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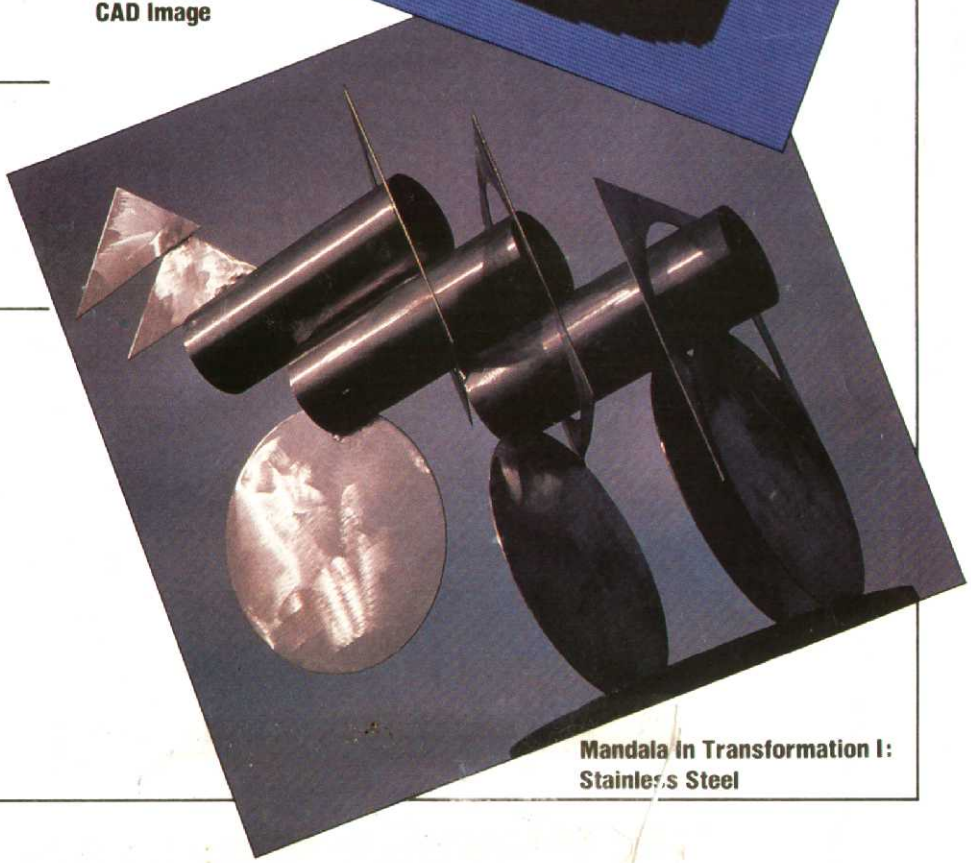
# ATARI EXPLORER

THE OFFICIAL ATARI JOURNAL

*Sculptor Jon Fordyce Tells How A 1040ST Has Changed The Way He Works*

# Pixel To Torch:
## Forging The Sculpture Of Tomorrow

Mandala In Transformation I: CAD Image



Mandala In Transformation I: Stainless Steel

**Atari Announces New Products**

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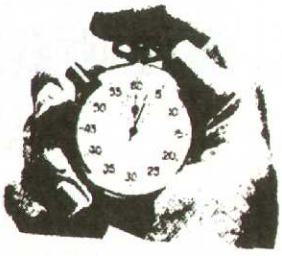

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JANUARY/FEBRUARY 1989

# ATARI EXPLORER

THE OFFICIAL ATARI JOURNAL

## PROGRAMMING



## REVIEWS



## FEATURES



## DEPARTMENTS




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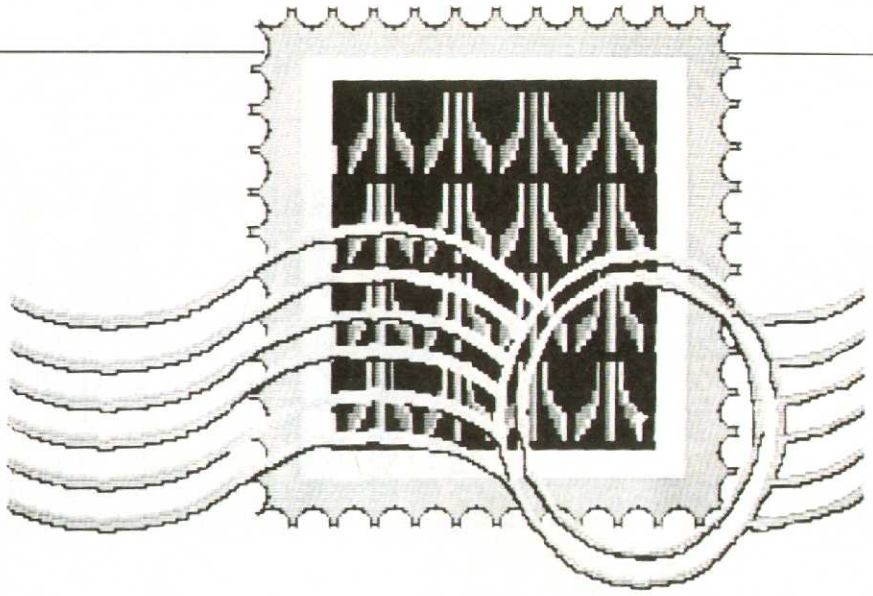

# Letters To The Editor

## Sales-Pro Plus Update

Dear Editor:

This letter is in reference to the review of our product, *Sales-Pro Plus*, which appeared in the Sept/Oct issue of your magazine. There are several minor inaccuracies in the review that we would like to clear up.

As the reviewer stated near the beginning of the review, "you better buy a hard drive." If the reviewer had used a hard drive, he would not have encountered the write-protected disk error problem he mentions. As we state several times in our manual, this program was designed to be run from a hard drive.

We are now shipping the *Sales-Pro Plus* on *two* double-sided floppy disks, which can be run as is, affording the user over 100,000 bytes of free space for data, if he absolutely must run the program from floppy disk.

The description of our cash drawer was ambiguous. We offer a high quality cash drawer, which comes complete and ready to plug into the ST serial port for $499. We no longer offer the serial adapter cable for other cash drawers. The program comes with the necessary cash drawer support software on the release disks and can be used with most electronic cash drawers that are properly interfaced for a serial port.

The next point of contention is the statement by your reviewer that our manual didn't explain the order in which the master files are to be built. I will quote the page heading of the first page of the Using the Program for the First Time section of the manual: "Set Defaults . . . Add Vendors . . . Add Inventory." Nevertheless, our program manuals have been completely rewritten and are far more organized, informative, and useful than the version used for this review.

It seems that the biggest problem with any magazine review is the amount of time that elapses between the submission of the product for review and the appearance of the review in print. A good piece of software can undergo many improvements during that time—especially when the publisher is responsive to user comments.

A few of the things that have been improved in *Sales-Pro Plus* are the error trapping system and access to the GEM interface, along with the things your mentioned briefly as v. 3.00 improvements. We are now working on v. 4.00, which runs under the new, super fast compiler called Greased Lightning and includes many more improvements than can be listed here.

In closing, we would like to thank you for your fine support of us devout ST users, developers, and enthusiasts in general, as well as everyone else who is involved in making the Atari ST a popular and useful computing tool. Keep up the good work.

Paul Musso
President
Hi-Tech Advisers
P.O. Box 7524
Winter Haven, FL 33883

## Youngest Reviewer

Dear Editor:

I am 15 years old and own a 520ST. First off, I would like to say that your magazine is the best Atari-specific publication around. The others are good, but yours is a notch above the rest.

Now that I have heaped on the praise, I'll voice my two criticisms. The first is that while you do a good job on your reviews, you are leaving a large section of ST games untouched—European software. There are many good European games, such as *Knight Orc*, *Jinxter*, *Leatherneck*, and *Universal Military Simulator*. By including some of these games, you will have a more balanced review section.

My second criticism/question is: How old is your youngest reviewer? I hope the answer is not a 34-year-old person. It would be refreshing to hear the opinion of someone my own age. I would like to see the perspective of someone other than an adult all the time.

Mark Washington
4607 Ashmore Pl.
Tampa, FL 33610

*Our review of UMS appeared in the Sept/Oct issue. At the moment, Jinxter and Leatherneck are scheduled to run in this issue. Also scheduled for this issue are Phantasm, Better Dead Than Alien, and Space Harrier, three of the most recent imports. We try to cover the games that originate overseas as soon as they become available commercially in the U.S.*

*As for the ages of our reviewers, quite frankly, we have no idea how old our reviewers are. We are an equal opportunity publisher; we require only that our reviewers be good writers and have the dedication to spend the time necessary to become thoroughly familiar with the products they review. It also helps if they can meet deadlines and follow instructions. Any of our younger readers who can meet these criteria are more than welcome to submit reviews for evaluation. If we like your work, we will soon be sending the latest (foreign and domestic) packages your way.*

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**Listing 1.**

```
;     MAZE A.I. EXAMPLE FROM
;   ATARI EXPLORER MAY/JUNE 1988
;  SHOWING THAT IT CAN BE DONE IN
;            ACTION!

;demonstrating recursive programing

INT ARRAY left=[0 2 3 4 99 6 12 1 9 10
                99 5 18 19 13 14 17
                11 99 25 99 15 99 29
                0 31 20 99 27 35 24
                32 26 34 99 36 30],
        right=[0 99 8 99 99 99 99 99
                99 99 99 99 99 7 99
                16 99 23 99 99 99 99
                99 99 99 99 99 99 22
                28 99 99 33 99 99 99
                99],
       parent=[0 7 1 2 3 11 5 13 2 8
                9 17 6 14 15 21 15 16
                12 13 26 99 28 17 30
                19 32 28 29 23 36 25
                31 32 33 29 35]

PROC set_up()
BYTE a
FOR a=1 to 36
DO
  IF left(a)=99 THEN left(a)=-1 FI
  IF right(a)=99 THEN right(a)=-1 FI
  IF parent(a)=99 THEN parent(a)=-1 FI
OD
RETURN

BYTE FUNC search(BYTE node)
BYTE n
IF left(node)=0 OR right(node)=0 THEN RETURN(node)
FI
PrintF("I am searching %B%E",node)
IF left(node)>0 THEN n=search(left(node)) RETURN(node)
FI
IF right(node)>0 THEN n=right(node)
  right(node)=-1 n=search(n) RETURN(node)
FI
DO
  node=parent(node)
  IF right(node)>0 THEN n=right(node)
    right(node)=-1 n=search(n) RETURN(node)
  FI
OD
RETURN(node)

PROC main()
BYTE b
set_up()
b=search(21)
PrintF("The EXIT is at %B%E",b)
RETURN
```

```
;    FACTORIAL A.I. EXAMPLE FROM
;    ATARI EXPLORER MAY/JUNE 1988
;   SHOWING THAT IT CAN BE DONE IN
;             ACTION!

;demonstrating recursive programing
;not good for larger than 8!

CARD FUNC factorial(BYTE n)
CARD x=[1]
IF n=0 THEN RETURN(1)
FI
DO
  IF n=0 THEN EXIT
  FI
  x==*n*(factorial(n-1))
OD
RETURN(x)

PROC main()
CARD a
a=factorial(8)
PrintCE(a)
RETURN
```

**Listing 2.**

## A Useful Department

Dear Editor:

New and Improved is an excellent and most useful department in your magazine. I learned from it that the program I use most, *Phasar*, has been updated, and that was a great service.

I hope that you can keep it up, though I can imagine that you will soon have to start making judgments as to what to include.

And speaking of inclusion, could you include *NeoChrome*? If not, could you tell me if the program has been updated since the first commercial release? I have version 1.0 and have been wondering if a new version has been released.

John E. Lindley
7296 Taranga Ct.
San Jose, CA 95139

*Atari Customer Service reports that there have been no updates of NeoChrome since the first commercial release. Your version 1.0 is the current one. And we have added the program to New and Improved in this and future issues.*

## Action And Artificial Intelligence

Dear Editor:

I bought the May/June issue of *Atari Explorer* primarily for the article on artificial intelligence. I have an application for AI with ham radio, so I read up on it every chance I get.

I was a little disappointed, however, that the examples were all for the ST. But my gloomy mood didn't last long; I went to Action to convert the factorial and maze examples for use on Atari 8-bit computers.

First, I checked the Action manual for any rules on a function or procedure calling itself. Nothing. So I undertook to discover whether it could be done. The Action listings that accompany this letter are the fruits of my weekend labor.

In the maze example, I did something a little different from the ST Basic version. If the computer comes to an intersection at which it has to go right, it changes the original data from the square to which it is going to a −1. This was the only way I could get the computer to retrace its steps from a dead end after branching right. If I fool with the program a little longer, I am sure that this step will help to "train" the computer to complete the maze in fewer moves on subsequent trips.

Now that I have completed my mission for the weekend, I can go back to *Atari Explorer* and read the other articles that caught my attention. Please, in the future, keep in mind that AI experiments can be carried out on 8-bit Ataris, too.

L. Steve Grand
113 S.W. Hall St.
Grants Pass, OR 97526

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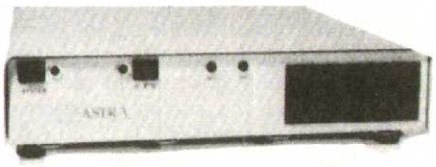

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*Computer art in China; more fake computer games; a virus conviction; high capacity floppy disks; and a new computer language*

# News & Views

**By DAVID H. AHL**

In early September 1988, the Shanghai State Art Museum in the People's Republic of China hosted a solo exhibition of 101 computer art works by Dr. Rodney Chang of Honolulu. Several of the works were produced on an Atari ST with the *Spectrum 512* software package. This was the first known display of computer art in China.

In conjunction with the exhibit, Dr. Chang presented a week-long series of workshops introducing computer graphics to artists in China.

This traveling exhibit may be seen in several other cities including Honolulu—at City Hall—in February 1989. A catalog of this historic exhibit, picturing all 101 works in color, is available for $7.95 from Creative Frontiers Publications, 377 Keahole St., No. 6-176, Honolulu, HI 96825.

### Crime Center Uses Atari ST

The National Center for Computer Crime Data (NCCCD) in Los Angeles uses an Atari ST desktop publishing system to produce reports on computer crime, security, and ethics.

The NCCCD is a non-profit research institute that studies and reports on means to facilitate the prevention, detection, investigation, and prosecution of computer crime. The Center was created to meet the need for rapid and informed response to the legal, security, accounting, moral, and technological questions posed by computer crime.

The desktop publishing system used by NCCCD includes an Atari Mega 4 with a 20Mb hard drive, SLM804 laser printer, monochrome monitor, and Timeworks *Desktop Publisher* software.

### Atari Seizes Fake Games

A team of security agents hired by Atari raided eight New York retailers and seized more than $100,000 worth of allegedly counterfeit video game products.

The raid was conducted under orders issued by a federal judge in New York after Atari presented evidence gathered during a months-long undercover investigation. Atari said the eight firms were illegally selling fake copies of its 2600 video game console, video games, and peripherals. Some of the fake products even used the same striping, lettering, and boxes as the real Atari products.

The raid was the third conducted by Atari in the past year. Previously, it seized products in Los Angeles and Singapore.

In a harsely worded statement, Atari blamed the growing problem on the Taiwanese government, saying it refused to crack down on counterfeiters. "The Taiwanese government must understand that the current practice of permitting counterfeits is criminal," said Sam Tramiel, president of Atari Corp.

Taiwanese exporters openly advertise their counterfeit Atari video games for sale overseas. So far, fake products have showed up at the retail level in Hong Kong, Australia, Saudi Arabia, Chile, Peru, Brazil, Columbia, Ecuador, and the U.S.

### First Computer Virus Conviction

A computer programmer who wiped out 168,000 payroll records as revenge for being fired by an insurance firm is believed to be the first person in the U.S. convicted for planting a computer virus.

A Tarrant County, TX, jury found 40-year-old Donald Gene Burleson guilty of harmful access to a computer, a third-degree felony with a maximum penalty of ten years in prison and a $5000 fine.

Jurors were told that Burleson planted a virus in the computer system used by USPA & IRA Co., a Fort Worth insurance and brokerage firm. The virus was programmed in the manner of a time bomb and activated itself on September 21, 1985, two days after Burleson was fired from his job as a programmer at the firm.

The virus was discovered two days later, after it had eliminated 168,000 payroll records, holding up company payroll checks for more than a month. Had the virus continued to work undetected, the firm estimates that the damage could have amounted to hundreds of thousands of dollars.

### High Capacity Floppy Disks Coming

Floppy disk drives with the capability of storing up to 100Mb of data on a single $3\frac{1}{2}$" floppy disk should become available within a few years. Currently, a 12.5Mb drive is available in Japan, and drives with 25Mb capacity have been announced for shipment in early 1989.

Two methods are being employed to increase the recording densities. The first increases linear recording density by putting more data lengthwise along each track. The second increases the number of tracks.

Increased linear densities are accomplished by using a technique called zone recording. A normal floppy disk is divided into tracks (concentric circles) and sectors (wedges shaped like pieces of pie). Tracks intersect the sectors to form arcs, each one of which holds the same amount of data whether it is a small arc near the center of the disk or a large arc near the outside. Thus, the outer sectors are being underutilized because data is packed much less densely than it is nearer the center.

Zone recording takes advantage of the extra recording area at the outer edges of the disk by defining additional recording zones. For example, a disk may be divided into nine zones at the center and as many as 20 or more zones near the outside edge. Because each zone holds the same amount of data, the capacity of the disk is increased. Of course, zone recording requires more sophisticated electronic control than simple sector recording, so the technique is inherently more complex and expensive.

The second method of increasing the number of tracks requires the recording head to be more precisely positioned on the disk surface. This can be accomplished in one of two ways. The first uses a precisely-recorded magnetic servo track, the signal from which is picked up by a special pickup mounted near the regular recording head.

A newer approach, which promises even higher track densities, adds an optical servo track, the signal from which is picked up by a special optical head in the drive. This has come to be known as a "floptical" drive. The optical system has two important advantages. First, the servo track ignores defects in the magnetic media, thus increasing reliability, and second, both the media and drive can be produced at lower cost than a purely magnetic servo or a zone recording system.

**Floppy disk drives with the capability of storing up to 100Mb of data on a single 3½" floppy disk should become available within a few years.**

### Tutorial Development Language

Carnegie-Mellon University has developed a new language that allows non-professional programmers to write programs that use windows, pulldown menus, and multi-font text. The language, called CMU Tutor, or cT for short, is nearly machine independent. It is now commercially available for the Macintosh, IBM RT PC, micro VAX, and Sun computers. Versions for the IBM PS/2 and Unix (under X/Windows) will be available later in the year.

Reminiscent of Basic, the language begins with the expectation that the user is writing general purpose programs for someone else to use. But cT goes far beyond conventional languages; for example, the input statement not only gets input from the user but it makes sure that it is the right kind of input.

According to Bruce Sherwood of CMU, "there are five things any language must do: calculate, display, sequence, analyze input, and read and write files. Where cT is especially strong is in display, sequence, and analysis."

A cT program consists of a set of root-level procedures called *units*, which can accept parameters by value or address and return a result. Units are linked with the comands NEXT and PREVIOUS; at any time, you can pull down a menu and click on PREVIOUS to review the previous unit.

Source and execution windows are always active. Because fonts and graphics can be scaled, you can see a miniature version of your execution window if you wish.

The language also has an on-line reference manual, complete with working examples that you can cut and paste into your source code and execute. ■

*The latest releases in hardware and software for Atari computers*

# New Products

## UTILITIES

**E. Arthur Brown Company** has announced *Dialog Box Constructor* for the Atari ST, a utility that allows programmers to incorporate dialog boxes, pop menus, radio button boxes, and input field boxes into GFA Basic programs. The user an specify size, shape, and any of 24 fill patterns, 16 colors, 6 fonts, and 5 font sizes. $29.95.

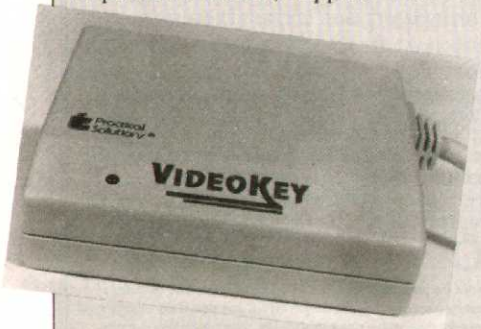
*Flexcessory* is a desktop utility manager that occupies only one accessory slot and provides 15 of its own. The program comes with replacement utilities that look and operate like their .ACC system counterparts and offers several additional ones not available in .ACC format. Included are RAM disk, print spooler, control panel, RS-232 configuration, calculators, note pad, disk utilities, VT52 emulator, and corner clock/date. $29.95.

E. Arthur Brown Company, 3404 Pawnee Dr., Alexandria, MN 56308, (612) 762-8847.

### RGB-Composite Encoder for ST

VideoKey from Practical Solutions converts the RGB signal of the Atari ST, offering composite output for connection to a VCR or composite monitor, RF output for television use, and separate audio output for amplified sound hookup. The device allows users to record ST graphics on videotape and play them back on any VCR.

Practical Solutions' Colorloc circuitry locks the color burst to the timing of the ST without requiring internal modification of the computer. In addition, a 13-pin DIN socket, supplied with VideoKey, allows RGB and composite displays to be connected simultaneously.




VideoKey offers NTSC (RS-170A) standard luma and chroma levels and is compatible with all low-resolution software. It sells for $119.95.

Also available for the ST is Drive Master, a switchbox that switches between two external (3½" and/or 5¼") floppy disk drives. It includes a 3' detachable cable and does not require a power supply. Drive Master is priced at $49.95.

Practical Solutions, 1930 E. Grant Rd., Tucson, AZ 85719, (602) 884-9612.

### All About Computer Viruses

Abacus announces the release of *Computer Viruses—A High-Tech Disease*.

The book explains what viruses are, how they work, and what can be done to protect against them. Author Ralf Burger has spent several years experimenting with and tracking down viruses in mainframe and personal computer systems. The 275-page books is priced at $18.95.

Abacus, 5730 52nd St. SE, Grand Rapids, MI 49508, (616) 698-0330.

## ENTERTAINMENT SOFTWARE

**Rainbird Software** has released *Virus* for the Atari ST. The game puts you in control of a hoverplane armed with scanners, laser cannons, and homing missiles as you seek to destroy a virus that is polluting the earth. You must defeat eight different aliens, fighting harder as gravity increases and makes gameplay more difficult. $29.95.

*SpaceCutter* for the ST offers the appeal of a traditional arcade style shoot-em-up but goes one step further, requiring you to use your logic and problem-solving skills. $29.95.

*Black Lamp*, also for the ST, is a medieval melodrama that pits the hero, Jolly Jack, against a host of animated creatures. Your mission is to find the enchanted lamps and, ultimately, the black lamp guarded by a ferocious fire-breathing dragon. Your reward is the hand of the princess Grizelda. $24.95.


Rainbird Software, P.O. Box 2227, Menlo Park, CA 94026, (415) 322-0412.

**IntelliCreations** announces *Firezone*, a single- or dual-player game for the ST based in the year 2160. Battles between the hostile Power Blocks are fought in close support campaigns called Firezones, which involve the latest propulsion systems, beam weapons, and energy shields. The game features nine campaigns of varying difficulty and length and includes a scenario generator that lets you design your own campaigns. $34.95.

*The Annals of Rome* is a strategy game that takes you from the consolidation of Rome as a state in 273 B.C., through the sacking of the city in 410 A.D., and several centuries beyond. Under your control, the Empire can exist indefinitely—or end long before it actually did. $34.95.

*The Android Decision* is an advanced strategy game that is easy to learn but difficult to master. The icon-operated battle simulator pits you against your own hostile computer. $34.95

*Sorcerer Lord* combines the plot and characters of a fantasy role-playing game with the strategy of a wargame. You keep track of movement, fatigue, sorcery, and leadership ratings as you play the three difficulty levels. The

**New Printers from Star Micronics**

Has announced two new dot matrix printers, the high-resolution 24-wire NX-2400 Multi-Font and the seven-color NX-1000 Rainbow.

The NX-2400 Multi-Font prints 170 cps in draft elite mode and 57 cps in letter-quality elite mode, and offers 360 × 360 dpi graphics resolution. It comes with a 7K buffer that can be expanded to 39K with an optional 32K RAM card.

The NX-2400 offers four resident fonts—Courier, Prestige, Orator, and Script. Three additional fonts—Letter Gothic, Blippo, and OCR B—are available through optional font cards. Italics are available in all type styles and pitches.

The NX-2400 Multi-Font sells for $529.

The NX-1000 Rainbow produces near-letter-quality text at 36 cps and high speed draft output at 144 cps. A four-color ribbon enables it to print up to seven colors—black, red, yellow, blue, orange, green, and violet.

