ON-LINE BIBLE ver 2.0 (1219-1226) 8 disks

ON-LINE BIBLE contains the entire text of the KJV version of the Old and New Testaments. The program allows extensive searches for a particular word, combination of words, and phrases. Selected text may be output to disk or to printer. This Bible set requires a hard disk. If you do have a hard disk, this is the Bible set to order.

BIBLE MEN ver 1.0 (1212)

"I was Paul's scribe who wrote Romans" . . . Who am I?" If you're answer is Tertius, **BIBLE MEN** will record your score and go on to another "Who am I" question. This is a nice menu-driven Bible game with hundreds of questions drawn from the Old and New Testaments. Press one key to show the correct answer, another key to show the scriptural reference. Supports 1 to 8 players.

HERITAGE CHURCH SYSTEM ver 1.01 (1213)

The **HERITAGE CHURCH SYSTEM** automates the most mundane clerical tasks of the local church. It quickly and reliably records contributions and membership information, thus freeing church personnel to perform other duties. The program is fast and very easy to use with its context-sensitive help screens and menus. Maintains information on families and individual members as well as visitors. Reports can be printed or written to disk. Included are files to set up mailmerge with Microsoft Word and PC-Write (Disk #809,810,811).

THE GREAT EXCHANGE (1214) ~NEW

This is a computerized adaptation of an evangelism method authored by Reverend David Vallesky, who is now a professor at a Wisconsin Lutheran Seminary. The program is an interactive slide show with screens and text to explain the basic message of the Bible. It is quite interesting and has been very well received. Requires 640K and EGA.

DAILY BREAD ver 2.0 (1233) ~NEW

This wonderful Bible calendar program displays today's day and date, a Bible verse for the day, and a daily Bible reading from the King James version. It may be run memory-resident and popped up over other programs. Follow the readings for one year and you will cover the entire KJ Bible.

THE SERVANT ver 4.0 (1227-1231) 5 disks ~NEW

This is the most complete and detailed church management program we've seen! This full-featured system is menu-driven and easy to learn and use. Covers EVERY conceivable church need. It tracks member data (even matches members to available home study groups!), attendance, skills, sponsors, experience, visitor records, and more -- MUCH MORE! Features a complete "Needs" file, education system, day-care system, accounting system, and inventory system. It even prints mailing labels and produces over 300 different reports. Includes far too many features and options to list here. Requires 512K and a hard disk with 4.5 MB of available space.

SCRIPTURE MEMORY ver 2.0 (1232) ~NEW

This unique and interesting program will help you memorize King James Bible versus the easy, enjoyable way. Menu-driven and simple to use, **SCRIPTURE MEMORY** displays graphic charts of your progress, performs word and topic searches, produces printouts, and much more. The program features the "Navigator's Topical Memory System." It takes you step by step through the process of initial memorization and review. Requires CGA, EGA, or VGA.

MATH, SCIENCE & STATISTICS

UNITS (2300)

An easy to use, menu-driven units conversion program. It includes a review of six common systems of units and provides a number of physical constants/relationships used in the sciences. Unit conversions for force, energy, mass, time, time rate of change, area, volume, length, and temperature. All calculations are performed using double precision arithmetic. The display uses scientific notation with the 'D' format.

KWIKSTAT ver. 2.0 (2301,2302) 2 disks

KWIKSTAT is a powerful, menu-driven system for performing statistical analysis with emphasis on graphics. Builds data bases, or imports ASCII or dBASE III files. Excellent reporting system. Features histograms, 3-D bar charts, box and whisker plots, scatterplots, survival and comparative curves, all typical tests of ANOVA, linear regression, multiple comparisons, and t-tests. Also life tables and survival analysis. Requires graphics monitor. Hard disk is recommended.

SPPC (2305,2306,2307) 3 disks

SPPC (Statistical Package for the Personal Computer) is a fully interactive statistical program that enables you to enter, manage, and analyze both simple and complex sets of data. You may store very large data sets on a diskette or hard disk file and choose from a wide range of statistical procedures for data analysis, including: frequency distributions, calculate simple descriptive statistics, conduct a wide range of parametric and non-parametric hypothesis tests, obtain numerous confidence intervals, conduct several types of simple and complex regression analyses, compute probabilities associated with a variety of continuous and discrete distributions, and much more. SPPC is very user friendly with its menu-driven user interface and an extensive set of on-line help screens.

STATISTICAL CONSULTANT (2303)

Designed to assist you in choosing an appropriate statistical test for a particular problem. You are asked a number of logical questions about your problem. You provide the answers (mostly yes/no), and the consultant determines the proper method for statistical analysis. The program assumes you have a heavy background in statistics.

SCICALC ver 2.0 (2304)

SCICALC is a collection of over 250 mathematical and physical tools in a calculator format. The program is completely menu-driven with pop-up windows, making it very easy to use. You simply choose a function and enter the values, and SCICALC will quickly give you accurate solutions. The functions are numerous and comprehensive, ranging from 103 different unit conversions to Fast Fourier Transform, Complex Number analysis, matrix algebra, and a wide variety of others. Requires CGA or EGA.

PERSONAL APT ver 1.2 (2318)

PERSONAL APT is a large subset of APT (Automatically Programmed Tools) - the oldest and most widely used NC/CNC programming language. PERSONAL APT provides 2 1/2 axis tool path control with a powerful set of math functions and geometric definitions that aid in the solution of complex problems encountered in Engineering, Drafting, and Design functions. Features include: Macro definitions and Looping capability; Integrated full-screen editor; On-screen display of programmed tools paths in XY, YZ, ZX, isometric, and perspective views; Zoom and Pan capabilities; and much more. This is a great program for solving complex math and geometric problems even if you don't need an NC/CNC programming system. Requires 384K and a graphics monitor.

DPLOT ver. 1.0 (2320)

DPLOT is a menu driven, programmable plotting program that reads, manipulates, plots and prints ASCII data files with up to 16,384 X,Y data points. This is an effective tool for any application requiring visual representation of data. Features include: Plotting of unlimited size data files; Plots multiple files, multiple curves; Linear, log, and semi-log scaling; Manual- and auto-scaling; Manipulates data files, including biasing, scaling, transposing, rotating; Full programmability of plot appearance on screen and printer; and much more. Output to most graphic dot matrix printers. Requires CGA, EGA or VGA.

POLYMATH ver 4.0 (2319)

POLYMATH combines scientific/engineering plotting, a programming language, an editor, and a comprehensive documentation system into a flexible, easy-to-use interactive calculator-like environment. Perfect for developing scientific applications. The continuous display of a floating point and alphanumeric stack makes it ideal for tinkering with a new idea or algorithm. Also great for students and beginning programmers who need to try out new concepts. POLYMATH plots functions directly (w/autoscaling) or from a file; creates a plot from a menu, command, input file, or program; assigns functions to function keys; programs by extending the language with new functions; programs object-oriented data structures; choice of algebraic or reverse-polish notation; and much more. Includes an extensive on-screen tutorial. Supports all graphics cards.

MATH POWER (2322)

SCIENCE EQUATION SOLVER 1.0 - Sophisticated scientific calculator uses algebraic notation and 2X-precision floating point math. Includes trig, hyperbolic, exponential, log, roots, factorials, absolute value(x), convert radian-degrees & degrees-radians, permutations/combinations, advanced erf(x) and gamma(x), and more. Also user-defined functions with any number of arguments. Assign variables in one statement, then use in another. Numerical solutions of equations. An equation solver solves for any variable.

PLOT 2.1 - A quick, easy-to-use set of tools for technical plotting. Handles rectilinear [Y=f(X)], polar, and vector plotting; then allows review of tabulation of all plotted points, except vector. Also provides integration capability to find the area under a curve, and plots two simultaneous equations. Enter equations in standard equation format. On-line master help file describes each program function in detail. Requires CGA and BASICA, GW-BASIC, or equivalent.

HEX/DECIMAL/BINARY CALCULATOR 1.0 - A 16-bit, hex, decimal, binary calculator for programmers. Includes on-screen help. Requires CGA, EGA or VGA.

PROTAB ver 1.1 (2308) ~NEW

This statistical calculator is an easy-to-use, interactive tool for fast quantitative analysis of small data sets. The statistics available include single and paired distribution, ANOVA, correlation and regression, and crosstab analysis. No

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knowledge of programming is required. You need only a basic understanding of elementary statistics. Features include: Fully menu-driven, edit and sort data, up to 200 observations per data set, output analysis to screen or printer. A sample data file is included for instructional purposes.

XACT SERIES CALCULATORS ver 3.0 (2309) ~NEW

The XACT series consists of three programs which emulate the HP-11C Scientific, HP-12C Financial, and HP-16C Programmer's Calculators. Though capabilities are a bit less than in the registered versions, these programs are EXTREMELY powerful! The documentation on this disk assumes you are already familiar with the operation of the three HP calculators.

TECHNICAL

ELECTRO-HELPER (2321)

ELECTRON ver. 1.3 assists the electronics/electrical student, hobbyist, technician, electrician and engineer with an amazing variety of related tasks. The program performs calculations, provides tables and drawings, and even designs circuits. The following is only a partial list of ELECTRON's features: D.C. Ohms Law, 555 monostable or astable multivibrator design, convert degrees F to C and C to F, parallel resistor calculations, display various motor schematics, design zener diode ckt. for power supplies, calculate dB gain/loss, wire size table, find conductor size of known amps, Xformer leads color coding, design constant voltage speaker ckt., 1 or 3 phase full-load motor currents, calculate true power, design balanced or unbalanced atten., resonant freq. calculations, pump horsepower requirements, and much more. Requires CGA.

MOTOROLA DISCRETE DATA DISK (2401)

This is a high-speed discrete device selection guide on disk, helping the student, hobbyist, technician, and engineer to select the best device for new designs and for better, more cost-effective substitutes for existing designs and repairs. Developed by Motorola, the program covers every discrete device in Motorola's inventory: 58 product categories, more than 7,000 devices, and over 20,000 cross references. Everything is covered, including transistors, diodes, optoelectronic devices, sensors, transient suppressors, etc. Full technical data on each device is provided, as well as cost information. Searches are made parametrically (by various device characteristics) or by part number. Progressive disclosure and intuitive operation make using the program fast and simple.

PC-CALIB ver 1.03 (2402)

PC-CALIB is a menu-driven calibration program for laboratory analytical instruments. It allows you to define your calibration procedure, after which you enter the measured values of your selected standards and develop the calibration curve using one of four equation types, and fitting a least squares 1st or 2nd order polynomial. Finally, you enter the measured values of your unknown samples and controls and evaluate their concentrations using the calibration curve. You can create an ASCII data file from your measured samples which can be exported to another program for further analysis. Important features include: 3 though 8 calibrators; 1, 2, or 3 replicates per calibrator; equation types are mv vs concentration, Log (mv) vs concentration, mv vs Log (concentration), Log (mv) vs. and Log (concentration); 1st or 2nd order of fitted polynomial; choice of 12 calibrator units; 0.00001 through 999999 calibrator values; auto-scaled graphical display of calibration curve; high and low, or none, out-of-range limits; up to 200 sample batches; up to 24 samples/batch; 1, 2, or 3 replicates/sample; up to 9 discrete controls; 25 character (max) batch ID code; 16 char. (max) sample ID code, and 1-9 control ID code; etc. Requires 512K, CGA or EGA.

ANYANGLE ver 1.0 (2400) ~NEW

An easy-to-use, feature-filled triangle solver for students, engineers, builders, machinists, surveyors, carpenters, etc. that requires no math knowledge. Solves any triangle given the minimum amount of data, and always knows when enough data exists to solve the angle. Includes many options. Allows easy tinkering with solved triangles for custom fit and design work. Analysis includes area, perimeter, altitude, coordinates of vertices, and data about the inscribed circle and circumcircle. Data can be saved and printed. Requires CGA.

COORDINATE GEOMETRY ver 1.22 (2403) ~NEW

This is an extremely powerful surveying/civil-engineering program for defining any shape (simple to complex) in terms of its geometry, and then computing solutions. It is a formal defined system of data entry which accepts input variables, then calculates resultants with 14-digit accuracy. All computations, input, and output are relative to a coordinate grid assumed by the user. This is a PC version of the mainframe COGO, except this program is far easier to use. Requires 640K, a graphics monitor, and 2 floppy drives or a hard disk.

HELPFUL ENGINEERING PACK ver 2.0 (2404) ~NEW

A powerful, menu-driven tool for engineers, designers, draftsmen, numerical-control programmers, etc. Features include: Solves numeric constant and variable expressions; Uses variable, numeric, and expression inputs to solve triangles, points, circles, areas, and polynomial fit; Statistics (Find mean, deviation, variance, standard deviation, etc.); Computes deflection and stress in beams; Helical spring solver; and more. Requires 320K and CGA.

MEGACALC ver 1.01 (2405) ~NEW

This powerful full-featured menu-driven calculator has 9 memory stacks and over 120 functions, including math, trig, geometry, scientific, financial, and statistical. The program is well designed and extremely impressive, but doesn't include an instruction manual. Most of the functions are easy enough to use without it, though. A few, however, are complicated so you might not know how to use their full potential. The author hopes you'll be impressed enough to register **MEGACALC** for $29.95, after which he'll send you the manual. We normally don't include software without documentation in our library, but we feel this is one program you should take a look at.

MUSIC

PIANOMAN (2202)

PIANOMAN is an enjoyable tool for the computer composer. This package includes powerful features for creating, editing, and playing music. You can create musical .EXE files for direct execution from DOS, or a number of other formats like Turbo Pascal. Compose intricate 1, 2 and 4 voice music by ear or by using on-screen sheet music. Easily control functions such as tempo, staccato, harmony, etc. Several very good examples of music are provided. Everything you need to compose sophisticated symphonies - you provide the "stereo system." Version 4.0 is a major new release.

PIANOMAN DOES BEETHOVEN! (2200) ~NEW

This disk contains 5 keyboard works by Beethoven. They were expertly produced by Nancy Moran using the PIANOMAN software program (see Disk #2202). The music files run independently without need for special hardware or software except for your computer. They demonstrate the level of sophistication you can achieve using PIANOMAN, and technical notes on the use of that program and music theory are included. The files adjust their tempo to the speed of your computer.

1-2-3 BACH! (2201) ~NEW

More great PIANOMAN music from the talented Nancy Moran. This disk contains 12 works from Johann Sebastian Bach. See Disk #2200 for more information on this music series.

PIANOMAN GOES BAROQUE (2204) ~NEW

More great PIANOMAN music from the talented Nancy Moran. This disk contains 10 works from four lesser known composers of the Baroque period. See Disk #2200 for more information on this music series.

CHRISTMAS CONCERTS (2205) ~NEW

This disk contains two Christmas concerts. They were produced by Nancy Moran who put the music creation program PIANOMAN (Disk #2202) to its best use. There are 13 carols in each concert including a special holiday introductory sequence for each concert. There are a total of 24 different carols comprising 40 minutes of great holiday music. You can play the carols individually, or you can organize your own concerts by selecting the order in which the carols are played. The music is quite elaborate and ranges from two to five harmonic parts.

COMPOSE and COLLECT (2203)

SONGEDIT allows you to easily create musical compositions. The interactive editor is used to play your tunes and return to edit them. Other features include on-line help, list files, load, play, transcribe, and save musical compositions. You can link up to 6 songs together to create larger compositions. The program is based on the Basic programming "Play" statement. Songs can be saved as files to be played by SONGEDIT or as Basic files that can be used in your own Basic programs.

SONGBASE is a record collection database. Information is stored listing the artist, song title, album, year published, and personal comments. You can add records and search records by artist's name or song title. The program is menu-driven and includes a ready-made database of almost 700 titles.

GAMES

NINJA (201)

A great, commercial quality arcade game. You are the greatest Ninja warrior in the land. Your mission is to capture the seven precious idols which are scattered throughout the rooms of the fortress of death. You will battle karate and judo experts with knives and skills equal to yours. You can use the keyboard or joystick for various styles of kicking, punching, star and knife throwing, jumping, and sword fighting. Jump through trap doors to enter different game levels. No more games on this disk folks - NINJA's full motion commercial quality graphics use all available space. Requires CGA or EGA.

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NCR GOLF (202)

This is an excellent golf game. It is based on the Dayton, Ohio 18 hole South Course which was the site of the 1969 PGA championships. Includes green slopes, water, wind, sand, etc. You have the options of club selection, swing strength and direction. When you make it to the green of each hole, the screen zooms in on the green for putting. Color graphics are excellent. If you like golf, you'll really enjoy NCR GOLF. Requires CGA or EGA and a color monitor.

PC PRO-GOLF ver. 4.2 (263)

PC PRO-GOLF is a highly entertaining 18-hole golf game with very good graphics. Includes water hazards, sand bunkers, woods, buildings, roads, out-of-bounds, penalty strokes, score card, and more. Player selects clubs, direction and force of swing, and may save unfinished games. GOLF COURSE CONSTRUCTION SET is free to registered users. Requires CGA or EGA.

DIGITAL LEAGUE BASEBALL ver 1.1 (203)

This baseball simulation game goes beyond sound and statistics by diplaying actual play with arcade graphics. As a manager you are armed with all past statistics, and you make all the offensive and defensive strategic decisions: Player lineups, when to steal, run, hit, pinch hit, bunt, walk, substitute players, tag up on fly balls, etc. Complete stats are always available. The game is in your hands and is played out with animated graphics and sound effects. Requires CGA or EGA.

3-D CHESS (205)

The best chess program we have ever tested. You can switch between the standard top down view and a 3-dimensional view which is truly spectacular. Complete on-line help is a real blessing because the options will dazzle you: View the board from the opposite end, ask the computer to take the next move for you, ask the computer to suggest a move, take back the last move. And much, much more. Play an opponent or against the computer with 13 levels of play (easy to Championship). Clocks, sound, en passant, and 50 famous master games to watch in demo mode. A must-have program for chess fans. Requires CGA, EGA or Hercules graphics card.

SIMBASE ver. 2.1 (206,207) 2 disks

SIMBASE (Baseball Simulation Program) simulates baseball games. It provides you with a detailed probabilistic model of the game, driven by actual player statistics. You can analyze the value of a particular player or a group of players over the course of one or more full seasons. You can review the pluses and minuses of different player lineups. SIMBASE provides a framework within which you can forecast the likely outcome for a full baseball season. You can use the program to help you assess current or historical win-loss records in the major leagues, or you can use it to help improve the prospects of your own local team. The program includes a database with statistics for all 26 major league teams. Requires 2 floppy drives or hard disk.

PC-RAILROAD (210)

The next best thing to a real model railroad. Put on your engineer's cap and navigate up to 5 trains on any one of 37 predesigned railroad routes. You control the speed, direction, and track switching. All seems simple at first. But the more trains you roll out, the more skill you will need to keep everything under control. Also included is the **PC-Railroad Route Builder** to custom design your own routes. Requires CGA or EGA.

FORD SIMULATOR (211)

Ford Motor Company introduces **FORD SIMULATOR**, an exciting, entertaining driving simulation program. Choose one of 16 different car models, select the course you wish to try your skills on, buckle up, and prepare for the drive of your life (simulated, that is)! Courses include touring, slalom, grand prix, and drag strip. Controlling your speed allows you to adjust the level of difficulty from easy to outrageous. Requires CGA or EGA.

FORD SIMULATOR II (280,281) 2 disks ~NEW

Ford Motor Company's new driving simulator offers excitement galore! This 2nd-generation program from Ford includes a test track with 3 track options, a city challenge (3 locale options), and a back roads course (5, 10, & 15 miles). Try your luck on the test track and see if you can handle the tight turns and obstacles; negotiate the hair-raising freeway traffic in City Challenge; or go for a Sunday drive on Back Roads, but watch out for slow moving trucks, 'cause they're NOT watchin' out for you!!! Features 3 difficulty levels per game, an electronic showroom, and a Ford infocenter and buyer's guide. Operates from your keyboard, Microsoft/compatible mouse, or joystick. Requires 512K and CGA.

CRIME LAB (279) ~NEW

This is a unique 'who done it' graphic game that requires you to solve murder mysteries. After you learn the basics of blood-typing, you're off to the lab to analyze blood samples. From the results you must determine who is the guilty party. This game is educational as well as fun. Requires CGA, EGA or VGA.

COMPUTER CARD GAMES (214)

This disk includes some of the best card games for the IBM: **CONTRACT BRIDGE**, **DRAW POKER**, **CANASTA**, and **HEARTS**. All games were written by the same author, and they have the same good look and feel. You select each game from a menu. On-line instructions provide information about the background, rules, and play options for each game.

WORTHY OPPONENT (247)

Four competitive games in one menu-driven integrated package: **CORNERSTONE** is an Othello game; **SNAKE PIT** is fast paced action where you must eat other snakes before they eat you; **CANNONBALL RUN** is a shoot 'em up game where you try to blast the cars of your opponent's train; and **CHECKERS**. Two players can compete against each other on one keyboard or by two computers connected by modem. Features include a talk window that allows players to converse while playing, context sensitive on-line help, a clock used for handicapping, and much more. Requires color monitor.

ARCADE GAMES #1 (216) Requires CGA

SPIDERS is a real nightmare. A mass of hairy spiders descend on webs from the top of your screen. Your poor little hero is on the bottom of the screen armed with his laser. You have to shoot down the spiders before they reach the floor. Laser fire must be accurate or else you'll run out of ammo and have to wait for a recharging unit to appear. If any spiders reach the floor, you must resort to stomping on them with your shoe. 10 levels of play from easy to incredibly difficult. A great, action-packed arcade game.

TANK WARS pits you against the computer or a human opponent. Your tanks face each other and are separated by a hill. The first one to get blasted loses. You have control over trajectory, tank movement, missile velocity, and force shields. In addition to the enemy tank, you must deal with wind factor and a hot air balloon that tries to drop bombs on you. 2 levels of play.

DISK CRASH challenges you to maneuver a floppy disk (not a real one) through a grid. You start at the bottom and attempt to reach the top. But you must avoid the magnets that are dropping all around. If you get hit 3 times, your disk will be magnetized and your mind will go blank.

ARCADE GAMES #2 (217) Requires CGA

STRIKER places you in control of a helicopter whose mission is to navigate various tunnels in order to complete five separate missions of skill. Various obstacles, including 5 different kinds of aliens, gun turrets and missiles, try to keep you from completing your mission. You have two means of defense (bombs and bullets) to shoot down the various aliens and obstacles for points. An indicator displays fuel supply. You must refuel from time to time to avoid crashing. Keyboard or joystick control. This is very challenging version of Choplifter.

REFLEX POINT - Your mission is to destroy a base which has been set up by aliens who have invaded Earth. You will use motor cycles that are transformed into body armor, and jets that transform into robots. In reaching the base, you must avoid pot holes and alien laser fire. Good luck!

ARCADE GAMES #3 (218) Requires CGA

ROUND42 provides 42 challenging rounds of exciting arcade action. Astroblast your way through each level. But beware! Each round gets more difficult. Beautiful color graphics, great sound effects and music. The more you play, the more it becomes apparent that there are certain strategies you must employ in order to reach the 42nd round. This game is addictive.
WILLY THE WORM is a neat, multi-level jump and chase game. Included is a program that enables you to create your own games by easily designing custom screens.

SOPWITH is a nice flying ace game from the World War I era. You control your bi-plane to engage in exciting dog fights, fire machine guns, and drop bombs on targets.

ARCADE GAMES #4 (219) Requires CGA

3-D BALL is a three dimensional racketball game for 1 or 2 players. The 3-D effect is really excellent as the ball bounces off the walls, floor and ceiling.

ZAPSHOT is a shoot 'em up game against space aliens. Sort of like Centipede but has a flavor all its own. Six levels of play, keyboard or joystick.
BATALIA is a super hide and seek shoot out game for 2 players. You and your opponent do battle in various mazes. You try to shoot each other and keep from getting shot by hiding behind the maze walls.

ARCADE GAMES #5 (220) Requires CGA

ROCKETS - Engage your starfleet in a space battle with the alien ships. A heavy laser blast 'em up game.

SNEESNOO SNAKE - You're a herpatologist who must catch rare breeds of snakes in Amazonia. If you don't bag 'em, they'll bite you (five venomous bites and you're dead). Scores based on how many snakes you bag per minute.

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XONIX - A great logic/reflexes game. You must enter and section off a rectangle as you avoid getting hit by bouncing balls. 9 skill levels. Very challenging to mental and physical reflexes.

NEMON - Move from room to room and capture the jewels from the catacombs. Avoid cave-ins, fireballs, etc. Blast the enemy with your magic beam. A great test of logic, reflexes, and memory. 9 skill levels.

SPACEWAR - Battle another player or the computer in space. Destroy enemy ships with photon torpedos, phasers, etc. Defend your ship with a cloaking device, warp into hyperspace, etc. A lot of skill to master this one.

ARCADE GAMES #6 (212)

DR. SLEEPTITE & the NIGHTMARE FACTORY - You must traverse 6 levels of the mad doctor's nightmare factory, destroy the nightmare capsules, and shut down his dream machine. While you're being chased by killer pillows, you must deal with acid pits, transformers, disappearing bridges, ladders, elevators, and more. Requires CGA or EGA.

CLONE INVADER is an excellent, new reproduction of the classic SPACE INVADERS arcade game. Supports CGA, EGA, and 256 color VGA mode. Uses keyboard or mouse.

ARCADE SPORTS GAMES (223) Requires CGA or EGA

PC-POOL is a fantastic pool game for 1 to 4 players. You have complete control over every aspect of the game - ball speed, english, direction, etc., etc. You can go back a turn, look ahead, and so much more that we'd need a couple of pages to describe all the options. The table and balls look totally realistic, and the sound effects are exactly like billiard balls striking each other. Play 8 Ball or Straight Pool. This is as close as you'll ever get to the real thing.

PC-BOWL is a bowling game for 1 to 4 players. You control the position of the bowler and the curve of the ball. Scores are displayed on-screen on a standard bowling score sheet.

ARCHERY is a bow and arrow game for 1 or 2 players. You release an arrow from varying distances at a moving target. There are 5 rounds with three arrows each. Scoring is based on accuracy.

MONO ARCADE GAMES (243)

Seven arcade games that work with monochrome monitors (with or without a graphics card).

HORSERACE - 1 to 10 players, keep odds on up to 100 horses, add/delete/buy/breed horses, borrow money, pay back loans. Bet to show, place, win. Watch 'em race.

BEAST - You're in a maze of movable blocks, and the nasties are out to get you. You have to squash them between the blocks. Very challenging multi-level game.

PACKGIRL is a MS. Pac Man clone. Choose level of play, including championship board.
SKIING - Test your skills down the slopes, maneuver between trees and traps.

FIRE FIGHTER - Fight forest fires by dropping water, building fire breaks, starting backfires. Three levels of difficulty. A real chess match against the flames.

BUGS - A Centipede clone. Lots of action as you shoot those little buggers.

DEPTHCHARGE - Drop depth charges on passing submarines. Test your accuracy.

FAVORITEGAMES (221) Requires CGA

BERT and the SNAKE is a clone of the commercial game Q-bert. Bounce Bert up and down the 3-D blocks and avoid the snakes.

FROG is a clone of the commercial game FROGGER. You must get your frog across the river and avoid the floating logs, etc. Four skill levels and various speed options.

BOUNCING BABIES requires you to catch the babies that are being thrown from a burning building. Requires good reflexes.

3-DEMON is a 3-Dimensional maze game where your perspective is from inside the maze. You must descend through various mazes, run through the hallways, and avoid being eaten by the ghouls. A very good game.

PACKMAN is a clone of the commercial game Pac Man. Optional keyboard or joystick control. Multi-level play that gets more difficult the longer Packman survives.

PANGO requires that you clear bees from a field by squashing them with blocks. Includes 5 skill levels and optional joystick or keyboard control.

CLASSIC GAMES (222) Requires CGA

FLIGHTMARE is a 3-D battle game in which you shoot down enemy planes and bomb motorcycles. Provides you with side and top view perspectives.

FREESTYLE and **MASTER BLASTER** are two pinball games created with Software Arts Pinball Construction Set.

BRICK is an excellent version of the classic game of Breakout. You use your paddle to deflect a bouncing ball into a wall in order to break out all the bricks.

RATMAZE is a 3-D maze game in which you are a laboratory rat that must find the hole in the maze floor before the game clock runs out.

SPACE COMMANDER is a Centipede type shoot the aliens game. Includes 5 skill levels.

ASSORTED GAMES #1 (224) Requires CGA

PARATROOPER is a neat game in which you must shoot down helicopters, paratroopers and bombers. If four paratroopers land on either side of your gun, they will destroy you. Requires quick reflexes and makes you crazy. Great fun!

PITFALL has you falling through an endless pit that keeps changing shape. You have to respond quickly with the cursor keys to keep from getting crushed against the walls.

ARMCHAIR QUARTERBACK is a strategy game with nearly all the aspects of professional football. You select two teams from a roster of all NFL teams. Plays are chosen from a menu and results of each play are displayed.

FIRE FIGHTER requires that you fight forest fires by dropping water, building fire breaks, and starting backfires. Three levels of difficulty. This is a real chess match against the flames.

PCFUN includes three arcade games in one package: **FALLING STAR**, **KILLER BEES**, and **COSMIC CRISIS**.

ASSORTED GAMES #2 (262) Requires CGA or EGA

PEGOUT is a solitare game played with pegs. You must make checker-like jumps to remove all pegs but one. The remaining peg must end up in a specified hole. The game is challenging and you can customize your own boards for variety. Supports CGA and EGA graphics.

SEAHUNT is a great sea battle game much like the commerical game "Battleship." You must sink the computer's navy before it sinks yours.

GAPPER tests your dexterity as you try to color all blue lines red by move your man Gapper around a grid. You are persued by the deadly "Seeker" and the level of difficulty increases with each win.

ELEVATOR is fast paced action as you attempt to maneuver your man through progressive levels without getting crushed by frenzied elevators or running out of time.

SOPWITH2 is a second version of the classic WWI air battle game. You have full control over your biplane, machine gun and bombs.

PINBALL GAMES (225) Requires CGA or EGA

This disk includes 10 pinball games which can be played by 1 to 4 players. Just like the real thing (except there's no machine to tilt). These games were created using Software Arts Pinball Construction Set. Games include: **ITALIA**, **CENTER FIELDER**, **STAR GAZER**, **MYSTERY**, **NOID** (of Dominoes Pizza fame), **TIMEWARP**, **TOPGUN**, **CYCLOPS**, **HEART**, and **WIZZARD**.

BASSTOUR ver. 4.0 (258)

BASSTOUR is a great fishing tournament game thats jam packed with options. You have complete control over your trolling motor powered bass boat. It's fully rigged with a rod box that offers a choice of 6 rods, an LCD chart recorder, and a tackle box stocked to the hilt. Select from 6 lakes and set out to win the 3 day tournament by catching the heaviest five fish limit on each day. Includes terrific graphics (especially on EGA systems), sound effects, and a real test of your skill. Requires 512K and CGA, EGA, or Hercules monochrome graphics card.

STRATEGIC WAR GAMES (226)

WAR ON THE SEA is a high level strategic and tactical simulation of typical World War II naval campaigns. You select your navy from a large stockpile and the campaign you wish do battle in. Your navy is then deployed into different fleets that will be attached to the theaters that are involved in selected campaigns. Winning over the computer requires careful selection and application of resources. When your navy is ready for combat, a theater map displays the layout of the battle along with vital statistics. To win a battle, all enemy surface ships must be removed either by sinking or disabling them. You can choose from 7 naval campaigns. This is a first-class war strategy game with enough options to keep you up all night.

AFRICAN DESERT CAMPAIGN is another great war strategy game. Allied and German forces battle on the African Desert. Full screen map displays the terrain, army positions, etc. You select all of your moves from a menu. You can reinforce or separate your troops, view continually updated battle statistics, etc. Very challenging.

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TANK requires that you do some careful calculating. Your base is under attack by three tanks. Your arsenal contains 21 missiles, and you must not allow enemy tanks to come within 100 feet of your base or can kiss it good-bye. "Radar" readings yield the enemy's distance, but you must calculate the angle of your shots. Every time you fire and miss, the tanks move in closer. Accuracy reports help you determine how to set up your next shot.

CLASSIC WAR GAMES (267)

FRIGATE is a strategic game which pits you and your ship against a Soviet fleet of vessels. The object of the game is to destroy as many Russian ships as possible while avoiding destruction. Your nuclear powered guided missile frigate has many advantages over its Russian counterparts, but you are outnumbered by a large margin. Your equipment includes radar, sonar, jamming equipment, anti-missile capabilities and three types of ordinance. Your ship's information and position are updated constantly while you give commands.

MAXIMUS is a combination wargame, trading game, and adventure game. As a power hungry Roman Questor, your objectives include seizing 20 cities, incorporating them into the Empire, and building monuments to the Emporer. Your options involve commerce, construction, war, and trade. Requires color monitor.

WHEEL OF MISFORTUNE & LAWN MOWER (227)

WHEEL OF MISFORTUNE is very much like the famous TV game show. Two to six players compete to solve a puzzle involving a word or a phrase from various categories. Features are familiar if you watch the show on TV. The one serious shortcoming is the absence of Vanna White. Maybe we'll see her in an updated version.

LAWN MOWER is a challenging game and will ring familiar if you ever cut lawns for pay when you were a kid (maybe you are a kid). You cut your neighbor's lawn by maneuvering a lawn mower with the cursor keys. You must avoid hitting trees, shrubs, swimming pool, etc. You must also steer clear of deadly gophers, holes, and a vicious dog. Hitting objects dulls the blade of your mower (or wrecks it entirely), eventually sending you to the shed for a new blade. 3 levels of play, 8 user-selectable speeds, 3 mowers per game. The faster you finish mowing, the more money you earn. This game is fun and really cute.

MAZE ver. 3.0 (278)

Are you ready to explore the unknown? You're about to be trapped in the center of a randomly generated maze, the size of which you have specified (from a 2 x 2 to an 80 x 80 maze). You are shown a realistic 3-D view of the room you are standing in. An interesting and different maze is produced for each new game. Features include: Allows 3-D view during maze exploration exactly like that encountered when exploring caves; As you move from room to room, the system reports whether you are further from or closer to the exit; Provides many options, including game clock, use of a compass, and ability to leave room markers; Maze can be printed or saved. (MAZE generates IBM graphics or common ASCII characters which any printer can print); Extensive help screens available from inside the program; Supports CGA, EGA, or VGA, but may be used with any monitor (mono or color) and with graphics or non-graphics systems.

ADVENTURE GAMES #1 (228)

SAM SPADE is a detective game in which you become Sam Spade, the cheap private detective. Your mission is to solve a case by visiting a number of places around town as shown by the map displayed on your screen. You are given a set amount of money and have a certain amount of time to solve the case

CASTLE ADVENTURE is an interesting game in which you are in a deserted castle and must escape. There are 83 rooms and 13 treasures displayed on-screen. You move from room to room with the cursor keys, pick up treasure, enter two-letter commands, and avoid or attack malicious ogres.

THE PLEASURE DOME is an unusual adventure game in which you move about and cause things to happen by casting spells. Meaningless distractions are designed to throw you off course. Requires good reasoning skills and includes color and sound effects.

ADVENTURE GAMES #2 (246)

McMURPHY'S MANSION - An unknown uncle died and left you $10,000,000. But your demented uncle McMurphy felt you must prove that you're worthy of such a fortune. So he hid it somewhere in his Scottish mansion or on the grounds. Your search for riches begins with only one clue - a small brass key

EMPIRE is a simulation of a full-scale war between two emperors, the computer and you. Naturally, there is only room for one, so the object of the game is to destroy the other. Lots of strategy and a map that traces your moves.

ADVENTURE GAMES #3 (276)

SKULLDUGGERY is a classic text adventure, set on the southeast coast of 18th century England. William the Wildheart, who was heavily involved in the business of smuggling, was caught and turned-in by his family. This betrayal led to his execution. William has returned as an angry ghost. He seeks revenge while protecting his hidden fortune from all intruders. You will attempt to find his treasure and avoid unmerciful torture for entering his domain.

WAR of the MAGES ver 3.2a is a configurable multi-player adventure game. The basic objective is to gain control over half of the cities in the game, at which point you will be declared the winner. Your most powerful tool in your quest for control is the Mage. Mages are magic-using creatures from another plane of existence. Each player group is controlled by a Mage, and all relevant information about the status of each Mage is displayed along with the information for that group. This game requires DOS 3.0 or above.

HOGBEAR (277)

The next time you are walking alone, hear laughter, and notice a nearby mansion, flee for your life. If the HOGBEAR lures you in, you'll have to face him, a vampire, blue devils, killer bees, an ogre, a bear, pecking falcons and other perils. If you are swift, wiser than most, and persistent, you might even overcome the snake and spider as you roam about the huge mansion. This text- graphics adventure game moves quickly when you learn the knack of searching and gathering the tools and weapons you need. Otherwise, you lurch about from room to room, stumbling toward certain doom in an obscure mansion filled with deadly surprises.

XORU ver 4.41 (209) ~NEW

XORU is a role-playing adventure game that unfolds in a variety of vivid scenarios, depicting lavishly arrayed dungeon chambers, evil drooling monsters, and mysterious treasures. You are transported to a distant land where you must use your inventiveness and skill to unravel devious puzzles guarded by ugly and ferocious beasts. Only by the grace of Fortune and your own ingenuity, exposing secrets that hold the land hostage, will your life be spared.

DRACULA IN LONDON ver 1.03 (271)

This terrific adventure game for 1 to 6 players brings the legendary vampire to your screen in living (or is that dead?) graphics. The sceen is London in 1891. Each player assumes the role of a vampire hunter: Van Helsing, the renowned scientist; Mina Harker, the school mistress; Dr. Seward, the head of a lunatic asylum; and others. You must track down the bloodthirsty Dracula before he turns Mina Harker into a vampire. But beware of the creatures of the night. This exciting game is filled with twists and surprises, and the great graphics really spice up the action. Requires CGA or EGA.

BUTTON ADVENTURE GAMES (265)

RED PLANET: The Federation of Earth has sent you to Mars to secure the lost treasures of Aukbaa. You've achieved orbit but find your fuel is depleted. Can you acquire the treasures and return home safely?

NEBULA: You're a NASA explorer sent to investigate a newly discovered star system. Your mission is to collect specimens. Can you complete your assignment, or will you be engulfed by the unknown perils of the universe?

DARK CONTINENT: You've traveled to darkest Africa in search of King Solomon's diamond. But after 3 days your native bearers desert you, taking your money and supplies. Can you find the diamond, or will you be swallowed up by this vast continent?

GAMBLING GAMES (229) Requires CGA or EGA

DRAW POKER simulates the Nevada video draw poker machines. One deck of cards is used, shuffled and cut after each play. A Statistics command allows tracking of the game. A progressive "jackpot" is incremented on each play and will be paid when the player bets 5 coins and receives a Royal Flush. Helpful prompts are displayed at the top of the screen, informing you of the results of the hand played and current losses and wins.

PROFESSIONAL BLACKJACK uses rules similar to Harrah's in Atlantic City. One to seven can play, and seating arrangements can be edited at any time. All the goodies, including insurance, card splitting, double down, etc.

HIROLLER puts you at a realistic Las Vegas craps table. You select your bet from a menu which includes Pass, Don't Pass, Big6/8, Proposition, Hardways. This is the next best thing to the real thing (which probably includes losing the rent money).

ROULETTE is a realistic simulation using U.S. regulations. You select from a menu options for chip value, bet placing, buying chips, etc. The roulette board is displayed on-screen, and you watch the ball spin as your money goes down the toilet.

BLACKJACK STRATEGY (208)

BLACKJACK STRATEGY is more than just a game. It teaches you all the skills needed to be a casino winner! As a game, the program includes players in up to 6 positions and in position combinations, 1 to 10 decks, adjustable playing speed, house rules to match different casinos, and more. As a tutor, learn basic strategy; practice strategy with prompts, tests, and score results; realistic layout aids in card counting; adjust speed as skills improve; and much more.

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VEGAS PRO VIDEO POKER ver 1.0 (268)

VEGAS PRO VIDEO POKER plays like the video poker five-card draw machines in Las Vegas casinos. Game is never the same because cards fall differently each time. Allows you to test the draw for strategies in complex situations, adjust payoffs and table rules, slow down or speed up card dealing, and more. Plays on any monitor, although graphics on EGA and VGA are incredible.

POKER CHALLENGE (269)

POKER CHALLENGE includes two great games: **7-CARD STUD** and **TEXAS HOLD'EM**. Excellent for beginners, but also includes tools for the most serious player. Play against 1 to 7 computer opponents in Stud, and 1 to 9 in Hold'em. The computer plays you in different styles which you can change, no two games are alike, and everything is changeable, including ante, betting limits, maximum raises, skill settings, etc. Includes hand/game analyzers and much more. Excellent graphics. No special monitor required.

BOARD GAMES #1 (230) Requires CGA

MONOPOLY is a very good computerized game and true to the Parker Brothers classic. Includes full screen board in color with all the options. Play it just like the original.

RISK provides all of the challenge and excitement of the original Parker Brothers game. It is a game of strategy where your goal is to take over the world with your army. But you must be careful to defend against the armies of your opponents. Full screen board and all the play options.

BOARD GAMES #2 (231) Requires CGA

Four classic board games for a rainy day in front of your computer. **CHESS88** has been around for a few years and has proven its worth as one of the better non-commercial chess games. **CHECKERS** supports 2 players or play against the computer. Games can be saved and loaded. Standard checkers rules including kings. **PC-GAMMON** is a nice backgammon game. **DOMINOES** is written in BASIC.

BOARD GAMES #3 (245)

SEEKSINK is an entertaining naval battle game for one player against the computer or two players against each other. You command a fleet of five ships which you strategically place in the battle zone. When the battle begins, you must sink all of your opponent's ships before yours become Charlie Tuna's playground. Includes nice sound effects, variable player options, and runs on any monitor.

BYE BYE BORIS - You are Boris Smirnoff and your goal in life is to take a one way trip to America. You have to buy, borrow and barter for a passport, money, disguise, etc. before the KGB discovers you. Very entertaining board game. Requires color monitor.

CONCENTRATION is just like the famous T.V. show game and really tests your memory. Requires color monitor.

SCRABBLE is for 1 to 4 players. The dictionary of validated words can be added to as you play. Requires color monitor.

BOARD GAMES #4 (213) ~NEW

GALACTIC is an terrific outer space version of the game Risk. Two to seven players can battle for domination. Because you travel great distances, attacks can be made throughout several turns. This addictive game runs on any monitor, but it works best in color.

ED's CHESS is an excellent chess game. You play against the computer with various levels of difficulty based on how long the computer takes to make a move. Features include: Openings library, save/restore games, backup moves, and autoplay. A most interesting feature is the that the computer will display its thinking process. Works on any monitor.

ACQUIRE ver 1.1 is a game of high finance is played on a 12 by 10 grid by up to six players. The player's goal is to make the greatest amount of money by buying shares in the game's seven hotel chains, adding and merging hotels. Requires a color monitor.

BOARD GAMES #5 (215) ~NEW

TOMMY'S MONOPOLY is an excellent monopoly games that will work on any monitor. So if you don't have CGA, this version of the Parker Bros. classis is for you. Accomodates 2 to 8 players and you can play against the computer. Inicudes all the original board game's features. Play long or short game with or without time limits.

