zerks must collect only five in order to retire and win the game. In a Zerkers' paradise, the Zerkers control the means of production.

The Zerks aren't too smart, though.

Take, for instance, the fact that if you drop a token in the arcade jukebox, the Zerks drop everything so they can run to the jukebox and dance.

Consider that inserting a token into the telephone will make both telephones ring, tricking the Zerks into dashing off to see who's on the line. No one's there, of course, but that won't stop them from chatting with each other for a while.

Witness the Zerks' behavior when you plunk a token into the popcorn machine: the silly galoots can't resist watching the popcorn pop, while the arcade owner ravages the token dispensers.

These are three temporary distractions that allow just enough time to grab a few tokens (one at a time) and drop them in the token bins.

Sound easy? It is. For a while.

Not only must the arcade owner collect tokens for himself, but he must also prevent the Zerks from filling their piggy bank. When Zerks get their hands (?) on a token, they can pass to each other, forcing you to use those awkward defensive basketball maneuvers learned in junior high physical education class. Recovering a token from a Zerk is a cinch, but blocking their shots and drop kicks toward the bank is impossible. Get 'em while they're on the run.

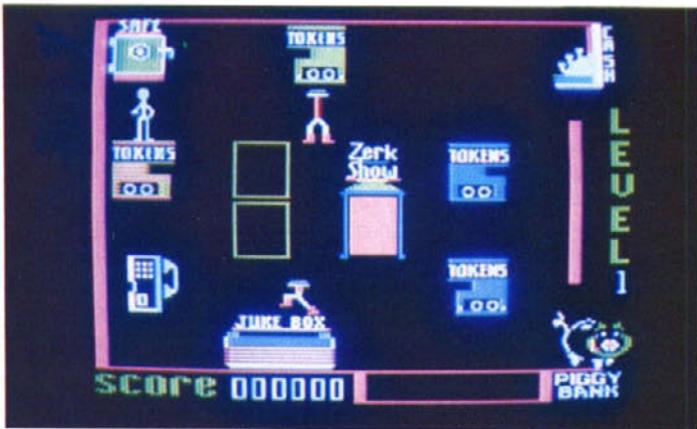
Broderbund has thrown in a few more goodies for this game's ticket price. Collecting ten tokens will open the Zerk Show door, which provides you with an escape route and empties the Zerks' bank. But eighteen tokens will advance you a level—after you've seen the Zerk Show.

The show can be any of twelve slapstick cartoons featuring the Zerks and you. Side-splitting and rib-tickling they aren't; but the Zerk Shows are more entertaining than most network comedies.

A nice finishing touch on *Spare Change* is the option to customize the Zerks' behavior. Scales determining the amount of smarts, greed, accuracy, and anger the Zerks exhibit, as well as how much they kick and toss tokens and bump into each other, can be adjusted a la *Pinball Construction Set*.

It's a fun game, it's an entertaining game, it's a happy game. *Spare Change* isn't as addictive as some of Broderbund's previous games, but it's still miles ahead of most competitors' products. MTY

Apple, Atari, 48K, Commodore 64. \$34.95 from Broderbund Software, 17 Paul Drive, San Rafael, CA 94903; (415) 479-1170.



Blood Quest

By Elroy N. Erdling.

Apple.

There are adventures, and there are adventures, and then there are adventures. And after them, there's this. It's *Blood Quest*. It's new. It's now. It's happening. It rages. It melts. It burns. It's free verse. It's beyond description. It's the last word in graphic adventuring.

This game has everything, and consequently it's aimed directly at the adventure gamer who is tired of playing adventures. It is best approached with a completely open mind, and from the rear.

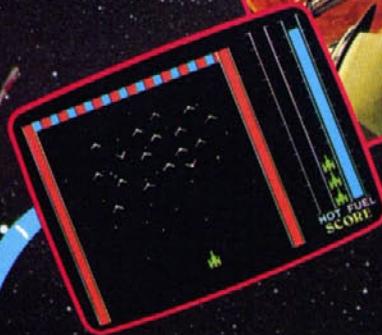
As you journey onward in your quest to avenge the death of your great-aunt Phoebe, the setting changes with breathtaking abruptness from the depths of a complex maze (text), to a burning desert, then to a mountain cliff, the middle of the ocean, a haunted house, and so on. The



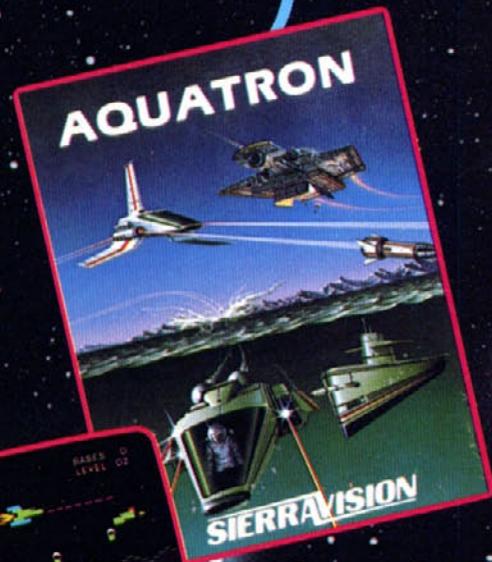
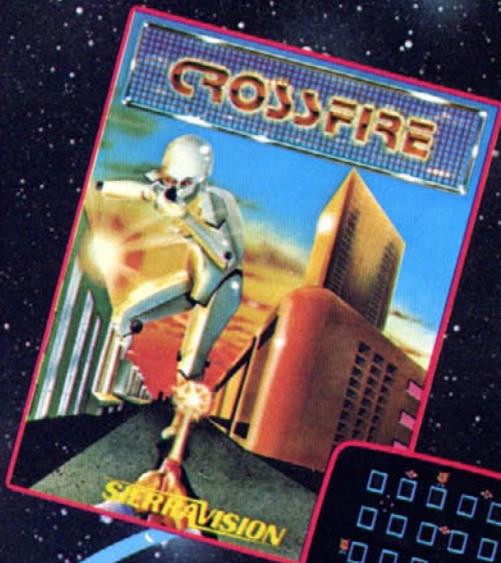
SPEED, ACTI



Sierra On-Line presents five games with all you could ask for in space action. Our exceptional graphics put you in the heat of the battle, and the rest is up to you.



ON, THRILLS



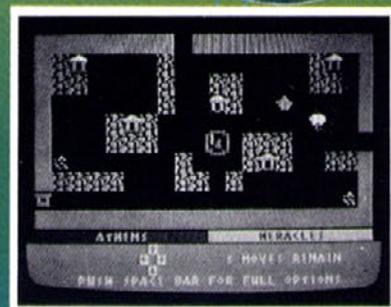
The computer adventure you've been waiting for...

THE RETURN OF HERACLES

An exploration of Greek mythology translated into modern electronics
by Stuart Smith



The creative mind of Stuart Smith, author of *Ali Baba and the Forty Thieves*, brings to life the world of mythic Greece in fantastic color and sound! Carefully researched and skillfully programmed, *Return of Heracles* is computer entertainment at its best. Twelve difficult and dangerous tasks will be assigned to you by Zeus, and your heroes must accomplish them all. One or more players take on the role of an ancient Greek hero or heroine. There are 19 heroes to choose from, or choose them all! May the gods favor you!



QUALITY SOFTWARE

6660 Reseda Blvd., Suite 105, Reseda, CA 91335
(213) 344-6599

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a Warner Communications Co.

For Atari home computers.
On diskette. Requires 48K
\$32.95

abruptness of the changes gets more breathtaking as you progress. Like the legendary *Crop Duster*, this is an advanced, strong-willed, unforgiving game with a mind of its own. Broderbund's experimental full-paragraph parser is innovative, to say the least. You can't get bored playing *Blood Quest*. There's very little you can get.

The smell routines are exceptional, though a trifle slow. The use of the Dolby sound system is masterful, though perhaps a bit much if there are people trying to sleep and your windowframes need caulking.

But after a few days of playing *Blood Quest*, you won't even be thinking of trying to sleep. You won't even be thinking.

It isn't often that one comes across something totally original. Perhaps, someday, someone will.

AC
Apple, 48K. Price negotiated on a per-person basis; first come, first served. Broderbund, H. Oaks Department, 17 Paul Drive, San Rafael, CA 94903; (415) 479-1170.

B.C.'s Quest for Tires

By Sidney Development and Chuck Benton.

Atari.

First of all, B.C.'s quest has nothing to do with tires. There is a quest, though—a quest for love.

The plot in *B.C.'s Quest for Tires* is simple. Players control B.C.'s protagonist, Thor, on a perilous trek to save his true love, Cute Chick. Did we say *perilous*? That should have been *peril-less*. Hazards that Thor

faces include potholes (goodness!), logs on the ground (heavens!), low tree branches (yikes!), and rolling boulders (eek!).

Holes, boulders, and logs are easy to jump over; branches are just as easy to duck under. The only real tricky part involves getting past Fat Broad, Thor's perennial nemesis. Apparently, Fat Broad isn't too keen on the idea of Thor's rescuing Cute Chick from the dinosaur, and she'll club him down to prevent him from doing so. Getting by Fat Broad requires nothing more than rolling Thor right by her on his wheel. The catch is that she's on the opposite end of a river that can be crossed only by playing *Frogger* on turtles' backs.

The rest of the obstacles in *Quest for Tires* include your obligatory fiery pit, your usual cliff to jump over, and your caverns with stalactites and stalagmites.

Finally, rescuing Cute Chick for some reason seems anticlimactic. Though rescuing her is the object of the game, the real thrill of victory comes when Thor crosses the river and gets by Fat Broad. Compared to that, all the other obstacles are a cakewalk.

Look closely and *B.C.'s Quest for Tires* might seem familiar; it's that get-from-point-A-to-point-B kind of game. Sierra On-line could have gone wrong by casting unknowns; it's the presence of familiar comic strip characters that makes the player feel like finishing the game is worthwhile. Picture the same story with some imaginary beings and it's just not the same.

SYNAPSE TAKES OFF

Hey, Synapse: Thanks!

In one burst of home arcade game releases, Synapse Software has visibly raised the level of Atari gaming and put the Commodore 64 on the map as a game machine that really can deliver on its promise. Their current releases are numerous and outstanding, and worthy of a mass salute.

The Look. Graphics excellence is the most obvious characteristic of all these games; in some more than others. In that department, Bob Polin's *Blue Max* rates very high. It is *River Raid* for real and *Zaxxon* with meat on it. It will not be to everyone's taste, but if *Zaxxon* deserved to be a hit, this deserves to be a monster. The point here seems to have been to create a 3-D flying shoot-'em-up that was as far from a flying shoot-'em-up as possible. The game is not simple. There are scads of little rules to remember and indicators to watch. You can only bomb at a certain altitude. You can only engage enemy planes at their own altitude. You can only take off if you get your speed up to 100 miles per hour. (This can be a real problem, as you have to land occasionally for repairs and refueling and, if you land far down on a runway, you won't have enough room to get up to takeoff speed again and you can't back up.) The complexity can be fatiguing; the game is a beauty.

Zeppelin is the other current heavy-hitter in the graphics department. "You made me dream with eyes wide open," Federico Fellini told Stanley Kubrick, after seeing *2001: A Space Odyssey*. William Mataga's world of endless, interconnected caverns has that dreamlike feel of heightened (computer game) reality. Graphically, the only other game that compares to it is *Pharaoh's Curse*, from the same company. This style of delirious lushness, high saturation color, and extreme detail could well become a Synapse trademark. (Let's hope it's preserved in the Commodore version, expected for early next year.) In *Zeppelin*, you tend to forget the ostensible object of the game—pick up some dynamite and a plunger, take them to a certain cavern, and blow it up—and just play to see what comes next. And that, of course, is the real object. Who could really blow up something that looks like this?

Neither *Blue Max* nor *Zeppelin* is an easy game to get into or get comfortable with. For all their great beauty, they frustrate easily. They make you work for the big thrill; they don't instantly grab you and lock your brain on a continuous loop.

The Play. For games that work on that level of addiction, we must turn to two other current releases.

Fort Apocalypse and *Survivor* have been Atari staples for a while now. Graphically, Joe Vierra's Commodore *Fort Apocalypse* doesn't differ much from Steve Hales's original sturdy, 32K Atari creation and is therefore likely to elicit the same initial reaction: "Ooooh noooo! It's a helicopter rescue game and the helicopter doesn't look as good as the helicopter in

Choplifter!" Right. That's enough of that. What you don't get in jazzy animation is traded for game complexity and difficulty of play—just enough to keep you coming back and progressing a little farther each time. It very neatly incorporates its two different scenarios into the hostage rescue mission plot—both equally challenging, in different ways.

With *Survivor*, Peter Adams's Commodore translation is graphically superior to Richard Carr's 24K original—natch—but here, the play's the thing. Everything. We are talking complete alpha state mesmerism. Oh, gee, have I been playing for five hours? How about that. What was for dinner?

The trick is to perfect the methodical art of penetrating several massive space fortresses, then playing cat and mouse with their laser emplacements while dealing with random space goofballs that pose a hazard to navigation and continued wholeness. That's all there is to it. Completely simple, quietly elegant, it whispers along, oozing power and class. Handling and cornering are superb, as well as braking, but a great deal depends on your joystick. You won't get far with the loosey-goosey variety; a very tight stick with minimal play on all axes is required. The first level is possible with one player; all subsequent levels really require a pilot and a gunner. This is one of the few true multiplayer games around, and it has the potential to accommodate a navigator, a "propulsion engineer," and two gunners (though how your C-64 will accommodate four joysticks is your problem).

The Difference. All of these games are essentially state-of-the-art or otherwise rousing satisfying entries in their particular genres. *Drelbs*, however, is different. Actually different—like *Qix* was different, or *Pac-Man* was different. As the first one of itself, it may not be a total success, but that judgment has to be a matter of taste; you can't tell by comparing it to anything. It doesn't read at all well on paper, but the basic idea is to arrange rows of parallel line segments to form squares, as many as possible. (Hey, that's a real simple idea! I could have thought of that! But you didn't.) Around this very simple idea, Kelly Jones has built a story, with threats, enemies, and an additional goal, and turned the whole thing into a struggle for freedom. The animation bespeaks the same kind of unique mind behind a unique game. It's odd, quirky, and not mistakable for anything else.

If Synapse had taken a straw vote of what really makes a good game, they couldn't have incorporated the results to come up with anything more representative than these five. Whatever turns you on, at least one of them has got to be it.

AC
Blue Max, Atari, 32K, disk or cassette. Commodore 64, disk or cassette. *Drelbs*, Apple, 48K. Atari, 32K, disk; 16K, cassette. Commodore 64, disk or cassette. *Fort Apocalypse*, Atari, 32K, disk or cassette; 16K cart. Commodore 64, disk or cassette. *Survivor*, Atari, 24K, disk; 16K, cassette. Commodore 64, disk or cassette. *Zeppelin*, Atari, 32K, disk or cassette. \$34.95 from Synapse, 5221 Central Avenue, Richmond, CA 94804; (415) 527-7751.

Not only do the B.C. characters in *Quest for Tires* look the same as their comic strip counterparts, they also behave the same way. Thor rides his prehistoric unicycle with the greatest of ease; Fat Broad swings a mean club trying to sink Thor; even the dinosaur manages to hold a menacing but playful grimace.

B.C.'s Quest for Tires isn't so much a computer game as it is an interactive cartoon. This cartoon has its limits, but it does provide some challenge for medium to advanced gamers.

MTY
Atari. 40K disk or 16K cartridge. Disk, \$34.95; cartridge, \$39.95 from Sierra On-Line, Sierra On-Line Building, Coarsegold, CA 93614; (209) 683-6858.

Infidel

By Mike Berlyn and Patricia Fogleman.

Most computers.

"Psst, Effendi! Over here. Want to buy a watch? It belonged to Cleopatra. See, it is a wrist sundial. No? Perhaps a flying carpet with low mileage, or a rare one-hump albino camel? You are here on an expedition, maybe? You seek a hidden pyramid? Well, Effendi, you have found the right person! I, Abdul, am directly descended from the ancient Pharaohs of Egypt. I have in my possession a genuine priceless map to the tomb of one of my ancestors, Tutankhamen. Oh, they found that one, did they? Well, then, how about . . . wait, Effendi, don't leave! I am the best guide in all of El Menhir. I will be your guide and find workers for you. I will work cheap, only 5,000 piasters a day. Here, let me help you with the navigation box. Oops, so sorry, Effendi; it slipped. Is it broken? Badly? Ah, well, I would like to stay around and help you sweep up the pieces, but I got a line on a cheap shipment of dates that we will need for supplies. May Allah bless you and your kindness, Effendi."

Under his breath as he walks away: "Cursed infidel dog! The sands of the Sahara shall bleach your bones before you desecrate our holy tombs."

You recall how you tricked Miss Ellingsworth into giving up the items that her famous archaeologist father had discovered in Egypt. Too bad he died before finding the pyramid. You have a map, a small dic-

tionary of hieroglyphics, and a mysterious limestone cube. The cube is covered with hieroglyphics hinting at vast treasures. Think of the fame and fortune that awaits, especially the fortune. Soon, it will all be yours. The plan is to leave at dawn, once Abdul has found enough diggers and bearers.

Obituary, the Frobozz Biweekly Quarterly: Little-known explorer reported missing, and presumed dead, while on archaeological expedition in Egypt. No trace has been found at his camp. He appears to have been overcome by a diabolical new text adventure game. There are reported to be more death traps per square foot in the game than in Raiders of the Lost Ark. The probability of survival is also proportional to how well the adventurer can decipher hieroglyphics. Clues abound, hidden by the ages within the dancing pictures. It was unfortunate that the ersatz explorer was linguistically illiterate.

His faithful guide, Abdul, was quoted as saying, "He was just a crazy infidel who wandered aimlessly off in the desert without his navigation box. He was quite drunk at the time. Want to buy a lovely limestone cube, Effendi?"

RRA
Apple, Atari, Commodore, DEC, IBM, NEC, Osborne, TI, TRS-80, \$39.95 from Infocom, 55 Wheeler Street, Cambridge, MA 02138; (617) 492-1031.

Stellar 7

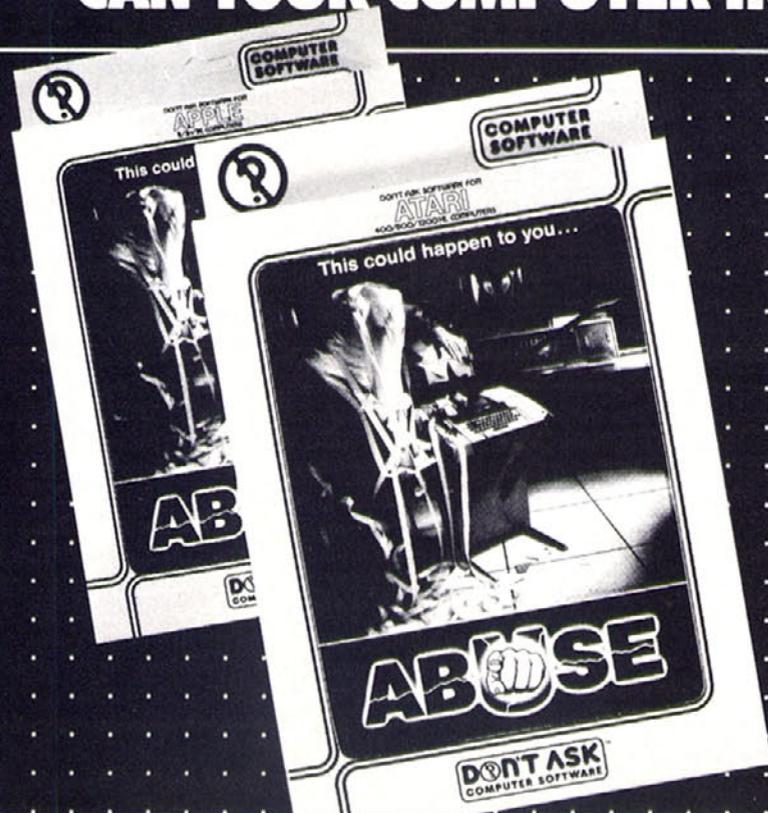
By Damon Slye.

Apple, Commodore 64.

Stellar 7 bears an uncanny similarity to the arcades-only game, *Battlezone*. The player looks out from the view screen on an alien world composed of hi-res three-dimensional line images. Using joystick or keyboard commands, you steer your *Raven* among enemy armored vehicles moving independently against a static background. Using your radarlike screen to detect approaching enemies, you attempt to avoid enemy fire while maneuvering to fire and destroy the Arcturan enemy. Your shells arc outward as you fire, growing smaller as they approach their targets. When hit, the enemy vehicles explode in a colorful shower of debris. Should the enemy vehicles come a little too close for comfort, you can use your invisocloak to hide, but watch your energy level—it's a long way to the next warp link.

Several player options are available in *Stellar 7*. Game play may be

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stopped and started at any time—say, whenever your fingers begin to cramp around the joystick; *Stellar 7* is a little hard to put down. The game's sound effects may be toggled to accommodate the player's whims and encourage late-night domestic harmony. There's even an option for choosing either Apple- or Atari-type joysticks—or keyboard for fast-fingered freaks.

Graphics in *Stellar 7* are first-rate. Part of the screen is a window looking out onto the alien landscape. A smaller screen shows a radarlike view of approaching obstacles and vehicles. In addition, the energy level and shield strength are constantly monitored with on-screen gauges, while the current star system and score are displayed on the top of the screen. You won't be alone for long on the alien landscape of Titan. Three-dimensional Arcturan battle vehicles soon swarm in for the kill, moving, turning, and exploding with convincing realism. The elusive airborne "skimmers" even swoop and wheel in the alien skies. Your computer opponent is as crafty as it is quick. Occasionally an Arcturan will even turn tail and flee while you pursue the enemy across the twisting obstacle-studded landscape. Should you survive long enough, the shimmering warp link will swallow your intrepid *Raven*, and a hyperspacelike star field suddenly swirls across your screen. Then the stargate opens on another world of wrist-snapping action. Each new level is more challenging than the last. High scores are saved on disk at the conclusion of any game that produces one.

Combining first-rate graphics and sound effects with fast-paced, arcade-style excitement makes *Stellar 7* hard to beat in every sense. WH Apple, 48K. Commodore 64. \$34.95 from Software Entertainment Company, 537 Willamette Street, Eugene, OR 97401; (503) 342-3495.

Knights of the Desert

By Tactical Design Group.

Apple, Atari, TRS-80.

Rommel rides again! Colorful box art, tastefully reminiscent of the good old "Haunted Tank" comic book, typifies the work and care that went into this strategy-game effort. The subject and setting is the two-year German campaign in North Africa during World War II in which Erwin Rommel, using the blitzkrieg experience he gained in the fall of France, earned his reputation and the nickname Desert Fox. The solitaire option puts the player squarely in Rommel's jackboots, commanding the Axis forces of Italian soldiers and the elite Afrika Korps.

Graphics are well executed, allowing a scrollable map from El Agheila to Alexandria along the North African coast. Eight types of terrain are used, including towns and fortresses. Unit symbols are fairly standard, covering armor, infantry, and supply depots. Italian units are differentiated, and stacking symbols are used when more than one friendly unit occupies the same place. All graphic elements are conveniently summarized on the map display card.

The campaign scenario is twelve turns long, covering March 1941 to February 1943 in two-month turns. Turns are multiphased, including two movement phases per side each turn, and require much player interaction. Options include five shorter scenarios. In all the games, each side may be handicapped or played according to historical strengths, replacements, and rates of supply.

Unlike many other war games, *Knights of the Desert* has no zones of control. Moving adjacent to another unit may trigger a limited reaction phase in which the opponent gets the opportunity to move and attack. A unit may be moved early in a turn and then moved again later in the same phase even if it has initiated combat. The only limitation on moves and attacks is the supply and operation points available. Terrain has a direct bearing on the expenditure of supply and operation points.

Besides the usual terrain considerations in combat, there are bonuses awarded on offense and defense for friendly and nonattacking units. As many units in a stack may be attacked as the phasing player wishes. Eligible air factors may be added to either side in the battle. Each side chooses a level of risk and a battle intensity; the combined levels of risk are factored into each side's losses, and the battle intensity affects the degree in which casualties are taken.

The linchpin of this game is its effective handling of supply, historically the critical element in this campaign. Units can never get enough supply. The depot units give logistical flexibility to the campaign, but these units must trace supply lines back to their home base through

either proximity or a supply chain. The hoarding and judicious expending of supply takes its rightful place in this North African campaign.

This is not a simple nor a simplistic program. The interaction of all the elements provided makes for a very fluid and exciting game, smoothly combining both the flanking maneuvers and the pitched battles that characterized this theater. As with all SSI games, if no one else is around, the computer will provide the opposition; in this case, as the Allies. And the human would best be a veteran of past war games. DL Atari, 40K. Apple, 48K. TRS-80, 16K, cassette. \$39.95 from Strategic Simulations, 465 Fairchild Drive, Suite 108, Mountain View, CA 94043; (415) 964-1353.

Mountain King

By Robert Matson.

Atari.

Books have been the inspiration for movies since movies began. Later came the movie-inspires-book motif. And, of course, there's the recent pattern of movie-inspires-many-commercial-things-including-video-game. *Mountain King* represents a first: Norwegian-folk-tale-inspires-Ibsen-play-and-Grieg-suite-inspires-video-game. Not a chain of inspiration that's likely to be repeated. At least not so well.

Fanfare, please! Robert Matson has written a game for the Atari based on something other than pop culture. (Most video games are based on other video games, which is as pop culture as you can get.) What we have in *Mountain King*, then, is a haunting rendition of *Hall of the Mountain King*, the fourth part of Edvard Grieg's *Peer Gynt* Suite no. 1 op. 46, rendered in full Atari sound, acting as soundtrack and counterpoint to a game of unusual depth.

Being of good birth, shall we say, did not predestine *Mountain King* to greatness. It would certainly be possible to base a game on the most deeply rooted of legends and myths and still have it turn out as boring and insipid as the hundred and third *Space Invaders* clone. The author of *Mountain King* deserves double credit, once for a good idea and again for an execution that does justice to the source of inspiration.

The game is a computer game in that it contains all the elements of

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animation, scrolling, and the need for coordination and fast response that define state of the art these days. It is also something more, something like a fantasy or adventure.

Like an adventure, it requires that you perform certain interdependent tasks to accomplish a goal, although you aren't required to solve any puzzles to discover what those tasks are. It's all outlined from the start. You must get the crown from the troll's chamber deep in the mountain and bring it back to the perpetual flame at the top. To get into the chamber, you must capture the fire spirit, but you can't see the spirit even with a flashlight (forgive the anachronism; this is apparently a modern-day Peer Gynt) until you have amassed a small fortune in diamonds. With the diamonds in hand, you can home in on the spirit by paying attention to the volume of the music. A nice touch, that. Once you have the crown, there are bats that try to wrest it from you, spiders that try to eat you, and so on.

It's really more like a fantasy game, although it lacks in the hack-and-slash battles that seem to characterize the genre. You have only as many commands at hand as a joystick and pushbutton are able to convey to a computer, but they include picking things up, using a flashlight, running, kneeling, climbing ladders, and jumping across gaping chasms. Enough for a small fantasy, at least.

It doesn't actually matter what kind of game it is, except that it falls into one previously unmentioned category. *Mountain King* is a game worth playing. DD

Atari, 16K; cartridge; joystick required. \$39.95 from CBS Software, CBS/Columbia Group, One Fawcett Place, Greenwich, CT 06836; (203) 622-2503.

Eagles

By Robert Raymond.

Apple, Atari, Commodore 64.

There are few to remember it, but a big war bird wasn't always a twenty-ton mass of metal, screaming around the sky at Mach 2. It was once a flimsy vehicle hand-made of wood and canvas held together with glue and wire. It was about as big and powerful as a Datsun, but nowhere near as safe.

The machines were no good. But the men who flew them became legends. They were the darlings of their nations—Eddie Rickenbacker of the United States, Albert Ball of Britain, Georges Guynemer of France, and—most celebrated of all—Baron Manfred von Richthofen of Germany.

Now Robert Raymond has written a game that recaptures the last two years of WWI, the golden age of the dogfight. The Allies in their Sopwiths and Spads, and the Germans in their Fokkers and Albatrosses chase each other all over the screen, climbing, turning, and looping, casting their shadows on the trenches below. Aces stalk their prey, machine guns go rat-tat-tat, and losers go down in flames.

All this is accomplished rather simply (for a strategy game). You get an overhead view of each plane—purple for Germans, green for Allies. A plane can face only one of four directions, though some diagonal movement is allowed. The right side of the screen is taken up with ratings for each plane's characteristics; so we know, for example, that a Fokker Triplane has a 70 percent chance of completing a hard turn, whereas a Spad XIII has only 50 percent. (On the other hand, the Spad is much faster.)

The net result is like the real thing in some respects—planes maneuver for altitude and chase each other's tails. As in real life, random chance can kill even the finest pilot or make the clumsiest one the hero of the day. The program can track only planes that are close together, so the dogfight always breaks up if the opponents get more than a few hundred feet apart.

There is some strategy to this game, but it is simple enough so that even a novice can become an ace. And even a veteran will occasionally be left to cry:

Curse you, Red Baron!

FJ

Apple, 48K. Atari, 40K. Commodore 64, disk. \$39.95 from Strategic Simulations, 883 Stierlin Road, Mountain View, CA 94043; (415) 964-1353.

Guest reviewers this issue are Forrest Johnson, Donald Lynch, William Harrington, and Ralph Segler.

Masquerade

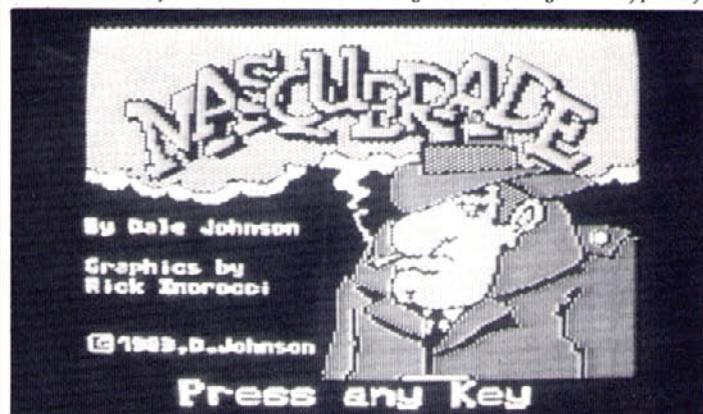
By Dale Johnson.

Apple.

After trailing a notorious hit man for some time, you catch up with him in a run-down, seedy hotel named, appropriately, Cheap Hotel. The hi-res adventure opens with the hit man ("Ivan Tupickemoff, Professional Assassin, Hours by Appointment") unconscious on the floor. Unfortunately, his confederates have spotted you. Now the problem is to escape unharmed.

Traps and assassins lurk everywhere. Whenever one of the opposition locates you, his sinister shadow appears. Unless you think and act quickly, a well-thrown knife ends your career. Perhaps a disguise would keep the opposition from seeing you. The theme of this exciting program is disguises within disguises. A true masquerade!

Designed as an expert-level game, *Masquerade* offers the seasoned player quite a challenge. Many of the problems have several logical answers. This yields extensive branching within the game. Typically,



what turns out to be a blind path looks quite reasonable. Only after many moves, finally faced with a cul-de-sac, do you realize you goofed somewhere. The problem is where? Little distinguishes the false trails from the correct trails.

What's most fascinating about *Masquerade* is Dale Johnson's incredible use of space. This game has one of the smaller maps in adventure gaming, yet Johnson has used each space to its fullest. Some locations have layers upon layers of action, some of which only appear when conditions are right. You may visit a location time after time and never notice a vital clue.