The Rainbow offers four on-board fonts—Courier, Sans Serif, Orator I, and Orator II—which can be selected from the front control panel. It comes with a parallel interface and incorporates Epson JX-80 and IBM Proprinter II emulations.

The NX-1000 Rainbow sells for $379.

Star Micronics, 200 Park Ave., Ste. 3510, New York, NY 10166, (212) 986-6770.

game also features strategic and tactical maps and a parchment chart of the battlefields. $34.95.

*Lancelot*, which is available for both 8-bit and ST Atari computers, is a three-part saga that takes you from the foundation of the Knights of the Round Table to the quest for the Holy Grail. You guide Lancelot through his exploits at Camelot, his trials by combat, his romances with Guinevere and Elaine, and his moral dilemma for having betrayed King Arthur. The game was designed to be an accurate representation of Malory's *Le Mort D'Arthur*. ST, $39.95; 8-bit, $29.95.

*Time and Magik*, also available for both 8-bit and ST lines, is a time-travel trilogy that gives you three complete adventures in one package. Each plot can be played separately and requires you to use your wits and powers of deduction. The game offers interactive text screens and enhanced graphics. ST, $39.95; 8-bit, $29.95.

IntelliCreations, 19808 Nordhoff Pl., Chatsworth, CA 91311, (818) 886-5922.

**Epyx** has released *Topple Tower* for the ST. The action-packed 3-D maze game puts you in control of an MK-7 Mini-Sub and sends you to destroy eight mysterious rotating towers that have risen from the sea floor on the planet Nebulus. Scoring is based on the amount of time it takes you to topple a tower, the number of mistakes you make, and the number of times you are knocked all or part way down a tower. $49.95.

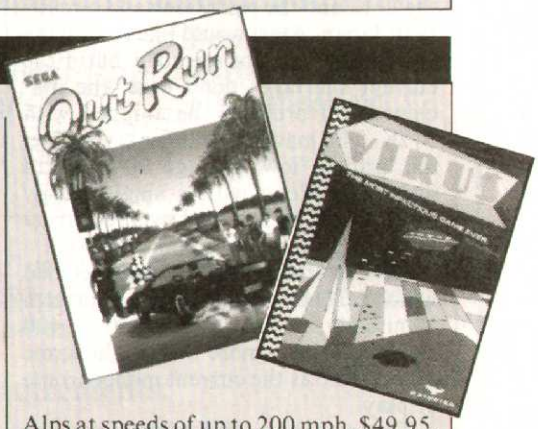
Epyx, 600 Galveston Dr., Redwood City, CA 94063, (415) 368-3200.

New from **Broderbund** is *Operation: Clean Streets*, a games that pits you against an assortment of thugs, punks, and hoodlums in an all-out effort to wipe the streets of the city clean. As Cleanup Harry, an undercover cop, you must track down criminals and overpower them in hand-to-hand and foot-to-head combat. $39.95.

*Space Racer* is a futuristic racing game with 3-D animation and graphics. Life in space has become dull, so to provide excitement for the masses, space races are held among representatives from the various planets. As the representative of Earth, you race through three alien worlds, attempting to stay alive while dodging other racers, forcing them into speed traps, and blasting them out of the sky. $19.95.

Broderbund Software, 17 Paul Dr., San Rafael, CA 94903, (415) 492-3200.

*Out Run* for the ST from **Mindscape** puts you behind the wheel of a high performance race car, driving through mossy green woods, European cities, sandy white beaches, and the Swiss




Alps at speeds of up to 200 mph. $49.95.

In *Alien Syndrome*, you must rescue your comrades, who are trapped inside an alien-infested genetic laboratory. You must destroy the evil mutants before the lab self-destructs. $49.95.

Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, (312) 480-7667.

*Warship*, a World War II tactical wargame set in the Pacific theatre, is now available for both 8-bit and ST systems from **Strategic Simulations**. The game allows you to choose from 79 classes of warships from the Allied or Japanese fleet or modify ship data to create your own battleships. You can depart from the provided scenarios and devise original maps to create any possible ship-to-ship surface engagement. $59.95.

Strategic Simulations, 1046 N. Rengstorff Ave., Mountain View, CA 94043, (415) 964-1353.

# Inside Atari

## Atari announces new products and prices; high school students win a supercomputer

By DAVID H. AHL

On a recent visit to Sunnyvale, we got a look at some of the products Atari Corp. plans to release in early to mid-1989: the TT, a 68030-based computer; a laptop version of the ST; and several high-capacity hard disk drives.

With 2Mb of main memory, the TT will run the new version of TOS, Atari's proprietary operating system, and with 4 to 6Mb, it will run Unix. Ultimately, the TT will be able to run TOS as a job under Unix, but the initial release will not include this concurrent capability.

Unlike the Mega ST machines, the TT does not have a hardware blitter chip, but instead relies on cache-resident software blitter routines. With a video shifter of 1280 × 960 pixels, the graphics are quite spectacular. The TT supports both the standard SCSI and VME buses, so Atari owners will have access to the thousands of VME boards already on the market.

The ST laptop is a multi-national effort with the design work being done in the U.K. and the packaging and circuitry in Japan. Atari would like to ship the laptop with 1Mb of memory, but if the current shortages don't ease, the machines will probably be shipped with 512K. The machine will use a slimline, low profile, low wattage 20Mb hard disk drive along with a single floppy drive. It will be powered by a rechargeable NiCad battery or standard AC.

At press time, it had not been decided which LCD display to use in the laptop. Minimally, it will display 640 × 400 pixels and have more or less the same aspect ratio as the current monochrome display.

The new hard disk drives use the same housing as the current slimline Mega File 20, but by putting one—or even two—higher capacity drives in the housing, it will be possible to achieve much higher storage capacities in the future. Initially, Atari will produce only 20 and 30Mb units.

Within 6 to 12 months, Atari will release a completely new revision of the TOS (v 1.4) operating system. The main revisions revolve around memory allocation. Among the new features are speed and window enhancements, the ability to autoboot a GEM application, the ability change drive directories in an application with the mouse (no need to type B:\), preservation of the time/date stamp by file copies, and better cleaning up after closing files.

### DOS XE Available

DOS XE is now available. The new DOS will operate with any Atari XL or XE computer and 810, 1050, or XF551 disk drive. It cannot be used with 400 and 800 computers.

According to John Skruch, director of software development for Atari, DOS XE increases disk capacity from 127K to 320K and doubles the transfer speed between computer and disk. Other features include date stamping and a hierarchical file structure. Because the system is table-driven, says Skruch, hackers who want to add custom features will find it easy to modify.

The DOS XE disk and complete owner's manual can be purchased from Atari Customer Relations (P.O. Box 61657, Sunnyvale, CA 94088, Attn: DOS XE) for $10.00 plus $3.50 for shipping and handling.

### Atari Desktop Publishing Tidbits

Atari has announced two bundled desktop publishing systems that are available at special package prices through the end of 1988 (and perhaps into 1989). The first system, which is priced at $3095, is actually more of a basic business system. It includes a Mega 2, monochrome monitor, SLM804 laser printer, and *Microsoft Write*, *LDW Power*, and VT100 terminal emulator software. The second system, priced at $4395, includes a Mega 4, monochrome monitor, SLM804 laser printer, Megafile 20 hard disk, *Timeworks Desktop Publisher ST*, and VT100 terminal emulator.

At the Seybold Desktop Publishing Conference in September, Moniterm Corp. announced the Viking 1, a 19″ high-resolution monochrome monitor for the Mega series. Ideal for desktop publishing and CAD/CAM applications, the Viking 1 shows two full facing pages of text and graphics at nearly full size.

Explaining Atari's choice of a "dumb" laser printer rather than a Postscript device, Joe Ferrari, applications software director at Atari, pointed out that "its wide bandwidth over the DMA channel means much faster transmission than is possible with a printer connected to either a serial or a parallel port."

The main advantage of a Postscript device is that type fonts and other graphics commands are built into the printer. However, as long as a high speed transmission link exists between the computer and printer, the computer can do everything that Postscript does in the printer, and then send the stream of printing bits directly to the printing mechanism.

Moreover, Atari has contracted with the Imagen Co., producers of the Ultrascript language, a Postscript clone, to produce a version for Atari. Like Display Postscript, Ultrascript is said to work with screen fonts as well as printing fonts, so the screen representation of a page is very close to the one that is printed.

Ferrari noted that people who say you need Postscript if you are going to use a phototypesetter are thinking only of the Linotronic (a phototypesetter that handles Postscript files). However, many more Compugraphic phototypesetting units are in service than Linotronics and Atari has built a prototype interface that connects an Atari Mega directly to a Compugraphic phototypesetter. No word yet on whether Atari or a third party manufacturer will build and market these interfaces.

We hear that *Publishing Partner Professional* will boast several unique features, among them fully rotatable fonts, the ability to set both font height

# The reviews are in . . .

"'A Best Buy' I'm impressed"
David H. Ahl, Atari Explorer, Nov-Dec 1987

"If you've got an Atari, you probably need this program."
Jerry Pournell, Byte Magazine, October 1987

"pc-ditto is a winner."
Charlie Young, ST World, July 1987

"This is the product we have been looking for."
Donna Wesolowski, ST Informer, August 1987

"This truly incredible software emulator really works."
Mike Gibbons, Current Notes, September 1987

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- o supports 3.5-inch 720K format and 360K single-sided formats
- o supports optional 5.25-inch 40-track drives

### System requirements:

- o IBM PC-DOS or Compaq MS-DOS version 3.2 or above recommended
- o optional 5.25-inch drive is required to use 5.25-inch disks
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and width, definable kerning pairs (decrease the space between a capital A and V, for example), and the capability to import both .GEM and .IMG image files.

We also learned that Atari's own desktop publishing software package, *Deskset 2*, will have some interesting features, including the ability to flow text around irregular objects, 16 scalable Compugraphic fonts (from 5 pt. to 119 pt.), and the ability to import and scale *NeoChrome* and *Degas* images and *Easy-Draw* object files. The downside to *Deskset 2* is that it produces only letter- and legal-size documents.

Overwhelmed by competition from *Publishing Partner*, *Desktop Publisher*, and soon-to-come *Calamus*, Spectrum Holobyte has thrown in the towel and withdrawn support for *Fleet Street Publisher*, its imported U.K. entry in the desktop publishing derby.

### Atari ST Leads in Music

At the NAMM (National Association of Music Merchants) show last summer, Atari ST computers were in evidence all over the floor.

In the Hybrid Arts booth, a $6000 Digital Audio Workstation was being shown. This device, based on the 1040ST and Hybrid Arts ADAP II analog-to-digital audio processor, is the first unit under $10,000 that can record, randomly access, and edit R-DAT (digital audio tape) format tapes. The system can transfer edited material to digital audio tape over either an analog or digital interface. The workstation handles stereo recording and playback at 31.25 kHz, 32 kHz, 44.1 kHz (compact disc), and 48 kHz (R-DAT and other digital media) sampling rates.

At the show, Atari demonstrated its CD-ROM player using two CD-ROM digital sound series discs from Optical Media International. Each disc contains thousands of sound samples; Volume 1 is a sound effects and percussion disc, while Volume 2 includes musical instruments, synthesizers, and more percussion sounds.

An excellent booklet by Howard Massey, called "Compact Guide to MIDI Software for the Atari ST," is now available. If you would like a copy, check your local music dealer or send $3.95 plus $1.00 for shipping to Music Sales Corp., 24 East 22nd St., New York, NY 10010.

Did you know? Atari ST-based MIDI systems are used to produce the sound effects for "The Cosby Show," "Dallas," and "The Dolly Parton Show." And an Atari-based system was at the heart of yet another gold record, the soundtrack album from the movie *Colors*.

### High School Programming Excellence Quest

Jefferson High School for Science and Technology in Alexandria, VA, has become the first high school to have its own supercomputer. A team of four students won the national competition, "SuperQuest: The High School Supercomputing Challenge," sponsored by ETA Systems Inc., a subsidiary of Control Data Corp. and the world's second largest maker of supercomputers. Atari Corp. contributed $25,000 worth of equipment to the program.

Jefferson High won a $1 million ETA-10-P class IV supercomputer complete with staffing and maintenance for two years. The ETA-10 uses Atari computers as intelligent terminals.

Four high school teams were selected as finalists in the SuperQuest competition. Each team was awarded a Cyber 910 workstation and an Atari desktop publishing system for their school. Team coaches were awarded Mega 2 computers, and individual team members were awarded Atari 1040ST computers. In addition to the Jefferson team, other teams represented Montgomery Blair High School, Silver Spring, MD; North Florida Christian School, Tallahassee, FL; and James Logan High School, Union City, CA.

After a seven-week programming course at ETA headquarters in St. Paul, MN, each participant had to submit a supercomputer research proposal. Suggested projects included using differential equations to analyze the strategy of Lord Nelson in the Battle of Trafalgar, analyzing the planar circular restricted three-body problem in celestial mechanics, using finite element analysis to analyze the acoustic properties of the cello, and simulating the formation of mesocyclonic tornadoes. ■

## *The new ST laptop is a multi-national effort with the design work being done in the U.K. and the packaging and circuitry in Japan.*

*"The nano-computer is great, but using the keyboard is a real problem!"*

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# Pixel To Torch: Forging The Sculpture Of Tomorrow

***A sculptor tells how a 1040ST has changed the way he works***

Until the fall of 1981, my work as a sculptor had had nothing to do with computers. For many years, I had created sculptures in cast bronze, carved wood and stone, and welded steel; I had just begun to explore the ancient craft of forging metals over an open fire forge.

Then I received a commission for a large-scale sculpture from Case Western Reserve University in Cleveland. I decided that the computer would be the subject of the work and stainless steel the medium and began to search for ways to involve the computer in the design process.

Before I had gotten very far into that process, however, I caught my first glimpse of the potential of three-dimensional computer-aided design (CAD) on an architect friend's Apple computer.

As I started to explore the challenge of incorporating my new Atari 800 in my creative process, I suspected that my art would undergo some kind of magical transformation. But I soon learned that, like the manual manipulation of traditional sculpture materials, using the computer as a vehicle of artistic expression calls for craft skills.

These computer skills, I discovered, are acquired via the software documentation that continues to be one of the major obstacles to widespread use of computers by artists. In any case, as I gained proficiency with my Atari 800, I learned that even an 8-bit machine could continue to challenge me for years.

The computer was a giant step in technology for me. The electronic 3-D images I created could be viewed from any angle, made larger or smaller, and then printed out for reference while at the forge.

**Figure 1. Grid 14 at Case Western Reserve University (12″×9″×9″).**

I was enjoying being able to suspend forms in gravity-free conceptual space. But because this new sculptural freedom allowed me to design impossible relationships between forms, reality simply would not allow my making them tangible.

I would work with the computer for a few days, then switch to the tangible steel models. By the time I reached my 14th model, I was sufficiently familiar with the software to create the essential visual concept on the screen and then move on to the forge.

I tacked up printouts of the evolving CAD form of "Grid 14" (Figure 1) near my forge, as I literally hammered out some of the more organic shapes in steel. I then took the printouts and the model to a local fabricator who cut out the separate elements, which my assistant Claude Mette and I welded together and ground one at a time.

This first experience with CAD was a tedious one, and the entire project might well have developed more quickly without it. Nevertheless, I feel that the involvement of the computer in the project added validity to the finished product, a sculpture whose theme is the computer.

### CAD 3D and the 1040ST

In May of 1987 I began researching and writing an article on small computers for *Sculpture* magazine. By that time, I had an Atari 1040ST and Antic Software's *CAD 3D 2.0*, and I once again set about designing potential tangible sculptures.

I began by using *CAD 3D* to create a 3-D visual warehouse of some of the stainless steel pieces stored in my studio (Figure 2). This initial step was really unnecessary, because I knew I could

**By JON FORDYCE**

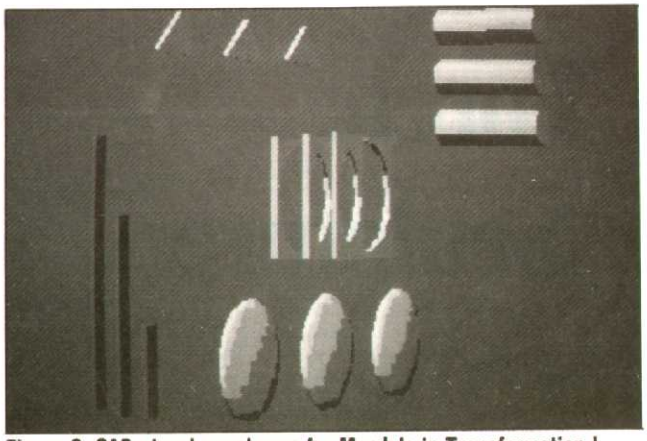


Figure 2. CAD visual warehouse for Mandala in Transformation I.

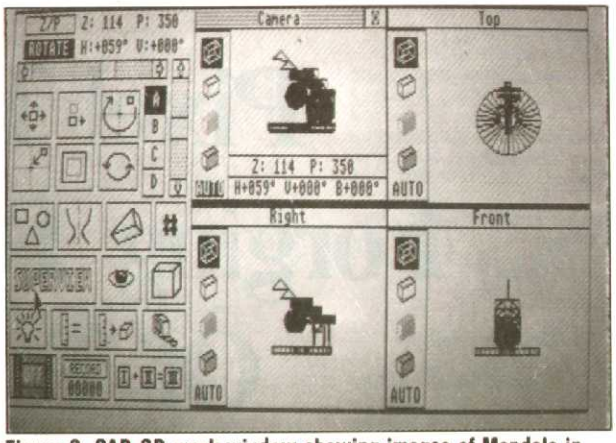



Figure 3. CAD-3D work window showing images of Mandala in Transformation I.

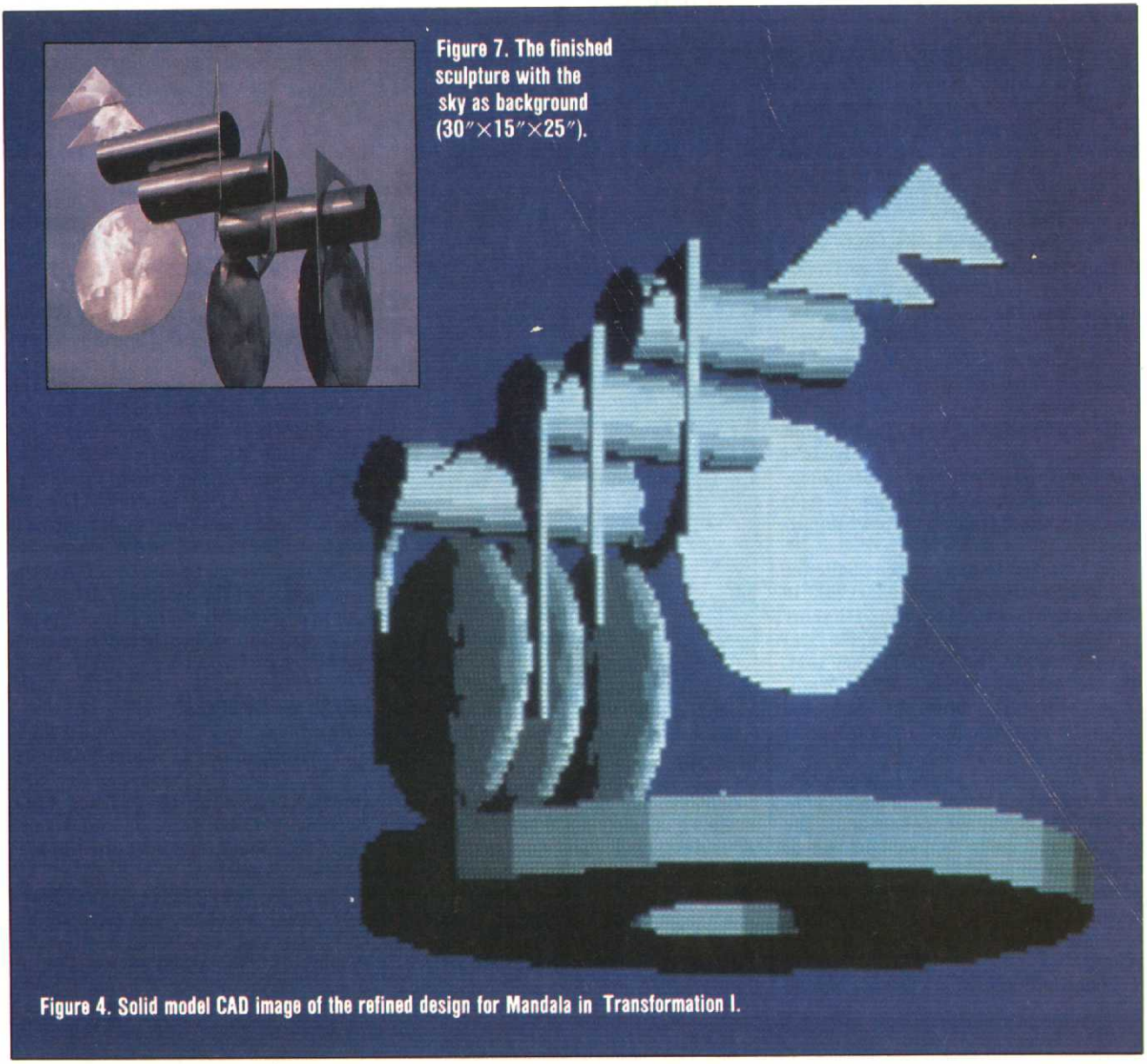


Figure 7. The finished sculpture with the sky as background (30″×15″×25″).

Figure 4. Solid model CAD image of the refined design for Mandala in Transformation I.

clone forms easily with the touch of a key, but the ability to survey my materials, much as I would in my studio, helped me to visualize and create.

Next, I created and saved several 3-D designs (Figures 3 and 4). After studying them all carefully, I decided to make the one I had named "Mandala in Transformation I."

Dot matrix printouts of numerous views—wireframe and solid—were once again tacked up on the walls of my metals studio, where they helped me to keep the pre-established design clearly in mind as I set about welding and grinding it into tangible reality.

Compared with similar works created in my normal spontaneous manner, the new sculpture developed very quickly. As I worked intensely on the piece, I began to appreciate the freedom CAD gave me to experiment; I could get a good idea of how a given combination of pieces would look without having to tack-weld them together only to have to grind the welds off to try other possibilities.

The assembly of "Mandala in Transformation I" was quite straightforward, but I found myself glancing from time to time at the other pieces of stainless that were propped against the wall of my studio. Perhaps because of my recent CAD work, I was beginning to look at these geometric shapes in a new way (Figures 5, 6, and 7).

As "Mandala in Transformation I" continued to evolve in the studio, another sculpture began to take shape in my mind. CAD-like, I imagined a visual transformation from one form into another; two solid 2-D squares would seem to flow into each other. This visualization became the theme for the frozen moment in transformation captured by my next sculpture (Figures 8 and 9).

After completing my first Atari ST CAD-inspired sculpture, I decided to work spontaneously with the physical stainless steel on the second. As I juxtaposed stainless steel shapes to create "Mandala in Transformation II, From All to All," I visualized those shapes in a CAD-like cube of definable 3-D space. I hope that this is a promising early sign that CAD is becoming as transparent a tool as a pencil for me. I am too close to it to be certain yet, but I think it is safe to say that this indirect effect of working with CAD has led to what I feel are three of my better sculptures (Figures 7, 9, and 11).

Over two decades, as my artistic style has moved from the realistic to the abstract and my chosen medium has moved from cast bronze to wood and then on to steel, I found myself relying more and more on power tools. This willingness to accept and incorporate in my work the benefits of technology was helpful in preparing me to accept the computer as a tool.

Working with a computer keyboard and mouse is very different from creating with one's muscles, forging red-hot stainless steel over an open coal fire. Learning how to blend CAD with spontaneous forging and welding continues to be a creative challenge.

I am further fascinated by the potential of computers as control devices for animated sculptures and the laser beams that create holograms. As I consider the enormous potential of computers in my work, I feel as if I am somehow reaching back to one of the most ancient of crafts with one hand while reaching into the future with the other.

### The Promise of Paint Software

While doing my earlier work with the Atari 800, I learned that 3-D images can be saved as two-dimensional image files, which can, in turn, be loaded into a variety of paint packages. I would create and save a wireframe view, then load it into *Micro Painter*. In this way I could simulate the appearance of solid modeling in my sculptural forms (Figure 12).

When printed out, the colors in these painted images appeared as a variety of gray tones. To restore the color to my images, I decided to try colored ribbons, but I soon discovered that all of the commercially available ribbons were unacceptable because their colors faded when exposed to direct sunlight.

An extensive search led me to Aspen Ribbons (555 Aspen Ridge Dr., Lafayette, CO 80026, (800) 525-0646), a company that makes printer ribbons designed to print on the plastic labels attached to plants in nurseries. The ink is formulated to resist rain and sun, so the colors hold up much better.