CHESS and CHECKERS includes nicely produced versions of both games. The chess game doesn't have all the advanced features of some of our other games, but its great for novice players. Requires CGA, EGA or VGA.

BRIDGEPAL (232)

BRIDGEPAL is a computer version of the card game of bridge. Here's your chance to learn, practice, or just enjoy the game of bridge without the need for three other players. BRIDGEPAL is played just like bridge, except the computer shuffles and deals the cards, bids and plays three hands, and does the scoring. You will bid and play the South hand. If your team gets the bid, then you play both the North and South hands. Other features include: 1 or 2 players; Random hands (everyone different); Bidding help for beginners; Options to Replay, quit, and Auto Finish Best Hand option to increase offensive play.

DOTS and LABBITS & VOLDRONS (233)

DOTS displays a full page of dots. You play against the computer and connect the dots in an attempt to form a square The first one to complete a square takes possession of it and is awarded one point. Most points wins.

LABBITS & VOLDRONS is an arcade game in which you must not allow the Labbits to escape from their cages and invade the food storage area. You must also protect the food storage from the invading Voldrons which are sometimes invisible. The game starts out simple but gets complicated real fast.

TRIVIA MACHINE (234)

A very good trivia game with 1500 multiple choice questions. Four categories including Sports & Recreation, Entertainment, Science & Nature and Mixed Bag. Scoring is based on 1 of 3 selected expertise levels and how well you perform against the game clock. Has sound effects and operates in graphics mode if you have CGA, but will work with monochrome. Great fun for you trivia buffs.

TUNE TRIVIA . (235)

An entertaining musical trivia game featuring tunes and musical trivia questions for 1 to 6 players. Like "Name That Tune" you play against a twenty second countdown clock. More than 200 songs and various player options to alter player strategy. You can alter the songs and/or the trivia questions or enter your own. Great family fun for music buffs.

OPUS 1 BRAIN TEASERS (236)

If you are into trivia, here's another one to sink your teeth into. This is a trivia-type game which is played like charades by up to four players. Includes 25 different categories (Television & Film, Books & Plays, Body Talk, etc.). The program supplies clues for players to solve.

THE DUNGEONS OF MORIA ver 4.83 (237,238)
2 disks

This is a superb single player dungeons and dragons adventure game. You can choose from a number of races and classes when creating your character. You then 'run' that character over a period of days, weeks, even months; attempting to win the game by defeating the Balrog which lurks in the deeper levels. MORIA is a huge game packed with features and accompanied by a lot of documentation. If you're an adventure game fanatic, MORIA is guaranteed to satisfy. Requires 2 floppy drives or a hard disk, 640K memory.

HACK ver 3.51 (239)

A display oriented dungeons and dragons type game. It is rich in character and has many monsters and highly varied magic. You descend through the dungeon to find the Amulet of Yendor, then return to the surface. As you travel you will meet various creatures (most of them nasty), find objects (some having magical properties), and experience many hazards. A map is created as you go through the various levels. This top notch adventure game requires 320K, 2 floppies or hard disk.

WONDERFUL WORLD of EAMON (240)

EAMON is a classic fantasy role-playing game. Far away, at the dead center of the Milky Way, is the planet Eamon. It doesn't orbit any suns - all of the suns orbit it. This brings strange forces to bear in a world of shifting laws and time. Strange things happen there, and the citizens of Eamon must always be adaptable, for things are rarely what they seem. You are a citizen of this weird world, and anything can happen, anything at all. Included with this package is the EAMON DUNGEON DESIGNER which allows you to custom create your own adventures. Requires BASIC.

ADVENTURE GAME MAKER (241)

GENERIC ADVENTURE GAME SYSTEM (GAGS) allows you to easily design your own extensive adventure games. You do not need to know anything about programming. The system is very flexible in that your games can be modified and extended by simply editing a standard-format text file. Complete sample game included.

GAMESCAPE ver.1.0 (264)

Powerful "adventure engine" lets you create your own adventure games. Describe locations, rooms, objects, recognizable words, messages, and action. Includes music, sound, and graphic characters. Requires a word processor that can save in ASCII (plain text) or a text editor, and a little imagination.

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Disk includes three great games: Ringwielder, Marooned Again, and Giant Space Slug.

CROSSWORD CREATOR ver 2.50 (242)

CROSSWORD CREATOR (CWC) enables you to layout a crossword puzzle on the computer's screen, define a short clue for each word in the puzzle, and save the puzzle to disk so it may be used again and again. Challenge friends to solve a puzzle you create yourself. CWC can save partial or complete puzzle solutions to disk so you can stop work at any time and pick up later where you left off. CWC doesn't force you to design "real" crosswords that intersect perfectly; you can make your puzzle look any way you want with up to 200 words and clues. Solve a pre-defined puzzle on your computer screen. CWC will check your solution against the correct solution on request and point out incorrect letters. Print your puzzle designs in the traditional format, complete with numbered boxes and an indexed clue list. Context-sensitive help screens make using CWC easy. Great for crossword buffs.

WORDFIND ver 3.1 (249)

WORDFIND is a great program to assist you in finding words for crossword and other types of word puzzles. A real frustration ender! If you know a few letters of a word and its length, WORDFIND will display all words having the same letters in the same positions. You then pick the word that satisfies the puzzle. For example, if all you know about a certain word is this: ?ct?p??, WORDFIND gives you these possibilities in seconds: ECTOPIC, OCTOPOD, OCTOPUS, and OCTUPLE.

KINGDOM of KROZ (244)

A combination arcade, adventure, and strategy game - all in one unique package. You are an archaeologist searching for fabled treasure through 25 challenging and hazardous levels. Includes a huge library of sound effects, and 16 color graphics, and it will work on monochrome, non-graphic systems. Instructions are built-in, and no two games are ever alike. KROZ won "Best Game" in a national programming contest. Also on this disk is TREK TRIVIA - a game of 100 tough Star Trek trivia questions that will challenge even the best Trekkie.

MEGALOPOLY (248)

MEGALOPOLY is a fun and challenging investment strategy game that can be played on many levels. You just inherited one hundred thousand dollars. Your current employment enables you to save $5,000 per year. Your challenge is to become financially independent within a twenty year period. Decisions to buy and sell assets are based on economic conditions, risk factors, and yield characteristics. Are you a wise investor who can reach his goal, or will you lose it all?

STOCK SHOCK ver. 3.0 (266)

STOCK SHOCK is a stock market simulation game, designed for those of you who think making money is fun. A very generous uncle has given you $5000 to invest in the stock market. Your mission is to make more money than anyone else, or just plain make money if you're playing alone. Up to 12 players can buy and sell stocks and invest in companies. Features include: Load and save games; Graph of players' assets and market and stock price histories; "Daily News" feature reports on important market events; Menu-driven with on-line help. This great game includes action, suspense, and fun.

PC-JIGSAW PUZZLE ver 1.10 (272)

If you like picture puzzles, this disk is for you. **PC-JIGSAW** is an educational game of skill and intellect that features beautiful graphic images. It starts out by drawing an image on the screen and then it shuffles the pieces around. Every puzzle is different because images are never shuffled the same way. The object of the game is to assemble the pieces to match the original image on the screen. Features include: Select from 3 levels of difficulty (larger or smaller puzzle pieces); View completed image at any time; Final score based on how many pieces you swapped to solve the puzzle; Sound effects; Use keyboard or mouse; Supports any graphic monitor (especially beautiful on EGA or VGA color systems); Menu-driven with on-line help for ease of use.

MORAFF'S REVENGE ver 3.2 (273)

This is a role playing game in which you venture into a deep dungeon in search of adventure and treasure. Like life itself, this game has no single simple object. Survival is an objective, but not always. Often, you'll begin an expedition intent on reaching a certain level of the dungeon, then return to town. This would be the object for that expedition. Perhaps when you are level-drained by a wraith, you'll set out on a wraith-killing mission. That is an objective. Experience makes a character more powerful, bringing more spell points, more health points, and other good things. The quest for experience is a key part of this game. The most exciting goal is to find the fountain of youth on the 70'th level. This fountain will regenerate your character, allowing him to become more powerful than ever. Reaching the fountain is no easy task, though. Included are many options, such as: cast spells, use wand, take pills, fight, abandon treasure, view stats, get cure, throw cure, see map, and much more. As adventure games go, this one is quite good.

WORLD GENERATOR ver 1.2 (274)

This menu-driven utility generates solar systems for science fiction role playing games in which each player takes on the persona of a human or alien in a universe controlled by a referee: Like Dungeons and Dragons with spaceships! Not based on the rules of any one game. Cuts hours or days off of making such creations manually. Allows generation, storage, and editing of solar systems and planets; draws maps of planets; includes planetarium option; generates up to 100 solar systems with each allocated a star and up to seventeen planets, asteroid belts, dust clouds, or secondary stars; generates black holes; and more. Features on-line help, tutorial, and rolling demonstration which is a real treat to watch. Requires CGA and color monitor.

BIBLEQ ver 4.1 (1215)

A Bible quiz game with 1000 multiple choice questions drawn from the Old and New Testaments and Bible geography. One to three people can play and compete for best scores. Percentage of correct answers is reported.

PUGILISTIC WARS ver 1.5 (9218) ~NEW

This is a very nice menu-driven, none-graphic boxing simulation game that will work on color or monochrome monitors. After you select a weight class, you pick two professional boxers from a list. This list of boxers gives their rating so that you can properly match opponents (or, if you're in a bad mood, have one beat the hell out of the other). Before each new round, you select from a list of boxing strategies to assign to fighters in the next round. Several variables must be taken into account when choosing strategies. As each round progresses, the the fighter's offensive and defensive moves are described with text, and damage inflicted and endurance levels are shown graphically. Very challenging. Requires 384K.

DOMINATE (282) ~NEW

DOMINATE is a computer wargame for one to ten human players and up to 30 computer players (neutrals). All game play occurs in reference to the map of the world of DOMINATE. On the map are 142 cities mixed amongst five types of terrain: woods, plains, hills, swamps, and broken. Each player controls a position that begins with one city and could end in world domination. In every round of play you build new troops and explore and conquer new territories in an attempt to build an empire of domination. Pit your startegic abilities against opponents or the computer. Requires CGA, EGA, or VGA.

TELE-CHESS ver 1.0 (283) ~NEW

TELE-CHESS is a live chess game played by 2 people via modem connection. When a move is made, it is displayed simultaneously on your screen and on the opponent's screen. TELE-CHESS features color or monochrome graphics, dual analog chess clocks, auto answer and dialing, mouse option, and easy to use menus. Games may be adjourned, saved to disk, and retrieved for continued play at a later on-line session. A "kibitz" mode allows conversation between players during a live game. TELE-CHESS also serves as an off-line chess study aid. It is designed for in-depth study of chess variations while eliminating the tedious work normally associated with such study. Requires a graphics card and a Hayes compatible modem.

JUST FOR LAUGHS (284) ~NEW

The novelty programs on this disk prove that computing isn't always serious business. Try these out on your friends, co-workers, or even your boss if job security isn't your top priority:

123 puts up a Lotus 123 look alike screen that insults you when you try to input anything.

MEMCHK makes your computer look like its going through a normal memory check after reboot. But it never stops. Ever see a computer with 100 billion kilobytes of RAM?

FLIP turns the display upside down after a specified amount of time. When the recipient of this prank wonders what the heck happened, you might suggest as a solution that he turn his monitor upside down.

DECEIVE allows you to capture any screen and instantly display it while your running any program. Great for when the boss walks in and you're playing computer games.

EATERS is a screen blanker with a twist. Bugs scramble all over the screen and eat up anything that's displayed.

PANIC is to be used only on people with a strong heart. The user is informed that he has been selected for a prize - one hard disk format. This fake format looks real, including the hard disk access light and all.

WASH 'N TUNE cleans the "inside" of the monitor, drains water from the floppy disk drive, and tunes the computer's speaker (those out-of-tune speakers sound awful, don't they?).

AMAZON and AMY-500 (285) ~NEW

AMAZON - You're floating on a raft through the Amazon jungle. The journey is filled with danger. To survive (and get the highest score), you must correctly

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spell the solutions to a variety of problems in the shortest time possible. This is a test of both your reflexes and typing ability. Recommended for pre-teens who wish to add a fun and exciting challenge to the usually dull routine of typing practice. Requires CGA.

AMY-500 - You're on a multi-lane race track competing against a field of pro drivers. You must out-class them to win the trophy. You can change speed and turn left and right to avoid other cars. But your reflexes had better be good! Plenty of arcade action for players 7 to 12. Requires CGA.

BATTLE GROUND ver 1.0 (286) ~NEW

It's the U.S. vs. Germany in this two-player, tactical, action-strategy, World War II ground combat game. The graphics are great! Various types of soldiers, air support, weapons, and terrain help you defeat your opponent's platoon. You can fire hand weapons, call air and artillery strikes, and throw hand grenades. Even includes 25 possible playing fields, and much more. Boredom will NEVER be a problem with this game! Requires CGA, EGA, or VGA.

CHARACTER ver 1.0 (287) ~NEW

This is a simple-to-use menu-driven program for drawing faces. Not only is it great fun for people of all ages, and generates loads of laughs; but it also demonstrates how tiny changes in facial features can dramatically alter a person's appearance. This is why, with so many people in the world, only identical twins look alike. We promise you'll be amazed by what you see! For this reason, **CHARACTER** also offers an educational benifit for children. CHARACTER begins with a basic face (you have several to choose from). You then begin to alter it in countless ways. You can change the age, weight, emotions (anger, disgust, fear, happiness, sadness, surprise), eye characteristics (size, shape, color, height on the face, separation, eye lids, wrinkles, bags, etc.), mouth characteristics (width, upper and lower lips, openness, color, etc.), and virtually every other facial aspect. This is somewhat similar to what a police artist does when creating a composite likeness. Most features are accessible through the keyboard, but a Microsoft/compatible mouse allows access to a few extra minor features. Requires 512K and a graphics monitor.

CRIBBAGE (288) ~NEW

CRIBBAGE PARTNER ver 2.0 - This realistic representation of the very popular game of Cribbage allows you to play aginst the computer and even replay hands. Graphics are great! Features include: Auto scoring; Demo mode; "Muggins" option; Scoring messages; Cribbage rules; and more. If you already know how to play Cribbage, this program's for you. And if you've never played before but wish to learn how, this is the place to start! Works with any monitor.

CRIB-MASTER ver 1.1 - Another outstanding Cribbage game simulation with good graphics and 4 skill levels. Covers all aspects of Cribbage. Works with any monitor.

EAT'EM II (289) ~NEW

You're inside a very extensive maze and must eat all the food there in order to advance to the next level. But beware! - You're being pursued, and your ability to escape the enemy depends on how good - AND HOW FAST! - you are at eating! The maze, by the way, is simply A-MAZE-ING! Can you figure out the "other" way to open the gates that block your way? Plenty of fast-paced arcade style action. Fun and exciting. Features 5 speed settings. Uses any monitor.

FACING THE EMPIRE ver 1.0 (290) ~NEW

In this exciting intergalactic conflict game, you must drive the Morte Star Empire out of the stellar periphery of the Lyran Federation. You must also protect the eight Lyran Star Bases from attack. But first you need to build strength and gather intelligence before you can go on the offensive. This great adventure game is loads of fun and offers lots of options.

RETURN TO KROZ (291) ~NEW

This is the sequel to the national contest-winning KINGDOM OF KROZ (Disk #244). It's pure dynamite! -- A unique combination of arcade action, strategy and adventure unlike any other game you've played. Your task is to recover the crown of Kroz hidden in the deepest level. Some levels are puzzle oriented, which makes a great change of pace from the high action parts of the game. You'll find new terrains, traps, spells, hazards, 35 new creatures, 20 new levels to challenge your dexterity, and sound effects galore. You'll encounter moving walls, forbidden forests, active volcanos, a bottomless pit and much more, plus plenty of options. AND, no two games will be alike! Great fun, great challenge, great action -- GREAT GAME!!!

THE MILL and SOLICARD (292) ~NEW

THE MILL ver 1.00-S, an ancient board game for 2 players, was very popular in the 14th century. The game is one of strategy and capture and is very interesting. Lots of fun! Also includes random number generators for dice rolling, wheel spinning, and more. Includes on-line help.
SOLICARD ver 1.00-S consists of 6 great solitaire card games, including Golf, Matrimony, Pyramid, Calculation, Canfield, and two forms of Klondike. Includes on-line help and game rules. The program won't let you cheat unless, that is, you ask permission!

PATIENCE ver 3.0 (293) ~NEW

This excellent collection of nine popular and addictive solitaire card games include **ACCORDION, CANFIELD, STACKER, ELIMINATE, GOLF, KLONDIKE, VEGAS, NESTOR,** and **PYRAMID.** Game selection is by menu, and each features a resettable best-scores table. Rules for each game are provided.

PASS-AROUND TRIVIA ver 3.02 (294) ~NEW

This challenging, family-oriented trivia board game is for 1 to 6 players. Popular categories include world, geography, sports, famous people, religion, and more. Features selectable difficulty levels. Lots of fun!!!

PINBALL ART (295) ~NEW

This disk is packed with a collection of five fast-paced high-quality arcade-style pinball games for 1 to 4 players. The graphics are great! Uses either keyboard or joystick. Games include **CIRCUS, MONEYMAZE, PAR 3 GOLF, SPOOKY,** and **RUNWAY.** Requires CGA or EGA.

PRAXIS I ver 11/88 (296) ~NEW

In the game of Chess, white has an incredible 20 possible openings. Of these, 15 are recognized, with each having MANY legitimate responses. And, of course, the responses to those responses are many! PRAXIS comes to your rescue to help make sense of all this by demonstrating many openings and their responses. PRAXIS isn't an "openings" tutorial, just an overview. But it really helps! Recommended for all of you who are beginning to learn Chess, and for those not-so-new Chess players, as well.

SUPER PRO WORD SEARCH PUZZLE MAKER ver 1.0 (297) ~NEW

This outstanding program creates word-search puzzles of the highest professional quality available. The program accomplishes this by rigidly following established professional rules used by those preparing such puzzles for newspapers and magazines. The rules followed include: Most words must overlap AND share letters: At least one word must appear in each of the four directions; Many words must be spelled backwards; Phrases and idioms must appear without spaces or hyphens; Words in the solution printout must be circled; etc. Your puzzles can be edited, saved to disk, and more. And, of course, your puzzles will be of such high quality that you'll be able to submit them to publishing companies for profit!

WORDS*WORDS ver 1.2 (200) ~NEW

This word game is challenging enough for adults. You're given a 5-letter puzzle word and must identify it in 18 guesses or less. For each correct guess you are told the number of letters common to the puzzle word. Solve the puzzle and a comment or quote is displayed based on the word. Uses a dictionary of more than 6,000 5-letter words.

WORDSTALK ver 1.00-S (298,299) 2 disks ~NEW

This unique word-game solver uses over 60,000 1- to 20-letter words to solve difficult cryptograms, anagrams, word jumbles, and pattern/form word searches used in local and national contests. It also has a game section that plays 4 levels of Hangman plus a child's version. This simple-to-use menu-driven program includes a random number generator for dice rolling and wheel spinning, on-line help, 71 sample cryptograms to practice with, and much more.

FALLTHRU ver 1.01 (9200) ~NEW

In this text-adventure game for 1 to 3 players, you become an adventurer in a strange land: Faland. You don't know how you got there, but your goal is to find your way home. Faland is very large, complex, sparsely inhabited, and made up of farmland, rangeland, deserts, badlands, mountains, forests, etc. Much is inhabited by wild animals, demons, warriors, and renegades. You need skill and experience to explore the settlements, caverns, catacombs, castles, ruins, and mines. You must learn to recognize friend and foe, earn a living, hunt, defend yourself, etc. You can gain information by talking to shop keepers, strangers, warriors, etc. Many riddles and puzzles must be solved before the way home is found. You'll find this to be a VERY challenging and entertaining game.

GUNN GAMES #1 (9201) ~NEW

OUTFOX - Try to 'out fox' the fox in this entertaining arcade game version of "Fox and Hounds." Keep the fox at bay so he doesn't reach safety. Loads of fun!

MAXMAN - Similar to PAC-MAN, but with some very nice, innovative additions that make this arcade game even more enjoyable.

SUPER STARTREK - A super strategy arcade game that's similar to "STARTREK" but with some neat differences. If you like Star Trek, you'll love this one! NOTE: All three games require a graphics card and color monitor.

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GUNN GAMES #2 (9202) ~NEW

AXTRONS - Eliminate the competition by setting traps and directing combat based on opponent's energy level. ClyAxistrons are good trackers, though, so stay out of their way -- IF YOU CAN! Great arcade action.

TILTMAZE - Get as many balls rolled into the center box as possible. It's not easy, because when you tilt the maze, all the balls start rolling in the SAME direction! Lots of fun.

GOPHER'S GARDEN - There's trouble in the garden! You're in the midst of a gopher invasion and they're tearing up the place. You must find those little pests and get rid of them before they eat all your flowers. It won't be easy, though, because you can't see 'em. All you see is the terrible damage they keep doing. But, you must be careful while trying to catch them because you can cause more damage than the gophers if you squash your own flowers! This is a terrific arcade-style game you're sure to enjoy. NOTE: All three games require a graphics card and color monitor.

PC-BINGO and UNO (9203) ~NEW

PC-BINGO ver 1.1 is just like the traditional game of Bingo. It is simple and fun to play, and features nice graphics. PCBINGO prints 2 to 8 Bingo cards per sheet, and includes a great winner verification system. Requires DOS 3.0 or above.

UNO ver 1.2 is a PC implementation of the traditional game of UNO. A well thought out display and good graphics makes UNO fun to play. You'll need to know the rules for UNO, though, because none are provided.

TOMMY'S TOYS #1 (9204) ~NEW

TOMMY'S SAUCER - Fly a sophisticated spacecraft to defend earth against alien invaders. The controls are awesome and so is the game! It's fast-paced arcade action all the way with exciting graphics and sound! Requires CGA or EGA.

TOMMY'S HIDDEN WORDS - Create your own hidden-word puzzles from a list of related words or phrases. Nine levels of play. Lots of options! Lots of fun!

TOMMY'S TOYS #2 (9205) ~NEW

TOMMY'S GORILLA BALLS - Ever had the feeling you were being pursued -- AND LIKED IT? Well, here's your chance. You're on a billiard table surrounded by a gang of gorilla balls. How long will you be able to keep away from them? Your life depends on it. Just remember, though, the table is S-H-R-I-N-K-I-N-G! Good luck. You'll need it! Nice arcade game.

TOMMY'S GIN RUMMY - Tommy's great PC implementation of this world famous game.

TOMMY'S TOYS #3 (9206) ~NEW

TOMMY'S METEORS - You'll have to think fast to dodge the falling meteors. Fast- paced arcade-style excitement!

TOMMY'S TWENTY-ONE - This superb Blackjack game pits your skills against the computer, which acts as dealer and banker. Also includes Flapjack, Macao, and Pontoon.

TOMMY'S SPACE PANELS - Is this a game or a puzzle? Actually, we're not sure what it is, but we know we like it! You're at the control panel of an alien space ship. You'd like to fly the darn thing, but all controls are written in "Alien." Can you figure out how to make it go? Very amusing, lots of fun!

TOMMY'S TRIVIA (9207) ~NEW

This is a trivia game for 1 or 2 aspiring earthling triviologists (players). The questions were carefully prepared by aliens from outer space and are presented in alternate-choice format. The questions are not divided into categories, however, since that would be too trivial; and besides, by the time everyone else in the galaxy receives our TV and radio transmissions, they're all mixed up together like this anyway! There are 6 ways to play. Whichever way you decide, though, you're guaranteed great fun! The questions are fairly sane and cover a broad range of topics.

TOMMY'S TOYS #4 (9208) ~NEW

TOMMY'S CROSSWORDS - This is a personal crossword puzzle management system that allows you to create and solve crossword puzzles. The program is great for solving puzzles in newspapers and magazines, or making them up yourself and giving them to friends to solve. Maximum puzzle size is 17 rows by 18 columns; minimum is 2 rows by 2 columns. Program includes many options, even a clue option.

TOMMY'S INSULTS - This is a collection of seemingly endless insults, the likes of which we've never seen before! You'll be amused and amazed by what the folks at Tommy's Toys have come up with. (Your friends will also be amazed when you begin to incorporate them into your speech and writing!) Don't worry, though. Tommy used a little good taste in putting these outrageous insults together!

EGA and VGA GAMES

(Require EGA or VGA graphics adapter and monitor)

EGA GOLF (250)

CADDYHACK is a beautiful EGA/VGA graphic golf game. The 18 hole course in Pompano Beach Florida is graced with high resolution palm trees and other terrific scenery. 1 or 2 players can compete on 3 levels of difficulty. A built-in caddy can automatically select clubs based on wind factor, difficulty level, and distance to the hole. You can also select clubs manually as well as power and direction of your shot. Wind and course grade are randomly generated for each hole. Distance from the hole is displayed after each shot, and an overhead view can be toggled at any time. This stunning golf game is the next best thing to being on the green.

EGA ARCADE GAMES #1 (251)

ALDO'S ADVENTURE - You maneuver ALDO through a maze of ladders, ramps, hazards, and treasures. There are many rounds which get progressively more difficult, and the graphics are professional quality. Requires PC/AT or PS2 (not models 25 and 30). Requires PC/AT or PS2 (not models 25 or 30).

BREAKOUT is an EGA version of the classic game of Breakout. Supports up to 350 players. Paddle a ball against a brick wall and attempt to break out all the bricks.

EGAROIDS is a star ship verses the asteroids game. Very challenging.

EGA ARCADE GAMES #2 (252)

SNARFS - You must run through increasingly difficult levels of mazes and pick up treasure - all the while avoiding the Snarfs! They're vicious attackers, and a Snarf touch means lost points. You can shoot them, and you can seek medical treatment at a first aid station - if you can get to one. Sort of like DigDug.

EGA TREK (from the author of Mah Jongg) is a great EGA version of the classic Star Trek game - you are at the controls of a sophisticated starship.

EGA ARCADE GAMES #3 (275)

COLLIDE is a deep space survival game that puts you in a realistic inter-planetary world where you must evade and shoot to survive. You must complete 5 one-minute missions (if you can last that long) in an uncharted quardrant of space.

HOME RUN is a pinball-type baseball game for one or two players. You have control over batting and pitch selection (fast, slow, curve, etc.). When you get a hit you will see your man run to the appropiate base.

SPACE FLEES is a space arcade game where the object is to shoot as many space flees as possible. Flees will attack your ship and you must use your energy shield and laser weapon to defend yourself. Your dog will hate this game folks. These space flees look just like real fleas, replete with fluttering wings.

EGA BOARD GAMES #1 (253)

EGA RISK provides all of the challenge and excitement of the original Parker Brothers game of Risk. You attempt to take over the world with your army and outwit your opponents who have the same objective. Beautiful graphics.
MAH JONGG is the traditional Chinese board game (similar to Rummy), and this special EGA version is a truly elegant piece of programming. Enhancing the game's beauty are features like mouse support and tournament play.

EGA BOARD GAMES #2 (254)

Two classic board games which most of us have played - **OTHELLO** and Parker Brothers' game of **SORRY**. Both games feature sound effects and/or music, on-line instructions, and beautiful color graphics. Requires EGA and 384K of memory.

EGA ASSORTED GAMES #1 (255)

AIR TRAFFIC CONTROLLER puts you in charge of the air traffic at Chicago's Midway Airport. The control tower screen lights up and the planes begin to approach. You must deal with incoming and outgoing aircraft, aircraft type, wind velocity and direction, busy factor, visibility, etc. - all of the variables those poor devils in real control towers have to deal with. You must make your decisions against the clock as incoming planes appear on your radar screen. How well you perform will determine the safety of plane and passenger. This great game is packed with command options. It's so real that you may need a tranquilizer to calm yourself down. Requires a PC/AT.

SCRABBLE includes the colorful tiles and a large dictionary which is loaded into memory for fast program operation. A nice feature is that if a word is not found in the dictionary, you will be asked if it is a real word. If you answer "yes", the word will automatically be added to an auxiliary dictionary. The dictionary can also be manually edited. SCRABBLE requires 640K memory.

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EGA ASSORTED GAMES #2 (261)

EGAWHEEL ver. 10.2S is a version of the TV game show Wheel of Fortune. Includes 203 puzzles for 1-3 players, 5 rounds with increasing difficulty per game, and sound effects. Puzzles contain up to 40 characters, and clues up to 20 characters. A special program allows you to edit puzzles and add new ones.

SOLITARE offers 3 different card dealing methods to suit your style of play. Includes auto-play and several other nice features. Requires EGA and a mouse.

TRISKELION is similar to the "Hungarian Rings" puzzle. It requires the kind of logic needed to solve Rubik's Cube. Looks easy, but it's real tough to solve.

EGA ASSORTED GAMES #3 (9209) ~NEW

REFLEX ver 1.2.3 is an arcade game where you manuever a worm through a maze of objects which include pigmen, palmtrees, demons, sunny islands, crosses, and more. Some object must be avoided; passing through others produces varied effects. For example, passing through the Martini turns on the worms hunger mode and he can gobble up objects for fun and profit. Accumulated points earn you "Forcefields" which enable your worm to pass through deadly objects without ill effects. After 50 levels of play (if you make it that far) you are returned to Level 1, only faster. Requires EGA or VGA. Joystick is optional.

SOLITILE ver 1.4 is a game of solitaire, played with "tiles". It derives from similar games, such as Shanghai and Mahjongg. Solitile plays the same game, but adds new starting layouts (a whopping 65,535) and the ability for the player to create new layouts and/or modify the layouts provided. It also uses new, "westernized" pictures on the faces of the tiles. There are 36 different pictures and 144 tiles. The object of the game is to remove all of the tiles in matching pairs from the board. Colors can be customized, and games can be saved for later retrieval. SOLITILE is a beautiful, visually exciting game. Requires EGA or VGA.

EGA ASSORTED GAMES #4 (9210) ~NEW

MCPOP! ver 1.0 is a soft-core adult maze-adventure game. It is against TSL's policy to distribute porno software, but this program is non-graphic, pretty benign, and it's fun. You have been injected with a futuristic hormone that raises your sexual tension to new heights, and you must escape from Madam Ching's Palace of Pleasure (a nifty maze). You race against the clock because if you're tension raises too high you will die. The only way to keep alive while you attempt to escape is to pick up condom three packs and get nasty with girls. The game is challenging and a real laugh. Requires EGA or VGA card with 256K.

QUINTA ver 1.0 is similar to GoMoku, Go, and Parker Brother's board game Pente. Play against an opponent or the computer. Two players alternate placing their "stones" on the board. You win by placing 5 stones in a straight row (like Tic Tac Toe) or by capturing 5 of your opponents pairs of stones. This very addictive game requires defense as well as offense and can be play at two levels of difficulty. Requires EGA or VGA and a mouse.

VGA ARCADE GAMES #1 (9211) ~NEW

BANANOID is a beautiful, breakout-style game with an oversized (544 X 240) playing field. Wall-block-paddle-ball games have been around for quite a while, but VGA users will appreciate this one for the high resolution graphics as well as the challenge. Requires an AT-class computer, VGA, Microsoft/compatible mouse.

GRAVITY WARS is a menu-driven, 2-player space battle game (you can play against yourself or an opponent). Two spaceships (Enterprise and Klingon) attempt to shoot each other down by specifying angles and initial velocities for launched missles. Missiles move under the influence of the gravitational fields of the various planets in the Gravity Wars universe. There are also black holes which cause missiles to act very erratic. You can move ships, planets, make new planets, alter planets, etc. Altogether it's quite challenging. Requires VGA.

VGA BOMB - Two players, each with an artillery position and 100 men,, fire shells at each other. You input missile trajectory and speed, and various hilly scenery offers impediments to the missile reaching its target. Each scene's layout is determined by seven different random factors, including elevations, mountain shape and size, wind factor, artillery piece positioning, and other factors that guarantee a unique and unpredictable situation no matter how many times you play. The sooner you get a bullseye, the more points you get. Final statistics are displayed at the end of each game. Requires VGA.

BLUEBALLS - Hit all three blue balls on each level without running into the walls, your trail of red balls, or any other obstacle. Requires VGA.

EGA FOOTBALL ver 2.3 (257)

CUNNING FOOTBALL is a dynamic, interactive, menu-driven football game. You control the action by selecting from a wide variety of offensive and defensive plays. You then participate in each play by controlling the movement of key players, passing, handing off, tackling, etc. The play action looks like a real football game in every detail, including interceptions, penalties, and other subtleties of football. Complete reports of yardarge, downs, play results, scores, etc. are provided. This game is fun, exciting, easy to use, and tests both your skill and strategy.

PALM READER ver.1.0 (259)

PALM READER displays a graphic palm and the lines on it. A multiple choice selection allows you to compare your "hand lines" with those on the screen. The results are analyzed and a personal report is produced in the areas of life, love, fortune, health, marraige, ability to succeed, luck and travel. Output can be directed to the screen or printer, and help is on-line. You'll have great fun using this program with friends and family. Requires EGA or VGA.

CAPTAIN COMIC ver. 3.0 (260)

PC Resource magazine calls this the most addictive games you'll ever play. You are **CAPTAIN COMIC**, a galactic hero whose mission is to recover 3 treasures from the alien planet Tambi. As you move through 8 different areas of the planet, you must gather tools to increase your fighting and defensive capabilities. You will navigate dangerous terrain, and avoid or destroy a hoard of deadly creatures. Great graphics and arcade action.

HI-RES VGA ARMY ver. 1.2 (270)

ARMY is a new strategy board game for 2 players. The battle field consists of various kinds of terrain, including plains, roads, forests, rivers, lake, rafts, and walls. Game pieces consist of a captain, artillery, calvary, and infantry. The object is to defeat the opposing captain while protecting your captain from attack. Each play involves the roll of four dice and strategies similar to the game of Risk. This is a super high resolution game and is as pretty to look at as it is fun to play. Requires a VGA monitor and graphics card and a mouse.

MOSAIX ver. 1.0 (9219,9220) 2 disks ~NEW

MOSAIX is a fabulous EGA/VGA computerized jigsaw puzzle program. Unlike other PC based jigsaw puzzle programs, MOSAIX uses photographic quality color images rather than cartoon pictures. This disk includes 3 pictures for VGA or EGA jigsaw puzzles with three levels of difficulty. Also, your own puzzles can be created using a video image capture board or scanner. Since MOSAIX can import standard .PCX graphics files, puzzles may also be created using almost any PC paint program. If you do not have access to a scanner or digitizing equipment, the makers of MOSAIX provide a color image scanning service for your slides and photographs. Imagine the fun of converting photos of your family into super high resolution jigsaw puzzles. The program optionally uses a Microsoft, Logitech or Mouse Systems compatible mouse. Requires EGA or VGA and 384K.

HURKLE ver. 2.5 (9213) ~NEW

This VGA board game includes a lot a humor as well as challenge. The Hurkles live in Gridsville (the game is played on a grid) and are becoming extinct. The object of the game is to capture as many Hurkles as possible for transplantation to a friendlier location. Easier said than done! Hurkles are usually invisible and only make brief appearances. You can only capture the little buggers by destroying all the squares surrounding the invisible Hurkles without destroying the square on which the Hurkle is hiding. Features include: 10 rounds with ten different grid configurations; 3 levels of difficulty; Pop-up "save your job" screen if the boss walks in; and much more. Requires VGA monitor and video card.

EGA/VGA PINBALL (9214) ~NEW

MORAFF'S PINBALL ver 3.0 supports both EGA and VGA video modes and adds a few extra twists. The pinball machine contains 5 flippers, allows up to 13 simultaneous balls, and has many special "when-lit" items. It also has a built-in function to alter game speed for fast computers. This is about the best pinball game we've seen. The great 16 color 640X480 or 640X350 resolution adds real beauty to the unique features.

GUNN GAMES #3 (9215) ~NEW

CLEANUP - Clean up the gold stars without hitting a barrier or your own trail. It takes strategy and skill to avoid blocking your own path. This arcade game is lots of fun to play! The author says he'll send you another game disk if you can beat a certain score. That's quite a challenge!

DUELING DRAGONS - Wrap your dragon around the opposing dragon so it can't move long enough to be declared the winner. Loads of arcade fun for 1 to 2 players.

TRIAXIS - You're on an island composed of hexagonal bio-zones with different terrain. Survival depends on how well you use the environment and control population. This interesting and challenging game is for 1 to 6 players. NOTE: All three games require EGA or VGA.

GUNN GAMES #4 (9216) ~NEW

CIRCLINK - In this wild arcade game, you must move your marbles by rotating the links. The first one to get them to the bottom of the linked circles wins. For 1 to 4 players.

SPIDER WEB - A crazy, fun exercise in which you must spin a web and catch all the flies before they over-populate. Neat arcade game! NOTE: Both games require EGA or VGA.

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GUNN GAMES #5 (9217) ~NEW

HOWTWO - In this neat build-it arcade game, you must collect all the robot parts in the 10-story building and take them to the laboratory for assembly, without running out of batteries, to make the equipment (such as the elevator) work. Watch out, though. The berserk Stock Clerk Robot keeps taking parts to its attic stockroom. The elevator and lifts must also be repaired so they'll always go to the right floor. Good luck. You'll need it! This game is lots of fun to play.

SPINWALL - In this neat arcade maze game, there's a ghost who can walk through walls matching the colors of the magic keys you must try to collect. At first, all walls are solid. Pressing the "SPIN" key causes the corners of the walls to spin at random, opening different doorways. Each spin costs one of the gems you must collect. You maneuver through the maze of halls and rooms, trying to collect all six keys. This game is great fun!

RODRONES - This is an interesting, challenging game in which you must think in three dimensions to succeed! Can you?! NOTE: All three games require EGA or VGA.

HOBBY, SPORTS & GAMBLING

LOTTERY SYSTEMS (2130)

LOTTO BUSTER ver 4.0 does far more than pick random numbers. Use this great system on any pick-6 or pick-7 lottery. Pick by lowest or highest hitting numbers weighted by when they hit, or use only the previous 10 weeks hits. Tracks up to 2 years of data.

LOTTO PROPHET - another sophisticated system that can give you the edge you need

KPS LOTTO ver 2.50 (2131)

KPS LOTTO provides a simple way to keep track of various state LOTTO drawings and to compute valuable statistics from which to evaluate performance of past LOTTO drawings. This helps you pick numbers with the greatest potential in future drawings. It also provides you with a simple system for picking a group of boards. You can keep track of many tickets (5 boards to a ticket) and wheels (30 boards to a wheel) and easily compare them to recent numbers drawn. Includes California lottery information and detailed results, plus results from 20 other state lotteries. Features many options.

HANDWRITING ANALYST SAMPLER ver 2.1 (2132)

This menu-driven program lets you analyze anyone's signature based on a multitude of handwriting characteristics, and then produce a detailed personality report. The program was created by a team of talented pros, including Dorothy Hodos, who is past president of the American Handwriting Analysis Foundation, has studied with the most famous graphologists, and has practiced and taught graphology for 20 years. Among the many handwriting characteristics examined are size, connectedness, height, width, expansion, extension, upper- and lower-loop characteristics, and pressure, to name a few. You select from a list the description most closely matching the particular characteristic under evaluation. Detailed information about each choice is instantly available through on-line help, making it easy to select the right description. You can save the results of a writer for later retrieval, produce quick or detailed personality reports, and much more.

PC-FOTO ver 2.45 (2100)

Creates labels for picture, photo, slide, etc. libraries. Provides space on labels for a significant amounts of information, including account or serial number, photographer's name, content description, location, and more. Prints up to nine sets of labels, four labels per set, in a variety of label sizes in order to accomodate different picture and slide size formats. Requires printer with adjustable-width sprocket feed.

FOR PHOTOGRAPHERS ver 1.40 (2108)

FOR PHOTOGRAPHERS is a menu-driven 3-level cataloging tool for both family and professional photgraphers. This easy-to-use program allows you to create a catalog and then locate a photograph or negative by any one of 21 characteristics. For example, you can get a list of all sunset pictures taken at the beach; or all photos of New York City. Entries can be made for individual pictures, allowing you to list unique data about each. The 3-level feature allows you to determine the amount of data you wish to store for each entry. The three levels are Basic, Photographer, and Professional. Each level provides progressively greater detailed information to be stored for each entry. Performes searches, edits, save, delete, update, etc.

COIN COLLECTOR (2107)

COINFILE ver. 3.0 is a coin collector's inventory management system. Includes unique features not found in other inventory systems. Each collection has two files: a data file and a want file. For Buffalo nickels, for example, there is a file with your data and a file with an image of what coins a full Buffalo nickel collection should contain. COINFILE prints a variety of reports, including a want list that compares what you have with what you need; an inventory help sheet; a listing of all coins of all collections with descriptions and updated prices; and stick-on labels for 2x2 coin holders. Maintains a record of each coin's condition, purchase price and date, and current value. Three want files are already included. Requires CGA, a color monitor, DOS 3 or higher, and 2 floppy drives or a hard disk.

STAMP COLLECTOR ver 1.0 (2133) ~NEW

This special database program allows you to maintain the following information for each stamp in your stamp collection: Date acquired, issue month and year, country, market and issue values, quantity, condition, catalog number, and additional comments. Btrieve indexing is used for very rapid record retrieval.

FOR BASEBALL CARDS ver 1.40 (2109)

This unique database management system for baseball card collectors and investors makes keeping track of entire collections fun and easy. Tracks cards by identity and value, maintains a current want and trading list, identifies special cards in a variety of ways, and much more. Performs fast searches to locate players, teams, and card numbers. Takes the drudgery out of maintaining your valuable collection.

ORIGAMI (2101)

ORIGAMI teaches the ancient art of paper folding. This is computer-aided instruction at its best. Paper folds are presented with animated graphics. Just follow the step by step displays with your paper at hand. Included are instructions for creating paper sculptures of a rabbit, pig, jet, boxes, penguin, and much more. ORIGAMI is a delightful program for both children and adults. Requires CGA, EGA and BASIC.

PC-QUILT (2102)

This is a graphics quilt design program. It allows you to work with geometric quilt designs in such a way as to see exciting new designs by putting nine blocks together, alone or in combination with other blocks. You work with different grid types (three-patches, four-patches, etc.). You can paint these blocks and view different color possibilities in the finished quilt design. You can also flip and rotate the blocks which is very handy for asymmetric designs. You may also use and edit blocks from the on-disk library and add to the library. Designs can be sent to dot matrix printers. Requires CGA or EGA.

JOG LOG (2103)

A menu-driven program that maintains progress reports for runners and measures the aerobic benefit of each run. **JOG LOG** uses two basic methods to measure aerobic benefit. The aerobic log method records parameters relating to the time and distance of each run. The target heart rate method calculates a target heart rate (based on your age and conditioning) that you must reach and maintain for 20 to 30 minutes. The program enables you to search and compare the records of your runs by date and physical effort. Highly recommended for the jogger who wants to keep tabs on his/her progress.

RUNNER'S PERSONAL COACH (2104)

GRAPHIC COACH provides runners of all abilities an easy way to monitor their current training, compare current training to their past progress and plan their training to improve future fitness and race performance. Provides daily/monthly/annual calculations of training pace, elapsed time and distance. In addition, the program calculates and displays an optimum specific training schedule for next week's training, based on most recent 5K or 10K race elapsed time. The training schedule is based on calculated aerobic capacities and maximizes the training effect. Requires CGA or EGA.