Although *Masquerade* contains few of the small pieces of animation that were a hallmark of *Sherwood Forest*, the quality of the illustrations ranks with the top on the market. RRA

Apple, 48K. \$34.95 from Phoenix Software, 64 Lake Zurich Drive, Lake Zurich, IL 60047; (312) 438-4850.

The Quest

By Dallas Snell, Joe Toler, and Joel Ellis Rea.

Apple, Atari.

It looks like Penguin Software has really done it: adventure game with beautiful hi-res graphics, a great plot, and sneaky surprises!

You have been chosen by the ruler of a medieval kingdom to search out and destroy an evil dragon that has been terrorizing his subjects. Gorn, a great and very trusty warrior will help you (sometimes) along your journey. Lady Diana is a young noblewoman who will also help you.

And off you go with Gorn, Lady Di, and 150 gold sovereigns for provisions. It will be a difficult journey. Gorn has a mind of his own. Your water supply must be replenished periodically, and you will encounter many other hardships as the story unravels.

The Quest is a two-sided adventure. It has great graphics; hundreds of beautifully detailed pictures, and allows multiple-object, full-sentence instructions.

This is a fairly difficult adventure, best suited to play by experienced adventurers. RS

Apple, 48K. Atari, \$19.95 from Penguin Software, 830 Fourth Avenue, Geneva, IL 60134; (312) 232-1984. SL



Standing, left to right: Ken Arnold, Mike Ward, Laurie Thatcher, James Van Artsdalen, Helen Garriott, John Van Artsdalen. Seated: Richard Garriott, Robert Garriott, Chuck Bueche.

ORIGIN SYSTEMS

As unlikely a pair as Chuck Bueche and Richard Garriott seem to be, the synthesis of their personalities is the fuel for Origin Systems.

Chuck Bueche, who prefers the moniker "Chuckles," and Richard Garriott, better known in Apple circles as Lord British, are the principal players of Origin Systems. Garriott's brother Robert, who likes to be called "Robert," handles the business end of the company.

Anyone familiar with Chuckles and Lord British only through their works would never picture the two working together. Chuckles is a cartoon; British is a fantasy hero. Chuckles is Papa Smurf; British is Kull the Conqueror. One is cotton candy and ice cream; the other is roast pheasant and ale.

Misnomer. Origin Systems can be labeled a newcomer to the computer games market in a technical sense only. It would be like putting together some veteran basketball players and calling them a new team in professional basketball; Bueche and Garriott have been around in the computer game biz for quite a while, publishing their games through other companies. Origin represents a collective effort to start something they can call their own.

Bueche wasn't always into computers; high school chum and roommate at the University of Texas, Garriott was the one who introduced Bueche to computers.

"Richard was into something called software, and I thought I'd try my hand at it, too," says Bueche.

Trying his hand at it resulted in games such as *Jawbreaker II* and *Laf-Pak*, a four-game game, both published by Sierra On-Line, the same company that marketed Garriott's *Ultima II*.

The game writers' reasons for deciding to publish and market their games themselves are twofold. "We feel we have more control over our products than we did before," says Bueche.

The second reason?

"More money."

It's not just owning one's own company that will rake in the bucks, though. An industry like computer games requires innovation to keep creativity from leveling out. Origin recognizes this and plans to bring in-

novation to the marketplace.

One of the areas to watch is Garriott's *Ultima* series. The soul of *Ultima* has had four incarnations, beginning with *Akalabeth* and currently existing in *Exodus: Ultima III*. Despite the apparent one-dimensional theme, each *Ultima* seems like a completely different game, since each differs so markedly from the last. The differences between scenarios isn't much by choice, but rather because Garriott keeps finding more ways to enhance the game by teaching the computer to perform more tricks. Eventually, Garriott hopes to develop the ultimate *Ultima* setup and then develop scenarios using that setup.

New Company's New Idea. One area of computer games that has been explored minimally, if at all, is Steve Jackson microgames. Much smaller than conventional strategy games, microgames involve just as much calculation and statistical consulting as their table-top counterparts. Don't be fooled by their size; microgames require just as much planning and playing time as the big ones.

What computer game powerhouses like Strategic Simulations and Avalon Hill are doing for the table-top strategy games, Origin hopes to do even better for the microgames.

Origin's first Steve Jackson adaptation is *Car Wars*, a game in which players are given a fixed amount of money that they must spend wisely to build an automotive fighting machine. Having built their cars, players then face each other (and their opponents' cars) in a car battle that would make a demolition derby look like a scene from a driver education training film. "You'll have to learn to drive offensively," says Garriott, the main force behind the project.

With the central idea behind Strategic Simulations's Rapid Fire games in mind—the combination of strategy with fast action—Origin hopes games like *Car Wars* will be a part of this emerging genre of computer games.

Not a Misnomer. When asked how they decided on a name for their company, Bueche and Garriott just shake their heads and look at one another. But if the ideas they have brewing in their heads succeed, then the name "Origin" seems only fitting.

SL



PROFILES IN PROGRAMMING

Lord British

by David Durkee

The young reporter was assigned to do an interview with Lord British. It was his first brush with royalty. As he walked down the long corridor leading to the Lord's audience chamber, he noted with admiration the grandeur with which British surrounded himself. The reporter entered the chamber. Although Lord British spoke not, his bearing seemed to give the newcomer permission to state his business. The interview commenced.

"Great lord, I seek an audience with thee that I might herald thy story in a computer games magazine."

As he spoke, the hall was filled with the strains of Rule Britannia. Lord British looked down from his throne. "Welcome, my child. Thou art greater."

Greater than what? the young man wondered. Is the king testing me? "My Lord," he said, "how should I portray thee to my readers?"

"Welcome, my child. Experience more."

"Is that it? Dost thou wish it be a more experienced reporter that tells thy tale?"

"Seek ye the mark of kings."

"The mark of kings? Would that be this mole on your arm, here?"

"Welcome, my child. No more!" Lord British made an expansive gesture to indicate that the interview was at an end.

"Huh?"

Richard Garriott shares with Alfred Hitchcock the tendency to put himself into his own work. His alter ego, Lord British, as portrayed in *Exodus: Ultima III* and the preamble to this article, is spare on words but generous with the hit points. Garriott matches his persona with a generosity of spirit but is far more outgoing. Lord British just sits on his throne throughout an entire game, but Garriott, if his true self actually appeared in the story, would be out there vanquishing villains and quaff-

PROGRAMMER DATA SHEET



NAME: Lord British a.k.a. Richard Garriott
BIRTHDATE: July 4, 1961
BIRTHPLACE: Cambridge, England
TURN-ONS: Technology toys, real life adventures, spontaneity
TURN-OFFS: Mornings, speeding tickets
GOALS: To write the game of total escape
FAVORITE LANGUAGE: 6502 machine
FAVORITE COMPUTER: Apple
FAVORITE ASSEMBLER: Lisa
FAVORITE GAME: Caverns of Callisto
HIGHEST SCORE: 268 930
FAVORITE RESTAURANT: Les Trois Mousquetaires
FAVORITE MUSICIANS: Beatles, Supertramp

ing brews with the best of them. People from all over, whether they meet him at Applefest, a medieval event, or remember the summer he taught at a computer camp, seem pleased and proud to be able to call him a friend.

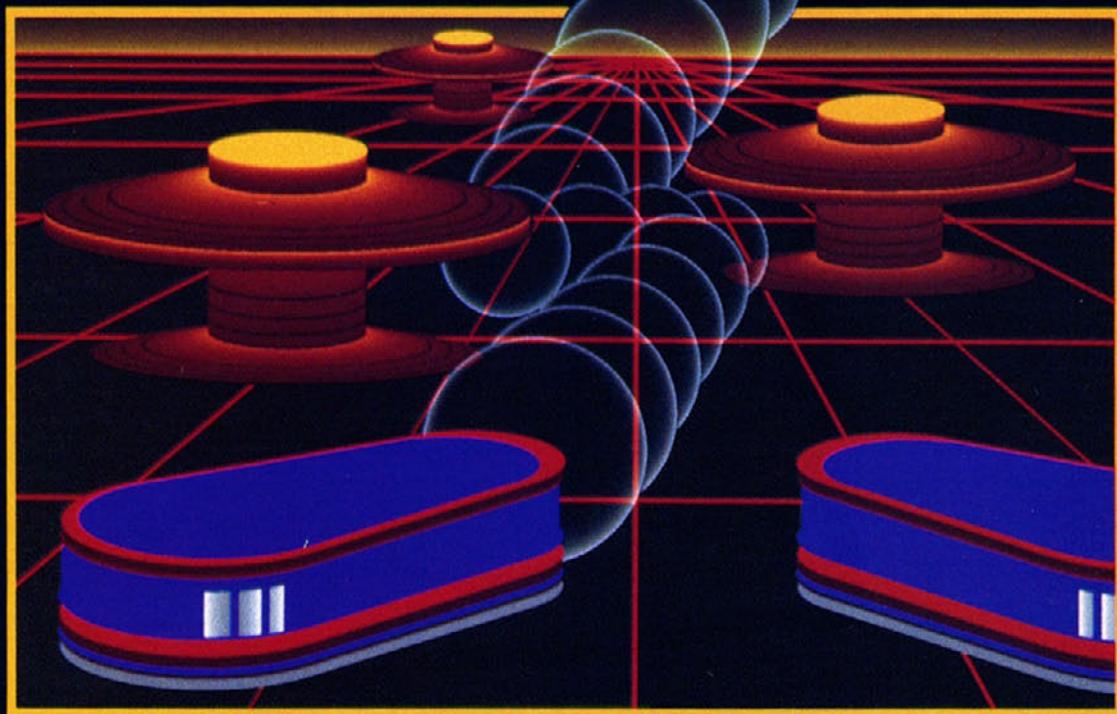
Garriott is one of the oldest faces on the Apple game scene and one of the youngest. When he published *Akalabeth* and the original *Ultima* through California Pacific, he was still a teenager. The teenage success story is a popular myth in microcomputerdom, but one that is actually not true as often as you would think. Steve Wozniak and Bill Budge, although traditionally thought of as boy geniuses, were both in their twenties when they first made names for themselves. Richard Garriott, however, is the true article.

His story has another interesting twist: Though his father, Owen, is an astronaut, some of Garriott's strongest interests go in the other direction. He is a member of the Society for Creative Anachronism, a nationwide medieval club, and he writes swords and sorcery games. Lest that seem an unseemly avocation for a true product of the space age, Garriott frequently reiterates that he would drop everything for the chance to go into space.

As even boy geniuses are wont to do from time to time, Garriott got a little older. He is now twenty-two. But as childhood fades slowly into the west, the story continues, as does the success. As a young adult, he has gone into business for himself, forming Origin Systems with his older brother Robert and his friend and former college roommate Chuck "Chuckles" Bueche. In the general run of programmers, there are those

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who thrive on the creative freedom of owning their own companies and there are those who discover that they prefer programming to running businesses. And there are those who aren't as good at running businesses as they are at programming. Garriott and company are well aware of the pitfalls, and they have initiated their joint enterprise with forethought and enthusiasm. (This issue's New Players tells that story.)

Cosmonauts Courageous. Being the son of an astronaut has its temptations. Garriott wants to go into space but doesn't see it happening in the predictable future. His father will be the mission specialist on the next flight of the space shuttle *Columbia*: STS mission 9, Spacelab mission 1. The Spacelab is a cooperative effort of NASA and the European Space Agency (ESA). Like Skylab, in which Owen Garriott orbited the earth ten years ago, Spacelab's goal for this and future missions is to conduct a series of experiments in chemistry, life sciences, and other sciences in an orbital situation.

The younger Garriott told *Softline* of plans for his father's mission that are so secret that even NASA doesn't know about them. He has frequently joked with his father about stowing away on a spaceship, and recently his speculations have been sounding uncomfortably realistic. Garriott figured that, if he were to succeed, public sentiment would prevent NASA and the government from taking any action stronger than having him followed by Secret Service agents for the rest of his life.

Having decided that stowing away was a good idea, Garriott speculated that, with his father aboard, an extreme reaction on the part of the crew would be less likely. The addition of his mass to the overall mass of the mission equipment and personnel apparently falls within accepted limits. He did briefly consider the possibility of being jettisoned by the satellite launching arm. ("Houston, this is *Columbia*. We will be effecting course change by ejecting approximately seventy kilos of mass out the bay doors. Please calculate new reentry vectors. Over.")

"Better Check the Cargo Bay, Dad." After a certain amount of this kind of talk, even a trained astronaut with an average amount of the right stuff begins to worry about mission security. Finally, Owen Garriott put his foot down: "Richard, I do not want to see you on my flight." The younger Garriott couldn't resist the potential of the situation. He has arranged with Robert Parker, one of the other astronauts on the flight, to act as stowaway in his stead. As of this writing, Garriott has prepared a series of notes to his father to be placed in strategic locations aboard *Columbia* during the flight. Whether this extraterrestrial practical joke will be carried off, or whether its perpetrator will be, is speculation, but soon we may all be in on the punch line.

"Drive Offensively." Garriott's most immediate project on the ground is *Car Wars*, which he is working on with Bueche. The game will be based on an award-winning microgame by Steve Jackson Games, which won the 1982 Origins award for best science fiction board game. Steve Jackson approached Garriott two years ago to translate some of his microgames to microcomputer games.

Because of the success of his fantasy games on the Apple, Garriott has been approached by the producers of *Lion of Ireland*, a movie to be based on the historical novel of the same name by Morgan Llywelyn. For the setting of the movie, a replica of a medieval village will be constructed in a rural area of southern Ireland, and the cast will spend two weeks soaking up the medieval lifestyle and giving the set a lived-in look before filming begins. Garriott will join them on this outing next April. This is the perfect vacation for a medievalist, but it will be a working vacation for Garriott. He will be doing research for a computer game to be based on the movie and scheduled for simultaneous release.

Ultimate Wizardry. Garriott also plans a collaboration with *Wizardry* coauthor Andrew Greenberg sometime in the near future. It's not definite what the game will be yet, except that, according to Garriott, "it will be the ultimate fantasy role-playing game."

Garriott is best known for his *Ultima* series of games on the Apple II. (He's not necessarily best known for getting them out on time. But he's improving. *Ultima II* had been advertised for six months by Sierra On-Line before it was finally released a year ago, and the Apple version of *Exodus: Ultima III*, released late last August, was only about two months behind the projected date. Versions of the game for Atari, Commodore, and IBM computers are on the way.)

Garriott says that *Ultima IV* is already in the works, and we can expect it to be the biggest and best *Ultima* yet. "I'm expanding my maps from 64 by 64 to 256 by 256 with a new system that won't use any more memory than the old one." That's pretty remarkable if you think about the fact that at one byte per square that map would take up all of the memory of a 64K machine. "The map won't all be in memory at once, but the loading routines will be fast enough that you won't notice them swapping." He also plans more detail in the animation.

The scenario will go beyond the reaches of his past works as well. *Ultima III* proclaims, "From the depths of hell, he comes for vengeance." Of course anyone can tell you that the villain came from hell, but in his next epic Garriott plans to take you there to see for yourself. The planes of hell will require a completely different style of graphics from anything he has used in the past. "I think that that's part of the strength of the *Ultimas*. I've created not just new scenarios for each new release, but whole new gaming systems."

The player's goal in *Ultima IV* will be to develop a character into an avatar. According to Garriott, an avatar in Eastern religions is one who has reached a state of oneness with God. To attain this level of enlightenment, the initiate must acquire sixteen attributes. Fifteen attributes represent powers over forces of nature and life, and the final attribute is clairvoyance. Many have attained partial avatar status—yogis who are able to exert a certain power over normally involuntary functions of mind and body—but few have gone all the way.

In the game, the first fifteen attributes may be obtained through certain great deeds in the physical world: areas like those portrayed by all the previous *Ultima* games. For the final attribute, the adventurer must make a quest into the ninth plane of hell (presumably through all the lesser planes as well). Garriott, who claims that the number of books he has read in his life can be counted on two and a half people's hands, has read Dante's *Inferno* for ideas and inspiration for *Ultima IV*, so we can expect the depictions of the planes to be vivid and graphic.

The projected release date for *Ultima IV* is the Christmas season of 1984, so we can probably expect it somewhere around the following spring if Garriott remains true to form. Maybe he'll make it on time; he's made some progress on the game already, but starting a company and dealing with his other projects take up a considerable chunk of his time. The imperative to make each game significantly better than the last is time consuming too. "Sometime I'll have an *Ultima* playing system that I can use for a few different scenarios. It won't be *Ultima IV*; how many times can you quest into hell? The trick is to create several plots that are interesting and different but can be enacted in a similar environment. Maybe *Ultima V*."

So *Ultima III* may not even be the penultimate. When it will end is anybody's guess. Garriott has only just begun to write the scenario to his personal *Ultima* quest. S



How Educated Software Shoppers Shop

Last issue we examined Piaget's four stages of child development and then attempted to identify the kinds and characteristics of software most appropriate for children going through these stages. As a logical continuation of that discussion, let's talk now about where educational software can be found and how best to use the services of software vendors.

Computer Dealerships. Software vendors come in all shapes and sizes. Some are better able to help you than others. The first place to consider as a source of software and guidance is the store from which you bought your machine. Almost all computer dealers sell a certain amount of software that's compatible with the machines they carry.

Generally, computer dealers can be counted on to be familiar with the best-selling software. Their information comes from a number of sources, including consumer demand for titles, promotional materials from software producers and distributors, and software reviews in trade magazines and other publications. It's important to remember, though, that while these sources of information may be very meaningful and convincing to the dealer, they may bear little relation to product quality or

to your specific needs.

As we've said before in this column, it's a very good idea to review any program before you buy it. If you have a good relationship with your dealer, you may be able to arrange to try out the software you're interested in on one of the store's demonstration computers before purchase. If your dealer is unwilling or unable to provide this service, you'd do well to look elsewhere.

Specialty Stores. More and more software specialty stores are springing up around the country. These stores carry a variety of software for a variety of computers, along with catalogs and trade journals that may help you locate appropriate materials. Since software is their business, these dealers make an effort to be familiar with all the products they carry.

A software store is likely to stock a wider selection of software than the general computer store. So if you've already decided to buy a particular product and you just need to find a store that carries it, this kind of dealer is a good choice. One potential disadvantage of buying something from a software store—they may not have a computer on which to preview the program before you buy.

Mail-Order Houses. Over the last two years, more and more mail order discount suppliers have established themselves as sources of software. Doing business with this kind of supplier has advantages and disadvantages.

Price is the chief advantage of dealing with a mail-order house. Mail order programs sell for from 10 to 25 percent below list price. So if you know what program you want and the company is reliable about delivery, buying through the mail can be an economical way to buy software.

A major disadvantage to the mail order approach is the fact that you can't preview software before you buy it. And the information a mail order company provides is usually promotional literature. In addition, mail-order houses are notorious for delivery problems. You may have to wait a long time to get your software; with some houses, you may even have the unpleasant experience of getting your canceled check while you're still waiting for your software to arrive. When dealing with a mail-order house for the first time, you may want to purchase your first few programs COD. This will give you the opportunity to see how long it takes to get your order and how reliable the company's service is.

School Supply Houses. Until recently, suppliers to schools had no interest in dealing with individual consumers. In recent months, however, this situation has changed. Now, consumers are welcomed into these stores, and, in fact, they account for nearly 50 percent of business.

Many school supply houses are operated by former or current educators who may be able to help you in selecting software. An added bonus—stores of this kind also carry collateral educational materials that can be used in conjunction with software.

The Neighborhood Bookstore. Recently, the local bookstore has become a source of software, especially in the test-taking and reference areas. Many of the major book publishers now involved in developing educational programs are doing their marketing through the bookstores. These retail outlets can be particularly helpful if you're interested in collateral materials to use along with computer programs.

The kinds of software available in bookstores are usually complete tutorial systems. As compared to the titles found in the computer store or the software store, they are rather expensive. And it's only rarely that you'll find a bookstore with a demonstration computer. If you know what you want, neighborhood bookstores are a good bet, but be sure to find out about a store's return policy before you make a purchase.

The Software Publisher. A reputable software publisher is an ideal source from which to purchase programs. As we've stated in earlier articles, software publishers that do their own development are likely to provide products of more consistent quality. Once you've found a publisher who suits you, you'll likely be pleased with most of that company's programs.

As individual publishers continue to grow larger, they'll probably make fewer direct sales to consumers. Instead, they'll be selling to computer stores, distributors, bookstores, school supply stores, and schools. The likelihood, then, is that this purchasing opportunity will decline in the years to come.

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SOFTLINE

PROGRAMS IN PULP



Special Throwaway Section for Nonprogrammers



ANATOMY OF A GAME: PART II

Listing 1

```

Apple Version
1 GRAPHICS equ $C050
2 NOMIX   equ $C052
3 PRIMARY equ $C054
4 HIRES   equ $C057
5 HPAGE1  equ $2000
6 ;
7 *-----
8 ;
9 ; Set the soft switches on
10 ; the Apple to show hi-res
11 ; page 1.
12 ;
13 *-----
14 GRAPH   lda GRAPHICS
15         lda NOMIX
16         lda PRIMARY
17         lda HIRES
18         rts
19 *-----
20 ;
21 ; Clear the hi-res screen.
22 ; Use self-modifying code for
23 ; fastest and shortest CLEAR
24 ; possible.
25 ;
26 *-----
27 CLEAR   lda /HPAGE1
28         sta >1 + 2
29         lda #$00
30         ldy #$00
31         ldx #$20
32 ^ 1     sta $2000,Y
33         iny
34         bne <1
35         inc <1 + 2
36         dex
37         bne <1
38         rts

```

Commodore 64 Version

```

1 VICMEM equ $DD00
2 BITMAP equ $D011
3 PAGPNT equ $D018
4 MCM    equ $D016
5 HPAGE1 equ $6000
6 ;
7 *-----
8 ;
9 ; All C-64 video is controlled
10 ; by registers in the 6567
11 ; video chip. Set the proper

```

```

12 ; values for hi-res graphics,
13 ; multicolor (to correspond
14 ; to the Apple), and have the
15 ; hi-res screen at $6000 so
16 ; the character generator ROMs
17 ; don't get in the way of our
18 ; sprites (when we use them).
19 ; Also, the color map (the text
20 ; page) will be at $5C00 - $5FFF.
21 ;
22 *-----
23 GRAPH   lda #$C6
24         sta VICMEM
25         lda #$3B
26         sta BITMAP
27         lda #$78
28         sta PAGPNT
29         lda #$D8
30         sta MCM
31         rts
32 *-----
33 ;
34 ; the CLEAR routine is identical
35 ; to the APPLE VERSION
36 ;
37 *-----
38 CLEAR   lda /HPAGE1
39         sta >1 + 2
40         lda #$00
41         ldy #$00
42         ldx #$20
43 ^ 1     sta $6000,Y
44         iny
45         bne <1
46         inc <1 + 2
47         dex
48         bne <1
49         rts

```

Listing 2

Apple Version

```

39 *-----
40 ;
41 ; This produces the memory
42 ; address for the start of
43 ; the horizontal line at Y.
44 ; Lookup tables take up more
45 ; room in general than
46 ; calculation would, but tables
47 ; are usually much faster.
48 ;

```

```

49 *-----
50 YCVRT   ldx Y
51         lda YLKUP1,X
52         sta BASELO
53         lda YLKUP2,X
54         sta BASEHI
55         rts
56 ;
57 ;
58 YLKUP1  hex 0000000000000000
59         hex 8080808080808080
60         hex 0000000000000000
61         hex 8080808080808080
62         hex 0000000000000000
63         hex 8080808080808080
64         hex 0000000000000000
65         hex 8080808080808080
66         hex 2828282828282828
67         hex A8A8A8A8A8A8A8A8
68         hex 2828282828282828
69         hex A8A8A8A8A8A8A8A8
70         hex 2828282828282828
71         hex A8A8A8A8A8A8A8A8
72         hex 2828282828282828
73         hex A8A8A8A8A8A8A8A8
74         hex 5050505050505050
75         hex D0D0D0D0D0D0D0D0
76         hex 5050505050505050
77         hex D0D0D0D0D0D0D0D0
78         hex 5050505050505050
79         hex D0D0D0D0D0D0D0D0
80         hex 5050505050505050
81         hex D0D0D0D0D0D0D0D0
82 ;
83 ;
84 YLKUP2  hex 2024282C3034383C
85         hex 2024282C3034383C
86         hex 2125292D3135393D
87         hex 2125292D3135393D
88         hex 22262A2E32363A3E
89         hex 22262A2E32363A3E
90         hex 23272B2F33373B3F
91         hex 23272B2F33373B3F
92         hex 2024282C3034383C
93         hex 2024282C3034383C
94         hex 2125292D3135393D
95         hex 2125292D3135393D
96         hex 22262A2E32363A3E
97         hex 22262A2E32363A3E
98         hex 23272B2F33373B3F
99         hex 23272B2F33373B3F
100        hex 2024282C3034383C

```

```

101 hex 2024282C3034383C
102 hex 2125292D3135393D
103 hex 2125292D3135393D
104 hex 22262A2E32363A3E
105 hex 22262A2E32363A3E
106 hex 23292B2F33393B3F
107 hex 23292B2F33393B3F
108 *-----
109 ;
110 ; This routine divides the
111 ; X coordinate by 7, using
112 ; tables to get the byte
113 ; that the pixel is in and
114 ; the bit position in that
115 ; byte.
116 ; YSAVE is the byte number.
117 ; XSAVE is the bit number.
118 ;
119 *-----
120 XCVRT ldx XLO
121 lda XHI
122 beq >1
123 clc
124 lda BYTE + 4,X
125 adc #$24
126 sta YSAVE
127 lda INDOF + 4,X
128 sta XSAVE
129 rts
130 ^ 1
131 lda BYTE,X
132 sta YSAVE
133 lda INDOF,X
134 sta XSAVE
135 rts
136 ;
137 INDOF hex 00010203040506
138 hex 00010203040506
139 hex 00010203040506
140 hex 00010203040506
141 hex 00010203040506
142 hex 00010203040506
143 hex 00010203040506
144 hex 00010203040506
145 hex 00010203040506
146 hex 00010203040506
147 hex 00010203040506
148 hex 00010203040506
149 hex 00010203040506
150 hex 00010203040506
151 hex 00010203040506
152 hex 00010203040506
153 hex 00010203040506
154 hex 00010203040506
155 hex 00010203040506
156 hex 00010203040506
157 hex 00010203040506
158 hex 00010203040506
159 hex 00010203040506
160 hex 00010203040506
161 hex 00010203040506
162 hex 00010203040506
163 hex 00010203040506
164 hex 00010203040506
165 hex 00010203040506
166 hex 00010203040506
167 hex 00010203040506
168 ;
169 ;
170 BYTE hex 00000000000000
171 hex 01010101010101
172 hex 02020202020202

```

```

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 ; This plots a dot at the
210 ; given X,Y coordinate.
211 ; The color sets are chosen
212 ; by COLOR2.
213 ; If COLOR2 = $00 then dots
214 ; are green (odd X) and
215 ; violet (even X).
216 ; If COLOR2 = $80 then dots
217 ; are red (odd X) and
218 ; blue (even X).
219 ;
220 *-----
221 HPLOT jsr YCVRT
222 jsr XCVRT
223 ldx XSAVE
224 ldy YSAVE
225 ;
226 ; ... and fall into HPLOT2.
227 ;
228 *-----
229 ;
230 ; This assumes that BASE and
231 ; XSAVE & YSAVE have already been
232 ; set up (usually the case when
233 ; being called from a line-draw
234 ; routine or some such).
235 ;
236 *-----
237 HPLOT2 lda POWER2,X
238 ora (BASE),Y
239 and #$7F
240 ora COLOR2
241 sta (BASE),Y
242 rts
243 ;
244 POWER2 hex 0102040610204080

```

Commodore 64

```

50 *-----
51 ;
52 ; Get a base address for the
53 ; given X and Y coordinates.
54 ; The C-64 graphics map is
55 ; somewhat regular, so large
56 ; tables are not needed as
57 ; on the Apple.
58 ; BASE points to the 8 x 8 cell
59 ; that the pixel is in (a la
60 ; character graphics),
61 ; YSAVE is the vertical byte
62 ; index (from 0 to 7), and
63 ; XSAVE is the bit index (from
64 ; 0 to 7).
65 ; This routine does the work of
66 ; the two for the Apple.
67 ;
68 *-----
69 YCVRT lda Y
70 lsr
71 lsr
72 and #$3E
73 tax
74 lda Y
75 and #$07
76 sta YSAVE
77 lda X
78 and #$F8
79 clc
80 adc HBASEOFS,X
81 sta BASELO
82 lda HBASEOFS + 1,X
83 adc XHI
84 sta BASEHI
85 lda X
86 and #$07
87 sta XSAVE
88 rts
89 ;
90 ;
91 HBASEOFS hex 006040618062C063
92 hex 006540668067C068
93 hex 006A406B806CC06D
94 hex 006F40708071C072
95 hex 007440758076C077
96 hex 0079407A807BC07C
97 hex 007E
98 *-----
99 ;
100 ; Plot a point on the hi-res
101 ; screen at X,Y.
102 ; No color handling here.
103 ; The text page and color
104 ; nibbles determine the three
105 ; colors (plus background).
106 ;
107 *-----
108 HPLOT jsr YCVRT
109 ldx XSAVE
110 ldy YSAVE
111 ;
112 ; ... and fall into HPLOT2.
113 ;
114 *-----
115 ;
116 ; This assumes that BASE,
117 ; XSAVE, and YSAVE are already
118 ; set up.
119 ;

```

```

120 *-----
121 HPLQT2   lda POWER2,X
122         ora (BASE),Y
123         sta (BASE),Y
124         rts
125 ;
126 ;
127 POWER2   hex 8040201008040201
128 *-----

```

Listing 3

```

300 ;
301 ; First, initialize the VARIABLE
302 ; STACK pointer.
303 LINEDRAW lda #$00
304         sta SP
305 ;
306 ; Now, start the line drawing.
307 ; First line coordinate is passed
308 ; in BX,BXHI and BY (X is a two-
309 ; byte value because the width of
310 ; the screen exceeds 256 pixels).
311 ; Second line coordinate is
312 ; passed in EX,EXHI and EY.
313 ; MX,MXHI and MY is the
314 ; midpoint value.
315 ;
316 ; First, see if the two points
317 ; are the same.
318 ;
319 RLINE    lda BXHI
320         cmp EXHI
321         bne>1
322         lda BX
323         cmp EX
324         bne>1
325         lda BY
326         cmp EY
327         bne>1
328 ;
329 ; Yes, the two points are the
330 ; same. Set up X and Y and
331 ; draw a dot.
332 ;
333         lda BX
334         sta X
335         lda BXHI
336         sta XHI
337         lda BY
338         sta Y
339         jmp HPLQT
340 ;
341 ; No, as usual. Now we have to
342 ; go through the whole thing.
343 ;
344 ^ 1     jsr PUSH.E
345         jsr MIDPOINT
346 ;
347 ; We have the midpoint. Now do a
348 ; bunch of compares to do the
349 ; M + 1 thing we did so blithely
350 ; in the pseudo-high-level
351 ; routine.
352 ;
353         lda BXHI
354         cmp EXHI
355         beq>2
356         bcs>5
357         bcc>3
358 ;
359 ^ 2     lda BX
360         cmp EX

```

```

361         beq>6
362         bcs>5
363 ;
364 ; Here the beginning of the line
365 ; is to the left of the end of
366 ; the line.
367 ;
368 ^ 3     lda MX
369         sta EX
370         lda MXHI
371         sta EXHI
372         inc MX
373         bne>4
374         inc MXHI
375 ^ 4     jmp>7
376 ;
377 ; Here the beginning of the line
378 ; is to the right of the end of
379 ; the line.
380 ;
381 ^ 5     lda MX
382         clc
383         adc #$01
384         sta EX
385         lda MXHI
386         adc #$00
387         sta EXHI
388         jmp>7
389 ;
390 ; If we go here, then the line
391 ; is a vertical line.
392 ;
393 ^ 6     lda MX
394         sta EX
395         lda MXHI
396         sta EXHI
397 ;
398 ; Now save MX on the stack.
399 ;
400 ^ 7     jsr PUSH.MX
401 ;
402 ; Now repeat the whole thing
403 ; for Y; it's easier, because
404 ; Y is a one-byte value.
405 ;
406         lda BY
407         cmp EY
408         beq>9
409         bcs>8
410 ;
411 ; Here the beginning of the line
412 ; is above the end of the line.
413 ;
414         lda MY
415         sta EY
416         inc MY
417         jmp>1
418 ;
419 ; Here the beginning of the line
420 ; is below the end of the line.
421 ;
422 ^ 8     lda MY
423         sta EY
424         inc EY
425         jmp>1
426 ;
427 ; If we get here, then the line
428 ; is a horizontal line.
429 ;
430 ^ 9     lda MY
431         sta EY
432 ;

```

```

433 ; Now save MY on the stack and
434 ; draw BX,BY to MX,MY.
435 ;
436 ^ 1     jsr PUSH.MY
437         jsr RLINE
438 ;
439 ; Now restore the old values
440 ; and draw MX,MY to EX,EY.
441 ;
442         jsr POP.E
443         jsr POP.B
444         jmp RLINE
445 *-----
446 ;
447 ; Simulate a stack in software.
448 ; This routine pushes the
449 ; end point on the stack.
450 ;
451 *-----
452 PUSH.E   lda EX
453         jsr PUSH
454         lda EXHI
455         jsr PUSH
456         lda EY
457         jmp PUSH
458 *-----
459 ;
460 ; Push MX on the stack.
461 ;
462 *-----
463 PUSH.MX  lda MX
464         jsr PUSH
465         lda MXHI
466         jmp PUSH
467 *-----
468 PUSH.MY  lda MY
469 ;
470 ; ... and fall through to ...
471 ;
472 *-----
473 ;
474 ; Push the contents of the
475 ; accumulator onto the pseudo
476 ; stack. SP is the stack
477 ; pointer.
478 ;
479 *-----
480 PUSH     ldx SP
481         sta STACK,x
482         inc SP
483         rts
484 *-----
485 ;
486 ; Pop the beginning coords
487 ; of the line.
488 ;
489 *-----
490 POP.B    jsr POP
491         sta BY
492         jsr POP
493         sta BXHI
494         jsr POP
495         sta BX
496         rts
497 *-----
498 ;
499 ; Pop the ending coords of
500 ; the line.
501 ;
502 *-----
503 POP.E    jsr POP
504         sta EY

```

505	jsr POP	518	ldx SP	531	sta MX
506	sta EXHI	519	lda STACK,X	532	lda BXHI
507	jsr POP	520	rts	533	adc EXHI
508	sta EX	521	*-----	534	ror
509	rts	522	;	535	sta MXHI
510	*-----	523	; Do the midpoint calculation:	536	ror MX
511	;	524	; MX = INT ((BX + EX)/2)	537	clc
512	; Get the top item off the	525	; MY = INT ((BX + EX)/2)	538	lda BY
513	; stack and return it in the	526	;	539	adc EY
514	; accumulator.	527	*-----	540	ror
515	;	528	MIDPOINT clc	541	sta MY
516	*-----	529	lda BX	542	rts
517	POP dec SP	530	adc EX	543	*-----

ADVENTURES IN ADVENTURING

Here, now, is the program. I hope you enjoy it . . . I didn't!!!