With the new ribbons, I developed a color print process for my Gemini 10X dot matrix printer. The prints are composed of two layers of plastic; the top layer looks like a vellum, and the bottom

**Figure 5. Stainless steel elements for Mandala of Transformation I in the welding studio.**

**Figure 6. The author's assistant, Mike Muha, holds the final piece to complete assembly of the stainless steel sculpture.**

**Figure 8. Solid model CAD image of Mandala in Transformation II.**



**Figure 9. Completed Mandala in Transformation II in stainless steel (32″×31″×10″).**



**Figure 10. Solid model CAD image of a model for a monumental scale sculpture titled Caregiver.**

layer is a white opaque plastic. A positive print and a negative print of the same view of a CAD form in a contrasting color are registered on top of each other. The resulting image actually has a 3-D quality (Figure 13).

Three such prints, along with the forged maquette or model of "Grid 14" have been on a three-year tour of art museums as a part of The Computer and The Artist II, a show organized by the Louisville Art Gallery.

Obviously, this same process can be employed using one of the many excellent paint packages currently available for the Atari ST. At the moment, I am most impressed with *Spectrum 512*, which offers many of the capabilities and features found in the most advanced and expensive software on the market for much larger computer graphics workstations.

### Animation Software

Using the Cyber series, I have devised two ways to create CAD organic forms. The first method uses the male and female skeletons on the Human Design disk that is part of the series. Each bone or selected set of bones can be stretched, compressed, duplicated, and scaled, leading to endless combinations and marvelous new creatures. The forms I create in this way can then be merged with other 3-D images and spun or extruded in whatever way strikes my fancy at the moment.

Using a second, related process I build figures with the Lathe and Extrude features of *CAD 3D*. Then, if I want to add clothing or hair, I save one view and load it into a paint or animation program and paint in the desired details.

Now, a sculptor can use animation

**Figure 11. Stainless steel model for Caregiver.**

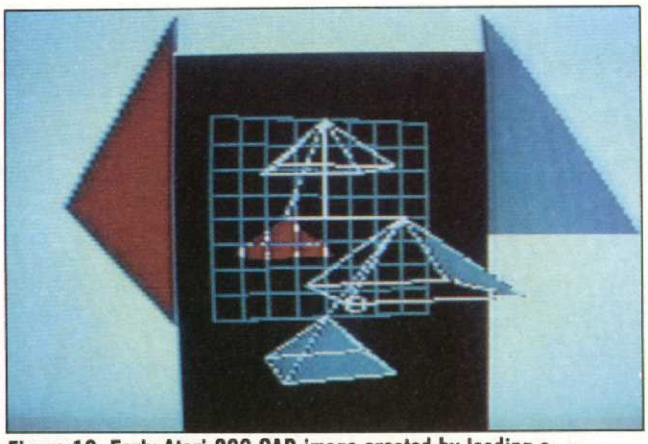


**Figure 12. Early Atari 800 CAD image created by loading a wireframe image into MicroPainter.**

**Figure 13. Grid 17 (34″×30″×2″).**

software to take a client on a real-time animated tour around or through a model; the presentation is no longer limited to a single view. With the help of Antic's new *Cyber Texture* software, presentations can be further enhanced by the sculptor's ability to wrap digitized textures and patterns around the surfaces of 3-D CAD models, taking my painted-on clothes one step further.

The potential for creativity using animation software in sculpture is limited only by the memory of the computer on which the software runs; like all programs that perform complex tasks, animation software requires a great deal of memory. For example, animations of longer than 20 seconds will probably require more than the 1Mb of memory offered by a standard 1040ST.

### Digitization

Another hi-tech tool that has changed the way I work is the video cassette recorder and camera combination. I can now make a videotape of a selected sculpture site and use it as a background for a still or animated presentation to give the patron a clear idea of how the finished work will look *in situ*.

I have also learned to use digitized images created with ComputerEyes to add new life and variety to my work. Among the variations I have produced with digitized images are the following:

- Freely mixing reality with CAD fantasy (Figure 14).
- Altering the sculpture image in 2-D paint software. Specifically, I can simulate new surface textures, make design changes or additions to the surface of a given view of the 3-D CAD model, or quickly sketch additions and deletions to a given view of an individual element of the sculpture.
- Adjusting the color, color value, and image contrast or brightness of a newly captured image, using the slider controls in ComputerEyes and *Digi-Spec*.
- Loading digitized views of potential sculpture sites into *CAD 3D* to use as backgrounds to help me better visualize a CAD-designed sculpture in its final location.
- Making the CAD sculpture model appear larger or smaller to help me and the client visualize various scales for the sculpture relative to the constant size of the digitized image of the final environment.
- Using digitized sequences of existing sculptures or sequential views of CAD models to create animations that the viewer on a tour around or through the sculpture (Figure 15).

**Figure 14. An image created by mixing reality (the author's face) with fantasy figures.**

**Figure 15. Grasp for Life created from an animation of a forged stainless steel sculpture.**

### 3-D Glasses

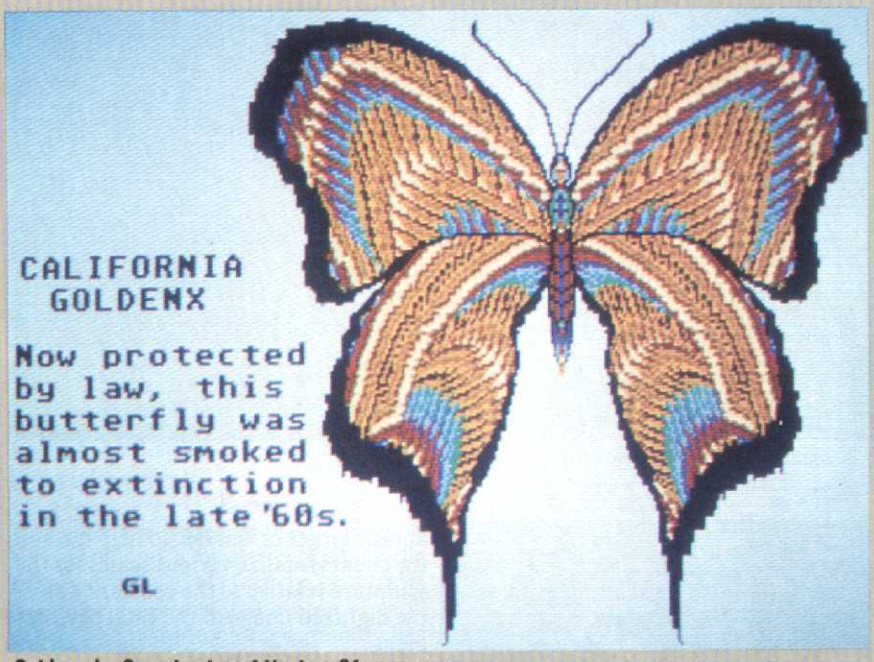
The StereoTek LCD 3-D glasses create so convincing an illusion that a friend, who is a professor of mathematics, reached out to grab one of my CAD sculpture models when he first tried them on.

The glasses give the sculptor significant help in visualizing 3-D CAD sculptural forms as he develops them. They are also very effective in demonstrations for clients. In fact, they come very close to simulating a hologram of the model.

For those who want actual holograms, Advanced Dimensional Display of Van Nuys, CA, is currently developing techniques to generate holograms directly from *CAD 3D* image files.

### Summary

Computers will change how sculpture is made and influence how it looks in the 21st century. The creative options that computers provide—from initial conception to model presentation—are only beginning to be understood and explored by open-minded artists. As more fertile artistic minds take advantage of technology and as that technology becomes even more capable and complex, we will see the evolution of styles and techniques that now exist only in our dreams. ■




Goldenx by Gene Levine of Venice, CA.

With 62 entries submitted to Graphics Galley this issue, it was extremely difficult to choose just ten winners. However, choose we did, and the images you see reproduced on these pages are the best of the lot. The top winner was Gene Levine who submitted several marvelous animated fantasy butterflies.

Several people have suggested that we permit images in Graphics Gallery to be created by any ST art package. That's fine with us, but please convert your images to *NeoChrome*, *Degas*, or Tiny format when you submit them. Also, we encourage entrants not to submit a disk full of eight or ten images; *you* should make the initial cut down to your one or two best. I won't name names, but in this month's crop of entries, we got two disks containing seven or eight images, most of which were just not worth our time to consider.

That said, we invite you to enter our

Two Monitors by Tuan Nguyen of Fairfax, VA.

Mountain Scene by Michael Maguire of Exton, PA.

Comics by Ryan Slemko of Lethbridge, AB.

Apache Gunship by Todd Labonte of Hampton, NH.

Pinnochio by Denny Tate of Moses Lake, WA.

Pegasus by Scott Lapham of Chantilly, VA.

# Graphics Gallery

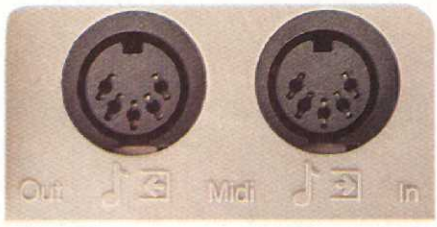
ongoing contest, but *please abide by the rules below.*

- Submit your image on disk in *NeoChrome*, *Degas*, or Tiny format. Print your name and address on the disk.
- Include a self-addressed, stamped envelope (preferably #10 size) with 45 cents postage for the return of your disk. We will return your disk with *ten new images.*
- Include on an 8½″×11″ sheet of paper your name and address, the file names of your images, and the following statement: "I certify that the image(s) submitted is (are) my own personal work and that no portion was copied from any image belonging to another person or organization or from copyrighted printed or video material. I give *Atari Explorer* the right to print my image(s), use it (them) in promotional material, and/or distribute it (them) via telecommunications service or BBS.
- Winners will receive a subscription to *Atari Explorer*. If you are a already a subscriber, include an address label or copy so we can extend the correct subscription if you win. ■

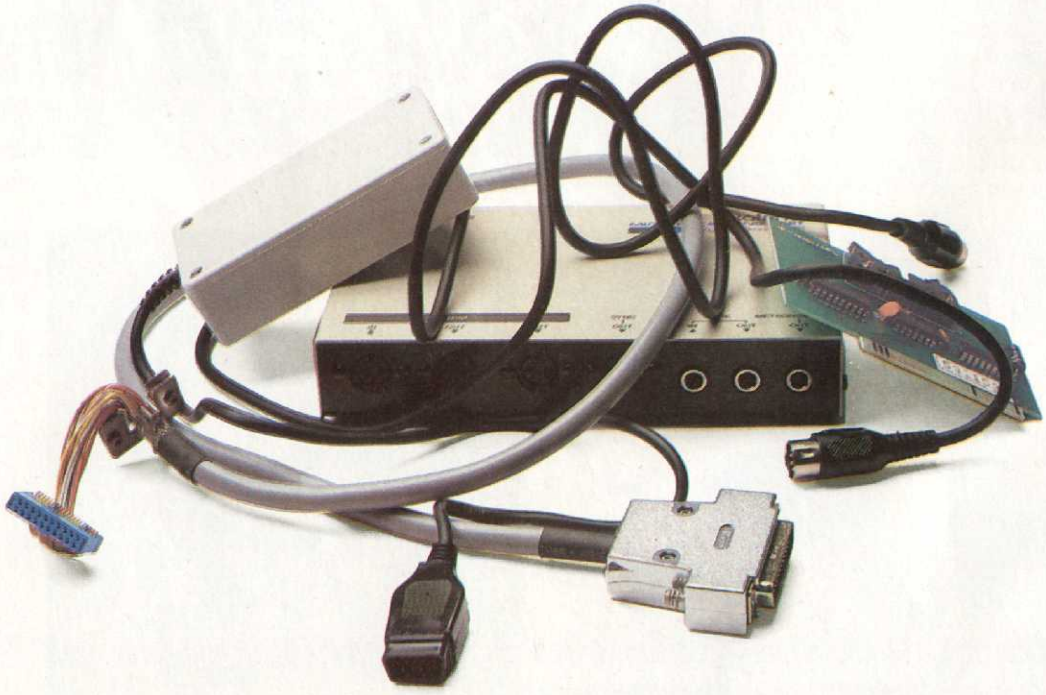
Hawked by Rodney Chang of Honolulu, HI.

Rick by Joanne Lobeski-Snyder of Redding, CA.

USS Constitution by David Thurman of El Paso, TX.




# THE DIFFERENCE BETWEEN A COMPUTER THAT MAKES MUSIC, AND ONE THAT MAKES TROUBLE.



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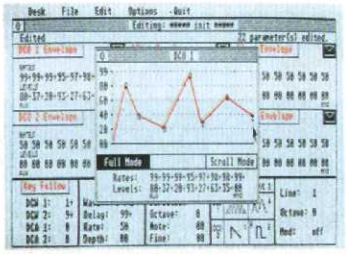

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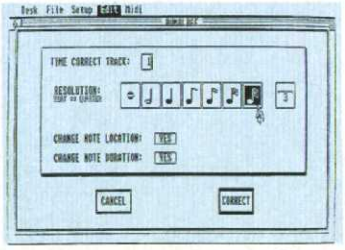


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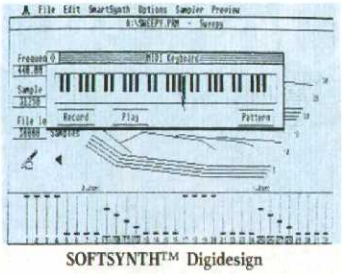

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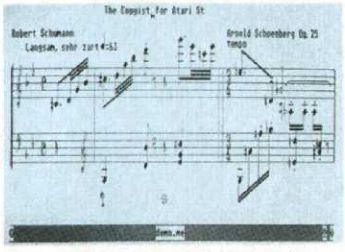

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*On the road with Tangerine Dream and the Atari ST*

# Optical Race

Putting MIDI ports on the Atari ST may have been one of the most visionary moves Atari's engineers have ever made. MIDI, short for Musical Instrument Digital Interface, is a hardware and software standard designed to let computers and electronic instruments communicate with one another. And communicate they do—in recording studios, post-production houses, music schools, and living rooms—wherever people are making music for a living or just for fun, computers, especially Atari computers, are joining in.

That the Atari ST is the only general-purpose computer available that comes with MIDI ports built-in is only part of the what makes it such a great music machine. The GEM graphic user interface is a big plus. More than just making the Atari easy to use—an important point when one considers that no matter how motivated they are to learn, most musicians have little or no computer experience—GEM lets programmers create on the computer screen "virtual tools" that mimic the tape recorders and studio equipment musicians already know how to use.

Nor is the vast memory of the ST or the power of its 68000 chip wasted in the demanding tasks of realtime instrument control and studio network management. Finally, the price of the ST puts it within the reach of the average working musician—you don't have to be a rock star to own one.

Over the past two years, these facts have conspired to make the Atari ST one of the most popular computer systems in the music market and to make the music market one of Atari's most important new profit centers. Formerly in the hands of Atari's Strategic Marketing Division, the job of "getting the

**By JOHN JAINSCHIGG**

word out on MIDI" is now considered so important that Atari has created a new post to handle the job full-time.

### New Emphasis on Music Marketing

Frank Foster, formerly president of the Los Angeles music software and hardware firm, Hybrid Arts, is Atari's new music marketing director. "Years ago, back when the ST was first released, I began pushing Atari to make the most of marketing its music capabilities." Frank says.

"Now I'm in a position to make that really happen. We're making terrific inroads with music dealers. You'll find Atari computers in music stores all over the country now, and we have a newsletter, "MIDI Notes," going to dealers all across the country.

"Several co-marketing projects are underway, notably the Atari/Yamaha MIDI Home Music System, which includes an ST, a Yamaha keyboard, and software for composing, recording, and multi-track, tapeless playback, all for under $1000. It is being marketed through music dealers and the Lechmere and Federated retail chains. And the corporation is actively pursuing opportunities to sponsor and help promote concert tours by bands heavily into Atari equipment."

Thus it was that last August, newspapers across the U.S. and as far north as Toronto carried ads replete with Atari's logo, announcing Tangerine Dream's upcoming "Optical Race" tour. Tangerine Dream—for those readers who don't immediately recognize the name—is far and away the oldest and most influential electronic music band in the world.

### The Dream Becomes Reality

The Dream was founded in 1967 by Edgar Froese, a West German pianist who had worked with the surrealist painter Salvador Dali. Froese was interested in exploring new sonic textures and technologies and new styles of composition and performance.

From roots planted by their first album, "Electronic Meditation" (1970), Tangerine Dream went on to pioneer and define the European synthesizer sound. In doing so, they laid the stylistic groundwork for much of what synthetic music is today—from the sharp, clavinet effects of a Jan Hammer "Miami Vice" soundtrack to the space music of Jean-Michel Jarre and Vangelis.

Twenty-nine albums with the group, nine by Froese alone, plus the soundtracks for such influential films as "Thief" (1980), "Risky Business" (1983), "Legend" (1985), and "Near Dark" (1987) have established Tangerine Dream as a major musical force underlying, hence cutting across the boundaries normally separating rock, modern classical, fusion, and what (for want of a better word that doesn't imply an excessive fondness for granola products and pyramidal crystals) might be called "New Age" music.

### The Concert

You mean *these* guys use Atari computers? Indeed they do, both in the studio and on the road. I had the opportunity to check out Tangerine Dream's stage set-up while attending their September 7th concert at New York's Radio City Music Hall. The giant aluminum pillars, structural steel risers, smoke generators, synchronized lights, and bank upon bank of synthesizer gear were about what I expected. What floored me, though, was the number of STs—two Mega-2's for each member of the three-man ensemble, six in all—little monochrome screens glowing amid the sturm und drang.

Remember in "Star Wars II," when the rebel forces were plotting the overthrow of the Death Star, using a computer-generated, 3-D image of the battle station to plan their moves? Didn't tears come to your eyes when you saw that incredibly detailed image turning freely in imaginary space? Didn't you get the feeling that all was right with the world, and that computers would, indeed, save us all? Seeing all those STs on stage with Tangerine Dream made me feel like that. As if I was at the right place at the right time in history and that NEAT STUFF was just down the road.

I can't describe Optical Race, or the concert, in standard reviewer fashion. Doing so would involve writing phrases like "multi-textured soundscapes," and "a rush of colliding and intertwining melodies"—phrases that set my teeth to tingling in my head. So I'll put it another way. If you like playing adventure games, you'll like this music. If you like skindiving over coral reefs, you'll love this music. If you like practicing Zen archery at dawn on a snow-capped plateau in the Himalayas, you probably already own the album. If you don't, get it.

One thing I *can* tell you about the music is that there ain't no three guys in the *world* who can produce *that* much music, live, all by themselves—and as far as I could see, nobody onstage was even breaking a sweat.

### The Leading Edge of Technology

How did they do it? Computer-assist, of course. After the concert, I had a chance to talk with Paul Haslinger, who joined the band in 1986 for the album

***"We use STs for almost everything—sequencing, patch creation, and storage, as well as text-editing and other conventional computer things."***

**Tangerine Dream: Edgar Froese, Paul Haslinger, Ralf Wadephul.**

"Underwater Sunlight." Haslinger was only eight years old when "Electronic Meditation" was recorded. A child of the computer age, he has become Tangerine Dream's local expert on computer technology—especially ST technology.

"Tangerine Dream has to keep up its reputation as being right on the leading edge of technological developments," Haslinger said. "And I try to keep up with what's going on, especially with computers. I joined the group in '86, just about the same time as the ST was beginning to really get popular in West Germany [the GDR remains an important international market for Atari].

"A company based in Hamburg, Steinberg software, was in the process of developing a very powerful sequencing system for the ST [a sequencer is a program or hardware unit that can "record" sequences of notes from an electronic instrument, then control the instrument directly to play back the sequences on command] and wanted us to take a look at it. We ended up making a lot of suggestions, and the programmer, Werner Kracht, took almost all of them.

"It ended up that the band had a lot of input into the design of this software; so, in effect, when we use the program, it's as if we had our "dream sequencer"—perfectly matched to our specifications.

"That's how we started using STs. Now, of course, we use them for almost everything—sequencing, patch creation ["patch" is a term used to describe a distinct synthesizer tonality—one of many that can be created by modifying the waveforms, filtration, and other components used to generate sound], and storage, as well as text-editing and other conventional computer things."

Asked how the Dream was able to make so much music—virtually duplicating their studio sound onstage—Haslinger replied avidly, "It's really very simple. Each musician has two ST computers, one of which is used for sequencing, the other for patch storage and downloading. The computers, together with the musician's favorite MIDI keyboard controller [a keyboard controller is, in effect, a piano keyboard that has been rigged to drive a synthesizer via MIDI signals—the advantage being that a single keyboard can be used to control a multitude of synthesizer equipment], comprise a workstation, and there are three workstations onstage.

"The workstations are plugged into a matrix, which drives the synthesizer modules. All the workstations are synchronized from a single, stagewide SMPTE clock source [SMPTE (Society of Motion Picture and Television Engineers) is a timing standard used in music, film, and video]. The workstation that begins a particular song cues the sequences for that song on all the other workstations, so everything stays together."

In effect, the computers are driving—either directly or indirectly—most of the sound-producing apparatus on stage. The individual performer is simply required to play his own lines and cue the machines to reinforce them in prearranged fashion.

A human-computer ensemble? Not such a funny idea, at all, though Haslinger himself admitted to mild amusement at one point in the concert, when the members of the band sat back and let one of the STs take an extended drum solo, just like a human player.

***The computers are driving—either directly or indirectly—most of the sound-producing apparatus on stage.***

### The Role of Technology

"Computers have to be viewed in a complete social-cultural context," he says. "For the composer, the computer replaces paper and all the difficult work of copying and transcription. It lets us take notes, store ideas, and keep data organized. Using computers, we can combine the roles of composer, instrumentalist, and recording engineer—seeing a musical piece through virtually to the point where it's recorded.

"But it's important to understand that the computer really isn't doing anything but helping to control the flow of information. It isn't composing or really performing, but just helping us realize musical ideas in an efficient way. A lot of people at the concerts were surprised when I told them that the lights, which appeared synchronized with the performance, were actually driven manually by a pair of technicians. Within a year, we hope to implement performance MIDI software by a programmer named Hal Tipper that will pull the whole stage show together and let us control the whole thing with our computers."

Even now, the Tangerine Dream stage show functions with seamless efficiency. Only two engineers—one full-time, one part-time—are required to manage the act, and full setup takes only two hours, though Haslinger reports that the complex self-test procedures can take longer.

"We've found that the STs are quite reliable on the road, though we're eager for two developments: in integral hard disk drive for the Megas and, of course, a truly portable laptop ST. We carried eight STs with us on tour—more than 26 dates—and only two of them failed at one time or another.

"In fact, our funniest system reliability problem reflected very well on the STs. At the Toronto gig, the hall had no air conditioning. Our instruments, being mostly European models, run off 220 volts, thus they require a transformer. The STs, of course, run off 120 volts. Ten minutes before the end of the show, the 220 volt transformer failed, and we were left soundless. But everyone in the audience, including a whole delegation from Atari Canada, could see that the STs were still working!"

Haslinger's studio setup differs from his stage system in only one major respect. You guessed it: more computing power in the studio! "In the studio, I prefer using three STs—one with composing software and other modules, loaded under the Steinberg "switcher"; one as a sound coordinator; and one for sampler editing [a sampler is a musical instrument that derives its sound from digitally-recorded samples of real-world, or synthesized sounds]. We use 1040's, Mega 2's, and Mega 4's."

Critics of the use of computers in the arts often suggest that artists become overly dependent on the electronics and lose touch with their own skills. The computer thus comes to define the art produced as much as, if not more than, the artist who nominally creates it. Asked about this, Haslinger replied optimistically.

"There's no way around it. The computer is not a miracle, but in many ways it is the instrument of today. Every idea of changing things is good and necessary in some sense, and the way computers are changing music—and they way they're changing society—is no exception." ■

*Editor's note: Tangerine Dream's latest album, "Optical Race," is on the Private Music label. (Private Music, 220 East 23rd St., New York, NY 10010).*

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# WordUp

## *Neocept offers a competent WYSIWIG word processor with GDOS font capabilities*

For as long as I have owned my 520 ST, I have been disappointed by the word processing packages that various publishers have offered for the machine. Some of them are so slow they seem to have no respect for even the average typist. Others are just basic text editors that fail to take advantage of the power of the 68000.

My requirements for a word processor are pretty basic: keyboard commands, automatic formatting, and WYSIWIG display at a reasonable price. I really don't care about creating 100-page documents, extensive header and footer capabilities, or even graphics. I just want something I can lay my fingers on and keep them on—something that will let me write letters, reports, and an occasional article without chasing my mouse all over an already-too-cluttered desktop.

I recently found everything I was looking for—and more—in *WordUp*, a WYSIWIG word processor with GDOS font support and graphics importing capabilities. It is a very powerful and well-thought-out package that bridges the gap between word processing and desktop publishing at a very reasonable price.