BOWLING LEAGUE SECRETARY ver 2.2 (2105)

This program makes it easy to maintain all records associated with your bowling league for up to 32 teams and 8 bowlers per team. Handles up to a 50-week season. You specify league name and type, bowling establishment, team data, schedule and handicap basis. Automatically sorts position rounds. Produces/prints weekly standing, final standings for bowler and team, individual bowler and team record sheets, etc. Menu-driven with on-line help for ease of use.

RACEHORSE HANDICAPPER ver 3.0 (2106)

CAMBRIDGETHOROUGHBRED HANDICAPPER is a powerful, sophisticated tool for handicapping thoroughbred horses quickly and easily. It is designed to help you improve your performance at the track and make money in the process. The program is menu-driven with on-line help and very easy to use. All the information you need is available in the Racing Form. With a little practice, you'll be able to handicap a race in a few minutes and a whole card in less than an hour. Originally a commercial program marketed by a firm specializing in handicappers, it is now available to you as shareware.

PERFORMANCE CALCULATOR ver 3.0 (2110)

PERFORMANCE CALCULATOR is a menu-driven program for automobile enthusiasts which makes numerous calculations relating to the performance of any car. Engine calculations cover air flow, compression ratio, displacement, fuel flow, horsepower, and torque. The air flow calculation, for example, allows you to determine how much air a particular engine setup would

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require, and is helpful in selecting induction system hardware. The fuel flow calculation shows the maximum rate of fuel consumption for your engine setup, and is helpful in assuring that the fuel lines, pumps, etc. you select will be adequate. Chassis calculations include bar rate, coolant, G-force, overall gear ration, spring rate, and tire diameter. The overall gear ratio calculation does not merely multiply gear ratio by final drive ratio, but rather determines the overall gear ratio based on observed combinations of engine RPM's and road speeds. The dragstrip menu covers altitude compensation, elapsed time, and trap speed; and the speeds menu covers speeds in gears and top speed. The program also offers a handy metric-SAE converter, and all measurements may be entered in either SAE or metric throughout. Requires CGA, EGA, or VGA; however, performance graphs can only be viewed with EGA or VGA.

DOUBLE BOGIE KILLER and GOLF HANDICAP (2111)

DOUBLE BOGIE KILLER (DBK) - DBK is no ordinary golf stats program. It is a full-featured menu-driven golfer's database program. Here is what it can do with just 4 data items per hole: Round Summary - A hole by hole report of each round played, giving you the same information you would have if you could view all of your scorecards at one time; Course Summary - A course by course breakdown of each round. Does not show individual hole results but rather an overall performance. Includes the famous DBK Putt Stat% and the Eagle Eye standing; Handicap Report - Keep that USGA handicap in shape and never be in doubt about where you stand; Efficiency Sheet - A percentage analysis showing sub-pars, pars and bogies, scrambled and lost pars and par 3 hit ability; Yardage Report - A course by course summary showing hole yardages, your club distances by hole type, total yards played, strength level and the DBK Rating. Easily deletes, combines, splits, and archives files, and much more. Includes extensive on-line help. This program is a must for any golfer who is even half serious about this wonderful sport.

GOLF HANDICAP - Designed to keep handicaps current with each round of play, this menu-driven program allows you to add new golfers; add scores; change, browse, mark, and unmark golfers' records; correct scores and course ratings; print records; delete a marked golf record; and more. As soon as a new score is entered and saved, a new handicap is computed and displayed. GOLF HANDICAP is also useful for golf league secretaries and others who require daily or weekly handicap updates to maintain a proper competitive environment.

PRO FOOTBALL LINEMAKER ver 1.0 (2112) ~NEW

Not quite as good as a crystal ball, but close! This easy-to-use, menu-driven football forecaster uses the results from past NFL games to calculate and predict the point spread of future games. It also predicts passing and rushing yardages between any two teams, as well as sacks, first downs, time of possession, lost fumbles, and more. Includes 1989 regular season database and 1988 statistics. Detailed analyses can be viewed on-screen or printed out. Requires 384K.

FISHBASE ver 2.1 (2113) ~NEW

This is a specialty database program for fishermen. Many fisherman keep a diary of their fishing trips and try to determine from the information some sort of pattern or reason for the success or failure of their trips. Tough to do! With **FISHBASE** your computer will accurately analyze the data and print detailed reports which provide answers to questions such as: What kind of lures accounted for the most fish; What color lures caught the biggest fish; What water temperature seemed to bring the most success; What week seemed to be the most likely time for bass to be spawning; Did the phase of the moon really have anything to do with the willingness of the fish to strike; and much more. This easy-to-use, menu-driven program helps you to make sense out of all the data so that future fishing trips will result in greater catches.

FISH-N-LOG ver 1.5 (2114) ~NEW

Want to catch more fish? Anglers who use past results to help predict what makes them fishies bite best will love **FISH-N-LOG**. Allows you to easily record important facts about your fishing trips by answering specific questions about location, bait, weather, water level, water conditions, feeding times, and much more. There's also space for descriptive narratives to help refresh your memory about previous fishing trips.

BALLISTIC ver 3.01 (2115) ~NEW

Attention shooters and reloaders! **BALLISTIC** generates ballistic tables to help you assess the performance of the small arms ammunition you produce. It calculates ballistic coefficient, remaining velocity, energy, momentum, drop, wind deflection, maximum height, time of flight at a given range, and the amount of recoil generated by a cartridge and gun. It also estimates minimum twist necessary for bullet stabilization, calculates point blank ranges, and produces trajectory tables for estimating "holdover". It does all this by comparing the bullet in question to actual compiled firing data. Requires DOS 3.0 or above and a graphics display. Does not support MCGA.

COMIC BOOK LIBRARIAN (2116) ~NEW

FOR COMIC BOOK COLLECTORS ver 1.40 - Catalogs your entire comic book library, then lets you locates books by any of 21 different criteria. A special three-level feature determines the amount of data you wish stored per book (similar to FOR PHOTOGRAPHERS - #2108). You'll be able to find books featuring certain characters, or illustrated by specific artists, and MUCH more! Maintains a COMPLETE record of your collection; and includes full edit, search, delete, print facilities, and more. Features many options! The program is completely menu-driven and very easy to learn and use. Requires 2 floppy drives or a hard disk.

COMICS ver 1.1 - Another excellent, though smaller, comic book inventory program that has most features a collector would want in a library maintenance system. COMICS allows you to add, edit, and list records; Copy files; Perform searches; and a lot more. Fully menu-driven and VERY easy to use, COMICS even includes a sample data file. A color monitor is required.

HAM RADIO (2117) ~NEW

CODE MACHINE ver 1.1 - This Ham Radio program will key radio transmitters to provide Morse Code practice sessions for anyone wishing to learn code or enhance their speed. Transmits perfect code at speeds from 1 to 100 words per minute, and incorporates many special features.

PACKET-SHAREWARE - This is used by Ham Radio operators in packet radio networks in place of standard terminal programs. It is an advanced user interface program to control your packet station, offering easy multiple connect operation and simultaneous monitoring on separate screens. Features large capture/scroll buffers, multiple virtual channels, and much more. Works with AEA type PK-87, PK-88, and PK232 and compatible Terminal Node Controllers. Requires 320K and a serial port.

SAMFB MORSE CODE PROGRAM - Another excellent menu-driven program to help you learn to key and copy Morse code. Loaded with options and extras!

COMPUTER DARKROOM ver 1.0 (2118) ~NEW

COMPUTER DARKROOM (CD) eliminates the calculation of exposure times during photographic printing. Changing conditions (magnification, filter selection, etc.) require a new exposure time for the same result. CD calculates this time for f/2 to f/32. Covers black and white (B&W) and color printing from negatives, and color slide printing onto Ilford Cibachrome paper. Computes exposure time based on the speed of 17 popular B&W papers, on contrast grades of B&W papers and filter factors for variable contrast papers, on magnification ratio of B&W or color printing media, and on color correcting filter factors for color printing. Also provides a printout of specs for reproduction of the last printed slide or negative.

FOR RECORD COLLECTORS ver 3.40 (2119) ~NEW

This powerful, menu-driven database system for your LP, 45, CD, and cassette music collection allows you to record and retrieve information and even print a catalog. You'll be able to find songs by title, artist, label, producer, or any of 19 other criteria. You can even perform complex multiple cross references. This easy-to-learn and use program features a unique 3-tier programming method with capacity limited only by your available disk space. Requires 2 floppy drives or a hard disk.

HOUSEHOLD

POINT & SHOOT HOME MANAGER ver 2.0 (1802)

This comprehensive home management system is a collection of databases for complete home budgeting, tracking of home maintenance, home inventory and important record tracking, name and address tracking, and vehicle maintenance record keeping. Includes many additional convenience features like a full featured financial calculator, a full-screen text editor, printing envelopes and mailing labels, and much more. The program is entirely menu-driven with on-line help for ease of use. Requires 2 floppy drives or a hard disk.

HOME INVENTORY ver 2.0 (1805)

A menu-driven system designed to keep track of every thing you own - from Picasso's to plants. Objects can be identified by general category (appliances, furniture, etc.) and by specific item (overstuffed chairs, sofas, etc.). You can configure every aspect of the program. For example, you can personalize rooms, categories, owners of objects, etc. Track your possessions by type, room, owner, quantity, color, purchase date, and cost. Search feature allows you to quickly find information on any, all, or a range of objects. Prints reports. This program is written in Basic. It is very easy to use and is perfect for maintaining records for insurance purposes.

VEHICLE MANAGEMENT SYSTEM (1806)

VMSYS is a menu-driven program that will help you keep track of gas mileage and miles driven on a rolling 13 month history. Information is presented graphically, making it easy to spot engine trouble attributed to a loss in MPG. VMSYS also aids you in predicting when to do scheduled maintenance. A repair record may be maintained for up to 2 vehicles.

CARFILE will help you to keep track of business use of vehicles for tax purposes.

GARDENER'S ASSISTANT (1809)

Helps you plan your home garden in every detail. You select from menus what region of the country you live in, what you want to plant, and the number of people your garden will be feeding. The program will graphically layout your

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garden and provide details about planting and harvesting dates, how much seed to buy, and how to plant the seeds. This is a great program for those with a green thumb. Requires CGA, EGA or VGA.

LANDSCAPE PLANT MANAGER ver 1.0 (1800) ~NEW

This menu-driven plant information system will help you select plants based on design criteria. It provides a speedy alternative to paging through nursery catalogs and plant manuals when trying to find plants for a particular landscape situation. Suitable for homeowners, landscape professionals, and horticulturists, LPM offers fast searches and detailed information on a large variety of plants, flowers and trees. Features include: Add, delete and modify information in the plant database; Search for plants by common or scientific name; Search for plants matching one or more design criteria for use in the landscape.

TAPE CASSETTE MASTER ver 5a (1810)

Catalogs your entire cassette tape library and prints catalogs, cassette labels and case inserts. Provides space for tape number, selection titles, and artists for up to ten selections per side.

VIDEO LIBRARIAN ver 2.1 (1812)

We receive 2 or 3 video library programs for review each month, and they're all pretty nice. But **VIDEO LIBRARIAN** (VLB) packs the most punch. This full featured, menu-driven database manager will catalog your video cassette library like no other. 14 database management functions are available from the data entry screen menu. 18 fields of information about each movie can be recorded, including: Movie title; Names of stars, co-stars, directors, cast members; Company; Comments; Start counter; Stop counter; Recording speed; MPAA rating; Category; Year; Tape#; Time. VLB is fast and can perform complex searches on up to eight fields and can print reports to the screen, printer, or disk file. VLB can hold up to 64,000 selections. It can quickly create fully functional sub-files of the main file and can also merge files. And if all of this isn't enough, VLB can even print labels for cassettes on regular or custom labels. Wow! Requires 320K.

FOR FILM AND VIDEO TAPES ver 1.40 (1801) ~NEW

This powerful full-featured menu-driven program allows you to create a catalog of your films and videos and then locate volumes and sequences by any of 21 different criteria. Features are similar to FOR PHOTOGRAPHERS (#2108). While our favorite is VIDEO LIBRARIAN (#1812), which requires 320K of memory, this easy-to-use program is an excellent choice if you have only 256K. Requires 2 floppy drives or a hard disk.

DISK JOCKEY (1808) ~NEW

This menu-driven cataloging system for compact discs and phono records allows you to enter data quickly and easily. Information is retrieved to your screen or to the printer by artist or song title. Record and song titles are displayed alphabetically by artist or by song title. Includes full editing features, 2-level browse, and much more. Shareware version is limited to 100 records/discs. Requires 640K and a hard disk.

HOME ENTERTAINMENT MANAGER (1827) ~NEW

This exellent menu-driven program will take nearly all the work out of organizing and maintaining your entire home entertainment library. You'll be able to simply and easily track all of your videos, records, cassettes, and compact discs; instantly sort listings in several ways; track by title, category, listing number, artist, etc; add, delete, and edit data entries; display title lists; and much more. This very complete program will add a whole new dimension to the enjoyment you receive from your library!

PC-BARTENDER ver. 2.00 (1823)

PC-BARTENDER is like having a professional bartender in your own home. This full-featured program will show you how to mix almost any alcholic (and non-alcholic) beverage. Impress your guests with professionally mixed Brandy Alexanders, Pink Ladies, Flying Grasshoppers, Zombies, Black Russians, etc. PC-BARTENDER also keeps inventory, tells you what drinks you can mix with your on-hand stock, and teaches you about the ingredients of drinks. The menu-driven interface gives you easy access to hundreds of drinks, from old standbys to the exotic.

DO-IT-YOURSELF PROMO KIT (1814)

Greeting cards on disk that play music have a lot more impact than traditional paper cards. This is a neat, menu-driven program which enables you to easily create personalized greeting cards that play music. You use the built-in editor to type in the "to", "from", and personal message information. One keystroke then copies your greeting card to disk. Included in the package are interactive, musical birthday and Christmas cards. The birthday card plays "Happy Birthday." The Christmas card gives the recipient the option of choosing from a list a carols accompanied by a bouncing ball for sing-a-long. Cards can also be printed.Requires 2 disk drives, CGA or monochrome card.

GIFTS (1815)

If you ever had a problem deciding what gift to buy someone (who hasn't?), **GIFTS** can help. This database program will give you gift ideas. You select the gift category, price range, and the type of person you are buying for. Records which meet your criteria are then located. Each record provides gift title and description, approximate cost, supplier, and a comment. GIFTS is menu-driven for ease of use and can help prevent aimless wandering through department store isles.

MOVIES ON-LINE ver. 1.4 (1807)

This is a user-friendly movie cataloging program designed for movie lovers and video buffs everywhere. There are thousands of movies to see in theaters or to rent for your VCR. But which one do you want to see tonight? Who starred in "Harry and The Hendersons?" Who directed "Making Mr. Right?" Is the MPAA Rating of "Outrageous Fortune" suitable for your pre-teen daughter? How did someone who's seen "Peggy Sue Got Married" rate it? What's "Roxanne about?" **MOVIES ON-LINE** is a perfect program to answer these and other questions about movies. Menu-driven and easy to use, it's a good tool for the casual user and for those who want to collect and maintain a movie data base of up to 5600 movies. Requires a color monitor.

AWARD WINNING FILMS of the SILVER SCREEN (1828) ~NEW

This unique offering is the ONLY Academy Awards data bank program available for the PC. The Shareware version, which covers 1927 through 1969 (1970-1988 is available for registered users), lists movies by year, award, multiple winners, and alphabetically. It also provides movie profiles, which include cast members, awards, credit, and more. Provides a wealth of movie information, and is especially useful in answering those obscure movie trivia questions you find in local and national contests - or for creating your own trivia questions.

HOME INSURANCE ver 3.40 (1829) ~NEW

This superb home inventory and insurance planning tool allows you to be PROPERLY insured by keeping track of what you own, it's location, original costs, and replacement costs. The program is menu-driven and, with its great on-line help, is very easy to learn and use. Valuable reports can be printed and placed in safe keeping or, if you wish, given to your agent for his official records. This program even adjusts the value of your belongings by item groups to account for inflation and depreciation. As an added bonus, the program also incorporates a life insurance calculator, an insurance policy information database, and more! Requires 2 floppy drives or a hard disk.

UTILITY BILL ANALYZER (1830) ~NEW

The **ELECTRIC and GAS ANALYZER** ver 4.0 is a powerful and easy to use program that will record and maintain utility usage. A continuous record is kept of present and previous meter readings, the cost for each month's usage, and service period dates and costs. You can analyze cost and usage by month for each individual year, yearly by year, and by selected periods (ie, summer, winter, etc.). A cost estimator feature allows you to enter your present gas or electric meter reading and to approximate your future costs.

TRAVEL

PC-FLIGHT GUIDE ver 2.0 (1300-1304) 5 disks ~NEW

This airline database contains every flight (air...000) between more than 200 cities in North America. It is more co...e than systems used by ticketing and travel agencies. You c...onnection between any two cities, next connection if y...ght, intermediate cities if you change planes or airlines. S...planes flown by specific airlines is provided. Includes in...car rentals, passport requirements, hotels, resorts, etc. ...ost current data for this program, and for $120.00 registered ...e updated data every two months. Requires 640K, hard disk with ...gh space for 4.5 megabytes. AT class computer is recommended.

DISCONTINUED

TRIP PLANNER (1305) ~NEW

VACATION PLANNER (VP) ver 3.3 helps you in planning vacation and business trips by car. It determines the shortest route to your destination even if deviations from the most direct route are needed. For example, you may want to visit friends, visit popular vacation spots, or just avoid known traffic problems. Additionally, VP produces a trip plan that gives you valuable directions including highway, time and distance information, and estimated expenses for gasoline, food, motels, and other expenses. VP can print this in a convenient format that eliminates the need to unfold large maps while driving. "Map Maker", a provided utility, allows you to customize the "Map" files furnished with VP to include your own areas of interest such as your home, Grandma's house, favorite vacation spots, or your own short cuts. No matter where you travel in the United States, this easy-to-use, menu-driven program is truly invaluable.

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HEALTH and COOKING

THE SHOPPER'S ASSISTANT (1816)

Two easy-to-use programs to help you take the hassle out of grocery shopping.

GROCERY SHOPPING LIST allows you to create a custom tailored shopping list from a listing of common grocery store items. Print your shopping list and take it with you to the grocery store. No more wandering down the isles with the nagging thought that you must have forgotten something.

COUPON FILER helps you keep track of your store coupons. Removes the guesswork from what coupons you have, what they're worth, when they expire.

COMPUTER CHEF ver 1.1 (1817,1818) 2 disks

COMPUTER CHEF is a menu-driven recipe program that is jam packed with mouth watering delights. From the opening menu you choose whether to search for a keyword, an ingredient, or a recipe title word. For example, if you search for the ingredient vanilla, you are presented with a choice of 50 recipes which contain this ingredient. Some of these are Brandied Walnut Peaches, Strawberry Jewels, Secret Kiss Cookies, and Mexican Coffee Liquor Cookies. (You can get fat just reading the titles). Once you select a recipe, its ingredients, cooking details, and number of servings are presented on screen. A submenu then gives you the option of printing or writing the recipe to disk, or revising the recipe for different amounts. NEW RECIPES CANNOT BE ADDED, but there's enough here to keep you cooking for a long time. If you order this program and use it, please feel free to invite us to dinner.

PERSONAL RECIPE COOKBOOK ver 2.45 (1819)

This program is designed to organize a recipe file. Written in dBASE III and compiled with Clipper, it is a very fast and slick menu-driven system. Features include: Two pages available for each recipe; Add, delete, edit, and print recipes and recipe codes; Print recipes full size or as index cards to screen, file or printer; On-line help and conversion measures; and more. Includes 40 recipes. If you're looking for a program with a lot of existing recipes, COMPUTER CHEF (Disk # 1817,1818) is a good choice. If you want an easy to use, fast and flexible recipe file management program for your own personal recipes, this is it. Requires a hard disk.

EDNA'S COOKBOOK ver 1.24 (1824)

This excellent program will record, file, sort, list and print all your important recipes. The screen is conveniently divided into two sections - one for ingredients and one for directions. For each recipe you can assign a category (DESSERTS), a subcategory (PUDDINGS), a title (GRANDMA'S CREAMY PUDDING), and the recipe's source. Categories and subcategories are user-definable, and recipes can be displayed or printed by category, subcategory, or all at once. Finding your recipes is a breeze because the program automatically arranges them by category, subcategory and title. You can even password protect your secret recipes to keep them private. Requires 2 floppy drives or a hard disk.

COMPUTER BAKER (1825)

A menu-driven, simple-to-follow computer recipe book containing 99 recipes of good things to eat. Select from six categories, including snacks, fudge/candy, muffins/bisquits, cookies, cakes/frostings, and pies. Baked goods are fast and easy to prepare. Each recipe is made from scratch. Includes such wonders as cherry blinks, snicker doodles, panochee fudge, old fashioned peanut brittle, cinnamon coffee bars, ginger snaps, streusel coffee cake, and fruit cocktail eggnog pie. Yum, yum!

MEALMATE ver 3.5 (1821)

An excellent nutrition and meal planning aid for anyone on a carefully controlled diet. It was targeted for diabetics as a source of readily available complete nutritional information for glucose level control, but is of value to anyone who must or wishes to precisely control calories, proteins, carbohydrates, fats, and especially food exchanges. Presents nutritional information on many common foods. Can combine the information from meal plans or menus to check the total nutritional content of a planned diet. Makes it easier to plan more varied meals or to help in choosing substitutes for hard to find diet items. MEALMATE follows guidelines established by the American Diabetes Association, The American Medical Association, and Weight-Watchers International. Can print full page or index card reports. You can add to the on-disk food database which contains over 750 items. Menu-driven and very easy to use.

A>RECIPES ver 1.0 (1831) ~NEW

Here are 125 great recipes from the A>COOK commercial recipe program. There are delicious appetizers, soups, salads, pastas, breads and desserts. A>RECIPES is completely menu-driven and lets you find the recipes you want in seconds. You can then adjust serving sizes from 1 to 99, print recipes to take to the kitchen, and print a shopping list. With A>RECIPES you can use your personal computer to plan weekly meals, parties and special holiday dinners. Bon Appetit.

QUICK-N-EZ RECIPES &HERBS & SPICE (1832) ~NEW

QUICK-N-EZ RECIPES 2.71 b is an easy-to-use, menu-driven recipe program for those who want to prepare a great meal without spending all day doing it. All recipes take an hour or less to prepare, and there's over 150 to choose from. Includes American, Mexican, oriental, soups, salads, sauces, and more. Features on-line help, prints single recipes or all recipes to compile a cook book. Requires graphics monitor and Epson or IBM printer and compatibles.

HERBS AND SPICE is a neat, ease-to use, menu-driven program to help the "non-cook" or forgetful cook pick the right herb or spice for certain foods. Includes 47 spices in all - from allspice to thyme.

THE NUTRITIONIST ver 3.2.1 (1833,1834) 2 disks ~NEW

This powerful, comprehensive program makes healthy meal planning a real snap. From a large database of natural foods, easily create recipes, meals, and daily regimens. Perform a complete and informative analysis for nutritional content. A unique protein balancing feature automates what was once the very complex task of limiting protein intake to the necessary essential amino acids. An exercise function lets you know how many calories you expend during your daily activities. Has full printing functions. **THE NUTRITIONIST** is menu-driven, very easy to use, and extremely well designed. It is one of the best nutritional programs we have ever tested, and we highly recommend it to those who are interested in a healthy life style.. Requires 384K, DOS 3.0 or above and any graphic monitor.

MEAL MASTER ver 1.4B (1835) ~NEW

This excellent program will hold up to 500 recipes, plan and schedule your meals, and printout a shopping list. The automatic meal scheduler is great. It randomly selects menus for breakfast, lunch and dinner for up to 14 days, and you have the option of customizing the menus. The shopping list printer makes a list based on the scheduled meals, and it too can be customized before you get a printout. Each recipe in the recipe database can have up to 12 ingredients and up to 9 lines of instructions. The program is fully menu-driven and very easy to use. Requires 512K and 2 floppy drives.

LIFE SIGNS (1822)

LIFE SIGNS is a collection of programs that help you maintain good health. Based on your lifestyle, family history, etc., these programs offer the following: Determine your life expectancy (ouch!); Measure your risk of heart attack; Analyze your stress level; Calculate your percentage of body fat and your ideal weight; Measure how many calories you burn. Also included in this package is an excellent biorhythm program. It will produce a chart for any range of time you specify. It will also report compatibility profiles for two individuals based on their biorhythms. **LIFE SIGNS** can help you to determine your present state of health as well as suggest corrective measures.

SLIMMER ver 2.0 (1826)

If you're like so many Americans who must watch their calories and cholesterol count, then **SLIMMER** is for you. Tracks weight, caloric intake, cholesterol level, etc. Includes a calorie counter, editor, plotting function, and more.

DIETAID ver 2.1 (1836) ~NEW

DIETAID is an excellent diet planner that compares planned menus to your prescribed diet. Features include: Stores a diet prescription and then examines it against proposed menus; Adds new foods and recipes; Gives diet suggestions based on age, weight, sex, and activity level; Plans meals in terms of proteins, fats, carbohydrates (PFCs) or exchange units (EUs), and calories; Prints diets, menus, and recipes; and much more. Includes many options.

ARTIFICIAL INTELLIGENCE

THE IMP SHELL (2500)

A powerful expert system development tool. It contains all the utilities needed to develop, test, and run new expert systems. IMP expert systems are rule-based, backwards-chaining systems and are very fast and not limited by an artificially small number of rules. The "shell" approach makes it easy to set up expert systems. Menu-driven with extensive help and on-line tutorial. Sample system is included. Requires 512K memory.

XXXPERT ver 2.4 (2501)

XXXPERT is an expert system development facility (artificial intelligence) which includes an editor, file manager and expert systems inference engine, packaged together in one integrated environment. Develop expert systems that use rules you write in English. Define expert knowledge just once then apply it repeatedly as a stand-alone expert system or integrate it with other software and files. No limit to the size and complexity of expert systems you can construct. XXXPERT is very fast and a "run-time" feature lets you build expert systems technology into your applications.

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DECISION ANALYSIS SYSTEM ver 1.10 (2502)

DECISION ANALYSIS SYSTEM (DAS) will help you choose an appropriate course of action when faced with a problem. DAS uses two separate methods to help you make your decision. The Decision Matrix Method is designed to be used primarily with tangible and easily quantifiable data and will provide you with an unbiased ranking of alternatives considered. The Pairwise Comparison Method is designed to deal specifically with subjective assessments and evaluations of alternatives and criteria. DAS therefore provides both objective and subjective routines for systematically analyzing your alternatives. It produces bar graphs to help with interpretation. DAS is entirely menu-driven and uses the function keys to move you through the system in orderly fashion. Includes on-line help for all functions. DAS can help you to decide something as simple as which car to buy, or it can handle much more complex problems.

ASTROLOGY and ASTRONOMY

STARVIEW ver 1.0.09 (2601)

STARVIEW implements a graphic display of objects in the solar system. Observe these objects at any time or date you choose. The display and range of information is truly impressive. Control the setup of almost all the variables. Contains 9096 stars and non-stellar fixed objects, and you can add your own data to this list as well as to the list of comets, asteroids, planets, etc. Runs on CGA, EGA and Hercules graphics card.

DEEP SPACE (2602,2603) 2 disks

DEEP SPACE is an excellent star map plotter. It will plot accurate custom star maps, either flat or in 3-D, with the following options: For any part of the sky, to any scale; For any given day, time and latitude; With or without constellation lines drawn in; With or without labels; In your choice of projection system; To any brightness cutoff. The program will compute an ephemeris for any comet that is discovered, and plot an accurate finder chart. It will plot a planet finder chart for an entire year as seen from earth, and planet orbits as seen from space. Star maps can be printed. Requires 512K and CGA.

GEOCLOCK ver 3.0 (2604)

GEOCLOCK is a geological clock program that shows the current time (based on the system clock) with maps of the earth and the USA. The current sun position is displayed with a crossed circle, and the part of the earth in sunlight is highlighted. This display is automatically updated every 1 to 30 seconds depending on the speed of your system. Local sunrise, sunset, and the sun's azimuth and elevation are also displayed. A variety of map backgrounds and other options are available to registered users. Requires a graphics card.

PLANETS ver. 4.1 (2605)

PLANETS computes detailed information relating to the position, distance, magnitude, orbit view, skyview, etc for the major planets, four minor planets or Halley's comet on a specified date and time. Also, orbital data for any desired planet or comet can be entered and saved in a disk file. Skyview and orbital views can show forward or backward motion. The moons for each planet can be displayed. From the author of the great program Chemical (TSL Disk #347). This is an excellent program for astronomy buffs. Includes video drivers for EGA, CGA, Hercules and others. Requires graphics card.

EXPLORING THE COSMOS ver. 1.0a (2606)

This planetarium simulator features stars in simulated intensity; planets and stars in motion; user-selectable update period; solar system view with correct planet orientation and orbital motion; zoom feature; help screens; and much more. An excellent teaching tool for showing interaction of heavenly objects. The shareware version includes 200 stars; registered version includes 2,000 stars. Requires CGA, EGA, or VGA.

SILICON SKY ver 1.0 (2607)

SILICON SKY is a menu-driven astronomy program which displays a realistic representation of the celestial sphere (about 1,600 stars) as seen from any latitude on earth for a selected date, time, and direction of observation. Displays the location of the sun, moon, and planets; and shows the correct phase of the moon. More detailed technical data giving coordinates of solar system objects can be displayed through menu selection. Constellations are identified by boundary markings. Cricket sounds are even incorporated if you wish, which occur after sundown when the program is operated in the PLANETARIUM mode. Requires CGA or EGA.

ASTROLOGY ver 9.5 (2701)

ASTROL95 is an extensive astrology program that offers the following features: Calculate the zodiac sign positions of the ten planets, including the sun and moon, and the twelve house cusps for any date, time, and place; Display the chart output in graphic chartwheel format or in non-graphic format; Select the Placidus and Koch house systems; Select the Tropical and Sidereal zodiac; Display the aspects between the planets, ascendant, and midheaven; Display the midpoints between the planets, ascendant, and midheaven, as well as midpoint/planet conjunctions; Display supplemental calculations such as the Julian Day, sidereal time, lunar mean north node, and Part of Fortune; Display for purposes of transits or chart synastry the aspects between the first chart calculated and an unlimited number of additional charts; Save calculated charts to file and review them; Display the mutual aspects and indexes of communication between any two saved charts to determine compatibility; Display mutual aspects between a saved chart and a calculated chart as a way of investigating the transits at any time; Conduct rapid searches for compatible matches between the charts in the database according to user-defined criteria of sex, age, and minimum required mutual communication index levels; Calculate a six-month list of transits by the outer planets, Mars through Pluto, to any saved chart; Print a hardcopy of birth data with corresponding record numbers for all individuals in the chart database; Delete selected saved charts from the chart database; Sort the saved chart names into alphabetical order. ASTROL95 is entirely menu-driven with on-line help.

PROCON FORTUNE ver 2.0 (2702)

PROCON FORTUNE is an astrology and numerology program that provides a personality analysis and compatibility reading based on both Western and Eastern Astrology. Also uses your name and birthdate to provide a personality reading based on numerology.

THE ELECTRONIC ALMANAC (2700) ~NEW

This menu-driven powerhouse gives you access to hundreds of traditional almanac features with the press of a key. Once you enter the details date and place, **THE ELECTRONIC ALMANAC** uses the Moon and planets to put a wealth of information at you fingertips. You select a major category and the almanac will show you a series of optimum dates in easy-to-read calendar format. Find out the best times to start and end things in areas such as Farm and Garden, Legal, Personal Relationships, Medical, etc. Other features include: Today's astrology reading including astrological chart wheel; Action graphs covering the current hour, next 24 hours, 7 and 30 day forecasts; Astrological answers to questions; Oracles including I-Ching and Tarot Card readings; Lucky Lotto numbers for the day; Astronomy tables; Hunting and fishing tables; Metric conversion tables; and much more. Results are displayed on screen and can be printed out. This fascinating system is put out by Matrix Software which provides professional astrologers around the world with astrological systems and time-series software.

SPACE SHUTTLE MISSION TRACKER ver 8919 (2703) ~NEW

This is a real time orbital tracking and display program for use during Space Shuttle missions or for simulating a mission. It displays the approximate orbital position and track on a global map during a typical mission. **STSORBIT** attempts to duplicate the wall map in NASA's Mission Control Center in Houston. The program map shows most of the Earth's land boundaries and continental areas, and major oceans are easily recognizable. At any time, the display shows the Space Shuttle as a small symbol moving in orbit, the projected orbit for approximately the next three orbits, and the orbit track for the past orbit. Orbital parameters can be input for future missions. STSORBIT works best in color with EGA or VGA monitors, but will work with CGA.

GEOGRAPHY and MAPPING

WORLD ver 2.93 (2600)

A stunning, feature-packed world map program that is easy to use. Select from a menu a particular view of the world according to longitude/latitude, national capitals, world area, etc. **WORLD** draws the globe on your screen according to your specifications. Here's where the fun starts. You can use your cursor keys to position an on-screen arrow and zoom in on any part of the map to see increasingly detailed views (cities with their names become recognizable). Find cities, calculate distances, locate state and national capitals, track hurricanes, and much more. This is a superb educational tool. One of our most requested programs. Requires CGA or EGA.

MICRO WORLD DATA BANK II (2608-2612) 5 disks

World Data Bank II, which was designed for use on large mainframe computers, is a digital map data base of the entire world. It was produced by the CIA and distributed by the US Dept. of Commerce for $660. **MICRO WORLD DATA BANK II** is the version of this program designed for use on personal computers. It generates a map of the world, or any portion of it, on your monitor, showing coastal boundaries, state and country boarders, rivers, islands, and lakes. The maps are much more detailed than any other similar program we've seen, although it does not display names of cities, states, etc. as does WORLD (TSL Disk # 2600). If you have a hard disk, simple instructions enable you to create a 1.07 megabyte data file that offers you unprecedented boundary, river, etc. detail. Requires CGA or EGA.

STORM ver 4.01 (2704) ~NEW

STORM tracks hurricanes and will provide a warning if the storm is within 100 miles of a user specified city. Selected storms are displayed on a color map which plots the storm's advance and shows the name and position of any city you specify. An edit feature allows you to input data on a new storm and print out a list of the storm's location by date and time. Storms can be plotted on a map to your monitor or printed on Epson dot-matrix and compatible printers or HP Plotters. CGA monitors display maps in 4 colors, and EGA monitors display in 16 colors with 640x350 resolution. Requires CGA or EGA..

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GENEALOGY

FAMILY TIES ver 1.17 (2802)

FAMILY TIES is one of the best genealogy program we ever tested. The Latter Day Saints (Mormons) agree because they approved it for the submission of data. This system has an excellent, flexible user interface which makes it easy to deal with an otherwise complicated subject. You have the option of making reports in LDS or standard formats.

BROTHER'S KEEPER ver 4.3 (2803,2804) 2 disks

BROTHER'S KEEPER is a full genealogy program which helps you organize your family tree information. You can record names, dates, and other information, and print descendant charts with relationships, ancestor charts, group sheets, tree charts, alphabetical lists, and customized reports. Notes can be attached to records, and you can locate people in the file by typing their name instead of having to remember an assigned number. Prints charts sideways on Epson- compatible graphics printers. Handles up to 15,000 names. Requires 384K of RAM.

FAMILY TREE ver 6.2 (2805) ~NEW

This easy to learn and use program creates unique family history books to share with friends and relatives. **FAMILY TREE** records, collates, and sorts information on over 32,000 family members with unlimited children, and allows you to include 9-page biographies. Features include: Four generation ancestor and descendant charts; A family time line; Missing information audits; and much more. You can easily customize books for each family member in a variety of formats: Entire family; Family subgroups; Based on a single individual; or Sorted chronologically or alphabetically. A time line shows important dates in chronological order, and an index locates references to each person. Great for family reunions, holidays -- ANYTIME! (Wait a minute! 32,000 family members? Is this program for people or rabbits?)

CREATIVITY and INSPIRATION

CREATIVITY PACKAGE (3000,3001,3002) 3 disks

Helps you release and expand your creativity by providing you with unique and versatile tools. Includes an on-disk book, "**Think Thunder! and Unleash Your Creativity**," which guides you through an understanding of what creativity is and how you can awaken and use your own innate talents. Phase two is called "**Thunder Thought.**" This is computer-aided brainstorming at its best. It helps set in motion the first stages of the creativity process, helping you develop unique combinations of images and ideas. You then work with the computer in a fun and interesting way to develop meaning from these elements of creativity. The final component of this wonderful system, called "**Versifier,**" combines words and phrases into simple poetic grammatical structure. You'll experience ideas emerging you never knew existed. And, no, a background in English grammar is not required to fully benefit from this well thought out system.

IDEA TREE ver 010102 (3003)

IDEA TREE is a unique thinking tool and information manager that gives you total control over the examination and expansion of your thoughts on any subject. Ideas are typed into a graphic display that allows you to see their relationships to each other as branches of a tree. Each idea can have sub-ideas (or branches), and a branch can be moved or copied from place to place, tree to tree, and file to file. You can change the shape of the whole or any of the tree's parts as fast as you can think. IDEA TREE's uses for home and business are limited only by your imagination: Organize a wedding or party down to the last detail; Manage the design and construction of a new room on a house; Record business prospects by product breakdown with addresses, phone numbers, and commentary; Make an organization chart documented with job descriptions and personnel assignments; Create a fully detailed business function analysis; Etc. This powerful brainstorming tool includes printing functions.

WISDOM OF THE AGES ver 2.0 (1216-1218) 3 disks

This elegant program puts at your fingertips more than 6,500 quotations, thoughts, and proverbs from over 1,000 of humanity's greatest minds. **WISDOM OF THE AGES** covers 81 subjects with an average of 81 quotes per subject. Quotes are arranged chronologically by the source's date of birth. Sparkling gems and pearls of wisdom will help to illuminate your life and help you to inspire others. Select from the menus quotes on anger, love, patience, virtue, cunning, success, and much more. Easy to use with context-sensitive help screens and a superb user interface. Requires 2 floppy drives or a hard disk.

POETRY GENERATOR ver 1.0 (3004)

POETRY GENERATOR easily creates poetry with the aid of a 20,000 word vocabulary, thousands of pre-defined phrases, a number of different formats, etc. The program combines these various elements randomly to produce literally thousands of unique and original poems, each being 4 to 12 lines long. The poems are sometimes brilliant and sometimes make no sense at all. But that's part of the fun of it: you never know when a true masterpiece will emerge. At the very least, the poems produced will give you food for thought, and will most certainly spark your own creativity. Requires a hard disk.

COMMERCIAL PROGRAMS

VPToolbox ver. 3.0 (CC-001)

Personal Publishing Magazine said, "**VPToolbox** is an endlessly useful program... It may well be the single most important Ventura Publisher utility program now available." If you use Ventura Publisher, you know that file management is a serious problem. VPToolbox is the solution. This indispensible program offers:

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Let's face it folks! If you're new to computers, the DOS manual reads like a my'stery novel. What you need is serious help - in easy-to-understand plain English. **EASY DOS IT!** is for any new user who wants computer power, doesn't want to learn computer technolgy, and "runs into DOS!" This book covers the essential DOS commands to get you up and running quickly and painlessly. Each chapter progressively explains what you need to know in simple language and with clear examples. In a single day - at your own pace - you can learn all the commands necessary to run a floppy disk computer. We have reviewed many books for the new user, and the EASY DOS IT! - HARD DOS IT! series are most guaranteed to put the new user quickly in control. They are used today in many educational institutions.

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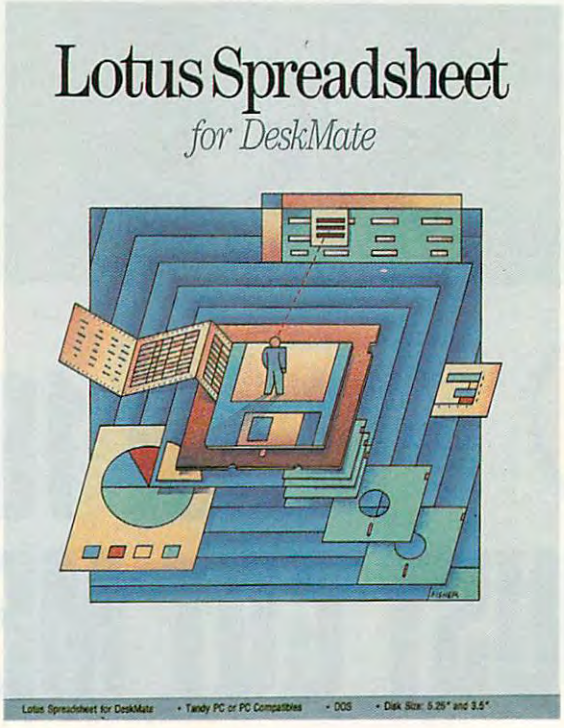

GRAPHIC IMPROVEMENTS MAKE LOTUS'S NEW DESKMATE SPREADSHEET EASIER THAN 1-2-3

COMPUTE! A CHOICE

LISA WROBLE

As software companies compete for the top position in the spreadsheet market, their programs become more and more elaborate, adding features such as graphic interfaces, 3-D work sheets, and mouse support. Unfortunately, these updated spreadsheets also require ever more memory and system power. If hardware requirements don't take you out of the running for one of these new spreadsheets, the $495-and-up cost might.

Lotus Development has a spreadsheet solution that doesn't require taking out a second mortgage on your home just to buy the software and a three-megabyte 386 machine to run it on. *Lotus Spreadsheet for DeskMate (Lotus/DM)* is a powerful, low-cost graphics-based spreadsheet. Retailing for only $219.95, the program is based on *Lotus 1-2-3* version 2.01 and runs under the Tandy *DeskMate* graphical user interface. Best of all, it runs comfortably on an XT-class machine with only 512K of memory.

Lotus/DM retains the familiar feel of *Lotus 1-2-3* release 2.01, but it boasts a new look by taking advantage of *DeskMate's* graphic display and adding pull-down menus, mouse and joystick control, and color graphics. Although *Lotus/DM* doesn't support expanded memory, add-in programs, or macros, the *DeskMate* interface adds features unavailable in the more expensive versions of *1-2-3*.

For example, the DeskMate Accessories menu lets you access other programs without exiting *Lotus/DM,* and it lets you run *DeskMate* utilities such as the Calendar or Calculator. Also, the program supports the Clipboard for merging information into other *DeskMate* applications. And, unlike in *1-2-3,* you don't have to exit the program to run the PrintGraph and Translate utilities.

Since I'm accustomed to using

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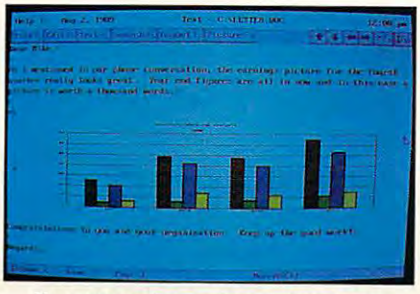
TIVITY

1-2-3, the pull-down menus took some getting used to. In the end, though, the menus are definitely an advantage. *Lotus/DM*'s main menu has six items: File, Edit, Worksheet, Range, Graph, and Data. These are comparable to the ten "slash menu" items available in *1-2-3*. The main-menu options in *Lotus/DM* are always visible, and you can make selections with a mouse, a joystick, or the function keys. Keyboard shortcuts for many menu options are available using *Lotus/DM*'s Quick Keys feature. The program includes over 30 preprogrammed Quick Keys, which are similar to macros except that they can't be changed. These shortcuts are accessed by pressing a command key in conjunction with a second key.