10	REM SET UP ROUTINES		DESCRIPTIONS
20	HOME	410	IF V1\$ = W1\$(23) OR V1\$ = W1\$(24) OR V1\$ = W1\$(25) THEN
30	GOTO 4400		X = 82: PRINT : PRINT "YOU ARE CARRYING: "; PRINT :
40	DIM N(82),S(82),E(82),W(82),U(82),D(82),W1\$(90),OB(20), RD(82):	420	GOTO 21000: REM INVENTORY ROUTINE
	REM DIMENSIONS VARIABLES		420 IF R = 80 THEN GOTO 3870: REM TO SPECIAL ALTAR OF
50	FOR A = 1 TO 81: REM LOADS ROOM VARIABLES		ZEUS ROUTINES
60	READ N(A),S(A),E(A),W(A),U(A),D(A)	430	IF UD > 0 THEN UD = UD + 1: GOTO 3800: REM MONSTER
70	NEXT		IS MOVING
80	FOR A = 1 TO 75: REM READ WORDS	440	IF V1\$ = W1\$(26) OR V1\$ = W1\$(27) THEN GOTO 1200:
90	READ W1\$(A)		REM GET ROUTINE
100	NEXT	450	IF V1\$ = W1\$(28) THEN GOTO 1400: REM DROP ROUTINE
110	HOME	460	IF V1\$ = W1\$(46) OR V1\$ = W1\$(47) OR V1\$ = W1\$(48) THEN
120	OB(6) = 17:OB(8) = 26:OB(9) = 50		PRINT : PRINT "THOU ONLY NEEDED ENTER THY WORDS.":
130	R = 1:OB(1) = 82:OB(2) = 82:OB(3) = 82:OB(4) = 82:OB(5) =		GOTO 200: REM CLEARS WAY FOR PROPER INPUT OF
	82:LD = 5:MA = 5:LT = 1: GOTO 780: REM MA IS NUMBER		CHANT
	OF MATCHES: LD IS NUMBER OF ITEMS CARRIED: LIGHT IS	470	IF V1\$ = W1\$(29) AND R = 32 THEN PRINT : PRINT
	ON		"HMMMM...HMMMMM...HMMMMM...":PL = PL + 1: GOTO
200	REM PARSER		3200: REM SPECIAL WAIT WHILE IN POOL
210	PRINT :V1\$ = "" :N1\$ = "" : PRINT "WHAT NOW? ": INPUT	480	IF V1\$ = W1\$(29) THEN PRINT : PRINT
	"";A\$		"HMMMM...HMMMMM...HMMMMM...": GOTO 200:
220	FOR A = 1 TO LEN (A\$): IF MID\$(A\$,A,1) = " " THEN X = A		REM GENERAL WAITING ROUTINE
	- 1:A = 0: GOTO 250	490	IF V1\$ = W1\$(49) OR V1\$ = W1\$(50) OR N1\$ = W1\$(50) THEN
230	NEXT A		GOTO 3000: REM DARKNESS ROUTINE
240	V1\$ = A\$: GOTO 320	500	IF V1\$ = W1\$(62) THEN GOSUB 3600: REM KILL ROUTINES
250	V1\$ = LEFT\$(A\$,X)	510	IF V1\$ = W1\$(67) OR V1\$ = W1\$(68) THEN GOTO 4000:
260	IF RIGHTS (A\$, LEN (A\$) - X) = " " THEN N1\$ = "" : GOTO		REM THROWING/HURLING
	320	520	IF R = 32 THEN GOTO 3200: REM FIRST OF SEVERAL
270	N1\$ = RIGHTS (A\$, LEN (A\$) - (X + 1)):X = 0		CHECKS TO SEE IF IN POOL
280	IF N1\$ = W1\$(9) OR N1\$ = W1\$(10) OR N1\$ = W1\$(11) OR	530	IF CM = 1 THEN CM = 0: GOTO 550: REM CM VARIABLE
	N1\$ = W1\$(12) OR N1\$ = W1\$(13) OR N1\$ = W1\$(14) OR N1\$ =		SET ELSEWHERE IF NEXT LINE WOULD NOT MAKE SENSE.
	W1\$(15) OR N1\$ = W1\$(16) OR N1\$ = W1\$(17) OR N1\$ =		SKIPS NEXT LINE
	W1\$(18) OR N1\$ = W1\$(19) OR N1\$ = W1\$(20) THEN V1\$ =	540	PRINT : PRINT "I DON'T KNOW WHAT YOU MEAN!"
	N1\$:N1\$ = "" : REM ELIMINATE GO	550	IF UD > 0 THEN PRINT : PRINT "DO SOMETHING QUICKLY!"
300	REM VERB HANDLING ROUTINE	560	GOTO 200
310	IF CC = 6 THEN GOTO 360: REM TEMPLE OF ZEUS TRAP	600	REM MOVING AROUND ROUTINE AND SPECIAL
	DOOR OPEN		CONDITIONS
320	IF V1\$ = W1\$(74) THEN HOME : GOTO 2260: REM RESTORE	610	IF R = 32 THEN GOTO 650: REM IN POOL
	GAME	620	IF R < 15 OR R > 75 THEN GOTO 650: REM SKIPS NEXT
330	IF V1\$ = W1\$(75) THEN GOTO 2160: REM SAVE GAME		TWO LIGHT LINES AS NOT USED IN ROOMS 1-15 OR ROOMS
340	IF R > 1 AND R < 15 THEN GOTO 2610: REM TRAP DOOR		75-81
	NOT OPEN	630	IF LT = 0 THEN GOTO 3090: REM LIGHT IS OFF SO GO TO
350	IF R = 19 THEN GOTO 3400: REM SACRIFICE?		DARKNESS ROUTINES
360	IF V1\$ = W1\$(7) THEN GOTO 2110: REM QUIT	640	IF OB(4) < > 82 THEN GOTO 3090: REM NOT CARRYING
370	IF V1\$ = W1\$(8) OR V1\$ = W1\$(30) OR V1\$ = W1\$(31) THEN		TORCH SO GO TO DARKNESS ROUTINES
	GOTO 2400 REM DESCRIBE OR LOOK	650	X = R
380	IF V1\$ = W1\$(9) OR V1\$ = W1\$(10) OR V1\$ = W1\$(11) OR	660	IF V1\$ = W1\$(9) OR V1\$ = W1\$(10) THEN R = N(R)
	V1\$ = W1\$(12) OR V1\$ = W1\$(13) OR V1\$ = W1\$(14) OR V1\$ =	670	IF V1\$ = W1\$(11) OR V1\$ = W1\$(12) THEN R = S(R)
	W1\$(15) OR V1\$ = W1\$(16) OR V1\$ = W1\$(17) OR V1\$ =	680	IF V1\$ = W1\$(13) OR V1\$ = W1\$(14) THEN R = E(R)
	W1\$(18) OR V1\$ = W1\$(19) OR V1\$ = W1\$(20) THEN GOTO	690	IF V1\$ = W1\$(15) OR V1\$ = W1\$(16) THEN R = W(R)
	600: REM MOVEMENT	700	IF V1\$ = W1\$(17) OR V1\$ = W1\$(18) THEN R = U(R)
390	IF V1\$ = W1\$(21) THEN WO = 1: PRINT : PRINT "OKAY,	710	IF V1\$ = W1\$(19) OR V1\$ = W1\$(20) THEN R = D(R)
	LONG DESCRIPTIONS COMING UP.": GOTO 200: REM LONG	720	IF X = 1 AND R = 15 THEN X = 0:LT = 0: HOME : PRINT
	DESCRIPTIONS		"YOU DROP DOWN AND THE PILLAR ABOVE YOUR HEAD ..
400	IF V1\$ = W1\$(22) THEN WO = 0: PRINT : PRINT "OKAY,		ROLLS BACK INTO PLACE.":CC = 0: GOTO 3090: REM YOU
	BACK TO SHORT DESCRIPTIONS.": GOTO 200: REM SHORT		HAVE BEGUN DESCENT

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730 IF R > 0 THEN X = R: HOME : GOTO 770
740 IF R = 0 THEN PRINT : PRINT "YOU CAN'T MOVE THAT
WAY AT THIS TIME.": R = X:X = 0:CM = 1: IF UD > 0 THEN
UD = UD + 1: GOTO 3800
750 IF R = 32 THEN GOTO 3200
760 GOTO 200
770 IF WO = 1 THEN RD(R) = 0: REM RESET LONG
DESCRIPTION
780 IF R > 54 THEN GOTO 840
790 IF R > 27 THEN GOTO 820
800 ON R GOSUB 1710,1740,1740,1740,1740,1740,1740,
1740,1740,1740,1740,1740,1750,1750,1750,1750,1790,
1750,1750,1750,1760,1820,1820,1820,1820
810 GOTO 850
820 ON R - 27 GOSUB 1820,1820,1820,1820,1830,1840,1840,
1840,1840,1840,1840,1840,1840,1850,1850,1850,1850,
1870,1850,1850,1850,1860,1880,1880,1880,1880
830 GOTO 850
840 ON R - 54 GOSUB 1880,1880,1880,1880,1890,1900,1900,1900,
1900,1910,1910,1910,1910,1910,1900,1900,1910,1910,1910,
1910,1920,1930,1940,1950,1960,2020
850 REM GENERAL NOTE...TAKE A BREAK AT THIS POINT AND
CHECK YOUR WORK. THIS PROGRAM RUNS WELL, AND ANY
ERRORS WILL BE YOUR INPUT ERRORS
860 IF MH = 1 THEN PRINT : PRINT "THE MONSTER IS HERE.":
PRINT
900 REM LISTING OF OBJECTS ROUTINE
910 PRINT "OBJECTS HERE ARE.": PRINT
920 X = R
930 IF X = OB(1) THEN PRINT W1$(1):Y = 1: REM SWAN
940 IF X = OB(2) THEN PRINT W1$(2):Y = 1: REM FLASH LIGHT
950 IF X = OB(3) AND MA = 1 THEN PRINT MA;" ";W1$(3):Y = 1:
GOTO 990: REM MATCH
960 IF X = OB(3) THEN PRINT MA;" ";W1$(4):Y = 1: REM MATCH
(PLURAL ACCOMMODATION)
970 IF X = OB(4) AND R < 15 THEN PRINT W1$(5):Y = 1: GOTO
1010: REM TORCH IN ROOMS 1-15
980 IF X = OB(4) AND R = 32 THEN PRINT W1$(55):Y = 1: GOTO
1010: REM BURNING TORCH IN POOL
990 IF X = OB(4) AND LT = 0 THEN PRINT W1$(5):Y = 1:
REM NORMAL TORCH
1000 IF X = OB(4) AND LT = 1 THEN PRINT W1$(55):Y = 1:
REM BURNING TORCH
1010 IF X = OB(5) THEN PRINT W1$(33):Y = 1: REM CLAY
THUNDERBOLT
1020 IF X = OB(6) THEN PRINT W1$(56):Y = 1: REM SKELETON
1030 IF X = OB(7) THEN PRINT W1$(53):Y = 1: REM KNIFE
1040 IF OB(8) = 82 THEN PRINT W1$(59):Y = 1: GOTO 1060:
REM YOU'VE GOT BULL SO IGNORE NEXT LINE
1050 IF X = OB(8) THEN PRINT W1$(58):Y = 1: REM BULL IS
IN ROOM
1060 IF X = OB(9) THEN PRINT W1$(70):Y = 1: REM HAMMER
1070 IF X = OB(10) THEN PRINT W1$(73):Y = 1: REM STEEL
THUNDERBOLT
1080 IF Y = 0 THEN PRINT "NOTHING"
1090 Y = 0:X = 0
1100 IF R = 32 AND PL = 0 THEN GOTO 3200: REM IN POOL
FIRST TIME
1110 IF R = 33 AND UD = 0 THEN UD = 1: PRINT : PRINT "THERE
IS A STIRRING AND MOANING NEARBY.": REM FIRST TIME
NEAR MONSTER...HE WAKES UP
1120 GOTO 200
1200 REM GETTING ROUTINE
1210 X = 0: IF N1$ = "" THEN PRINT : PRINT "I NEEDETH A
NOUN!": GOTO 1290
1220 GOSUB 1500: REM CHECKING NOUN VALIDITY
1230 IF OB(X) = R OR OB(X) = 82 THEN GOTO 1250
1240 PRINT : PRINT "YOU CAN'T AT THE MOMENT.": GOTO 1290
1250 LD = LD + 1: IF LD > 5 THEN PRINT : PRINT "YOU'VE NOT
THE STRENGTH TO CARRY MORE.":LD = LD - 1: GOTO
1290
1260 OB(X) = 82: REM YOU ARE ROOM 82: THAT IS, YOU'VE
GOT OBJECT
1270 IF OB(4) = 82 AND R = 32 THEN LT = 1: REM TURNING ON
LIGHT FROM BURNING TORCH IN POOL
1280 PRINT : PRINT "OKAY, YOU'VE GOT THE ";N1$;"."
1290 IF OB(7) = 82 THEN KN = 1: REM AND SHUTS OFF
SKELETON DESCRIPTION
1300 X = 0: GOTO 200
1400 REM DROP ROUTINE
1410 X = 0: IF N1$ = "" THEN PRINT : PRINT "I NEEDETH A
NOUN!": GOTO 1490
1420 GOSUB 1500: REM CHECKING NOUN VALIDITY
1430 IF OB(X) = 82 THEN GOTO 1450
1440 PRINT : PRINT "YOU'RE NOT CARRYING THE ";N1$;"."
PRINT : GOTO 1490
1450 OB(X) = R:LD = LD - 1: PRINT : PRINT "OKAY, DROPPED
THE ";N1$;"." PRINT
1460 IF OB(7) < > 82 THEN KN = 0
1470 IF X = 4 AND R = 32 THEN GOTO 1490: REM IGNORE
NEXT LINE IF YOU'RE IN THE POOL
1480 IF X = 4 AND LT = 1 THEN PRINT "THE TORCH GOES OUT
AS IT HITS THE GROUND.": PRINT :LT = 0
1490 X = 0: GOTO 910
1500 REM SUBROUTINE TO CHECK NOUNS
1510 IF N1$ = W1$(1) THEN X = 1
1520 IF N1$ = W1$(2) THEN X = 2
1530 IF N1$ = W1$(3) OR N1$ = W1$(4) THEN X = 3
1540 IF N1$ = W1$(5) THEN X = 4
1550 IF OB(10) = 82 OR OB(10) = R THEN GOTO 1570
1560 IF N1$ = W1$(32) THEN X = 5: GOTO 1580
1570 IF N1$ = W1$(32) THEN X = 10
1580 IF N1$ = W1$(56) THEN X = 6: REM SKELETON
1590 IF N1$ = W1$(54) OR N1$ = W1$(53) THEN X = 7:
REM KNIFE
1600 IF N1$ = W1$(58) THEN X = 8: REM BULL
1610 IF N1$ = W1$(70) THEN X = 9
1620 IF N1$ = W1$(70) THEN X = 9
1630 RETURN
1700 REM ROOM DESCRIPTIONS
1710 PRINT "YOU STAND BEFORE A FALLEN PILLAR.": IF CC = 6
THEN PRINT : PRINT "THE PILLAR HAS SHIFTED AND A
PASSAGE LEADS DOWN INTO DARKNESS."
1720 IF RD(R) = 1 THEN RETURN
1730 PRINT : PRINT "YOU HEAR A VOICE IN YOUR MIND.": PRINT
: PRINT " GO!!!": PRINT " BUT...ONE FAVOR WILL I GRANT
THEE;": PRINT " IF YOU ASK ME...PROPERLY.": PRINT " IN
PROPER PLACE, AT PROPER TIME.": PRINT " NOW
GO!!!":RD(R) = 1:R = 5: PRINT : GOTO 780
1740 PRINT "YOU STAND BEFORE A MIGHTY PILLAR.": RETURN
1750 PRINT "YOU ARE IN THE CAVERNS OF HERA": RETURN
1760 PRINT "YOU ARE IN THE CAVERNS OF HERA"
1770 IF RD(R) = 1 THEN RETURN
1780 PRINT : PRINT "YOU HEAR A VOICE IN YOUR MIND.": PRINT
: PRINT " DO NOT GO DOWN BELOW. IN TWO THOUSAND
YEARS ONLY ONE HAS SURVIVED.": PRINT : PRINT
"BEWARE THAT WHICH LIES BELOW!":RD(R) = 1: RETURN
1790 PRINT "YOU STAND BEFORE THE ALTAR OF HERA"
1800 IF RD(R) = 1 THEN RETURN
1810 PRINT : PRINT "YOU HEAR A VOICE IN YOUR MIND.": PRINT
: PRINT " IF YOU SACRIFICE THAT WHICH YOU HOLD
DEAREST, THEN WILL I HELP YOU.":RD(R) = 1: RETURN
1820 PRINT "YOU ARE TRAVERSING DAMP CAVERNS": RETURN
1830 PRINT "YOU ARE IN THE POOL OF THE SYBILS": RETURN
1840 PRINT "YOU ARE IN THE LAIR OF THE UNDEAD": RETURN
1850 PRINT "YOU ARE IN THE STABLES OF THE CENTAURS":
RETURN
1860 PRINT "YOU ARE IN A SMITHY": RETURN
1870 PRINT "YOU ARE IN THE STABLES OF THE CENTAURS":
PRINT : PRINT "A GREAT WIND BLOWS FROM BELOW AND
YOUR TORCH GOES OUT.":LT = 0: RETURN
1880 PRINT "YOU ARE IN THE REALM OF THE UNDERWORLD":
RETURN
1890 PRINT "YOU ARE IN THE REALM OF THE UNDERWORLD":
PRINT : PRINT "A GREAT WIND BLOWS FROM BELOW AND
YOUR TORCH GOES OUT.":LT = 0: RETURN
1900 PRINT "YOU TRAVERSE THE BRIDGE OVER HADES.": PRINT
"GREAT FIRES BURN BELOW": RETURN

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1910 PRINT "YOU ARE ON A NARROW SPIRAL STAIRCASE":
RETURN
1920 PRINT "YOU STAND ON THE ACROPOLIS.": PRINT "THE
CITY OF ATHENS IS FAR BELOW": RETURN
1930 PRINT "YOU STAND ON THE ACROPOLIS": PRINT "TO THE
NORTH IS THE MUSEUM": RETURN
1940 PRINT "YOU STAND ON THE ACROPOLIS": PRINT "TO THE
EAST IS THE MUSEUM": RETURN
1950 PRINT "YOU STAND AT THE ACROPOLIS MUSEUM": PRINT
"THE DOOR IS SECURELY BOLTED": RETURN
1960 PRINT "YOU STAND BEFORE THE ALTAR OF ZEUS"
1970 IF ML = 0 AND OB(8) <> 82 THEN PRINT : PRINT
"MOCKING LAUGHTER RINGS IN YOUR MIND. 'FOOLISH
MORTAL WHO CANNOT SEE WHAT IS. YOU ARE BEYOND
HELP.'": PRINT :ML = 1: RETURN
1980 IF OB(8) = 0 OR OB(8) <> 82 THEN RETURN
1990 PRINT : PRINT "THE ";W1$(58):" GLOWS WITH A LIGHT
BRIGHTER THAN A STAR.": PRINT : PRINT " 'BECAUSE
THOU RECOGNIZEST ME, THOU SHALL HAVE MY HELP.' "
2000 PRINT : PRINT "A TREMENDOUS VOICE THUNDERS IN
YOUR MIND": PRINT " 'STRIKE YOUR WORTHLESS LIGHT
WITH THE TOOL OF HEPHAESTUS AND I WILL GIVE YOU
THE MEANS TO DESTROY THE MONSTER.' "
2010 PRINT : PRINT " 'USE MY GIFT IN THE GLORY OF THE
SUN.' ":OB(8) = 0:ML = 1: RETURN
2020 PRINT "YOU ARE IN THE TEMPLE OF APOLLO": RETURN
2100 REM END OF GAME ROUTINES
2110 REM ROUTINE TO QUIT
2120 PRINT : PRINT "DO YOU WANT TO SAVE THIS
ATTEMPT?": INPUT "":A$: IF A$ = "YES" THEN SG = 1:
GOTO 2160
2130 PRINT : PRINT "DO YOU WANT TO TRY AGAIN?": INPUT
"":A$: IF A$ = "YES" THEN CLEAR : GOTO 10
2140 PRINT : PRINT "ALAS!!! THE TRIAL HAS ENDED."
2150 END
2160 REM ROUTINE TO SAVE GAME. THE IMPORTANT THING IS
FOR YOU TO LOAD THE VARIABLES SHOWN BELOW. THE
TECHNIQUE IS FOR THE APPLE COMPUTER AND WILL BE
DIFFERENT FOR EACH COMPUTER.
2170 D$ = CHR$(4): REM FOR APPLE USE
2180 PRINT D$:"OPEN ZEUSFILE"
2190 PRINT D$:"WRITE ZEUSFILE"
2200 PRINT CC: PRINT KN: PRINT LD: PRINT LP: PRINT LT: PRINT
MA: PRINT ML: PRINT PL: PRINT R: PRINT SC: PRINT SW:
PRINT UD: PRINT WO: PRINT E(38): PRINT D(23)
2210 FOR A = 1 TO 10: PRINT OB(A): NEXT A
2220 FOR A = 1 TO 81: PRINT RD(A): NEXT A
2230 PRINT D$:"CLOSE"
2240 PRINT D$:SG = 0
2250 GOTO 200
2260 D$ = CHR$(4): REM FOR APPLE USE
2270 PRINT D$:"OPEN ZEUSFILE"
2280 PRINT D$:"READ ZEUSFILE"
2290 INPUT CC: INPUT KN: INPUT LD: INPUT LP: INPUT LT: INPUT
MA: INPUT ML: INPUT PL: INPUT R: INPUT SC: INPUT SW:
INPUT UD: INPUT WO: INPUT E(38): INPUT D(23)
2300 FOR A = 1 TO 10: INPUT OB(A): NEXT A
2310 FOR A = 1 TO 81: INPUT RD(A): NEXT A
2320 PRINT D$:"CLOSE"
2330 PRINT D$: GOTO 600
2400 REM LOOK OR DESCRIBE DESCRIPTIONS
2410 IF R = 3 AND N1$ = W1$(45) THEN PRINT : PRINT
" ON THE PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT
IS THE PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(35):" ": GOTO 200
2420 IF R = 5 AND N1$ = W1$(45) THEN PRINT : PRINT " ON THE
PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT IS THE
PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(41):" ":W1$(36)" ": GOTO 200
2430 IF R = 7 AND N1$ = W1$(45) THEN PRINT : PRINT " ON THE
PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT IS THE
PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(44):" ":W1$(43)" ": GOTO 200
2440 IF R = 9 AND N1$ = W1$(45) THEN PRINT : PRINT " ON THE
PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT IS THE
PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(38):" ": GOTO 200
2450 IF R = 11 AND N1$ = W1$(45) THEN PRINT : PRINT " ON
THE PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT IS
THE PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(40):" ":W1$(42)" ": GOTO 200
2460 IF R = 13 AND N1$ = W1$(45) THEN PRINT : PRINT " ON
THE PILLAR IS INSCRIBED.": PRINT : PRINT " 'HERE IF IT IS
THE PROPER TIME, SAYETH.": PRINT : PRINT " '": PRINT
W1$(37):" ": GOTO 200
2470 IF OB(6) = 82 AND N1$ = W1$(56) AND KN = 0 THEN PRINT
: PRINT "THE SKELETON CLUTCHES A KNIFE IN ITS BONY
HAND...AS IF IT WAS FIGHTING OFF SOMEONE OR
SOMETHING.":OB(7) = R: GOTO 200
2480 IF OB(6) = R AND N1$ = W1$(56) AND KN = 0 THEN PRINT :
PRINT "THE SKELETON CLUTCHES A KNIFE IN ITS BONY
HAND...AS IF IT WAS FIGHTING OFF SOMEONE OR
SOMETHING.":OB(7) = R: GOTO 200
2490 IF R = 32 AND SW = 1 AND N1$ = W1$(57) AND LP = 0
THEN PRINT : PRINT "THE POOL CLEARS AND YOU SEE
YOU ARE STANDING BY AN ALTAR. YOU SEE A KNIFE
PLUNGING TOWARD YOUR CHEST. BUT FEEL NO FEAR.
THE IMAGE FADES.":LP = 1: GOTO 200
2500 IF R = 32 AND SW = 1 AND N1$ = W1$(57) AND LP = 1
THEN PRINT : PRINT "THE POOL CLEARS AND YOU SEE
THE CREATURE FOLLOWING. YOU TURN AND HURL A
THUNDERBOLT. A STEEL THUNDERBOLT. THE IMAGE
FADES.":LP = 2: GOTO 200
2510 IF R = 32 AND SW = 1 AND N1$ = W1$(57) AND LP = 2
THEN PRINT : PRINT "THE POOL CLEARS AND YOU SEE
THE CREATURE FOLLOWING WITH STEEL IN ITS CHEST.
YOU ARE RACING FOR THE SUN. THE IMAGE FADES.":LP =
3: GOTO 200
2520 IF N1$ = W1$(58) AND OB(8) = R THEN PRINT : PRINT "THE
BULL IS MAGNIFICENT, BUT DOCILE...ALMOST AS IF HE IS
IN A TRANCE. HE SEEMS TO BE WAITING FOR SOMETHING
TO HAPPEN.": GOTO 200
2530 IF N1$ = W1$(58) AND OB(8) = 82 THEN PRINT : PRINT "THE
BULL IS MAGNIFICENT, BUT DOCILE...ALMOST AS IF HE IS
IN A TRANCE. HE LOOKS AT YOU EXPECTANTLY.": GOTO
200
2540 PRINT : PRINT "I SEE NOTHING SPECIAL": GOTO 200
2600 REM SPECIAL CONDITIONS
2610 REM CHANT ROUTINE
2620 IF V1$ = W1$(37) AND R <> 13 THEN GOTO 2820
2630 IF R = 13 AND V1$ = W1$(37) AND CC = 0 THEN CC = 1:
GOTO 2800
2640 IF R = 13 AND V1$ = W1$(37) THEN CC = 0: GOTO 2810
2650 IF V1$ = W1$(40) AND R <> 11 THEN GOTO 2820
2660 IF R = 11 AND V1$ = W1$(40) AND N1$ = W1$(42) AND CC
= 1 THEN CC = 2: GOTO 2800
2670 IF R = 11 AND V1$ = W1$(40) AND N1$ = W1$(42) AND
CC <> 2 THEN CC = 0: GOTO 2810
2680 IF V1$ = W1$(38) AND R <> 9 THEN GOTO 2820
2690 IF R = 9 AND V1$ = W1$(38) AND CC = 2 THEN CC = 3:
GOTO 2800
2700 IF R = 9 AND V1$ = W1$(38) THEN CC = 0: GOTO 2810
2710 IF V1$ = W1$(44) AND R <> 7 THEN GOTO 2820
2720 IF R = 7 AND V1$ = W1$(44) AND N1$ = W1$(43) AND
CC = 3 THEN CC = 4: GOTO 2800
2730 IF R = 7 AND V1$ = W1$(44) AND N1$ = W1$(43) THEN
CC = 0: GOTO 2810
2740 IF V1$ = W1$(41) AND R <> 5 THEN GOTO 2820
2750 IF R = 5 AND V1$ = W1$(41) AND N1$ = W1$(36) AND
CC = 4 THEN CC = 5: GOTO 2800
2760 IF R = 5 AND V1$ = W1$(41) AND N1$ = W1$(36) THEN
CC = 0: GOTO 2810
2770 IF V1$ = W1$(35) AND R <> 3 THEN GOTO 2820
2780 IF R = 3 AND V1$ = W1$(35) AND CC = 5 THEN CC =
6:D(1) = 15: GOTO 2830
2790 GOTO 360
2800 PRINT : PRINT "THERE IS A FRIENDLY RUMBLE OF THUNDER
FROM THE HEAVENS!": GOTO 200