### Installation

*WordUp* comes on three disks, which hold the program, GDOS, and other support files. The program is not copy-protected and can be installed on a hard disk or kept on one or two working floppies, depending on the number and size of the fonts you want to use.

The working system includes GDOS.PRG in an \AUTO folder, a font folder called GDOS.SYS, a file called ASSIGN.SYS, which loads the desired fonts into memory when *WordUp* is loaded, and the *WordUp* program itself. An installation program is included to make system setup easy. The documentation clearly describes how to install and customize the system.

*WordUp* is partially modular and seems to require some disk workspace for graphics and print formatting, so a bit of disk-swapping is required to use the program on a single-drive system. Using a RAM disk as a work disk while leaving *WordUp* in the disk drive is possible but problematic—the program crashes if it runs out of RAM disk space. Though I have not tested it, it seems reasonable to assume that the program may also crash upon filling up a standard floppy. Hmmm.

**WordUp**

**System:** Atari ST

**Version reviewed:** 1.00 (7/1/88)

**Copy protection:** None

**Summary:** Powerful WYSIWYG word processor with GDOS font capabilities

**Price:** $79.95

**Manufacturer:**
Neocept, Inc.
547 Constitution Ave., Unit A
Camarillo, CA 91630
(805) 482-4446

### Using the Program

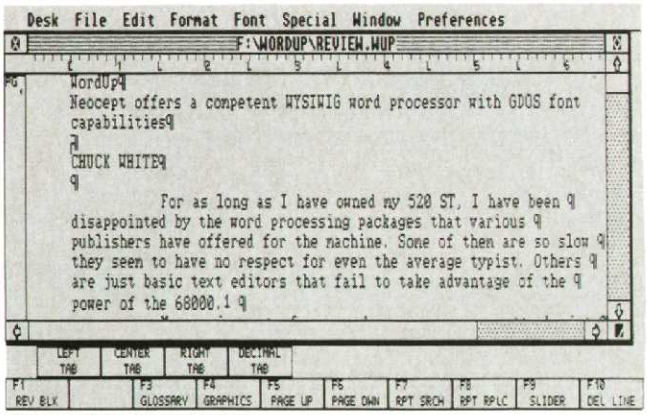
*WordUp* is distinctly a GEM application, employing the familiar windows and pulldown menus to permit easy mouse control of its myriad functions. Users impatient with the mouse, however, will be pleased to note that every menu item can also be activated from the keyboard, usually by pressing a single key in combination with Alternate or Control. Even functions that normally require the use of the mouse, such as switching from one active document window to another (*WordUp* allows you to edit up to four documents, simultaneously) are possible via the keyboard (and in this case, via menu as well). This continuity of commands makes for fast access to features, once you learn your way around.

The program automatically word wraps, justifies, and formats as you type; there is no need to request reformatting each time you edit a line. Simple cursor movement is done with the mouse or arrow keys; larger movements (by word or sentence, for example) by pressing the Control, Shift, or Alternate key in conjunction with an arrow key, making navigation fairly rapid.

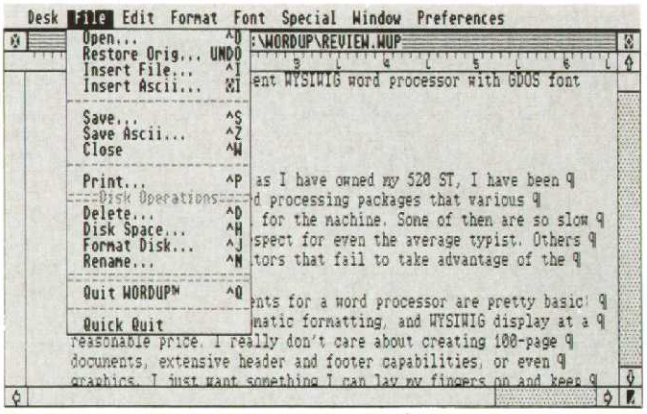
The text cursor sometimes leaves bits of itself behind as it moves through your text, which is a minor annoyance even though these marks disappear when the screen is updated or scrolled. *WordUp* supports the usual delete-character-to-left (Backspace) and delete-character-to-right (Delete) commands, plus text-editory delete-to-end-of-line and delete-to-beginning-of-line key combinations. Strangely, however, a delete-word command is omitted. Famine in the midst of plenty?

Either mouse or keyboard may be used to mark blocks of text for cutting, copying, or deletion. Marking a block with the mouse is straightforward, following the Macintosh model: you click and hold on the beginning of the block, drag a highlighted area around until it

**By CHUCK WHITE**




**The WordUp work window.**




**The File menu offers a variety of file-related options.**

precisely covers the text you wish to operate on, then release the mouse button to mark the end point.

Using the keyboard is similar: you move the text cursor to the beginning of the block, mark it by pressing a key combination or by selecting Block Start from the menu, then move the cursor to the end and mark that in similar fashion. Oddly, however, the text cursor does not drag a highlight as it moves. Text is only highlighted once the block is fully marked, making it difficult to keep track of edits in certain circumstances.

### Formatting

Left, center, and full justification are available, and the margins, line spacing, and page size are all easily adjusted. Margins are set in inches only, though line spacing is set in printer's *points* (72 to the inch) and may be varied from paragraph-to-paragraph or section-to-section, permitting the creation of handsome and readable documents using different type sizes.

A ruler at the top of the window is used to set tabs and indents. Left, center, right, and decimal tabs can be set using the ruler. A decimal tab defines a point at which subsequent decimal points will line up. This is useful for lining up columns of numbers.

Most formatting options (margins, etc.) can be assigned to the current paragraph, to an arbitrary *section* of text, or to the entire document. Setting document-wide options can be troublesome, because they cannot always conveniently be overridden. For example, if you set document-wide margins to $5\frac{1}{2}$", it is impossible to broaden them by half an inch to create a single, negatively-indented paragraph in the middle of the document.

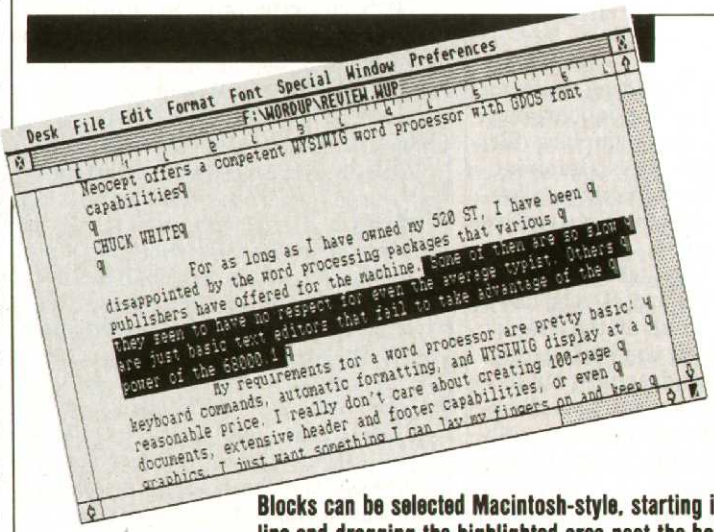
### Fonts

Having a wide variety of fonts in different sizes is really fun. You can use the standard text enhancements such as bold and underlined, as well as strikethrough and double-underlined, with every font, yielding a seeming limitless array of text styles. It is easy to get carried away, using lots of different fonts all over the page, but this makes for a very busy and unprofessional-looking document.

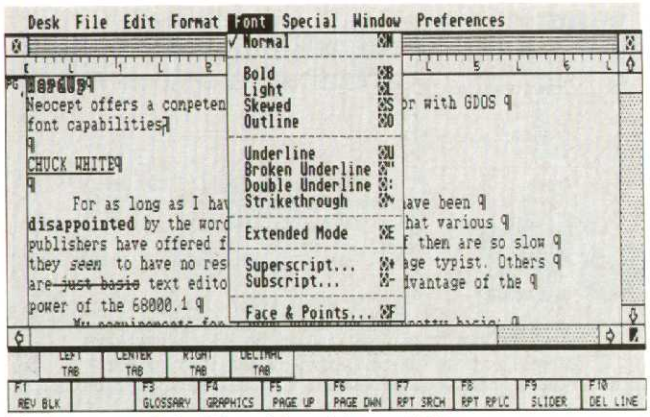
Three fonts—Typewriter, Dutch, and Swiss—are supplied with *WordUp*, and other fonts are readily available from Atari and other sources. A companion program, *Fontz*, provides more fonts and adds font-editing capabilities to the *WordUp* system. The *Fontz* package also includes a program to convert Macintosh, Amiga, *Degas*, and Hippo fonts to work with GDOS (see sidebar).

To preserve full WYSIWYG continuity between display and printout, GDOS requires that both a screen and a printer version of each font be present on your system. If you are using several different sizes of type, fonts can con-

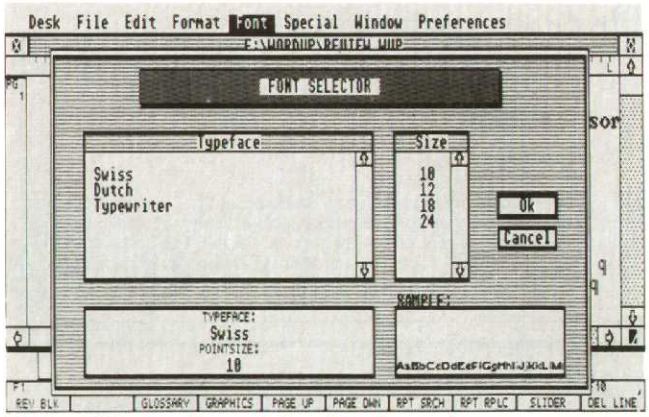
***WordUp is a very powerful and well-thought-out package that bridges the gap between word processing and desktop publishing at a very reasonable price.***




**Blocks can be selected Macintosh-style, starting in the middle of a line and dragging the highlighted area past the bottom of the current window if necessary.**




**The Font menu lists different typestyles available.**




**The Font Selector offers a choice of typeface and size.**

sume an enormous amount of memory and disk space.

I have four different fonts in various sizes—a total of 16 different type styles—installed on my system. This is not too much for 1Mb of RAM (depending, of course, on the size of documents you intend to edit, number and size of accessories installed, etc.). However, the *WordUp* install utility, seeing my single-sided disk drives, wouldn't permit even this many fonts to be installed on my working disks.

Getting around the problem involved copying the additional fonts into the \GDOS.SYS folder by hand, then editing ASSIGN.SYS to make them load. Note that it is impossible, moreover, to load and unload fonts from memory once the program is running. *WordUp* does not indicate how much memory is being employed either by documents or by memory-resident fonts, which may cause trouble on tightly-packed systems.

### Graphics

*WordUp* allows importing of *Degas* high-resolution (.PI3 monochrome), *Neochrome*, and .IMG graphics files into your documents. Text is automatically wrapped around graphics, allowing you to create attractive, magazine-like document formats.

This is great, except when you try to add a graphic to the end of your document. Then only part of the graphic becomes visible until you add carriage returns to "pad" the document out past the bottom of the image. This disappearing graphic problem occasionally affects graphics within the body of a document as well.

Once a graphic has been imported, clicking on it with the mouse surrounds it with a control window. Within the window, the image can be resized and rescaled, and portions can be cut and pasted elsewhere. The scaling functions, used to restore the original aspect ratio of an image after resizing, do not always seem to work correctly on screen. They often seem to magnify an image so that detail is lost. Even though the screen image may be disrupted, however, the final printout will contain all the detail it should.

### Printing

*WordUp* supports a wide variety of 9- and 24-pin dot matrix printers as well as the Atari SLM804 Laser Printer. Printouts can be either graphic or ASCII. Graphic printing takes advantage of all the type styles and graphics, and commands excellent print quality even on a dot matrix printer, but it is very slow on all but the fastest dot matrix and laser units. ASCII print provides rapid document output, sans graphics and formatting—useful for checking content but not much else. Near-letter-quality printing is not available in ASCII mode, unless your printer can be hardware-switched to provide it automatically.

### Other Features and Some Criticisms

Many other features are included in *WordUp*. There is a mail merge feature, which I confess I have not tried. There is

# Fontz!

*Fontz* is a GEM font editor/converter program, which can be used in conjunction with *WordUp* or any other program that uses GEM fonts. It comes on a single-sided disk and is not copy protected. Several font files are included with the program along with GDOS.

### Editing

*Fontz* displays the complete character set for the current font in a small window at the top of the screen. As each character is edited, it is displayed on a grid in the main window. Menus provide for pixel-by-pixel drawing, line drawing, arcs, circles, boxes, etc. A buffer allows you to store the entire character or portions of a character temporarily.

The current character can be rotated, shifted, flipped, or reversed. The Undo key allows recovery from most edit operations. The more complex editing features display message boxes which remind you how to use them, and then disappear.

A font can be rescaled to any point size or scaled for another GEM device, such as a printer or different screen resolution. This makes creation of all the necessary font files easy. The manual thoroughly de-

**Fontz**

**System:** Atari ST

**Copy protection:** None

**Summary:** Useful GEM font editor/converter

**Price:** $34.95

**Manufacturer:**
Neocept, Inc.
547 Constitution Ave., Unit A
Camarillo, CA 91630
(805) 482-4446

# WordUp

## Neocept offers a competent WYSIWIG word processor with GDOS font capabilities

CHUCK WHITE

For as long as I have owned my *520 ST* , I have been **disappointed** by the word processing packages that various publishers have offered for the machine. Some of them are so bad they seem to have no respect for even the average typist. They are just basic text editors that fail to take advantage of the power of the 68000.1

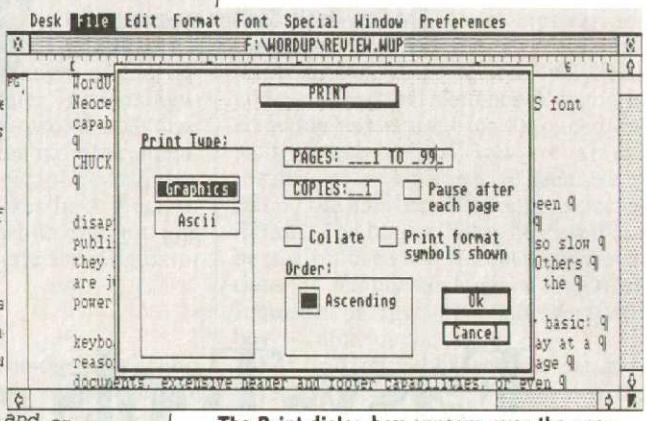
My requirements for a word processor are pretty simple: keyboard commands, automatic formatting, and WYSIWIG display at a reasonable price. I really don't care about creating 100-page documents, extensive header and footer capabilities, or even graphics. I just want something I can lay my fingers on and use them on--something that will let me write letters, reports, and an occasional article without chasing my mouse all over an already-too-cluttered desktop.

I recently found everything I was looking for--and more--in WordUp, a WYSIWIG word processor with GDOS font support and graphics importing capabilities. It is a very powerful and well-thought-out package that bridges the gap between word processing and desktop publishing at a very reasonable price.

### Installation

WordUp comes on three disks, which hold the program, GDOS, and other support files. The program is not copy-protected and can be installed on a hard disk or kept on one or two working floppies, depending on the number and size of the

**A wide variety of attractive typefaces can be selected and printed out easily, but combining too many on the same page yields a busy and unprofessional-looking document.**




**The Print dialog box appears over the open window of the file being printed.**

also a Glossary function which assigns blocks of text to selected words. Glossary entries might include addresses or any other text that you use repeatedly.

The Master Page feature provides a "boiler plate" sheet for creating your own letterhead or forms, along with headers and footers. Different Master Pages can be defined for even and odd pages of a single document—useful when you have to comply with formal style rules. *WordUp* has the ability to import straight ASCII files, but only into existing documents; there seems to be no way to convert an ASCII file into a *WordUp* document directly.

The program is acceptably fast, regardless of what size fonts are being used. The automatic justification and formatting cause some slowdown, however, when you are editing in the middle of a lengthy document, and keystrokes are not effectively buffered if you get ahead of the program. Footnotes seem to slow *WordUp* down a lot, and the footnote feature is also weak in that it draws its formatting information from the document, rather than having its own format line.

*WordUp* can be used with online or offline spelling checkers, but this is only practical if graphics are not included in the file. Unrestricted, an online spelling checker such as *Thunder* will attempt to correct the spelling of your graphics, an exercise in futility that, once begun, can consume a lot of time.

### Documentation

The manual is well written and contains a tutorial that covers just about every aspect of the program. Several document and graphics files are included to support the tutorial. A six-page quick reference section, which defines all keyboard commands, is included in the loose-leaf binder.

Because commands are available under both mouse and keyboard control and keyboard command equivalents are included in the menus, *WordUp* can be learned quickly. It is easy to memorize the commands you use frequently, because you see the equivalent keyboard command each time you use the mouse. Many of these commands are mnemonic, using the first letter of the function (Alternate-F for Fonts, for instance), which makes them easier to memorize. The similarity between the screen display and the final printout facilitates document creation and makes *WordUp* very comfortable to use.

Greater speed would be an asset, and a couple of the minor problems should be fixed, but there is nothing that detracts seriously from the program. *WordUp* is a well-written, well-documented, and inexpensive full-featured word processor, which, I think, most Atari ST users will find useful and easy to use. ■

*Editor's note: A new version of WordUp (v. 1.30) was released just as this issue went to press. We don't have space to detail all the improvements here, so we suggest that, if you are interested in purchasing the program, you check with Neocept to find out what fixes and enhancements are included in the latest version.*

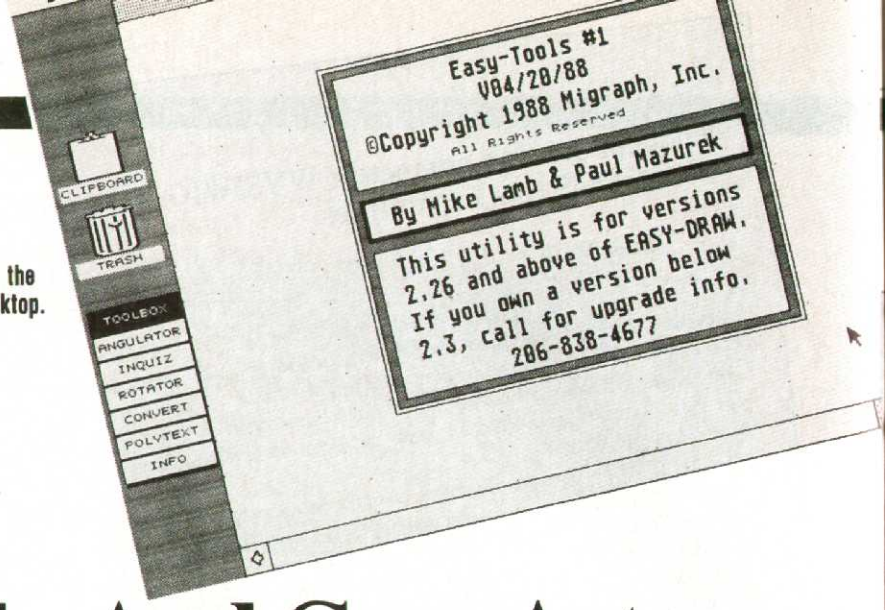
scribes all the characteristics of GEM fonts, including recommended names.

### Conversion

*Fontz* can convert Macintosh and Amiga fonts, as well as fonts used by *Degas* and *HippoWord*, into GEM format. Specifics on each font and what to expect when converting each is well documented. I tried to convert some Mac fonts, but as predicted by the *Fontz* manual, they were ARCed, and the files contained other information or multiple fonts. *Fontz* can convert only files that contain a single font and no other resource information.

*Fontz* is a worthy companion for *WordUp* and will become increasingly valuable as more fonts are made available for the ST. The documentation and tutorial are well done and provide a complete description of different type styles and the GEM font format. ■

PRODUCT REVIEW




The Easy-Tools Toolbox appears on the left-hand side of the Easy-Draw desktop.

# Easy-Tools And ScanArt

## *Migraph releases two useful enhancements to Easy-Draw*

Ever since *Easy-Draw* was introduced back in 1986, Migraph has steadily been enhancing and refining this now famous object-oriented drawing program to make it more useful and powerful.

Hot on the heels of the latest, "supercharged" version of the program (reviewed in the November/December 1988 issue of *Explorer*), Migraph has released two packages designed to increase the utility of *Easy-Draw* even further. The first, *Easy-Tools*, is an easy-to-use GEM drawing accessory that adds five significant drawing tools to *Easy-Draw*. With the new package, you can create large-sized text and even rotate it. And for the first time, you can also measure angles, convert objects to polylines, quickly create accurate grids for custom forms, and much more!

The second addition to the *Easy-Draw* line is *ScanArt*, a package of professionally drawn electronic clip art that makes it both fast and easy to turn ordinary layouts into real eye-catchers. But before we say any more about *ScanArt*, let's take a close look at *Easy-Tools*.

### Setting Up

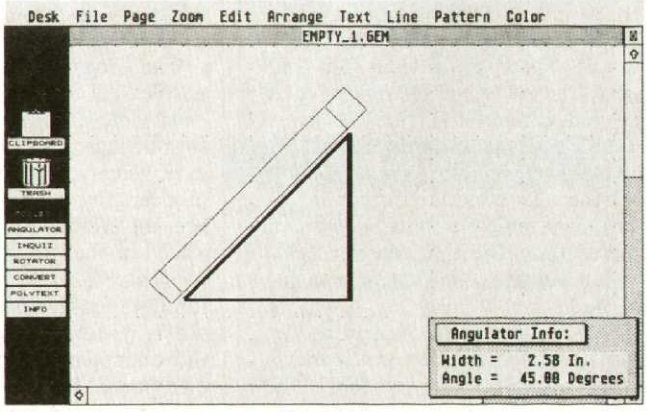
Like Tom Hudson's *CAD 3D*, the latest incarnations of *Easy-Draw* offer a programming technique called *piping*, which allows additions to be made to a program via the desk accessory slot. Thus, *Easy-Tools* loads as a desk accessory and occupies one slot in the accessories menu; it remains dormant, however, until you load *Easy-Draw*. After loading, *Easy-Tools* appears as a new, relocatable icon on the *Easy-Draw* work screen, giving you fast and easy access to its features.

*Easy-Tools* requires an ST with at least one meg of memory and *Easy-Draw* version 2.26 or higher (the Supercharger is not required). It works with either a color or a monochrome monitor. (For the latest *Easy-Draw* upgrade info, you can call Migraph at (800) 223-3729).

Now that we have *Easy-Tools* installed on our system, we can examine each of the tools or features that it adds.

### The Toolbox

Your first choice on the *Easy-Tools* icon/menu is the Toolbox title. You can move the menu anywhere on the screen by clicking on the title bar and dragging the icon to the place that is most convenient for you. If the icon subsequently




The Angulator measures both the width and the angle of a previously drawn object.

By JIM WALLACE

## Easy-Tools

**System:** Atari ST

**Copy protection:** None

**Summary:** A versatile, easy-to-use GEM drawing accessory for use with Easy-Draw

**Price:** $49.95

**Manufacturer:**
Migraph
200 S. 333rd (220)
Federal Way, WA 98003
(206) 838-4677

disappears beneath your drawing, you can call it back at anytime by re-selecting it from the desk accessories menu.

Although the ability to move the icon about is merely a convenience, it illustrates Migraph's concern for the details that make a piece of software not only easy but pleasant to use.

### The Angulator

The first actual choice in the *Easy-Tools* palette is the Angulator, a tool that offers you an approximate measurement of the length and angles of figures that have already been drawn. It not only provides a quick visual reference but saves the values for later use with other tools.

The Angulator lets you find both vertical and horizontal dimensions (in inches) and the angle (by $^1/_{100}$ of a degree) of any object on the work screen, a feature heretofore unavailable with *Easy-Draw* and one for which I, personally, found little use.

Bear in mind that the Angulator is a visual tool and is, therefore, limited by the relatively low resolution of the screen. Another minor drawback is that you must use the keys on the keypad to control the size and angle of the on-screen Angulator "ruler" (a rectangular box cut in three by two vertical lines or markers). Thus, you have to remember that, for example, the slash key moves the right marker in .1 (inch or centimeter) units, while the up and down arrow keys rotate the Angulator by 10° increments.

### The Inquisitor

The second option on the *Easy-Tools* menu, the Inquisitor, allows you to change the location and dimensions of an existing object by entering the coordinates and dimensions of the figure in numerical form. Before *Easy-Tools*, moving and sizing were accomplished somewhat imprecisely with the mouse.

Using the Inquiz menu option, you simply select an object and enter the exact width and height dimensions (in inches or centimeters) you want and the upper left x, upper left y coordinates—and presto, the location and size of your object on the screen are accurate to $^1/_{1000}$ of an inch or $^3/_{1000}$ of a centimeter.