For example, you can use a Quick Key to change the width of a column. Control-W displays a dialog box into which you enter the new column width. Without the Quick Key shortcut, you'd have to use the mouse to select the Worksheet menu and then the Column Width option, or you'd have to press F4, move the highlight bar to Column Width, and press Enter to bring up the dialog box. You'll find that Quick Keys can save you many keystrokes or mouse actions. All of the keys are listed on a handy reference card. The flexibility of using either the keyboard commands, Quick Keys, or mouse actions is preferable to the keyboard-only control of *1-2-3*.



You can paste graphs or other information into *DeskMate*'s word processor.

The Quick Keys are as close to a macro capability as *Lotus/DM* gets. If you're an avid macro user, you should take this into account, as well as the few other features that didn't make it into this version. For example, you can't split the screen into two work sheets. Also, *Lotus/DM* won't let you set the printer paper to the top of the page or advance it one line or one page.

On the other hand, working with graphs is much easier in *Lotus/DM* than it is in *1-2-3*. For example, to add titles and a description to a graph, you simply select the titles option from the Graph menu. With *1-2-3,* you would have to select /Graph, then Option, and then Titles—three keystrokes—to perform the same action. The biggest *Lotus/DM* advantage is the ability to use the mouse to select graph ranges. Also, you can execute the Graph Name and Graph View commands using Quick Keys.

Graphs (but not work sheets) can be printed in landscape (sideways) mode, and the PrintGraph utility allows hatching and selecting different typefaces to enhance graphics. You can have titles in Gothic, Modern, and Roman typefaces, and these can be normal text, bold, underlined, or italic.

Because most of my spreadsheet work deals with databases, I rarely need to print my work sheet sideways. *Lotus/DM* doesn't support sideways printing, but there is a way to get around this limitation if your print jobs demand landscape format. You can copy a work sheet to the *DeskMate* Clipboard and paste it into another program that supports landscape printing, such as the Worksheet program included with *DeskMate.* This, however, is a lot of trouble to go through just to print a spreadsheet sideways. Unfortunately, although a *DeskMate* spreadsheet can be imported into *Lotus/DM,* a *Lotus/DM* spreadsheet can't be saved in a format

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that can be loaded directly into the *DeskMate* Worksheet.

Lotus/DM loads and saves files with a .WK1 extension, so it can open files from *1-2-3* releases 2.01 and 2.2 and Symphony releases 1.1, 1.2, and 2. The translate utility will convert .WKS files from *Lotus 1-2-3* release 1A and the *DeskMate* spreadsheet to .WK1 format, but it won't convert .WK1 files to .WKS format.

A program as complex as a spreadsheet needs a good manual, no matter how intuitive the user interface. The user manual is clear enough so it can be learned quickly by someone new to spreadsheets. And with the quick-reference card, experienced users will be investigating advanced features in no time. *Lotus/DM*'s manual is divided into three sections: setup, lessons, and reference.

The lessons section walks you through a spreadsheet (a sample income statement), showing you how to use graphs and set up a database. I found these tutorials very easy to understand. With this manual, even someone new to spreadsheets would have no trouble learning to use *Lotus/DM* or understanding the workings of spreadsheets in general. My only complaint with the manual is that it's too repetitive. When the third chapter on databases oversimplifies the same terminology that was already explained in the first tutorial, it's a bit irritating, even for beginners.

The reference section is a resource for the experienced spreadsheet user. It begins with a brief chapter covering the layout and options of the *DeskMate* interface and *Lotus/DM*'s menus and dialog boxes. The remaining chapters cover specific commands individually.

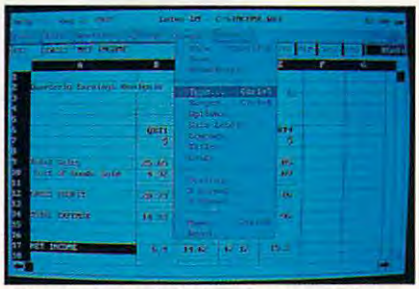
The longest chapter covers the @ functions, *Lotus/DM*'s preprogrammed math and database formulas. A separate section is devoted to each of the approximately 90 @ functions. Browsing through this well-written chapter, I reached a better understanding of the @ functions I've used for years.

The manual also includes several appendices, one of which contains a table of the *1-2-3* commands and the equivalent *Lotus/DM* commands. This table will be a big help for *1-2-3* users making the transition to *Lotus/DM*.

Beginning spreadsheet users will appreciate the five useful work sheet templates included with *Lotus/DM*. The Home-Buying Power Analysis helps you determine how expensive a house you can afford. Using the preprogrammed formulas, you can change information such as loan interest rates to see how it affects your purchasing power.

The Business Days Calculator helps with project management by determining how many days to schedule a project from start to finish, and the Employee Payroll Summary calculates paycheck deductions. The Accounts Receivable Journal evaluates the age of an account. Each time information is added to the database, any unpaid balance is added to the total. Finally, the Lease/Purchase Cost Comparison helps determine whether it's more efficient to lease or buy an item. You can customize all of these templates to fit your own needs.

For the price, I couldn't ask for more in a spreadsheet program. *Lotus/DM* has many of the advantages of the big-name spreadsheets. The biggest advantage is the *DeskMate* interface. If you already use *DeskMate*, the common user interface and screen layout will make learning *Lotus/DM* easy, even if you've never used a spreadsheet before. For my needs, the extras that are missing, such as macros and add-in utilities,



The *DeskMate* interface makes performing even complex operations easy.

aren't worth the extra $275. You should consider your own spreadsheet needs as a gauge to this program's worthiness. It may contain all the power you need, or you may need the muscle of a spreadsheet like *Lotus 1-2-3* release 3 or Microsoft *Excel*. For personal and small-business use, *Lotus Spreadsheet for DeskMate* packs a lot of power into an easy-to-learn graphics format at a reasonable price. And that makes it a worthy contender in the number-crunching ring.

Lotus Spreadsheet for DeskMate
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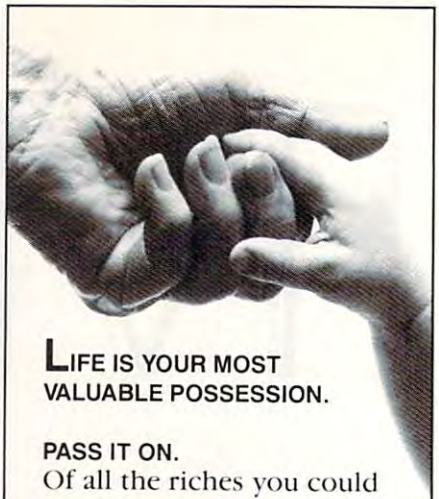

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DAVID D. THORNBURG

COMPUTERS TAKE KIDS ON A GLOBAL FIELD TRIP

Every astronaut who has peered at our beautiful planet from space has commented on the absence of visible borders. Seen from above, there is little to show where one country starts and another begins. One senses, from such a perspective, that whatever our backgrounds and beliefs, we are part of one humanity. Furthermore, we sense that our mutual cooperation is essential for our very survival.

Last year, prior to the opening of East German borders and other major events, a research project called Apple Global Education (AGE) was bringing students and teachers from over 22 countries into daily communication with each other through Macintosh computers connected to AppleLink. AppleLink is an Apple-proprietary network running through General Electric Information Service nodes and a mainframe computer system.

A brief scan of the daily message traffic shows the wide scope of this project, even though it is still evolving. Electronic pen pals communicate with each other while teachers collaborate on lessons. Communication takes place through text, scanned and mouse-drawn pictures, and *HyperCard* stacks.

Globally recognized events such as the California earthquake and the opening of the Berlin Wall were announced to the AGE world through first-hand accounts of children in or near the affected areas. This student's-eye view of history in the making has far greater impact than the summaries one finds in the daily papers.

I was struck by the similar concerns expressed by children worldwide. Global peace is very high on the list, and one senses that, through open communication, cross-cultural understanding and the development of international friendships, this is an attainable goal. In addition to topics of grand scope, students are also interested in more mundane subjects—for example, how strict parents are in different countries.

Students are collecting information from their peers that will be assembled into newsletters and books for broader distribution. As of this writing, these projects included a collection of folk tales and legends and a collection of cookie recipes, among other things. In light of the distinctly nonacademic nature of some of the discourse on AGE, skeptics might wonder where the educational value lies in this activity.

The educational merits are boundless. For over 100 years we've viewed the formal educational process as an activity that takes place in the confines of a closed classroom. The isolation of the traditional schoolroom from the rest of humanity is so complete that most classrooms don't even have telephones. Teachers in this restrictive environment can become the only windows through which students learn about the world. This highly artificial situation denies the value of direct experience and is, at some level, as abusive as raising veal calves in a restricted pen where they can hardly move. To my knowledge, mental institutions and prisons are the only other environments that are as restrictive in their access to the outer world.

Once students reach the outside world from within their own classroom, education changes. Students have greater opportunity to become self-directed learners—to realize that they can learn as much by asking as by answering questions. Teachers in this environment can become facilitators of the learning process, not just purveyors of knowledge that is spoon-fed to students. Also, because the wardens have been as imprisoned as the inmates, teachers are finding enormous benefit from the freedom to communicate with their peers across the world. One result of this is the obvious engagement one senses in the messages being sent. Whether the communication centers on a globally communicated problem or on any other topic, AGE participants are profoundly aware of their participation in a world beyond the confines of the classroom.

The real world contacted through the computer keyboard becomes an infinite field trip. Want to know the weather on Baffin Island? Send a message to the students there. Want to practice your French, German, Spanish, or another language? Use it to send messages to students living in countries where these languages are spoken. Curious about the Austrian perspective on the opening of the Berlin Wall? Ask a student living in Vienna.

AGE creator Dr. Martin Engel likens this project to the vast oceans in which the great whales sing to each other over great distances. He sees the global classroom as one continuous echo chamber binding all continents, where the songs of every student rebound to every other student.

If we, as adults, can learn from our children, there is no question that computer-based projects like this can bind humanity to its greatest challenge—the stewardship of this fragile blue ball that we earthlings call home. ⊡

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DO NOT BEND

MAIL-ORDER SMART

PHILIP CHIEN

BUYING BY MAIL OFFERS SEVERAL ADVANTAGES AND POSES SOME UNIQUE PROBLEMS. EDUCATE YOURSELF WITH THIS GUIDE AND BECOME

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Buying computer components by mail is pretty routine these days, but it's not foolproof. Even with the best mail-order companies, you can run up against unexpected problems. You can avoid a lot of headaches by making sure you place your orders properly. To help you with this, The Direct Marketing Association (a group of large mail-order firms) and the Federal Trade Commission have developed several tips and guidelines for consumers shopping by mail.

Happy Returns

Before you order, be sure you understand the company's return policy. Read the firm's ad carefully and make sure everything is spelled out in detail. Check the fine print; if you have questions, be sure to ask them. By law, a company must provide, upon request, a written statement about its warranty policies.

When you receive most equipment, it usually includes a warranty card which the manufacturer encourages you to fill in and return immediately. Don't do it! A filled-in warranty card technically makes your equipment used—and unreturnable. The only legitimate reason for requiring a warranty card is to register your unit for warranty repairs. Legally, a dated sales receipt with the product's name and serial number (if applicable) will serve as proof of purchase. So put that warranty card aside until after you have used your merchandise a couple of months and are sure it works right.

The Bottom Line

You should always check to see if warranties, shipping, handling, and insurance costs are included in the quoted price. Find out if the advertised price includes a rebate that you get as a refund or credit for a future purchase. If the company has an office in your state, you may have to pay sales tax, but out-of-state orders are usually tax-free.

Make sure that the advertised price is the current price. In principle, the company should sell you the product for the price listed in the ad; however, this isn't always possible in the computer industry. Three years ago, dynamic RAM prices were dropping on a weekly basis, and companies had to guess what price to place in ads that had to be submitted several months ahead of time. The situation then reversed, with high demand, tariffs, and embargoes on foreign chips all forcing chip prices up. Because of market forces, the price in an ad may have little in common with the actual selling price. You have to keep an eye on the market.

When a company quotes a price, it should honor that quote, even if the price changes after you've placed your order. Many companies play it safe by not placing a price in the ad; instead, they'll ask you to call for the latest prices. The figure "$CALL" in an ad doesn't tell you anything until you pick up the phone. When you make the call, be sure that the price you're quoted on the phone is a fixed price, and not another "subject to change" price.

What's in Store

Quick mail-order service depends on the availability of products. Always check to see if what you want to order is in stock and how long it will take for your order to go out. A company that doesn't state a shipping date must ship your order within 30 days. Some companies play it safe by quoting a six- to eight-week shipment time, even if their orders normally go out sooner.

Be wary of a company that has shown a product prototype at trade shows but claims the new system is out of stock. Commonly, a company like this will be glad to take your money while giving you excuses about a shortage of raw components, labor problems, how a hurricane or earthquake stopped production, and so on. Meanwhile, the company keeps your money in its bank account. If you run into a problem like this, get a refund quick—before the company goes out of business. ▷

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MAIL-ORDER SMART

Timing Is Everything

If your prepaid order doesn't arrive when promised, you can cancel the order and get a full refund, according to the FTC. You should also be aware of partial shipments. If you order several components from a company and some of the parts are out of stock, the company may ship you only those parts it has on hand. Company policies on partial shipments vary. You may receive a refund check for the out-of-stock items, you may receive the out-of-stock items prepaid later, you may have to pay to cover shipping charges for the out-of-stock items, or you may have to reorder the items on a separate invoice. If you do get partial shipments that arrive separately, each may carry its own shipping and handling charges. That might make that $2 adapter closer to $10 when all of the shipping and handling charges are added.

On the Record

Always keep a record of your order, including the company's name, address, and phone number as well as information about the item purchased, when you placed the order, and the name of the salesperson to whom you spoke. Save your canceled check, a copy of your money order, or your credit card receipts. If you order by credit card, check your monthly statement and compare it with what you expected to pay. If the order doesn't arrive after a reasonable period of time (two weeks for a phone order, four weeks for a mail order) then give the company a call and find out the status of your order.

Don't Send Cash

Never send cash through the mail; always use a check or money order. Most mail-order companies accept credit cards; however, special credit rules may apply. Many companies give discounts for a check or money order over a credit card because they have to pay a fee for the convenience of offering credit purchases. If you pay with a personal check, you can expect a delay—sometimes as long as two weeks—while the company waits for your check to clear. If you can't wait that long, use a postal money order or certified check. If you don't want to shell out money in advance, you could purchase a product on C.O.D. (Collect On Delivery) terms. United Parcel Service charges only an extra $1.90 as a C.O.D. charge; however, many mail-order companies will tack on more charges to cover extra paperwork and processing. Depending on the company's policy, it may require that you pay for the C.O.D. shipment with a certified check or cash if you don't have a credit record on file.

Damage Control

Whenever you order products by mail, you should check them for damage immediately upon receipt. First, check the cartons. If they're broken, crushed, or obviously distressed, either refuse the shipment as damaged or get the delivery person to sign a statement noting that you received the package damaged. If you accept a damaged carton, you may have problems getting parts repaired.

Before you open any components, check out the boxes carefully. Do they have the original factory seals in place, or are there a couple of layers of packing tape over the broken factory seals? The mail-order company may have opened the box to check it out for you, or the unit may be a return from another customer. It may even be a unit that was used in-house for several months and then cleaned up and packaged for sale as "new," or it could possibly be a unit from which a part was taken (such as a manual, ribbon, or warranty card) for another customer. Mail-order companies are under no legal obligation to state that you're buying used equipment, but if you do receive used equipment as new, then you should register a complaint.

Inspect your purchase as soon as possible. If something is damaged, missing, or wrong with your shipment, then call the company immediately. If you find out that a product is dead on ar-

The Refund Bill of Rights

Rules established by the Federal Trade Commission give you certain rights as a customer of mail-order businesses. The rules apply to any company that uses the U.S. Mail or deals in interstate commerce.

- If the company can't meet its promised shipping date, it must send you an *option notice*, which tells you a new shipping date and gives you the option of canceling your order with a full refund or agreeing to the new shipping date. Instructions on how to cancel your order must be included with the notice, and the seller must provide you with a free reply (for example, a toll-free phone number or a postage-paid reply card or envelope).

If you agree to the new shipping date, but the seller can't meet it, the seller must send you a second option notice. Your order will be canceled automatically unless you sign your consent and return the second notice.

- If you cancel a prepaid order, the seller must mail you a refund within seven business days. If you cancel a mail-order purchase charged on your credit card, the seller must credit your account within one billing cycle following receipt of your cancellation request.
- The above refund rules apply only to prepaid orders. They don't apply to C.O.D. phone orders or to credit card orders in which your account isn't charged until the order is shipped, or to telephone orders charged to a credit card account.

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rival, the company may replace it. If, however, you keep your package sealed until much later, you may have to wait for the company to repair your damaged equipment. In the worse case, the item you bought may be out of warranty by the time you first use it.

Always keep your receipts and warranty statements. If you are required to give a copy of your receipt to prove a purchase, make a photocopy of the receipt and give that out. If you must return the damaged goods, ship them via a registered carrier or, if you ship it via U.S. Mail, get a receipt. Registered carriers can trace a lost package, but you need proof of shipment to track one down.

When returning merchandise for any reason, call the company ahead of time and get instructions. Typically, you'll have explain why you're returning the product. The company will probably give you an RMA (Return Materials Authorization) number that you must put on the package. The company may ask you to return the merchandise to a warehouse at a different address from the sales office, or it may give you a street address for UPS shipments. Don't forget to include a letter with the shipment explaining why you are returning the products, along with your return address and phone number.

You should try to ship merchandise in its original carton, because many companies won't honor warranty claims if the product is damaged in shipment because of a substandard container. Some shippers, including UPS, won't insure computers in anything other than original packaging unless you double-box your shipment. For large items like printers and computers, tie down any moving parts and insert disk drive protectors whenever possible.

Normally, a shipping company will include nominal insurance with its cost. Don't assume that an overnight carrier will automatically insure a package for its value simply because you are paying overnight door-to-door delivery charges—what you're paying for is convenience, not insurance. Most shipping companies charge about $1 to insure $100 of merchandise, but be sure to check with the shipper.

Lost in Space

If your order is lost in transit, then the party that shipped the product (the mail-order company for originals, you for returns) should contact the shipping company and request a trace. Most shippers don't consider a package lost until it's been missing for a week. The shipping company should attempt to produce a signature on a receipt that indicates that the package was safely received. If the package has been lost, the shipping company will pay an insurance claim or the automatic token insurance amount included in the shipping fee. With uninsured packages, the sender is usually responsible for replacing the package. Some companies will automatically replace lost packages as a courtesy even if they're uninsured, especially if they're relatively inexpensive items. But be aware that many companies won't replace uninsured lost packages.

FRAGILE

Who Ya Gonna Call?

If you have a problem with a mail-order firm, a phone call will usually clear things up. Write down the date you call and the name of the service representative you talk to. If necessary, send the company a polite letter explaining the problem. Include photocopies of your invoices, canceled check or credit card statement, and any other documentation that will help solve your problems. Keep a copy of the letter and all original receipts.

If you can't come to an understanding or agreement with the company, you can write to several organizations for assistance. These include The Direct Mail Marketing Association (Mail Order Action Line, 6 East 43rd Street, New York, New York 10017), your local postmaster (call your post office and ask for the appropriate *inspector in charge* for your region), state and local consumer-protection offices, and your local Better Business Bureau.

Shop Smart

Shopping by mail isn't a black art. The rules that govern how mail-order businesses function are for the protection of both the seller and the buyer and are not a matter of hearsay or rumor. But you can't protect yourself if you don't know the rules. Before you buy, make sure you know how to play the game. ⊡

Philip Chien is a Titusville, Florida, computer writer with more than 12 years of experience with personal computers and mail-order shopping.

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PC PRIMER

HINTS AND TIPS FROM OUR READERS

Earlier this year I found several video titler programs on local bulletin board systems, but they all required that my computer have a composite color output so I could connect it to a VCR. Everything I read indicated I would need about $500 worth of additional hardware to do this with my system.

Since I wanted this ability just for fun, I put the project on the back burner until I saw an ad for a "Color Graphics RGB, Composite, Light Pen" card for $49. It turns out some CGA graphics cards also have a composite video port. I ordered this card, installed it, and connected the composite output to my VCR. Voilà! Computer-generated color video titles could now be recorded through my VCR, and my monochrome and RGB outputs still worked, too.

A CGA card with a composite output port is a great way to do low-cost video titling.

Donald R. Gray
Hudson, OH

Mouse Calls

DOS versions 3.2 and earlier have a potentially computer-crashing omission that you can fix yourself. IBM PCs and compatibles have, in low memory, what's called an interrupt vector table. It's just a list of where the code is for various memory-resident functions. It's a good system, without which the many terminate-and-stay-resident programs that PC owners love wouldn't function. If, for example, your program wants to see where the mouse is, it jumps to the code that locations 204–207 point to and does its thing.

The problem is that the early versions of DOS place a 0 in a slot in the interrupt vector table if there's no corresponding code (like a mouse driver) for an interrupt. If you're using an early version of DOS without a mouse driver installed and your program calls interrupt 33h (the mouse-handling interrupt), the processor thinks that it's supposed to jump to the code at location 0. I don't know what's there at location 0, but I do know that jumping there locks up the computer. Later versions of DOS fill in all unused vector slots with the address of a dummy routine that does nothing but return. (It's just an IRET for you technical types.)

To *fix* the early versions of DOS and prevent a crash when a program tries to look for a nonexistent mouse, you can fill in the mouse vector slot just as later versions of DOS do. You'll need to use DEBUG, a program included on your DOS disks. From the DOS prompt, type the following boldface text:

```
A>DEBUG PATCH.COM
File not found
- E 100 2B C0 8E C0 BE 06 04 B0
- E 108 CF 26 88 04 BE CC 00 26
- E 110 8B 04 26 8B 5C 02 0B C3
- E 118 3D 00 00 75 0C B8 06 04
- E 120 26 89 04 2B C0 26 89 44
- E 128 02 B8 00 4C CD 21 0C FF
- E 130 76 0A E8 5C FF 89 46 F6
- E 138 8B 46 08 3B 06 BB 0E 75
- E 140 05 B8 01 00 EB 02
- RCX
CX 0000
: 46
- W
Writing 0046 bytes
- Q
```

It would be a good idea to put the program PATCH.COM in the root directory of your boot disk and to add a line to your AUTOEXEC.BAT file that automatically runs it when booting. It isn't a memory-resident program, so it won't take up any RAM once you've run it.

Richard C. Leinecker
Reidsville, NC

Super Sorting

James A. McKnight's suggestion in the December "PC Primer" for sorting databases on one field has a minor glitch. His suggested technique, listing dates in the format 082487, 082488, and 082489, puts the entries for different years together in the list. If this were changed from a month-date-year sequence to year-month-date, the glitch wouldn't happen.

Placing the year first takes a little getting used to, but, doing it that way, 870824 would be followed by 870825, then 870826, and so on. Use two digits to represent the year for dates that fall within a single century.

If you're sorting dates covering less than 1000 but more than 100 years, use three digits for the year. For January 31, 1988, use 9880131; for January 31, 1688, use 6880131.

Of course, as we approach the year 2000, you might want to prepare for dates extending over millenia. In this case, use four digits: January 31, 1989 would be 19890131, while January 31, 2001 would be 20010131.

The YYMMDD format works for any list containing A.D. dates. If working with both A.D. and B.C. dates, use plus (+) and minus (−) signs to differentiate them.

Leon F. McClellan
San Antonio, TX

Do you have advice that makes a PC more productive? If so, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback—PC Primer, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift. ⊡

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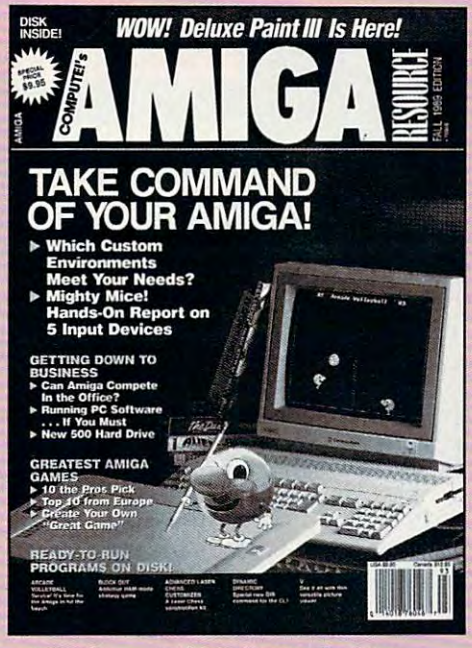

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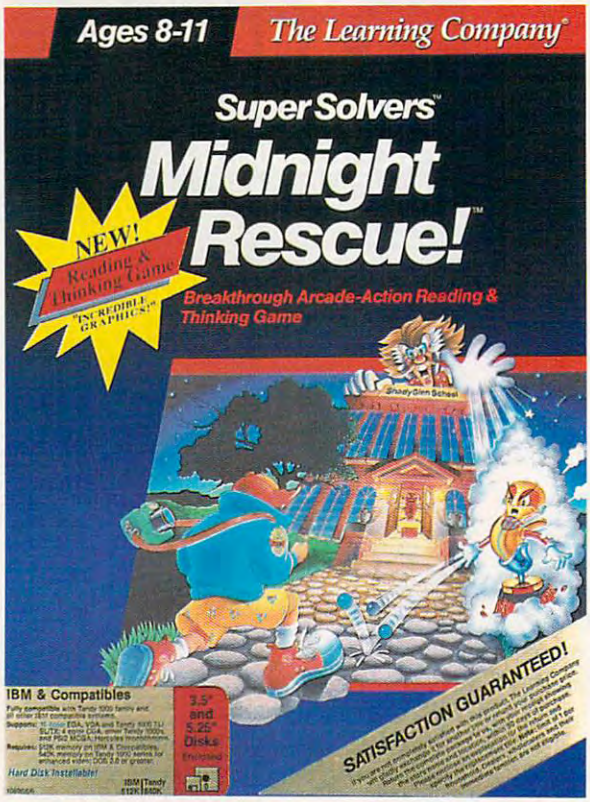

DEVELOP PROBLEM-SOLVING SKILLS AND HAVE FUN, TOO

COMPUTE! CHOICE

HEIDI E. H. AYCOCK

Your kids have a problem. They're standing in front of three closed doors. Behind one is a grouchy tiger with a particular yen for sugar-frosted children. Behind another is a hungry giant, and, fee-fi-fo-fum, he smells the blood of some little ones. Only one door opens to an escape into the world outside.

The kids know this much: The tiger lives on a warm, shadeless plain in Africa. The giant lives in a blazing hot forge. Outside, it's raining.

Under the first door, the kids see a flickering orange glow. Under the second door, they see a faint gray light. Under the third door, a bright yellow, almost white, light shows.

Luckily, these kids have a microcomputer at home, and they have learned to deduce the answers from information that they have gathered. They have developed a knack for problem solving, a skill that most educational software doesn't really address.

So where did our heroes learn this skill? They've been playing a game called *Super Solvers Midnight Rescue!* from The Learning Company.

Problem solving is one of the hardest skills to teach, and, arguably, it's best left to human instructors. However, *Super Solvers Midnight Rescue!* squelches that argument soundly.

Among its many strengths, the program has a wonderful plot that will appeal to even the most reluctant readers. As the story goes, the town of Shady Glen has been plagued by a practical joker named Morty Maxwell (a.k.a. the Master of Mischief). The only people who can stop Morty are the children who make up the Super Solvers Club. Your kids become members when they boot the program.

Morty's latest trick threatens the very existence of Shady Glen's school. He has invented invisible paint, and he plans to erase the school with his dastardly creation. To help him in his evil quest, Morty has transformed five paintbrushes into robots, and he has hidden himself in one of them.

Guiding an engaging little character through the school halls, your chil-

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dren collect clues and evidence. Using this information, they figure out which robot is actually Morty. If they do this before midnight, they save the school from destruction. Assuming you can talk your kids into saving a school (wouldn't it be more fun to lose the school and get a few days off to play?), the plot overflows with motivation.

Your children gather clues by reading notes that Morty has deposited all over the school. They collect evidence by taking pictures of the robots. The robots, in turn, attack the character through collisions, water squirters, marbles, banana peels, and other dangerous obstacles. Snapping pictures is the character's best defense against the robots' attacks, but they have a limited amount of film. To get more film, the kids must find a film dispenser in the school. The number of pictures they can take depends on the number of questions they've answered correctly. The pictures show items on the robots, and the clues tell you what items Morty is carrying. Through a process of deduction, children discover which robot is Morty by which objects each robot is carrying.

Morty's notes are reading selections—diary entries, letters, newspaper accounts, posters, and passages from literature. The original pieces are entertaining and amusing. They tell stories about Morty's exploits from his point of view and from his victims' points of view. The excerpts from children's literature are also good. They include some of my favorites, such as *Mary Poppins Opens the Door, The Travels of Doctor Doolittle,* and *The Mushroom Planet.* If this program can entice kids to read these books, that's another advantage.

Photography is your best defense against Morty's mischievous robots.

Within these reading selections, the program includes definitions for hard words. Players activate the hard-words feature, and it tells them what some of the tougher words mean and how to pronounce them.

At the end of each reading, children answer a multiple-choice question. Each question is similar to the reading-comprehension questions on many standardized tests. Some ask the player to remember an object mentioned in the selection; others ask for the best story title. For each correct answer, children earn points—more points if they answer the question on the first try. There's no penalty for paging back through the selection for the answer. If the players miss on the first try, the program gives them a second chance. If they miss on the second try, the program moves the clue to a new spot. Throughout the reading and testing process, the clock stops; speed reading isn't rewarded.

As in conventional reading-comprehension tests, some kids will figure out a way to get the answer without reading the whole selection. Also, some selections are repeated several times during the game. Some children will use this to their advantage. They'll remember the story, so they can skim through it until they get to the question. An even more subtle way to get around the reading is to figure out which answers might actually be clues. If only one answer is an item that one of the robots could be carrying, then it's the right answer.

At first, I thought this was a weakness. However, I talked to one of our educational-computing experts, Leslie Eiser, and she said that these kinds of strategies were other ways to

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solve a problem. The program teaches kids to find the answers in the best ways they can. There's nothing wrong with taking a creative, unconventional approach, as long as it works consistently.

While gathering clues in this game requires careful reading and analysis, gathering evidence requires quick reflexes. The clock ticks away toward midnight as the kids explore the school's hallways. Whenever a robot rolls up to do battle, the player must hit the space bar to take a picture. Your kids can also try to outrun the robot and duck upstairs or into a classroom. The arcade action adds variety to *Super Solvers Midnight Rescue!*, so the game feels more like a contest than a standardized test.

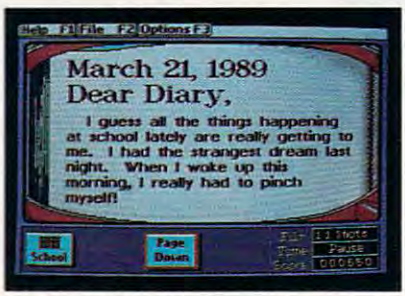
Players score points for taking pictures and for answering questions. When they solve the mystery, they get bonus points for the amount of film they have left, for how much time they have left, and for winning the game. Besides generating bonus points, correct solutions generate pure fury in Morty. The robot dissolves in a puff of smoke, and Morty appears red-faced and wild-haired. He leaps about and throws his fists into the air. When the bonus points rack up, his eyes bulge. Victory was never so sweet! As players earn more points, they advance their ranks in the Super Solvers Club. They don't lose points if they guess wrong, either. They simply try again.

There is one flaw in the arcade portion of the game: It's very difficult to outrun a robot. Make that nearly impossible. Certainly, the game has to offer some challenge in the action sequences, but it must be a surmountable challenge. That's particularly important because *Super Solvers Midnight Rescue!* encourages players to save film by outrunning robots when they have enough clues. Because it's so hard to outrun the wily machines, and because you lose a shot each time the robot beats you anyway, many kids will probably resort to shooting pictures of the robots regardless of how much information they've already collected. The game works at cross purposes here.

To find Morty, match the clues in your notebook with the items in the pictures.

Otherwise, though, the game is everything you could hope for. Besides the wonderful plot and the ingenious skill-building exercises, the graphics are some of the best I've seen in any game (entertainment or educational). I played on a VGA system, so, of course, the display was beautiful. In CGA, the cyan color overwhelms the screen, making it harder to see what's going on. On the other hand, the EGA version is almost as good as the VGA, save some lack of vibrance.

Color aside, animation is the key to the program's visual success. The characters move smoothly, each with a different style. One robot strides along on buffing mops like John Wayne walking toward his horse. The main character has this wonderful gait, strutting through the halls with a little skip in each step. After bumping into an obstacle, the figure slides across the floor, stars dancing around its head, and then jumps up with more determination than ever. These traits give the character a strong identity.



Reading passages include diary entries and excerpts from children's classics.

Interestingly enough, that identity doesn't include a gender or a race. This is the first time I've seen a character whom I could fit into my own image. The face is concealed by a large, floppy hat, and there is no other evidence that the little person is a boy or a girl; black, white, or native American.

Although the graphics are wonderful, the sound is far from exceptional. Music from *The Sorceror's Apprentice* bleeps and bloops through the opening screen—a touch of humor since Morty changes paintbrushes into helpers and the legendary apprentice changes brooms into helpers. The whole soundtrack is a collection of beeps, just like you'd find in any other PC program. If you get tired of the symphony of mononoises, you can turn the sound off at the beginning of the game. You can also turn off just the music, leaving the sound effects to warn players of approaching robots.

Sometimes the magical robots get the upper hand and knock you off your feet.

Even though the sound is only average, everything else about *Super Solvers Midnight Rescue!* recommends that you buy a copy of the program. The manual, for example, is clearly written. Kids who are old enough to play the game are old enough to read the manual for themselves. A shorter version is also perfect for kids who are intimidated by long assignments. Let your children read the short one on their own; then read the longer one with them when they want to know more about the game. The authors have included great tips from Super Solvers Club members, and they have written very well about the process of deduction.

The interface is easy to use and very forgiving. Most kids will be able to figure it out by trial and error. Arrow keys move the character in the arcade sequences and highlight choices in the reading parts. The Return key activates the highlighted selection.

Super Solvers Midnight Rescue! should be highly praised by every educator or parent who runs into the program. It teaches the most important skills your kids will ever have to learn. Time and time again, children face those three doors—not just in classwork, but also on the playground, in the mall, and even at home. This program teaches them *how* to discover which door opens to safety and success.

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LEARNING

DISCOVERIES

DAVID STANTON

A month ago, I argued that some of the current multimedia hype just might have some substance. This time, we'll look at a few ways that computers can mate with other technologies to produce some handy desktop video productions, teaching and learning aids, and just plain entertaining stuff.

First, though, let's agree on a definition of multimedia. For our purposes, we'll say that it's any project that combines a computer with any other technology. Of course, such projects could involve CD-ROM players and videodiscs, video overlay cards that mix computer graphics with videotaped images, expensive audio-digitizing equipment, and a bunch of other high-tech gadgets that neither you nor I have available at home. But forget all of that for now. Let the academicians bicker over their definitions. Let the computer companies, all of which have much more money than we do, create the sizzle. Our challenge here is to come up with the steak—or, at least, some solid, practical, home-made multimedia hamburger.

One more thing before we start. Don't expect anything stunning here. These are just a few simple ideas that a few teachers and parents have found effective.

Teachers love overhead projectors. Sometimes schools buy ready-made transparencies to teach specific concepts. Sometimes teachers write classroom notes on plastic film to avoid chalkboard problems. Businessmen often highlight their presentations with charts, graphs, and illustrations displayed on overhead projectors. Students are even beginning to do the same thing to enliven their oral presentations. That's not multimedia. However, when you create those overheads with your personal computer, it is.

Chances are that you already have what it takes. A lot of commonly owned software will do. *The Print Shop* or *Print Magic* can handle uncomplicated art and large-sized text. For more elaborate graphics chores, virtually any paint program will work. *PFS:Graph, Alpha-Chart,* and similar programs make it easy to produce pie charts, bar charts, and line graphs. In a pinch, even word processors suffice for simple jobs.

Once you've designed each page, you can produce the final sheets in one of two ways: Print each sheet directly to transparency film using your printer or print on regular paper using black ink, and then photocopy the masters onto transparencies. (Be sure that you buy special plastic film intended for copiers. One adventurous educator I know tried a cheap substitute. The resulting melted plastic caused an awful mess.)

Incidentally, don't ignore the potential of screen dumps. They're great for creating all kinds of useful teaching and learning aids, and they're especially suitable for making overheads that teach about computer operating systems and software applications. For MS-DOS computers, you use the Graphics command in combination with the Print Screen key. Command–Shift–4 does it on a Macintosh, or for greater flexibility you can try *Camera* (available from user groups or bulletin boards). Commodore 64s/128s, Apple II's, and some other machines require special software to generate screen dumps.

ENTERTAINING IDEAS FOR INTEGRATED TECHNOLOGY

You could also produce an auto-running desktop slide show. Last year, students and teachers in our district developed a simple but effective computer-based slide show to dazzle parents on Meet Your Teacher Night. It drew a large and enthusiastic crowd, and although it did require a bit of extra hardware, it was quite simple and enjoyable.

For starters, we used an Apple IIGS, a videocamera, and Computer-Eyes GS (a video digitizer with software; also available for IBM PC compatibles and most other popular computers) to create digitized photographs of anyone patient enough to stand or sit perfectly still for the required 12-second scanning time. For those who were too busy to cooperate, we digitized candid photos with ThunderScan, a relatively inexpensive graphics scanner for Macs and Apples with ImageWriter printers. Both products produce standard Apple IIGS graphics files, and it was a simple matter to arrange them in an appropriate order on one 3½-inch disk. With that done, we booted ThunderView (a slide-show program available from Thunderware) and got things going.

Young children dragged their parents into the lab over and over again to see the show. Everyone had fun, and we all learned something about what computers can do.

Does a computer-produced T-shirt qualify as multimedia? And if it does, can writing on T-shirts be educational? The answers are *Yes.* Now home and school computerists can make computer-produced T-shirt transfers in much the same way as it's done at the local shopping mall. Just ask your computer dealer or mail-order supplier for the proper transfer paper or transfer ribbons. Then digitize the image you want, print it onto paper, and iron the resulting graphic onto a suitable shirt. Even if you don't have special equipment, you can create computer art and copy it to a T-shirt or jacket.

If you've tried other multimedia projects suitable for home and school use, why not let me know? Maybe I'll mention them in a future column. Meanwhile, don't sell your computer short. ⊡

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PRECEPTS

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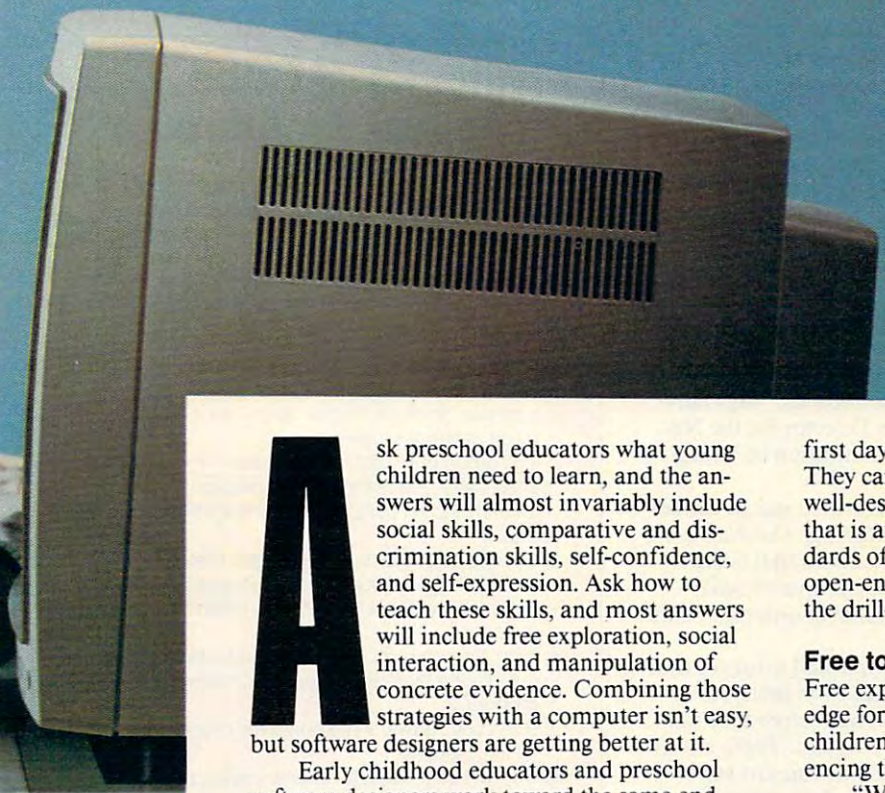
HEIDI E. H. AYCOCK



Ask preschool educators what young children need to learn, and the answers will almost invariably include social skills, comparative and discrimination skills, self-confidence, and self-expression. Ask how to teach these skills, and most answers will include free exploration, social interaction, and manipulation of concrete evidence. Combining those strategies with a computer isn't easy, but software designers are getting better at it.

Early childhood educators and preschool software designers work toward the same end. And often they come from the same beginning. Many preschool software designers studied early childhood education in college and graduate school. They have degrees, they have taught young kids, and they have young kids of their own. These designers have as much to say about what and how preschoolers should learn as the educators do.

To help your young children prepare for the first day of school, take a tip from the experts. They can help you choose the most effective and well-designed programs. Consider the software that is available for preschoolers. By the standards of these experts, the best is the exploratory, open-ended, interactive exercise. The worst is the drill-and-practice session.

Free to Explore

Free exploration lets children discover knowledge for themselves. Educators agree that young children learn best by experimenting and experiencing the results of their adventures.

"We don't see children as empty vessels that we're trying to fill up with knowledge," says Warren Buckleitner, Educational Computer Consultant for the High/Scope Educational Research Foundation. "We believe that children discover, and, when they discover, the learning is real to them. Whenever you impose knowledge, you risk not allowing them to discover the concepts."