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2810 PRINT : PRINT "A VOICE SAYS IN YOUR MIND:": PRINT :
PRINT " THAT WAS NOT PROPER.": PRINT " THOU MUST
BEGIN AGAIN!!!": GOTO 200
2820 PRINT : PRINT "A VOICE SAYS 'BLASPHEMER...SAYETH
THAT NOT HERE.'": PRINT : PRINT "NOW THOU MUST
BEGIN AGAIN IF THOU WISHETH MY AID.":CC = 0: GOTO
200
2830 PRINT : PRINT "A MIGHTY VOICE SAYS:": PRINT : PRINT " I
AM GREATLY PLEASED!!!": PRINT : PRINT "THE EARTH
SHAKES AND A NEARBY SOUND OF SOMETHING MOVING
CAN BE HEARD.": GOTO 200
2840 GOTO 200
2900 REM DESCENT ROUTINE
2910 PRINT : HOME : PRINT "AS YOU DROP DOWN THE SHAFT
THERE IS A MIGHTY RUMBLE AND THE PILLAR SHIFTS
BACK TO CLOSE THE OPENING.": GOTO 3000
3000 REM DARKNESS ROUTINES
3010 IF MA = 0 THEN PRINT : PRINT "YOU'VE NO MATCHES"
3020 IF R < 15 THEN PRINT : PRINT "NO NEED TO...THERE'S
PLENTY OF LIGHT HERE.": GOTO 200
3030 IF R > 75 THEN PRINT : PRINT "NO NEED TO...THERE'S
PLENTY OF LIGHT HERE.": GOTO 200
3040 IF MA = 0 THEN OB(3) = 0: GOTO 200
3050 IF V1$ = W1$(49) AND N1$ = W1$(5) AND OB(4) = 82 AND
OB(3) = 82 THEN MA = MA - 1: PRINT : PRINT "YOUR
TORCH IS LIT. YOU CAN SEE!!!":LT = 1: GOTO 200
3060 IF V1$ = W1$(2) OR N1$ = W1$(2) THEN PRINT : PRINT
"THE FLASHLIGHT DOESN'T SEEM TO WORK.": GOTO 200
3070 IF V1$ = W1$(49) AND N1$ = W1$(5) AND OB(3) <> 82
THEN PRINT : PRINT "YOU HAVEN'T ANY MORE
MATCHES!!!": GOTO 200
3080 IF V1$ = W1$(49) THEN MA = MA - 1: PRINT : PRINT "I
BELIEVE YOU WISH ME TO LIGHT A MATCH. THE MATCH
FLARES UP BRIEFLY AND THEN DIES.": GOTO 200
3090 PRINT : IF LT = 0 THEN PRINT "YOU ARE IN TOTAL
DARKNESS AND CANNOT MOVE.": GOTO 200
3100 PRINT : PRINT "NOTHING HAPPENS.": GOTO 200
3200 REM SWAN ROUTINES
3210 IF SW = 1 THEN GOTO 3320
3220 IF N1$ = W1$(1) THEN GOTO 3320
3230 PL = PL + 1: IF PL > 1 THEN PRINT : PRINT "YOU ARE
BARELY STAYING AFLOAT IN THE POOL. YOU ARE TIRING
RAPIDLY.": PRINT : IF PL > 8 THEN PRINT : PRINT "TOO
LATE...YOU ARE SINKING.": GOTO 2130
3240 IF PL = 1 THEN PRINT : PRINT "SPLASH!!! YOU HAVE
FALLEN INTO THE POOL OF THE SYBILS. MANY MORTALS
HAVE REACHED HERE BUT FEW HAVE RETURNED."
3250 IF PL = 1 AND OB(1) = 82 THEN OB(1) = 0: PRINT : PRINT
"THE SWAN LEAPS FROM YOUR ARMS AND BEGINS
SWIMMING IN THE POOL."
3260 IF PL > 1 THEN GOTO 3310
3270 FOR A = 1 TO 20
3280 IF OB(A) = 82 THEN OB(A) = 0
3290 NEXT :LT = 0:LD = 0
3300 OB(4) = 32:LT = 0: PRINT : PRINT "ALL YOUR OBJECTS
DROP FROM YOUR HANDS BUT ONE...MIRACULOUSLY,
YOUR TORCH IS FLOATING AND CONTINUES TO BURN.":
PRINT : GOTO 910
3310 FOR A = 1 TO 1000: NEXT A: HOME : GOTO 820
3320 PRINT : PRINT "YOU ARE RIDING ON THE BACK OF THE
SWAN. THE LIQUID IN THE POOL IS CLOUDY.":SW =
1: PRINT
3330 PL = PL + 1
3340 IF PL > 10 AND OB(4) = 82 THEN R = 19: PRINT : PRINT
"THE SWAN TAKES TO THE AIR ON GIANT PINIONS. A
VOICE IN YOUR MIND SAYS: 'I CAN HELP YOU HERE NO
MORE.'": FOR A = 1 TO 4000: NEXT A: HOME : GOTO 800
3350 IF PL > 10 THEN R = 19:LT = 0: PRINT : PRINT "THE SWAN
TAKES TO THE AIR ON GIANT PINIONS. A VOICE IN YOUR
MIND SAYS: 'I CAN HELP YOU HERE NO MORE.'": FOR A =
1 TO 4000: NEXT A: HOME : GOTO 800
3360 GOTO 850
3400 REM SACRIFICE ROUTINES
3410 IF V1$ = W1$(60) OR V1$ = W1$(62) OR V1$ = W1$(63)
THEN GOTO 3430
3420 GOTO 360
3430 IF KN = 0 THEN PRINT : PRINT "YOU CAN ONLY PERFORM
SUCH A THING WITH A SACRED KNIFE.": GOTO 200
3440 IF N1$ = W1$(61) OR N1$ = W1$(65) OR N1$ = W1$(66)
THEN GOTO 3500
3450 IF N1$ = W1$(1) AND OB(1) = 19 THEN PRINT : PRINT "AS
YOU KILL THE ";W1$(1);" A TERRIBLE WAILING IS HEARD. A
VOICE IN YOUR MIND SAYS: 'YOU HAVE DESTROYED THE
BELOVED OF ZEUS. YOUR PUNISHMENT IS...': GOTO 2140
3460 IF N1$ = W1$(1) AND OB(1) = 82 THEN PRINT : PRINT "AS
YOU KILL THE ";W1$(1);" A TERRIBLE WAILING IS HEARD. A
VOICE IN YOUR MIND SAYS: 'YOU HAVE DESTROYED THE
BELOVED OF ZEUS. YOUR PUNISHMENT IS...': GOTO 2140
3470 IF N1$ = W1$(58) AND OB(8) = 82 THEN PRINT : PRINT "AS
YOU ATTEMPT TO KILL THE ";W1$(58);" A LAUGH IS
HEARD IN YOUR MIND: 'FOOLISH MORTAL...DO YOU KNOW
NOTHING? WHO I AM? WHERE YOU ARE? GO! ":OB(8) =
0:R = 5: GOTO 200
3480 IF N1$ = W1$(58) AND OB(8) = 19 THEN PRINT : PRINT "AS
YOU ATTEMPT TO KILL THE ";W1$(58);" A LAUGH IS
HEARD IN YOUR MIND: 'FOOLISH MORTAL...DO YOU KNOW
NOTHING? WHO I AM? WHERE YOU ARE? GO! ":OB(8) =
0:R = 5: GOTO 200
3490 PRINT : PRINT "A VOICE SAYS IN YOUR MIND: 'THINK...AND
DO NOT MOCK ME WITH THAT WHICH YOU DO NOT
HAVE! ": GOTO 200
3500 IF SC = 1 THEN PRINT : PRINT "A VOICE IN YOUR MIND
SAYS: 'BEGONE...I CAN HELP YOU NO MORE.'": GOTO 200
3510 PRINT : PRINT "YOUR HAND IS STOPPED BY A
SUPERNATURAL FORCE AS IT PLUNGES TOWARD YOUR
CHEST. A VOICE IN YOUR MIND SAYS:": PRINT : PRINT
" 'SUCH TRUST SHALL BE REWARDED.'": PRINT : PRINT
" 'THERE IS A SOUND AS A DOOR OPENS SOMEWHERE."
3520 E(38) = 45:SC = 1: GOTO 200
3600 REM KILL ROUTINES
3610 IF KN = 0 THEN PRINT : PRINT "YOU CAN ONLY PERFORM
SUCH A THING WITH A SACRED KNIFE.": GOTO 200
3620 IF N1$ = W1$(1) AND OB(1) = R THEN PRINT : PRINT "AS
YOU KILL THE ";W1$(1);" A TERRIBLE WAILING IS HEARD. A
VOICE IN YOUR MIND SAYS: 'YOU HAVE DESTROYED THE
BELOVED OF ZEUS. YOUR PUNISHMENT IS...': GOTO 2140
3630 IF N1$ = W1$(1) AND OB(1) = 82 THEN PRINT : PRINT "AS
YOU KILL THE ";W1$(1);" A TERRIBLE WAILING IS HEARD. A
VOICE IN YOUR MIND SAYS: 'YOU HAVE DESTROYED THE
BELOVED OF ZEUS. YOUR PUNISHMENT IS...': GOTO 2140
3640 IF N1$ = W1$(58) AND OB(8) = 82 THEN PRINT : PRINT "AS
YOU ATTEMPT TO KILL THE ";W1$(58);" A LAUGH IS
HEARD IN YOUR MIND: 'FOOLISH MORTAL...DO YOU KNOW
NOTHING? WHO I AM? WHERE YOU ARE? GO! ":OB(8) =
0:R = 5: GOTO 200
3650 IF N1$ = W1$(58) AND OB(8) = 19 THEN PRINT : PRINT "AS
YOU ATTEMPT TO KILL THE ";W1$(58);" A LAUGH IS
HEARD IN YOUR MIND: 'FOOLISH MORTAL...DO YOU KNOW
NOTHING? WHO I AM? WHERE YOU ARE? GO! ":OB(8) =
0:R = 5: GOTO 200
3660 IF N1$ = W1$(69) AND UID = > 1 AND UID < 11 THEN PRINT
: PRINT "YOU LOOK AROUND QUICKLY BUT DO NOT SEE
ANY SIGN OF THE CREATURE. YOU ONLY HEAR
MOVEMENT IN THE DARKNESS OUTSIDE THE PERIMETER
OF YOUR LIGHT.": GOTO 200
3670 IF N1$ = W1$(64) AND UID = > 1 AND UID < 11 THEN PRINT
: PRINT "YOU LOOK AROUND QUICKLY BUT DO NOT SEE
ANY SIGN OF THE CREATURE. YOU ONLY HEAR
MOVEMENT IN THE DARKNESS OUTSIDE THE PERIMETER
OF YOUR LIGHT.": GOTO 200
3680 IF N1$ = W1$(69) AND UID = 11 THEN PRINT : PRINT "THE
KNIFE SINKS DEEPLY INTO THE CHEST OF THE MONSTER.
HE CONTINUES TO MOVE TOWARD YOU AS IF NOTHING
HAS HAPPENED.": GOTO 200
3690 IF N1$ = W1$(64) AND UID = 11 THEN PRINT : PRINT "THE
KNIFE SINKS DEEPLY INTO THE CHEST OF THE MONSTER.
HE CONTINUES TO MOVE TOWARD YOU AS IF NOTHING
HAS HAPPENED.": GOTO 200

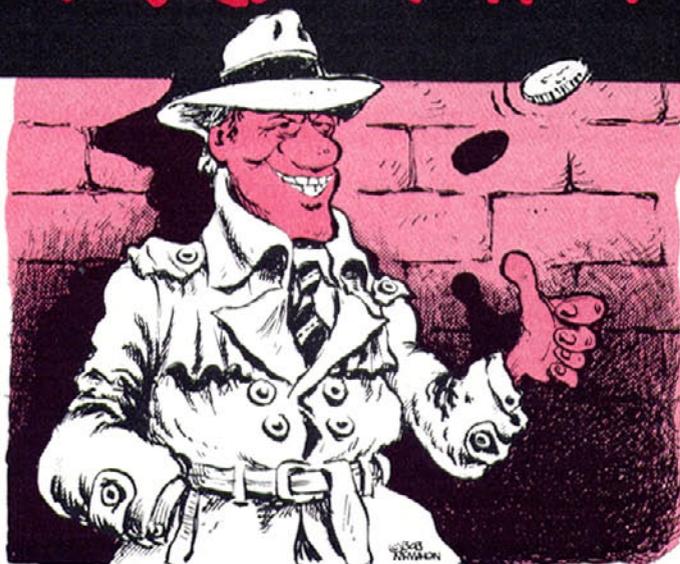
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9700 PRINT : PRINT "YOU ARE NOT PERMITTED TO KILL ";
N1$: PRINT "HERE.": GOTO 200
3800 REM UNDEAD IS HERE
3810 IF UD > 1 AND UD < 9 THEN PRINT : PRINT "THE MONSTER
DRAWS NEARER.": GOTO 440
3820 IF UD = 9 THEN PRINT : PRINT "THE UNDEAD MONSTER
CRIES OUT TO YOU.": PRINT : PRINT " 'ANOTHER FOOL
COMES TO DESTROY ME...IF ONLY HE WOULD!' ": GOTO
440
3830 IF UD = 10 THEN PRINT : PRINT "THE UNDEAD ENTERS
THE CHAMBER. HE STANDS BEFORE YOU AND YOU SEE
ONCE HUMAN FEATURES TWISTED IN UNIMAGINABLE PAIN
AND AGONY. HE RAISES A HAND, A FLESHLESS HAND,
TOWARD YOUR THROAT.":MH = 1: GOTO 440
3840 IF UD = 11 THEN PRINT : PRINT "THE BONY HAND OF THE
MONSTER HOLDS YOU AS HE BENDS HIS FACE TOWARD
YOUR THROAT!": GOTO 440
3850 IF UD = 12 GOTO 440
3860 PRINT : PRINT "THE ULTIMATE DARKNESS CLOSES IN ON
YOU.": GOTO 2150
3870 REM DESTRUCTION OF MONSTER PART ONE
3880 IF V1$ = W1$(70) OR V1$ = W1$(71) OR V1$ = W1$(72)
THEN GOTO 3900
3890 GOTO 440
3900 IF OB(9) = 82 THEN GOTO 3920
3910 PRINT : PRINT "A VOICE LAUGHS IN YOUR MIND: ": PRINT
" 'DISBELIEVER...YOU KNOW NOT HEPHAETUS??
BEGONE!!! ": GOTO 420
3920 IF N1$ = W1$(2) THEN GOTO 3940
3930 PRINT : PRINT "A VOICE LAUGHS IN YOUR MIND: ": PRINT
" 'STRIKE A LIGHT THAT IS NOT A LIGHT!!! ": GOTO 440
3940 IF OB(2) = 82 THEN GOTO 3960
3950 PRINT : PRINT "A VOICE LAUGHS IN YOUR MIND: ": PRINT
" 'YOU SPEAK BUT HAVE NO SUCH THING! ": GOTO 440
3960 PRINT : PRINT "AS YOU STRIKE, GREAT FIRES LIGHT UP
THE SKY. A VOICE SAYS IN YOUR MIND: ": PRINT : PRINT
" 'LOOK NOW WHAT YOU CARRY! ":OB(2) = 0:OB(9) =
0:OB(10) = 82: GOTO 200
4000 REM FINAL HURLING AND FINAL DESTRUCTION ROUTINES
4010 IF OB(10) = 82 OR OB(5) = 82 THEN GOTO 4030
4020 PRINT : PRINT "THAT IS OBVIOUSLY IMPOSSIBLE.":
GOTO 200
4030 IF R < > 81 THEN PRINT : PRINT "I WOULD NOT ADVISE
THAT TO BE DONE HERE. SEARCH FOR THE SUN!":
GOTO 200
4040 IF UD < 11 THEN PRINT : PRINT "DO NOT WASTE THE
GIFT. BE PATIENT.": GOTO 200
4050 IF OB(5) = 82 THEN PRINT : PRINT "THE THUNDERBOLT
SHATTERS AGAINST THE CREATURE'S CHEST. IT SHAKES
ITSELF AND REACHES FOR YOU....": GOTO 2130
4060 PRINT : PRINT "THE THUNDERBOLT PIERCES THE
CREATURE'S CHEST. IT LIFTS ITS ARMS TOWARD YOU AS
IF IN SUPPLICATION AND TURNS TO DUST.": PRINT : PRINT
"YOU SLOWLY TURN AND BEGIN WALKING DOWN THE
HILL.": END
4070 REM STRIKE OR HITTING
4080 IF R = 81 AND OB(10) = 82 AND UD > 9 THEN GOTO 4050
4090 IF R = 81 AND OB(6) = 82 AND UD > 9 THEN GOTO 4050
4100 PRINT : PRINT "I CANNOT STRIKE OR HIT HERE...BUT IN
OTHER PLACES AT ANOTHER TIME....":CM = 1
4110 GOTO 440
4200 REM DATA HERE
4210 DATA 0,8,2,0,0,0,9,3,1,0,0,0,10,4,2,0,0,0,11,5,3,0,0,0,12,6,4,0,0,
0,13,7,5,0,0,0,14,0,6,0,0,1,0,9,0,0,0,2,0,10,8,0,0,3,0,11,9,0,0,4,0,12,
10,0,0,5,0,13,11,0,0,6,0,14,12,0,0,7,0,0,13,0,0
4220 DATA 0,18,16,0,0,0,19,17,15,0,0,0,20,16,0,0,15,21,19,0,0,0,16,
22,20,18,0,0,17,23,27,19,0,0,18,0,22,0,0,0,19,0,23,21,0,0,20,0,22,
0,33,0,27,25,0,0,0,28,26,24,0,0,0,29,0,25,0,0,24,30,28,20,0,0,25,
31,29,27,0,0,26,32,0,28,0,0
4230 DATA 27,0,31,0,0,0,28,0,32,30,0,0,0,0,0,0,0,36,34,0,23,0,0,37,
35,33,0,0,38,0,34,0,0,33,39,37,0,0,0,34,40,38,36,0,0,35,41,0,37,0,
0,36,0,40,0,0,0,37,0,41,39,0,0,38,0,0,40,0,0,0,45,43,0,0,0,46,44,
42,0,0,0,47,0,43,0,0
4240 DATA 42,48,46,0,0,0,43,49,47,45,0,55,44,50,0,46,0,0,45,0,49,0,0,0,
46,0,50,48,0,0,47,0,0,49,0,0,0,54,52,0,0,0,0,55,53,51,0,0,0,56,0,52,
0,0,51,57,55,0,0,0,52,58,56,54,46,0,53,59,0,55,0,0,54,0,58,0,0,55,
0,59,57,0,0,56,0,0,58,0,60
4250 DATA 0,0,0,61,59,0,0,0,60,62,0,0,0,0,61,63,0,0,0,0,62,0,64,0,0,0,0,
0,65,63,0,0,0,0,66,64,0,0,0,0,67,65,0,0,0,0,68,66,0,0,0,69,0,67,0,0,
68,70,0,0,0,0,69,0,71,0,0,0,0,0,72,70,0,0,0,0,73,71,0,0,0,0,74,72,0,0,
0,0,75,73,0,0,0,0,76,74
4260 DATA 78,0,77,0,0,75,79,0,0,76,0,0,80,76,79,0,0,0,77,0,78,0,0,0,
78,81,0,0,0,0,0,0,80,0,0
4270 DATA "SWAN","FLASHLIGHT","MATCH","MATCHES",
"TORCH","SAVE","QUIT","READ","NORTH","N","SOUTH",
"S","EAST","E","WEST","W","UP","U","DOWN","D",
"LONG","SHORT","I","INV","INVENTORY","GET","TAKE",
"DROP","WAIT","LOOK","DESCRIBE"
4280 DATA "THUNDERBOLT","THUNDERBOLT (MADE OF CLAY)",
"CHANT","DESCENT","SAFE","POWERFUL","RELENT",
"MORTAL","MIGHTY","MORTAL","GOD","THIS","ALLOW",
"PILLAR","SAY","SAYETH","CHANT","LIGHT","ON",
"STRIKE","SWORD","KNIFE","DAGGER"
4290 DATA "BURNING TORCH","SKELETON","POOL","BULL",
"BULL (BEING LED BY YOU)","COMMIT","SELF","KILL",
"SACRIFICE","MONSTER","SUICIDE","YOURSELF","HURL",
"THROW","UNDEAD","HAMMER","STRIKE","HIT",
"THUNDERBOLT (MADE OF STEEL)"
4300 DATA "RESTORE","SAVE"
4400 REM INTRODUCTION
4410 VTAB 10
4420 HTAB 8: PRINT "BENEATH THE TEMPLE OF ZEUS"
4430 PRINT : PRINT : HTAB 19: PRINT "BY"
4440 PRINT : PRINT : HTAB 16: PRINT "KEN ROSE"
4450 FOR A = 1 TO 2000: NEXT : HOME
4460 VTAB 5
4470 PRINT "USE 'SAVE' TO SAVE YOUR PROGRESS. DEATH IS
IMMINENT AND OFTEN."
4480 PRINT "USE 'RESTORE' TO RESTORE YOUR ENDING POINT."
4490 PRINT : PRINT "USE 'LONG' IF YOU WANT DESCRIPTIONS
OF ROOMS TO REPEAT."
4500 PRINT "USE 'SHORT' TO RESTORE SHORT ROOM
DESCRIPTIONS."
4510 PRINT : PRINT "HERE WE GO....": FOR A = 1 TO 4000:
NEXT A
4520 GOTO 40
21000 REM LISTING OF OBJECTS ROUTINE
21010 IF X = OB(1) THEN PRINT W1$(1):Y = 1: REM SWAN
21020 IF X = OB(2) THEN PRINT W1$(2):Y = 1: REM
FLASHLIGHT
21030 IF X = OB(3) AND MA = 1 THEN PRINT MA; " ";W1$(3):Y =
1: GOTO 21070: REM MATCH
21040 IF X = OB(3) THEN PRINT MA; " ";W1$(4):Y = 1:
REM MATCH (PLURAL ACCOMMODATION)
21050 IF X = OB(4) AND R < 15 THEN PRINT W1$(5):Y = 1: GOTO
21090: REM TORCH IN ROOMS 1-15
21060 IF X = OB(4) AND R = 32 THEN PRINT W1$(55):Y = 1:
GOTO 21090: REM BURNING TORCH IN POOL
21070 IF X = OB(4) AND LT = 0 THEN PRINT W1$(5):Y = 1:
REM NORMAL TORCH
21080 IF X = OB(4) AND LT = 1 THEN PRINT W1$(55):Y = 1:
REM BURNING TORCH
21090 IF X = OB(5) THEN PRINT W1$(33):Y = 1: REM CLAY
THUNDERBOLT
21100 IF X = OB(6) THEN PRINT W1$(56):Y = 1: REM SKELETON
21110 IF X = OB(7) THEN PRINT W1$(53):Y = 1: REM KNIFE
21120 IF OB(8) = 82 THEN PRINT W1$(59):Y = 1: GOTO 21140:
REM YOU'VE GOT BULL SO IGNORE NEXT LINE
21130 IF X = OB(8) THEN PRINT W1$(58):Y = 1: REM BULL IS
IN ROOM
21140 IF X = OB(9) THEN PRINT W1$(70):Y = 1: REM HAMMER
21150 IF X = OB(10) THEN PRINT W1$(73):Y = 1: REM STEEL
THUNDERBOLT
21160 IF Y = 0 THEN PRINT "NOTHING"
21170 Y = 0:X = 0
21190 IF R = 33 AND UD = 0 THEN UD = 1: PRINT : PRINT
" 'THERE IS A STIRRING AND MOANING NEARBY.":
REM FIRST TIME NEAR MONSTER...HE WAKES UP
21200 GOTO 200

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NO TIPPING



Adventurers are invited to respond to the pleas of the stumped listed herein and solicit aid in turn. In addition, \$100 bounties are awarded to those submitting tips on any pleas from the Typifieds that the editors judge to be extraordinarily concise, clever, and correct. (You would be wise to include your idea of the straightforward solution along with each masterpiece of subtlety.)

You may ask as many questions as you like, but try to limit yourself to three tips—remembering to state the name of the game and question to which you're responding. Entries should be addressed to Softline Tip, Box 60, North Hollywood, CA 91603. Really. No kidding. The friendly old tipmeister is getting pretty hacked off about having to dig some of these out of High Scores or Directline or contest entries or God knows where else. No more mister nice-meister: If this is where you want it to be, splurge for the extra stamp and send it here.

On poems: Unless you're Emily Dickinson or T.S. Eliot, we strongly recommend the prose form.

On crossword puzzles: We've seen some good ones; tip "systems" for an entire adventure and what have you, but . . . spelling is all. One letter wrong and you can be out of the ball game. (There is no A in "scorpions.") Spare yourself the anguish of instant disqualification: The dictionary is your best friend.

Postmark deadline: December 16, 1983.

November bounty winners:

Deadline—How do you find the new will and safe?

And the winner is:

A postmeridian allergy to something Gregorian by George!

—Mike Byers, Seattle, WA

Kabul Spy—How do I get the lighted match across the river to light the lamp?

And the winner is:

Lighting the match will get you no wealth
But be careful: the solution can be harmful to your health.
Hope you like cross-country and know how to hike,
Or you'll never get to light that light.

—Kenrick Mock, Walnut Creek, CA

More Winners:

Mask of the Sun—How do I get out of the first pyramid?

And the winner is:

To urn your freedom, what is left must be made right. Do you remember *Kung Fu*?

—James Coll, Pleasant Hill, CA

Ulysses and the Golden Fleece—How do I get the harpies to let me free the man in the cage?

And the winner is:

Did you know that salad dressing is made out of trees? Especially the one with the rabbits.

—Mike Kerekes, Colorado Springs, CO

Wizard and the Princess—What's the door in the tree for and how do I get in it?

And the winner is:

You're going about it the wrong way.

Your best bet is to put your money in a bank. Hope this helps.

—Kyle Naydo, Monterey Park, CA

TYPIFIEDS

Adventure

a. *Getting out of the repository*: The rods with rusty marks are neat./You need just one, this game to beat./The "key" is in the northeast end./Don't stand too near the blast you send!—Gus and Shirley Tischer, Middleburg Heights, OH
Cranston Manor

a. *What to do with the pump*: That pump is old and past its prime/But with some help it works just fine./You must search and find the key./It's cool and clear and fills the sea.—Brian Curtis, Fort Smith, AR

q. What are the chair and the stalactite for, and where is the last treasure?—Tony Ard, Tillamook, OR

Curse of Crowley Manor

q. How do you work the record player? Where are the keys to open everything?—Michael Susor, San Francisco, CA

Cyborg

a. *Finding the I.D. card*: Rubik never had one to cut.—Peter Meyer, Carmel Valley, CA

q. Where is the permanent power pack?—Patty Harding, Waterville, NY

Dark Crystal

a. *Finding the answer to Ursu's riddle*: Can't you cut it? Is the moss in the way? Or have you been staring into spirals?—John M. Raczek, Morris, IL

Demon's Forge

a. *Getting past the statue*: Each staff has a quest to complete; all four must be completed before you can pass.—T.K. Almroth, Huntington Beach, CA

Kabul Spy

a. *Getting past the bridge near the tank*: Little effort will keep one from plunging/Expunging from one will keep effort little.—Andy Raynoha, Poway, CA

q. How do you get the shovel?—Michael Susor, San Francisco, CA

q. Where do you find the flashlight?—Andy Raynoha, Poway, CA

Mask of the Sun

a. *Escaping from the mazes and dealing with Raboff*: Hold your life above your possessions.—James Coll, Pleasant Hill, CA

Mystery House

a. *Getting the gun*: Smokey sez: "Putting out dining room fires is the key to success."—David Motzkus, Los Gatos, CA

Prisoner

a. *What to do in the third part of the physical education course*: In the third part of the P.E., go around it exactly like me.—David Gratz, San Marcos, TX

SAGA #1: Adventureland

a. *Having found all the treasures and nothing to do*: Remember Aladdin's trick, but exercise some restraint (or the third time will pay for all) and keep yourself in the dark.—Robbie Bain, Morristown, NJ

a. *Getting past the lava and getting the mirror without giving the bear honey*: Dammit! That makes me mad!—Julie James, Winfield, IL

q. How do you get the ox statue from the quicksand?—Robbie Bain, Morristown, NJ

SAGA #7: Mystery Fun House

a. *What to do on the merry-go-round*: Look up the word hemp.—Jody Faulkner, Colleyville, TX

q. How do I get past the calliope?—David Scheffel, Bedford, TX

SAGA #8: Pyramid of Doom

a. *Where to find the gold tooth*: The gold tooth you can find/In something related to the mind.—Paul Terjenian, Arcadia, CA

q. What is the iron glove for?—Steve Moody, Houston, TX

q. How do you kill the cobra?—Robbie Bain, Morristown, NJ

Sherwood Forest

a. *Moving the boulder.* Move it with nothing.—Craig Seager, Mulberry, IN * He's got the Drop on us, Al!—Joe Fortuna, Germantown, PA

q. How do you get the translator? How do you repair the lights in the green hall?—James B. O'Neill, San Antonio, TX

Starcross

a. *Getting into the spaceship:* Four yields one, one produces rod, rod reveals opening.—Tony and Marilyn Armstrong, Cincinnati, OH * To open a door in outer space, think about the human race.—Neal Feldman, San Francisco, CA

Suspended

q. How can I stop the "talking mechanisms" from cloning me and then killing me?—Tony Ard, Tillamook, OR

Time Zone

a. *Getting the boomerang:* The boomerang is in the hands of its maker, who wants to see himself.—Gayle Ann Stanford, Memphis, TN

Transylvania

a. *How to kill the gosh-darn werewolf:* If you want to be a hero, fight like one. Try the Lone Ranger.—Scott Riebling, Pittsburgh, PA

q. How do you kill the goblin and get the key to unlock the grate? How do you clean the stump to read the writing?—Geoff and Mike Garrett, Greencastle, IN

Ultima II

a. *Getting a rocket:* Try boarding it! If you have an Atari version, there may be

bugs in it.—Robert Yu, Gainesville, FL * Cosmonauts reached the moon first.—D-J, San Mateo, CA * Explore and explore./There is a door/Where pirates hide./The rocket's inside./The rocket's ride is far from free./To earn it you must have a key.—David Berkham, Portland, OR

a. *Finding the quickword:* The man with the quicksword is not always quick. Most thieves get away, but he got caught.—Robert Savage, Fajardo, PR

q. Found the quickword and received blessing from Antos. Where is the ring and/or what do I do now?—Brad Sagarin, Carmel, NY

Ulysses and the Golden Fleece

a. *Getting past Pluto:* Eat my dust.—Matt Beckner, Albuquerque, NM

q. Someone please help me get past the wall of fire after Pluto.—David Motzkus, Los Gatos, CA

Wizard and the Princess/Adventure in Serenia

a. *Have treasure chest, on island, now what?*—Back to the start./In where it is dark./Find what Polly wants./Back to the forest to have a good munch./He'll thank you indeed./But don't have greed./Back to the island, find the two trees./Down the vial./Northward you go./Into the breeze.—Bill Brown and Barry Spencer, Brighton, MI

q. How do you get out of the desert (after killing the snake)?—James B. O'Neill, San Antonio, TX

Wizardry

a. Hey, Laurel Goulding: How did you take your characters to the tenth level?—Larry Fisher, Miller Place, NY

ZORK

November winners:

Zork II—How to manage the oddly angled room.

And the winner is:

It might be wise to follow in the footsteps of the immortal Babe Flathead. Particularity just after he hit a home run.

—James Synoski, Randallstown, MD

Zork III—Getting by the guardians of Zork.

And the winner (a double play! Synoski retires the side as the crowd goes wild!) is:

The sailor's gift can lead to unseen results.