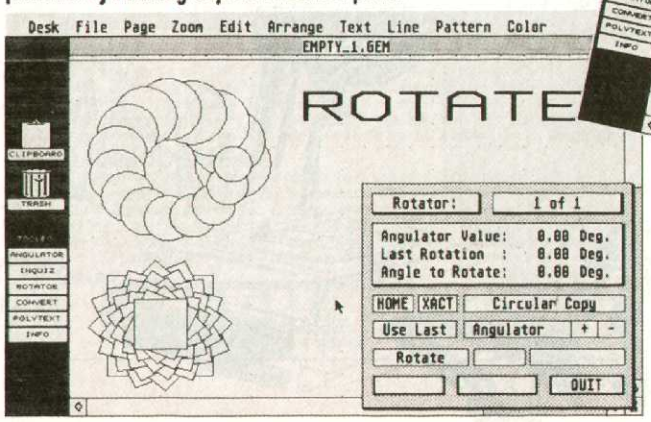
The informative Inquisitor dialog box has several variations for the different object types used by *Easy-Draw*. For example, if you have drawn and selected a "pie slice" object, the dialog box displays the following information: the center x and y coordinates, the x and y axes, the beginning and ending angles of the slice, and an option to convert the pie to an arc.

Similar dialog boxes appear for square or round-cornered rectangles, lines, circles, ellipses, arcs, polylines, and even freehand sketches. Yet another dialog box is used for "grouped objects." Additionally, you are always told how many figures have been selected and the number of currently selected figures. The Inquiz dialog box itself can be easily moved to different screen locations by simply clicking on the word Inquisitor in the upper left-hand title box—a nice touch.

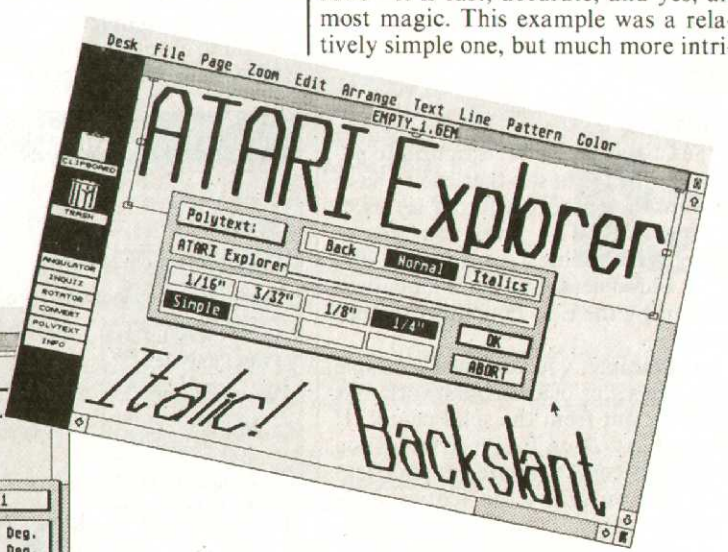
For desktop publishers like me, perhaps the best feature of Inquiz is the ease with which it allows you quickly and accurately to create grids for business forms and graphs with the powerful Make Grid option. It used to take me hours to make custom grids for forms, but now with *Easy-Tools* grids can be made so quickly that it seems almost automatic.

For example, to make a form you have only to draw a rectangle 5″ × 6″ and click on Inquiz in the *Easy-Tools* icon. You then click on Yes after the Make a Grid? option and finally on Set to invoke the Grid Parameters dialog box.

To create a form with 24 equal horizontal rows and four equal vertical columns, you simply enter 24 and 4 in the Grid Parameters dialog box and click on Calc. Then you can just sit back and watch as the program calculates and creates your form for you. Your new box will be filled with a grid that has four columns and 24 equally spaced rows—it is fast, accurate, and yes, almost magic. This example was a relatively simple one, but much more intri-




**The Rotator allows users to create novel patterns by rotating objects around a point.**




**With Polytext users can rotate, size, and stretch lines of text.**


**This screen shows how poly fonts, GDOS fonts, and drawing done with Easy-Draw can be combined and loaded into another program (Desktop Publisher ST) that accepts .GEM file formats.**

cate and complex form layouts can be created with Inquiz—an extremely useful tool!

### The Rotator

The Rotator is an amazing tool that lets you create fantastic spiraling, twisting patterns that were, heretofore, impossible with *Easy-Draw*. You can rotate any object (except GDOS fonts and bit-mapped images) about its own or a user-defined center by any desired angle in one-degree increments). You can also create multiple copies of objects and specify the angle of rotation, the size of the copy, and the distance from the center of rotation.

The dialog boxes that appear as you use the rotator give you a quick and accurate report on your options, which include the exact x and y coordinates of the object you want to copy or rotate, the number of copies or rotations desired, the angle of each rotated segment, the size of the last object in a reduced or enlarged progression, and the distances of the first and last figures from the rotation point. The uses you will find for the Rotator will be limited only by your imagination.

### The Converter

The Converter converts figures to polylines, which is to say that each line in the figure is converted into a series of line segments. This gives you greater control over the object, because it allows you to add, delete, and move individual points using the Edit Polyline menu option.

For example, you can turn a simple circle into a glorious sun burst with rays extending out from the solid center. If you use *Easy-Draw* for illustration, you will quickly come to appreciate the flexibility and versatility this feature adds to the program.

### Polytext

The Polytext tool actually allows you to create and manipulate new *Easy-Draw* fonts by turning polylines into text that can be sized, rotated, stretched, etc. Using the special Polytext dialog box, you can enter up to 45 characters in normal, italic, or even backslant style in various sizes. An attractive, useful font is included, but serious programmers can make their own fonts with a C compiler. (Instructions for doing this are included in the Tips and Hints section of the manual).

Unlike GDOS fonts, the unique "poly fonts" can be rotated and manipulated just like any other objects. This includes changing line thicknesses and stretching the font to any size desired. You can even create large fonts (over 36 point) that don't have the jaggies and enjoy even better quality if you have a 300 dpi output device.

Though poly fonts don't have the "look and feel" of professional-looking GDOS fonts, they are great for many applications in publishing, map making, and drafting applications.

The documentation is brief (40 loose-leaf pages to add to your *Easy-Draw* binder) but complete. The dialog box that controls each tool is shown on the page where you can refer to it as you read the easy-to-follow instructions for its use.

You will find that *Easy-Tools*, like other Migraph products, not only adds useful capabilities to *Easy-Draw* but is easy and fun to use.

### ScanArt

Another useful and timely addition to the Migraph family of *EZ-Draw*-related products is *ScanArt*, which is part of a library of packages offering ready-made, professionally-drawn clip art. Other packages in the library are *DrawArt Professional* and some exciting new border disks, which feature artwork saved in .GEM format.

*ScanArt 1*, the package I reviewed, consists of two double-sided disks containing more than 100 beautiful illustrations drawn from a wide variety of categories, including humor, holidays, food, animals, and many others. With this wealth of useful artwork at their fingertips, non-artists (and graphic artists who simply don't have time to draw) can instantly add polish and pizzazz to their layouts.

*ScanArt* can be used (and edited) with the Supercharger.

Because *ScanArt* uses standard DRI .IMG format, the program is being marketed by Migraph for use on both the Atari ST and IBM/clones running software, such as *Ventura Publisher*, that can load GEM files. Both 3½" and 5½" disk formats are available. (Note that an ST can read 3½" IBM formatted disks directly without emulation.

I have found the *ScanArt* illustrations very useful in my own work, and I look forward to the release of additional packages in the library. ■

## ScanArt

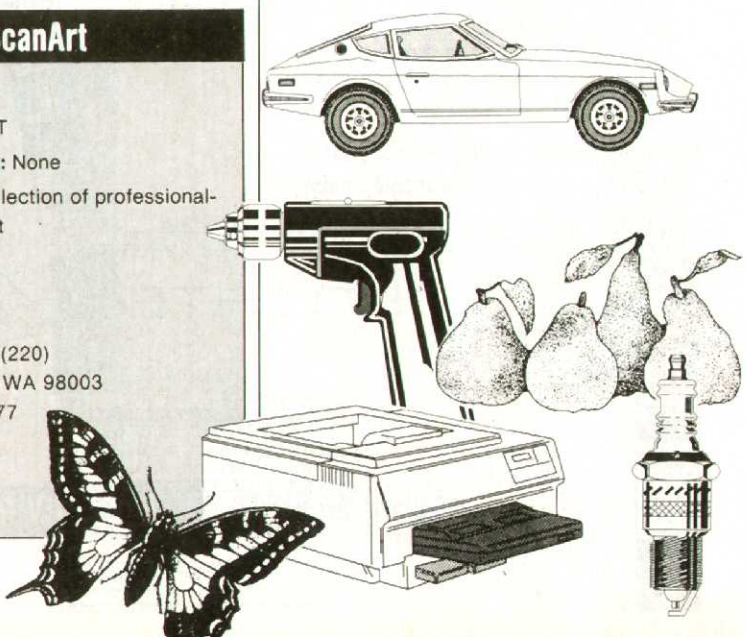
**System:** Atari ST

**Copy protection:** None

**Summary:** A collection of professional-quality clip art

**Price:** $49.95

**Manufacturer:**
Migraph
200 S. 333rd (220)
Federal Way, WA 98003
(206) 838-4677



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MEGADISK is actually one megabyte of RAM that simply plugs into your cartridge port. It acts as an added disk drive that's ultra fast and always ready for use. Like a Hard disk, MEGADISK won't loose its memory when your computer is turned off. It comes with its own power supply and battery back-up system so its independent of your computer.

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Megadisk will work fine with your current system whether you have a hard disk and two drives or you're just getting started.

Megadisk is perfect for those who want the high speed of a hard disk for a lower price. Its even better for power users or software developers who may already own a hard disk and two drives but want extra speed and power. Megadisk can also emulate other cartridges for testing and back-up. In addition Megadisk can be used with Switch/Back to allow you to instantly jump between two full size one meg applications.

**$299.95**

Price Subject to change

Megadisk Clock Option – Adds a Clock/calendar card to your Megadisk cartridge. Contains replaceable Three year battery 29.95

## Polydisk

Polydisk is a 512K version of a Megadisk. Polydisk gives you the same fast boot features, the high speed access, and the print spooler. Polydisk has a power supply (like Megadisk) but does not contain a battery back-up.

Note: Those with only 512K of main memory can use Switch/Back with a Polydisk, just like those with one Meg.

Polydisk (512K Solid state drive) **Only $199.95**

(Clock option card is also available for Polydisk $29.95)

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High Quality sound digitizer for the ST. This powerful hardware and software package lets you sample real world sounds and play them back on any Atari ST. Add special effects like Echo, Reverse, looping, pitch manipulation, mixing and envelope control. Turns your Atari keyboard into a musical instrument to play songs with your digitized sounds (also works with any MIDI keyboard). Digisound makes it simple to add sound to your own program, too! Unleash the incredible sounds in your ST with DIGISOUND. Supports sampling from 5 to 40Khz, DIGISOUND is the choice of the professionals. DIGISOUND was used to create the voice in Chessmaster 2000, and other commercial programs.

DIGISOUND **ONLY $89.95**

## DIGISOUND PROFESSIONAL

All the excellent features of DIGISOUND plus these great extras

LOGARITHMIC SAMPLING – Special hardware extends the sound quality far above the other ST sound digitizers. Logarithmic sampling and playback (external amplifiers only) greatly extends the dynamic range while reducing distortion and noise.

Internal Real Time Mixing – Input from a stereo and a microphone so you can sing over a tape.

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| | |
|---|---|
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# Supra Modem 2400

## High-performance telecommunications for all Atari computers

**Supra Modem 2400**

**System:** Atari 8-bit and ST

**Summary:** Versatile, full-featured Hayes-compatible 2400-baud modem for serious telecommunicators

**Price:** Modem only, $179.95; packaged with cables and software, $239.95

**Manufacturer:**
Supra Corporation
1133 Commercial Way
Albany, OR 97321
(503) 967-9075

By JOHN JAINSCHIGG

It was like Christmas in August. There I stood in my steaming garret on the tenth day of the heat wave surrounded by the massed bounty of the Supra Corporation. Namely, a 70Mb hard disk and two 2400-baud modems—one for the ST and one for the XE.

Now Enola Gay, my ST (N.B.: I figure the only way to make an impression in this business is to follow Jerry Pournelle's lead, which entails giving names to your hardware), is well-used to state-of-the-art telecommunications equipment. Normally, she uses an Atari SX212 modem to talk with the outside world, and she particularly likes the fact that the 212 is style- and color-matched to the laser printer interface she uses to chat with the SLM804 laser printer.

Not so this bit of high-tech wizardry from Supra. The Supra Modem 2400 is smaller than a standard modem—only 1½" (including rubber feet) × 4⅝" × 6½"—and comes in a matte-finish aluminum housing with plastic faceplates, à la Hayes. *And* it boasts an On/Off pushbutton on the right-hand side of the faceplate—*mirabile dictu!*

Attaching the Supra 2400 to an ST is simplicity itself; all you need is a standard RS-232, 25-pin, male-female cable. The modem draws its power from a 9vdc transformer that plugs into a wall socket. Aside from the button and the RS-232 and power connectors, the only external features are two RJ-11 Telco jacks at the rear of the device and a grille cutout on the bottom of the case that lets you hear the speaker. The two RJ-11 connectors are a nice touch, letting you daisy-chain the modem to a telephone. (Some high-end external modems, seemingly intended for use only in high-end offices where multiple telephone lines are routinely available, omit this feature.)

### Christmas Morning Connect

So far, so good. Turning on the modem (what a pleasure to have a front-mounted switch!), I proceeded to boot Enola Gay and load *Flash* for an initial Christmas morning test. This is a faithful simulation of the behavior of a computer user who has been saving for months to buy a piece of equipment and has been savoring the thought of ownership for so long that normal caution (reading the manual, etc.) is discarded in favor of instant gratification. It entails ripping open the package, plugging in everything that looks pluggable, turning everything on, and calling CompuServe.

If you haven't yet encountered high-end Hayes-style telecommunications, you won't appreciate, at first, how smart the Supra Modem 2400 is. It is *bimodal*, functioning either in *connected* mode, in which the modem acts as a conduit for data flowing between your system and a remote computer via the telephone lines, or in *command* mode, in which you talk to the modem directly, configuring it this way or that way and making it jump through hoops.

| File Size | Protocol | 1200 Baud | 2400 Baud |
|---|---|---|---|
| 16,000 | Xmodem | 3:38 | 2:18 |
| 13,690 | None | 2:04 | 1:00 |

**Table 1. Supra Modem 2400 Download Performance Test**

Somes Hayes-type modems must also be partially "hard-configured" via DIP switches, though the Supra 2400, Atari SX212, and other advanced Hayes clones, eliminate the need for this nasty switch-setting by incorporating switch options as additional software commands. The upshot is that the Supra 2400 has one heck of a big command set—dare one expect that it would work correctly right out of the box?

Yes! The 2400 complied graciously with the *Flash* 1200-baud autodial request, connecting to CIS with an abruptly-terminated squeal of matched carriers. It announced success by sending the phrase CONNECT 1200 back to the terminal screen. Neato! As a multi-speed modem, capable of transmitting at 300, 600, 1200, and 2400 baud, the Supra 2400 keeps you well-informed of what it is doing, with a choice of English or numeric status and error messages.

Having successfully connected at 1200 baud in a plain vanilla setting, I proceeded to some more interesting tests. Though the manual doesn't make this clear, a Hayes-type multi-speed modem like the Supra sets its baud rate by examining the speed at which characters are sent from the terminal. Translation: to get going at a particular baud rate, set that rate on your terminal and the modem will follow.

Resetting *Flash* to function at 2400 baud was a snap, and the modem responded with OK to an initial AT (attention) command. Checking a list of CompuServe connect numbers, I selected a local 2400-baud node and dialed in. Flawless performance: the modem sent back a CONNECT 2400, and we were whisking through CompuServe's labyrinthine menu system almost faster than the eye could follow.

Then came some more devious connect-tests. Going off-line once more, I tried connecting to a 1200-baud-limited node with my terminal software (and hence modem) configured to 2400 baud. Result: the connection went perfectly. The Supra sent back CONNECT 1200, and we were rolling. Well, almost . . . I got no response when I typed on the keyboard. Quickly arranging my wits about me in a very small circle, I reset the terminal baud rate to 1200 . . . success!

Another example of its onboard intelligence is the ability of the Supra to adjust its baud rate downward automatically to match that of a speed-limited modem. Because it can't adjust your terminal parameters accordingly, however, you may have to exploit your own onboard intelligence (i.e., think fast) when this happens to get everything working in lock-step once more. (The Supra will not adjust its baud rate upward in the same fashion—for example, to match the 1200-baud capacity of a standard CompuServe 300/1200 node if you connect at 300.)

### Speed Tests

The next step was to test the advantage of 2400 baud over 1200 baud in practical telecommunications. I set up two benchmarks: downloading a 16,000-character binary file via Xmodem protocol and downloading a 13,690-character text file via straight ASCII transfer. Commands to initiate the download sequences were built into function key macros that simultaneously zeroed out the system clock, minimizing timing differences due to human error. The results are shown in Table 1.

In straight ASCII transfer, where a minimum amount of time is lost to handshaking, the performance of the Supra at 2400 baud was very close to double its performance at 1200. A comparison utility found no difference between ASCII downloads performed at different speeds, hence, one assumes, no errors in either file. This is a nice testimony to the reliability of the modem at 2400 baud.

Because Xmodem transfer involves considerable overhead in handshaking and CRC calculation, the performance of the Supra at 2400 baud was somewhat less than double its 1200-baud performance in this case.

These precise tests can offer only a partial impression of how much time can be saved, practically speaking, by upgrading to 2400-baud capability. If you spend a lot of time on-line in "chat" or reading and responding to electronic mail, the time you spend is related primarily to your reading and typing speeds, and 2400 baud is unnecessary.

If, on the other hand, you do a lot of up- and downloading or handle much of your navigation with high-speed macros, 2400-baud capability could mean very significant savings, though the fact that most networks charge more for 2400-baud access must also be factored in.

There is also the "pleasure factor" to consider. If my response is indicative, experienced telecommunicators really enjoy the added sensation of speed and responsiveness that 2400 baud brings to remote operations.

***The Supra Modem 2400 is a sophisticated and powerful piece of equipment that functions reliably as an adjunct to personal telecommunications.***

### Other Features

The Supra Modem 2400 has a wide variety of additional features that make for convenient and sophisticated telecomputing. Alterations to the default configuration, including setting such options as auto-answer—usually done via DIP switch—are handled here with S# (software switch) commands. Other aspects of hardware configuration, such as turning the speaker on and off and controlling its volume, are also handled in software by the Supra.

If you alter the default configuration, the modem remembers your special settings when turned off, and even when unplugged. Additional space in its non-volatile RAM can be used to store a single oft-called telephone number for

quick autodialing. All these features function as advertised.

The Supra also offers compatibility with multiple protocols, including CCITT V.22 and V.22bis, which are already standards in Europe and are gaining acceptance worldwide. Advanced error-correction and self-test functions are also supported.

### Documentation

The Supra Modem 2400 comes with an attractive, well-organized and indexed manual that provides both complete instruction in basic modem operation for the beginner and full technical information for the professional, hobbyist, or experimenter.

The manual is supplemented with a quick reference card that includes all commands, pinouts, result codes, and software switch-register settings—quite enough to get the experienced telecommunicator started right away. Also included in the basic package are the usual subscription and free-time offers from CompuServe and The Source.

### The 8-bit Package

The Supra Modem 2400 is available solo as an RS-232 plug-compatible replacement modem, or—for about $50 more—in a package specifically for the ST or 8-bit Atari that includes cables and terminal software.

Because the ST features a standard RS-232 connector and because numerous inexpensive and public domain terminal packages are available for it, we view Supra's ST "package deal" as a convenience valuable primarily to the telecommunications novice. The 8-bit package, however, is another story.

As 8-bit telecommunicators know, there is no easy way to attach a modem to an XE or other 8-bit Atari machine. A variety of relatively difficult ways, of course, has always been available.

The purchase of an Atari 850 multiport interface unit, which adds both a Centronics parallel output and four differently-configured, nonstandard RS-232 ports to the 8-bit via SIO connection, used to be *de rigeur* for hooking up standard modems. During the period when 850s were hard to come by, third-party vendors dreamed up a few harebrained schemes by which modems could be attached to the bidirectional joystick ports, cartridge ports, etc.

Then Atari came out with the XM301 and SX212, both of which attach directly to the SIO port and employ special software drivers. The weakness of this approach is that only a limited amount of terminal software that knows how to use the special drivers is available.

Another approach—more expensive than direct SIO cable-connection but less expensive than an 850 interface—is to package 850-compatible SIO-to-RS-232 interface electronics in a cable system, letting you hook up a standard modem to the 8-bit via SIO, while retaining compatibility with "standard" 8-bit terminal packages. This is the approach Supra has taken.

The cable provided with the Supra Modem 2400 has a wedge-shaped SIO connector on one end, a small box housing a circuit board in the middle, and a DB-25 connector on the other end. The box contains interface electronics and sports a second SIO connector, allowing the unit to be hooked up anywhere in the XE SIO daisy chain.

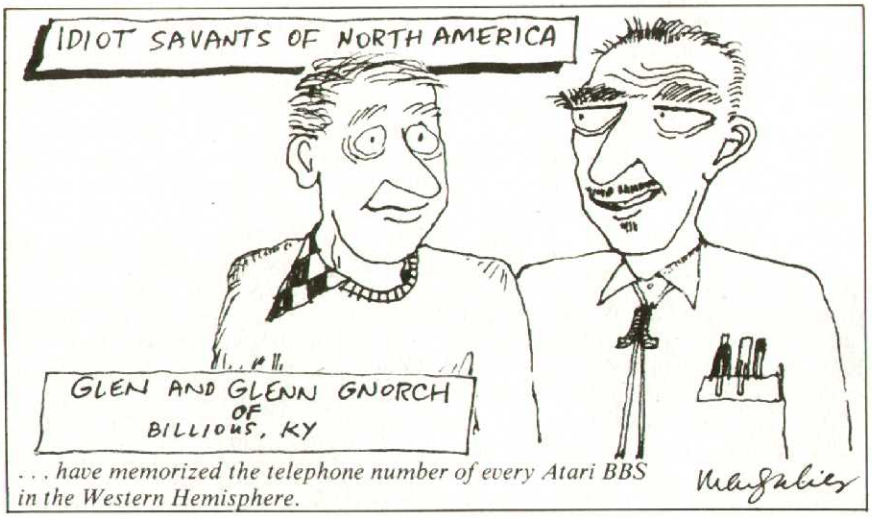
The result is a system that mimics, in most respects, a standard modem hooked up to an 850 interface. Certain 850 functions, such as ATASCII-to-ASCII translation, are not supported by the interface itself and must be covered by the terminal program. However, for most communications the setup is perfectly adequate: the small driver loaded into main RAM by the interface cable on power-up seems well-matched to the similar RS-232 driver loaded from the 850 and is compatible with most terminal packages.

*Express*, the popular terminal package by Keith Ledbetter, is included with the 8-bit Supra Modem 2400, meaning that the beginning telecommunicator can go right on-line. Other terminal programs, such as HomeTerm and Amodem, work properly with the system as well.

The Supra Modem 2400 is a sophisticated and powerful piece of equipment that functions reliably (the unit is backed by a one-year limited warranty) as an adjunct to personal telecommunications. Supra has thoughtfully provided for the 8-bit user, as well as the more generic ST market, by offering "plug and play" packaging simple enough for beginners to use.

If you need the convenience and power of 2400-baud telecommunications and don't mind the extra expense involved, the Supra Modem 2400 is worth serious consideration. ■

***If you do a lot of up- and downloading or handle much of your navigation with high-speed macros, 2400-baud capability could mean very significant savings.***

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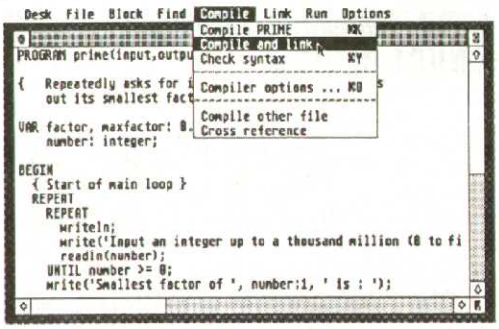


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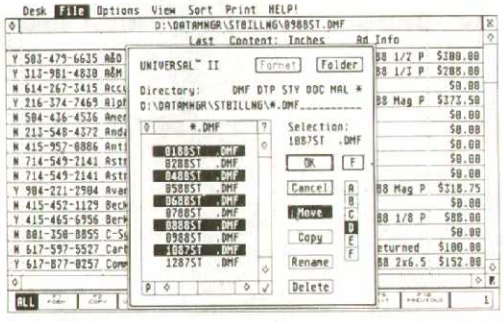


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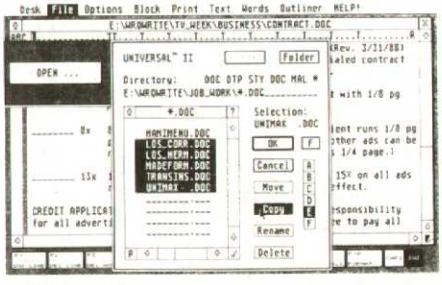


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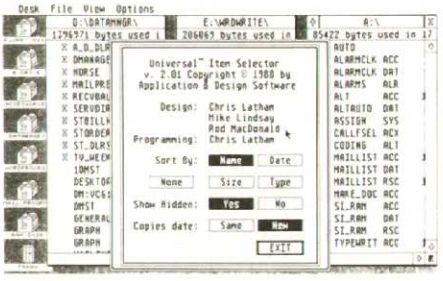


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# ST-Talk Professional

***QMI introduces an outstanding telecommunications package replete with functional features***

Back in the Pleistocene era of personal computing, telecommunications packages were not considered what you might call "power software." They didn't have oodles of functions, built-in utilities, or hypercomplex command sequences, and they didn't demand a four-day investment of time to learn. On the downside, most of them worked poorly.