Carol Seefeldt, professor at the University of

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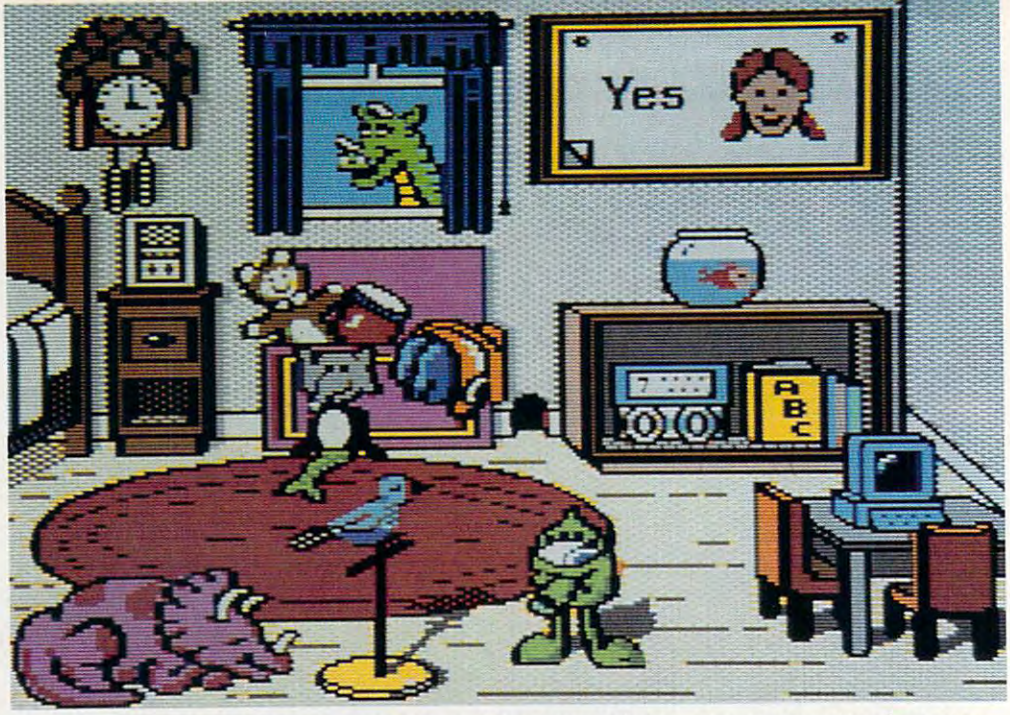

The Playroom **lets kids freely explore any number of objects that they see displayed on the screen.**

Maryland's Institute for Child Studies, sees free exploration as a series of possibilities that children try out. She says this a main goal of preschool education. "I want them to be able to make choices and experience the consequences of those choices. I want the child to take initiative. I want the child to feel confident of herself as a person, to feel she can do things."

By creating infinite worlds of options and outcomes, the personal computer can be an effective environment for free exploration. "The sense of power and control that computers can offer is to be desired, and we need to look for ways to capitalize on those abilities," says Barbara Willer, Public Affairs Director for the National Association for the Education of Young Children.

Free exploration is a featured star in Brøderbund's newest preschool offering, *The Playroom*. The program teaches more traditional skills through several games, but children choose which game to play in whichever order they care to play them.

The interface is so simple and intuitive that anyone can figure it out. But even better, children don't need to figure it out before they can start roaming around the program. There are so many objects to play with, kids can just start clicking on whatever they see. Just about everything will respond. The program works with a mouse or the keyboard; either way, kids need to learn very few navigation rules before they can get around on their own.

"*The Playroom* was definitely created to enhance children's natural curiosity," says Janese Swanson, product manager for the program.

The games help children learn to count, to tell time, and to recognize letters. Besides teaching these traditional skills, some games let kids try different combinations of pictures to see which they like best.

The independence of programs like *The Playroom* is a valuable element of a child's learn-

Hallmarks of Good Preschool Programs

By now, you probably know more about preschool software than the clerk in the computer store does. Spend some time with trial copies in the store and see how the package measures up to what you know your children should be getting. Here are a few more tips on choosing the best programs for your children.

1. Avoid drill-and-practice programs for preschoolers. If a child can do it on paper as easily as on the computer, spend your money on paper. It's cheaper.
2. The program should be interactive. When the child leaves the computer, the program should stop running, waiting for the child to return.
3. Choose software that encourages discussion. Talking about a concept requires a better understanding than does using the concept.
4. Look for programs that use sound, music, colors, and familiar characters to motivate children.
5. Don't buy software that penalizes children for taking chances.
6. Buy software that lets children make choices, programs that give kids some control over their environment.
7. The program should give adults some control over the program, such as volume control and difficulty levels.
8. To encourage self-expression, look for open-ended programs such as word processors and graphics programs.
9. Look for childproof packages that allow young children to experiment with the keys without ruining the program.
10. Of course, look for something your children will enjoy. This means you must get to know your kids; you must find out what wins their attention and what bores them to tears.

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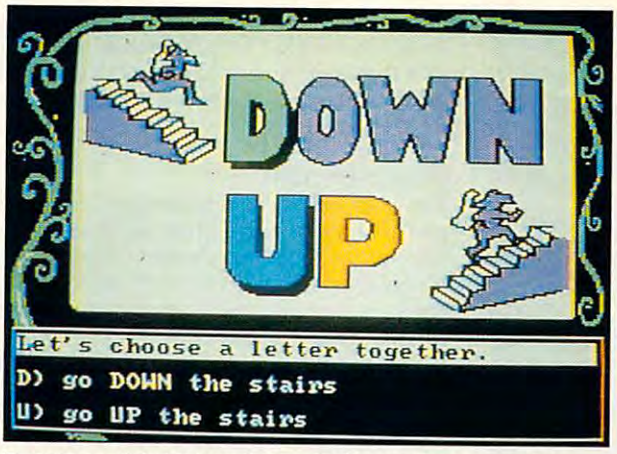

Parents can let children choose their own direction during the telling of the *Flodd, The Bad Guy* tale.

ing process. However, all four education experts warned parents not to use the computer as a mechanical Mary Poppins. As Seefeldt points out, a computer can't think of a timely poem for children learning to tie their shoes.

Taking Risks

Self-confidence goes hand-in-hand with free exploration. It's the foundation of motivation. Without the belief that success is possible, many children wouldn't exert the effort required to move from a simple concept to a more complex one.

"No one likes to do stuff they're not good at, so one of the basic things we need to do for children is to make sure they feel good at learning," Willer says. "Otherwise, they look for other strategies for developing self-esteem."

Seefeldt explains that self-confidence and a feeling of some control is a basis for all other learning. "Learning is a risk, and if you don't feel confident, you won't take that risk." She adds that self-confidence in making choices is important when children have to say *No* to all kinds of harmful influences.

Self-confidence is something you can build in your children by the way you use the computer together. If you support your children as they experiment with new concepts, they'll learn that it's OK to take risks. Willer—and the organization she works with—encourages a flexible approach to evaluating a child's progress. Don't push your children to fit into an established learning plan. What a child can't grasp one week may be as easy as walking the next.

Me, You, Us

To encourage self-confidence and free exploration, you have to talk with your children, ask them questions, answer their queries. Your conversations will help develop social skills and effective communication. These skills are as important to a six-year-old first-grader as they are to a 46-year-old department head.

Seefeldt strongly urges parents and teachers to use poetry and songs to open up the world of language to children. To this end, you should look at the Reading Magic series from Tom Snyder Productions. This "lapware" is designed for parents and children to use together.

"What people generally mean by preschool software is software that kids can do by themselves even though they can't read yet," says Tom Snyder, who designed the Reading Magic series.

"Basically, the computer is a world where you try to create a bubble around yourself," Snyder says. "I'm really disappointed by the mentality where, because it's interactive, it's fine to have kids spending a lot of time in front of the terminal, because it's not interactive the old-fashioned way." He created programs which require the parent to be involved, to interact with the child in the old-fashioned way.

As for old-fashioned interaction between kids, *The Playroom* may prove that the computer can start discussions with the best of them. Brøderbund's Swanson and her team play-tested the program and found that it encouraged groups of children to work together. "We found four or five kids at the computer for 15 minutes, discussing together how to figure out the logic. We had to pry them off the computer. I was so pleased. I know the researchers will enjoy that one."

Hands On

Comparative and discriminatory skills are integral to reading and math. Before they can learn letters and numbers, children must learn what it means for one shape to be different from another. They must learn about bigger, smaller, more, less, and so on. They do this by playing around with objects, filling containers, and touching surfaces.

Beyond leading to traditional skills, comparative and discriminatory skills help children learn how to learn. "Being able to question, problem solving, and looking for relationships—those are skills that will apply regardless of the subject," says Willer. "They're learning processes that are used in all phases of life."

Teaching these processes is the main goal of the Stickybear series. Created by Richard Hefter, this series teaches shape discrimination, opposites, letters, and numbers. By far the most traditional of the programs discussed here, the series relies on letting the children discover patterns and similarities. ▷

Under One Roof

We've discussed only a few of the preschool programs available. High/Scope reports that 83 companies produce early-childhood software. There are many more gems than you've read about here.

Among High/Scope's other projects, the organization publishes the *High/Scope Survey of Early Childhood Software* ($19.95). The 1989 survey featured reviews of 355 educational programs, so it's a rich source of information. High/Scope is a nonprofit organization, and all funding comes from grants and subscriptions.

If you'd like information on the survey, contact High/Scope Press at 600 North River Street, Ypsilanti, Michigan 48198; (313) 485-2000.

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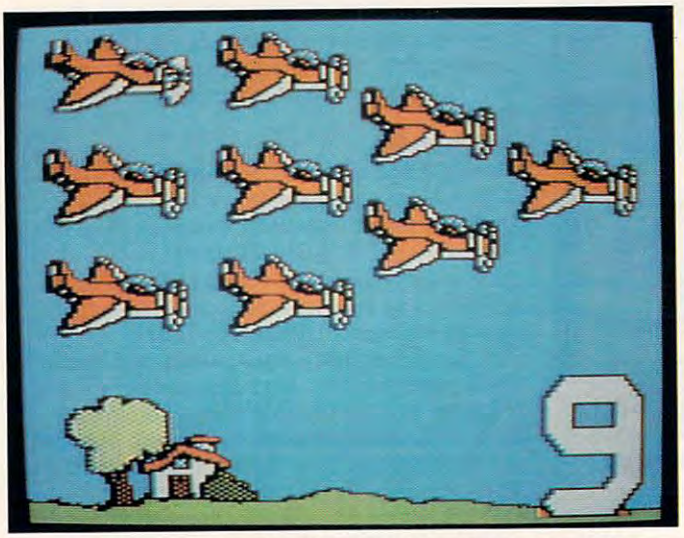

The colorful graphics in *Stickybear Numbers* make learning more fun and captivate a child's interest.

Besides teaching the concepts, Stickybear creates an atmosphere of fun around the learning process. "Nothing works at all if it doesn't entertain the children," says Hefter. "There is a tendency to overcomplicate the product in an effort to impress the parents."

Hefter advises parents to work with non-computer exercises, and he backs up that advice with suggestions and materials (like posters and stickers) in the Stickybear packages. "The computer shouldn't replace putting name tags on things around the house and working with clay," he says.

By encouraging concrete exploration in the real world as well as abstract investigation on the computer, Hefter brings up a universal theme. Children learn by grabbing hold of their lessons, twisting them, stretching them, weighing them.

"We know that young children learn by doing," says Don Bolce, director of information services for the National Headstart Association. "They learn by physical interaction in their environment."

Hefter, like others, advocates mixing concrete with abstract lessons. "I don't think you need to give up one kind of teaching to gain another," he says. He compares learning to count by using a computer with learning to make a sandwich by watching a parent slap two pieces of bread around a slice of turkey.

Swanson agrees that concrete evidence is essential to a preschooler's learning experience. But she suggests that you let children try different programs, see what interests them, see what they succeed at.

And Buckleitner says combining teaching styles is the best plan. "A computer really helps children think symbolically, so the key is to mix the concrete with the abstract." He does suggest that you immerse your children in a concept concretely before exposing them to the more abstract approach to the concept on the computer.

"The computer shouldn't replace anything," Buckleitner adds. "The children still should play with the things they used to play with. It's like another set of Legos, another set of puzzles, another set of paints."

Final Judgment

The programs we've discussed are simply examples of how software designers use what they know about the goals of preschool education. In the end, you'll have to consider each software purchase carefully, using what you've learned about the education process.

In the same breath as he praises computers, Buckleitner offers a cautionary note. "It's better to talk about the software running on the computer, not just to talk about the computer. It's like talking about a movie projector and not mentioning the name of the movie."

Think of the computer as your table and the software as a book or a puzzle you might use on the table. Make your judgments with that image in mind. Seefeldt suggests judging software with the same standards you use for books.

Most importantly, make sure that you're available to sit at that electronic desk with your preschooler. Your input and support are essential to your child's development. ⊡

Heidi E. H. Aycock is an assistant editor for *COMPUTE!*. She didn't have a computer when she was in preschool, but she's making up for lost time.

Learn More

Learn more about early childhood development and preschool software by contacting these organizations for more information.

Brøderbund
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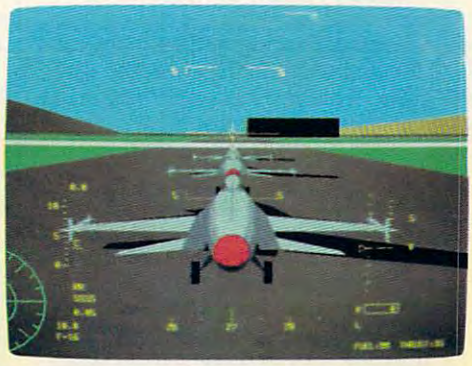

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Outline processors are great writing tools, but they also make good quiz creators. You can build all kinds of tests with any outliner that collapses subheads under headings. For example, you can create practice drills for multiple-choice tests. Write the question as a main heading. Write the choices as a secondary heading, and write the correct choice as a tertiary heading. Collapse all of the headings before you let someone take the quiz.

For instance, you ask "Who wrote *Stranger in a Strange Land?*" Create a subheading under the question and offer three choices: Sting, Robert Heinlein, and Jeremiah. Create a third heading under that one and write the answer—Robert Heinlein. Go through the same process for each question, then collapse the secondary and tertiary headings into the main headings. Only the questions will be displayed onscreen. The student can look at the list of questions to prepare for the drill. To answer a question, the students first uncollapse the secondary heading to display the choices available. Then they uncollapse the level below that to see the correct answer.

If you need to memorize facts about a collection of concepts, try writing an outline with each main item as a main heading. For the secondary headings, write the facts that pertain to that main item. Again, collapse the subheadings into the main headings.

To learn facts about a legal case, use the name of the case as the main heading. List the facts as secondary headings. Collapse the notes into the facts and the facts into the name of the case, and make yourself a cup of coffee. When you return to the computer, you can try to recite the facts including notes, checking them against the subheadings.

Heidi E. H. Aycock
Chapel Hill, NC

New Use for Old Keys

After you've upgraded your computer's old XT keyboard to one of the sleeker, more functional enhanced keyboards, you may pack it away with the data cassette player. If you've got small children in the house eager to use Mom and Dad's computer, pull out that relic and create your own kid-friendly keyboard.

One idea is to place different-colored stickers on important command keys like Enter, space bar, and Escape. A toddler will more readily identify a color than a word, and after a bit of practice will be able to locate important keys even without your color-coding them.

Sterling Clay
Pinellas Park, FL

NIMBLE NOTECARDS AND KIDDIE KEYS

No-Hassle Notecards

Into every student's life, a little term paper must fall. And with the term paper come notecards. If you have a word processor, you can create neat and tidy notecards, and, using the search function, you can rummage through your information as easily as if it were stored in a database.

To begin, create some cards that hold bibliographic information about each source. You should have one entry for each source. Give each source an identification number. Next, start your notecards. On the first line, type the subject that the note addresses and give the note an identification number. On the next line, type the note itself. It could be a direct quote or simply an observation based on the source you've used. After the note, type the identification number for the source the note came from.

There are two advantages to this system. First, you can easily search through your notes by just about any word that appears on the card. To find the quotation that called George Washington the father of our country, you simply search for the word *father.* You can also search by the source if you know the identification number.

The second advantage is that it will be easier to go through the documentation process in your term paper. As you use each notecard in your report, type the notecard's identification number in parentheses. When you've finished the report, go through and find each number, search for the notecard by that number, copy the bibliographic information, and paste it into your report. Make sure it's in the correct footnote format. For students using the new footnote style, in which you simply cite a source by an identification number, this method is ideal—you can skip this middle step. Simply use the source's identification number instead of the notecard's identification number as you write the report. For a bibliography, copy the source cards to the end of the report. Typing the sources in the format you'll use in your report to start with will make the process even easier.

Beth Hirschman
Morgantown, WV

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ENTERTA

COMPUTE! CHOICE

TAKE TO THE SKIES IN THE RAF'S FINEST HOUR AND EARN A PLACE AMONG CHURCHILL'S FEW WHO WERE OWED SO MUCH BY SO MANY

TOM NETSEL

The sky over England is black with German fighters, and RAF Pilot Officer Kincaid is almost out of firepower. He's fired nearly 300 rounds of .303-caliber ammunition through each of the eight machine guns mounted in the wings of his Spitfire Mk I, and he wishes he had more lead to throw at the Huns.

The Junker Ju 87 Stuka dive bombers, escorted by Messerschmitt Bf 109s, had crossed the English Channel from occupied France and were attacking the RAF airfield at Melton. Despite Kincaid's lack of experience, he has done exceptionally well on this July day in 1940. Before his guns ran dry, he had shot down two Stukas and damaged a Bf 109.

Relive Kincaid's exploits in *Their Finest Hour: The Battle of Britain,* an outstanding air-combat simulation from Lucasfilm Games. It is in this game that Pilot Officer Kincaid and his wingman, Pilot Officer Epps, are sent up in their Spitfires to intercept the German planes. And it is here that Kincaid faces the might of the Luftwaffe with empty guns.

After breaking through the outer wave of defending Bf 109s, Kincaid and Epps pounce on the Stukas as they attack the airbase. The Ju 87 Stuka was a formidable weapon in the conquest of Europe, but it was less successful against British ground installations and shipping in the English Channel. Dropping from 10,000 feet in 70- and 80-degree dives, the Stukas were accurate bombers, and the scream of the sirens mounted on their landing gear added a psychological edge to their attacks.

The Stuka's steep dive, however, makes it impossible for fighter escorts to provide protection; the two-man bomber is particularly vulnerable as it pulls out of its dive. Kincaid follows

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INMENT

one down; avoiding the fire from the Stuka's rear gunner, he catches the plane in his gunsight and squeezes off a burst of tracers. The bomber disappears in a cloud of flame and smoke. A parachute opens and a German flier drifts toward earth and a prisoner-of-war camp.

Struggling to regain altitude, Kincaid sees Epps on the tail of a Bf 109. Smoke and debris from the fighter fill the air as Epps fires. Another parachute appears as the pilot escapes the stricken aircraft. Trying to stay close to Epps, Kincaid spots more Stukas plummeting toward their targets. Escorting 109s try to divert the British fighters, offering themselves as targets as they dart between the Spitfires and the Stukas. In the confusion of aerial combat, Kincaid fires again and again at streaking targets but scores few hits.

Pushing his Spitfire into a steep dive, Kincaid watches the airspeed indicator approach 400 mph. Another Stuka drops its cluster of bombs on the airfield and pulls out of its dive, exposing the broad expanse of its wings, fuselage, and cockpit to Kincaid's guns. The bomber fills Kincaid's gunsight and he fires a long burst. Debris from the stricken aircraft explodes across the sky.

Circling to the south, Kincaid checks his altimeter. Too low. He lifts the Spitfire's nose to regain height.

You get a German's-eye view from the cockpit of a WWII Messerschmitt Bf 110.

Too much. The agile aircraft shudders and a stall warning flashes on his cockpit panel. Kincaid pushes his control stick forward, regains air speed, and recovers. He dips his left wing and turns, looking for more targets.

Almost immediately a metallic *chang, chang, chang* fills his cockpit as German machine-gun rounds smash into his plane. Kincaid throws the stick left and right in an effort to escape the deadly fire. An instant later a Bf 109 streaks by.

Kincaid and the German flier circle, twist, and dive, each trying to gain an advantage over the other. Kincaid takes more hits and scores several himself. He breaks into a shallow dive to pick up speed, then pulls back sharply on his stick, forcing his Spitfire into a loop. As the inverted horizon appears in the windscreen, Kincaid flips the plane in a 180-degree roll and rights the Spitfire. He looks left, right, and to the rear, but the 109 is nowhere in site. A questionable tactic pays off, but he is far from safe.

Kincaid quickly checks his instrument panel. Glancing at his ammunition-round indicator, he sees he has but a few bullets left. He has ample fuel but his engine-damage and airframe-damage indicators are close to the danger zones.

Another 109 threatens, but Kincaid discourages it before his guns click empty. Epps is nowhere in sight, and Kincaid decides to seek a friendly airfield outside the combat zone. A quick check of a map reveals an airfield a few miles to the north, and Kincaid pushes his Spitfire in that direction.

Kincaid reaches the field, but he isn't alone. Several German planes are in pursuit. Kincaid cuts his throttle,

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lowers flaps and landing gear, and dips toward the landing strip. Diving from the opposite end of the field, a 109 opens fire. White puffs of smoke erupt from the field as bullets race toward Kincaid's Spitfire.

Kincaid is about 50 feet above the landing strip when his plane takes hits. It survives the attack, but, as Kincaid watches the approaching fighter, he eases back on his joystick. Kincaid has survived his first combat mission only to fall victim to his lack of flying experience. Easing back on the joystick lifts the Spitfire's nose, causing the plane to stall. Before Kincaid can attempt a recovery, the Spitfire crashes in flames.

The monitor's screen goes black, and a scene depicting a burning RAF fighter appears. A message beneath the picture reads: "You smashed into the ground. The impact and the resulting explosion killed you. R.I.P." Below the picture, a score for the mission indicates that both Kincaid and Epps were killed in action.

Such are the perils of warfare in this action-packed game, but it indicates the depth of play and authenticity available in *Battle of Britain*. I created these and other RAF and German pilots and flew with them in combat, on missions taken from the pages of history. Epps had experience, and he seemed a good choice to accompany the rookie pilot I named Kincaid. A moment's inattention caused Kincaid's death, and even experienced pilots get shot down. These pilots now have *KIA* (Killed In Action) after their names on the game's roster.

Extra lives aren't granted in this game, but you don't have to make it too personal. After all, war isn't fun, but *Battle of Britain* is. You may fly a combat mission without designating a pilot and no score will be kept. You can create pilots and have them fly Spitfires or Hurricanes on a single mission or engage in the whole campaign. Combat scores are kept and pilots who are skillful and lucky win medals and earn promotions.

But flying an RAF Spitfire or Hurricane is just a tiny portion of what *Battle of Britain* has to offer. You can also fly on the German side. Sit in the cockpit of a Stuka dive bomber and line up a ship or British radar station in your bomb sight; then move to the rear gunner's position and defend against attacking RAF fighters.

The Luftwaffe used a variety of bombers in trying to defeat the RAF: the Dornier Do 17, the Heinkel He 111, the Junkers Ju 88, and the Messerschmitt Bf 110 fighter-bomber. You can pilot any of these planes. Fly to a target as pilot and then move into the bombardier's position and guide your plane on its bomb run with your bombsite. Gunner positions can be placed on automatic to provide protection, or you can man them yourself. Each cockpit and gun station is different.

The plane I enjoy flying the most is the Bf 109. It's less durable than the RAF fighters, but it's pure joy to fly—it's like flying a sports car. I'll admit the 25-MHz 386 I used for this review made *Battle of Britain*'s animation as smooth as the purr of a Spitfire's Rolls Royce engine, but the game still looked good at 8 MHz when I eliminated some of the ground detail.

Battle of Britain creator, designer, and programmer Lawrence Holland

From the gunner's position, defend your bomber from attacking British aircraft.

and his associates are to be commended for their attention to detail, but they knew when to stop. *Battle of Britain* is not meant to be a flight simulator; it's an air-combat simulator. While the Spitfire's cockpit has 17 dials, controls, and gauges and the He 111's has 28, even a novice pilot can take off, land, and fight with minimum instruction.

Training flights let you practice shooting, bombing, and flying in relative safety, but the results don't count on your combat record. Fly a combat mission for that. Choose from any of the eight German or British aircraft; then select from eight historically based missions. Missions are different for each aircraft. For more variety, construct your own missions or fly a campaign.

You have the option of directing either an RAF or a Luftwaffe campaign. Select flight groups, plane types, and number of planes. Decide which formations they'll fly; assign flight plans; select pilots from your roster; attend briefings; select standard or unlimited ammo, fuel, and damage limitations; and then join the melee above the English Channel and coastal England.

Another outstanding feature of *Battle of Britain* is the replay camera. Turn it on as you commence an attack and the camera records the action from numerous viewpoints. One is from a chase plane directly behind your aircraft, another is from your cockpit, and yet another lets you view the battle from anywhere in the air, even as seen from a parachuting airman. During a bombing run you have more options. Watch from the ground or even from the bomb's point of view.

If this camera technique and this attention to detail seems familiar, you probably have seen *Battlehawks 1942*. The similarity is no coincidence. If you are a veteran of the Pacific campaign, you should feel right at home in these cockpits. Flight controls are very similar.

Battle of Britain can be controlled with the keyboard, mouse, or joystick. I flew for several days using the keyboard and I thought the game was great. Then I installed a joystick and flying became fantastic. I strongly recommend using a joystick with *Battle of Britain*. If you don't have one, beg, borrow, or buy a joystick for this game.

Battle of Britain is absolutely, positively my favorite computer game. I've never enjoyed a game as much or played one so often. It's superb right down to the manual, which is filled with historical facts. In addition to supplying game instructions, fighter tactics, and technical details of both German and British aircraft, the manual provides the historical background of how 500 British fighters held their own against more than 2000 German attackers and prevented the invasion. "Never was so much owed by so many to so few," Winston Churchill said of the RAF pilots. The manual also includes many anecdotes about the men who flew on both sides of the conflict. As one unidentified RAF pilot said after hearing Churchill's famous words, "He must have been thinking of our bar bills."

Their Finest Hour: The Battle of Britain
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The problem with success is that nobody ever knows what caused it.

Failure—now, that's easy. Everybody knows what caused failure. It was the idiots in marketing, or those slow programmers who couldn't write bug-free code to save their lives, or the bad luck of coming out with a piece of software just as one of the big companies was flooding the marketplace with its inferior version of the same thing. Maybe you were "way ahead of your time" or "too sophisticated for the masses"—or else the other guy was "behind the times" or developed software that was "too childish."

The cause of failure is easy to identify. It's the other guy.

But success—that's tougher.

Naturally, of course, your first instinct is to point to yourself. If you're in marketing, then it was your packaging and your ads and your perfect timing with the Christmas market that made your game a hit. If you're a game designer, it was your concept and implementation. If you're a programmer, it's because they finally turned you loose and let you do the game *right*. If you're in management, it's because you backed the right ponies and really got behind them. In short, you're a genius.

The trouble is that if you're such a genius, you've got to do it again. And again. And again. There are ulcers as big as potholes down that road.

Even worse, though, is when you're looking at another company's success. You know *they're* not geniuses—they're just lucky. But you know that if you're going to survive, you have to come up with a competitive product. And so you start to imitate.

Artists *do* repeat themselves, sometimes on purpose, sometimes unconsciously. But even in repetition, they aren't *imitating;* there is always something fresh and inventive.

The good sequels are the ones that actually improve on the original, the ones that show that the artist has grown from one year to the next. The bad sequels and imitations are the ones that change as little as possible, bringing nothing new to the project. The only creative drive is the faint shadow left over from the original project. Such sequels might earn money, but they rarely earn the love and admiration of the audience.

Which brings us to *Welltris,* the sequel to *Tetris,* a game so compulsive that I had to zero it out on my hard disk and give the original disk to my wife to hide from me so I could get some work done and wouldn't have to see those nasty little squares drifting down before my eyes during all my waking and sleeping hours.

Tetris meant life in hell for me—so naturally I couldn't wait to get my hands on *Welltris.* Heck, I even bought it myself instead of hoping that Spectrum HoloByte would send me a free review copy. (Besides, if it was sent by way of the COMPUTE! offices, I know for a fact that it'd be six months before anyone would "remember" to send it over to me! These folks know a great game when they see it!)

Here's the happy news: *Welltris* is better than *Tetris.* It's not an imitation, but a fresh invention.

The idea is so obvious it hurts: *Tetris* in three dimensions, so you're dropping the blocks down a well. But then you face the perpetual problem of representing three dimensions on a two-dimensional screen. Something is always behind something else.

GOOD SEQUELS INVENT **FRESH TWISTS**

The solution? Don't make it *completely* 3-D after all. The blocks stay flat, just like always. Now, though, they're sliding down the four sides of a square well. You can move them all the way around the well as they fall and rotate them to orient the shape differently. Then, when the blocks hit the bottom, they slide across the floor until they hit the opposite wall or run into another block. Whenever you complete a row, either vertically or horizontally, the row disappears and the remaining blocks jump together to fill in the space.

Whenever you let a shape fall so that one or more cubes are forced to remain up along the side of the well, that wall flashes a bright color and you can't use that side for a while. The game is over when you've blocked up all four walls.

It's far freer and more varied than *Tetris.* The game designer, Russian computer wizard Alexey Pajitnov, has come up with a downright humane interface. You have two choices: You can use the arrow keys to go left or right on the horizontal faces and up or down on the vertical faces; or you can use just the left and right arrows to do continuous clockwise and counterclockwise movements all the way around the well. I prefer the latter—but you get your choice.

Challenging, intuitive, compulsive. A great game.

What will be Pajitnov's follow-up to *Welltris?* A sequel in which the shapes spray out of the middle and have to be hooked onto "floaters" drifting around the edges of the screen? Will it also be a hit?

The truth is that you can't keep competing with yourself. Sometime you're going to create a game that people don't like as well as the one before. All we can ask is that Pajitnov's next game be one that *he* is interested in, that *he* enjoys.

Maybe it will be a hit, maybe not. Either way, nobody will know why. That's just the way it is with art. ⊡

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WING IT WITH THE LATEST CROP OF FLIGHT SIMULATORS

DENNY ATKIN

Flight simulation is one of the hottest categories of entertainment software, but while almost 2 million people have taken to the air on their home computers, some people remain firmly grounded. If you're one of those land huggers, you should take a look at the shiny new PC planes on the market. Designed for people who've never been behind a real control yoke, some of the newest games are much easier to master than their predecessors. And those dedicated pilots looking to log a few more hours of flight time can push the envelope with out-of-this-world game control and stunning graphics. So which one is for you? Let's test-fly some 1990 models and find out.

The New Old Standard

The flight-simulator craze started way back in 1980, when SubLOGIC released Bruce Artwick's *Flight Simulator* for the Apple II and TRS-80 Model I. The latest incarnation of that program, *Microsoft Flight Simulator* 4.0, still tops best-seller lists a decade later.

If you're interested in learning what it's like to fly a real airplane, *Flight Simulator* 4.0 is the program to get. A complete set of cockpit instruments, navigational aids, and realistic handling characteristics make this the most accurate simulation on the market.

Flight Simulator 4.0 starts you out in the cockpit of a Cessna Skylane RG II, a single-prop, high-wing private aircraft. The upper portion of the screen displays a view through the windshield, while the lower part contains the most complete instrument panel of any of the flight simulators examined here.

You get all of the standard instrumentation, such as an altimeter, airspeed gauge, and artificial horizon. You'll also find a complete set of IFR (Instrument Flight Rules) instruments for night or inclement-weather flying.

Real-life pilots will appreciate the high-tech Command Flight Path Display, a new navigation system which projects the proper flight path or instrument approach directly on your windshield. The scenery and approaches are authentic, down to the radio frequencies used by various airports. The program includes scenery for San Francisco, southern California, Chicago, Seattle, and New York; and add-on scenery disks cover most of the rest of the United States and even parts of Europe.

If all of this sounds a bit overwhelming, don't worry. You can fly around and sightsee without learning how to use most of the instruments. But if you're interested in learning more

TAKE OFF!

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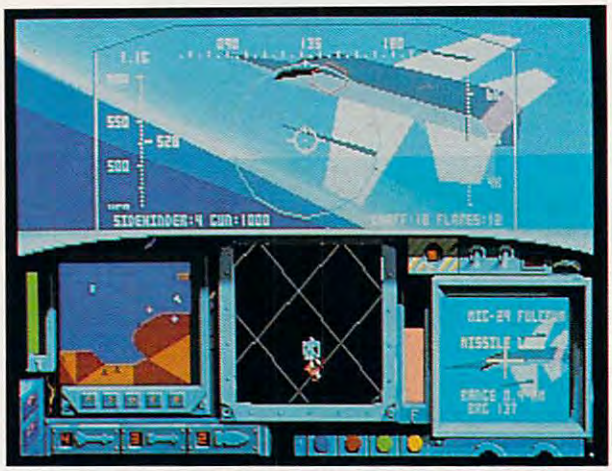
Photo © 1995 Mark Wagoner

You can test-fly custom aircraft over Chicago in *Microsoft Flight Simulator* 4.0.



Even the highly rated MiG-29 Fulcrum is no match for your *F-15 Strike Eagle II*.

about what's involved in flying a real aircraft, the equipment's there. The comprehensive 200-page manual includes all the information you'll need to get up in the air—and more importantly, back on the ground.

There's a lot more to *Flight Simulator* 4.0 than sightseeing in a Cessna, however. You can also try high-speed maneuvers in a Learjet, buzz a farm field in a crop-duster, or blast enemy biplanes in the WWI Ace game. WWI Ace doesn't compare with the air-combat games surveyed here, but it's a great way to take out your frustrations after your sixth failed attempt at landing the Learjet.

Flight Simulator 4.0's glider mode lets you experiment with unpowered flight in a Schweizer 2-32 sailplane. Another enhancement adds plenty of air traffic around major airfields, including a 767 airliner. Thunderstorms and other weather patterns randomly appear, adding excitement to routine cross-country flights.

The most fascinating addition is the airplane-design facility. Select Experimental Aircraft from the Mode menu, and you're taken to another screen where you can select the specifications for your new aircraft. Change the type of propulsion (jet, propeller, or glider), wing size and aspect ratio, and a number of other factors as you create the ultimate flying machine. This is the most addictive feature of *Flight Simulator* 4.0. I keep coming back to make just one more improvement to my plane.

Flight Simulator 4.0 is one of the few entertainment programs that takes advantage of the high-resolution, 640 × 350 pixel mode of an EGA or VGA card. Graphics are exceptionally smooth, especially on a 286 or better.

When it comes to realism, variety, and programming finesse, you can't beat *Microsoft Flight Simulator* 4.0. If you're looking for fast-action air combat, though, keep looking.

Enhanced Eagle

MicroProse's *F-15 Strike Eagle II* sets a new standard for high-speed computer air combat. What it lacks in realism it makes up for in nonstop action.

Strike Eagle puts you in control of an Air Force F-15E Eagle, an air-superiority fighter with ground-attack capabilities. No sightseeing this time around. Your mission is to go deep into enemy territory to destroy air and ground targets. Enemy air forces are ready to see to it that you fail.

An F-15 is much easier to fly than a Cessna in many respects. You don't have to worry about stalling if you put the plane in too steep a climb—this baby has so much power that you can fly it ballistic (straight up). You won't have to concentrate too hard to keep your plane in the air, which is good, since you'll need to spend most of your effort avoiding or eliminating enemy threats.

You can select a pilot, skill level, and theater of combat. Fly missions in Libya, the Persian Gulf, the Middle East, or Vietnam. The type of air and ground opponents you'll encounter vary in each theater. *Strike Eagle* includes 22 different friendly and enemy combat aircraft. Be careful, though. You'll also encounter the occasional airliner deep in enemy territory, and you don't want to accidentally shoot down civilians.

In places where realism would have brought tedium or complexity, the *Strike Eagle* programmers opted for action. What's left is a fast-moving game that doesn't require a pilot's license to play. Beginning computer pilots will appreciate features such as an autopilot-landing mode.

Unfortunately, MicroProse plays loose with historical accuracy. For example, many of the missions end with you landing your F-15 on an aircraft carrier, but the Eagle wasn't designed as a carrier aircraft and only operates from land bases. Also, while the enemy aircraft you encounter in the Vietnam scenarios are accurate representations, it's worth noting that the United States didn't *have* F-15s in Vietnam. The first F-15 squadron wasn't activated until January 1976.

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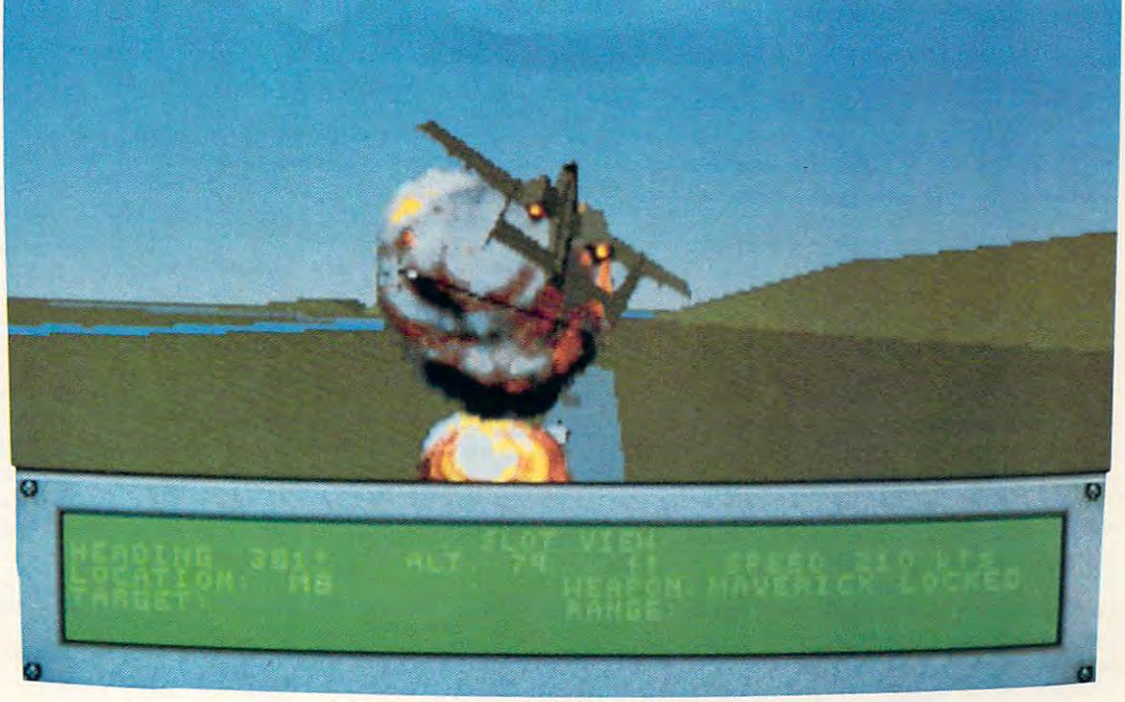

Pull away to avoid the blast after a low-altitude Maverick run in *A-10 Tank Killer*.

The graphics in F-15 are very attractive, especially on a VGA system. The graduated shades of blue in the sky are absolutely mesmerizing. However, they have a sort of cartoony feel about them, and the intense hues detract from the game's realism. The sound is excellent, with digitized voices and support for Ad Lib and Tandy 1000 sound.

There are many fighter-jet simulations out there, but, for now, *F-15 Strike Eagle II* is top gun when it comes to fun.

Tanks a Lot

If you're one of those combat-simulator fanatics who's already shot down more planes than Pappy Boyington, transfer from your F-15 squadron to Dynamix's *A-10 Tank Killer*. There's no high-altitude shoot-and-run flying for the A-10 Thunderbolt II pilot. You fly low and slow in one of the meanest, most powerful aircraft in the sky.

Your job is to provide close air support for friendly ground troops. Your heavily armored aircraft has ten underwing pylons that will hold up to 16,000 pounds of bombs and air-to-ground missiles. As if that weren't enough, the A-10 is also equipped with an Avenger 30-mm cannon, which can fire 4200 milk bottle–sized depleted-uranium shells per minute.

You can complete the eight missions in *A-10 Tank Killer* individually or as a campaign. Each mission has a different objective. In one mission you may have to destroy a specific ground target, such as a bridge or an enemy installation, while in another your target may be an enemy armor column that's threatening friendly troops. You'll fly most of your missions with one or more wingmen, which makes combat more exciting and realistic. It also makes navigation easier on some sorties—just follow the other guy.

In VGA mode, *A-10 Tank Killer* is one of the best-looking programs I've ever seen on a microcomputer. The television-quality digitized opening screens are fantastic, but the cockpit view is what really impresses me. The instrument panel is an actual digitized A-10 control panel, complete with working gauges. The view outside the windscreen is very well done, with 3-D terrain that uses multiple shades of green and avoids a multicolor, cartoonish look. The outside views of the A-10 and other vehicles have none of the sharp-edged polygons evident in other flight simulators.

What's more, screen updating is very smooth on a 12-MHz 286 with VGA. If you have a slower machine, you can reduce the amount of detail in the outside view to get faster updates. Sound support takes advantage of Ad Lib and Roland music cards.

A-10 Tank Killer does a great job of balancing realism with playability. Aircraft handling is very realistic, as are weapons capabilities and enemy characteristics. However, you don't have to spend a lot of time flying to the battle area, and novice pilots can skip the landing stage.

If you're looking for a realistic combat flight simulator and don't mind the lack of air-to-air action, grab *A-10*. It's the most exciting way to get into air combat short of enlisting.

Right Angels

If blasting bad guys isn't your forte, check out Accolade's *Blue Angels*. This simulation puts you in formation with the Navy's Blue Angels precision aerobatics team. Your goal isn't to knock other planes out of the sky, but to put on an exciting airshow.

Blue Angels is like no other flight simulator. You have to learn the Angels' maneuvers, and learn them exactly. When you're flying six feet away from another aircraft at near Mach 1, you can't afford to make mistakes.

The first thing you'll want to do is try the simulator option. (It's a flight-simulator simulator—got that?) This lets you watch and practice the Blue Angel's maneuvers on a wire-frame graphics simulator. The help window shows you

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the exact keypresses you'll need to make to execute each maneuver. You can then practice the entire airshow using the onscreen simulator.

Once you've got the maneuvers down, it's time to try it in the real plane. You can fly as part of the diamond formation or as one of the solo pilots. Watch your instruments and your windscreen carefully—you're maneuvering within a few feet of other aircraft at nearly supersonic speeds.

Flying in the airshow is challenging, but it can be frustrating if you haven't practiced enough. If you slip too far off the proper course for a maneuver, the evaluator calls "Break!" and grounds you, taking you back to the main menu. I'd rather continue flying and just receive a poor score than be bumped from flight.

Blue Angels captures the feeling of an airshow, but it scores poorly as a flight simulator. The planes don't handle anything like actual aircraft. For example, you can stop in midair and hover over the airfield in your F-18: Try that in real life. And no matter how slow you fly, you can't stall. In fact, you can't crash, period. Also, this is the only aircraft simulator surveyed here that doesn't support a joystick. So while *Blue Angels* looks like a jet-flight simulator, gameplay is purely arcade action.

If you've ever seen the real Blue Angels in flight, you know how awe-inspiring their shows are. Unfortunately, this game's graphics fail to capture that sight. It's a spectacle that doesn't come off well using only 16 colors and blocky polygon aircraft.

Still, if you don't mind the unrealistic flight characteristics, *Blue Angels* is a refreshing change from the shoot-and-bomb jet simulators that dominate software store shelves.

Alien Invasion

If you're looking for a *real* change, though, grab SubLOGIC's new *UFO*. Everything you've learned about flying Earth craft goes out the cargo door. This is no airplane; it's an antigravity, antilaminar flying saucer with an advanced gluon drive. You can do maneuvers that are impossible with Earth craft, including hovering, flying backward and sideways, and teleporting across the countryside. You can even leave the atmosphere and fly into orbit. While the control system takes a little getting used to, it's fairly easy to manipulate. *UFO*'s handling is very realistic, at least as far as antigravity, antilaminar, advanced-gluon-drive flying-saucer simulations are concerned.