—James Synoski, Randallstown, MD

GENERAL PLEAS AND ASSISTANCE

I

Help wanted. "I can't get the slag," moans Mike Kerekes (Colorado Springs, CO). Thomas R. DeCosta (Riverside, CA) has been up a tree and down to Hades and has found only 329 points. Any know-it-alls out there with suggestions on how to find the last 29 points? Matt Beckner (Albuquerque, NM) would like to know what the solution is to the maze west of the troll room, if any. Gary Miller (Monroeville, PA) has a huge diamond, a sapphire bracelet, a large emerald, a crystal trident, a trunk of jewels, a jeweled scarab, a sceptre, a pot of gold, a painting, a crystal skull, a jewel-encrusted egg, a gold coffin, a bag of coins, a chalice, and a platinum bar . . . and he's still not satisfied. He'd appreciate any hints on where to turn next. Where, Robbie Bain (Morristown, NJ) would like to know, is the cyclops? And how do you get under the grate? And where does the thief put the things he steals? How can Jeffrey Gerardi (Plainview, NY) kill the thief? How can Steve Swank (Mission Hills, CA) turn off the noise in the loud room or otherwise get the platinum bar?

Help granted. On the ongoing matter of opening the egg, Thomas R. DeCosta (Riverside, CA) draws, "If Alexander Mundy had been a Scrabble player, he might have given you the following clue on what to do: aaeehhiiksttt." And the prolific Laurel Goulding (Grosse Ile, MI) observes, "Adventurers are so greedy! Be generous, and with a little

luck, you'll get the job done for you." On the matter of Ms. Goulding's problem opening the wooden door in the living room, Chris Lee (Foster City, CA) has this to say:

"THROUGH experience.

Many, many sessions of trial and error

And then, sooner or later,

Zap!

Eventually you intrude upon others, but you know that you are finally there."

On getting by the bat: The answer's in the bag, reports Brian Moore (Santa Maria, CA). On getting the brass bauble: Jeffrey Gerardi (Charleston, SC) says, "Tweet, tweet," and lets it go at that.

II

Help wanted. Randy Wilson (Eugene, OR) would like to know how to get the key from the unicorn, get past the dragon, the lizard, the menhir, and first base. Sigh. James B. O'Neill (San Antonio, TX), still working on *Zork I*, would also like to know how to get into the dreary room, past the dragon, safely use the poison, and use the placemat. And in the case of Stephen Jensen (Provo, UT), it's a matter of getting past the three-headed dog, getting the portrait out of the bank, and wondering what to do with the bushes in the topiary. How can Patricia Smith (New York, NY) get the wand from the wizard? Or can she? Nancy Fong (San Francisco, CA) wonders what the square brick is for. Allen Holland (Downey, CA) is wondering the same thing about the plastic explosive.

Help granted. On getting through the curtain of light: The answer is easy/Don't use a direction;/Just act very breezy./And watch your inflection.—James B. O'Neill, San Antonio, TX

On why the balloon gives the sword a red glow, Mark Fritzler (Rockville, MD) replies, "ti desotn, ouy od." That's easy for him to say.

III

Help wanted. "The Royal Puzzle is driving me crazy!" shrieks Tony Ard (Tillamook, OR). "Somebody please help before they send me away. Also, what is the vial of invisible but heavy liquid for, and what about the strange key?"

Help granted. What to do with the Viking, you ask? Reply Brent Davis and Craig Stelter (Mankato, MN), in harmony: "To help the old Viking break free of a curse./Remember *Zork I* and tell him a verse./If that's not enough, address him by name./And that should help in solving the game."

Finally, this unsolicited piece of calm info from James Synoski (Randallstown, MD): "In *Zork III*, release 10, once you have been admitted by the dungeon master, drop the sword. First, it's unnecessary at that time, and second, the program will bomb out just before the final solution if you are carrying the sword." That must have been painful. S

'TELL YA WHAT I'M GONNA DO...'

what your software is worth by Harvey Harrison

Let's suppose you, an aspiring game designer, have created a software game. You've invested your best creative and technical energies, and you're delighted with the result. You submit your work to a few software companies, and one of them, a successful and innovative firm, is also delighted with it.

You're trembling with anticipation of glory and fortune, when suddenly your life starts becoming very complex. Somebody at the company starts talking to you about deal points, about royalties of wholesale, about the scope of the grant of rights, about budgets, about the need to make a deal quickly in order to get your masterpiece into the marketplace, and a host of other things that come flying at you faster than the projectiles in a space-war arcade game.

If you've created a truly fine work, you're entitled to the glory and fortune. The following are some first-aid hints to bear in mind when the dealmaking shooting match begins.

One final introductory comment: Each negotiation is unique, and, while general first-aid hints help, nothing is as helpful as an agent, attorney, or other adviser who works with you all through the making of your deal.

The Pause That Refreshes. Sometimes the company wants you to make a deal very quickly. The company may justify its haste in a number of ways. It may appeal to your vanity: "This game is so great we must get it on the market immediately." Conversely, it may appeal to your insecurity: "We don't have time to deal with your game, it isn't very good, and you'd better take our proposal or we'll lose interest right away." Or the company may give no reason at all; it may simply want an answer immediately. You should try to obtain a *pause that refreshes*, a time during which you can reflect upon the proposal and consult with your best advisers; it's unlikely that you'll make the most favorable deal when you're placed under a sense of urgency and time pressure.

When You Go Out To Make a Deal, Be Sure To Make Reservations. As anybody who has curled up with United States Code Sections 101 through 810 (the Copyright Act) will tell you, copyright is a whole collection of rights of all different sizes and characters. Ordinarily, an artistic work is protected by copyright. When you make a deal with a company, you not only hand them your game program, you also

agree to give them the right to make and sell copies, which is one of those rights that are most likely yours as a result of your creation of the work. So far so good. The fact that you give the company the right to make software copies does not mean that you give the company the rights to make television programs and musical adaptations, print published versions, produce merchandising items, or any of a number of other rights that remain in the bag of copyrights you, as the creator, hold. The way to hold on to any and all rights you do not intend to grant the company is by a *reservation*: Your deal should provide that you reserve any and all rights not specifically granted.

Watch Out for the "I've Got the 'I Don't Know What I Want but I Know I'm Not Getting It' Blues." A deal is based upon mutual benefit. If you feel that your end of the deal is not right, that the benefit to you isn't appropriate for the benefit you're giving the company, examine those feelings. Try to determine the source of those feelings and address them in your negotiations. To draw an example from the reservation item, consider the situation in which you're offered a deal comparable to what other game designers are receiving but the company's seeking all rights of all kinds in and to your work (remember television programs, musical adaptations, et cetera?). The company is asking for all these rights but offering you a deal as though all you're giving is software rights. That should not feel fair. Either the company pays for the additional rights or you reserve them.

When You See Dots Before Your Eyes, Think of Lawyers. Let's suppose that you and the company reach a swift and amicable deal: It's easy, you shake hands, and you go home. Shortly thereafter, you receive in the mail a document that seems to pertain to the deal but that appears to be written in some extinct language. This is probably the contract designed to reflect your deal. It may well contain all sorts of little contractual danger areas that aren't immediately obvious. This stuff is for lawyers. They not only shine in this area, they are positively radiant. If the company hands you a document with a dotted line for your signature, think about having it reviewed and examined by a lawyer.

Yes, it's a jungle out there. But with a good map, a length of rope, a native guide, a flashlight, a magic scroll, and a potion, you could come out a winner. SL

Photography: Tim Durr



Starring ★

KEN ROSE



ES IN ENTOURING



With **DIONYSIUS BROMIUS** and **NIGEL BLEDGELG**
and introducing **SPIROS ARISTORAS**
NOW PLAYING : NEXT PAGE

SOFTWARE ARTISTS?

TO MAKE THE FIRST BASKETBALL PROGRAM that feels like the real thing, it helps to start with two guys who know what the real thing feels like.

Enter Larry Bird and Julius Erving. Bird — the hustler, the strong man, deady from outside. Erving — The Doctor, maybe the most explosive player in the history of the game.

We talked to them, photographed them in action, studied their moves and their stats and their styles. Then we set out to create on computer disc an event which may never happen in real life. We put the two of them together on a dream court of light, for an electronic afternoon of one-on-one.

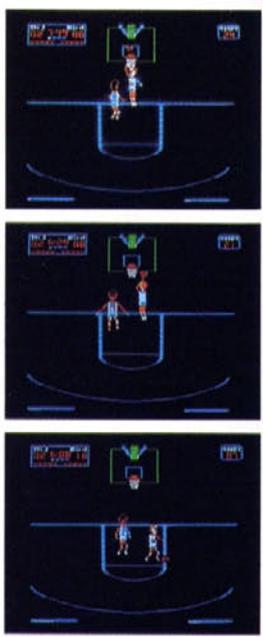
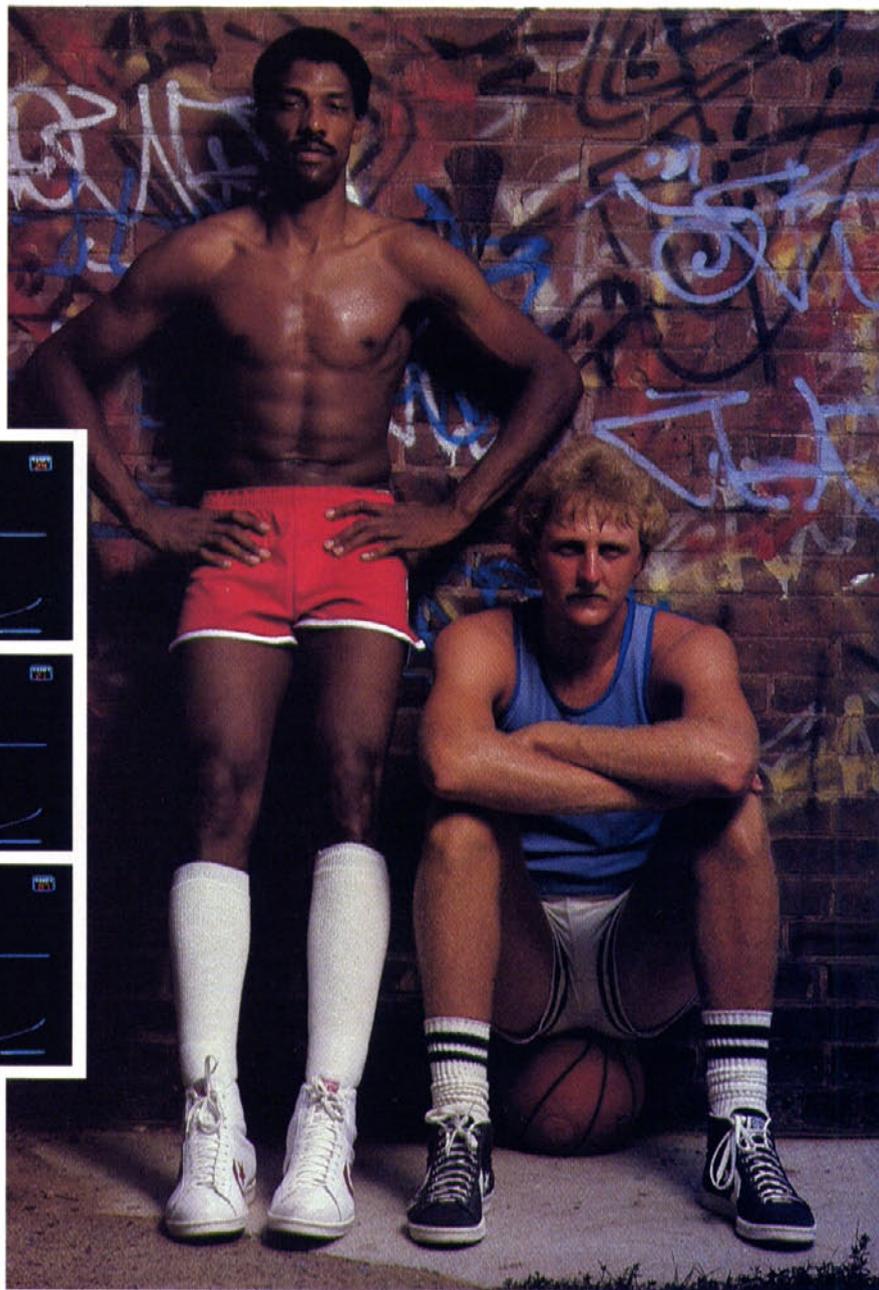
It wasn't easy. When they talked, we listened. When they criticized, we made big changes. When they gave suggestions, we took them.

And it shows. This thing is absolutely uncanny. You actually take on all the skills and characteristics of Bird or The Doctor — their own particular moves, shooting abilities, even strength and speed.

You'll meet with fatigue factors, hot and cold streaks, turn-around jump shots, and 360-degree slam dunks. But there's some whimsy in here, too — a funny referee, a shattering backboard, even instant replay.

It's called *Julius Erving and Larry Bird Go One-on-One*.™ You're Bird. Or you're The Doctor. And that's the last decision you'll have plenty of time to make.

How we got this year's hottest sports game out of two rather inexperienced designers.



Julius Erving and Larry Bird Go One-on-One is now available on diskette for Apple II, II+, and IIe computers. Apple is a registered trademark of Apple Computer. To find out more about Electronic Arts and its products, write us at 2755 Campus Drive, San Mateo, CA 94403 or call (415) 571-7171.


ELECTRONIC ARTS™

My name is Spiro Aristoras.

My home is in Plaka, which lies in the shadow of the Acropolis, the sacred hill, in the town of Athens. Which is in Greece.

My living is made as a guide and an interpreter and it is said I do both well. My love is my country, my city, and I know much about their past . . . as much as any man living.

I know little of you and nothing of your computers and you may well ask why it is that I am writing to you, who care little of Greece and nothing of me.

I will tell you.

There is a man in your country who is named Colonel Nigel Bledgelog. During the great war, when many of my people fought in the mountains, this Colonel Bledgelog was sent to aid us by the British. Although the fighting was bloody, blood is nothing new to this country of mine. It has the blood of many men over many centuries soaked in its soil. I digress.

When there was no fighting we discussed many things, he and I, but especially the tales of the old ones. It was I who told him of Dionysus Bromios, the Thunderer, he who was known as Taurokeros and as Tauroprosopos. The old gods, he would say, are gone . . . but at night in the hills of Athens he knew they still watched over man.

I have not seen the colonel for many years, but I have heard of him and of the work he has done with those who seek answers to strange riddles and puzzles and mysteries. And so I wrote to him, with the evidence that the Maenad, the "mad one," had returned—the corrupted follower of Dionysus, he who practiced the 'sparagmos,' the tearing of living victims to pieces and feasting on their raw flesh . . . that which is called 'omophagia.'

He wrote back to me and told me of one of his friends, one Mister Kenneth Rose, who would be in England and whom he would send to my country to see me and aid me. This Mister Kenneth Rose, wrote the colonel, was a disbeliever, but could help me if a riddle was to be solved or a puzzle to be answered. Mister Rose, he told me in his letter, should be led step by step through the proofs and he would then follow the challenge.

So it was that I met Mister Kenneth Rose. It was I who stole the thunderbolt of clay from the British Museum in the city of London and it was I who delivered the swan to the rooms of Mister Kenneth Rose in the Athens Gate Hotel many months ago.

It was I who led him to the ruins of the Temple of Zeus. . . .

It was I who waited on the hill of the Acropolis many nights waiting for him to return.

It was I who found him, dazed, trembling, pale, on the hill many weeks ago.

It was I who watched him write what follows.

He has asked that I write the above as he says he can write no more. He asks that I tell you to believe or not believe, as your instinct instructs you. He asks that you take what follows as an extract of reality or a flight of fancy. He says you may now go without fear near the ruins of the Temple of Zeus.

The Temple of Zeus. The program listing starts on page 34 of Programs in Pulp. It's long and complicated . . . maybe not as long and complicated as it really could have been, but long and complicated enough.

It is written for the Apple or other extended Basics but can be easily converted to other machines by doing three things:

1. When you see the word *home* in the program listing, clear the screen.

2. If your version of Basic doesn't have the midstring function (such as the Basic in the Atari 400 or 800), use the following parser instead of lines 200 through 280 in the listing:

```
200 REM PARSER
210 V1$ = "":N1$ = ""
220 PRINT:PRINT: "WHAT NOW? ";INPUT A$
230 IF LEN(A$) = 0 THEN GOTO 100
240 FOR A = 1 TO LEN (A$)
```

```
250 IF A$(A,A) = " THEN V1$ = A$(1,A - 1):N1$ = A$(A + 1):
A = 0:GOTO 200
```

```
260 NEXT A
```

```
270 V1$ = A$
```

3. You will notice in lines 80 through 100 that we are reading in the 75 variables for the string array W1\$(A). Integer Basic may not let you have a string array. If it doesn't, instead of using arrays you will have to rewrite each line that uses an element of the string array W1\$(A).

Look at lines 4270, 4280, and 4290. These are the 75 words that are read into the array W1\$(A). W1\$(1) would be "SWAN," the first word; W1\$(2) would be "FLASHLIGHT," and so on. Thus W1\$(75) would be "SAVE," the last word.

Now look at line 320. It says:

```
320 IF V1$ = W1$(74) THEN HOME: GOTO 2260: REM
RESTORE GAME
```

The 74th word in the word listing is "RESTORE." Therefore, you would rewrite the line to read:

```
320 IF V1$ = "RESTORE" THEN HOME:
GOTO 2260:REM RESTORE GAME
```

Finally, some Basics must have all string variables dimensioned as to length. The strings that hold the verb and noun, V1\$ and N1\$ respectively, should be dimensioned at the beginning of the program to 255 or so. There are no other string variables used.

This is a long, complicated program to type into your computer. It is important, extremely important, that no errors are introduced in the numeric data, as the program either won't run or some very strange things will happen—things that weren't meant to happen.

Since you will have to type in more than 400 lines, the following is a breakdown of the twenty-two sections into which the program is organized. We suggest you enter no more than one or two sections of the program each time you sit down to type and have someone else check it for accuracy. Remember, each colon, semicolon, and parenthesis is needed, so don't omit anything (unless your version of Basic is really different).

Program(ming) notes

10 - 130	SET UP
200 - 280	PARSER
300 - 560	VERB HANDLING
600 - 860	MOVING AROUND
900 - 1120	LISTING OBJECT
1200 - 1300	GETTING
1400 - 1490	DROPPING
1500 - 1630	NOUN CHECK FOR OBJECTS
1700 - 2020	ROOM DESCRIPTION
2100 - 2330	END OF GAME
2400 - 2540	LOOK DESCRIPTION
2600 - 2840	CHANTING
2900 - 2910	DESCENT
3000 - 3100	DARKNESS
3200 - 3360	SWAN
3400 - 3520	SACRIFICE
3600 - 3700	KILL
3800 - 3960	MONSTER IS HERE
4000 - 4110	FINAL DESTRUCTION
4200 - 4300	DATA STATEMENTS
4400 - 4520	INTRODUCTION
20000 - 21200	INVENTORY ROUTINES

The adventure begins on page 34.



NO CONTEST

All right, hot stuff, this is your chance to show how intelligent you really are. Just because you can get ever higher scores on your favorite games doesn't qualify you as a true video athlete. In addition to quick reflexes and digital agility, true gamesmanship requires planning and strategy.

Here's the scene: not too long from now, in a galaxy very, very close. You're the best long-distance gamer alive. You're at home on Saturday night, having been stood up by your date. You turn on the television to play a few games on the games cable channels. Your mission tonight (and for the remainder of this contest) is to accumulate the highest possible point total for three hours of playing time. How it works is real simple.

You see here the listing of the fifteen games that are on tonight and the highest point totals possible for a half hour's play. You, gamer supreme that you are, can score those highs easily. Also given is tonight's schedule of which games will be available on which channels, and at what time.

At 7:00, pick any one of the five channels and play the game on that channel. Without a doubt, the score you will achieve is the score listed as the highest possible for that game. For example, if you start on channel C, you'll play *Miner Kampf* and score 41,267.

At 7:30, you again pick any one of the five channels and play the game offered there. Once more, you score the maximum number of points. Continue this pattern, playing a new game every half hour until 10:00, when *Fantasy Island* comes on (don't wanna miss it). When you've finished playing, add up your grand total for three hours' playing time and send it to us. The gamer supreme who acquires the highest total is CGS (cable gamer supreme) of the year. There are just a few rules:

You can't play the same game more than once, and you can't switch channels more than three times. It is allowable to switch once, twice, three times, or never, but no more than three times.

On a sheet of paper, write down your point total and list in order the channels and games you played. In other words, your entry should look something like this:

Total: 319,994
Channels: B,A,A,C,C,A
Games: (list games here)

Got it? Being a high-score achiever ought to be enough incentive, but just in case it isn't, we'll award the winner of this contest with a deluxe membership in the GameMaster system, including documentation and twenty-eight hours of system time, plus \$100 worth of software.

Send in your entry and prize choices by December 18, 1983, to Softline GTV, Box 60, North Hollywood, CA 91603.

Then call your cable company, and say, "I want my GTV!" You never know.



- | | |
|--|--|
| 1. <i>BFD</i> , Avon Hill, 70,429 | 8. <i>Pretenders II</i> , Snaps, 50,890 |
| 2. <i>Lunar Lepers</i> , Sierra Faultline, 100,510 | 9. <i>Alien Fog</i> , Broader Buns, 110,000 |
| 3. <i>Shoplifter</i> , Broader Buns, 145,321 | 10. <i>J.A.C.K.A.S.S.</i> , Electronic Tarts, 95,610 |
| 4. <i>Nights of Desserts</i> , Egregious Simulations, 42,140 | 11. <i>Pinball Demolition Set</i> , Electronic Tarts, 74,992 |
| 5. <i>Suspenders</i> , Infocomma, 62,460 | 12. <i>Clones and Buffoons</i> , Data's Off, 35,840 |
| 6. <i>Miner Kampf</i> , Big Deal/Micro Fungus, 41,267 | 13. <i>Escape from Des Moines</i> , Half Serious, 90,349 |
| 7. <i>Anglo Saxxon</i> , Data's Off, 146,802 | 14. <i>Gumshoe: Case 222</i> , Snaps, 64,220 |
| | 15. <i>Crud in Space</i> , Half Serious, 32,167 |

7:00

- A. *Gumshoe*
- B. *Suspenders*
- C. *Miner Kampf*
- D. *Escape from Des Moines*
- E. *Clones and Buffoons*

8:00

- A. *Gumshoe*
- B. *Crud in Space*
- C. *Nights of Desserts*
- D. *Escape from Des Moines*
- E. *Clones and Buffoons*

9:00

- A. *Pretenders II*
- B. *Clones and Buffoons*
- C. *BFD*
- D. *Miner Kampf*
- E. *Suspenders*

7:30

- A. *Pinball Demolition Set*
- B. *J.A.C.K.A.S.S.*
- C. *Alien Fog*
- D. *Gumshoe*
- E. *BFD*

8:30

- A. *Escape from Des Moines*
- B. *Pinball Demolition Set*
- C. *Pretenders II*
- D. *Suspenders*
- E. *BFD*

9:30

- A. *Gumshoe*
- B. *Anglo Saxxon*
- C. *Shoplifter*
- D. *Pinball Demolition Set*
- E. *Lunar Lepers*



The Last Hurrahs. Back to the present. The Hall of Fame, our list of longest-lived unbeaten high scores in captivity, will return in the spring, and biannually thereafter. In the meantime, we would like to tighten it up a bit, making it more representative of actual all-time record highs, not just the last reported scores on games that everyone subsequently got tired of or which have become unavailable due to their advanced age.

Therefore, for you old-timers and die-hards who have these locked away in a steamer trunk somewhere, we're giving you one last chance to whip the records on these historic programs. You must choose one (1) game on which to compete and submit one (1) high score, signed by a witness, along with your complete address and phone number.

Victors will receive a certificate of merit and a game of their choosing. Some entries (you know who you are) have already been received and will receive all due consideration.

Any game for which a higher score is not received will be retired for good to its well-deserved rest.

Most of these venerable items are Apple games, Atari where noted. Scores for these games on any other machines are still eligible for inclusion in High Scores.

- | | |
|---|---|
| Apple Panic (Apple), James Baker, 546,320 | Dark Forest , Allen Holland, 16,364 |
| Apple Panic (Atari), Gayle Hoskin, 285,000 | Datestones of Ryn , Eric Vesper, 5,530 |
| Autobahn , Joey Grisaffi, 118,000 | Dragon's Eye , Bruce Schlickbernd, 4,723 |
| Beer Run , Robert Skell, 12,152 | Eliminator , Mark Klemczak, 478,900 |
| Beznan , Harry Ilg 227,873 | Escape , Dan Steele, 245,400 |
| Blister Ball (2 player), Neil Radick,
Kerry Shetline, 7,164 | Galactic Empire , Jeff Parrish, 3,217 |
| Borg , Jeff Rosenberg, 26,030 | Gamma Goblins , David Kaplow, 18,360 |
| Ceiling Zero , Denise Achram, 71,490 | Genetic Drift , Tom Bredehoff, 1,020,000 |
| Chip Out , Jason Meggs, 21,630 | Golden Mountain , Scott Sanchez, 2,202,400 |
| Congo , D.K. Ullman, 31,362 | Gold Rush , Lee Stafford, 2,136,000 |
| County Fair , James Baker, 4,205 | Head-On , Steve Cloutier, 234,580 |
| Crazy Maze , Greg Burnberger, 105,600 | Horizon V , George De La Mater, 100,005 |
| Cyclod (Atari), Chris Conway, 275,715 | Hungry Boy , Mike Williams, 43,770 |
| | Hyper Head-On , Bob Elvey, 85,890 |

Jawbreaker I (Apple), Horace Gower, 280,615
Kamikaze, Jason Meggs, 207,125
Laf Pak: Apple Zap, David Duplantir, 44,025
Meteoroids in Space, Robert Pettit, 555,335
Minotaur, Christian Juhring, 398,285
Missile Attack, Chris Athanas, 32,580
Missile Defense, Bruce Schlickbernd, 429,000
Mission Escape, Steve Allen, 3,161
Monster Mash, Jim Stockla, 207,768
Morloc's Tower, John Coffee, 29,253
Mouskattack (Apple), Mark Zeitler, 89,100
Mouskattack (Atari), Jeff Connor, 240,100
Nautilus, Rob Hammond, (2 player) 321,000
Neptune, Mike Mariant, 31,820
Outpost, Charles Destremes, 31,267
Peeping Tom, Curtis Rae, 17,900
Pegasus II, Joel Frickhoeffter, 295,840
Phantoms Five, Steve Rothenberg, 42,670
Photar, Mike Novak, Jr., 108,236
Pig Pen, Buell Hollister IV, 344,160
Planetoids, Jason Meggs, 584,160
Pulsar II, Eric Vesper, 61,968
Red Alert, Michael Yang, 82,800
Roach Hotel, Mike Post, 12,350
Sabotage, Steve Cloutier, 86,431
Shooting Gallery (Apple), Steve Rothenberg, 3,495
Space Adventure, Chris MacDonald, 1,000

Space Album: Death Star, Dave Ness, 1,391
Space Album: Tail Gunner, Charles Destremes, 53,010
Space Eggs, Joel Frickhoeffter, 75,115
Space Quarks, Clark Alyea, 31,870
Star Blaster, Chris MacChesney, 416,000
Star Dance, Michael Steiner, 3,605
Star Thief (1 player), Clark Alyea, 30,110
Star Thief (2 player), Craig Wilson, 48,280
Stellar Invaders, Wayland Lim, 208,330
Stellar Shuttle, Lou Arevalo, 12,460
Suicide, Joey Grisaffi, 97,030
Super Invader, Chris Wysocki, 99,840
Taipan, David Small, 38.4 trillion
Taxman, Eggy Paul, 999,980
Threshold (Apple), James Baker, 751,000
Threshold (Atari), Ron Felder, 309,500
Torax, Dale Archibald, 34,780
Track Attack, (Apple), Brian Donnelly, 53,341
Track Attack, (Atari), Chris Conway, 1,800
Tranquility Base, Brian Donnelly, 1,800
Tsunami, Kerry Shetline, 12,336
Tumblebugs, (Apple), Kent Hathaway, 15,130
Twerps, Dick Nitto, 6,250
Wormwall, Tom McDonald, 178,768

Nooz. Reston Publishing is offering a \$1,000 prize for the best animation sequence created with *Movie Maker*, its Atari computer illustration/animation program. Entries should be submitted on disk by December 31, 1983. The winning entry will be shown at the 1984 West Coast Computer Faire. For details, contact Reston Publishing Company at 11480 Sunset Hills Road, Reston, VA 22090; (800) 336-0338.

Phoenix Software is offering \$1,000 to the person who best solves its new Apple graphic adventure, *Masquerade*.

Best solves? Yup. "You can play merrily along as though it were the original *Adventure*, and then suddenly wonder why you can't go any farther," chuckles Phoenix president Ron Unrath. "People told us: '*Sherwood Forest* had great graphics and everything, but why don't you do something really hard?' Their wish was our command." Yes, adventure fans, there are multiple solutions to each puzzle in this one, but just like on the SAT, you must pick the most correct answer. At the end of the game, you will get a final score (figuring out what the score is based on is another puzzle). A complex algorithm will effectively show if anything nonkosher has been done to your disk in the course of play. Write it all down and send it to Phoenix Software, 64 Lake Zurich Drive, Lake Zurich, IL 60047. If there is more than one entry with the perfect score, a drawing will be held for the thousand bucks. If there is no correct entry, four entries will be drawn and \$250 awarded to each entrant. Deadline: June 30, 1984.

★ ★ ★ ★ ★ ★ ★ ★

Send it to:

Softline Scorecleaning
 Box 60

North Hollywood, CA 91603

Postmark deadline: December 12, 1983.



Who Was That Author I Saw You With? The scholarly response to the *Softline* I.D. Contest was edifying indeed. In their attempts to match names with the faces of the literary luminaries gracing these pages last issue, nobody could name them all; in most entries, the appearance of sudden gaping holes hideously defacing neat, numbered columns of illustrious names spoke volumes on the silent angst of the failed attempt. Judging quickly narrowed down to three courageous contestants who thought they could get them all. In the end, as happens rather often in these face-offs, it came down to a matter of spelling. None of the three—Mark Ravaglia, Ray Ravaglia, and Niko Schiff—were any great shakes in that department, but they correctly I.D.'d all the authors save two. In the end, the fifty bucks went to Schiff, who made four typos to the Ravaglia's five apiece, only by wisely refraining from trying to spell G.B. Shaw's middle name (no H, guys).

What tripped most of you up? William Golding, author of *Lord of the Flies*, winner of the 1983 Nobel prize for literature, and Ernest Hemingway semi-look-alike, was a spoiler. Couldn't you just kick yourself? In addition, very few could recollect the boyish features of Jack London, and several had him pegged for F. Scott Fitzgerald.

Here's how it stacked up:

- | | |
|-----------------------|------------------|
| 1 Henry James | 7 Jane Austen |
| 2 Virginia Woolf | 8 Henry Fielding |
| 3 Sinclair Lewis | 9 Ayn Rand |
| 4 Victor Hugo | 10 D.H. Lawrence |
| 5 George Bernard Shaw | 11 Jack London |
| 6 George Orwell | 12 Joseph Conrad |

- | | |
|-----------------------|--------------------|
| 13 Kurt Vonnegut, Jr. | 17 Charles Dickens |
| 14 George Eliot | 18 Agatha Christie |
| 15 Harlan Ellison | 19 James Joyce |
| 16 William Golding | 20 Stephen King |

The editors are now embroiled in the judging of literary scenes written in the manner of these celebrated scribes, adapted for computer. Results to be published in January.

Historical footnote: The original cityscape collage of famous faces on which the contest was based now rests in the hands of Harlan Ellison, who wants it to be known that he doesn't fall into the category of those authors who are "mostly all dead." We knew that. Now you do, too.

What Are Words For? How many times have you ever read *Softline* and caught yourself thinking, "My, oh my, this contest really bites the big one. But I'll enter it anyway, since I could win a lot of money and get my name in print"?

That's exactly what contestants in the Write-Up contest thought, and it was apparent in most of the entries; minimal effort with maximum greed. Yet, we had to stand in awe at their resourcefulness.