Technology marches on. Nowadays, any telcom package worth its salt offers online editing, dialing, macros, I/O character redefinition, disk management utilities, multiple terminal types, and a command language. The question in shopping for one is "How well are these features implemented?"

In the case of *ST-Talk Professional*, the answer is "very well." This is *power* telcom software, folks. But, oddly enough, thanks to the immaculate and wonderful GEM operating system, the program is (to coin a cliche) *easy to learn and use!*

Unfortunately, *ST-Talk Pro* is so feature-laden that instead of attempting to praise its many good qualities, one is tempted simply to enumerate its faults (minimal and arcane) and conclude by saying, "Everything else is perfect."

But we won't do that, though we can't even begin to do justice to the program in a short review. Taking it from the top, then, *ST-Talk Pro* has all the features of a typical modern telcom package. Yes, there is online editing; yes, a command language; yes, macros; yes, yes, yes, I said yes (to quote Mrs. Bloom).

## ST-Talk Professional

**System:** Atari ST

**Version reviewed:** 2.0

**Copy protection:** None

**Summary:** Outstanding telecommunications package

**Price:** $29.95

**Manufacturer:**
Quantum Microsystems, Inc.
P.O. Box 179
Liverpool, NY 13088
(315) 451-7747

The difference—and it is significant—is that these features are *not* 50% functionality and 50% packaging hype.

### Overview

*ST-Talk Pro* functions in color or monochrome, the major difference being that the higher resolution of monochrome permits an optional 140-character × 48-line text display to be engaged. When you boot the program, you are faced with an 80 × 24 terminal window (which cannot be moved), a standard menu bar, and, to the right, a group of icons that offer access to functions most often used online (these functions—dialing, upload, download, etc.—can also be accessed from the menus or from the keyboard.

The terminal mode menus also provide access to a wide variety of other functions and configuration commands. These include a full set of disk utilities (copy, format, etc.); an executive capable of running any .TOS, .TTP, or .PRG

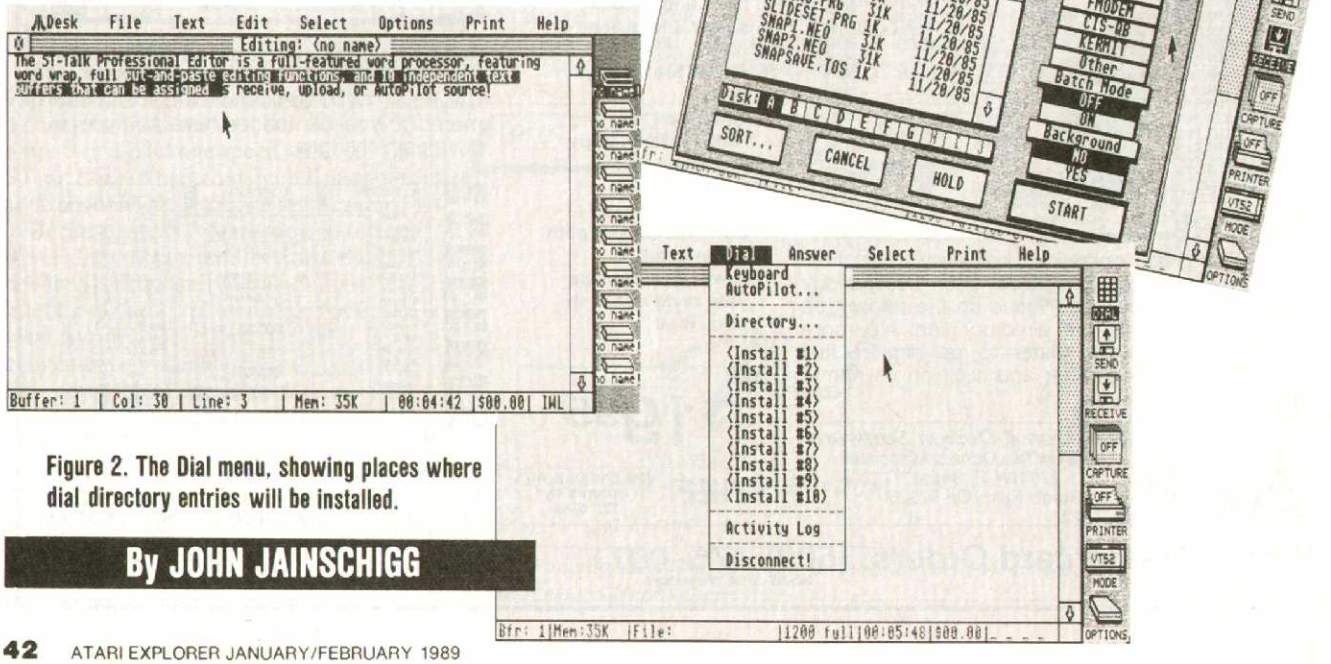



**Figure 1. The ST-Talk Professional Edit screen, showing the ten text buffer icons at right.**

**Figure 2. The Dial menu, showing places where dial directory entries will be installed.**

**Figure 3. The Download screen, showing numerous options conveniently accessible.**

**By JOHN JAINSCHIGG**

program from within *ST-Talk Pro* (as long as sufficient system memory is available); and a way to access either a command shell or a generic .ARC utility, neither of which is (unfortunately) supplied with the package.

Other online functions include ANSI and CompuServe Vidtex graphics (graphics displayed onscreen can be captured and saved to disk in the original format or as *Degas*-compatible files, and graphic files on disk can be reviewed onscreen), TTY, VT-52, VT-100, and generic terminal emulations, and XMODEM, XMODEM CRC, YMODEM, Kermit, and generic file-transfer protocols. The generic emulation and file-transfer modules are designed to be loaded from disk, and QMI promises that new ones will be available on their BBS and from other sources.

All these handy hooks to external software are backed up by a full pathname configuration database that lets you tell the program where to put and find data, external utilities, your favorite .ARC program, command shell, etc.

*ST-Talk Pro* supports ten buffers, any one of which can be designated as the current capture buffer, as the source for a text upload, or as the source for an executable AutoPilot (the *ST-Talk Pro* command language) file. Total buffer space depends on available system memory.

*ST-Talk Pro* functions predictably well in terminal mode. In order to display a full 80 characters × 24 lines (or 140 × 48 in monochrome, if desired) of data in the terminal window, *ST-Talk Pro* uses a slightly miniaturized font in terminal mode. The font is easy to read, however, and because it is loaded from disk, it can be exchanged for other fonts from QMI.

The quality of the built-in terminal emulations appears to be high—so high, in fact, that I had a bit of trouble getting connected to CompuServe under VT-52 emulation, because CIS handles this terminal in a slightly non-standard manner. Online graphics work very well, with the exception of the fact that once Vidtex graphics have been displayed, the text cursor fails to reappear unless you switch into the editor and back out again. This may also be a problem with CompuServe. Uploads, downloads, and configuration and select commands also work as advertised.

### The Editor

Clicking on the right mouse button while in terminal mode takes you into the online text editor. In editing mode, the menu bar changes to support the many functions of the editor, and a group of ten buffer icons replaces the function icons at the right side of the screen. These icons correspond to the ten system buffers discussed above. Editing can be carried out on the contents of any buffer, including the current capture buffer.

The editor is very complete and powerful, offering word wrap, search and replace, and a great variety of ways to manipulate text—more than most stand-alone word processors offer. Full block functions, including the ability to select multiple text "patches" within a document and operate upon them as a single unit, are supported. The editor can be set to display or conceal control codes and special characters, and it can display *1st Word* and *ST-Writer* files correctly. It also supports automatic syntax-checking for use in creating AutoPilot programs.

### AutoPilot

AutoPilot, the command language of *ST-Talk Pro*, is the showpiece of the package. It supports a full set of program flow, I/O, math, and logic functions; a wide variety of data types, including strings and arrays; a large command set, including looping, string-manipulation, and system functions; a limited GEM interface that permits the creation of alert boxes and menus and offers access to the file selector; plus hooks to all the built-in modem control, printer control, buffer management, file transfer, and other functions offered by *ST-Talk Pro* itself.

Clearly this is far, far more power than is required for writing automatic log-on sequences and file-transfer scripts. It should be possible for the technically-inclined to fully automate virtually any telecommunications task.

### Documentation

*ST-Talk Pro* comes with a 124-page, fully-indexed manual that contains a fairly complete rundown of all its functions. It includes tutorials on editing, dialing, and using AutoPilot and contains a complete set of appendices and a full glossary of terms. It is fairly well-written and coherently organized. QMI also offers both telephone and on-line (via their BBS) support for registered owners of the package.

In sum, *ST-Talk Professional* is a well-designed and superbly-implemented program that is fully capable of acting as the centerpiece of your ST telecommunications system. ■

# Laser C

## *MegaMax releases a fast, integrated C language development system*

By JOHN JAINSCHIGG

The original Megamax C compiler was the first really complete third-party C language development environment to become available for the ST. The Megamax system was distinguished by its graphical shell, high speed of compilation, and low cost. It was also unique (at that time), because it included both some documentation of GEM AES and VDI functions and a Resource Construction Program. Inclusion of these features made the concomitant purchase of Atari's Developer's Package unnecessary—at least for the relatively large market of weekend ST programmers.

Laser C is a top-to-bottom revision of the original Megamax C system, incorporating a completely new compiler, enhanced graphical shell, and a full complement of Unix-type utilities. It is exceptionally fast and powerful and includes everything (an RCS, more or less complete GEM documentation, etc.) that a C programmer might require to produce professional ST applications. Yet the package (at least in its current version—2.1) is hampered by peculiar design flaws that detract somewhat from its appeal.

### Integrated C Environments

The "classic" C language development environment is exemplified by the Unix operating system under the control of the Bourne, Berkeley, or other standard, command-line "shell." The programmer is presented with a command line from which various utilities—a program-text editor, a compiler, a linker, and a variety of built-in and external commands—can be accessed.

If there is an advantage to command-line C language systems, it is in the fact that they tend to be more or less standardized. A C programmer who learned his trade at a university, working with a DEC VAX running Unix System V, can, for example, become quickly productive on an ST running Mark Williams C under the proprietary MSH shell. Aside from this continuity of commands, however, there is little intrinsic advantage to command-line C environments on single-user systems.

An arguably better approach—the one taken by Laser C—is to create an environment centered around an interactive editor and make programming functions—compilation, linking, execution, debugging, etc.—accessible from there. This kind of system is well adapted to the typical edit-compile-execute-bomb-debug-edit . . . (repeat ad nauseam) cycle followed by programmers in the pursuit of their thankless calling.

There are three ways to implement such a system. The first is merely to create a graphic interface to an otherwise unexceptional suite of editing, compiling, linking, and other programming tools. This method has the advantage of preserving the integrity of the standard C-programming toolset, while increasing the convenience with which utilities can be accessed during development. The second method—far more challenging—is to integrate the tools completely with the editing environment, making the whole function as a single, in-memory application. While this approach typically increases productivity, it tends to reduce the intrinsic flexibility (and quality) of the component parts of the programming system.

The third approach (again, the one taken by Megamax in the design of Laser C) is to integrate the components of the programming system together in a seamless, high-performance "meta-application" that sacrifices none of their flexibility as stand-alone utilities. Laser C achieves this by means of a smart editing shell that supports disk-caching.

The cache maintains the most important components of the programming suite in memory during the program development cycle, without requiring the absolute commitment of memory space that a RAM disk requires (cached files are written out to disk as memory is needed). The approach permits fast access to tools without the loss of flexibility that results from superintegration.

### Installation

Laser C comes on three, single-sided disks, two of which contain the programming system and required files; the third holds utilities. The system can be installed on one single-sided disk and operated effectively. Naturally, however, more disk space—ideally a hard disk—offers increased convenience to

### Laser C

**System:** Atari ST

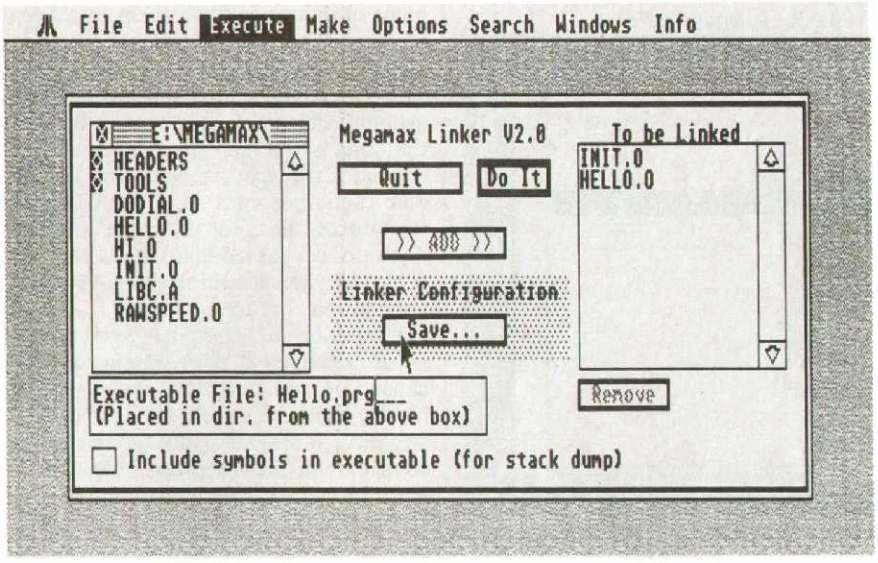
**Version reviewed:** 2.01

**Copy protection:** None

**Summary:** Fast, integrated C language development system with a few bugs

**Price:** $199.95

**Manufacturer:**
Megamax, Inc.
Box 851521
Richardson, TX 75085
(214) 987-4931




**The linker window, showing the ease with which multiple files can be linked.**

the programmer.

Essential files are LASER.PRG (the shell/editor) and its resource and configuration files; CCOM.TTP (the compiler-linker utility); CC.TTP (the compiler); LD.TTP (the linker); the standard link library, LIBC.O; a startup routine, INIT.O; and the HEADER directory, containing header files. The normal arrangement is to place LASER.PRG in the root directory of your work disk and everything else in a subordinate directory called MEGAMAX, booting the whole from drive A.

Installing the system in a different manner—say on a hard disk—requires changing the configuration file to tell LASER.PRG where to find compiling and linking tools, libraries, and #include files. This requires the use of two different shell functions: Environment Variables, which permits direct editing of the various path specifications employed by the system, and Tool Configuration. This second function permits installation of Compiler, Linker, Make, and other components into the integrated environment, allowing the programmer to specify whether these tools are to remain RAM-resident (i.e., in cache) or not.

The configuration produced in this manner can be saved to disk in a hybrid .CFG format that includes both the text representation of environment variables (in the Unix manner) and other, non-ASCII information about search paths, window positions, and editor defaults. The approach is compact and permits the system to be configured in a wide variety of ways to suit the programmer's taste.

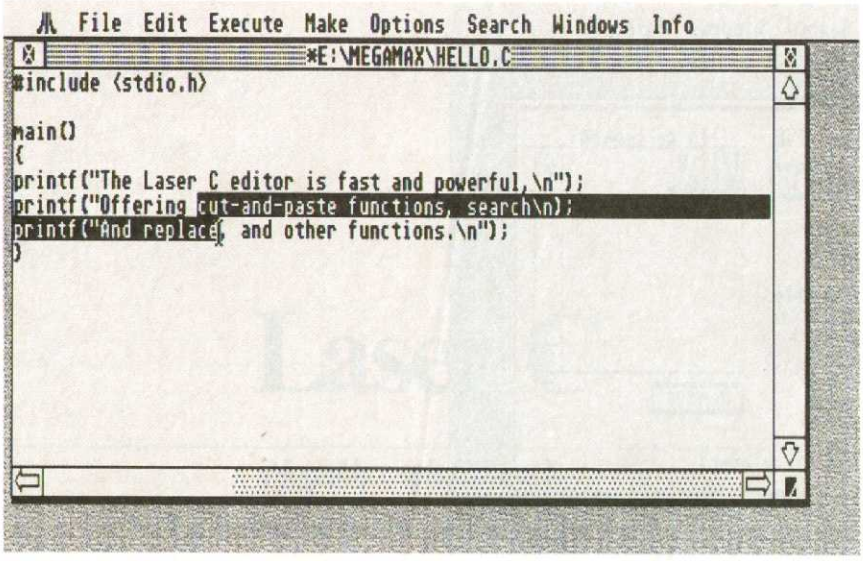
### Using the Program

Once Laser C is fully installed, using it is a snap. You double-click on LASER.PRG, and the shell/editor loads into memory, seeks out its configuration and resource files, and sets up a default disk cache containing the compile and link modules. You are then faced with a standard GEM menu containing nine items: the default (Atari) menu, which permits access to desk accessories; File and Edit menus, which support file creation, disk utility, and editing functions; an Execute menu, which controls the compile-link-and-execute sequence and permits general program execution under the Laser shell; a Make menu, which affects the function of the Laser C semi-automatic Make utility; an Options menu, which controls search paths, tool configuration, and the like; a Search menu, which supports the search-and-replace capabilities of the editor; a Windows menu, which permits different window configurations to be set up; and an Info menu, which comprises a reference to C operators, file size, and other information about the current file.

The editor, which can handle up to four files in memory simultaneously, each in its own window, is a real gem. Faster than most TOS-interface editors, it nevertheless supports full point-and-click editing functions, intra- and inter-document cut-and-paste, and search-and-replace. The editor can be set to autosave at a variety of time intervals on a window-by-window basis and keeps good track of updates to current source, warning you politely to save your files before closing or quitting.

Once a source file has been created, it can be compiled to object from within the shell, linked, and executed in a single pass (via the Run option), or compiled, linked, and executed in separate

***Laser C is a top-to-bottom revision of the original Megamax C system, incorporating a completely new compiler, enhanced graphical shell, and a full complement of Unix-type utilities.***




**MegaMax C editor, showing an oblique section of text selected.**

phases. Because the compiler and linker are executed from the disk cache and because both have been optimized to do as much work in-memory as possible, compilation is blazingly fast.

Naturally, the dialog boxes that direct the compile and link procedures are not capable of employing all the switches and options of these components—they would have to be ridiculously complicated to do so. However, programmers who wish to access the full power of the compiler and linker (or command-line purists) can always bypass the shell and control the process of compilation directly from any editor window. Simply typing a traditional command line (or lines) into one of the editor windows, highlighting it, and pressing Control-Return causes the command (or commands) to be executed as if they were being passed in from a standard shell.

This is an extremely elegant way of providing Laser C users with the essentials of a command-line system, without sacrificing the graphical approach. Its weakness is only in that it fails to provide the more advanced "shell programming" features that certain Unix addicts may not wish to do without.

***Because the compiler and linker** are executed from the disk cache and because both have been optimized to do as much work in-memory as possible, compilation is blazingly fast.*

Another interesting compromise between the graphic and command-line norms is demonstrated by the Laser C "stdio" window. This is an independent text window into which the compiler, linker, and other utilities write their status and error messages. The window can be hidden or revealed; it can be scrolled; and its contents can be edited or modified just as with any other editor window. Unfortunately, the stdio window is not really a TOS terminal (programs have to know how to talk to it, and can't do so simply by employing stdio functions).

Object and executable modules are stored automatically in cache and are generally not written to disk until you quit the shell or use the cache-management functions to flush them on a file-by-file basis. This is a bit clumsy, since an execution crash or power outage can cause these compilation products to be lost unnecessarily. However, I believe that this is the only case in which the normally transparent operation of the disk cache becomes troublesome. Editor source files, for example, do not seem to be passed onto disk via the cache, so when you think you have saved your source, in fact, you have.

Execution of compiled code from within the shell is risky, of course (because you can crash the system quite nicely, losing the shell, the cache, and anything in memory), but also easy. To some extent, the shell seems capable of determining whether it has become corrupted by program execution. It provides limited post-mortem information after a crash and makes an educated guess as to whether it is safe to attempt to drop back into Laser C or whether it is better to reboot—you pays your money and you takes your chance.

The compiler itself is very nice. It is a full, K&R implementation, supporting in-line assembly of 68000 code and other amenities. Unlike earlier Megamax compilers, Laser C produces absolute code, meaning no program-counter-relative 32K array size limits or other nonsense. Laser object modules are thus incompatible with modules produced by earlier Megamax systems, though compatibility at the source code level has mostly been preserved.

The size of Laser C executable seems a good deal greater than that produced from identical source by at least one competing system. Execution speed, however, seems very competitive (see comparative benchmarks in Figures 1 and 2). Also available from inside the shell are a disassembler and a symbol naming utility. In addition, the shell is capable of calling an external debugger, though this software is not included.

### Some Complaints

Still, there are some peculiar things about Laser C that may trouble touchy programmers. There is no real pattern to the problems—just a variety of design errors (and a few outright bugs) that serve to take the bloom off the rose.

Megamax elected to redesign the standard GEM window slightly, increasing the size of scroll bars and arrows. Aside from the fact that such trivial alterations seem a bit pointless, there are some faults in the implementation

```
/* Rawspeed.c -- a speed test that makes 500,000 calls to a
   dummy function. This kind of program tends to fool optimizing
   compilers that would normally search-and-destroy an empty
   for() loop. It also employs printf(), so may give some indication
   of the size of code employing standard I/O. */

#include <stdio.h>

main()
{
register long i;

printf("Go!\n");

for(i = 0;i < 500000L;i++) dummy();

printf("Done!\n");
}

dummy()
{}

/* Dodial.c -- a skeletal GEM application that employs an external
   resource file defining a dialog box with one button (not
   shown). Should give an idea of the relative size of GEM
   applications under different compilers. */

#include <aesbind.h>    /* AES bindings. Not needed under Laser C */
#include <obdefs.h>

main()
{
OBJECT *p;

appl_init();
rsrc_load("dial.rsc");
rsrc_gaddr(0,0,&p);
form_center(p,&p[0].ob_x,&p[0].ob_y,&p[0].ob_width,&p[0].ob_height);
objc_draw(p,0,MAX_DEPTH,p[0].ob_x,p[0].ob_y,p[0].ob_width,p[0].ob_height);
form_do(p,0);
appl_exit();
}
```

**Figure 1. Two basic benchmarks.**

| Compiler: | Laser C 2.01 | Mark Williams C 2.0 |
|---|---|---|
| Rawspeed.c | | |
| Compile time: | 4 secs. | 22 secs. |
| Code size: | 10770 bytes | 7262 bytes |
| Executes in: | 11 secs. | 12 secs. |
| Dodial.c | | |
| Compile time: | 10 secs. | 30 secs. |
| Code size: | 4543 bytes | 1895 bytes |

**Figure 2. Comparative benchmark results.**

that make for ugly graphic effects when the scroll bars are used in editing.

Likewise, the designers have elected to replace the standard GEM file selector with a "new and improved" one that permits mouse-only selection of current drive and filename mask. Unfortunately, unlike Application & Design Software's *Universal File Selector* the Laser C file selector behaves in a slightly non-standard manner and is initially difficult to get used to.

In general, I think a more careful hand might have been taken in the design of almost every resource used by the program. The Laser C dialog boxes, for example, while useful, seem to have buttons all over the place—not quite the nice, neat GEM resources you may be used to.

The Laser shell interface to disk seems a little bit unstable. For example, it is possible to open the same disk file into four separate editor windows, then save it back to disk from each one, individually. Result: one file on disk, as you would expect. The Laser shell, however, remains convinced that four copies of the file still exist, and subsequent examination of the file selector window reveals four copies of the phantom file, all with the same name, in the current directory—not terrible, but strange.

Though Megamax must be commended for including a Resource Construction Program with the Laser system, they might have tried to build one that doesn't bomb—and that, catastrophically—on exit. The resource files are created all right, but the processor exception and subsequent obligatory reboot is a bit annoying. Maybe it was only my copy.