If you tire of sightseeing, you can play two games: Energy Trader and Earth Craft Chase. In Energy Trader your objective is to drain energy from Earth cities without being detected by their defense forces. In Earth Craft Chase, your goal is to find Earth aircraft, fly close to them, and scoop them up into your UFO for later examination by your gravitron device.

Graphics in the game mimic those in Microsoft's *Flight Simulator* 4.0. The program includes detailed scenery for Miami, Hawaii, San Francisco, and Washington, D.C., plus sparse scenery for hundreds of other cities across the nation. *UFO* is compatible with all SubLOGIC Scenery Disks and is the fastest vehicle around for exploring them.

All in all, *UFO* is a fascinating change of pace from standard flight-simulator fare.

Happy Landings

There are a few other things you should consider when deciding which flight simulator to get. A fast XT- or an AT-class computer is the absolute minimum for a decent screen update speed. Also, a big part of the fun is enjoying the scenery. A good graphics card is a must for the serious flight-simulator buff. You can get by with an EGA card, but the new programs that take full advantage of VGA are fantastic. I would purchase a VGA 286 system just to play *A-10 Tank Killer*—it looks that good. ⊡

Denny Atkin is an assistant editor for *COMPUTE!*, when we can keep his feet on the ground.

FROM THE COCKPIT

If you're interested in taking to the wild blue yonder in any of the aircraft discussed in this feature, the information below will help you get your wings.

A-10 Tank Killer
Amiga—$49.95 (Coming soon)
IBM PC and compatibles with 512K; hard disk recommended—$49.95
(Tandy TX, SL, and TL require 640K)
Dynamix
P.O. Box 11806
Eugene, OR 97440
(503) 343-0772

Blue Angels
Amiga—$44.95
Apple IIgs—$49.95 (Coming soon)
IBM PC and compatibles with 384K—$49.95
Accolade
550 S. Winchester Blvd.
Suite 200
San Jose, CA 95128
(408) 985-1700

F-15 Strike Eagle II
IBM PC and compatibles with 512K—$54.95
MicroProse
120 Lakefront Dr.
Hunt Valley, MD 21030
(301) 771-1151

Microsoft Flight Simulator 4.0
IBM PC and compatibles with 384K—$59.95
Microsoft
16011 NE 36th Way
Redmond, WA 98073-9717
(800) 426-9400

UFO
IBM PC and compatibles with 512K—$49.95
SubLOGIC
501 Kenyon Rd.
Champaign, IL 61820
(217) 359-8482

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GAMESCOPE

HINTS AND TIPS FROM OUR READERS

The streets in Access's *Mean Streets* are appropriately named. You'll need quick reflexes to make it through the arcade portions of this graphics adventure.

When you get in a gunfight, stay down. If the bad guys are behind an obstacle, they won't be able to hit you. If they move forward, you can shoot them from the crouched position. The thugs always come out in twos, so when you're ready to advance, stand up, fire two shots, and duck until their shots pass over you. As soon as your shots hit the thugs, you'll have a few seconds to move forward. As soon as another thug appears, fire two more shots and duck again. Repeat this procedure until you've made it across the screen.

If you start running low on cash, remember the seven bounty-hunting pads. You'll have to fly the speeder manually to get to them—the coordinates are in the instruction booklet. The thugs at the pads are a little quicker, but if you master the fire-and-duck technique, you should have little trouble dispatching them.

Bubba Hargis
Hattiesburg, MS

Empire Expertise

Is there a more addictive war game than Interstel's *Empire?* I've never found one. What I have found are some tips and tricks that help ensure, if not victory, at least a noble defeat.

The first product of your first city should be an airplane. Once the plane has been produced, immediately shift to producing armies, using the plane to explore uncharted areas, discovering the cities your armies will conquer. I also begin building transport ships early: The more continents on which you establish a presence, the faster your industrial base grows and the better your chances of ultimate success.

After transports, I favor destroyers. They're fast and can open up a lot of territory quickly. I divide the *Empire* screen into rough quadrants and, as quickly as possible, dispatch destroyers to explore each, in search of the enemy. I like to play the game with two enemies, both set at expert level. Finding them quickly is essential. Submarines are also effective; they're great for patrolling deep behind enemy lines in search of convoys. When you find enemy ports, move in bigger ships to establish blockades.

The big ships are crucial to victory. I like to have a battleship and an aircraft carrier in production by the 50th turn, if possible. I put as many

Planes can explore uncharted land and find hidden enemies in *Empire*.

cruisers into production as feasible. The battleships and cruisers provide bombardment before invasions. The carrier is even more valuable. Load it with planes and give each plane a patrol route. By arraying the patrols like the points of a star and placing the carrier in the middle of an ocean, you can protect vital sea lanes and detect enemy subs.

Don't neglect the defensive side of the game. A few planes, destroyers, and armies placed on patrol in the hinterlands can alert you to surprise attacks and infiltration.

You might also try designing your own maps. It's not difficult to produce relatively accurate recreations of World War II island-hopping campaigns.

Michael Donovan
Tokyo, Japan

Touchdown Tips

Here are some tips for *John Elway's Quarterback,* Melbourne House's football game that lets you control your own NFL team. First, some offensive hints:

- When playing the bomb, throw slightly to the left or right of your receivers to avoid an easy interception.
- When punting the ball, point slightly against the wind and the ball will go deeper.
- Experiment with the wishbone play, where you run with the ball on passing plays. It will confuse the defense and you can get some good yardage.

For a better defense, try these strategies:

- Don't let the name fool you—the Goal defense is almost always the best one to use on a first-down play.
- A very effective defensive play combination is Goal (on first down), Standard Run (second down), and Zone (third down).
- When your opponent is inside your 20-yard line, always use the Zone defense and move back 10 yards to stop any penetration.
- When blocking a field goal or an extra-point kick, wait until the kicker reaches the ball, and then jump straight up. You can block three out of ten kicks this way.

Finally, a few general hints:

- The computer player can outrun you, so use a zigzag pattern to avoid him or come at him from an angle to catch him.
- Take advantage of the clock, especially in the last three minutes of the game. Use pause to stop the clock if you need more time, or waste some time when choosing a play if you want to run the clock down.

Sunil Patel
Clinton, OK

If you have game tips and shortcuts of your own, we'd like to hear from you. Send your tip, no matter how brief, to COMPUTE! Feedback—GameScope, P.O. Box 5406, Greensboro, North Carolina 27403. If we publish your suggestion, we'll send you a gift. ⊡

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REVIEWS

BALANCE ON A HIGH WIRE, CARRY YOUR WORK WITH YOU, RACE YOUR CYCLE, WRITE ON THE GO, SHOOT EVERYTHING, MAKE BANNERS, COMMAND YOUR TANK, AND MORE.

FIENDISH FREDDY'S BIG TOP O' FUN

Hurry, hurry, hurry! Boot right up and try your luck. *Fiendish Freddy's Big Top o' Fun* gives you the greatest show on earth on your own computer. In this game, your death-defying circus attractions include human cannonballs, trapeze swings, juggling acts, high dives, knife throwing, and tightrope walking.

This circus is in deep financial trouble. The next performance will be its last unless it raises badly needed funds. The better the performance is, the more money that's raised. Turn in a mediocre performance, and the circus will be foreclosed in favor of a profitable real estate development.

Circus feats are difficult to perform under any circumstances, but the financial institution has hedged its interest by hiring Fiendish Freddy the clown to sabotage your acts. This bozo has a bag of tricks that will make your performances even more challenging.

Your high diver, Horace, jumps from incredible heights into a shallow pool filled with water. As Horace falls, you make him strike different poses. The more poses you hit while making sure that Horace lands in the water, the more points you'll earn. Freddy uses a fan to blow Horace off course. This segment is fast and fun with a lot of details to manage.

If you've ever had ten things to do at once, you can relate to juggling. You control the movements of your juggler, who tries to keep as many items in the air as possible. His assistant is a seal that throws him chainsaws, torches, anvils, and even babies to juggle. Periodically, Freddy distracts the seal with a fish and throws in a bomb. Drop the bomb or too many objects, and the juggler is history. This portion is challenging and variable.

Flying through the air with the greatest of ease is not simple. Your acrobat, Finola, jumps from trapeze to swinging trapeze. Timing is everything as you tell her when to let go. If Finola waits too long to jump, Freddy cuts down the trapeze.

In another sequence, your assistant bravely (foolishly, in my case)

Mindscape's *Fiendish Freddy's Big Top o' Fun* puts you on a high wire.

ties herself to a rotating wheel to which balloons are attached. By throwing knives, you attempt to pop the balloons that surround her. Again, timing is everything. Miscalculate, and your assistant gets the point.

The grand finale features Fernando, the human cannonball. While his assistant loads the cannon with a charge, you decide how far away to place the net and at what angle to fire the cannon. If you take too long to set up, Freddy plugs the end of the cannon and there are disastrous results. This is probably the easiest game to master. Consistency and remembering the relative power of the various charges ensure success.

Fiendish Freddy's Big Top o' Fun has outstanding graphics and animation; in fact, these are some of the best-looking graphics I've seen in a home computer game. The controls are easy to learn and manipulate. The keyboard worked well, but I found events like diving and the high wire were easier with a joystick. Freddy makes the game exciting and unpredictable. In addition, the circus theme was carried out exceptionally well.

The game is challenging, and it's difficult to reach the monetary goal. If you fall short, you're treated to a sequence showing the demolition of the big top and the building of a new high-rise in its place. *Fiendish Freddy's Big Top o' Fun,* with its first-rate action, is nearly as fun as a day at the circus.

WAYNE N. KAWAMOTO

Amiga—$49.95
Atari ST—$49.95
IBM PC and compatibles—$44.95

MINDSCAPE
3444 Dundee Rd.
Northbrook, IL 60062
(800) 221-9884

TANDY WP-2

They're called *notebook computers,* members of a laptop subgenus that do not compete with the capabilities of the desktop. Instead, they concentrate on word processing and telecommunications. These computers are convenient and fun to use, but a $3,000 notebook computer is like a $500 pen. It's feature overkill that will keep the

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product out of the hands of the masses. Tandy's WP-2, then, is closer to a true notebook concept. It writes, it communicates, and, at $349, its cost approaches the common sense of a real-life notebook.

It's slick black and resembles a half-size disembodied keyboard. Powered by four AA batteries, it claims 12–20 hours of operation per charge. It weighs less than two pounds

Tandy's sleek-looking WP-2 word processor is small and easy to carry.

without the encumbrances of a disk drive and battery pack. Software etched into ROM offers a stripped-down set of the most needed features.

The 1990's version of the list of the most needed features includes a spelling checker, a thesaurus, a calendar, and some phone functions. (Word count, a valuable function for the writer on the go, is absent.) All modules are anemic in relation to desktop software, controlled through a combination of two function keys and numeric commands.

To compare laptops with desktop anything, however, is unjust. Laptop compromises are legion, no matter what the machine or the price. The WP-2's list of compromises, starting with a screen that makes your LCD watch look like VGA, is pretty long. Its advantages, on the other hand, are easily stated. It's an easy-to-use data-collection device that allows you to carry a degree of PC functions in your pocket without unbalancing your wallet.

The machine is equipped with 24K of battery-backed memory, within which all functions are conducted. Conveniently, switching the machine off either manually or automatically doesn't trash data. An optional user-installable $50 chip adds another 32K of storage, while slot cards for memory (and perhaps, in the future, software) exist.

The WP-2's keys, by function, do not include a numeric keypad, embedded or otherwise. The keys themselves are spaciously placed, rugged, and responsive. It does not include an internal modem, nor can one be installed. Instead, a pocket modem slips into the serial port. Printer and cassette-recorder connections have also been included. An external, non-DOS disk drive accessory offers extra storage space.

The compromise of a poor screen is an acceptable tradeoff, but favoring a cassette-based storage system over a modem or a LapLink-style file-transfer system is simply unacceptable. A snazzy file-transfer ability, even if it had made the WP-2 a bit heavier, a bit more expensive, or a bit harder to use, would have given the machine a welcome boost. Many users would add extra weight for the privilege of convenient interchangeability.

The WP-2 produces ASCII files, and so, theoretically, you can use it as a remote arm of any personal computer. But until file transfer is made as transparent as word processing, that capability may not be enough. Still, there is something oddly futuristic about the WP-2. You can expect, in the not-too-distant future, to see people hauling around machines of the exact same design, but with cellular and FAX capabilities.

But I'm getting ahead of myself. Simply put, the WP-2 offers a laptop solution that won't send you to the poorhouse. It compromises features to meet that goal, as you would expect. In the ultralight world of notebook computing, it's a spiral steno pad—serviceable, inexpensive, and useful. In short, you can use this little Tandy for a long while and not feel cheated after new and more powerful equipment comes along.

CHARLES BERMANT

WP-2—$349

RADIO SHACK/TANDY
1700 One Tandy Center
Fort Worth, TX 76102
(817) 390-3487

THE CYCLES

FAST LOOKS

For speed freaks who have grown bored with the latest in four-wheel computer racing fun, Accolade's *The Cycles* brings international Grand Prix motorcycle racing onto your desktop. Like the company's well-received *Grand Prix Circuit,* this asphalt artery-clencher takes you on a whirlwind tour of 15 tracks in as many countries, where you compete against other drivers for points and, finally, the title of World Driving Champion.

If you're familiar with *Grand Prix Circuit,* there is little new in this game. You can choose from three motorcycles (125cc, 250cc, and 500cc), practice a course before you race, and set the difficulty level at any one of five points from Beginner to Pro.

You control steering, shifting, braking, and accelerating from either the keyboard or a joystick. I found sticking to the road a lot tougher in this game than in its four-wheel cousin. The view is from over the handlebars, which gives a realistic picture of the track as it slides under your boots at 100+ miles per hour.

The Cycles supports Ad Lib and Tandy DAC sound during its opening credits but relies on the PC beep-and-boop during race time. You won't sound as bad as Marlon Brando did in *The Wild One,* but you may equal Michael J. Pollard in *Little Fauss and Big Halsy.*

Motorcycle-racing fans will appreciate this nod toward their sport, and racing-simulation buffs may find it a worthy addition to their trophy case—all the fun, half the wheels.

PETER SCISCO

Commodore 64/128—$29.95
IBM PC and compatibles—$39.95

ACCOLADE
550 S. Winchester Blvd.
Suite 200
San Jose, CA 95128
(408) 985-1700

LASER PC3

The drive toward smaller computers has given rise to a lot of companies that are striving to put the latest technology on the road and/or in your pocket. One of the latest is Laser Computer and its PC3, a notebook-size computer that offers ten functions for those times you don't need the power of a full-blown laptop, or for those for whom a laptop or one of the sleeker notebook PCs is still too expensive.

The PC3 isn't meant to replace a full-size laptop. It doesn't run DOS programs, but rather makes use of its own ROM-based applications. Its ten functions include a spelling checker, a calculator, a telephone directory, an appointment book, an alarm clock, a personal database, a typing tutor, a communications module for uploading and downloading to and from a desktop system, a word processor, and

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an expense-account module. It's an eclectic mix, kind of a scattershot approach for a machine that tries to be something for everyone.

The PC3 weighs in at 2.4 pounds, including the four AA batteries that power its Z80 processor. An optional AC adapter is available. While these features are commendable, the system falls short in other basic areas. For example, the display screen is two lines deep by 20 characters wide, more similar to an electronic typewriter than to a laptop or notebook PC. Also, although the keyboard is laid out well and avoids crowding, it feels clunky—character repeats are common. To say the least, it takes some getting use to. (Perhaps that's why Laser included a typing tutor in the collection of built-in software.)

On the plus side, the ROM-based applications work well and leave almost the full 32K of RAM free for data. The personal database, appointment book, and telephone directory are especially well designed, with lightning-fast searches. To find a piece of information, simply type in the string you want the computer to search for at the appropriate spot. The string doesn't have to be a complete word; for example, if you wanted Bill Smith's telephone number, you could type *Smi* and the search would reveal all matching entries (including any *Smithfields, Smithereens,* and *Smirkles*).

The telephone directory, appointment book, and personal file are limited to five 40-character lines per entry. Acoustic autodialing is offered in the telephone directory. The alarm-clock function handles up to four alarms that can be set on a daily or weekly basis.

The word processor is pretty bare bones, but it serves its purpose. It's backed by the PC3's 80,000-word spelling checker. One drawback to the spelling checker is its inability to check an entire document. When run by itself, the spelling checker works much like one of the pocket electronic dictionaries that are so common these days.

The PC3 comes with version 5.5 of *PC-Tools Desktop,* through which it up- and downloads information. I wish Laser Computer allowed for straight transfer of ASCII files. If you want to use your word processor to edit a document you've written on the PC3, you have to send the document up through the *PC Tools Desktop,* save it into the Notebook as an ASCII file, and then open that file under your own editor. It's not impossible, but it involves a few extra steps. The only problem I had uploading came from a flaky serial card. The technical support staff at Laser talked me through the entire procedure until we were sure that the problem wasn't in the software or in the PC3. Give that support good marks. Once I was linked to a working serial port, I was able to send the first part of this review into a Notepad file and convert that file to ASCII for *XyWrite II Plus.*

Although the transfer went smoothly, I was disappointed that my paragraph breaks did not translate. The translation should be more transparent and more accurate. On the other hand, when I sent my file to a printer, the paragraph breaks did translate correctly.

While on the road, the PC3 puts all of the important features at your fingertips.

The main strengths of the PC3 lie in its ability to share files with a desktop computer (either a PC or a Macintosh) and its bottom-line price. Although it lists for close to $250, I recently saw an ad from a major retailer showing it at $179. That's almost $200 less than Tandy's new WP2, one of the PC3's main competitors. Both machines offer word processing with a spelling checker. The Tandy has the advantage of the larger screen; the PC3 offers other modules that make it more of a personal information manager. Neither machine rivals a laptop for versatility, nor is either as small and compact as some of the pocket-size organizers like Sharp's Wizards.

In the end, buying any downsize personal computer is a matter of balancing expense with function. If a couple hundred bucks is all you want to spend, and you only need to take some of your computer's capabilities on the road, the PC3 is worth considering.

PETER SCISCO

IBM PC version—$279
Apple Macintosh version—$279

LASER COMPUTER
550 E. Main St.
Lake Zurich, IL 60047-2576
(312) 540-8086

IF IT MOVES, SHOOT IT!

The title says it all. This game isn't for computer adventurers bent on solving the unfathomable riddle of the Wizard Orloc and retrieving the key to the princess's dungeon cell. And it isn't a slow-paced puzzler for computer-chess fanatics who long to challenge Deep Thought. This game tests your joystick and/or keyboard skills while it pushes your eye/hand coordination to the max; quite simply, if anything moves on the screen, vaporize it with your laser.

You play the role of the last elder in a colony established generations ago on the planet Kort. Over time, a mystery has developed: Colonists have disappeared during treks into the wilderness. As you set out in search of the lost colonists, an army of techno-renegade spaceships descends on you. Your only hope: shoot anything that moves.

You start armed with simple lasers, but you can add to your arsenal as the battle wears on. Some weapons are ineffective against particular aliens.

The game's background graphics are an interesting, futuristic, and alien pastiche. It's the familiar look from overseas, a Euro-arcade (to use *COMPUTE!* Assistant Editor Denny Atkin's phrase) with a distinctive style. The opening score is quite an achievement in its own right, coming from the standard PC speaker. It won't put John Williams out of a job, but it reflects a sincere effort to create a unique game.

Other than the graphics (best seen in EGA or VGA, of course) and the brief opening music, *If It Moves, Shoot It!* doesn't distinguish itself from other shoot-'em-ups. It is, thankfully, priced at a level equal to its worth. If your idea of computer-gaming fun is blasting aliens and avoiding destruction, this is your ticket to ride. But be careful. If you lose, you lose your soul.

PETER SCISCO

Amiga—$29.95
IBM PC and compatibles—$29.95

EMERALD SOFTWARE
Distributed by Brøderbund Software
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3200

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BANNERMANIA

Seeing your name on a banner is the next best thing to seeing your name in lights. Brøderbund's *BannerMania* lets you easily make banners. It's packed with flexibility—and when it comes to making banners, flexibility means fun!

The program offers what seems like an endless variety of eye-catching one- or two-line banners; each line can contain up to 63 characters. Letters can be printed in your choice of 19 different fonts, and you can use different fonts on each line.

For added excitement, *BannerMania* offers a wide variety of graphics. These include arrowheads, pointers, stars, and more.

BannerMania also lets you choose from among 34 letter-enhancement options. These let you print your banner with effects that include altered perspectives, shadows, balloons, and accordion folds. On multiline banners, you can use a single effect throughout or assign different effects to each line.

You also get a choice of almost 30 different banner shapes. Some, like sports-style pennants, you've seen before; others, such as double convex or wavy, may be less familiar but delightful. Regardless of the shape, the program automatically configures your message.

More choices arise for shading and coloration. With monochrome printers, you've got your choice of 18 combinations of black, white, dot, and line patterns; if you have a color printer, choose any of 134 predefined color sets. You can use one set throughout your banner or assign a different set to each line.

And then there's formatting. You can center your message, justify it right or left, or print it with both lines of text the same length. You can also stretch your banner's message, changing its width without changing the height of the letters. This is particularly handy when you want to emphasize a message or for when you want to create banners more than 25-feet long.

BannerMania lets you shrink your message in 10-percent increments down to 10 percent of the standard width. Another option lets you set the vertical alignment of your message, moving it to any of several different positions on the page.

Fonts, effects, multiline messages, numerous print options—that's a lot of flexibility, but the program isn't hard to master. It's built around a series of easy-to-understand menus. You select items by highlighting a choice and pressing RETURN; alternately, you can make choices with a Microsoft-compatible mouse. The screen also offers a message area, and context-sensitive help is available at the press of a key.

One particularly handy feature is the ability to preview your banner on the screen. Look at the entire banner or an enlarged view of just a portion. Page breaks are indicated to make things easier for banner makers limited to fanfold paper.

This package will find a place in a variety of settings. Whether at work, school, or home, kids and adults will revel in its flexibility. The 40-page manual does an excellent job of documenting the program's many features. The program supports a long list of printers, including laser printers. If you've been searching for a first-rate banner program, look no farther. You'll be happy to rally around the *BannerMania* flag.

STEVE HUDSON

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TANK

The imminent collapse of the Warsaw Pact and the waning of Syrian and Iranian military strength in the Middle East make it look like the only way armor enthusiasts will get to fight a big tank battle is by commanding heavy metal on a PC. Armchair Pattons everywhere will rejoice now that Spectrum HoloByte has released *Tank,* the definitive tank-warfare game.

The stars of *Tank* are the General Abrams M1, M1A1, and M1A2—the U.S. Army's main machines, lovingly recreated in as much detail as Spectrum HoloByte could coax from the Department of Defense. What sets *Tank* apart from other tank simulators, which often limit you to either strategic or individual combat scenarios, is the full range of roles you can take in the game. You can plot tank strategy and operations as a battalion or company commander by moving tank and support-vehicle icons on detailed terrain maps derived from the real ones. At the tactical level, as platoon captain you can command and position a few tanks and support vehicles to take objectives defined by the upper brass. Or you can rock-'n'-roll in the tank itself as driver, gunner, or tank commander, with realistic driving and gunnery displays. Lose your tank and you're automatically transferred to another until you achieve your objective, all your tanks are destroyed, or mission time expires.

Tank offers 15 missions in three groups: training missions at Fort Knox, operations against the Russians on the plains of eastern Europe, and contests with Russian-backed Syrian forces at the Lebanon-Syrian-Israeli border.

The key to winning *Tank,* as in a real war, is knowledge and preparation. With multiple information screens, command roles, tank missions, levels of play, and individual players, nine maneuverable viewpoints, symbolic terrain maps to read, icons to memorize, complex control panels to master, and up to 12 tanks to command, you could spend as much time learning *Tank* as real tankers spend in tank school. On the strategic level, a little research into the realities of armored combat doesn't hurt—so hop down to the library and check out General George S. Patton's memoirs for tank-deployment tips.

You'll have to command your vehicle forcefully in Spectrum HoloByte's *Tank.*

For success in individual combat, quick mastery of the several sets of keyboard commands is necessary, but not easy; you'll need to keep the supplied keyboard-summary card handy for a long time. You can use a joystick for some actions, but you'll still depend primarily on the keyboard. Also, think like a real tanker—hit hard and split, because if you stay too long in one place, Ivan or Abdul will turn you into slag.

One real battlefield threat that *Tank* ignores is infantry with wire-guided antitank rockets—the bane of the Israelis in the Yom Kippur War. In fact, there's no role for infantry anywhere in this game—but you can't

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have everything. One thing I do wish had been included was a game-save feature, but you can at least pause the game to get more C-rations.

Tank is for PS/2s and AT-class PCs only; it comes on a 1.2MB 5¼-inch high-density disk and a 720K 3½-inch disk and runs best from a hard disk. Game graphics are not VGA, as you might expect, but EGA; they don't provide "realism at its best," as the box copy claims, but are certainly adequate for a simulation. The 3-D graphics are as good as EGA can do, detailed and smooth-scrolling. In fact, all response in this game is gratifyingly immediate.

Included is a well-written manual with an index and a bibliography. Make sure that you pay attention to the several addendum sheets included with the package, since these note important changes in the program. Two or more players can meet on the field of battle via modem; some can take Russian tanks, but all interior shots are of M1 armament.

If you sigh wistfully for the great tank battles that may never be, *Tank* is definitely your game.

STEVEN ANZOVIN

IBM PC and compatibles—$59.95

SPECTRUM HOLOBYTE
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ALGEBRA I FIRST SEMESTER AND ALGEBRA I SECOND SEMESTER

Have variables, linear equations, or polynomials gotten you down? Is algebra a sore subject? Well here's some good news: Britannica's Algebra I educational software is waiting to be your personal tutor. The company's two programs, *Algebra I First Semester* and *Algebra I Second Semester,* cover all the Algebra I essentials. These two tutorials are great whether you are learning algebra for the first time or are just reviewing your skills.

Developed by educators, the programs parallel many school textbooks. They include a handy curriculum chart showing which lessons on the disk correspond to specific chapters in six of the most widely used Algebra I textbooks. If your book isn't listed, it's easy to compare its table of contents with the list of program concepts to find the appropriate program areas.

***Algebra I First Semester* and *Algebra I Second Semester* help hone your skills.**

Algebra I divides its tutorial into units of study, each of which includes four concepts. For example, the unit on linear equations explains and tests the concepts of solving equations, simplifying equations, graphing equations, and solving word problems. This amount of segmentation makes it easy to pinpoint the part of the program you need.

Every concept is presented in three sections: a lesson and demonstration, examples with help, and practice problems. The first section displays step-by-step solutions for sample problems. You can view as many as you want and then proceed to the example stage. This level walks you through the solving process while asking questions. Mistakes are immediately flagged, and you're given the chance to correct errors using hints from the program. The last section tests your mastery of the concept. It keeps score and displays the answer for any problems that you missed. Correct answers are rewarded with congratulations such as *super* and *fantastic.* You may need to calculate your answers for many of the concepts using pencil and paper, because the computer asks for a final answer only.

There is one minor glitch which can reward the student prematurely. For example, suppose you thought the answer to a question was 11 but the answer was really 1. As soon as you enter the first digit, it displays *well done.* You get credit for a correct answer, though you had a different one in mind. Fortunately, this happens rarely and the effect is minor.

There's a unit test covering the four concepts within each unit. It's similar to a textbook chapter test. There's no danger of memorizing answers; each practice session and test presents a different set of problems.

It's easy to monitor your success with the Progress Report option. This keeps track of your practice and test scores from session to session. It keeps score for several students.

The program is straightforward and easy to use, and the simple-to-understand menus make it even easier.

You get a choice of CGA or Hercules graphics. I experienced a serious problem with some memory-resident programs. Using pop-up TSRs while running or after exiting *Algebra I* caused my system to crash. Additionally, if I used any other program and then tried to rerun the program, I got an error message.

If you or someone you know needs help in algebra, just call on your personal tutor for help. *Algebra I First Semester* and *Algebra I Second Semester* are excellent programs and are considerably cheaper than summer school.

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FIRST LOOKS

DEATHTRACK

Ever wish you had just one little land mine to teach a persistent tailgater a lesson? Or perhaps a heat-seeking missile to eliminate the little blue Chevette going 45 in the fast lane? If so, *DeathTrack* is your kind of game.

DeathTrack is sort of a combination of a Grand Prix race and a Rambo movie. You're out to win the most races on a ten-track circuit. Why rely on speed and driving finesse to win, though, when you have heat-seeking missiles, particle-beam weapons, mines, and machine guns to give you that extra edge?

The problem is, the other drivers are armed to the teeth, too, so you've got to try dodge enemy fire while outdriving and outshooting the other racers.

You can choose among three cars and outfit them with your own choice of power train and armament. If you're the shooting type, buy a big machine gun and a laser. If your com-

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bat style is more personal, beef up your armor, put a set of ram spikes on your car's grille, and knock the other cars off the road. The higher you place in each race, the more money you win. You can use your earnings to repair damage and soup up your car even more for the next race on the circuit.

DeathTrack's graphics are excellent. The cars are 3-D solid models with a fair amount of detail. Ram another vehicle and you see the dents. Screen updates are incredibly fast on a turbo XT or AT. The game runs in the high-resolution black-and-white mode on a CGA system. EGA and Tandy graphics are full-color.

This game is just plain fun. And it's excellent therapy after a long freeway commute.

DENNY ATKIN

IBM PC and compatibles with 512K—$44.95

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QUICKLOOK

This DOS file utility is a lot like a Ferrari. They both come in a sleek, glossy package. They're both fast. But unlike the Ferrari, buying *QuickLook* won't make you a pauper.

QuickLook takes the pain out of maintaining DOS files, especially on a hard drive system. Fire up the program and the first thing you notice is its use of color. The screen area isn't cluttered by unnecessary lines and boxes, just pure simple color to highlight different areas of interest. If you have a monochrome system, you'll see different shades.

As you begin to push *QuickLook*'s limits, it becomes clear that this package was designed for high performance. Almost before you release a key—*vroom!*—*QuickLook* has performed the operation and updated the screen. And it's done without the vibrations such as screen flicker and drive rattles you've come to expect in some software packages. It's a speed demon.

And it handles well. Almost every command can be executed with one finger. Just look on the bottom three lines of the screen for a list of the keystrokes you can use. A dual command interface allows you to either press a single key to perform a command or press the slash key to activate a point-and-shoot system in

Tame the DOS prompt and speed up your directory accesses with *QuickLook*.

which you highlight the desired command and then press ENTER.

All the files in the current directory appear onscreen in alphabetical order. If you want the first file erased, simply press K for kill. If you want the second file copied and the third file moved, highlight those files respectively, press C for copy and M for move. Press the ENTER key; the first file is erased, and the second and third files are copied and moved to the chosen directory or drive. It's remarkable how simple it is—the DOS inventors should have done this well. *QuickLook* comes with all the standard options such as Rename, Print, View, Compare, and Sort to make your daily drive through DOS files much more enjoyable.

Some of the not-so-common features are encryption, head parking, and backups. By selecting a file, you can easily encrypt it so that peering eyes can't snoop through your information. Head parking allows you to move your machine without fear of damaging the hard disk. Although it's not a full-featured backup program, *QuickLook* makes backing up files easy for users who don't know a backup from a pickup.

QuickLook's extended features also serve it well. For example, if you accidentally erase your only copy of a file, simply press Ctrl-R, and all files that have been erased in that directory are listed onscreen. Highlight an erased file, press ENTER, and it's recovered.

There's even an onboard vaccination program to help protect you from the recent epidemic of computer viruses. *QuickLook* takes a "snapshot" of your files. Later, if a virus infects any of your files, the picture appears different and the program alerts you. Also included is a phone directory with a 300-name capacity. ▷

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The one overwhelming feeling you get from this package is speed—everything is quick. Having used *QuickLook,* it's now my number 1 choice of file utilities. I highly recommend it to anyone wanting to master the road of hard disk management.

MICHAEL MASON

IBM PC and compatibles—$49.95

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STARGLIDER II

Sophisticated flight simulation in a futuristic craft and arcade-style blasting combine for exciting and nonstop action in *Starglider II.* And an adventure-game component gives the game just enough story to provide you with some objectives beyond the all-too-common basic seek-and-destroy mission.

Your craft, the Icarus, has been designed to stop the advance of the evil Egron Empire. You must invade the Empire's most heavily guarded solar system and then locate and destroy a huge space station currently under construction. Of course, space pirates abound and high-powered beam projectors add spice to your flight. But the Icarus is up to the task.

The Icarus boasts a massive array of weaponry, ranging from basic lasers to neuron bombs. Additionally, it has been designed for maximum maneuverability and speed. All of its attributes are at your disposal—once you figure out how to read and use all the beautifully depicted but confusingly similar controls on the panel. Mastering your controls puts you in command of an awesomely destructive craft. However, don't expect to fly this baby effectively upon first takeoff. Its sophistication leads to complication.

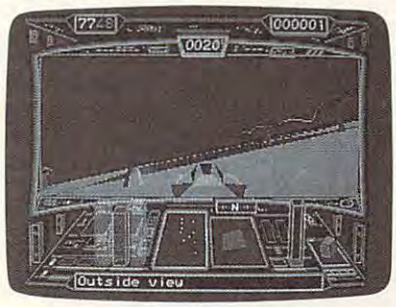
A similar dilemma exists when dealing with the multitude of objects that quickly become visible through your cockpit window. The graphics are dazzling in EGA mode, and the number of objects—be they buildings, planets, moons, enemy spacecraft, or asteroids—are impressive. Until you get the hang of this program, the portrayals of the objects are confusing.

Granted, a teletypelike status screen provides you with information as you approach various objects, but you still need to learn to distinguish vessels, buildings, and tunnels (akin to intergalactic highways) on sight because of the speed with which the action occurs. The 3-D images, while very well done, inherently limit the details. This factor contributes to the identification problem.

Once you've learned to pilot the Icarus and identify what you're seeing, the game literally takes off. There's certainly enough to do. Besides fighting the bad guys, you must do some intergalactic scavenging in order to obtain materials to trade for repairs and equipment upgrades at Service Depots; you must constantly be aware of fuel requirements and master various methods of obtaining fuel (including the inexpensive but dangerous buzzing of the sun itself to obtain corona energy and convert it to fuel); and you must learn to negotiate the intricate pattern of junctions, exchanges, and tunnels that connect various points of the galaxy.

Incidentally, one neat way of getting fuel is to capture volcanic emissions. You hover over an active volcano and align your ship with the gaseous streams being emitted. However, you must avoid the rocks being upheaved by the volcano or your ship will be totaled very quickly. This maneuver is only for the skilled pilot.

Several listed requirements might incorrectly lead purchasers to skip over *Starglider II* on the shelves. The outer packaging states that a joystick is required for play. You can use a joystick, mouse, or keyboard—all with equal ease. The joystick doesn't seem any more effective than the mouse is, and keyboard commands are necessary no matter which interface you use. The program requires 512K for EGA, VGA, and Tandy 16-color graphics. CGA and monochrome computers need only 384K to run the game. One slight bit of confusion: When I booted *Starglider II* on my system and answered the prompt requesting EGA graphics, the program told me it couldn't find my EGA card. However, after telling it to continue anyway, I was rewarded with multicolored EGA graphics.



You'll have plenty to shoot while you are piloting the Icarus in *Starglider II.*

It's safe to say that *Starglider II* isn't for beginners; it's also safe to say that *Starglider II* will delight those who enjoy action flight simulators with an outer-space theme. Deep space and the Egron Empire await the pilot of the Icarus. Have a good flight.

JAMES TRUNZO

IBM PC and compatibles—$44.95
Macintosh—$49.95

MICROPLAY SOFTWARE
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ON-LINE

Few computer experiences can surpass the excitement of telecommunications. Unfortunately, few experiences can be as maddening and difficult at the same time. Selecting compatible hardware and software, configuring everything properly, and connecting with even the simplest local BBS can often be more of a challenge than most potential telecommunicators are willing to tackle.

Sierra's *On-line* is trying to change that. It's billed as *the easiest to use modem software ever!*

Sierra's unintimidating manual is 72 pages of clear, understandable prose. Its introduction promises that beginners will be telecommunicating in less than an hour. I started my timer and began following directions.

Backing up the unprotected originals took about four minutes using DOS's DISKCOPY command. Reading directions and installing *On-line* on my hard drive required five minutes more. *DeskMate* users could install the program onto their desktops in about the same time. Alternatively, *On-line* can be run directly from floppies without *DeskMate.* Since the package includes both 3½- and 5¼-inch sizes, virtually any functioning MS-DOS system will do. Just select the proper drive, type ONLINE, and wait a minute or so. Total time from box opening to first glimpse: ten minutes.

Those who already understand Tandy's *DeskMate* interface will feel instantly at ease; others will catch on quickly. Either way, new users will want to read about the program commands and experiment a little, using dialog boxes to set phone numbers, se-

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lecting communications ports, and such. Don't change anything yet, though. With *On-line's* preset configuration—COM port 1, 1200 baud, eight data bits, one stop bit—the program should work OK for most situations. I decided to save fine-tuning for later. Running time: 20 minutes.

At this point, you can follow the manual's instructions for calling Sierra's own bulletin board system (BBS) in California, or you can attempt to contact a local BBS. Caution: Attempting to contact local BBSs without first becoming familiar with a few technical things can be hazardous to your sanity. For a gentler introduction to telecomputing, call Sierra's board. It's a convenient way to get your feet wet.

Within 45 minutes of starting my timer, I began downloading a demo version of Sierra's *Leisure Suit Larry* from its BBS. For those who need special help, the board provides a customer-service section.

On an Ease-of-Use scale of 1–10, *On-line* rated a 10 in my unscientific test. I don't know how general-purpose terminal software for MS-DOS users could be made simpler. But what about power and features?

On-line supports a maximum data-transmission speed of 9600 baud, fast enough to handle the most efficient phone-line connection but a bit slow for direct exchanges using a null modem. The program provides an easy-to-use AutoLogOn Editor for creating automatic log-on files. Review

Communications parameters are easy to view and set with Sierra's *On-Line*.

Mode allows users to scroll through the program's memory buffer to find stuff that scrolled off the screen. In Host Mode, your computer can await calls from remote terminals and answer automatically.

For CompuServe's CB Simulator or Chat mode on your local BBS, try *On-line's* Conference Mode, a split-window arrangement that separates your outgoing messages from incoming ones. The program also handles ASCII, several variations of XMODEM and YMODEM, and CompuServe's Quick B+ protocols.

Overall, Sierra's *On-line* offers an attractive blend of simplicity and power. Advanced users will find it a solid performer for regular use. Beginners should have little difficulty making it work. If you've been avoiding telecommunications because of its difficulty, you're out of excuses.

DAVID STANTON

IBM PC and compatibles with 512K and Hayes-compatible modem—$69.95

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JOAN OF ARC: SIEGE AND THE SWORD

Not many games offer a well-tuned mix of arcade action and deliberate strategy. But the intriguing *Joan of Arc: Siege and the Sword* from Brøderbund skillfully blends keyboard and joystick reflexes with some mind games to replay many of the tumultuous events of fifteenth-century France.

The scenario is straightforward. You're the young dauphin, Charles VII, and you're destined to be king of France. But it's 1429, and the land is ripped by war. The English and Burgundians have already taken over much of your beloved country.

But the tide is fixing to turn, and you're the one to make it happen. The first step is to battle your way to Reims—you'll do this with the help of Joan of Arc. There you'll be crowned king, and once you're king, you'll lead your people to freedom.

At first, since you have no resources, your strategic options are limited. But as the game progresses and your campaign to free France begins to take shape, the list of options lengthens. In fact, once you're crowned king, you'll find a number of avenues open. You can collect taxes, raise armies, send out spies, assign generals, execute your enemies—all the usual things that kings do. But each decision has potentially broad implications, so you'll need to make every move with all of the care and foresight that your royal wisdom allows. Without a doubt, this will keep the gray matter humming.

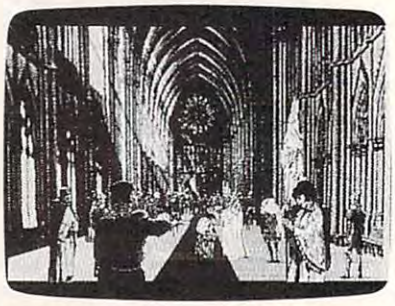
But *Siege and the Sword* is more than just a mind game. All along the way you'll find yourself faced with situations that require immediate and physical action. These situations let you exercise the old joystick hand and provide welcome relief from the tensions of day-to-day kingship.

At one time or another, five different medieval situations will march across your screen. One is open-field battle, where you lead squads of infantry, archers, and cavalry—with bombards in the background—against a similarly equipped enemy.

Then there are walls. Sometimes you must defend them by dropping rocks or boiling oil on your attackers, and sometimes you must scale them yourself. You'll also have the opportunity to take a bridge.

A fifth encounter comes when you're challenged by an enemy cavalier. When that happens, you get a choice of weapons. This will keep your trigger finger warmed up and limber.

With 73 authentic provinces and towns and 31 historically accurate characters, *Siege and the Sword* offers virtually unlimited scenarios. You



Digitized images add even more realism to *Joan of Arc: Siege and the Sword*.

may choose to emphasize diplomacy this time around; next time, the focus may be on strategy or confrontation. You have as many as 20 options to specify on each turn, so you can make your conquest as simple or as elaborate as you choose.

The game itself plays well, although I found keyboard control a bit awkward. Joystick or mouse control is smooth and definitely preferred.

You'll enjoy *Siege and the Sword's* graphics. The opening screens, built around a medieval-looking book, provide a captivating introduction. The battlefield graphics are good, too. A color monitor, although not required, is highly recommended.

Overall, *Siege and the Sword* is well done, with a blend of strategy and action that should keep game players enthralled for hours. If you've ever

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longed for conquest, check out *Siege and the Sword*. It's just the thing for armchair adventurers far and wide.

STEVE HUDSON

Amiga—$44.95
Atari ST—$44.95
IBM PC and compatibles—$44.95

BRØDERBUND
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3200

IQ STUDY MATE

Are you faced with an insurmountable pile of facts that need to be memorized? Let *IQ Study Mate* turn your computer into a drill sergeant who's willing to test you ad nauseam on virtually any information you care to enter using the keyboard. It's computerized home study, tailor-made to fit your needs.

The program consists of several modules. You create files in the Homework section. *IQ Study Mate* makes the assumption that most information consists of sets of isolated facts. So, you can enter data only in the form of paired pieces: a date and the associated event, an expression and its explanation, a location and its description, or a person and his or her importance. Using these pairs, the program forms questions and answers. Multiple-choice questions draw their erroneous answers from a bank of responses that is stocked from the answers of other questions. Once the data is in place, another option on the Homework menu lets you review the facts by scanning through the pairs one at a time. You can then switch to Take a Test and quiz yourself in the interactive mode. With Print a Test, you can generate a written exam complete with a handy answer key.

The program is menu-driven, reasonably straightforward, and quite easy to use. Once you've figured out how to enter pairs of facts to take advantage of the question structure, there is little left to do other than type.