By far, the longest list of words formed by the letters in *interactive fiction* came from Michael Bain (Huntington, WV), who submitted a handwritten list of 1,487 words (nuts to all contestants who used a computer program to generate words). Bain's source of info was *Webster's Twentieth Century Dictionary Unabridged, Second Edition*. Words on his list were verified by the *Oxford English Dictionary*.

Bain will receive \$200 in cold cash, or any combination of software and cash.

Luckily, stories using all words on contestants' lists were to be used only as a tie-breaker. Luckily, because most of the stories really stunk up the place. Bain's story, for example, contained such memorable sentences as, "Ecce! Hector, anemic, preparing his nicotinic reactor on the aft of his craft; nicotianin in an iron vat with citric nitrate and acetonc anion."

In second place was Arnold Berman (Reading, PA) whose list included 990 words. From there, contestants trailed off significantly to Theron Fuller (Alexandria, VA), with 692 words, and William Iserman (Havertown, PA), who had 607 words.

The optional \$100 prize goes to Gary Geniesse (Osprey, FL). Though Geniesse was able to come up with a measly 101 words (and counted ninety-seven) from the letters in *interactive fiction*, his resulting

Steve had just finished giving his recitation on "Measles Vaccine: Fact or Myth" in school and now it was finally time. All he had to do was plug the new interface into the slot in the back of his home computer and he would be ready to go. The parcel was sitting there for him, just waiting to be unwrapped from its tin protective cover. As he unwrapped the package, he thought back to the circumstances that made him want to get the new interface.

One tier down, in front of the Cove Inn, there lived an old inventor named Mr. Albert, who was a World War Five flying ace. Mr. Albert was a strange man; he spoke with a slight Germanic accent and always wore a coat and tie that didn't seem to fit in with the style anymore. As Steve walked back down the passage from a long day at school, Mr. Albert would often invite him in for a glass of iced tea and a treat. The logic of putting a melting "ice cube" in a glass to keep a liquid cold never ceased to amaze him. Every once in a while, he would ask, "Why don't you put Freon generating blocks in the tea? Don't they keep things colder for a long time?"

And not once would Mr. Albert give him a straight answer; he would always say, "Yes, they do, but they make the tea taste like the remains of a cat chasing a raven through a fire," or some other witty nonsense phrase.

They would talk about the trivia of the old days, times when a "coin" was used for consumer exchanges in finance and a "tree," which Steve had once heard about in school, was cut and processed to write on. The concept of putting something like that into a disk drive and writing to it also never ceased to amaze him. So, he would always accept Mr. Albert's invitation and sit with him to find out more.

Mr. Albert's favorite subject to talk about was the interactive fiction adventure games he used to play on the primitive computers. He would describe how he would enter his moves into a "parser" that would require every iota of

his actions just to pick up his daily ration or travel in a train. Steve's favorite story was about the time he screamed with glee that fate had finally allowed him to pass a titan using the Nectar of the Cacti and gain entrance into a cavern.

Mr. Albert also enjoyed telling Steve about the time he used his computer in his chemistry experiments in the Arctic wastelands with deposits from stars that had gone nova. He would ramble on about how the computer solved what he thought was an unsolvable ionic equation that led to his finding of the right cation and anion through a titration reaction to answer the intricate riddle that had been facing man for nearly a decade. That development led him on to invent the entire content of the Covenant Project and became vice president of the Rain Craft Associates.

After leaving Mr. Albert each day, Steve would always wonder about these old games that Mr. Albert would play. He would wonder how a person could stare at something as lifeless as a neon bulb for hours on end. How a person could feel the sensation of falling nine thousand feet into a rift into the "center of the earth." How a person could even care if a computer "told" them that a shark fin was moving quickly toward them from the deep ocean beyond. And most of all, how people could fear an orc, a titanic giant rat, or even a roc made of "pixels" of light in a "room" that looked no more like a cave than does his attic. That, he thought, he would tire of in but a minute.

That was the time Mr. Albert belonged in. Back, circa 1985, an era that seemed to be more than an eon ago.

Steve almost cried as he thought of Mr. Albert, who had died over ten days ago, but he regained his composure and with a great deal of care, slid the interface into the slot.

"I wonder what Mr. Albert will tell me about today," wondered Steve as he flicked the switch and with a flash disappeared into thin air.

story is most intriguing; it's in the box on this page. Kudos, and so on.

A very special mention goes to Richard Ferri (Jamestown, NY) for his oversight. "After four hours of working on this game, I decided to read the instruction. To my shock and dismay, the innocuous phrase 'among others' escaped my first reading."

Ferri's story consisted of every word on his 224-word list, and no other words. The coup de grace is that Ferri's story actually made somewhat coherent sense. Double kudos.

G. Bass (Williamsburg, VA) went one better than Ferri. Bass submitted a logic puzzle that contained only words made from the letters in interactive fiction. Brain-twisting deduction was required to solve the puzzle, but the already pooped contest staff peeked at the answer instead.

As a final note, Softline extends an invitation to Baron Richard Breon (Palo Alto, CA) to write for us anytime. A bit demented and surrealistic at times, Breon's story provided much needed entertainment and comic relief. So, Baron, if you're reading this, feel free to send us more stories like Story #1063. We may not print them, nor pay for them, but feel free to send them anyway.

Markup. Why anybody of sound mind would want to take three computer manufacturers' losses, spend them on computer games, and stack the disks end to end is beyond us. But that didn't faze Softline readers one iota.

The object was to take the total 1983 second-quarter losses incurred by Atari, Texas Instruments, and Mattel, add them up (total: \$422 million), purchase as near the same number of adventure, arcade, and strategy games as possible, stack them up end to end, and see how high it would reach.

The contest department hasn't been able to stack the disks to come up with the answer (disks fall down when stacked up even two high), so we theorized. At the end of the theorizing session, minds were numb, but the answer was found: the height of all the disks would be 807 miles, 4,538 feet, 6.75 inches. Exactly.

Since we asked for answers to one decimal place, we accepted entries rounded to 6.8 or 6.7 as the number of inches.

The Softline random number generator is not known for its benevolence. Most of the time, it just picks a winner and goes to sleep. This time, however, it picked nonwinners one at a time by the ear and tossed them screaming into oblivion. The last one left in the RNG was deemed the winner. How unfortunate it was that so many had to suffer for someone to be designated the winner.

Congrats and all that good stuff go to Lidia Alicia Di Scerni-Hart (Troy, MI), who successfully dodged the RNG's condemning hand to become the winner of this contest.

Di Scerni-Hart teaches Spanish and math at the junior high level and requested Edu-Ware's PSAT Word Attack Skills and SAT Word Attack Skills for her four (hopefully) college-bound children. Way to go, Lidia! What better way to end a turbulent 1983 than with a contest winner putting her winnings toward higher education.

Total losses: \$422 million.

Number of each game:

3,249,903 adventures at \$39.95 each

3,249,904 arcades at \$29.95 each

3,249,904 strategy at \$59.95 each.

Total number of disks: 9,749,711

Height of disks in inches: 51,185,982.75 inches tall

Height of disks in feet: 4,265,498 feet, 6.75 inches

Final height: 807 miles, 4,538 feet, 6.75 inches.

Simple? So simple you could spit. The only thing that seemed to throw some people off was the attempted use of computer programs to do all the computations. Computers have habits of losing a few decimal values when handling big numbers.

Playtime. Contestants in the Playtime contest had two months to work, and the results certainly showed. The best word-game-type puzzle received was adjudged to be Softgames, a crossword puzzle creation by John Redfield (Fort Smith, AR), with answers consisting of eighty-three Apple games. It will appear next issue, along with our not-to-be-outdone puzzlemeister's Atari game puzzle.

Halp! Twelve-year-old Cyndy Chan (Trenton, NJ) created a puzzle so hard that understanding the answers was a puzzle in itself. She does receive honorable mention, though, for her exquisite artwork, thorough knowledge of medieval heraldry, Greek, Latin, and Old English, and general use of big words.

Contest Winners Update. Last ish, we reported that self-serving Alecia Thomas ran off with three VHS cassettes and \$100 in software, leaving in the dust her friends who helped her win the contest. Not so!

Thomas opted to take the cash value of the videocassettes and split it with comrades David Forster and Jeff Johnson. Was there coercion by Forster and Johnson to force Thomas to split the loot? We may never know.

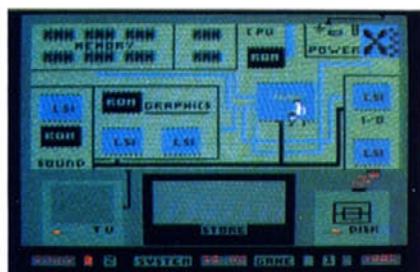
Clay Anderson, who was one of three Gamer Supreme winners, lost all hope of winning the contest, so he went out and bought one of his prize selections (*Hard Hat Mack*) on his own. Imagine his surprise when *Hard Hat Mack* arrived in his mailbox. However, the friendly folks at Electronic Arts were goodhearted enough to let Anderson exchange the game for *Axis Assassin*.

Confidence, Clay, confidence.

SL

A GAME FOR KIDS. BUT NOT NECESSARILY.

What if you could get small enough to crawl inside your computer and see how all that stuff really works?



IT STARTS with an arcade-style game. You play it for a while and then something happens. The system goes down in a crash. And now your job is to find out why and make things right again.

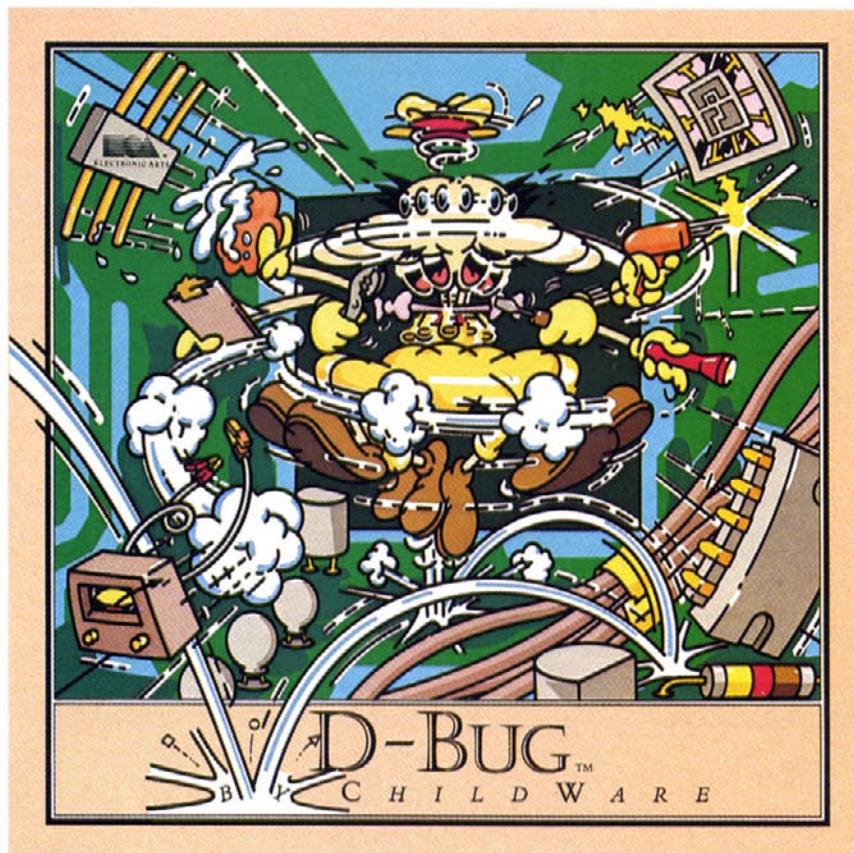
Expert help is available in the form of a strange character named Charlie Fixit. He's got a way of making you small enough to get inside the machine. But being inside is yet another game. There are stray charges to duck, static to avoid, and all sorts of intriguing devices to explore before you can get everything back into working order.

The name of this unusual program is D-Bug™, and it's a wonderful way to introduce your children (and maybe even yourself) to the terminology and basic workings of computers. But beyond this specific knowledge, you'll also learn some fairly subtle skills about how to link causes and effects, and how to develop creative strategies for solving problems.

D-Bug was designed, developed and programmed by ChildWare—pioneers in the field of computer literacy for children. It is just one of an entire line of programs we're publishing that deliberately blur the traditional distinctions between

education and entertainment.

D-Bug is now available on diskette for Commodore 64 and Atari home computers and can be found at your favorite computer stores, software centers, and in fine department stores throughout the country.





ATARI OLYMPICS

Illustration by Weldon O. Lewin

It's getting to the point where you can't tell what's *not* an official something of the 1984 Olympic Games.

Sure, you know that Pentel is the official pen, Levi's is the official blue jeans, Snickers is an official snack food, and Budweiser is the official beer. But has anyone ever really seen Carl Lewis using a Pentel pen to write off his new house as a training expense, or Mary Decker running the 800 meters in a pair of Levi's 501s, or Mary T. Meagher chugging a Bud when she gets out of the pool, or Greg Louganis sucking down a Mars bar off the ten-meter platform? No.

No, because American amateur athletes are above commercialization. Besides, they lose their amateur status if they endorse products.

However, that won't stop any red-blooded American corporation from trying to better its image by having the Star-in-Motion logo on its product. There are even rumors that Ty-d Bowl is still negotiating to become the official toilet bowl cleaner. But here's the latest in the trend.

Atari has been picked to be the official home computer of the 1984 Olympic Games. Not only that, but Atari's home video games and coin-operated games also were named as official products of the Games. And to cap it all off, Atari will be a major sponsor of the United States Olympic team and the United States women's volleyball team.

In case you're not clear on how this "official whatever of the Olympics" business works, all it means is Atari gave the Olympic Committee some money, and the Olympic Committee says it's okay for Atari to use the Olympics logo in its advertising.

What it doesn't mean is that we'll be seeing Edwin Moses playing *Shamus*, Tracy Caulkins programming new flip-turn techniques, or Alan Alda practicing bump-set-spike combinations with the women's volleyball team.

What it does mean is we'll soon be seeing the Star-in-Motion logo and Sam the Olympic eagle in Atari ads and on its products.

And that's the tame part. According to the sponsorship agreement, Atari will establish video game arcades at the Olympics sites for exclusive use by athletes and the news media.

Atari hasn't yet decided which games it's going to install or whether they'll be new games not yet on the market, but *Stellar Steroid Invasion*, *Hungry Boycott*, *Pole Position* (licensed from WaleskaCo), and *Afghanistan Invaders II* will not be among them.

In Memoriam

Atari has completed construction on a memorial tribute to the more than \$300 million it has lost (so far) in the video game business, out in the windswept desert land of New Mexico. Last September 27, fourteen dump trucks moved in solemn procession to the Alamogordo municipal landfill, bearing surplus game cartridges and computer bric-a-brac. Workers deposited the symbolic contents in the excavation and poured the cement as guards kept the crowd of media people and emotional game lovers under control. The carts were donated by Atari's El Paso manufacturing plant, which has been converted to recycling scrap.





**JUST IN TIME
FOR CHRISTMAS!**

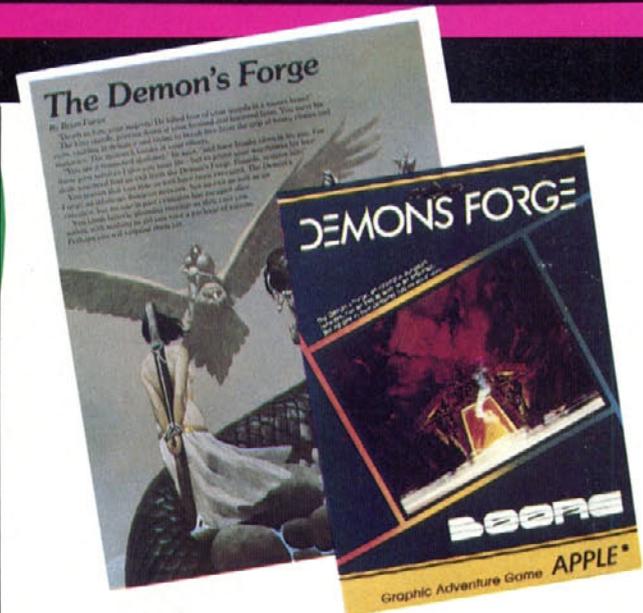
NEW PRODUCTS IN THE FLOOBY LINE FROM WALLACE MICRO-MART (2619 N. UNIVERSITY ST., PEORIA, IL 61604; 309-685-7876):

THE FLOOBY FLAPPER IS A DISCIPLINE INSTRUMENT (OH, HURT ME, HURT ME) TO BE USED ONLY IN THE SEVERE CASE OF FLOOBY DUST FAILURE. \$1.65. ★★★★★★

FLOOBY DISK FITS RIGHT INSIDE THE DISK DRIVE WITH NO PROBLEM. STORES PROGRAMS BUG-FREE. \$1.25 PER DISK. ★★★★★★

FLOOBY T-SHIRT WILL KEEP USERS WARM AND ENERGIZE THEIR IMAGINATIONS. PRINTED ON THE FRONT IS THE PROUD CLAIM, "I'M A FLOOBY DUST USER." \$6.95. ★★★★★★

THE FLOOBY DUST SAGA TELLS THE FLOOBY STORY IN APPLE II DOS 3.3. \$7.60.



In seeking to remain worthy of its Relevance in Packaging Award (Infomania, January 1983), Demon's Forge has now established a whole new look for itself, as well as a whole new company. All due kudos to Brian Fargo for his ongoing efforts in graphic adventure reform.

dBase of Our Lives

What does a relational database have to do with sex, violence, and adult situations?

Lots, if you know your syntax.

The readers of the first issue of *dNotes*, a *dBase II* user's journal from I.D.E.A. Industries (Deerfield, IL), have all they need now to program a juicy tale of seduction, jealousy, perversion, and peccadilloes in the continuing saga of the fictional Bayce dynasty.

It's actually a lesson in the virtues of heavily coding a database for maximum effectiveness that looks like a plot of a soap opera, complete with characters, locations, plot, and tangled relations. After all, that's why they call them *relational* databases.

The files for the *dSoap* project look rather dry on the printed page, but a spokesman for the newsletter says the results are hysterical when the information is assembled in a computer.

Programming the quirks and turns of the tangled Bayce family tale are part of the lesson, but, just as in television soaps, readers must wait until the next issue to find out how to code the real dirt.





Beachhead Jefferson County

When just twelve students at Jefferson County High School in Monticello, Florida, showed up to take the Scholastic Aptitude Test college entrance exam, principal Kelly "Mr. K" Kilpatrick knew he had to do something to get the kids motivated.

Motivate high-school kids to take a test—for college? Geez, they're just discovering all-night parties, sunrises, petting, and rock concerts; how does one motivate them to do academic stuff? Monetary incentives? Extended lunch hours? Hall passes for life? Immunity from detention? Nope.

Instead, Kilpatrick implemented Harcourt Brace Jovanovich's *Computer SAT* program on the school's TRS-80 computers to help the kids prepare for the test. But where this story takes a fateful turn is in the method by which he lured students into the computer room.

Jefferson County High's mascot is the tiger, and Kilpatrick felt that computer users could dub themselves "The Flying Tigers," after the World War II fighter pilots. Decorated with parachutes, camouflage nets, empty shells, parts of old fighter planes, sand bags, bazookas, and a twenty-foot propeller, the computer room is now one of the most popular hangouts on campus; and it's not just for computer nerds.

At first, the class was composed mainly of computer enthusiasts; now, it's a cross section of the entire student body. Some students give up their lunch hours; others stay for extended periods of time outside of class hours.

"Once in a while, though, a guy will start limiting his time in the war room if he sees someone making time with his chick," comments teacher Sissy Kilpatrick.

In class, students are divided into squadrons and are assigned to work on various problems given to them by the computer program. Getting the correct answer and getting it quickly are emphasized to simulate SAT conditions. The end of each segment is signaled when the zealous Mr. K fires off a cannon. Here's a man who really loves his work.

Sissy Kilpatrick says that "the war room gives students who aren't athletes or cheerleaders a chance to feel they belong to a group." On Fridays, when the football players wear their jerseys to school and spirit squad members wear their uniforms, SAT squadron fighters arrive decked out in berets, boots, and flight jackets, complete with their respective squadron insignias.

How far can something like this go? Not too far, if it motivates students to learn. But hopefully, preschoolers won't be toddling off to nursery school in flight suits, helmets, and ammo belts to sit down with *Facemaker*, *Rocky's Boots*, *Stickybear Bop*, and *Micro Mother Goose*.



Chocolate enters the computer age in the form of eat-only memory from a company called Byteware (Lawrenceville, NJ). Circuit Chips are milk chocolate bars molded in the shape of integrated circuit boards marked CMOS ROM. The C, presumably stands for chocolate.

Show b.o.b.o. biz

Title Design: Nancy James

Item the First: Are you wondering when the next *Superman* bomb is due for release? Or what's been happening (or not been happening) on your favorite soap opera while you're busy killing aliens, gathering treasure, and building up experience and hit points?

Or did you ever want to know who's wheeling deals with whom in Hollywood? Or what Tom Selleck's plans are for making films that are more exciting than *High Road to China*? Or how well the videocassette of *Flashdance* is doing?

Recognizing its journalistic and social responsibility to a star-crazy public, some of whom actually went and paid money to see *Smokey and the Bandit, Part III*, CompuServe has created a need and filled it.

Hollywood Hotline is a videotext option on CompuServe, offering news about your favorite movie and television stars, and it's as close as the power switch on your computer. Some of the things you can keep up to date on are: news about motion pictures, teevee programs, and music recordings; ratings on movies, teevee shows, record albums, and videocassettes; daily summaries of thirteen soap operas; and updates on court battles.

And what would any such professional service be without a nice, juicy, pandering, gossip column? Professional, that's what! The Hollywood Hotline originally had a bulletin board on which you could leave questions about the entertainment world of the past and present.

Unfortunately, the board was taken down because, according to Hollywood Hotline's Eliot Stein, "people were getting too personal. It was supposed to be a hard-news feature, but people would ask questions that would be impossible to answer, even if we wanted to."

Questions like "Who is so-and-so sleeping with now? I heard it was

with so-and-so," were tame compared to what some people wanted to know.

Even though the bulletin board has been taken down, Hollywood Hotline still offers immense databases of information on the entertainment industry. On one, you can find out who or what won the major Academy Awards as far back as 1934 (evidently, the database is not sufficiently immense to include the first eight years' worth). On another, you can look up the television ratings for each week as early as 1948.

Though Hollywood Hotline was originally set up primarily for use by the news media, it's also open for public use by CompuServe subscribers—for \$22.50 an hour during prime time.

Go for it, nostalgia fans.

Item the Second: In case you haven't heard, **IF** magazine is a Personal Message System (PMS) bulletin board that has a column dedicated to Commodore 64 users, features on Atari cartridges, announcements of new Apple products, and a section for an ongoing dungeons game. When you call up, say hello to Freida the sysop. You'll be glad you did. To get on-line with **IF** magazine, get out your modem and call (714) 535-1482.

Item the Weird. *WarGames* was fun, but if you want to know just how David Lightman felt as he was playing with NORAD's WOPR computer, dial the National Defense Mechanism at (303) 555-NUKE. The simulation was set up by activists at University of Colorado to enlighten computer gamers as to "just how real a *WarGames*-type situation would feel," according to Raddie Kull, spokeswoman for the group.

"When you dial the number on your computer, you'll know just how possible a *WarGames* situation really is," says Kull.

...BUT IS IT ART?

Art Linkletter, legendary radio and teevee host of *House Party* and *People Are Funny*, chairman of National Easter Seal Week, National Heart Week, National Cancer Week, National Arthritis Foundation, Foster Parents Program, Goodwill Industries, and the YMCA and Boy Scouts Foundations, is now computer-accessible.

Yes, *Kids Say the Darndest Things to Computers*, the software version of one of the most persistent best sellers in publishing history, is the first release in HomeComputer Software's Infotainment series, available on all popular pcs. Art joshes around a little, gets your name and age (not your *real* age), and asks general interview questions. The player answers, and a story is slyly built around the player's character. In the end, the player must make a moral judgment on events as they have or have not transpired. And it better be right.



ATARIWATCH

Essay question on the final exam for the Atari MBA program: In fifty words or less, describe your next move, as chairman and chief executive, if your company reports second-quarter losses of \$283 million.

Answer: Spend more money! Specifically, shell out about \$60 million to develop a major office and research complex on sixty-five acres in San Jose, California.

That's what is said in the exam book of James J. Morgan, current reigning honcho of Atari. According to Morgan, Atari plans to establish its world headquarters at River Oaks Park, a site owned by Atari's Daddy Warbucks, Warner Communications.

Men with shovels are expected to be breaking the ground for the four-building project sometime in the second quarter of 1984, and all the hammering should come to an end in early 1985.

In keeping with Atari's policy of producing expandable computers, Morgan says the new headquarters will allow for future expansion so it won't be obsolete too soon.

Wolff-Comstock, the lead developer for the property, is already taking future expansion into consideration in its design for Atari's HQ. In the planning stages is a telecommunications interface module that will allow employees actually to talk to people outside the building and to transfer verbal information.

For printing word processing text files, employees will be interfaced with typewriters. A system of overhead and desk lighting will facilitate task performance. Additional building modules will help more managers and planners make more decisions.

The Atari headquarters is not available for the consumer market yet. According to unreliable sources, Atari wants to test out the building extensively for itself before throwing it out to the general market.

Why is this man smiling?



Kute Kids Klik in Kompu-Kapers

It's on television, so it must be true, right? Like, television can't lie; isn't there some kind of law that says anything that goes on teevee must be true?

Those not familiar with computers who have seen an episode of *Whiz Kids* (apparently, that includes the series' writers), might receive the impression that anyone with a computer terminal can play arcade games by modem, break into any company's mainframe computer, send messages to a metropolitan newspaper's video display terminals, and control virtually any other computer anywhere at any time, all without getting caught.

Whiz Kids isn't exactly the most accurate portrayal of American youth, but neither is *Facts of Life*, *Diff'rent Strokes*, or the departed *Brady Bunch*. *Square Pegs* was close.

A combination of a Disney movie and an NBC after-school special, *Whiz Kids* centers on four youngsters, led by Richie Adler (Matthew Labordeaux), who continually get themselves into crime-stopping adventures with the help of Richie's home-built computer, Ralf.

It wouldn't be fair to say that CBS is skimping on technical consultants (four computer programmers work an average of twenty hours each preparing screen displays for each episode), but where are these guys when it comes to giving technical advice?

Didn't any of them raise an eyebrow when the show's script called for Richie to log on to the city newspaper's library and read copies of past newspapers, which are normally kept on microfilm?

Or how is it possible for the kids to call by modem a computer operated by a convict at a nearby prison?

Computer geniuses of Richie's caliber shouldn't be wasting their time going to school; they should be working for the Defense Department. Or

at least for Broderbund.

Whiz Kids is all in fun, not meant to be a primer on computers and society. But can it turn out to be a primer on computer crime, piquing the curiosities of kids with computers?

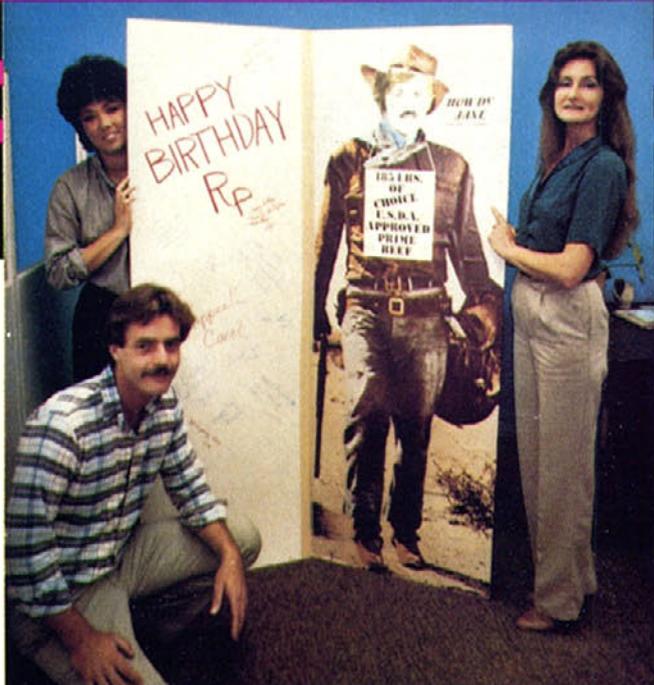
A Note to Aspiring Whiz Kids (and Directionless Adults). Before you go jaunting off to become the first whiz kid on your block, consider seriously the plight of fifteen-year-old Gary Knutson, who was nabbed by the FBI for doing just the thing *Whiz Kids* glamorizes.

Knutson and buddies were caught playing in GTE Telenet's electronic mail system when an FBI agent came through Knutson's second-story bedroom window and said, "You're under arrest and that computer is mine."

Armed with search warrants, FBI agents in mid-October conducted simultaneous early-morning raids around the country and seized home computer equipment from electronically trespassing teenagers. From the Detroit home of fourteen-year-old Eric Stadjas, agents also confiscated thirty pages of documents, including passwords needed to obtain access to Defense Department computers.

WarGames and *Whiz Kids* are fun diversions, but let's not go overboard. You didn't go enlist in the military after you saw *An Officer and a Gentleman* or *M*A*S*H*, did you? And how about *Flashdance*? Did the movie inspire you to become a welder?

Just keep repeating to yourself. "It's only a teevee show. . . ."



On the Job. Birthdays are special at Broderbund, and this one was no exception. The company presented birthday cowgirl and "company drone" Rapunzel Oberholtzer (right) with this life-size answer to the age-old question, "What does every vegetarian cowgirl need?" Shown here with her are Broderbund's award-winning art director, Tom Partridge (kneeling), who created the card, and marketing director Cathy Carlston (peekaboo), who doubles as Rapunzel's slave driver.

MONKEY UP A TREE



Arithmetic driving you bananas?

Monkey around!

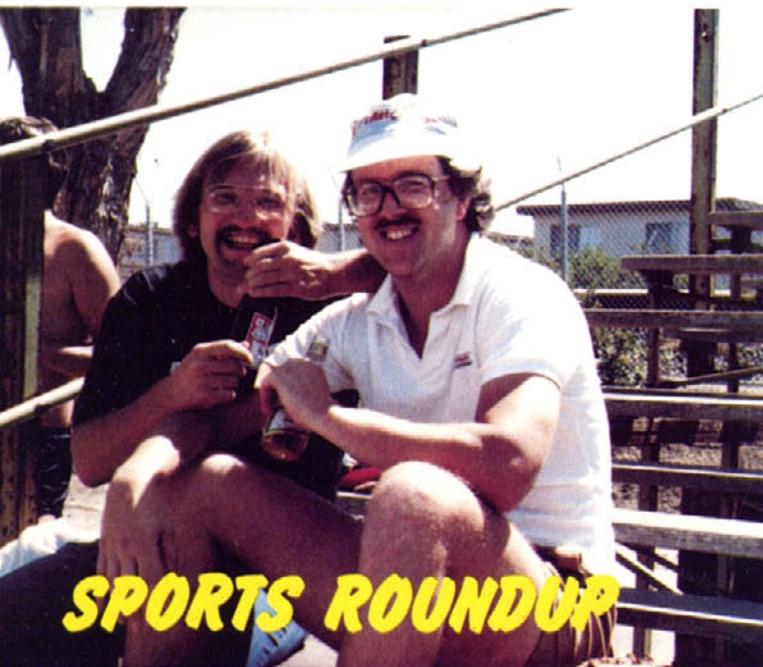
Let Merle the monkey show you that learning is fun! With the right answer, Merle gets closer to lunch, and the next problem is a little harder. When two play, the game automatically adjusts to the skill level of each player. Bright colors and sound effects add to the learning fun!

Ask for **MONKEY UP A TREE** at your local Atari software retailer, or order direct. Phone 800-538-1862, or 800-672-1850 in California. Or write ATARI Program Exchange, P.O. Box 3705, Santa Clara, CA. 95055.