Aside from these flaws, which will no doubt shortly be corrected by updates, the Laser software seems robust and well put together. Likewise, the documentation—while a bit rough around the edges—is acceptably informative.

***The compiler** is a full, K&R implementation, supporting in-line assembly of 68000 code and other amenities.*

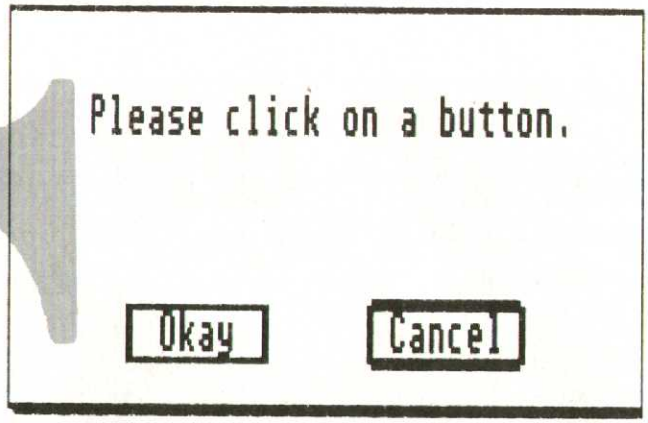
In addition to a complete walk-through of the Laser system and all its functions, the manual includes chapters on GEM AES, VDI, BIOS, GEMDOS, XBIOS, and Line-A routines.

A particularly nice touch is that the text of the standard header files is included in a long appendix—a useful reference to have on hand and one that you would normally have to print out yourself.

In summary, I would not hesitate to recommend Laser C to any ST programmer who is looking for an all-inclusive programming package, provided he is willing to live with the irregularities inevitable in such an innovative product. ■

# C Life

## Dialog display—the basics




Last issue, we discussed the basic structure of GEM resources—dialog boxes in particular—and showed how a basic dialog box can be defined within the body of a C program. In this issue, we'll be examining some of the facilities GEM puts at our disposal for dialog box display and management.

### Displaying a Dialog

Displaying a GEM form is a multi-step process, which involves several calls to AES. The first step, which is entirely optional, is to use form_center( ) to adjust the coordinates of the form so that it will appear centered on the display at the current resolution. The call is made as follows:

```
form_center(object,&x,&y,&w,&h);
```

where "object" is a pointer of type OBJECT *, indicating the address of the OBJECT structure for the object being centered, and x, y, w, and h are integer variables—referred to here by their addresses—that will be stuffed with the altered coordinates of the object by the form_center( ) call.

Since form_center( ) does not modify the coordinate fields of an OBJECT structure directly, but merely draws information from them to produce new coordinate values, you can use the call in several ways. Most simple applications, however, use the following formulation (or some variant) to simply center each dialog object during initialization:

```
form_center(p,&(p -> ob_x),&(p -> ob_y),&(p -> ob_width),&(p -> ob_height);
```

passing the calculated values back into the OBJECT structure, directly (p is a pointer to that structure).

Mark Williams C users may wish to take advantage of the predefined (in aesbind.h) structures Rect and Prect, for use with form_center( ) and other AES calls involving screen rectangles. Rect is a structure of four integers, defined as follows:

```
struct {int x,y,w,h;} Rect;
```

Prect is a structure of four *pointers* to integers:

```
struct {int *x,*y,*w,*h;} Prect;
```

which can be passed directly to form_center( ), among other functions. When formulated in this way, the call to form_center( ) looks as follows:

```
OBJECT *p;
int x,y,w,h;
struct Prect rectangle = {&x,&y,&w,&h};
form_center(p,rectangle);
```

By JOHN JAINSCHIGG

**Listing 1.**

```
/***********************************************
FLAGSPECS.C -- lets the user examine the effects
of various combinations of ob_flags and ob_spec
settings on the appearance of GEM button objects,
and test how such objects respond under the control
of AES form_do(). Runs in medium or high res.

Compile as follows under Mark Williams C:
>cc flagspecs.c -VGEM
***********************************************/

#include <aesbind.h>
#include <obdefs.h>

/* Object indices. Compare to positions of objects in OBJECT arrays. */

#define B1              1       /* Buttons in test dialog */
#define B6              6
#define BB1             5       /* "Selector" buttons */
#define BB6             10
#define BSELECTABLE     11      /* Buttons relating to ob_flags */
#define BDEFAULT        12
#define BEXIT           13
#define BTOUCHEXIT      14
#define BSELECTED       15      /* Buttons relating to ob_state */
#define BSHADOWED       20
#define BFORMDO         21      /* Control buttons */
#define BQUIT           22
#define BREDRAW         23

#define SPEC1       0x21100L    /* Bitmap spec for dialog outlines */
#define SPEC2       0x1100L     /* Ditto for invisible boxes */

/* OBJECT structure definitions for test and control panel dialogs.
   While these were hand-modified, they were originally generated with
   the help of a resource construction set (RCS), then converted to C
   code with the help of a quicky conversion utility. A more finished
   version of this utility will be the topic of an upcoming column. */

OBJECT box[] = {
-1,1,7,G_BOX,NONE,NORMAL,SPEC1,2,64,216,72,
2,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON1",16,8,80,8,
3,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON2",16,24,80,8,
4,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON3",16,40,80,8,
5,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON4",120,8,80,8,
6,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON5",120,24,80,8,
7,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"BUTTON6",120,40,80,8,
0,-1,-1,G_BUTTON,TOUCHEXIT | LASTOB,NORMAL,"Escape!",72,56,64,8
};

OBJECT cntrl[] = {
-1,1,23,G_BOX,NONE,NORMAL,SPEC1,226,16,320,136,
2,-1,-1,G_STRING,NONE,NORMAL,"Button",24,8,48,8,
3,-1,-1,G_STRING,NONE,NORMAL,"ob_flags",128,8,64,8,
4,-1,-1,G_STRING,NONE,NORMAL,"ob_state",232,8,64,8,
11,5,10,G_IBOX,NONE,NORMAL,SPEC2,8,16,80,104,

16,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Selected",216,24,88,8,
17,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Crossed",216,40,88,8,
18,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Checked",216,56,88,8,
19,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Disabled",216,72,88,8,
20,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Outlined",216,88,88,8,
21,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Shadowed",216,104,88,8,
22,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"form_do",48,120,64,8,
23,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Quit",208,120,64,8,
0,-1,-1,G_BUTTON,TOUCHEXIT | LASTOB,NORMAL,"Redraw",128,120,64,8
};

main()
{
appl_init();
graf_mouse(0,0L);       /* Change mouse pointer to arrow */
showdial(box,1);
showdial(cntrl,1);
dodials();
byedial(box,1);
byedial(cntrl,1);
appl_exit();
}

/* Handle dialog boxes */

dodials()
{
int ret,but = 1;

/* "Endless" loop -- get input from the control panel, modify the
   test panel appropriately, etc., until user clicks on "Quit." */

while(1){
```

The Rect and Prect structures, or arrays of same, can be useful in keeping track of object positions in a large-scale application.

The second step in form display is, strictly speaking, non-optional: reserving screen space for the object so that you can make it go away neatly after you are finished with it. For example, in a program I am currently writing, I have set up a large "control panel" dialog in the center of the screen. Periodically, other small dialogs open on top of it to keep the user apprised of current conditions. By reserving space for each small dialog before having it drawn and relinquishing that space afterwards, the AES takes care of redrawing my control panel automatically, erasing the small dialogs in the process.

The space reservation and relinquishment operations are performed by a very versatile call: form_dial( ). Actually, form_dial( ) has four functions: to reserve a rectangle, to draw and animate a "growing box" preparatory to dialog display, to do the same thing with a "shrinking box" afterwards, and to relinquish reserved screen space, forcing redraw. The call is made as follows:

form_dial(argument,x1,y1,w1,h1,
x2,y2,w2,h2);

where "argument" is an integer between 0 and 3, designating the desired function (reserve space, draw growbox, draw shrinkbox, or relinquish space, respectively), and the remaining parameters are integers (or two structures of type Rect), defining the small and large rectangles to be used in the operation.

Only the coordinates of the second, or large, rectangle are used in reserving and relinquishing space—functions 0 and 3—though placeholders must be employed so that the right number of parameters are put on the stack in the course of making the call. Both rectangles are significant in drawing growboxes and shrinkboxes.

The argument values for form_dial( ) have been equated to mnemonics in gemdefs.h, as follows:

```
#define FMD_START 0
#define FMD_GROW 1
#define FMD_SHRINK 2
#define FMD_FINISH 3
```

Listing 1 demonstrates the use of all four form_dial( ) functions in dialog display. This is a very standard approach and can be "tarted up" in a variety of ways, particularly in the way growboxes and shrinkboxes are used to

provide visual interest and to clarify the inter-relationships among objects. For example, when we discuss GEM menus, two issues from now, we'll show how forms can be made to grow directly out of menu items and return to appropriate menu headers.

### Drawing Objects

Once an object has been centered and space for it has been reserved onscreen, the next step is to display it. This is done using the function objc_draw( ), which is called as follows:

objc_draw(root,start,depth,x,y,w,h);

where "root" is a pointer to the OBJECT structure pertaining to the dialog root (in most cases, the box object that outlines the form), "start" is an integer index to the OBJECT structure of the first object to be drawn (remember that OBJECT structures in a resource are stored in array form), "depth" is an integer indicating how many levels of the start object's children (if any) should be drawn, and x, y, w, and h are integers describing a "clipping rectangle" (parts of the dialog falling within this rectangle will be drawn, parts falling outside will not be).

The objc_draw( ) function is exceptionally flexible. In its simplest formulation, it can be used to throw an entire dialog up on the screen:

objc_draw(root,ROOT, MAX_DEPTH, root.ob_x,root.ob_y, root.ob_width,root.ob_height);

The mnemonics ROOT and MAX_DEPTH are #defined in obdefs.h as 0 and 8, respectively. Since GEM supports forms with no more than eight levels of parent-child hierarchy, the use of these mnemonics for start and depth mean, in effect, "draw the object beginning at its root (the root object has index 0 in the OBJECT structure array for the form), and continuing downwards in the object tree as far as possible" (objc_draw( ) knows to stop if the form being drawn actually contains fewer than eight levels). The clipping rectangle used in this most basic call is drawn directly from the coordinates of the OBJECT structure of the root object.

By adjusting the start and depth parameters and the coordinates of the clipping rectangle, objc_draw( ) can be used to draw or redraw only selected portions of an object. This can become useful in the onscreen management of complex dialogs, as we'll later see.

**Listing 1.**

```
/* This is all that's required to manage the control panel dialog
   on-screen. Neat, huh? The function returns the index of the
   object that the user clicked, since all objects in the control
   panel are flagged as TOUCHEXIT. */

     ret = form_do(cntrl,0);

/* When a button-selector button is pressed, determine the button
   object we're now looking at in the test dialog, and modify the
   buttons on the control panel to reflect its flags and state. */

     if (ret >= BB1 && ret <= BB6){
          but = B1 + ret - BB1;
          butcntl(but);
          }

/* If an ob_flags button has been clicked, modify the ob_flags
   field of the current button, and redraw the button in case
   a flag that changes its appearance has been selected. */

     else

     if (ret >= BSELECTABLE && ret <= BTOUCHEXIT){
          box[but].ob_flags = box[but].ob_flags ^
          (1 << ((ret == BTOUCHEXIT)? 6 : (ret - BSELECTABLE)));
          change(box,but,box[but].ob_state);
          }

/* If an ob_state button has been clicked, use objc_change() to
   modify the ob_state field and redraw the button as required
   to change the object's appearance. */

     else

     if (ret >= BSELECTED && ret <= BSHADOWED)
          change(box,but,box[but].ob_state ^ (1 << (ret - BSELECTED)));

/* The redraw button serves to completely redraw the test dialog. It's
   needed here because partial redraw (i.e., objc_change) operations
   are not always sufficient to clear up the remnants of certain ob_flags
   and ob_state settings. For example, try setting an object to "SHADOWED"
   then resetting it. The shadow remains, even though a partial redraw
   has, in fact, been executed. */

     else

     if (ret == BREDRAW){
          byedial(box);
          showdial(box);
          }

/* If the user clicks on "form_do," the form_do() function is executed,
   placing the test dialog under AES control. The control panel is re-
   activated when input to the test dialog is terminated by performing
   the appropriate action (clicking, double-clicking, or pressing the
   Return key) on a button that has been flagged as EXIT, TOUCHEXIT,
   and/or DEFAULT, respectively. The "Escape!" button always provides
   an escape route back to the control panel, in case you fail to flag
   at least one of the numbered buttons to terminate input. The moral of
   this story is that -- yes, it's possible to create a dialog box from
   which there is no escape! But not in this program. */

     else

     if (ret == BFORMDO){
          ret = form_do(box,0);
          change(cntrl,BFORMDO,NORMAL);
          if (ret == but) butcntl(but);
          }

/* Otherwise, the user must have pressed "Quit." So return to main(). */

     else return(0);
     }
}

/* Make the control panel's settings reflect the ob_flags and ob_state
   values of a given button. */

butcntl(b)
int b;
{
int i,j;

for (i = 1,j = 0;i <= EXIT;i = i << 1,j++){
     change(cntrl,BSELECTABLE + j,(box[b].ob_flags & i)? SELECTED : NORMAL);
     }

change(cntrl,BTOUCHEXIT,(box[b].ob_flags & TOUCHEXIT)? SELECTED : NORMAL);
```

```
for (i = 1,j = 0;i <= SHADOWED;i = i << 1,j++)
     change(cntrl,BSELECTED + j,(box[b].ob_state & i)? SELECTED : NORMAL);
}

/* Use objc_change() to alter the ob_state field of an object and redraw
   it, if necessary. */

change(p,i,s)

OBJECT *p;
int i,s;
{
objc_change(p,i,0,p -> ob_x,p -> ob_y,p -> ob_width,p -> ob_height,s,1);
}

/* Reserve space for a dialog box, draw a growing box, and display the
   dialog. AES always reserves 2 rasters too many in the horizontal and
   vertical directions, in case your dialog has a special shadow or border
   that needs this extra room. Ours don't, so we subtract 2 from the width
   and height of our destination rectangles. */

showdial(p)
OBJECT *p;
{
form_dial(0,0,0,0,0,p -> ob_x,p -> ob_y,p -> ob_width - 2,p -> ob_height - 2);
form_dial(1,0,0,0,0,p -> ob_x,p -> ob_y,p -> ob_width - 2,p -> ob_height - 2);
objc_draw(p,ROOT,MAX_DEPTH,p -> ob_x,p -> ob_y,p -> ob_width,p -> ob_height);
}

/* Draw a shrinking box and relinquish reserved space, causing AES to
   redraw the screen. */

byedial(p)
OBJECT *p;
{
form_dial(2,0,0,0,0,p -> ob_x,p -> ob_y,p -> ob_width - 2,p -> ob_height - 2);
form_dial(3,0,0,0,0,p -> ob_x,p -> ob_y,p -> ob_width - 2,p -> ob_height - 2);
}
```

**Listing 1.**

### Dialog Management

One of the niftiest things about working with GEM forms is the effortless way they can be put in motion. The most generally useful function for this is form_do( ), which "works" a dialog under mouse and keyboard control. The function is called as follows:

```
int ret;
ret = form_do(root,edit);
```

where "root" is a pointer to the form's root object's OBJECT structure, and "edit" is the integer index of a single editable text object in the form, or 0 if the form contains no editable text objects.

The integer value returned by form_do( ) is the index of the object that terminates user input to the form. Usually, this will be the index of an EXIT button, or similar subsidiary object, but it may refer to any object flagged as EXIT, TOUCHEXIT, or DEFAULT, depending on the design of the form and the behavior of the user.

### Managing form_do( )

The simplest dialogs consist of a root object (a dialog box outline of type G_BOX), sometimes a label of type G_STRING, and from one to several sibling buttons of type G_BUTTON. Controlling the management of form_do( ) is simply a matter of setting appropriate flags for each object (i.e., setting the ob_flags field in the OBJECT structure of the object) before calling the management function.

Let's take, for example, the object shown in Figure 1, a simple alert-box form with a label and two buttons. The underlying OBJECT structure array for such a form is shown in Figure 2.

When this form is displayed with objc_draw( ), the CANCEL button will appear with a doubled border, because it is flagged as DEFAULT. form_do( ) might be called to manage the form, as follows:

```
int ret;
ret = form_do(alert,0);
```

where "alert" points to the root object in the array, and 0 is used as the second parameter, since the form contains no editable text object.

Under the control of form_do( ), the user can interact with the form. Clicking with the mouse on the screen background will produce a warning bell automatically. Clicking on the surrounding box or on the label string will produce no result, because these objects have no special flags set (mnemonic NONE).

Clicking on the OK button, however, will produce an immediate visible result. Because the button has been flagged as SELECTABLE, it will be inverted to black (and the SELECTED bit in the ob_state field of the button altered to reflect this). Then, because it has been flagged as TOUCHEXIT, form_do( ) will terminate, returning the button index (2) in the variable ret.

Clicking on the CANCEL button (or pressing Return, since this object has also been flagged as DEFAULT), will cause inversion of the button and return with the button index (3) in ret. Before the form is displayed again, the programmer will have to reset the SELECTED bit of the ob_state field of the chosen object to prevent it from being drawn in inverse.

### More Complex Objects

In the above example, the value returned by form_do( ) is sufficient to indicate which of a small group of mutually exclusive options has been selected by the user. Now, let's examine the problem of managing the slightly more complex form shown in Figure 3, a form that might be encountered in a telecommunications application.

The dialog offers a pair of unrelated options (that of using XON/XOFF protocol and of following LFs (linefeeds) with CRs (carriage returns) on output), which can be toggled on and off independently. The OK button should cause the selected options to be implemented; CANCEL should cause the program to ignore them.

The job of managing such a form onscreen and of responding properly to user input thereafter begins with the OBJECT structure array of the form (see Figure 4). As is generally the case, the dialog box outline and the label are given no special flags (NONE), and their states are set to NORMAL.

The XON/XOFF and LF/CR buttons are flagged as SELECTABLE, meaning that they can be selected or deselected while the form is under the management of form_do( ). However, they are *not* flagged with anything (i.e., EXIT, TOUCHEXIT, or DEFAULT) that would cause form_do( ) to terminate management of the form when these buttons are selected.

The OK and CANCEL buttons are both flagged as SELECTABLE and TOUCHEXIT, and the CANCEL button is additionally flagged as DEFAULT. States of all buttons are initially set to NORMAL. In the case of the option buttons this means, for purposes of argument, that neither option is selected when the dialog is first displayed.

Figure 5 contains a code sample that might be used to display and manage

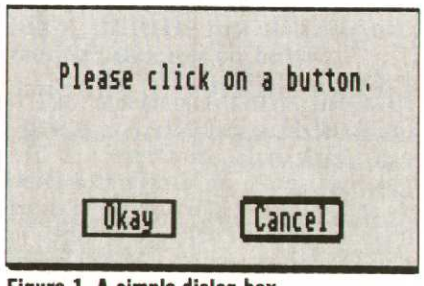



**Figure 1. A simple dialog box.**

```
#define SPEC     0x21100L

#define DIALOG   0
#define LABEL    1
#define OK       2
#define CANCEL   3

#define FLAG1    SELECTABLE | TOUCHEXIT
#define FLAG2    SELECTABLE | TOUCHEXIT | DEFAULT | LASTOB

OBJECT lert[] = {
-1,1,3,G_BOX,NONE,NORMAL,SPEC,16,8,304,72,
2,-1,-1,G_STRING,NONE,NORMAL,"Please click a button.",56,8,176,8,
3,-1,-1,G_BUTTON,FLAG1,NORMAL,"Okay",48,48,64,8,
0,-1,-1,G_BUTTON,FLAG2,NORMAL,"Cancel",176,48,64,8
};
```

**Figure 2. C Code used to define the form shown in Figure 1.**

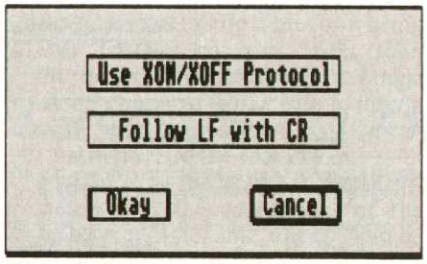



**Figure 3. A more complex dialog.**

```
#define SPEC     0x21100L
#define XONF     2
#define LFCR     3
#define OK       4
#define CANCEL   5

OBJECT teledial[] = {
-1,1,5,G_BOX,NONE,NORMAL,SPEC,8,8,288,72,
2,-1,-1,G_STRING,NONE,NORMAL,"Set Options",96,8,88,8,
3,-1,-1,G_BUTTON,SELECTABLE,NORMAL,"Use XON/XOFF protocol",24,24,232,8,
4,-1,-1,G_BUTTON,SELECTABLE,NORMAL,"Follow LF with CR",24,40,232,8,
5,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT,NORMAL,"Okay",24,56,64,8,
0,-1,-1,G_BUTTON,SELECTABLE | TOUCHEXIT | DEFAULT | LASTOB,NORMAL,"Cancel",
      184,56,64,8
};
```

**Figure 4. C code used to define the form in Figure 3.**

```
do_teledial()
{
static int xonf = 0,lfcr = 0,ret;
Rect rect = {teledial[0].ob_x,teledial[0].ob_y,teledial[0].ob_width,
                teledial[0].ob_height};

form_dial(0,0,0,0,0,rect);     /* reserve screen space */
form_dial(1,0,0,0,0,rect);     /* do growbox */
objc_draw(teledial,ROOT,MAX_DEPTH,rect); /* draw dialog */
ret = form_do(teledial,0);     /* manage dialog on screen */
form_dial(2,0,0,0,0,rect);     /* do shrinkbox */
form_dial(3,0,0,0,0,rect);     /* relinquish space */
teledial[ret].ob_state = NORMAL;   /* reset exit button state */

/* If CANCEL was pressed, reset states of buttons to prior settings */

if (ret == CANCEL){
        teledial[XONF].ob_state = xonf? SELECTED : NORMAL;
        teledial[LFCR].ob_state = lfcr? SELECTED : NORMAL;
        }

/* If OKAY was pressed, set or reset variables and implement or
   unimplement parameters, as implied by button states. */

else {
        if (teledial[XONF].ob_state & SELECTED){
                xonf = 1;
                do_xonf();     /* implement XON/XOFF */
                }
        else {
                xonf = 0;
                do_noxonf();  /* turn off ditto */
                }

        if (teledial[LFCR].ob_state & SELECTED){
                lfcr = 1;
                do_lfcr();     /* implement LF/CR */
                }
        else {
                lfcr = 0;
                do_nolfcr();  /* turn off ditto */
                }
        }
}
```

**Figure 5. C code that might be used to manage the form in Figure 3.**

such a form. The value returned by form_do( ) is examined to check whether OK or CANCEL was used to terminate input to the form. If CANCEL was selected, the states of the option buttons are reset to prior values in preparation for the next time the form is displayed, and no further action is taken. If OK was selected, the program checks the state of the option buttons (set automatically by form_do( )) to determine what the option settings should be and modifies them as necessary.

### An Example

This month's example program (see Listing 1) employs a pair of dialog boxes to let you experiment with the way different flag and state settings affect the way a form is displayed and the way it is managed by form_do( ). In our next issue, we'll be examining some even more complex dialog box structures—radio buttons, editable text, and complex "hand-rolled" controllers—and begin exploring that friend of GEM programmers everywhere, the Resource Construction Set. ■

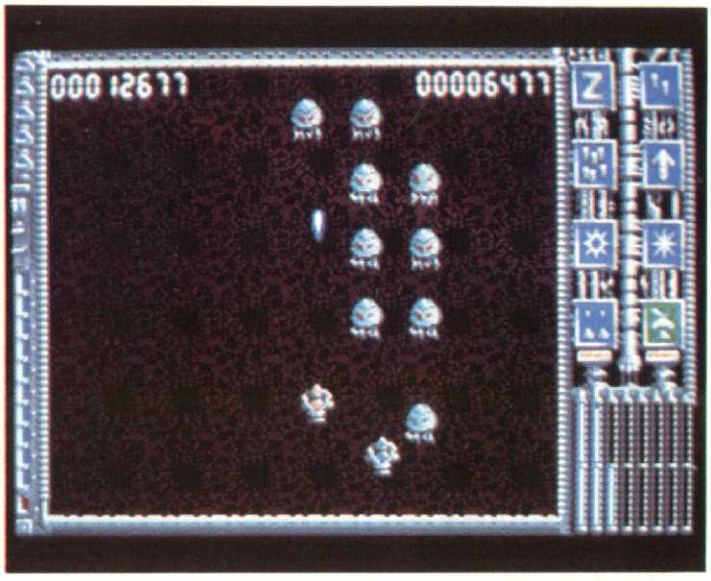
# Software Survey

*The latest software releases for Atari computers—pros and cons*

## Better Dead Than Alien

**System:** Atari ST
**Required equipment:** Color monitor
**Copy protection:** No
**Summary:** The ultimate shoot-em-up
**Price:** $34.95
**Manufacturer:**
Electra
16b Worcester Pl.
Oxford OX1 2JW
England
**Distributor:**
Discovery Software
163 Conduit St.
Annapolis, MD 21401
(301) 268-9877

EASE OF LEARNING
CHALLENGE
GRAPHICS
DOCUMENTATION
OVERALL RATING




*Better Dead than Alien* by Electra is the best 'dang shoot-em-up game to come out in years! Twelve-second learning curve . . . just start blasting away. No big-deal scenario—you are driving a spaceship that floats around near the bottom of the screen, while ranks of aliens float around near the top, dropping the occasional bomb. You shoot them until they're all gone, at which point you encounter a stronger, smarter, harder to hit, or better-armed wave. Eventually, you die.