But that simplicity doesn't mean *IQ Study Mate* is stupid. If several questions have the same exact subject, the answers will not be mixed together. That avoids having several correct answers to the same question. This unique feature makes it possible to effectively drill a large variety of different facts about the same person, the same date, or even the same location.

The program's simple design does intefere with other functions, however. For example, the word processor supplied in the editor is very old-fashioned. It's not possible to insert letters, to correct spelling mistakes without erasing, or to move around the screen freely. This weakness is compounded by the difficulties involved in fine-tuning the phrasing so that the questions make sense in multiple-choice, true/false, and matching formats. As a further complication, there are fairly severe limits on the space for the data pairs. The first piece of information (date, expression, location, or person) can be no longer than 25 characters, and the second piece (event, explanation, description, or importance) can contain only 80 characters—you have to stick to short sentences or phrases.

While in the interactive mode, the response to each question is evaluated immediately, and feedback is given in the form of a score and an explanation. Unfortunately, all of this elaborate recordkeeping isn't saved; once you've finished a quiz or test, your results disappear forever. You can't review selected material, nor can you keep track of your progress on the computer.

As a test generator for classroom use, *IQ Study Mate* lacks many essential features. Because the multiple-choice questions are formed by picking one key pair and then filling in the alternative choices randomly, getting the right answer can often be done by eliminating the ridiculous statements. True/False questions suffer from a similar problem. Since the two parts of the question are selected randomly from the given database, absurd statements appear far too often. Even the controls over the layout of the printed tests are quite simplistic. While it's possible to set the margins and page length, spaces can't be left for diagrams, nor can questions be sequenced in order of difficulty. There's no way to include directions, to mix up question types within one section, or even to offer linked questions.

Because of the limits of *IQ Study Mate* as a test generator, I wouldn't recommend it to teachers. For home use, however, *IQ Study Mate* may be acceptable. It's fast and easy to use, data can be entered quickly, and the interactive testing routine provides a review mechanism that's likely to be more effective than just staring at a pile of information.

The seriousness of the interface makes *IQ Study Mate* appropriate for older students or adults who are sensitive to the value of the time they spend reviewing material. You'll have to spend a lot of time entering data at the beginning, but it's a job that only needs to be done once per stack of facts.

LESLIE EISER

Apple II—$69.95
IBM PC and compatibles—$69.95

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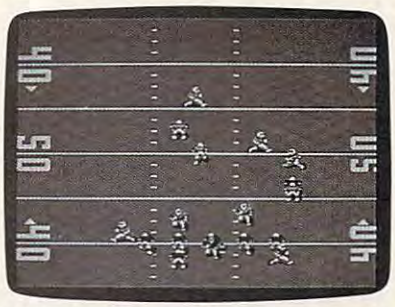
JOHN MADDEN FOOTBALL

Here's one of the most comprehensive and realistic football simulations ever created for the PC. John Madden Football brings in factors like fatigue, injuries, penalties, and a 30-second offensive time limit (which you can toggle on or off) to create a gridiron on your PC. You can play on natural grass or turf and in a domed or an open stadium. The weather can be hot, rainy, cold and windy, or snowy. Just as important, you get to select the home-field conditions under which each team normally plays. Thus, a team that normally plays on grass will be faster on turf (though more injury-prone), and a team that usually plays where it's warm will have a particularly tough time in snow.



Watch the gridiron action from overhead while you play *John Madden Football*.

The game comes with nine prebuilt teams ranging in ability from that of an average pro team to that of a team made up of John Madden's picks of the greatest pro players of all time. Before a game, each team can be set on Beginner, Standard, or All-Pro for even matchups between players of varying ability. Similarly, when playing against the computer, you can choose Conservative, Normal, or Ag-

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gressive artificial intelligence to balance the computer's game.

One of the great things about *John Madden Football* is that, despite the game's sophistication, the designers were thoughtful enough to include a Quick Game that lets you start playing as soon as you boot up. When playing the Quick Game, you have only nine offensive and nine defensive plays to remember. These are all basic running, passing, or kicking plays and corresponding defensive formations for each. In the Quick Game (as in the standard game), you can simply call the plays and watch the action unfold or take direct control of the quarterback, receiver, or running back. Using the mouse or joystick, you can control the crosshair cursor to aim your passes anywhere on the field or toggle among eligible pass receivers. A special Quickness button allows you to give the ball-carrier an extra burst of speed for a limited time.

When you're ready for the standard game, *John Madden Football* offers 81 offensive and 81 defensive plays to choose from. Separate offense and defense playbooks group the plays by situation and provide chalkboard diagrams of all formations along with advice on play-calling from John Madden. Besides the control of offensive players, the standard game allows you to call presnap audibles for the defensive team from the huddle screen. You can, for example, tell specific defensive players (by entering their jersey numbers) to blitz the passer, assign man-to-man coverage for up to three players, or take control of a single defensive player's movements after the ball has been snapped.

As the ball is snapped, you see a closeup of the action from directly above. Then, if the offense has chosen a passing play, the view switches to a wider shot that includes all downfield receivers. If the pass is caught, the view again changes to a closeup showing the receiver running with the ball. Here, the graphics and animation are only adequate, and the sound consists mostly of digitized snippets of voices, colliding players, and crowd noise.

A full range of individual and team statistics are kept automatically throughout the game so that at any point you can check the stats on first downs, yards passing, yards rushing, third-down conversions, penalties, fumbles, and sacks for both teams, as well as detailed performance stats for all quarterbacks, running backs, receivers, and kickers. In addition, all of the statistics can be printed after a timeout so you can have a hardcopy to which you can later refer.

If this were all there was to *John Madden Football,* it would still be a great game. But this is only the beginning. The game also lets you create and edit your own players to form custom teams and leagues. An option called the Madden Report lets you compare the abilities of any two teams on a player-by-player basis. Finally, the Chalkboard option lets you edit existing plays and construct your own plays from the ground up by designating individual and group tasks and route assignments. In this way you can create new teams and playbooks and save them to disk, ensuring that *John Madden Football* will remain challenging long after this year's Super Bowl players have hung up their cleats.

BOB GUERRA

IBM PC and compatibles—$49.95

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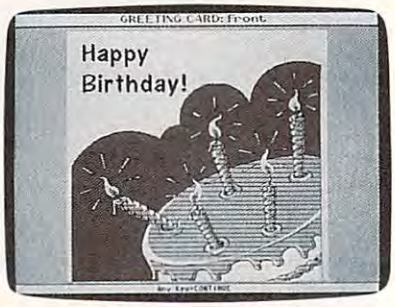
THE NEW PRINT SHOP

Useful, versatile, and lots of fun—that describes *The Print Shop.* It's been a staple in my software diet for several years. Well, this staple has blossomed into a culinary delight. Besides the greeting cards, letterheads, banners, and signs we *Print Shop* owners have been vigorously producing for years, with *The New Print Shop,* we can also satisfy our cravings for giant-sized posters, calendars, and even certificates.

Constructing large posters is easy: Just print multiple pages in any arrangement and then put them together. With this method, you can make posters as large as a garage door. Monthly, weekly, and daily calendars can contain text and graphics as reminders of important events. Printing certificates from a file of names will give you personalized forms for many occasions. You can also print thank-you notes for those last birthday presents you got.

But the list of additions doesn't stop there. You can place multiple graphics and different fonts on a single page, preview and print in seven colors, and create distortions and mirror images of graphics. One of the greatest features of *The New Print Shop* is its ability to put graphics just about anywhere on the page. This freedom adds a new dimension to the program.

The program requires at least 512K, DOS version 2.1 or higher, a graphics card, and a printer. Operation will be easier with a hard drive or two. Having disks on hand for saving graphics and extra color ribbons for printing is a good idea. For color printing, a hard drive is required. Although full mouse support is offered, the program is also quite simple to use with the keyboard.



Your creations will be better than ever with Broderbund's *The New Print Shop.*

The manual has an index to help you locate the new features. Also included are tips for using your printer, a troubleshooting guide to help you when things go wrong, and hints for advanced operations. You won't need any special skills to operate the program because it's menu-driven and has a great manual. Especially handy are the online help that is offered throughout the program and the function keys that are used to quickly issue text commands.

I have just a few minor beefs with this new version. Since there are too many features to be put on one 5¼-inch disk, several disks are included, but they aren't properly labeled. The Data 1 and Data 2 labels become useless the minute the program asks for the graphics disk. A small detail like that can spell the difference between frustration and excitement. Also annoying was the program's inability to figure out which drive to search for a disk. I would have liked a prompt telling me when it was time to insert a data disk or which drive to place it in.

On the plus side, in almost every menu, *The New Print Shop* makes good use of icons to identify the choices available to you. This has to be one of the easiest programs to use. The large number of choices, however, may be frustrating for young children. Although most children can operate the original *Print Shop* without help, they may require assistance

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with this version. There's a lot more to read, and creating each project can be a long process requiring many decisions.

Function keys can now be used to change the fonts while you're writing. A quick-print feature has also been included. Quick printing lets you choose a graphic or type in a few words and then print the result without having to go through all the steps necessary to create a entire sign or card.

Although only the smaller graphics can be edited using the Graphic Editor, the modified images can be adapted to print in larger sizes. All of the earlier *Print Shop* graphics are compatible with the new version. I got brilliant results on my ancient dot-matrix printer using both the old and the new graphics.

Just a few sessions with *The New Print Shop* have convinced me that it's a great upgrade to a great program. Besides many new features, the familiar choices of fonts, graphics, borders, panels, and patterns have been greatly expanded. Multicolor options can enhance output, and even in black-and-white, the graphics now have a higher resolution. Uses of *The New Print Shop* are limited only by your imagination—here's an opportunity to feed it and watch it grow.

KRISTEN STERNBERG

IBM PC and compatibles—$59.95

BRØDERBUND
17 Paul Dr.
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(415) 492-3200

FIRE BRIGADE

Panther Games' *Fire Brigade* is a war-game simulation of tides turning during the war between Russia and Nazi Germany. It takes place in November 1943, when the Russians were just beginning to assert themselves as the more powerful of the two armies in the conflict.

This game won't disappoint dedicated war gamers. I've never played a computer simulation that comes anywhere close to the excitement and the historical accuracy of a board war game—until now.

As the game begins, the Russians have a bridgehead over the Dnieper River, and Kiev lies almost in their grasp. The massive Russian forces proceed to steamroll the outnumbered Nazis and, by the end of the third day, control large portions of the map. The feeling of being outnumbered and in a hopeless situation comes out in full force. Then the fire brigade makes its appearance. The fire brigade is the 48th Panzer Corps, which, with its component units, proceeds to attempt to stop the Soviet onslaught.

At the start of each day, you have the option of reviewing the situation and developing a new set of orders or of updating the old plans to fit the new situations and problems. Then you review the battles, air interactions, and victory progress. You lose the game if you're decisively defeated for three consecutive turns. Because of this, the Germans must begrudgingly hold forward positions that proper military strategy would deem imprudent. This is a simple, yet accurate, way to show Hitler's "stand fast" orders.

The game system offers you a number of methods

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for issuing orders. Orders include attack, pursue, assault, hold, defend, delay, withdraw, and travel; and they can be given in relation to a geographical objective or an enemy unit. Units that suffer from fatigue or from lack of supply can refuse your offensive orders and revert to defensive orders. The computer will handle any actions that you don't. So if you become bored with worrying about supply, you can let your general staff handle it. The amount of detail you control is up to you. This feature lets you grow with the game.

After you've issued orders, allocated fire support, given replacements, and allocated supply, you watch the turn unfold. The units move around and fight each other automatically. Although battle results won't be visible until the next day's briefing, results of the turn become apparent while you watch the display. At six in the morning, your staff holds another briefing, and you do it all again.

The game comes with an 80-page rule book, a map of the battle area, two order-of-battle cards, and 3½- and 5¼-inch disks. The map, although drab by board war-game standards, is certainly functional; the rule book is comprised mostly of examples and charts. The order of battle is both useful in playing the game and historically informative.

Although there's very little wrong with this game, I have a few criticisms. There are no counters or markers to use with the supplemental map. I'm unable to fully visualize a military situation on a scrolling computer map, and markers for the corps and their orders would help in getting an overall impression of the battle.

Second, if you don't use a mouse, you'll find that the game moves much more slowly than it should. Also, the documentation on starting and saving the game is quite confusing; it will take a fair amount of time and you'll experience considerable frustration just trying to get going. Finally, there are no charts and tables to show how the combats and units interact. Without a combat-results table, for example, it's difficult to know how to attack and with how much force.

These shortcomings are minor when compared with the strengths of this simulation. If you have any interest in World War II, if you have ever enjoyed a military simulation, or if you're interested in trying a tension-building computer game that requires thought instead of reflexes, then *Fire Brigade* is for you. For myself, I guess I'll fling my Russian hordes once more into the breach. Helmets on, comrades, we don't stop till we get to Zhitomir!

ADAM STARKWEATHER

IBM PC and compatibles—$49.95

PANTHER GAMES
P.O. Box 5662
Derwood, MD 20855

DOLPHIN BOATING SIMULATOR

So, you picture yourself the Don Johnson–type, huh? Slicing through the open water in an overpowered ocean racer. Well, *Dolphin Boating Simulator* covers everything you need to come aboard, from rigging the anchor to on-board maintenance. Cruise the Chesapeake Bay with the included Voyage disk or sail off to San Francisco Bay, New England, the Florida Keys, Chicago, Long Island, Southern California, and Vancouver with the optional Voyage disks.

Each Voyage disk offers a number of different open-water courses. The courses are designed to present you with different challenges—from smooth water to variable winds to stormy weather. After you've chosen the voyage type, you pick the difficulty level. This affects things like the size of the waves and how easily your boat will capsize.

Choose your course carefully and set sail in *Dolphin Boating Simulator*.

The next step is to set your course. Here you can either accept the standard course (a good idea for beginners) or adjust the course to compensate for unfavorable winds. Then it's on to the dock to select one of four boats: A 16-foot runabout, a 26-foot cruiser, a 38-foot ocean racer, or a 48-foot motor yacht. Each comes with either single or dual engines.

After a quick check for maintenance problems, I jumped aboard the ocean racer, which I named the BAD CHILIDOG, and fired her up. Then, with all the grace and aplomb of a fat lady on a skateboard, I backed out of the slip. And, just to underline my obvious skill, I continued to back around in circles for several minutes as I fumbled with the controls.

After more than one near miss with other boats in the area, I was safely underway. A quick look at the chart showed my course straight to the right, which I mistakenly assumed to be 90 degrees. For some reason the map had been drawn with north positioned on the left—not on top as you would expect. Straight to the right turned out to be 180 degrees, or due south.

With my course corrected, I found a number of screens that help keep tabs on what's going on. The Instrument Screen shows a wide variety of gauges including a radar sweep, a tactical display, an engine temperature gauge, a tachometer, and a speed indicator. The Lookout Screen shows the world around you through a pair of binoculars. You can use this screen to check out the scenery and to look for upcoming obstacles. The Tactical Screen shows one-fourth of the chart, and you can zoom in for a close look. Fortunately, no other boaters were crazy enough to come within four miles of me as I weaved my way across the bay.

The Nav Chart shows your current position and heading as well as your plotted course. Part of your final score will depend upon how closely you matched this plot, so it's a good idea to check this screen often. This is also the only way you can really tell how close you are to running aground.

The real strength of this program lies in the fundamental model of how a boat operates and responds to commands on the water. It seems very accurate. Unfortunately, the screen graphics used to display the results of this model are not up to current simulation standards. The only graphics mode offered is four-color CGA, and the other boats you come across appear only as transparent wire-frame drawings. With other simulations using 3-D, filled polygons or detailed bitmapped graphics, the sight of old-fashioned wire-frame boats is certainly a surprise. The lack of visual references from the cockpit view means that you spend most of the time navigating by the compass and the chart instead of by dead reckoning.

I thought this old technology might speed up the graphics display, but the screen-refresh rate was just

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10-MHz AT. make a cryptic command to speed up or slow down the system, but it never explains how to go about it.

Speaking of the manual, it does a good job of getting you going but assumes that new boaters know more than they might. For example, several pages are devoted to explaining how the important trim controls work, but little space is given to explaining how to set the trim for various sea conditions. In fact, the term *trim* is never actually defined.

Dolphin Boating Simulator is rich in detail and depth. Just about everything associated with powerboating has been included, right down to the trip to the gas pumps. But the outdated screen graphics fail to communicate the feelings of speed, power, and freedom which are such a large part of the powerboating experience.

RICHARD SHEFFIELD

For IBM PCs and compatibles—$49.95

DOLPHIN MARINE SYSTEMS
P.O. Box 188
Downingtown, PA 19335
(215) 269-6800

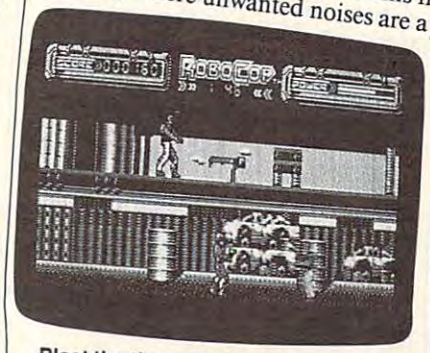
ROBOCOP

Defend Detroit against the hoodlums and thugs in Data East's *Robocop*. You won't have an easy time of it though, because winning this game takes skill, practice, and patience. Don't be discouraged; even the first few times you play, you'll enjoy this program because there's fast action and a lot of stuff to blast.

You need to anticipate each group of attackers so that you can get them before they get you. It usually takes a couple of times through before this happens, but even then, you'll need quick reactions to ward off attackers. The guys who fire at you from the windows are especially hard to get since you need to fire within a pretty narrow range of angles to hit them. Fortunately, extra firepower and health potions appear along the way. Without these, you'll have a tough time getting to the next phase.

The graphics are attractive, but not quite up to EGA standards. They looked like touched-up art from the Commodore 64. The animation is not as smooth as I'd like, but it's flicker-free and effective. Thankfully, Robocop's gun has a hair trigger, and this gives your character a decided edge over the competition.

The sound is the typical PC speaker fare. Simple music with effective sounds punctuate the action at appropriate times. I could turn off the music but not the sound effects, an oversight that could cause problems if you play where unwanted noises are a



Blast the thugs and hoodlums as you clean up the neighborhood in *Robocop*.

nuisance (for instance, when other *COMPUTE!* editors are trying to work).

The manual was sparse on details. Robocop died quite a few times before I figured out how to overcome adversaries. For some people, that's half the fun, but not for me.

If blasting the bad guys is what you like, then check out this game. It's not the newest in ideas and technology, but that's not a prerequisite for having fun.

RICHARD C. LEINECKER

IBM PC and compatibles—$39.95

DATA EAST
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EYE OF HORUS

Take a look at an unfinished legend chiseled on the walls of a dusty Egyptian crypt. It's an ancient tale of love, deceit, revenge, and restoration.

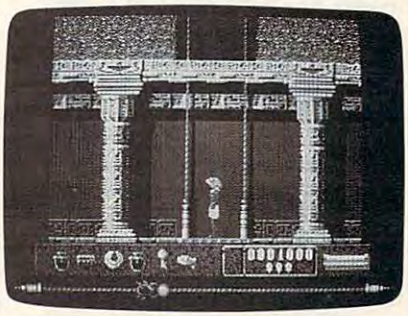
Osiris, the beloved king of all Egypt, has had a falling out with his evil brother, Set. Through a devious combination of circumstances and deceit, Set has tricked Osiris into lying down in a coffinlike chest.

As evil brothers are wont to do, Set nails the chest shut and floats it down the Nile. But, as frequently happens in legends and daytime TV, Osiris's wife, Isis, just happens to be catching a tan by the river and rescues the dying king. Feeling that time is short and that there is a possible legend in the making, they immediately conceive a son; then Osiris passes away.

Fearing Set's anger, Isis attempts to hide the body. But it's quickly discovered, and, in a vengeful rage, Set rips the corpse into seven pieces and scatters them throughout the labyrinth surrounding the tomb.

You become Osiris's son, Horus, and you vow to find the missing body parts and return them to the tomb so Osiris and his family can rest in peace.

This game could have been called "Pitfall Harry meets the Mummy." You move your character through the various chambers of the tomb in search of valuable magic amulets and the missing body parts. You can either walk (which is kind of slow) or take on the form of a hawk (which is much faster). Many of the passages are guarded by cursed hieroglyphics that come to life and attack you. You can evade these or destroy them with papyrus darts while walking or with bullets while flying. Each time a hieroglyphic hits you, your energy level is reduced. Once you run out of energy, you lose a life. You are given the standard three lives to make it all the



Find your way through the the tomb and its many chambers in *Eye of Horus*.

way through the game. The special frog amulet will give you one extra life.

Each chamber goes a short distance in each direction. You must use the elevators to ride up or down to different levels. If you pass an important item along the way, it's automatically added to your inventory. Gathering amulets and keys is important, as they increase your power over Set's evil forces and allow you to unlock certain elevators. Once you find the Amulet of the Steps, the game will automatically create a map of where you have been. This is very handy, as you will quickly run through a number of chambers and ride up and down several levels. Without the map, it's almost impossible to keep up with where you are and where you've been.

EGA and CGA graphics are supported; they're colorful and well done. ▷

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and weaknesses determine your ability to lead, negotiate, and fight.

In some ways, *Bandit Kings* is like an ancient version of *SimCity*. You gain support from your citizens by developing flood controls, erecting buildings, and investing in the land, and they pay you taxes that provide

Survey the land and then choose your options in *Bandit Kings of Ancient China*.

revenue for your expansion.

As you grow more prominent, you recruit other bandits to help you rule your prefectures and lead your military forces. Here the attributes of your character's personality determine the recruits. Each one has different strengths and weaknesses that may help or hinder you. It's wise to choose your followers carefully.

You improve your armies by hiring soldiers, buying weapons, and training the men. Finally, you can attack other prefectures to expand your influence.

The battles are fought like those in the Ultima series. Each platoon moves and then attacks. Historical events form the basis of this game, but legendary aspects are included with the use of magic and fireballs in battle.

The battlefields feature impassable mountains, hilly terrain, swamps, and worst of all, rivers. The ships (literally junks) have a hard time navigating the raging rivers, and your forces constantly get washed downstream.

Random factors hinder your progress. Snowstorms close access to territories, while typhoons cause floods that can devastate your prefecture. Your citizens may become discontented and start riots. Wild animals may terrorize them. If you can successfully hunt down the beasts, you will gain more support from the people.

The Imperial Minister periodically demands tribute. His appearances, which are as welcome as landing on a hotel in Monopoly, seem more frequent as the game progresses. You typically have no choice but to give him a considerable portion of your gold. While collecting, the minister rubs salt into your wounds by sadistically laughing at you.

Like eating with chopsticks, this game takes effort to learn. However, the energy needed to understand the game and its myriad controls are well worth it. The text is clear and comprehensive. It contains interesting biographies on the characters and discusses the legends referred to in the game.

The game features first-rate graphics. Up to seven people may play at a time. The controls are straightforward and easy to use. However, the sheer number of commands, variables, and characters make this a complex game.

Bandit Kings of Ancient China is not copy-protected. It was refreshing to begin a game without having to insert a key disk or search the manual for a matching picture or word.

This game is among the most addictive and entertaining simulations I have ever played. There is always just one more battle to fight, good deed to perform, army to build, or prefecture to take. It's definitely not a slow boat to China.

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TOSHIBA EXPRESSWRITER 301

Travelers who enjoy the fruits of laptop technology can now write ideas and observations on paper at the very moment the lightbulb clicks on over their heads.

In spite of advancements in portable computing, some peripherals have lagged in development. Printers have been no exception; the very nature of designing a miniature version presents enormous problems. But, with the ExpressWriter 301, Toshiba is one of the companies that has met the challenge, solving many of the engineering dilemmas and reaching some adequate compromises with respect to weight, print quality, and features.

Ideally, a portable printer should be light, small, and durable. The ExpressWriter 301 weighs a mere four pounds, about the same as many dictionaries. It requires less than one square foot of desk space, so it will even fit on those modest motel desks.

According to the manual, the 301 prints only single sheets—no pin-feed multisheet convenience. There's a small flap that holds the paper in place and serves as a sheet guide. This hinged flap closes down over the platen while you travel. Although single sheets work well for many purposes, feeding single sheets is inappropriate for long printing projects. So, I took a stack of regular, tractor-feed paper and tore off the edges. Once fed and

Catch the idea when it's fresh with Toshiba's ExpressWriter 301 laptop printer.

aligned properly, I had no difficulties with the multiple pages. I did, however, have to elevate the paper above the sheet guide so that the folds wouldn't get hung up in the printer. Of course, this requires extra desk space, so if that's a problem, you'll need to stick with hand-fed single sheets.

The printer wasn't as durable as I would have liked. My main objection was with the sheet guide. Several times it snapped back opposite the closed position, 90 degrees from its normal, working position. In spite of its apparent talent for getting stuck like this, it was a struggle to free the thin plastic flap.

Inspired by a stroke of genius at Toshiba, the designers included a battery that lasts up to one hour without a recharge. The battery frees you from the tyranny of the electrical outlet and expands the 301's usefulness tenfold. I found that it lasted reliably for about 50 minutes. After that, it wasn't always up to snuff. This probably depends on the duty cycle of the components.

XyWrite, *WordStar*, and *WordPerfect* worked flawlessly—just what I would have expected. But, to really put the 301 through its paces, I wrote a test text file and some short files with escape codes (using the infamous

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DEBUG part of DOS) to print italics, expanded text, and anything else the printer claimed it could do in its manual. During this test, the printer couldn't hide behind a software façade.

The print quality won't win any prizes; it breaks up unless you set it for the highest output density. But it's adequate for doing portable work, and that's one of the compromises Toshiba made.

On the other hand, the printer offers the most important features—expanded, condensed, and super- and subscript characters; underlined, bold, shadowed, and italic print; three resident fonts (Courier, Prestige Elite, and Draft) and user-definable fonts; and full graphics support. Using my short test files, I saw them all come to life. With the exception of the slightly broken-up output, the quality was as good as you'd get from any 24-pin printer.

The 301 won't win any prizes for speed either, but there's a limit to what you can do in such a small space. In high-speed mode, it prints 60 characters per second and, in normal mode, 42 characters per second. Although I couldn't find it specified anywhere in the manual, the data seemed to be buffered. Programs regain control before the printer is done. A Centronics parallel port makes the 301 compatible with most cables—a welcome relief.

The manual was especially well written and had a generous helping of clearly labeled illustrations. All of the escape and control codes are listed in charts so that you can embed them within the body of the text.

Two other nice touches are a self-test and some useful error alerts. You can print a test page to check the output and see the variety of resident fonts. A warning light blinks at different rates, based on which errors are present. It takes some practice to discriminate between blink rates, but you'll appreciate them once you've mastered them.

For people who need printouts on the go, the ExpressWriter 301 is the ticket. A long list of features, adequate print quality, and optional battery operation make this one of the best choices for portable printing.

RICHARD C. LEINECKER

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EYE RELIEF

Here's a riddle: What do your grandmother with her trifocals and a jet-hopping executive with a laptop have in common? Trouble seeing text on a screen. Enter *Eye Relief,* by Ken Skier of SkiSoft Publishing.

Skier's new word processor will appeal to several groups with special needs. People who find themselves squinting at the screen, either because of less-than-perfect eyesight or a less-than-perfect screen display, may find *Eye Relief* a very welcome . . . well . . . relief. This program prints to the screen in any of six text sizes, from tiny (standard pica) to jumbo (half an inch tall). To further improve visability, you can expand or contract the line spacing.

Text size defaults to jumbo so you can see what you're doing right away. Without my contact lenses, finding the computer was a bit of a problem but seeing the text on the screen was easy.

To further make the program accessible to people with vision problems, Skier printed the manual in large type. Features taken together, this program is a serious advance in word processing for people who haven't been privy to the joys of booting up. You can even slow the cursor blink rate to a stop so that some epileptics, whose seizures can be triggered by flashing lights, can use a computer for the first time.

To translate readability to paper, *Eye Relief* prints in standard type on a dot-matrix printer, but, with a laser or PostScript printer, you can use 18-point characters.

In some of its features, *Eye Relief* compares favorably to big-name word processors. It has all the usual cut-and-paste options; it inserts and deletes in the usual fashion. It saves files in a fairly standard way and performs search-and-replace functions like a champ. Page formatting is quite simple through the Print menu.

Typing speed seems a bit slow, rather like some desktop publishing programs. I didn't outtype the cursor, but a crack executive secretary might. Cursor speed is fixed at an annoyingly pokey pace, especially when compared to the speeds that can be selected in *WordPerfect,* for example. The arrow, Pg-Up, and Pg-Dn keys let you zip around handily, though.

Eye Relief loads and saves files with reasonable quickness, but I'd like to have a directory option in the File menu.

In general, the pull-down menus are convenient for selecting functions. Menu-text size is, of course, variable. Once you learn your way around, you can bypass the menus with control-key commands.

The Video menu lets you control text size, spacing, screen colors, and cursor blink rate. The File menu offers load, save, print, and quit options. From the Edit menu you can cut, copy, paste, delete all, and insert a hard page break. The Other menu lets you count words, create a new macro, and execute a macro.

Macros are handy features in all major word processors. In *Eye Relief,* they're kind of fun to watch, but not as quick as they should be. Hitting CTRL-X, typing *letterhead,* and waiting while the return address, salutation, and complimentary closing appear stroke-by-stroke on the screen is a far cry from the speed offered by some programs.

Editing is reasonably convenient. The insert, delete, and backspace keys operate in the usual way. Deleting and backspacing over text is slower than I'm accustomed to, but no one should delete large chunks of text with the backspace key, anyway. For large block deletions, hit F2 and select the text. Then hit the ENTER key, and say bye-bye to the sentence or paragraph. To paste, tap F4 and back it comes. Nice and simple.

For some reason, though, there are features lacking. There is no provision for tab stops, you can't clear the screen without exiting, there are no file-management routines, and there is no dictionary or thesaurus.

All in all, I'd say that this program will be a boon to schools that teach vision-impaired students. It will also be useful for someone who uses a laptop in poor light. The display is a definite improvement over the average laptop hieroglyphics. Many laptop users, though, will be unwilling to put up with the program's limitations.

It will, however, give anybody's weary eyes welcome respite from those tiny letters on the screen.

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PC-GENERAL LEDGER	BU 101	Double-entry accounting. If you're looking for an accounting program, you should try this one.
MR BILL	BU 102	(2 disks) Ideal for general billing, invoices. Reports, audit trail
FORM LETTERS	BU 103	Standard business letters, may be modified to suit most situations
EZ-FORMS-LITE	BU 104	Generate your own forms to your layout - a REALLY useful package
PC-PAYROLL	BU 106	(2 disks) 1989 Edition! Menu-driven system with reporting package.
PC-ACCOUNTING SYSTEM	BU 107	(2 disks) Complete general purpose business accounting package.
CPA LEDGER	BU 108	(3 disks) Serious professional GL system with exhaustive documentation.
LOAN AMORTIZATION & PROSPECT	BU 109	Ideal for businesses or individuals who whant to do their own computations.
EMPLOYEE MANAGEMENT SYSTEM	BU 110	Personality analysis designed to help you reduce employee turnover
FLOWCHARTER	BU 112	Excellent for producing flowcharts to depict project steps and workflow.
MUTUAL FUND FINDER	BU 120	Handy record-keeping and tracking system for mutual funds.
PDS QUOUTE	BU 121	Menu-driven program for preparing and submitting cost estimates and bid proposals.
DOCKETMINDER	BU 122	This menu-driven program maintains a docket for a lawyer or law firm.
MEDLIN ACCOUNTING SHAREWARE	BU 123	4 packages for the small/med business - GL, A/R, Payroll, Accts/pay
SERVICE PLUS	BU 124	(2 disks) EXCELLENT maintenance and service call tracking system.
EZ-FORMS-EXECUTIVE	BU 125	The ULTIMATE forms generator - save a fortune on printing costs
FORMGEN	BU 126	Another nice form generator - sophisticated but easy to use.
SOLVEIT!	BU 127	Comprehensive financial calculator. Includes 29 menu-driven financial calculations.
MED #1 1.04	BU 130	(2 disks) Complete medical office management system.
THE OFFICE PRO	BU 133	(2 disks) Excellent order entry package with windows and custom invoices, reports, labels, desktop etc. - Good!
PC YELLOW PAGES	BU 139	(5 disks) One of the most effective marketing tools we've seen. Address merge, labels, fax mail, built in database routines!
BILLING MANAGER 1	BU 141	(3 disks) A powerful, well-written time & billing program for professionals
BILLPOWER	BU 142	This is a nice employee tracker for a small business. Keep track of your employees money and overtime with this nice finance manager
TICKLEX	BU 143	A powerful tickler/calendar/scheduler for home/office and hard disk
UPS MASTER	BU 144	If you ship by UPS then you need this complete shipping program
FONE	BU 146	Time your 'phone calls while you're on the line and save money
OWL PORTFOLIO MANAGER 2.0	BU 155	Investment analyzer and manager.
PAYROLL USA 2.11	BU 156	(2 disks) Another great payroll program from Anthistle Systems -
GENERAL LEDGER LITE 1.3e	BU 158	Very professional, but user-friendly accounting package. Menu-driven, mouse-compatible double entry system
ACCTS PAYABLE LITE 1.3!	BU 159	(2 disks) Manage cash flow! Pay invoices using up to seven payment selection methods. Report accounts payable, non-posted payments, etc.
ACCTS REC LITE 1.3!	BU 160	An easy way to track and understand your receivables!
PAYROLL LITE 1.3!	BU 161	(2 DISKS) A complete payroll package for the small business.
APPTRAK	BU 162	Store and retrieve information on job applicants.
FRIDAY 1.03	BU 163	The "Executive Information System." Friday keeps track of important meetings, phone numbers, key contacts, etc. (HD req'd)
FREIGHT+	BU 166	(2 disks) If you ship more than 10 packages a day, you need this one.
VID	BU 167	Video rental system. Ideal for rental business.
FAST STMT WRITER	BU 168	Complete & easy customer statements!
FAST INVOICE WRITER	BU 169	Fast & Easy customer invoices!
MORSOFT CALCULATOR	BU 171	Multi-function business calculator with a 1,000 entry "memory tape."
MARKET MASTER	BU 172	Sophisticated price forecaster for stocks, futures, etc.
RACONTEX	BU 173	Powerful word search application!
POPFORM	BU 174	Take information from your screen and merge it into a customized form!
MOE	BU 175	Memory-resident, pop-up phone directory, scheduler, calculator, etc.
BILLPOWER PLUS	BU 176	(2 disks) Expanded version of BU 142. (HD req'd)
RESEARCH	BU 177	Research, evidence, and document organizer.
LOGIN	BU 182	Track computer usage. Ideal for billing purposes.
ADVERTISING RESPONSE MngR	BU 183	Measure advertising response and effectiveness.
SOFTSIZE	BU 184	(2 disks) A "multi-sizing" POS system for the small retailer.
POLICY MAKER	BU 185	(2 disks) Inventory management utility!
CONTACT PLUS	BU 186	Keep track of clients!
FORM LETTERS II	BU 189	100 more standard business letters!
LEGAL FORMS	BU 190	Over 100 different blank legal forms.
THE FRONT OFFICE	BU 191	(2 disks) System for prospecting, sales management, job costing, customer reporting and control.

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EDUCATIONAL
History, Geography, Languages...

AMY'S FIRST PRIMER	ED 101	Routines for pre-schoolers with alphabet, counting, shapes and color
EDUCATIONAL PROGRAMS	ED 102	A compilation of pre-school and elementary programs.
FUNNELS & BUCKETS	ED 103	Basic math principles. Children solve problems in arcade environment.
MATHPAK	ED 106	Lessons & tutorial in basic and higher math!
PC-TOUCH	ED 107	Super typing tutor with on-screen performance data !
AMANDA'S LETTER LOTTO	ED 109	Learn the alphabet for 18 months+ children
SPANISH	ED 112	(2 disks) Quality language tutor, beginner to advanced
ALGEBRA	ED 113	Both integer and real computations - 1st class!
JAPANESE	ED 115	Able oriental tutor - get this a month before you go though!
SPANISH HANGMAN	ED 116	A fun way to learn Spanish - recommended
BEGINNING SPANISH	ED 118	Another excellent way to start learning this fascinating language
RE-SCHOOL ED	ED 120	ABC fun keys, Clock & Mouse game, BabyMath, Animal Arithmetic
WHIZQUIZ	ED 121	Problems on elementary math with 10 levels of questions
TEEN ED 1	ED 124	Higher Math, Trigonometry, Geometry, Biology, Circuitry, Pi.
TEEN ED 2	ED 125	Algebra, Chemistry, History, Spelling, Math, Astronomy, San Mateo
HIGH SCHOOL VOCABULARY	ED 126	Multiple-choice quizzes with re-testing and clear definitions.
BALLOON SPELLER	ED 127	Here's a fun way to get to grips with word formation
WISDOM OF THE AGES	ED 128	(4 disks) Worldwide classical data - quotes, thoughts, proverbs
FRENCH I	ED 130	French for beginners - great!
FRENCH II	ED 131	Continues where French I leaves off.
GERMAN I	ED 132	An introduction to German
READY FOR CALCULUS?	ED 135	Essential algebra/trigonometry review material
LETTERFALL	ED 136	Improve your touch typing skills with 16 levels of practice!
CLASSROOM HELPER	ED 137	Computerized grade book, assignments, behavior records, printouts.
VIDEO CHEMISTRY	ED 138	Program for assisting in chemistry - valency and molecular combinations
FACTS	ED 140	A kid's tutor for capitals, states and presidents
COMPUTER TUTOR	ED 141	If you're new to computers, then this is a must for you.
THE PRESIDENTS	ED 142	(2 disks) Biographical and quiz system on all the US Presidents
MICRO WORLD DATA BANK	ED 143	(5 disks) Detailed world mapping database produced by the CIA
GOOGOL MATH GAMES	ED 149	Math primer for pre-school and primary school. Classic arcade games.
PC BASIC PRIMER	ED 150	New! Menu-driven Basic tutor for beginners.
WORLD ATLAS	ED 151	(2 disks) Geographical information from the Rand McNally Atlas!
SAN MATEO SOFTSWAP	ED 153	18 educational games from the San Mateo Office of Education.
BRANDON'S LUNCHBOX	ED 157	A collection of educational programs for pre-schoolers .
DOS LEARNING SYSTEM	ED 159	An excellent tutor for DOS, recommended for newcomers to DOS.
JORJ	ED 165	(2 disks) A PHONETIC Dictionary!
PC-ORIGAMI	ED 166	Master the ancient Japanese art of paper folding. (Basic req'd)
SCHOOL-MOM	ED 167	A back-to-basics educational tool for children ages 4-14. Includes modules for music, art, spelling, English and math. (CGA req'd)
JEM-LOGO	ED 168	Programming for kids! A logo-like language designed to teach children how to program a computer.
LADYBUG GRAPHICS	ED 169	Another logo programming language for kids!
U.S. POPULATION DATABASE	ED 170	U.S. Census Bureau data on population from 1790 to the present!
CHEMVIEW	ED 171	Display a 3-D view of selected molecules. (EGA req'd)
CHEMICAL	ED 172	Create molecules using bonding input from the menu provided.

SPREADSHEET & UTILITIES
Templates, Macros, Utilities...

PC-CALC+	SP 101	(3 disks) Superb 123 clone - interacts with PC-FILE+.
EZ-SPREADSHEET V.S21	SP 102	Simple to use but powerful system - ideal for beginners - one of the best
AS EASY AS... 3.01	SP 103	Loaded with features, and compatible with 1-2-3 files, this one has all the bells and whistles!
LOTUS MACROS	SP 104	Save tedious work with these short-cuts for use with 1-2-3.
LOTUS TEMPLATES	SP 106	If you use Lotus, you'll love these ready-made applications!
PIVOT!	SP 108	Sideways print routine for SP 103
QUBECALC	SP 109	This powerful 3-dimensional spreadsheet lets you view data in a new light.
123 POWER WORKSHEETS	SP 110	(2 disks) Powerful worksheets - worth having if you use Lotus!
MIPSCALC PLUS	SP 111	(3 disks) Spreadsheet - reads, writes Lotus files - needs GEM
WHITLING WORKSHEETS	SP 112	(2 disks) Excellent budgeting tools for Lotus 123
LOTUS LEARNING SYSTEM	SP 115	(2 disks) Good, basic tutorial for anyone trying to learn Lotus 1-2-3
BEGINNING 1-2-3 TUTORIAL	SP 116	Worksheets and tutorial to take the novice 1-2-3'er through the basics.
ADVANCED 1-2-3 TUTORIAL	SP 117	Designed for someone who has worked through the basics.
INCOME WK7	SP 118	Lotus WK file calculates income statements.

WORD PROCESSING
Style, Speller, Macros, Thesaurus...

PC-WRITE	WO 101	(3 disks) Latest version w/mail-merge and spell checking!
WORDPERFECT MACROS	WO 108	Over 80 macros for WordPerfect v 5.0
EZX-WRITE 2.3	WO 110	A first, highly functional word processor. Includes pull-down menus
THESAUR V3.5	WO 111	Shareware's 1st thesaurus! - very useful for a variety of applications
ENVELOPE MAKER 2.3	WO 112	Useful envelope printing utility for Epson MX, FX, LQ or compatibles
WORDPERFECT 5.0 TOOLKIT	WO 114	ASCII to WP5 format converter plus lots of other useful utilities
PRO-SCRIBE	WO 115	Improve the impact at your writing with this new program
WRITER'S HEAVEN 4.0	WO 116	For PC-Write versions 2.6 and up. A complete new set of command keys,
PC-WRITE MACROS 1.2	WO 117	100 macros for this popular word processor -Requires PC-Write 3.0 or later
WORDPERFECT 5.0 POPUP	WO 118	This handy tool pops all the information on function keys up on the screen!
WORDPERFECT MENUS	WO 120	Pull-down menus for both 4.2 and 5.0
WORD PROCESSING FOR KIDS	WO 122	A WP program with all the basic features designed just for kids!
PC-INDEX 1.1	WO 124	Save hours of work! Import a text file, and PC-Index will create an index!
WORDS & EDITS	WO 127	Text editor that's FAST and EASY! ASCII text output makes this one ideal for preparing program source code.
THESAUR PLUS	WO 128	Another thesaurus from the author of Thesaur (WO 111). This version requires a hard drive, but it will "pop-up" over any other program.
CLICHE FINDER	WO 129	Search any ASCII file for trite or hackneyed words or phrases and print a list of the words or phrases found. Clean up your writing style!
WORDPLAN	WO 130	A document processor for Lotus 1-2-3. Reads 1-2-3 files and produces custom reports and documents.
BLACK MAGIC	WO 131	(3 disks) Hypertext word processor.

DATABASE MANAGEMENT
dBase, Files, Routines...