Cassette	APX-10165	\$24.95
Diskette	APX-20165	\$24.95

For direct orders, add \$2.50.





SPORTS ROUNDUP

The big story in sports—softball! Here's how it went. It was a fine, clear day in Richmond, California. Spirits were high, the sun was bright.

But the stakes that Saturday were enormous.

The occasion was the first Broderbund-Synapse Software Softball Spectacle—or, from the Synapse point of view, debacle.

Ihor Wolosenko, Synapse's president and team pitcher, was asked to comment on the performance of his team.

"Yeah, I got comments," he snarled. "But I'm keeping 'em to myself, thank you."

Broderbund first baseman and *Arcade Machine* author Chris Jochumson was less circumspect.

"I attribute Broderbund's strength to me," Chris said. "I was 4 for 5, batted in 3 RBIs. I came in four times myself."

When the dust finally settled, the score was 23 to 15 in Broderbund's favor. An apocalypse for Synapse.

But Synapse's Jim Steenson, national sales manager and rabble-rouser, attributed the apparent slaughter to Synapse strategy. "We were just suckering 'em in. Wait until the next game. Then they'll stop laughing."

Possibly. But then, what does Synapse know about strategy games?

At left, Synapse and Broderbund team captains I. Wolosenko and G. Carlston feign cordiality. Reporter Ed Bernstein's journalistic objectivity was in no way impaired by the fact that he happens to be Broderbund's director of editorial development.

SL



It's Dandy!

Battling Borkons? Boring. Chicken Challenge? Cliché. Distinctive and different is **DANDY**, the great new team game from the ATARI Program Exchange. **DANDY** lets you:

- Explore a 26-level dungeon!
- Bring up to three friends!

- Work as a team to battle monsters!
- Gather untold riches!
- Create new dungeons to challenge your friends!!!

Kiss Killer Koalas goodbye. It's time to conquer a new world.

Ask for **DANDY** at your local ATARI software retailer, or order direct. Phone 800-538-1862, or 800-672-1850 in California. Or write ATARI Program Exchange, P.O. Box 3705, Santa Clara, CA. 95055.

Diskette APX-20210 \$29.95
For direct orders, add \$2.50.
(Requires joystick controller/s)



DIRECTLINE

A Sense of Morals with a Charge

Being a fellow *Wizardry* enthusiast, I felt compelled to write about the July-August issue reply to Matt Lentz. As anyone who has played *Knight of Diamonds* for long knows, it is possible to end up with almost any character, evil or good. Without giving away too much of the plot, there are certain monsters in KOD that can change the alignment of players. The first time this happened to me I was understandably upset, but one learns to live with the dark side of the Force. (One also has the alternative of pulling the disk and recovering characters.)

This brings us to one of the most important questions for true *Wizardry* enthusiasts: What actions actually constitute cheating? My best friend wouldn't speak to me for a week after I stole a murasma blade from the disk he left at my house. I actually stole it from a backup of his disk that I then recovered. Is this cheating? Probably. But what if I create a bishop from scratch, take him down to camp, and identify item 9 with him? I warn anyone who would do what I just suggested that this particular maneuver resulted in my retiring my characters about twelve months ago; the game no longer seemed like such a challenge. The fact that the programming of the game allows one to do this makes it fair (it seems to me) and should not be considered cheating. Or how about pulling your disk from the drive just as your characters are about to be obliterated by Frost Giants and Evil Eyes? (Who can honestly say they haven't done this?)

Whatever the cause, the great thing is that *Wizardry* forces those who come into contact with it for any length of time to come to some moral understanding of themselves. I can't tell you how much I look forward to playing *Legacy of Llylgamyn* with characters starting from level 1. This time I should prevail quickly!

To Matt: My friend Jeff had a level 89 samurai and level 73 lord when he quit at the same time I did. My best character is a level 43 fighter (Al Haig); whenever there is a battle he says, "I'm in charge here!"

Stuart Fishbach, Port Chester, NY

What a Party This Is!

Responding to Matt Lentz's claim about his being able to match his party with anyone else's: I have been playing *Wizardry* for more than two years (since its earliest release), and my party consists of all natural characters who are between levels 119 and 432. My best character is a 432 level fighter with 3,500 plus hit points, who can solve *Overlord* and *Knight of Diamonds* by himself.

A riddle to help Matt Lentz and any other *Knight of Diamonds* players who are having a problem with Gnilda's riddle:

The name of the game is what you seek
Explore the sixth level only at your peak
KOD is the clue
But only one will do
To bring back the hero's keep.

Bill Money, Austin, TX

One Man's Bugs

I enjoyed "Anatomy of a Game" by B. Fitzgerald in the September-October *Softline*, but I found four bugs in the listing. Lines 2 and 3 should read:

```
COUNTER EQU $0000
Y          EQU $0001
```

Lines 24 and 40 should read:

```
BCC ^ 1
BCC ^ 2
```

As the program ran and I got the desired picture, I am a little mystified as to how EQU got turned into EPZ. Doesn't look like an easy typo to me.

Jerry Abad, Oakland, CA

As stated, B. Fitzgerald is using the Lisa 2.6 Apple assembler, on which EPZ means equate page zero, and should be changed to EQU for use with any other assembler. The ^, which most other assemblers won't accept, means local label to Lisa. Those without Lisa will have to make up labels to take the place of these.

A Few Words From Mr. Woo

Most programs, if not all, are actually very easy to translate from one machine to another. Most of the time, all it takes is a simple translation of one or more key words. For example:

Apple	TRS-80	Commodore
HOME	CLS	? "SHIFT-CLEAR"
CALL - 936		

There are many books available that can help you translate programs from one sort of Basic to another. These books can usually be obtained from any bookstore or computer store.

Concerning the Apple: Does anyone know if DOS is available in ROM so that DOS need not be loaded every time you want to use it?

To Ken Rose: Your adventure series is great! However, the routine that you use to list the objects is a bit tedious to type in. It is easier to do a for-next loop, but using a loop would also require dimensioning OBS(x), which would hold the names of the objects.

I'm glad to see *Softline* expanding. Ever since I paid for a *Softline* subscription, it has been one of my favorite magazines. I don't mind paying this small amount to receive such a great publication in the mail.

One suggestion I have is that you include a series of articles concerning the development of arcade games only, using Basic, and then going on to assembly language listings. However, this might cause confusion because of the different graphics potential of each computer.

By the way, what is the kick that Atari is presently on? Are they trying to release the most computers in the world or what? The 600XL is the same as the 800XL but without the extra memory, which can easily be added. Two months after they released the 1200XL, they took it off the market and replaced it with the 1400XL. Soon Atari will announce the 800.5XL, which is the same as the 800XL but has a pen holder on the side of its case! The only promising thing about the new computers is the new operating system and the ability to use hard disk drives. The new line of peripherals is okay.

John Woo, Bronx, NY

Gotta Have It!

Does anyone know about a computer version of *Dragon's Lair*, either already on the market or still in the making, for the Atari 800?

Brian Campbell, Wheeling, WV

The home version of this little wonder is coming soon.

Exceptional Scepter

I read a letter in the May-June *Directline* from Jeff Connor and was shocked to find that he would give misleading information. So, here's a word of disadvice:

Do not overlook the scepter in *Zork*! It is valuable not only as a treasure but also as a key. You need it to find the pot of gold at the end of the rainbow. Shame on you, Jeff, for giving false information.

Mike Wall, Fair Lawn, NJ

Learning To Parse

I am attempting to write an adventure, and I would like to know how to make a parser that will accept sentence commands, such as "Get the blue cup and drink the water." If Ken Rose could explain this in his column I would be much obliged. Can any fellow readers explain to me how to accomplish this?

Doug Barre, Westfield, NJ

Peel Out

Why do people disbelieve a high score? Okay, so Brent Shaw's score was tough to beat. Don't kill him because he can drive, eh? I decided to experiment and I found that a perfect game on the Karlskoqa Circuit of *International Gran Prix* takes thirty-five seconds, at least when I'm driving. However, some time is used in acceleration. If we play a two-lap game, the second lap runs faster. Pretty sneaky on Brent's part, using lap time instead of race time to record his score. My record lap time is thirty-one seconds, a full four seconds under my race time for a one-lap game. Thus, it seems that Shaw didn't lie, he just didn't tell us everything.

For you at *Softline*, my fastest race time is thirty-five seconds, while my fastest lap time (which is what Shaw must have used to get his thirty-three) is thirty-one seconds. I hope you will publish one of these scores.

George De La Mater, Traverse City, MI

Dishonest Contest

While I was sick the other day and did not have much to do, I was reduced to reading the fine print on *Softline's* table of contents page. I made the discovery that you have lost count of the number of magazine issues that have been published. The March issue was listed as Volume 2, Number 4. The May-June issue was also listed as Volume 2, Number 4. The July-August issue incremented to Volume 2, Number 5, but it is still one issue behind.

Is this an honest mistake or have I uncovered a contest? If it is a contest, then I claim first prize. If it's just a mistake, then I guess I lose again.

Hugh Johnson, Johnson City, TN

Preferably Oblique

I would like to praise *Demon's Forge* from Boone Corporation (Sabre Software). It is an excellent graphic adventure by Brian Fargo. It is challenging even to an experienced adventurer. The puzzles are logical and tough. The graphics are good, but not as fast as *Sherwood Forest* or *Critical Mass*. It has many neat features, like a save game feature on the original disk and a last saved reminder.

On the other hand, I would not recommend *Mask of the Sun*. Traveling is too time-consuming. The adventure itself is too tough for all but an expert. The graphics and animation are good but not very colorful.

Critical Mass is a great adventure. The graphics are superb and the fastest I've ever seen. The animation and arcade sequences are very well done. It even has music. This adventure rarely stops to go to disk, which makes it very fast. It may be too easy for some, but I highly recommend it.

To Jeff Connor (and everybody else): Please just give clues, not the whole answer. I personally don't want to be given the straight answer to a problem.

Thomas Kirk Almroth III, Huntington Beach, CA

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Statement of Ownership and Circulation

1. - 2. *Softline* (publication number 07454988); October 17, 1983.
 3. *Softline* is published bi-monthly, 6 issues annually, at an annual subscription price of \$12.
 4. - 5. Office of publication and general business offices are located at 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605.
 6. Publisher: Mary Sue Rennells, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605. Editor: Margot Comstock Tommervik, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605. Managing Editor, Patricia Ryall, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605.
 7. Statement of ownership: Softtalk Publishing Inc., 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; Robert Comstock, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; William Depew, 5547 Satsuma Avenue, North Hollywood, CA 91601; John Haller, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; Mary Sue Rennells, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; Daniel Rothman, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; William V. R. Smith, 5547 Satsuma Avenue, North Hollywood, CA 91601; Craig Stinson, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; Margot Comstock Tommervik and Al Tommervik, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605; Kurt Wahler, 7250 Laurel Canyon Boulevard, North Hollywood, CA 91605.
 8. None
 9. Not Applicable.
 10. Extent and nature of circulation
- | | Average number of copies each issue during preceding 12 months | Actual number of copies of single issue published nearest to filing date |
|--|--|--|
| A. Total number of copies printed (net press run) | 52,376 | 52,347 |
| B. Paid Circulation | | |
| 1. Sales through dealers and carriers, street vendors, and counter sales | 833 | 3,000 |
| 2. Mail subscription | 2,830 | 5,987 |
| C. Total paid circulation | 3,663 | 8,987 |
| D. Free distribution by mail, carrier, or other means, samples, complimentary, and other free copies | 46,037 | 41,765 |
| E. Total distribution | 49,700 | 50,752 |
| F. Copies not distributed | | |
| 1. Office use, left over, unaccounted, spoiled after printing | 2,659 | 1,595 |
| 2. Return from news agents | 17 | -- |
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11. I certify that the statements made by me above are correct and complete.

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Atari Sound

by Bill Williams

As this column has progressed, we have looked at some simple sound techniques in Basic and a few advanced waveform tricks in assembly language. Along the way, we have encountered the eternal tradeoff between ease of programming in Basic and machine speed in assembler. This month we're going to wrap up our discussion with a look at a medium-level language perfectly suited to working with sound: C.

If you have a copy of C, this column should give you a good starting point for playing with pink-noise music and clear up at least one surprise you may encounter in C sound. If you don't have a copy of C, this article will demonstrate some of the power of the language and maybe encourage you to get a copy. The sample program was developed with the *Deep Blue C Compiler* by John H. Palevich, sold by the Atari Program Exchange (catalog number APX-20166).

1/f Noise and Richard Voss. The application we're going to look at involves a different approach to random music, called 1/f noise. This algorithm is an attempt to solve one of the stickiest problems inherent in random composition: lack of order. The very nature of a random number generator is chaotic; most music is not. If we write a program to randomly select a bunch of candidate notes and play them, the result is very hard to listen to. The probability of any one note being picked is equal—this is the musical equivalent of white noise.

Mathematician Richard Voss came up with a very popular algorithm to "filter" random numbers to give them a more natural distribution rate. This simple yet elegant algorithm produces a flow of values that mirror natural processes (wind and rain, snowflakes, et cetera) in their tendency to combine small changes with occasional large jumps in value. This is useful in many more situations than music: Say you're writing a video game that has a spider that moves more or less randomly. Substituting the Voss algorithm for a conventional random number generator produces a remarkable difference in the quality of the spider's movement; he seems a little more intelligent.

To picture how these "voss numbers" work, image a row of four dice, all of them with the 1 face up. We read them in decimal order to produce a total of 1,111. Now we roll the die in the "ones" position. This will give us six possible values, ranging from 1,111 to 1,116. But if we roll the die in the "tens" position, we get six possible values ranging from 1,111 to 1,161. Instead of a possible value change of five, we get a range of fifty.

One more time: Let's roll both the dice in the "tens" and "ones" position. Now we can get thirty-six possible values, ranging from 1,111 to 1,166—a possible change of fifty-five. Finally, when we work our way up to rolling all four dice, we get 1,296 possible values (6 to the fourth power) with a value range of 5,555.

Now to show the pattern of die rolls more explicitly. In this chart, a "1" means to roll the die, a "0" to let it stand.

```
0001
0010
0011
0100
0101
0110
0111
1000
```

which is, of course, the familiar binary counting pattern!

To use this system of dice rolling in a program, then, we need two

variables for each parameter. We need one variable to keep track of the current "state" of all the dice: In this variable each bit will represent a single two-sided die (okay, maybe it's a coin). Then we need a second variable that we'll call our "filter." This variable will tell us which dice we get to "roll"—that is, which of the bits in the dice variable we get to change. To roll a particular die, we will use the random number generator to decide if that bit is a 1 or a 0. Finally, every time we get a new number we have to increment the filter variable to update our dice-rolling pattern.

Sound complicated? If you don't have bit manipulations in your language, it is. But in C, it becomes terribly easy. Watch:

We'll store the dice and filter variables in an array—remember that we want to keep track of the dice and filters for each parameter that will be using the function (volume, tempo, pitch, et cetera). Each of these variables will be one byte in length. In C, that's called a character, and we have to declare that as the data type.

```
char d[12];
char f[12];
```

This gives us thirteen parameters to play with (C uses the 0 element). Note that arrays are formed with brackets, not parentheses.

Now let's write the function.

```
+ + f[p]
```

This phrase automatically increments the filter element that "p" is pointing to. In Basic, we would say "F(P) = F(P) + 1". The phrase:

```
peek(RANDOM)& + + f[p]
```

simultaneously increments f[p] and then does a logical AND (&) of the result with the random number generator. (This assumes that RANDOM was previously defined as hex D20A, which is the memory location of the random shift register.) The result of this operation is that wherever a bit was 0 in the filter, we'll get a 0 in the output, but wherever a bit was 1 in the filter, we'll get a randomly determined 1 or 0 in the output: Some bits in the random number are forced to zero. This gives us our random die roll.

Now we want to graft the new dice state on with the old dice state. In C, the character "^" does an exclusive OR (EOR in assembler). If our new die bit is a 0, then, the old die bit is left untouched. If the new die bit is a 1, the old die bit is inverted: a 1 becomes a 0 and vice versa. This has the effect of only "rolling" the dice that correspond to 1s in the filter variable.

```
d[p] = d[p]^ (peek(RANDOM)& + + f[p]);
```

But we have another shortcut in C. Programmers are always saying things like "A = A + 10" or "ZOT = ZOT*25". By placing the operator before the equals sign, we can omit repeating the variable name; thus we get "a + = 10" and "zot* = 25". If this seems like a frivolous touch, try writing the Basic equivalent to "r[3.14*g[x + = 10/y]]* = 22;".

d[p]^= (peek(RANDOM)& + + f[p]); does the same thing as the previous die-rolling phrase; it's just abbreviated. This does everything we asked our "voss" function to do. For the program, we'll add one more tidbit: a divisor (r) to chop down the end result. If r is 2, the highest possible value will be 127 instead of 255. Finally, we'll bundle the whole expression up inside the "return" statement, which ends the func-

tion and returns the value of the expression. The final form of our function can be seen at the bottom of the demo program listing.

It's expressions like this where C really shines. Try to duplicate this one-line function in Basic; you'll be amazed at the expansion that takes place.

The conciseness of the language is enhanced in other ways. For instance, every expression has a value: the value that was assigned to the left-hand side of the expression. This makes statements like "a = b = c = d = 0;" legal, for the expression "d = 0" has a value of 0, which forms the implied expression "c = 0", and so on. If you look near the bottom of the function "main", you will see this statement:

```
plot(x = voss(10,2),y = voss(11,3));
```

which calls the function "voss" and assigns the returned value to x, calls "voss" again and assigns the value to y, then calls the function "plot", and passes it the new values of x and y. This kind of compression is incredibly powerful, once you get used to it.

A Walk through the Demo. The first part of the program is one long comment that describes the linking file necessary to compile the program. In C, remarks are set off with a single "/*", and the remark does not end until closed off with a "*/".

The "#define" statements are simple text-replacement commands. Wherever the string "Parms" is encountered, the statement will be processed as if "12" had been typed. Note this is a label definition and has nothing to do with variables: None of your run-time memory is wasted.

Next come the array declarations. These are made above the first function definition so that they will be accessible, or "global", to all following functions. C has a comprehensive set of rules to protect the "scope" and "privacy" of variables. Nonarray variables, for example, are usually passed by value, so a called function gets its own "private copy" of the variable that it can modify without screwing up the calling function's copy.

The function that is to be run when the program is loaded must be named "main". This is followed by an empty parameter list (the parentheses) to indicate that no parameters are passed to this function. The strings "\$(" and "\$)" are accommodations to the Atari, which does not have braces. Logical statements are grouped together with braces: When the last brace is closed off, the program ends.

In the initialization, we first correct a minor bug in C, and give POKEY the values that will let us use channel 4 without interference. Failure to do so will leave you with a three-voice Atari. Then we give our dice and filters some random starting values, copy the string of candidate notes into the array "fn" (the note-to-frequency specification is given in the form of ATASCII characters), and set up the graphics for a hideously bright blue.

After that, the only thing left is to go into an infinite "while" loop, play the voices, and draw a few lines on the hideously bright blue. C has three types of loops. The familiar for-next has become the "for" loop. The following statements are equivalent:

```
for(voice = 0;voice < 4; ++voice)
100 FOR VOICE = 0 TO 3 STEP 1
```

C also has a "while" loop that continues as long as the expression is true, and a "do while" loop that does the same but puts the test at the bottom instead of the top. Oh, yes: Unlike Basic, C's "for" loop makes its test at the top, where it should be. The statement inside this loop. . .

```
for(x = 5;x < 0; ++ x)
```

will never be executed.

Happy Trails. And so we ride out of the range of the Circle C and wrap up our overview of the sound programming possibilities of the Atari computer. Hopefully, using techniques presented here over the last year and a half, you've been able to elicit some intriguing tonal effects from your machine, and gone on to come up with some techniques of your own. Glad we could help.

May all your game programs, present and conjectured, be neither sonically meek nor audibly irritating.

```
/* Music in C
by Bill Williams
```

```
If the name of this file is CMUS.C,
your linking file (CMUS.LNK)
should look like this:
```

```
cmus
aio
graphics
dbc.obj
```

```
*/
#define PARMS 12
#define RAND 0xD20A
#define TRUE 1
#define SKCTL 0xD20F
#define SSKCTL 0x232
#define AUDCTL 0xD208

char d[PARMS]; /* dice */
char f[PARMS]; /* pink filters */
char fn[10]; /* freq/note table */
char vol[4]; /* volume counts */
char note[4]; /* voice's note */

main ()
$(
int i,voice,tempo,x,y;
/* Initialize Pokey for sound */
poke(SSKCTL,3);
poke(SKCTL,3);
poke(AUDCTL,0);
/* Initialize pink numbers */
for(i = 0; i < PARMS; ++ i){
d[i] = peek(RAND);
f[i] = peek(RAND);
}
/* Set up note table.
Current candidate notes
make up a two-octave pentatonic
scale.
*/
strcpy(fn,"!%*29DLUfr");
for(voice = 0;voice < 4; ++ voice)
note[voice] = fn[rnd(10)];
/* Set up graphics */
graphics(24);
color(1);
setcolor(1,8,0);
setcolor(2,8,12);
/* Play Music */
while(TRUE){$(
for(voice = 0;voice < 4; ++ voice)
play(voice);
for(tempo = voss(9,6);tempo > 0;--tempo);
if(!rnd(8))$(
plot(x = voss(10,2),y = voss(11,3));
drawto(191,peek(RAND)&0xC0);
drawto(319-(x/2),y);
}
)
)
)
play(v)
char v; /* voice index */
$(
/* If volume is not 0, play voice
and decrement volume. Otherwise,
pick a new starting volume and a
new note.
*/
if(vol[v])
sound(v,note[v],10,vol[v]-);
else $(
vol[v] = 3 + voss(v,31);
note[v] = fn[voss(v + 4,28)];
)
)
)
/* Voss' 1/f noise algorithm */
voss(p,r)
char p; /* parameter number */
char r; /* range (divisor) */
$(
return((d[p]^ = (peek(RAND)& + + f[p]))/r);
)
)
```

WASHINGTON (UPI) — The U.S. Air Force/NASA have developed an experimental spacecraft given the title XTM. Due to the vague description as to the design or purpose of the XTM, the press is still in the dark about many aspects of the craft or its intended mission. It has been discovered, however, that at least three pilots have been lost in the current flight testing program of the mysterious

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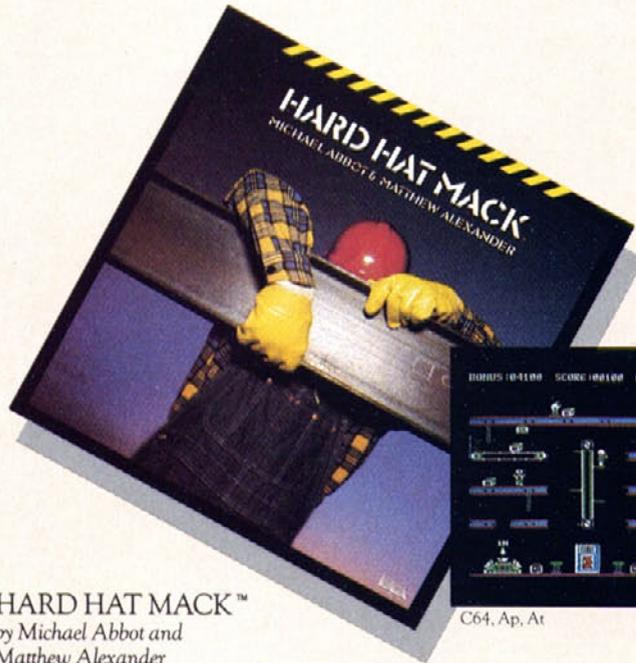
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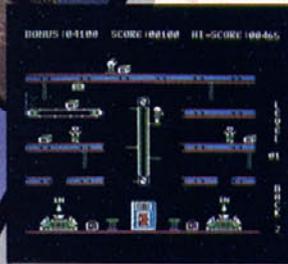
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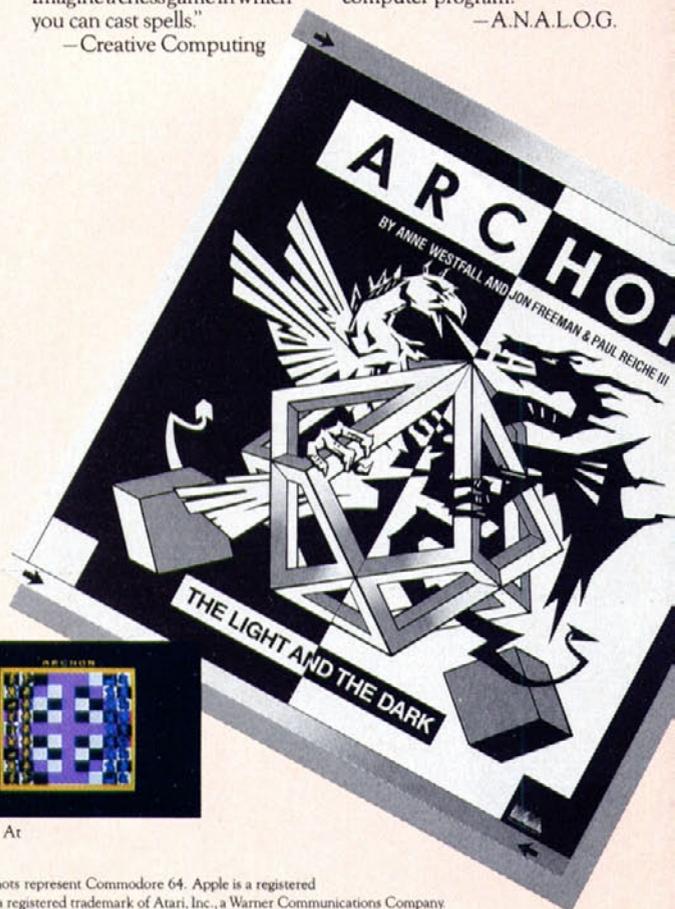
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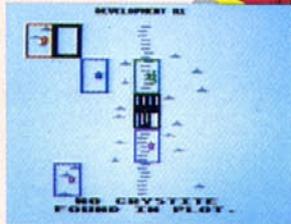
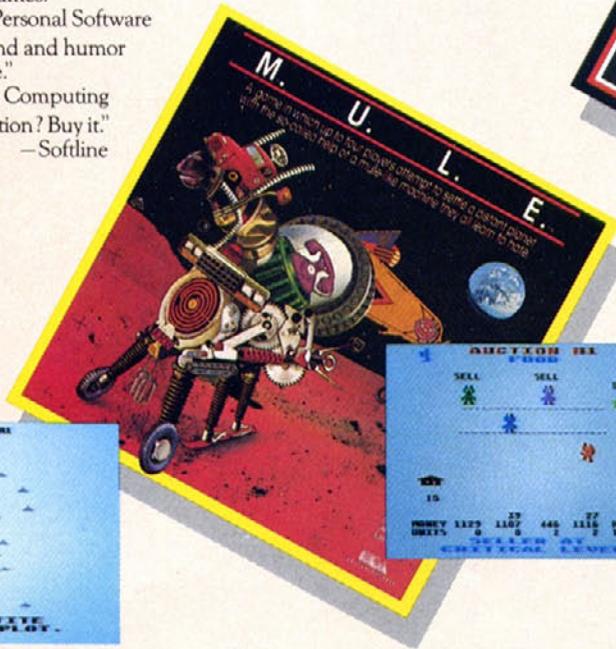


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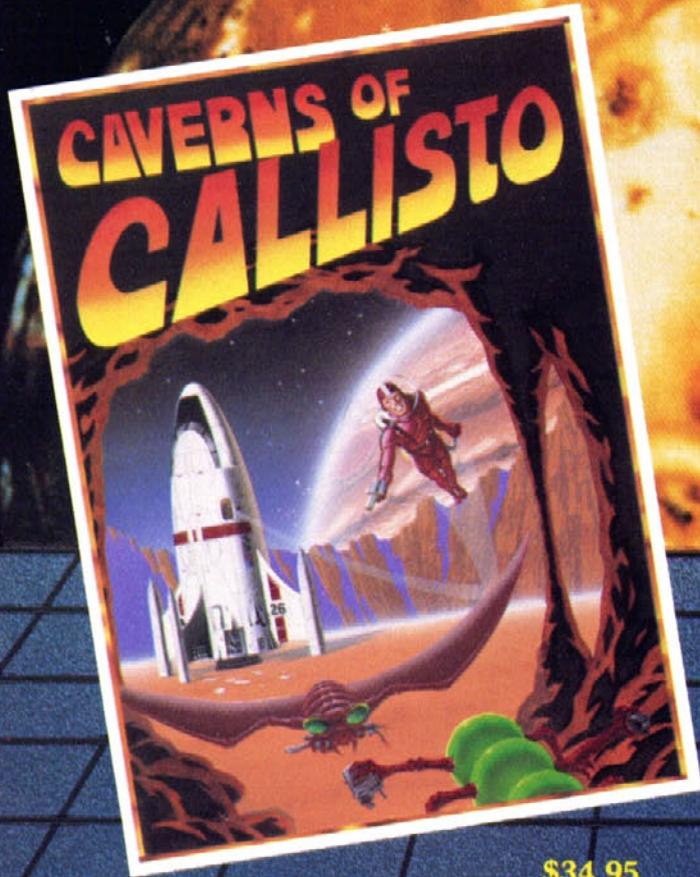
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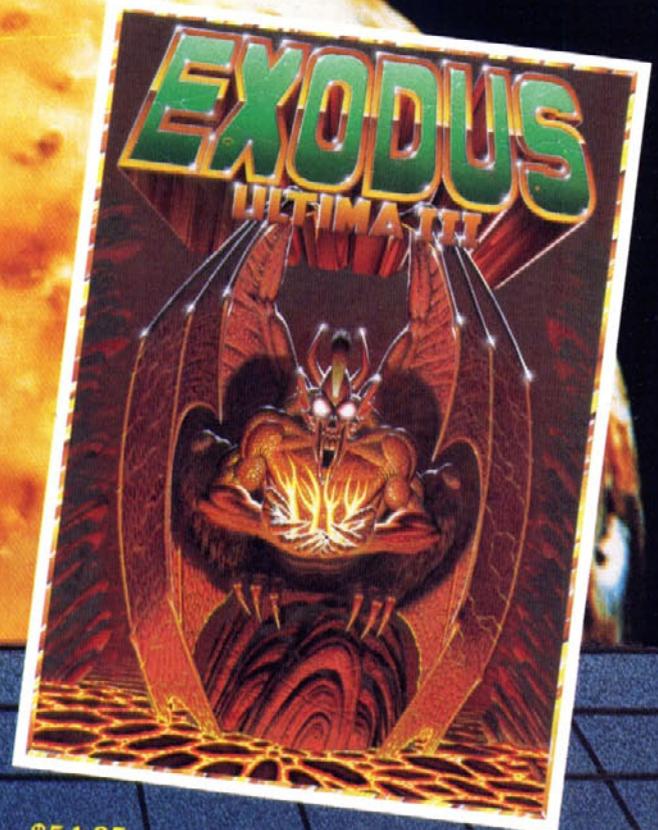