PC-FILE+	DA 101	(3 disks) The dBase killer! State-of-the-art DBMS.
dBASE III ROUTINES	DA 103	Over 60 helpful routines for the dBase III user. A must!
NEWBASE II 4A	DA 104	Excellent user-supported DBMS with full menu package.
WAMPUM 3.3S	DA 105	Latest version of this legendary dBase III/IV compatible clone.
dLITE 1.0	DA 107	Pop-up dBase marvel - access to 10 dBase compatible applications!
GRAPHTIME II	DA 108	(2 disks) dBase, Wampum, Lotus and Multiplan business graphing
EZ-dBASE TRAINER	DA 109	A really nice tutorial for dBASE
WYNDFIELDS 1.0	DA 110	Here's a great database that's 3 disks squeezed onto one
JAGER MANAGER 1.4A	DA 111	Information manager with database, dialling and calendar
dBASE AUTO PROGRAMMER	DA 112	First class dBase system generator and documentation system.
PC-FILE+B	DA 114	(3 disks) Direct access to dBase III Plus files.
1 ON 1 = 3!!	DA 115	(2 disks) A great database mgt system! Ideal fo novice or a pro.
DATA+PLUS	DA 120	(2 disks) dBase III-IV compatible (but 80% faster!) Over 1 billion records.
SNAP!	DA 122	(2 disks) Documentation and development system for dBase III, FoxBase and similar systems.
HYPERREZ	DA 123	Easy to learn, memory-resident hypertext system.
SDB	DA 124	Simple database manger for small systems.

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BASIC PROGRAM GENERATOR	PR 105	Write programs from menus! - Good for business databasE applications
TURBO PASCAL TUTOR	PR 107	Learn how to use this great development package - recommended
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OASIS 4.1	PR 115	Powerful programing tool for Turbo Pascal programmers.
SECURITY	SH 101	Bombsquad, Chk4bomb, passwords, encryption, etc. (10 utils)
UNPROTECT I	SH 102	Make personal copies of protected software
UNPROTECT II	SH 103	(2 disks) More ways to copy
UNPROTECT III	SH 104	Unprotect Softguard protection

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3-D CHESS	GA 103	Fantastic 2D and 3D play with many levels
ARCADE BASIC	GA 114	BASIC hacker fun. Pacman, Lunar Lander, Startrek and Breakout!
POKER & ULTIMA 21	GA 116	Best poker we've seen, plus casino blackjack.
ARCADE ASSORTMENT	GA 118	Quality compilation, includes Invaders, Asteroids, Frogger and PacGirl!
ARCADE ALBUM	GA 119	More arcade style favorites that have set the standard for PC fun.
DIGITAL BASEBALL LEAGUE	GA 120	THE baseball simulation based upon real stats.
GAMBLER'S DISK	GA 121	All the casino thrills - blackjack, slots, baccarat, solitaire
SPORTS & CASINO	GA 122	QB, golf, fortune, craps, monopoly & blackjack.
EGA GAMES I	GA 125	Super fun for those lucky people with an EGA card!
EGA GAMES II	GA 126	More games using the Enhanced Graphics Adaptor to best effect
MONOPOLY WITH GRAPHICS	GA 127	An old favorite cleverly programmed for absorbing fun!
PROFESSIONAL BLACKJACK	GA 128	Become a professional player with this realistic mentor - but save money!
TRUCKER	GA 133	Drive an 18-wheeler from Los Angeles to New York - absorbing
IBM HQ INFILTRATION	GA 134	Exciting text adventure - you're a government agent in this one!
ADVENTURE ADDICTION	GA 135	No less than 5 great text adventures!
CUNNING FOOTBALL EGA	GA 137	Now version 2.3! A dynamic game with excellent graphics - EGA req'd.
PC-PRO GOLF	GA 139	(2 disks) A must for the golfing fraternity - good graphics
EGA TREK	GA 140	Superb Star Trek game for EGA - fight Klingons and Romulans
MAZE	GA 142	Wolfgang Stiller's mind boggler - a LENGTHY mental challenge!
TREK TRIVIA/KINGDOM OF KROZ	GA 144	Two more Apogee offerings for Star Trek and adventure fanatics
MORAFF'S REVENGE 3.2	GA 148	Beginner's version of fantasy role-playing adventure in color with grafix.
GAMESCAPE	GA 152	The incredible adventure game designing system!
CAPTAIN COMIC	GA 158	A Nintendo 'Mario Bros' style game with multi-levels of play (EGA req'd))
BARD'S TALE CHAR-ED	GA 159	Allows modification of characters from Bard's Tale I and II
ED'S CHESS	GA 160	A truly fine chess game with the power to beat Chessmaster 2000!
CYRUS EGA CHESS	GA 161	A challenging opponent for chess if you have an EGA.
DRACULA IN LONDON	GA 166	A really good graphics and adventure game
EGA GOLF	GA 167	Play 18 holes with scenery in finer detail on your EGA!
PC-RAILROAD	GA 168	Control your trains on supplied routes or design your own
NINJA	GA 169	A commercial quality arcade game with karate tactics!
CRIME LAB	GA 170	A super, graphic, murder mystery game for all the family
MORAFF'S EGA/VGA PINBALL	GA 172	Here's a high class pinball for high resolution!
PATIENCE	GA 174	Super Solitaire! Nine great card games.
TUNE TRIVIA	GA 177	"Name That Tune" Includes a library of 200 tunes.
MILLE BORNES	GA 178	Now you can play this great card game against the computer.
CONCENTRATION	GA 179	Concentration comes to life on your color monitor!
YACHT RACING SIMULATOR	GA 180	Serious sailor, or landlubber, this one's challenging and fun! (CGA req'd)
DULLES TOWER	GA 181	Ever wonder what it's like to be an Air Traffic Controller?
RISK	GA 183	The classic game of world domination. (CGA req'd)
BASS TOUR	GA 186	The latest version of a great fishing simulator! (EGA req'd)
TOMMY'S GIN RUMMY	GA 187	One of the best card games we've seen! (CGA req'd)
SCRABBLE	GA 188	THE program for Scrabble buffs! (EGA req'd)
VEGAS J'S DRAW POKER	GA 198	One of the best poker games/trainers available.
MINIATURE GOLF	GA 202	The challenge of miniature golf on your computer. (CGA req'd)
TETRIS	GA 211	The Russian arcade game that's sweeping the country!
PAPER AIRPLANES	GA 212	Build 20 different paper airplanes.
MCMURPHY'S	GA 213	Engrossing text adventure - find the hidden treaure.

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FAMILY HISTORY	GE 104	Genealogical records and reporting package.
GENEALOGY ON DISPLAY	GE 105	(2 disks) A complete package, ideal for beginners
HOME INVENTORY	GE 106	Keep track of what you own - ideal for insurance records, etc.
PERSONAL FINANCE MANAGER	GE 107	Household budgeting, savings, investments, checking etc.
REAL ESTATE MANAGEMENT	GE 109	If you own it, you need it!
ASTROLOGY	GE 110	Plan you life by the stars and planets - good luck!
DR DATA LABEL	GE 112	Powerful mailing list program with sort and duplicate removal functions.
FASTBUCKS	GE 113	(2 disks) Comprehensive personal finance manager.
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CROSSWORD CREATOR	GE 121	Create your own puzzles - very absorbing, and useful for educators also
STRESS & SHRINK	GE 122	Stress test and personality analysis
HOME BARTENDER GUIDE	GE 128	(2 disks) If you like a drink, you'll love these computer recipes!
NUTRITICIST 3.0	GE 129	Nutritional content of foods - powerful program for serious diet watchers.
LANDLORD V2.03	GE 137	Rental management shareware - keep it simple but effective!
TIMESTAR 2.08	GE 143	Time management system and desktop for Windows 2.0 or greater. Must have the MS Windows to run!
BANKONIT!	GE 144	Mortgage and interest calculation program, with prepayments handled
HELPFUL ENGINEERING PACK	GE 145	Calculator-Circles-Area-Polynomial Fit-Helical Springs-Triangles-Points-Stats-Beams-Conversions-VALUE!
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LOTTO NUMBER GENERATOR	GE 150	Clear, well-presented utilities for helping your chances on the lottery
LOTTO NUMBER WHEELER	GE 151	Accommodates any state's "pick six" parameters. Get it with GE 150!
PC-LOTTO 2.41	GE 152	Popular and all-embracing package for use with worldwide lotto games
XACT SERIES CALCULATORS	GE 155	Hewlett Packard calculators -simulations of HP-11C Scientific, HP-12C Financial, and awesome HP-16C Programmers' model.
CREATIVITY PACKAGE	GE 156	(3 disks) Unleash the power of your brain with this creative thinking tool.
IDEA TREE	GE 157	Organize your thoughts with a graphic display of ideas
LOTTO-CAL 1.01	GE 158	(2 disks) A powerful and scientifically oriented lotto predictor;.
COMIC BOOK COLLECTOR 1.4	GE 164	A dedicated database for comic book fanatics!
BASEBALL CARD COLLECTOR 1.4	GE 165	A dedicated database for baseball card collectors!
COUCH COACH	GE 166	Fantasy football drafter from Potato League Sports
VAR GRADE	GE 170	(2 Disks) Record, process and print grade reports.
THE TENANT FILE 1.3.2	GE 171	Keeps detailed tenant information, including payment histories.
MR LABEL	GE 172	Print mailing labels, disk labels, price tags, rolodex, envelopes, forms...any kind of label or tag you can imagine!
TYPING TESTER	GE 181	Sophisticated typing test .
HOME MANAGEMENT II	GE 189	One of the best personal financial management programs we've seen!
RESUME!	GE 190	Your resume can be as professional as you purport to be!
KINFOLKS	GE 198	Create a detailed family history
LOTTO CHALLENGER	GE 204	Another great lotto number generator!
WINE	GE 206	A database for wine lovers.

UTILITIES
Disk & Program Management...

DESK COMMANDO	UT 101	Superior to SideKick. Features menuing, graphic tree support, calculators, appointment calendar, etc. - a must!
EPSON UTILITIES	UT 102	Change modes on Epsons and compatibles, with spool utility - useful package.
AUTOMENU	UT 103	Make your PC completely menu-driven with mouse support, on-line help, etc. (HD req'd)
MASTERKEY	UT 104	Fet back those deleted files - like NORTONS utility.
LINCOMATIC BANNER	UT 105	Desoign and print large banners - hundreds of uses at home and work!
DOS TUTORIAL	UT 107	Master DOS with this able mentor
STILL RIVER SHELL	UT 108	Easy DOS mastery from a menu!
BATCH FILE TUTORIAL	UT 109	Learn and utilize batch (.bat) file processing. Time saving, very useful
DOS TIPS	UT 110	(2 disks) Advanced DOS tutorial
SPEECH	UT 113	Get your PC to talk - fascinating program
POWERMENU	UT 115	Superb hard disk menu organizer with windowing
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KARC/PKXARC 3.6	UT 126	Latest version of a great file compression/extraction tool.
MENU-MATIC 4.0	UT 129	The LATEST version of this menuing package from BC Enterprises
LAPTOP GASGUAGE	UT 135	Monitors laptop battery and lets you know when to recharge
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BAKER'S DOZEN	UT 138	A collection of valuable utilities. Restore files, edit files or FAT - includes spreadsheet, sideways printing utility and pop-up calendar.
BEST BATCH UTILITIES	UT 140	Put some punch into your batch files with the aid of these 25 programs
YEAR PLANNER	UT 141	This powerful organizer prints wall calendars!
ARCHIVER 1.3	UT 142	Usefull archiving shell makes archiving and unarchiving a breeze with pull-down menus.
HARD DISK BACKUP	UT 155	Comprehensive utilitiy for backing up your hard disk safely and quickly.
MASTER MENU	UT 156	Full-featured hard disk menu application.
TURBO COPY	UT 157	Format/copy/verify diskettes fast!
MAGIC MENUS	UT 170	(2 disks) DOS menuing utility with added features: user-defined pull-down and pop-up menus, instant disk directory, "window to DOS," etc.

GRAPHICS
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PC-KEY DRAW	GR 101	(4 disks) Magical drawing/art program.
SIMCGA	GR 102	Run CGA progs with Hercules type cards
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3-D IMAGERY	GR 104	Color wire frame package - rotate, move, scale, tip etc.
ANIMATOR	GR 105	Create animated graphics on your PC for a variety of uses.
IDANCAD3D	GR 106	(2 disks) The best for 3-D wireframe with all conceivable options
CONVERT	GR 107	Transfer graphic icons from/to PrintMaster, PrintShop, MacPaint, BLOAD
PRINTSHOP GRAPHICS	GR 108	3 additional libraries, over 200 additional pics - needs PrintShop
PRINTMASTER GRAPHICS	GR 109	3 additional libraries for PrintMaster
PRINTSHOP GRAPHICS II	GR 111	Another 500+ images for the PrintShop program
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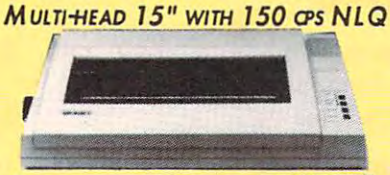

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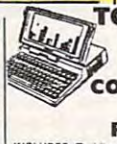

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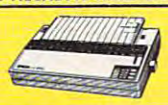

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NS-70	386/20	85 meg	$3599.95
NS-70 +	386/25	144 meg	$4995.95

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" Vendex believes that many novice and experienced users would rather start with a fully featured, component rich system."

Standard Features Include

- 80286 Microprocessor 8 or 12 MHz (switchable)
- Socket for 80287 co-processor
- Award/Headstart custom BIOS
- 1.2MB 5.25" floppy disk
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Panasonic FX 1650 8086/4/8MZ

"The FX 1650 represents a very good entry level computer made in the USA for the business person."

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FX 1650	VIDEO OPTIONS (including monitor and display card)			
DRIVE OPTIONS	MONO 12"	CGA 14"	EGA	VGA
1 FLOPPY 3.5	$569	$729	$899	$999
*DUAL FLOPPY	$629	$799	$969	$1069
1 FLOPPY 30MB	$819	$989	$1169	$1269
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** Includes 3.5" and 5.25" floppy drives.*

LASER Turbo II 8088/10 MZ

"...Everything you expect from an 8088 CPU plus a host of powerful features."

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- CGA/MDA, Composite video adaptor— .....$99 VALUE
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- PC TOOLS DELUXE (#1 rated desk-top organizer) $129 VALUE
- Joystick port .....INCLUDED
- One-Year warranty (parts and labor) .....INCLUDED

$589.95 *Base System MS-DOS INCLUDED!*

TURBO II	VIDEO OPTIONS (including monitor and display card)			
DRIVE OPTIONS	MONO	CGA	EGA	VGA
1FLOPPY	$659	$819	$989	$1139
*30MB SEAGATE	$929	$1089	$1239	$1389
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- 8 Expansion slots (1 32 bit, 6 16 bit, 1 8 bit)
- 1.2MB 5.25" floppy drive
- 101 key enhanced keyboard
- 64K SRAM Cache memory
- 5 Drive bays
- 1 Parallel and 2 Serial ports
- Clock/calendar W/battery
- 150 Watt power supply
- 80387 Coprocessor compatible

EXTRA FEATURES FREE!!!

- FREE ONE-YEAR ON SIGHT WARRANTY THROUGH DOW-JONES .....INCLUDED
- AMI BIOS with integrated Setup and Diagnostics .....INCLUDED
- 5 Drive bays (not just 3) .....INCLUDED

$1599.95 *Base System*

386/25	VIDEO OPTIONS (including monitor and display)			
DRIVE OPTIONS	MONO	VGA mono	EGA	VGA color
48 MB Seagate	$2139	$2299	$2429	$2599
84 MB Seagate	$2259	$2399	$2549	$2749
120 MB Seagate	$2599	$2679	$2799	$2999

LASER 286/2 286/12MZ

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Standard Features Include

- 80286 Microprocessor (6/12 MHz)
- Socket for 80287 co-processor
- 640K RAM (expandable to 1MB)
- 1.2MB 5.25" floppy disk drive
- Seagate STO2 SCSI host adapter
- 3 drive bays (2 exposed)
- 8 Expansion slots (8/16 bit)
- 102 key enhanced keybaord
- 1 Parallel and 2 serial ports
- Front panel LED turbo readout
- Front panel reset and keylock
- Clock/calendar W/battery

EXTRA FEATURES FREE!!!

- Full 640K RAM (not just 512K) .....$80 VALUE
- MS-DOS/GW Basic .....$89 VALUE
- PC TOOLS DELUXE (#1 desk-top organizer) ...$129 VALUE
- One-Year warranty (parts and labor) .....INCLUDED

$779.95 *Base System MS-DOS INCLUDED!*

286/2	VIDEO OPTIONS (including monitor and display card)		
DRIVE OPTIONS	MONO	EGA	VGA
30 MB Seagate	$1179	$1479	$1629
48 MB Seagate	$1279	$1579	$1729
84 MB Seagate	$1479	$1779	$1929

EVEREX AGI 3000G 386SX/16MZ

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The AGI 3000G by Everex represents the perfect combination of performance and value for users wanting the power of a 386 based system.

Standard Features Include

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- Intel 80386SX 0 wait state 16MHz
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- Socket for 80387SX coprocessor
- 101 Key enhanced keyboard
- Hard drive set-ups in ROM (45 hard drive combinations)
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- LED readouts for power and disk access
- Clock/Calendar W/battery
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EXTRA FEATURES FREE!!!

- 48 hour factory burn-in .....INCLUDED
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- One year warranty (parts & labor) .....INCLUDED

$1299.95 *Base System*

3000G	VIDEO OPTIONS (including monitor and display card)			
DRIVE OPTIONS	MONO	VGA mono	EGA	VGA color
30MB Seagate	$1739	$1899	$2029	$2149
40MB Seagate	$1779	$1939	$2069	$2189
80MB Seagate	$2029	$2169	$2299	$2419

TOSHIBA T-1000 Laptop

Pick up on the T-1000 and you'll go far. Give yourself desktop PC power wherever you need it. Toshiba's T-1000 includes 512K RAM, one built-in 720KB 3.5" disk drive supertwist LCD display with CGA capability.

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For a desktop computer that won't leave you desk bound, choose the Toshiba T-3200. Full desktop features include; 12MHz clock speed, 40MB hard disk, EGA video card, internal expansion slots and both Centronics/RS 232 interface ports. Experience the power of the T-3200.

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NEW PRODUCTS

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Window Greetings

hDC Computer has introduced *hDC Card Designer,* a greeting-card maker that operates in the *Microsoft Windows* environment. The program is the first in a series of *Windows* desktop utilities from hDC called MicroApps.

Card Designer works with *hDC Windows Manager,* a desktop utility manager, and comes with Art Gallery and Card Maker MicroApps for designing and printing cards. A variety of clip art also accompanies the program. The graphics can be modified with a painting or drawing program. Original art or graphics from other clip-art packages can be saved to an Art Gallery Library. Art can be pasted into cards, and text from Notepad or a word processor can also be pasted into the cards.

hDC Card Designer requires an IBM PC or compatible, *Microsoft Windows/286* or *Microsoft Windows/386* versions 2.0 or higher, *hDC Windows Manager,* and any PostScript or *Microsoft Windows*–supported printer. The package, which includes sample cards, has a retail price of $49.95.

hDC Computer, 6742 185th Ave. NE, Redmond, WA 98052

Circle Reader Service Number 200.

Back to Basics

Borland International has transferred the development and publishing rights of future versions of *Turbo Basic* back to its original developer, Robert Zale. Zale has reached an agreement with Spectra Publishing to publish a new version of *Turbo Basic* under the name *PowerBasic.*

The updated product is a complete development environment for the IBM PC and true compatibles with an interactive editor, a fast compiler, and an interactive debugger.

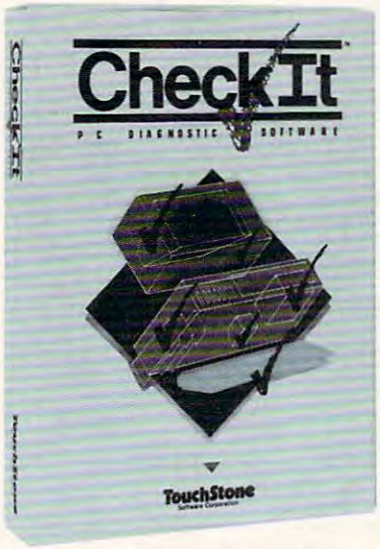
Spectra Publishing offers full technical support for *PowerBasic,* which has a retail price of $109.95. Registered users of *Turbo Basic* 1.1 can upgrade to *PowerBasic* through Spectra Publishing for $50 plus shipping and handling.

Spectra Publishing, 1030 D E. Duane Ave., Sunnyvale, CA 94086

Circle Reader Service Number 201.

Testy Software

TouchStone Software has released version 2.1 of *CheckIt,* a general-purpose utility that details and tests the hardware and software configuration of IBM PCs and compatibles. The utility defines a system's configuration, helps implement upgrades, and troubleshoots problems.



***CheckIt* tests the hardware and software configuration of PCs.**

One added feature is an enhanced-memory diagnostic that provides complete testing for expanded memory.

CheckIt version 2.1 carries a retail price of $149.

Touchstone Software, 909 Electric Ave., Seal Beach, CA 90740

Circle Reader Service Number 202.

Larry the Third

Everyone's favorite lounge lizard, Larry Laffer, returns in Sierra's *Leisure Suit Larry 3: Passionate Patti in Pursuit of the Pulsating Pectorals.* This is the first Sierra game that lets you play two different characters.

For the first part of the game, you play Larry, who is recently divorced and on the prowl. In the second half, you become Passionate Patti, Larry's female equal.

Features include autosave, a first for Sierra, and over an hour of original music. An opening trivia test prevents children from playing the game's steamier scenes. How you perform on the trivia test also determines determines how risqué the game will be.

Larry 3 for IBM PCs and compatibles comes packaged on eight 5¼-inch and four 3½-inch disks. The game supports EGA, CGA, VGA, MCGA, Tandy 16-color, and Hercules monochrome graphics. The program's sound can be improved with enhancements such as the Roland MT-32, Ad Lib, IBM, Game Blaster, Casio MT-540/CT-460, Casio CSM-1, and Yamaha FB-01 sound devices. The retail price is $59.95. Amiga, Atari ST, and Macintosh versions are planned.

Sierra, P.O. Box 485, Coarsegold, CA 93614

Circle Reader Service Number 203.

Civil War, the Final Stages

Strategic Studies Group has announced the release of the IBM PC and compatibles version of *Decisive Battles of the American Civil War, Volume III: Wilderness to Nashville.*

The Civil War simulation features six battles from the final period of the war. Recreated on the screen are the battles of Wilderness, Spotsylvania, Cold Harbor, Atlanta, Franklin, and Nashville.

SSG's Decisive Battles system uses the Warpaint graphics editor and the Warplan war-game construction kit. All game icons can be edited with Warpaint, giving you control over the presentation of the game. In the Decisive Battles system, you can create any scenario you like and make it look exactly as you want.

Decisive Battles of the American

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Civil War, Volume III supports EGA and VGA graphics and has a retail price of $39.95. SSG software is distributed exclusively by Electronic Arts.

Electronic Arts, 1810 Gateway Dr., San Mateo, CA 94404

Circle Reader Service Number 204.

Calling All Computers

Canon's Navigator provides everything you need: a telephone, an answering machine, a facsimile machine, and an XT-class personal computer. The components are fully integrated, but each may be operated independently of the computer.

The computer has 640K of memory and dual 3½-inch floppy drives. The 10-inch monochrome screen doubles as a pressure-sensitive control panel. Programs can be run by touching the appropriate icon or symbol on the menu screen. The unit also has built-in serial and parallel interface ports.

The Navigator combines a telephone, an answering machine, and a fax with a PC.

Built-in tools include a message board, a digital clock, a memo pad, and a screen sweeper.

The Navigator has a retail price of $2,995.

Canon U.S.A., One Canon Plaza, Lake Success, NY 11042

Circle Reader Service Number 205.

Nostalgic Trip

California Dreams has introduced *Street Rod,* a nostalgic racing simulation featuring 25 hot cars from the past, ranging from a '32 Deuce Coupe to a '63 Corvette. Once you've chosen your set of wheels, you can use the program's construction set to customize and tune your heap.

The construction set allows you to switch engines, transmissions, tires, and carburetors; and it lets you add custom touches such as a chopped top, custom paint, and custom designs.

When your hot rod is ready, it's time to cruise. Stop by Bob's Diner, check out the competition, and challenge one of the local legends to a quarter-mile drag race or a treacherous road race. While racing, be sure to keep an eye out for the cops. Defeat all comers and become the King.

Street Rod has a retail price of $49.95. Additional cars and options will be available later on supplemental data disks.

California Dreams, 780 Montague Expwy., #403, San Jose, CA 95131

Circle Reader Service Number 206.

Backup Plan

The Norton Backup, a PC utility for backing up and restoring files to hard or floppy disks, has been released by Peter Norton Computing.

The product protects against the loss of data by creating backup copies of an entire disk or selected files. The program can be used to restore data in the event of a hard disk crash, virus-related file damage, or user error.

The Norton Backup automatically configures itself to its hardware environment on the first run. Performance can be further increased by fine-tuning the selected settings. The program also maintains a master catalog of a hard disk for immediate restore selection and a full catalog of each set of backup disks. Backup selections can be automated with reusable setup information for regular backup of the same files.

The introductory price for *The Norton Backup* is $149. The program requires an IBM PC, XT, AT, PS/2, or compatible and DOS 2.0 or higher.

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

Circle Reader Service Number 207.

No Extra Hardware

Unison World's *Avagio Publishing System* offers scalable font technology without requiring additional hardware. The program allows you to create up to 500-point type, in 1-point increments, without jagged edges on most dot-matrix or laser printers.

Other features include a program that lets you convert almost any PostScript-format graphic to Unison World's outline format. All fonts can be compressed or expanded in one-point increments, and a mingle feature lets you specify how objects mingle with each other when they overlap. All *Avagio* onscreen fonts exactly match those on the printed page because they're generated from the same outline fonts.

***Avagio* combines desktop publishing power with the capabilities of stand-alone graphics programs.**

Avagio for the IBM PC, XT, AT, or compatible requires DOS 2.1 or higher, 640K, and a 20-MB hard drive. It supports Hercules, CGA, EGA, and VGA graphics and offers mouse support. The retail price is $299.95.

Unison World, 1321 Harbor Bay Pkwy., Alameda, CA 94501

Circle Reader Service Number 208.

Flamethrower

Strategic Simulations has released *Dragons of Flame,* the second Advanced Dungeons & Dragons ancient game set in the Dragonlance game world.

You lead the eight Companions of the Lance on a quest through the wilderness of the Elven Mosaic, where they gain valuable allies: the elves of Qualinesti. The Companions must also ally with nonplayer characters such as nomads and refugee townsfolk, and they must sneak through the caves of Sla-Mori and into the fortress of Pax Tharkas. Once inside the fortress, the Companions must recover the sword, Wyrmslayer, and free the slaves held there by the evil dragons and Draconians.

Each companion has specialized skills that can be used to evade Draconian patrols and other evildoers and monsters. Ultimately, your goal is to triumph over evil and save the world of Krynn from Takhisis, the Queen of Darkness.

Dragons of Flame is available for IBM PCs and compatibles and retails for $39.95. The Amiga and Atari ST versions also retail for $39.95, while the Commodore 64/128 release sells for $29.95. A clue book is available for $7.95. The SSI game is distributed in North America by Electronic Arts.

Electronic Arts, 1810 Gateway Dr., San Mateo, CA 94404

Circle Reader Service Number 209. ▷

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Laser Printing for Less

Okidata has released a lightweight, low-profile, and affordable personal laser printer called the Okilaser 400.

Compatible with a wide variety of word processing and graphics software, the Okilaser 400 prints four pages per minute. Seventeen built-in bitmap fonts in four typefaces are included, and there's a cartridge slot for additional fonts. The printer features HP Series II emulation and has 512K of RAM that's expandable to 2.5 MB for full graphics applications. It handles single-sheet paper (up to 200 sheets of 16- to 24-pound stock), envelopes, mailing labels, and overhead transparencies.

The Okilaser 400 has a retail price of $1,395.

Okidata, 532 Fellowship Rd., Mount Laurel, NJ 08054

Circle Reader Service Number 210.

Auto Designer

A new IBM PC version of *Car Builder* is now available from Optimum Resource. With *Car Builder,* you can take on the role of design engineer while planning, constructing, refining, and testing vehicles of your own design. You can design sedans, station wagons, four-wheel-drive vehicles, vans, and sports cars.

Start with the selection of mechanical components including chassis, engine, transmission, suspension, steering, tires, and brakes. Once the mechanical stages are complete, you choose and modify the body using wind-tunnel and road tests to perfect the design. Following the testing stages, you modify body lines to improve aerodynamics and minimize drag and redesign mechanical aspects to increase performance. Data on finished cars can be stored to disk or printed out.

Car Builder requires CGA graphics and 256K. The retail price is $49.95.

Optimum Resource, 10 Station Pl., Norfolk, CT 06058

Circle Reader Service Number 211.

Race to the Death

Activision's new 3-D driving simulation, *DeathTrack,* puts you behind the wheel of a deadly, weapon-armed machine in which you battle enemy racers.

Once you select a car, you can add customized parts and weapons to make your car invincible. Next, you select from one of ten grueling racetracks located in major cities such as Los Angeles, San Francisco, Chicago, and Phoenix. Your view is from the driver's seat, where you have an array of computer-controlled driving and targeting indicators. You are warned when another racer is approaching and are told who the driver is and what type of weapon he or she is carrying. A rearview mirror also helps you keep an eye on approaching enemies.

DeathTrack for the IBM PC and compatibles requires 512K and a color monitor. It supports CGA, EGA, and Tandy (640K required) graphics. The suggested retail price is $44.95.

Activision, 3885 Bohannon Dr., Menlo Park, CA 94025

Circle Reader Service Number 212.

Keyboard of a Different Color

The Chameleon Keyboard Customizer from Sirius Industries can send lengthy command sequences and repetitive blocks to your PC-, XT-, or AT-compatible keyboard with just one keystroke. You can program over 90 macros or redefine any key. The Chameleon also allows you to program macros for different programs and automatically upload and download different configurations. Other features include the ability to change the repeat rate of any key and the capacity to create a security device.

You can customize your keyboard with the Chameleon.

Keyboards can be plugged directly into the Chameleon, which requires no host memory. The retail price is $59.

Sirius Industries, 216 N. 20th Ave., Phoenix, AZ 85027

Circle Reader Service Number 213.

Plain English

Creative Solutions has released *PC-IQ,* a program that uses artificial intelligence to translate simple English commands into DOS commands. Instead of using the DOS command language, you can type in your own words to describe what function you want the computer to perform. Should the input be unclear, the program will ask you for more information in an informative and friendly manner. *PC-IQ* requires 640K, DOS 2.0 or higher, and a hard drive. The retail price is $79.95.

Creative Solutions, 58 Creekview Dr., P.O. Box 128, W. Seneca, NY 14224

Circle Reader Service Number 214.

Designer Bookkeeping

Accounting by Design's *Bookkeeping by Design* for small businesses features lively onscreen graphics and a streamlined program structure. The program takes advantage of *Microsoft Windows'* graphical interface to create a layered look for many of its bookkeeping screens. Data-entry processes and command sequences have been simplified.

The program provides small businesses with accounts payable, accounts receivable, invoicing, and payroll systems, as well as a general ledger with a report writer. You can use the program to review sales records, write checks, and make payroll entries without leaving the software environment.

Bookkeeping by Design requires 640K, a hard disk, a graphics card, and a mouse. It comes bundled with a runtime version of *Microsoft Windows* and retails for $695.

Accounting by Design, 2140 Shattuck Ave., Suite 501, Berkeley, CA 94704

Circle Reader Service Number 215.

Foreign Affairs

Two language-teaching software programs from International Software can perform direct translations from English into either German or Spanish. With *Learn German* and *Learn Spanish,* you can type in a simple sentence on your IBM PC or compatible and the program will act as interpreter and display or print the translation.

The programs employ artificial-intelligence parsing to ensure that grammar, gender, conjugation, and composition of words within the translated sentences are correct. After examining the translation, you can save each sentence in an ASCII file. The accumulated text can then be edited with any word processor.

Both *Learn German* and *Learn Spanish* contain a large resident vocabulary and a dictionary; separate displays for numbers, verb conjugation, and noun declension; and word exercises that test your knowledge of the language. Each program retails for $99.95.

International Software, 1954 Nob Hill, Box 747, Running Springs, CA 92382

Circle Reader Service Number 216. ⊡

www.commodore.ca

OFF LINE

DAN GOOKIN

Somewhere inside your computer, nestled amongst the tangled ganglia of cables, power supplies, phone cords, cookie crumbs, dust balls, and lost pens, is a dark, secret, forbidden world—kind of like OS/2. It's a magical place where mysterious creatures exist. Even if you've never seen them, you've witnessed their mischievous effects.

The key to unlocking the door to this kingdom, I have discovered, is a pint of Dark Chocolate Mocha Fudge Haagen Dazs ice cream. Eat the entire carton at 2:00 a.m. (don't forget to top it with half a goopy gallon of Hershey's Triple Ooey Gooey Chocolate topping). Then go directly to bed.

In your dreams, sometime between the moment you give the State of the Union address in your underwear and the final fulfillment of that long-held fantasy mud-wrestling match with Bill Gates, your sugar-saturated mind will wander into the cable jungle behind your computer. Keep your wits about you, and you should survive this close encounter.

The first creature you're bound to meet is the Cable Wraith. Actually, the computer cable jungle is just one stop for this ugly little cuss. He's also the same bothersome pest who kinks and knots garden hoses and weaves those enchanting tangles into your Christmas-tree light strings.

But even if you never see the Cable Wraith, you might, perchance, notice the sound he makes. He's that phantom giggle you hear when you put the phone on top of the modem, just as you're about to dive behind the desk to hook up everything to the wall. No matter how carefully you place the wires, the second your back is turned—*zing!*—giggle-giggle!

A more common creature is the Pixel Fairy and her damnable pixel dust. The Pixel Fairy is a lively little elfin creature—kind of a combination Tooth Fairy/Sandman. Every night she deposits a thin veil of pixel dust on the surface of your computer's monitor. Nightly. You can't stop her.

Related to the Pixel Fairy is the Phosphor Burn-in Phantom, a nasty bit of business who operates on the inside of your monitor. Looking a little like Claude Rains (and sounding a lot like Michael Crawford), the Phosphor Burn-in Phantom is the beast who etches a permanent image of your favorite computer program into the sensitive phosphors of your monitor.

Those who have seen the sight draw back in fear. Even with the monitor off, programs appear. The Phosphor Burn-in Phantom is always there, lurking inside your CRT.

Next on the poltergeist parade is the Hard Disk Troll. This awful little grunt will slow your hard disk to a crawl. If some of your data is missing

UNLOCK YOUR COMPUTER AND **BEHOLD THE CREATURES WITHIN**

or some of your files have disappeared, it's the loathsome Troll's doings. He lives to foul sectors and to fragment files.

Fortunately, the Hard Disk Troll has an enemy: CHKDSK. By itself, CHKDSK is a fairly useless little DOS utility, kind of like the doctor you visit when you're sick who says, "Yup, you're sick all right." But for whatever reason, the Troll can't stand it.

The most annoying of the mystical DOS creatures is the 640K DOS Memory Demon. Contrary to popular belief, there isn't a brick wall at address 640K in your PC. Instead, there's a delicate sheet of glass. The Memory Demon stands at the Gate of Useful Memory, a huge mallet in his hands, and glowers at approaching programs. When programs near 640K, this horrible monster crowns them just before they reach the threshold.

DOS programmers at Microsoft are at a loss to explain the existence of the Memory Demon. Rumor has it that an OS/2 Memory Demon exists at 16 megabytes—but no one who has ventured into the PC forest that far has ever returned alive.

Many companies have figured out ways to thwart the Memory Demon. The most successful, now in its fourth incarnation, has been the Little Imp Maiden (LIM 4.0). Also effective is the Engaging, Mysterious, and Sensuous (EMS) Imp. Both of these good spirits are hard to control, however.

OS/2 contains it's own horde of interesting software creatures, like the CONFIG.SYS Witch. She isn't evil, just difficult to understand. She speaks in odd incantations, and nothing she says is in the OS/2 manual. Folklore has it that Infocom will publish an Invisi-Clues booklet for the CONFIG.SYS Witch.

There are countless other PC creatures, like the Hardware Gnome, who tugs on cables and causes random errors but vanishes when you take the computer into the shop; the Subtle Sleeping Floppy Gremlin, who waits months before magically rendering an important floppy disk useless; the Memory Goblin who inflates programs beyond available RAM; and the Line Noise Fiend, who garbles online communications.

You can, of course, dismiss these tales as OEM factory stories designed to keep users from working on their own systems. But, hey, during a full moon, who really knows? ⊡

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HOTWARE

SOFTWARE BESTSELLERS FROM AROUND THE COUNTRY

HOME PRODUCTIVITY

1. Quicken
Manage your finances.
Intuit
IBM, Macintosh

2. The Print Shop
Make signs, cards, banners, and more.
Brøderbund
Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh

3. PC USA
Explore the United States.
PC Globe
IBM

4. BannerMania
Print banners, pennants, and more.
Brøderbund
IBM

5. Managing Your Money
Allocate your income.
MECA
Apple II, IBM, Macintosh

6. Calendar Creator Plus
Create many different calendars.
Power Up
IBM, Macintosh

7. WillMaker
Get help in writing a will.
Nolo Press
Apple II, IBM, Macintosh

8. Print Shop Graphics Library
Add variety to your Print Shop creations.
Brøderbund
Apple II, Apple IIgs, Commodore 64/128, IBM

9. PC Globe 3.0
Explore world demographics.
PC Globe
IBM

10. Adobe Type Manager
Better fonts for your Mac.
Adobe
Macintosh

HOME ENTERTAINMENT

1. Flight Simulator
Head for the wild blue yonder.
Microsoft
IBM, Macintosh

2. SimCity
Run the world's first simulated city.
Maxis
Amiga, Commodore 64/128, IBM, Macintosh

3. John Madden Football
Take to the field with the pros.
Electronic Arts
Apple II, Commodore 64/128, IBM

4. Their Finest Hour: The Battle of Britain
Turn the tide in the World War II air war.
Lucasfilm Games
IBM

5. M1 Tank Platoon
Thrilling tank action.
MicroProse
IBM

6. Tetris
Deceptively addicting falling-block game.
Spectrum HoloByte
Amiga, Apple IIgs, Commodore 64/128, Macintosh

7. Mean Streets
Become a digitized detective.
Access
Commodore 64/128, IBM

8. Hero's Quest
Your chance to be a hero.
Sierra
IBM

9. The Duel: Test Drive II
Fast-paced car racing.
Accolade
Amiga, Apple IIgs, Commodore 64/128, IBM, Macintosh

10. Battlechess
Animated action on the chessboard.
Mediagenic
Amiga, Apple IIgs, Commodore 64/128, IBM

HOME LEARNING

1. Mavis Beacon Teaches Typing
Learn to touch-type.
Electronic Arts
Apple II, Apple IIgs, Commodore 64/128, IBM, Macintosh

2. Where in Time Is Carmen Sandiego?
Can you find Carmen in time?
Brøderbund
IBM

3. Math Blaster Plus!
Teaches basic math concepts.
Davidson & Associates
Apple II, Apple IIgs, IBM

4. Where in the World Is Carmen Sandiego?
Chase Carmen around the world.
Brøderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

5. Where in the USA Is Carmen Sandiego?
The chase moves to the USA.
Brøderbund
Amiga, Apple II, Commodore 64/128, IBM, Macintosh

6. The Children's Writing & Publishing Center
A desktop publisher for kids.
The Learning Company
Apple II, Apple IIgs, IBM

7. Reader Rabbit
Helps children learn to read.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh

8. Learning DOS
Learn the ins and outs of DOS.
Microsoft
IBM

9. Think Quick
Children learn problem solving.
The Learning Company
Apple II, Apple IIgs, IBM

10. Math Rabbit
Build early math skills.
The Learning Company
Apple II, Commodore 64/128, IBM, Macintosh

COMPUTE!'s Hotware lists were prepared by Egghead Discount Software and are based on retail sales of Apple II, Macintosh, and IBM software from November 12 through December 9, 1989, at 205 Egghead stores in the United States and Canada.

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   ☐ Macintosh (264) ☐ Apple II (265) ☐ Commodore 64/128 (266)
2. How long have you owned your computer? _____ (267) years _____ (268) months
3. Do you use your computer mostly for ☐ playing games (269) ☐ working at home (270)
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Sierra's Hero's Quest

Lucasfilm's Indiana Jones and the Last Crusade

System requirements: IBM PC, XT, AT, or compatible with 256K RAM, DOS 2.0 or higher, CGA, EGA, or monochrome graphics adaptor, and headset or external speaker.

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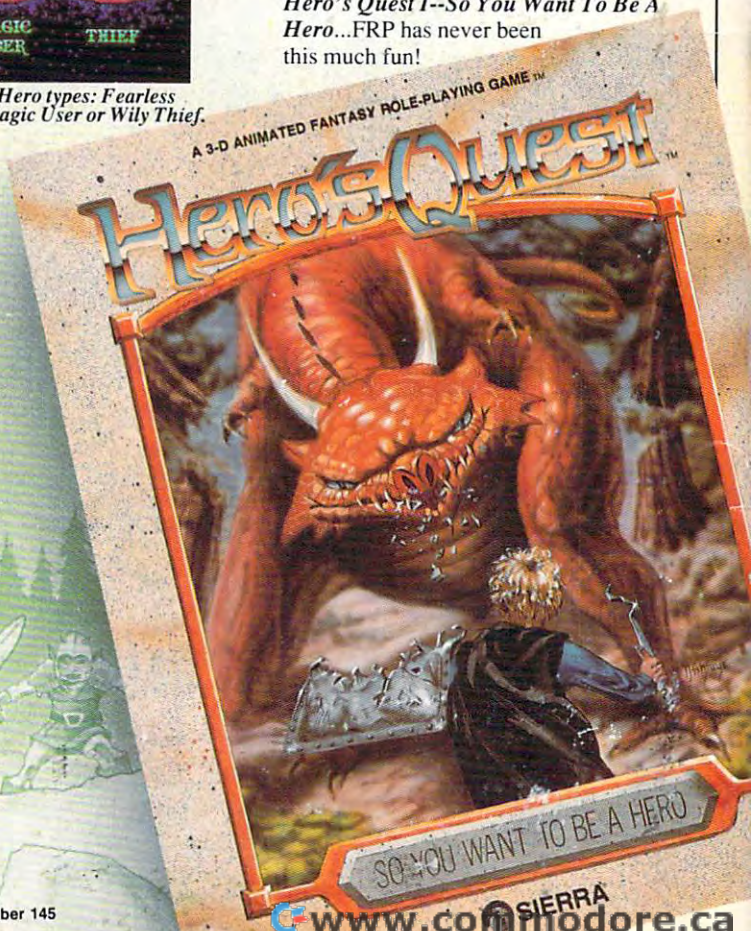

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'...this one has more humor than most CRPG's I've played!'

'The fairies were a riot! Great characterizations in this game, better even than Space Quest III, and that's going some.'

'...much of the humor is a great deal more subtle...the sub thing brought me right out of my chair.'

'I like that ending a lot!!! I want to go back and replay...SOON!

'...one of the best of all of Sierra Games...I play the game every chance I get. I highly recommend it to anyone who likes games by Sierra.'

'We can't wait to play HQ II!! Sierra is getting too good at this stuff. It's getting to the darn point where no other computer games are worth buying. Keep it up...just make MORE games.'

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