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GAME/PUBLISHER SCORE PLAYER

A.E. (Apple), Broderbund	241,900	Matt Schwartz, Andover, NJ
A.E. (Atari), Broderbund	*77,700	Bob Albright, York, PA
Action Quest, JV Software	*20,995	Michael Lurie, Lincolnshire, IL
Airstrike, English	*23,730	Dean Rekich, Prospect, PA
Alien Ambush, Peter Fokos	*105,380	Mike Hammer, Gaithersburg, MD
Alien Defense, Soft Sector Marketing	*185,750	Doug Azzarito, Gainesville, FL
Alien Rain, Broderbund	*2,784,900	Lamonte Cates, Chapel Hill, NC
Alien Swarm, In-Home	*1,055,000	Stephen Pitt, Sunnymead, CA
Alien Typhoon, Broderbund	*886,480	Clark Alyea, Bloomington, IN
Anteater, Romox	*250,606	Steve Neufeld, Norwalk, CA
Apple Cider Spider, Sierra On-Line	*1,110,000	Chris MacChesney, Fresno, CA
Adventure to Atlantis, Synergistic	*2,225	Steven Schwartz, Pittsburgh, PA
Arena 3000, Med Systems	*134,650	Warren Benson, San Jose, CA
Artesians, Rena-Soft	*13,178	Thomas Kirk, Huntington Beach, CA
Asteroids, Atari	*9,846,020	John Mellott, Orlando, FL
Astro Chase, First Star Software	*448,947	Bob Albright, York, PA
Attack at Ep Cyg 4, Romox	*36,834	Alro Anderson, San Jose, CA
Attack Force, Big Five	*2,737,350	Chris Quade, Chapel Hill, NC
Axis Assassin, Electronic Arts	*568,350	Kenneth Lui, San Francisco, CA
Aztec, Datamost	*Level 8/1,096,486	Peter Meyer, Carmel Valley, CA
Baja Buggies, Gamestar	*67.40 MPH	Jim Burkhard, Boonton, NJ
Bandits (Apple), Sirius	*1,689,890	James Feinberg, Chapel Hill, NC
Bandits (Atari), Sirius	*188,390	Barry Landgarten, Douglaston, NY
Battlesight, Versa	Level 5/1,260,500	Michael Susor, San Francisco, CA
Bell Hop, Hayden	*56.31	Curtis Weber, Diamond Bar, CA
Bezare, Southwestern Data	*164,602	Carl Webb, Vista, CA
Bez Off, Bez	*160,844	Brian Ford, Pasadena, CA
Blister Ball, Creative Computing	(1 Player) Level 11/1,271	Bruce Mah, Fresno, CA
Blue Max, Synapse	*Novice/30,180	Wade Tweitmann, Hawthorne, FL
Boa, Micro Magic	*Level 9/43,830	Steven Schwartz, Pittsburgh, PA
Bolo, Synergistic	*Level 9/10,017	Thomas Kirk, Huntington Beach, CA
Breakout, Atari	Progressive/4,580	Fred Di Cesare, Colchester, VT
Breakout, Atari	Double/2,656	Fred Di Cesare, Colchester, VT
Bug Attack (Apple), Cavalier	*1,000,924	James Feinberg, Chapel Hill, NC
Bug Attack (Atari), Cavalier	*54,385	John Thoring, Bayonne, NJ
Buried Bucks, Analog	Level 27/274,231	Mike Kerekes, Colorado Springs, CO
Buzzard Bait, Sirius	*9,110	Buell Hollister III, Shelburne, VT
Canyon Climber (Apple), Datasoft	*393,800	Kahl Doty, Gainesville, FL
Caverns of Freitag, Muse	*Level 9/19,823	Steven Schwartz, Pittsburgh, PA
Centipede, Atari	*5,445,080	John Mellott, Orlando, FL
Chicken (Atari), Synapse	*312,010	Karen Sowell, Jackson, MS
Cosmic Fighter, Big Five	276,560	Mike Bolduan, Lake Oswego, OR
Cosmo Mission, Astar Int'l	*8,540	Kaveh Ghazi, Teaneck, NJ
Cricketeer, Software Farm	55,360	Brian Gieler, Skokie, IL
Crime Wave, Penguin	10,600	Buell Hollister III, Shelburne, VT
Crisis Mountain (Apple), Synergistic	*367,596	Wei-How Chung, Seal Beach, CA
Crisis Mountain (Atari), Synergistic	*186,403	Frank Pennisi, Jr., Walnut Creek, CT
Colon Diversion, Cloud	*7,300	Chris Athanas, Topsham, ME
Crush, Crumble, and Chomp, Epyx	*1,283,900	Lee Stafford, Phoenix, AZ
Cyclod (Apple), Sirius	966,518	Rich Dellinger, Stillwater, OK
Cytron Masters (Apple), Strategic Simulations	*Level 3/27,200	Ken Mock, Walnut Creek, CA
David's Midnight Magic (Atari), Broderbund	*2,924,610	James Feinberg, Chapel Hill, NC
Dawn Patrol, TSR Hobbies	*18,207	Murry Burns, Tuscumbia, AL
Defender, Atari	*19,005,775	Jeff Griffen, Bellevue, WA
Defense Command, Big Five	120,380	Mike Bolduan, Lake Oswego, OR
Deluxe Invaders, Roklan	*26,850	Bobby Moy, New York, NY
Demon Seed, Trend	*28,330	Neil Kincaid, Topsham, ME
Dig Dug, Atari	*797,110	Paul Cunningham, Oklahoma City, OK
Dogfight, Micro Lab	*15,510	George De La Mater, Traverse City, MI
Donkey Kong, Atari	*160,800	Craig Millis, Des Moines, IA
Double Trouble, Bez	*41,546	David Levine, Potomac, MD
Dragon Fire, Dakin 5/Level 10	*Level 5/409,000	Brian Service, Exton, PA
Drelbs, Synapse	*51,730	Brad Labine, Concord, MA
Epidemic, Strategic	*783	Alan Chang, Honolulu, HI
Escape from Vulcan's Isle, Epyx	13,580	Roe R. Adams III, Hyde Park, MA
Evolution, Sydney	15,834	Michael Susor, San Francisco, CA
Exterminator, Winner's Circle	22,469	Theodore Chen, Potomac, MD
Falcons, Piccadilly	*301,750	Joel Frickhoeffer, Statesville, NC
Firebug, Muse	10,060	Steven Kahn, Jamaica, NY
Flying Saucers, Radio Shack	*1,210	Rajendra Singh, Chapel Hill, NC
Fly Wars, Sirius	98,190	Russell Willis, Glasford, IL
Fort Apocalypse, Synapse	190,809	Darryl May, Piedmont, CA
Frazzle, Muse	*56,850	Gary Penacho, Tallmadge, OH
Free Fall, Sirius	*28,432	Alan Chang, Honolulu, HI
Frenzy, Softape	*105,059	Curtis Weber, Diamond Bar, CA
Frogger (Apple), Sierra On-Line	*53,690	Lance LaRue, Burton, OH
Frogger (Atari), Sierra On-Line	*271,655	Tad Hamilton, New York, NY
Galactic Attack, Sir-tech	*6,320	Joseph Rossi, Pacific Palisades, CA

HIGH SCORES

HIGHLIGHTS

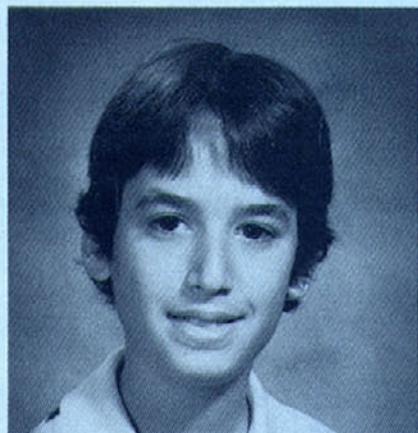
Scores can be accepted only when accompanied by the following: your name and full address, the name of the company that manufactures the game, your make of computer, and the level of difficulty on which the score was achieved, where applicable.

An asterisk indicates a verified high score and is bestowed only when said score is accompanied by the legal signature of a witness.

Send your high scores to High Scores, Softline, Box 60, North Hollywood, CA 91603. It would be appreciated if you could jot down the game name(s) and scores in a corner of the envelope.

Next High Scores deadline: 7:00 p.m. EST. December 9.

At first, it was just a shimmer on the horizon. Then a speck appeared there and grew, seeming to hover. Then the sound could be heard, as of a great wind from afar—a roll of thunder in the distance. The speck grew into a herd, and a cloud of dust rose behind it. The sound grew and took shape, becoming louder—a wave, a roaring, crashing tumult of sound, as a



H.S. to S.L.: He'd like to say this about that.

thousand thousand voices all shouted a single name in a unanimous demand:

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The Hymie Shellfrine Story. "I play computer games about four to six hours a day," reports Hymie Shellfrine. But now that school is in session, his playing has been cut down to "only about two or three hours," according to Bill Shellfrine, Hymie's father, a professor of English at

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him. You break into the hotel room and with your trusty .44 magnum, you knock him cold. When he comes to, will he talk or is it just another bum steer?

Anyone solving *Masquerade* will be asked to submit their final score to us. From the correct entries received by June 30, 1984 we will pick one name and award that person \$1,000.

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GAME/PUBLISHER SCORE PLAYER

Galaxy Gates, Magnasoft	*60,300	Steve Cloutier, East Greenwich, RI
Ghost Encounter, JV Software	*20/95	Brad Labine, Concord, MA
Gorf, Roklan	*64,530	Bob Albright, York, PA
Gorgon, Sirius	*85,220	Clark Alyea, Bloomington, IN
Grapple, Insoft	*215,500	Mort Goodman, Orange, CA
Guadalcanal Campaign, Strategic Simulations	*2,655	Greg Munsell, Las Vegas, NV
Guardian, Continental	*128,180	Tom McDonald, Huntsville, AL
Hard Hat Mack, Electronic Arts	*20,305	Matt Yuen, Van Nuys, CA
Hazard Run, Artworx	*138,830	Brad Sagarin, Carmel, NY
Heli-Lifter, Cload	*31,895	Chris Athanas, Topsham, ME
High Orbit, Gebelli	*28,860	Gilbert Huang, Stony Brook, NY
Highrise, Micro Lab	*Level 41/60,895	David Hussong, Palmdale, CA
Human Fly, CPU	*225	James Handy, West Chester, PA
Ice Cave, Winner's Circle	Level 5/25,950	Theodore Chen, Potomac, MD
Ice Demons, Morningstar	*(1 Player) 48,990	Steve Williams, Seattle, WA
Ice Demons, Morningstar	*(2 Player) 612,290	Dan Knight and Steve Williams, Seattle, WA
Invasion Force, Computings	*91,270	Joe Reitz, Barton, NJ
It's the Pits, Sage Brush Software	*47,150	Buell Hollister IV, Shelburne, VT
Jawbreaker II (Apple), Sierra On-Line	*536,790	Amy Hollister, Shelburne, VT
Jellyfish, Sirius	*448,100	Clark Alyea, Bloomington, IN
Journey to the Planets, JV Software	4,205	Ron Stanley, San Leandro, CA
Jovian, Computer Shack	*28,650	Neil Kincaid, Topsham, ME
Juggler, IDSI	*961,460	John Osborne, Menlo Park, CA
Juice, Tronix	*24,210	David Zeve, Dallas, TX
Jump Jet, Avant-Garde	*38,160	Aron Danburg, Houston, TX
Jumpman, Epyx	*Loop/Level 25/67,900	J. Ralph Sowell, Jr., Jackson, MS
Jumpman Jr., Epyx	Level 9/20,225	Dean Rekich, Prospect, PA
Jupiter Lander, Commodore	47,300	Chris Chekel, Granada Hills, CA
K-Razy Kritters, CBS	*291,100	Thomas Buchmann, North Hollywood, CA
K-Star Patrol, CBS	*50,690	Alro Anderson, San Jose, CA
Kid Grid, Tronix	*33,860	Bobby Moy, New York, NY
Labyrinth, Broderbund	*210,500	Darcy Higden, Livonia, MI
Laf Pak: Creepy Corridors, Sierra On-Line	*9,740	Wilbur Luo, Walnut Creek, CA
Laf Pak: Mine Sweep, Sierra On-Line	*9,533	Chris MacChesney, Fresno, CA
Laf Pak: Space Race, Sierra On-Line	*14,500	Steve Rothenberg, Mayfield Heights, OH
Laser Defense, Med Systems	*44,960	Chris Athanas, Topsham, ME
Laser Maze, Avant-Garde	*87,083	Mike Elliott, Muncie, IN
Lazer Silk, Gebelli	*896,550	Gilbert Huang, Stony Brook, NY
Leeper, Cedar Software	*12,400	Jerry Beauboin, Topsham, ME
Lemmings, Sirius	*143,435	Travis Ingram, Drayton Plains, MI
Lode Runner, Broderbund	*Level 83/773,875	Wayne Karolow, Danvers, MA
Lunar Leeper, Sierra On-Line	*174,560	Richard Bird, Cottage Grove, OR
Mad Netter, Computer Magic	*61,746	William Chiang, New York, NY
Marauder, Sierra On-Line	*Level 21/503,600	Clark Alyea, Bloomington, IN
Mars Cars, Datamost	*Level 30/64,670	Brian Ballard, Bow, NH
Megalegs, Megasoft	*19,009	Barry Landgarten, Douglaston, NY
Meteor Mission Two, Big Five	*100,780	Mike Bolduan, Lake Skyland, OR
Microbe, Synergistic	17,016	Bob Enna, Huntington Beach, CA
Microwave, Cavalier	53,499	Richard Olsen, Deerfield, WI
Miner 2049er (Apple), Micro Fun	*615,310	Gary Schmitt, Wheaton, IL
Miner 2049er (Atari), Big Five	*Zone 8, Station 10/ 582,205	Robert Rendahl, Torrance, CA
Ming's Challenge, Micro Fun	*36,470	Buell Hollister III, Shelburne, VT
Missile Command, Atari	*10,985,275	John Mellott, Orlando, FL
Money Muncher, Datamost	705	Tom Luhrs, Floral Park, NY
Moon Landing, Herb Sandy	*1,017	Kaveh Ghazi, Teaneck, NJ
Mountain King, CBS	Level 6/78,730	Dean Rekich, Prospect, PA
Mr. Cool, Sierra On-Line	Level 2, Round 12/749,337	Derrick Bang, Davis, CA
Ms. Pac-Man, Atari	37,520	John Allen, Mountain Lakes, NJ
Mutant, Great Lakes	*2,500,266	John Osborne, Menlo Park, CA
Nautilus, Synapse	*(1 Player) 154,400	John Mellott, Orlando, FL
Necromancer, Synapse	*204,651	Ron White, Great Barrington, MA
Night Crawler, Softape	289,407	Michael Tsao, Watsonville, CA
Nightfall, Omega	*Level 1/14	Craig Morris, Menlo Park, CA
Nightmare Gallery, Synergistic	*423,450	James Feinberg, Chapel Hill, NC
Night Mission Pinball, SubLogic	*749,653,240	Eric Gustafson, Eugene, OR
Norad, Southwestern Data	*Level 2/14,400	Larry Fisher, Miller Place, NY
Odyssey, Synergistic	*1,173,400	Casey Lamson, Tucson, AZ
Paddle Pinball, Radio Shack	*215,010	Chris Athanas, Topsham, ME
Pandora's Box, Datamost	*33,750	Colin DuPlantis, Bloomington, IN
Penetrator, Melbourne House	*15,810	Chris Athanas, Topsham, ME
People Pong, Unique Software	*18,925	Klaus Liebold, Poway, CA
Pest Patrol, Sierra On-Line	*Level 29/10,462	John Sullivan, Alford, IA
Phaser Fire, Datamost	*7,045	Christopher Chan, Trenton, NJ
Phobos, APX	*172,200	Bobby Moy, New York, NY
Picnic Paranoia, Synapse	*144,360	Jonathan Hopwood, Glastonbury, CT
Pie Man, Penguin	*425	Kevin Rehak, Woodland Hills, CA
Pillbox, Lord of the Games	30,700	Neal Naydo, Monterey Park, CA
Pogoman, Computer Magic	673,430	Jim Mahoney, Plainville, NY
Pole Position, Atari	*Level 1/101,650	Toby Crew, Southbury, CT
Pollywog, Top Notch	*294,765	Matt Yuen, Van Nuys, CA

California State University at Long Beach. Not surprisingly, Hymie excels in literature. He supports his gaming by tutoring Hebrew part-time. That allows him to buy about one game a month.

So where did all those high scores come from? From the practice of playing more games than one buys. Which is more than one should.

"Some of these games are, um, not bought," he reveals. Some he plays at a friend's house; others are given to him as trading copies, some of which have been altered and are not the original games. Thus, Shellfrine played versions of *Rear Guard*, *Bez Off*, et al., that scored in manners bearing scant resemblance to the scoring algorithms in the original, commercially available versions of these games. In terms of scoring, he was, in effect, playing different games.

That clears that up. The rest of the Hymie Shellfrine story concerns Shellfrine's original list of verified high scores. All parties confirmed verifying the scores. However, eleven of the fifteen scores on the list (not all highs) are verified by Bill Shellfrine. The verification for the score on *Microwave* is signed "Billiam Shellfrine." Hymie's father denies he signs or has ever signed his name this way.

The letter ends with the notation, "The following scores have been verified by the entire Shellfrine family. (Signed) Craig Shellfrine, father." Bill Shellfrine says that he (himself) is Hymie's only father, and that Craig is Hymie's brother.

On the matter of the divisible-by-nine *Bolo* score controversy, Shellfrine states that he did not start at level 9 but at level 7. "After completing two levels, I figured I was at level 9. However, I was never advanced past level 9. Call it a bug or whatever you wish, but do not call me a cheat." (Note: *Bolo*, or course, does not advance in levels. We can simply say that Shellfrine's figuring was off.)

"My parents verified every one of my scores and they will continue to do so until I do cheat. And my integrity will not permit me to do so."

"He's a good kid," says Bill Shellfrine.

And those are the facts. The truth is, as ever, a chimerical quantity and may be ultimately unknowable.

By mutual consent, due to the nonoriginal nature of some of the games he played, all Shellfrine's remaining scores have been removed from the records and the games restored to the previous record holders.

Moral: If the game is not bought, the score probably is not good.

Score Wars: Need we point out that any score on *Lode Runner* must be verified, and that that verification must verify the play of noncustomized levels, on the

original Broderbund disk, in sequential order, and from the scoreboard? We didn't think so. Although we'd like to disallow this one altogether and save ourselves a lot of low-level migraines, it's just too popular. Sigh. But as for you Commodore people playing *Stellar Triumph*: forget it!

David Zeve would like to know how Jim Burkhard got to 167.40 mph on *Baja Buggies* when the speedometer only goes to 80 mph. So would Jim Burkhard. It seems an overzealous typesetter added an extra digit to make Burkhard's achievement even more impressive-looking. Ahem.

David Hussong would like to know the level on which Steven Kahn beat his *Firebug* high; ditto Lee Stafford on *Gold Rush*. Giving such specs up front does make things easier for everyone, people.

And before the general outcry over Casey Lamson's *Odyssey* high gets out of hand—yes, the score did indeed cause a "greater than integer can handle" error. Paul Friedland of The Data Game store in Tucson, gives the lowdown: "We had to find the score routine in the program, print the variables, and figure out his score. He really did it, though. I stake my reputation as a professional gamer on it."

In his emotional acceptance speech for his high on *Bandits*, Craig Skare said he "would like to thank Sirius Software's Joyport, which made my score possible." Skare went on to thank the authors of the game, "Tony and Benny Ngo [who] made the game playable with an Atari-type joystick hooked up to the Joyport. . . . Without the Joyport, the score would have been much less and the game more awkward. Thank you, Sirius Software." Then he banged his head on the microphone, tripped and fell into the orchestra pit.

Let's roll the random electronic bones to see who gets this issue's trio of high scores prizes. It's \$33.33 this time out, giving the accounting department a nearly round figure to conjure with.

And it looks like . . . yes . . . yes . . . it's:

Apple: David Sneid, *Star Maze*

Atari: Frank Pennisi, *Crisis Mountain*

Overall: Mike Bolduan, *Meteor Mission Two*

Send your full addresses to Softline Winner, Box 60, North Hollywood, CA 91603, you all.

No kudos whatsoever to Doug Carlston, who got to level 81 of *Lode Runner*, had seventeen guys left, and fell asleep. "It was real late," mutters Carlston. How profoundly sad it is to see a young man with his social advantages and position so tragically squandering his potential. **SL**

GAME/PUBLISHER SCORE PLAYER

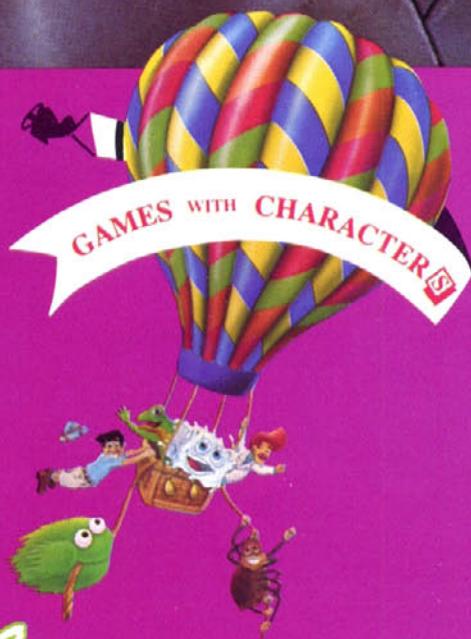
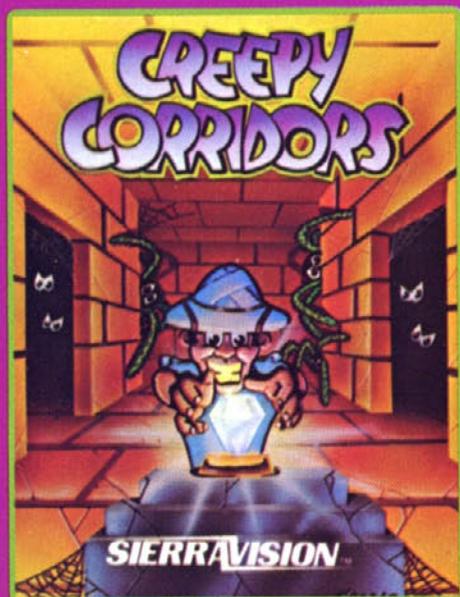
Pooyan, Datasoft	*833,000	Jon Salmon, Washington, IL
Preppie, Adventure Int'l	*140,120	Kermit Carter, Boise, ID
Preppie II, Adventure Int'l	*Level 5/40,150	Mike Kerekes, Colorado Springs, CO
Protector II, Synapse	*36,800	David Perrigan, Norwalk, CA
Qix, Atari	*727,794	Paul Cunningham, Oklahoma City, OK
Quadrant 6112, Sensible	*300,100	Clark Alyea, Bloomington, IN
Raiders of the Lost Ring, Cavalier	*191,210	Jeff James, Narragansett, RI
Rear Guard (Apple), Adventure Int'l	*321,475	Peter Alyea, Bloomington, IN
Repton, Sirius	*9,874,650	Keith Armonaitis, Rochelle Park, NJ
Rescue at Rigel (Apple), Epyx	1,557	Bruce Schlickbernd, Westminster, CA
Rings of Saturn, Dakin 5/Level 10	Level 4/636,968	Pat Volk, Pittsburgh, PA
Roadblock, SubLogic	374	Theodore Chen, Potomac, MD
Robot Attack, Big Five	*25,370	Rajendra Singh, Chapel Hill, NC
Robot Battle, Universal	*7,241,700	Jeff Miller, Franklin Square, NY
Rocket Command, Norell	*1,028,385	Pepe Caridad, Stamford, CT
Russki Duck, Gebelli	*375,000	Brian Schneider, Des Moines, IA
Sammy Lightfoot, Sierra On-Line	*69,120	Chris MacChesney, Fresno, CA
Sanitron, Winner's Circle	13,390	Theodore Chen, Potomac, MD
Scarfman, Cornsoft	*303,780	Roger Palmer, North Hollywood, CA
Sea Dragon, Adventure Int'l	*463,200	Doug Zavodny, North Hollywood, CA
Seafox, Broderbund	*202,850	Elizabeth Crowe, Saginaw, MI
Sentinel, Med Systems	*64,450	Tom Myers, San Jose, CA
Serpentine, Broderbund	*Level 275/75,433,900	H.A. Dickson, Dallas, TX
Shadow World, Synapse	*111,200	Robert Proudfoot, Long Beach, CA
Shamus: Case 2, Synapse	*100,815	Gene Bell, Jackson, MS
Shark Trap, Broderbund	*10,705	Matt Yuen, Van Nuys, CA
Sheila, H.A.L. Labs	*155,917	Scott Brown, Riverside, CA
Shooting Gallery (Atari), Analog	*28,620	Pamela Duke, Lompoc, CA
Shuttle Intercept, Hayden	*13,900	Clark Alyea, Bloomington, IN
Sigma 7, Bandinelli	*1,800	Blane Sibille, Jr., Opelousas, LA
Snake (IBM), PDQ Software	*468	Peter Quinn, Pinole, CA
Snake, Heath	*Progressive/282,550	John Picken, Garden Grove, CA
Snapper, Silicon Valley	144,759	Jean-Michael Decombe, Vauresson, France
Sneakers (Atari), Sirius	*Level 5/76,402	Frank Pennisi, Jr., Walnut Creek, CT
Space Album: Asteroids, California Pacific	7,212	Kyle Naydo, Monterey Park, CA
Space Avenger, Cload	*10,350	Chris Athanas, Topsham, ME
Space Eggs (Atari), Sirius	*4,740	Michael Zenner, Portland, OR
Space Invasion, SSM	*6 Racks/74	Chris Athanas, Topsham, ME
Space Kadette, Funtastic	*1,194	Rajendra Singh, Chapel Hill, NC
Space Station Zulu, Avalon Hill	Level 1/786	Roe Adams III, Hyde Park, MA
Space Warp, Radio Shack	*Level 8/255	Chris Athanas, Topsham, ME
Spectre, Datamost	22,600	Martin Hrovat, Slidell, LA
Starbowl Football, Gamestar	*College Level/28	Tommy Bennett, Jonesboro, LA
Spider Raid, Insoft	6,700	Michael Susor, San Francisco, CA
Star Cruiser, Nasir	*11,640	Alan Chang, Honolulu, HI
Star Island, Binary Software	*87,370	Tim Caldwell, Baltimore, MD
Star Maze, Sir-tech	Level 16/172,925	David Sneid, Shawnee Mission, KS
Stellar Escort, Big Five	*19,300	Chris Athanas, Topsham, ME
Stellar 7, Software Entertainment	26,920/Draxon	Ron Raffaelli, West Hollywood, CA
Stickybear Bop, Xerox Educational	Level 5/265,300	Michael Susor, San Francisco, CA
Stratos, Adventure Int'l	*Expert/82,100	R. J. Forbes, Oak Park, IL
Strike Force, Melbourne House	*433,900	Chris Athanas and Neil Kincaid, Topsham, ME
Succession, Piccadilly	10,300	Bill Elvey, Grand Rapids, MI
Super Puckman, ADO Software	*80,010	Stanley Chen, Potomac, MD
Survivor, Synapse	*(1 Player) 311,920	David Schlater, Metairie, LA
Survivor, Synapse	*(2 Player) 332,760	Alro Anderson and Dave Hildebrand, San Jose, CA
Swashbuckler, Datamost	*6,702	Frank Pennisi, Jr., Walnut Creek, CT
Teleport, Cavalier	*Level 61/69,750	James Feinberg, Chapel Hill, NC
Tharolian Tunnels, Software Farm	*134,607	Steven Gazis, Queens, NY
Thief, Datamost	303,600	Dennis Heaton, Adak Island, AK
Thunderbird, Urban Software	*1,000,800	Brian Hazard, Huntington Beach, CA
Thunder Bombs, Penguin	*20,360	Buell Hollister IV, Shelburne, VT
Triad, Adventure Int'l	*Level 9/102,870	Anand Kaucherla, Sugarland, TX
Tubeway, Datamost	*90,801	Jim Stockla, Shelton, CT
Tumblebugs (Atari), Datasoft	*38,785	Tad Hamilton, New York, NY
Tunnel Terror, Adventure Int'l	*336,790	James Feinberg, Chapel Hill, NC
Turmoil, Sirius	*83,540	Bobby Moy, New York, NY
U-Boat Command, Synergistic	*2,189	Peter T. Clark, Sacramento, CA
Viper, RDA Systems	*7,917	Doug Zavodny, North Hollywood, CA
Vortex, Datamost	*48,230	Lee Stafford, Phoenix, AZ
Wall War, Sierra On-Line	*68,940	William Chiang, New York, NY
Warp Destroyer, Piccadilly	*96,540	David Levine, Potomac, MD
Wavy Navy, Sirius	*88,780	John Osborne, Menlo Park, CA
Wayout, Sirius	*7	Rod Bonios, Van Nuys, CA
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Zargs, Insoft	*3,715	Christopher Chan, Trenton, NJ
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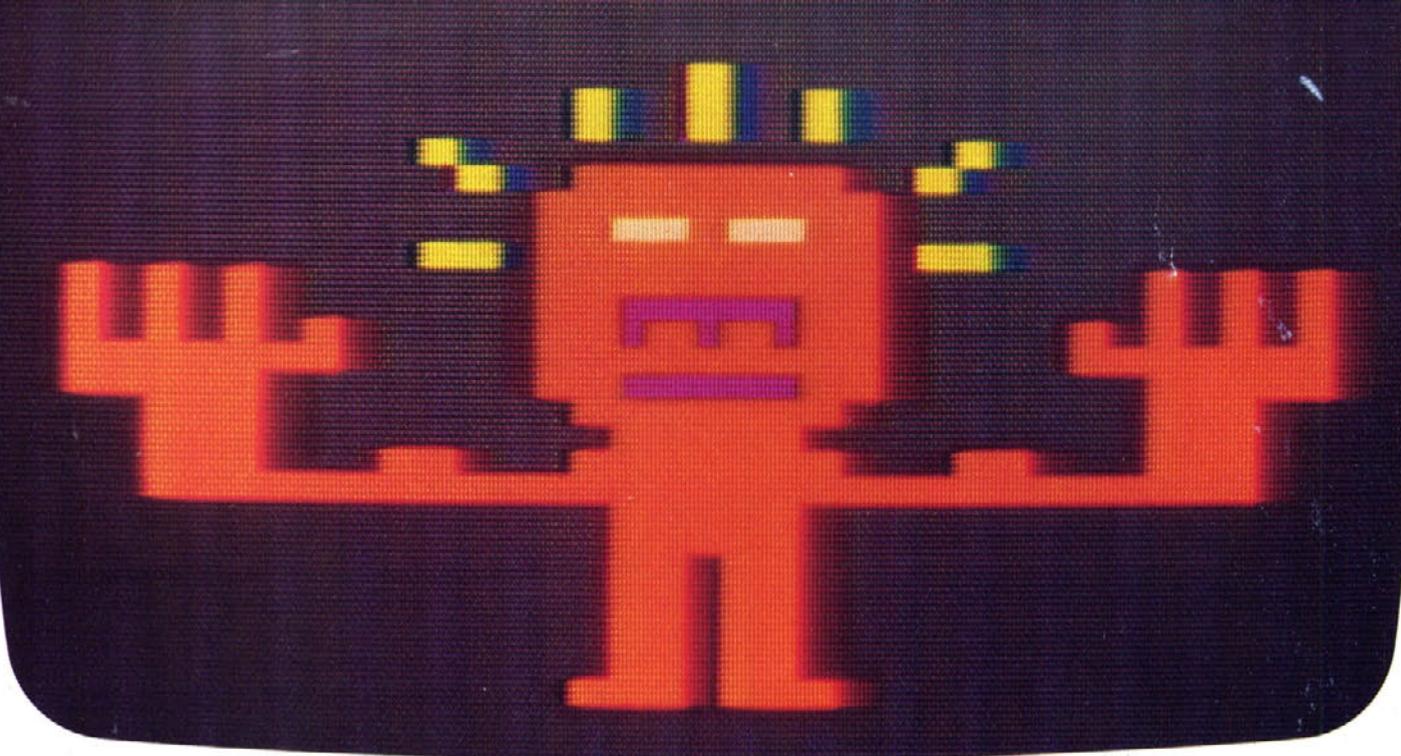


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