Actually, it is a bit more complicated than that (but not much). Every hit scored on your ship reduces your energy, and firing your weapons depletes it still more. To replenish your supply, you have to wait until an alien's eyes glow green, shoot him, then catch the power pellet he drops in his death throes. If one of the "enhancement" icons on the right side of the screen is flashing when this little transaction takes place, your firepower will be enhanced.

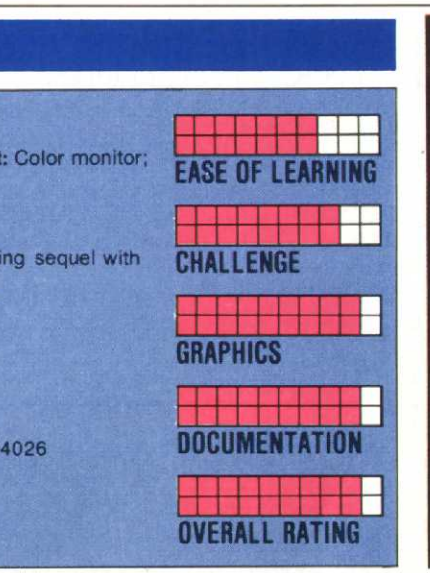
Every few waves, you have to shoot your way through a meteor shower—a sequence very much like Asteroids. In addition, you periodically encounter a "master alien"—a big sucker, very durable, who drops lots of bombs.

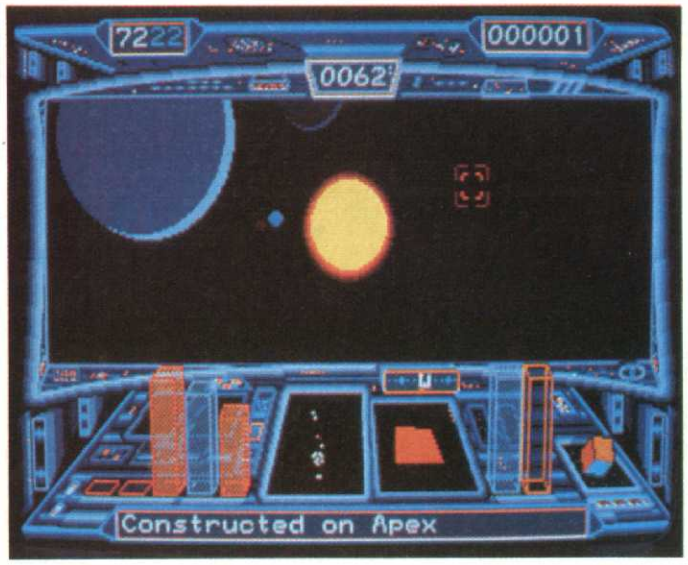
Still, hardly brainy stuff. But who cares? The action is furious, the graphics sensational, and the sound effects unique (you even get a digitized post-mortem ovation). The game can be configured to work with mouse, joystick, or keyboard and has a simultaneous two-player mode. It comes with a comic book. You want sophistication, gidda-dahere!

***—John Jainschigg***

## Starglider II

**System:** Atari ST
**Required equipment:** Color monitor; joystick optional
**Copy protection:**
**Summary:** Challenging sequel with stunning graphics
**Price:** $44.95
**Manufacturer:**
Rainbird
P.O. Box 2227
Menlo Park, CA 94026
(415) 940-6087




Just when you thought it was safe to travel around the galaxy, the aggressive and heavily armed Egrons you though you had defeated in *Starglider* return to challenge you in *Starglider II*.

The Imperial Prator of Egron has come up with a dastardly scheme to eliminate your home planet, Novenia, and clear the way for the final conquest of the galaxy. Guess who has been chosen to stop the Egrons? But with the brand new Icarus Starglider at your command you can square your shoulders, lift your chin, and challenge the Prator to " . . . make my day."

The Egrons have taken over a nearby star system, the Solice system, and are building energy projectors with which to defend the moon-like space station they are constructing. The space station will ultimately house a plasma beam designed to shatter Novenia across millions of miles of space.

To assist you in your mission, you are given the prototype of an advanced police scoutcraft, the reborn Icarus. With it you can fly to the Solice system and deal firmly with the Egron menace.

You start with lasers as your only weapons, and you must find more powerful weapons to allow you to destroy the Egron energy projectors and the space station.

A resistance group in the Solice system will help you build the one weapon that can destroy the Egron space station, a neutron bomb. Before you can begin construction, however, you must find the materials needed to make the bomb. Another much-needed item is a certain Professor Halsen Taymar, who knows how to build the bomb.

As you search for the components of the bomb that will put an end to the Egron presence, *Starglider II* becomes an Easter egg hunt of sorts. You fly Icarus through the Solice system, diving into tunnels bored through planets and moons to find weapons, materials, and the professor.

An important difference between *Starglider II* and the original *Starglider* is that you can fly Icarus from one planet to the other. You start out on the planet of Apogee and fly to the other planets to find the items you need.

Meanwhile, back at the ranch, the Egrons are building their projectors, and you must make raids against the projectors on the seven moons of the planet Millway to slow the completion of the space station. You must buy time for the resistance while the bomb is being built.

As in the original *Starglider*, you fly Icarus above the landscape, diving to fire lasers, missiles, and other weapons. Timecubes are nifty new weapons that, when fired, envelope the target and cause it to travel back one second in time and crash into itself. You can find additional weapons in the tunnels at service depots controlled by the resistance.

The graphics in *Starglider II* are even better than those in *Starglider*. The scenery and the Egron war machines are stunningly realistic. The Egrons seem to be everywhere and are so lifelike I had to stop Icarus for a minute and just watch one of the stompers stomp by—the realism was amazing. The walkers are back, as are the Egron tanks, and some newer animated weaponry has been added.

The game comes with an option called Painting With Rolf, which you can use to paint with any of the animated figures in *Starglider*. You can also page through pictures of all the different machines and monsters to see what they look like and what they are called.

*Starglider II* also allows you to customize your point of view. You can look out the side windows of your craft as you fly past Egron pyramids and towers, or you can step outside the craft and watch as Icarus dives at an Egron tank. Just examining the graphics from different angles and perspectives can give you hours of pleasure. Eventually, however, you will have to remember that you have an important mission.

When you fly between planets you will be attacked by Space Pirates. The dogfights that ensue are so realistic that they will make you feel like Luke Skywalker. The fighters are sharply detailed and come at you from all directions. (Hint: pay attention to what happens as you blast the pirates into scrap. What was it you needed to find?) The sound adds to the realism, causing deep bass vibrations to course through your ship.

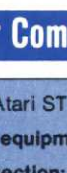
*Starglider II* comes on a single-sided disk that holds both the Atari ST and Amiga versions of the game. The package includes a novella, a playguide, an Atari ST/ Amiga keyguide, and a cassette of catchy electronic theme music. You should really read the novel first to get a few ideas for finishing the game. You will also have to keep referring to the playguide until you learn how to use the many special features of this game.

*Starglider II* is a classy sequel to the original *Starglider*. It offers plenty of action and requires enough strategic planning to keep your mind occupied. If you have ever wished for a chance to live the "Star Wars" movies, this is the game for you. Put on your flight suit and your helmet, boot up *Starglider II* and go for it!

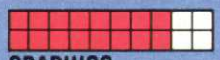
***—John S. Manor***

## Carrier Command

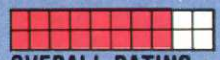
**System:** Atari ST
**Required equipment:** Color monitor
**Copy protection:** None
**Summary:** An action-strategy game and combat simulator set in a realistic 3-D world
**Price:** $44.95
**Distributor:**
Rainbird
P.O. Box 2227
Menlo Park, CA 94026
(415) 940-6087

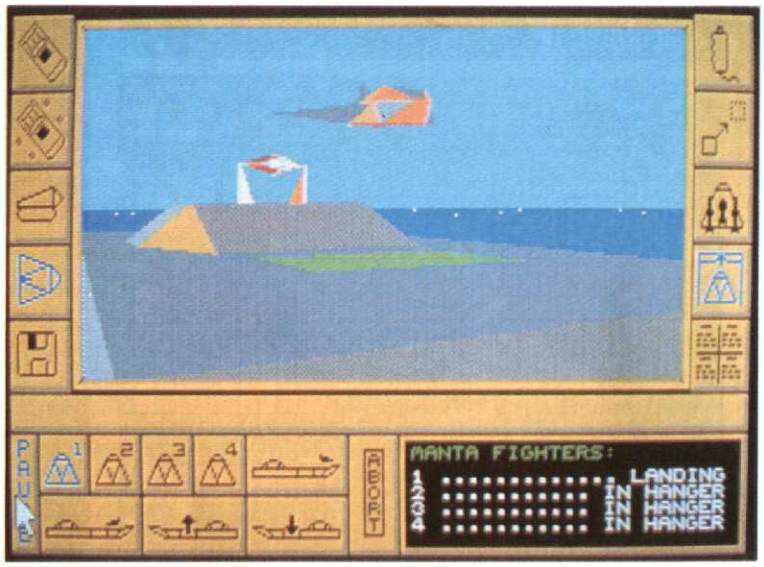

EASE OF LEARNING


CHALLENGE


GRAPHICS


DOCUMENTATION


OVERALL RATING




*Carrier Command* from Rainbird is both a strategy-action game and a simulation of futuristic combat on a grand scale. It is actually many simulations in one; you can control an aircraft carrier, up to four jet fighters, and four amphibious tanks, simultaneously. Any one of these simulations would be enough to warrant the price you pay for the whole game.

As you begin to play *Carrier Command*, you learn that terrorists have taken control of a new, super-advanced, computer-controlled aircraft carrier called the Omega. They have demanded 15 billion dollars or they will use the Omega to destroy the chain of energy-rich islands on which the nation depends. Your goal is to stop the enemy carrier and re-take the islands. Fortunately, you have an identical aircraft carrier, the ACC Epsilon. It has no computer control, however, so you control it directly.

The graphics in *Carrier Command* are similar to *Flight-Simulator II* graphics. All the jets, tanks, and buildings are three-dimensional filled-objects.

You have a choice of playing a strategy game, playing an action game, or loading a saved game in progress. The action game gets you into the action fast. Your carrier arrives at an enemy-held island, and from the deck you can see enemy installations on shore and jet fighters taking off from the air strip.

Each occupied island has a command center. Your objective is to destroy that center with the resources available. I usually try a single-fighter attack first. A single fighter, if you are lucky, can sometimes accomplish the entire mission.

Before you can take off, you must arm and refuel your Manta jet fighter in the hangar. All commands are entered by clicking on icons with the mouse.

## Roadwars

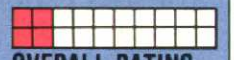
**System:** Atari ST
**Required equipment:** Color monitor
**Copy protection:** Yes
**Summary:** Forgettable arcade game
**Price:** $29.99
**Manufacturer:**
Arcadia
711 West 17th St., #G9
Costa Mesa, CA 92627
**Distributor:**
Electronic Arts
P.O. Box 7530
San Mateo, CA 94403
(800) 245-4525
(800) 562-1112 in CA

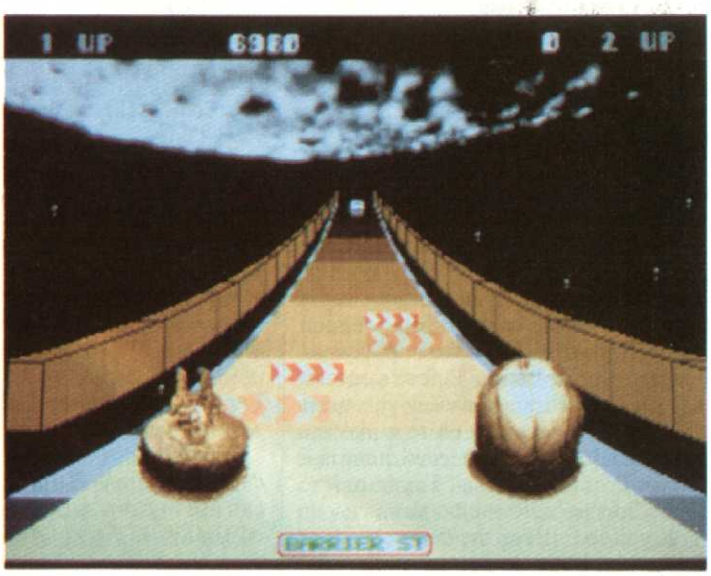

EASE OF LEARNING


CHALLENGE


GRAPHICS


DOCUMENTATION


OVERALL RATING




"It is the beginning of the 25th century . . . " So begins the drawn-out and wholly irrelevant sci-fi lead-in to this drawn-out and totally forgettable arcade thingy. *Roadwars* puts you in the driver's seat of a kind of rolling ball-thingy that contains a turret and cannon. You roll along a "space road"—a kind of Dyson-RingWorld thingy that hangs in the vast empyrean.

Wall panels on either side of the road,

You choose from a large inventory of weaponry (missiles, lasers, fragmentation bombs, etc.). Then you send the Manta to the flight deck on an elevator lift.

The graphics are so detailed and realistic you actually see your fighter come up on the elevator and take off.

Once your Manta is in the air, you can choose a pre-programmed course, or you can take direct control. Your view is from the Manta. The island looms before you, growing larger as you approach. You can increase your speed (which is useful for dodging heat-seeking missiles) and altitude, click on a radar screen to check enemy movements, and check behind you with a rearview icon. (I use this last feature often to enjoy the view as I lift off. I have as much fun just flying as I do playing the game.)

Clicking on a weapon icon (a missile is my favorite) activates it. You zoom in over the island, spot the command center, and dive on it, firing your missiles one after the other. Then you must veer off sharply and head back to the carrier, twisting and turning to avoid ground-launched missiles and enemy Mantas.

This is just one possible scenario in a much larger game. In addition, you can dogfight with enemy Mantas, attack the enemy carrier, invade islands with your amphibious tanks, and more in the course of a full-length game.

The strategy version of *Carrier Command* starts off differently. If you click on a map icon, you see a map with grids. Islands are colored blue for friendly, red for enemy, and green for free. Your carrier starts out at the lower left, anchored off a friendly island. The enemy carrier is somewhere at the upper right of the map. In between are the free islands.

By invading with your tanks (amphibious assault vehicles or AAVs), you must grab free islands to build up your network of friendly islands. You set up command centers for defense, factory, and resource islands, all of which are connected to your base or stockpile island and will produce the raw materials, fuel, and weapons you need to carry on the fight. If your supply lines are cut, you could run out of weapons, out of fuel—out of luck!

*Carrier Command* is a complex game with an astounding variety of controls and command systems. In addition to the Mantas, amphibious tanks, and direct control of the carrier itself, there are carrier-based defenses, including decoy drones, flares (to counteract incoming missiles), a laser turret, missiles, a carrier-repair system, and a supply and refueling system. It takes at least 64 manual pages to describe it all. After reading the manual and practicing, though, playing soon becomes intuitive.

*Carrier Command* has colorful and appealing graphics. The three-dimensional filled graphics are thrilling as you swoop in from a high altitude to bomb an island or the Omega carrier. You can watch Mantas, tanks, and drones take off, land, dock, and attack from many different angles.

One of my favorite things is fixing a Manta with a long-range communication device, so it can island-hop all over the map. In this mode, the game bears a striking resemblance to *Flight Simulator II*.

The sound in *Carrier Command* adds realism and fun to the game. You can hear the whine of jet engines overhead and almost feel the concussion of missiles exploding.

*Carrier Command* comes on a single-sided disk with the manual, an Atari ST guide, a cassette of theme music for single-sided disk owners, and a large sticker emblem. As an added bonus, you get a formatter that produces "turbo" disks that hold 400K and load much faster than standard disks.

*Carrier Command* is a very addictive action and strategy game; the packaging should include a warning sticker: "This game will cause you to sit in front of your computer for hours, ignoring the lawn, the dishes, and the kids!"

*Carrier Command* provides a world of entertainment for the computer wargame/simulation enthusiast. I am sure it will quickly become a classic and a standard against which other games will be judged. I give *Carrier Command* high marks for fun, playability, graphics, and value for your entertainment dollar. ***—John S. Manor***

little balls that roll toward you on the road, markings on the road, and satellites that fly by the side of the road are your opponents. You shoot them, and periodically they try to do things to you—shoot you, electrocute you, blow you up, etc. You try to protect yourself by raising and lowering your shields.

To add to the excitement, another ball thingy is rolling along next to you. Your buddy, there, he helps you clear the road of the various menaces to navigation that threaten you. Then, in between rounds, he tries to blow you up for extra points.

The graphics are truly substandard for the ST and are, in fact, inferior to those in some of the better 8-bit offerings. Control is by joystick and is clumsy and difficult to manage. Gameplay is fast but boring—a difficult idea to grasp, intuitively, until you have wasted some time trying to play this turkey. Give it a miss. ***—John Jainschigg***

*"Well, concrete computers are definitely not the answer."*

## Shadowgate


EASE OF LEARNING

CHALLENGE

GRAPHICS

DOCUMENTATION

OVERALL RATING

**System:** Atari ST

**Required equipment:** Color monitor

**Copy protection:** Yes

**Summary:** Graphic adventure with a nice user interface

**Price:** $49.95

**Manufacturer:**
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667 (800) 221-9884

*Shadowgate*, the third graphic adventure ICOM Simulations has done for Mindscape, is even better than its predecessors. First came *Deja Vu*, in which partial amnesia was only one of your problems as you tried to solve a murder and clear yourself in the, bargain. Then there was *Uninvited*, in which a mansion filled with horrors was the challenge.

Now we have *Shadowgate*, which is similar to *Uninvited* in several respects, the most striking of which is the playfield upon which the adventure unfolds. You must make your way through the castle of the evil Warlock Lord before you can do battle with the villain and win the game.

That is about all the story line you are given in this one, a fact that weakens the overall product just a bit. It is easier to get involved in an adventure if you are given a good reason for the quest and have a story line that may provide some clues along the way.

When the game first boots and you stand before the door to the castle, you find eight options that remain more or less constant throughout the adventure. You can speak, examine something, open or close something, operate something, go somewhere, hit something, or consume something. All you need to do is click on that something in the graphics window and then move the pointer to one of the actions on the menu and click again.

You will have an easier time solving the mystery if you make liberal use of the examine and operate options. Try to examine and operate as many things as possible. Often you will be surprised at the results you get. Also, remember to save the game as you go along, so that if you examine the wrong thing and end up dead, you won't have to start over again at the entrance to the castle.

Entering and leaving rooms is made easy by a window at the lower right of the screen, which displays all known exits. Merely click on one of the marked exits, and you move out that door.

As in the two previous ICOM efforts, graphics are a strong point of the program. It is quite easy to recognize items on the screen, even if they are some distance from you. Manipulating items is also quite easy through the combined use of on-screen graphics and menu commands.

Other details add both realism and frustration to the game. For example, when the first door opens, you have a lighted torch at your disposal, but don't expect it to remain lit forever; other torches that you will come upon remain lit for much longer, so look for them.

In all, *Shadowgate* is an enjoyable game—especially if your idea of a good time involves mystery and musty castles.

***—Rick Teverbaugh***

## Gauntlet II

Thor the Warrior looked down the long corridor then glanced back at his valkyrie friend, Thyra. "We should have brought our Magician friend with us; this looks like a tough level." Nevertheless, Thor trudged out and began bashing the trolls that were emerging from a nearby generator. Suddenly a deep voice cried out, "Red Warrior is about to die!" and ominous music began to play in the background.

Unfortunately, just as Thor's body turned to ashes, Thyra carelessly stepped in front of a dragon and was instantly fried to a crisp. The warriors were required to begin their quest once more at the first level of the Gauntlet.

*Gauntlet II* is a shoot-em-up style arcade game in which up to four players can participate as they attempt to run the gauntlet into deeper and deeper levels of a seemingly bottomless dungeon. Each player plays with a different colored character in one of the four available classes: warrior, wizard, elf, and valkyrie. Each character starts out with a supply of 2000 health points, which dwindles steadily as time passes and rapidly when the player enters into combat with the inhabitants of the lower levels. Opponents range from stupid grunts, who beat on the characters with clubs, to Death itself, which can only be killed by using a magic potion.

Unfortunately in this game, as in real life, all things die sooner or later. But you can re-enter where he left off, if another player is still alive in the game.

At the right side of the playing screen the status of each player—his health, keys, potions, and score—is displayed. The rest of the screen is occupied by by a scrolling overhead view of the current level of the dungeon.

The documentation consists of a comprehensive instruction sheet, which explains the purpose of each of the items, opponents, and character types you will encounter in the course of the game.

This version offers several improvements over the original *Gauntlet*. The scrolling is much smoother, and digitized speech—"Welcome red warrior," "Green elf is about to die"—makes the game more exciting.

All of the special features of the arcade version are in this adaptation: dragons appear on many of the lower levels; thieves and muggers show up occasionally to steal things; and treasure rooms add variety to the game. A few flaws do mar an otherwise excellent product, however. The main limitation is lack of food. There is nowhere near

EASE OF LEARNING

CHALLENGE

GRAPHICS

DOCUMENTATION

OVERALL RATING

**System:** Atari ST

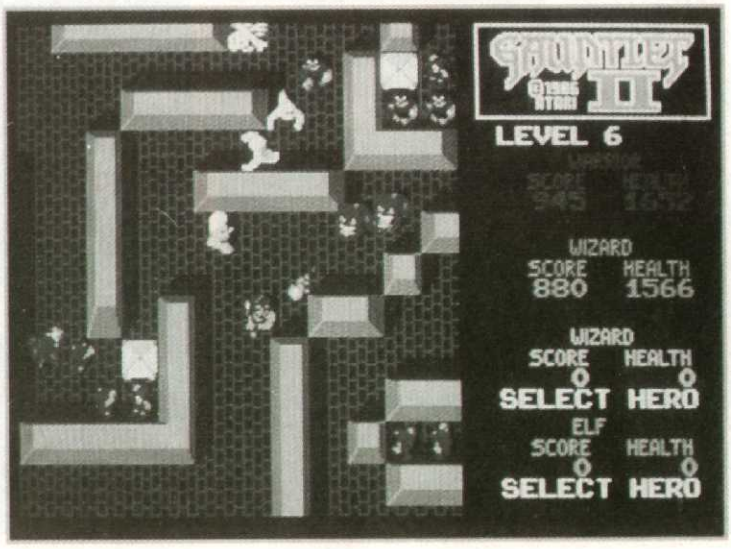
**Required equipment:** Color monitor and joystick; three/four-player adapter optional

**Copy protection:** Yes

**Summary:** An excellent adaptation of a popular coin-op game

**Price:** $29.95; adapter, $12.95

**Distributor:**
Computer Games +
Box 6144
Orange, CA 92667
(800) 443-8189
(714) 639-8189

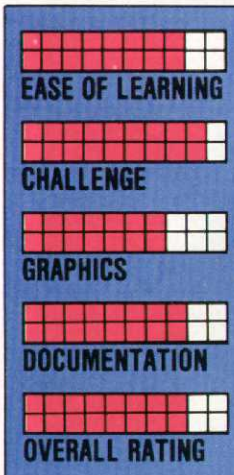



enough food available to enable continuous play by one character—no matter how skillful. And it would be nice if a character were allowed to keep at least some of his powers and potions when he is resurrected. Likewise, it is too bad that a person playing alone is forced to start over on the first level each time he is killed.

As with many other two-disk games, only drive A is used; it would be so much nicer to use both drives on a dual drive system. And all the disk swapping must be done while the drive is being accessed.

On the whole, the game is very enjoyable, and the challenge and fun far outweigh the few flaws. I recommend it highly to all adventurers—particularly those who devoted countless hours to the original *Gauntlet*.—***R. B. Andrews***

## Uninvited




**System:** Atari ST
**Required equipment:** Color monitor
**Copy protection:** Yes
**Summary:** Interactive graphic adventure in a haunted house
**Price:** $49.95
**Manufacturer:**
Mindscape
3444 Dundee Rd.
Northbrook, Il 60062
(312) 480-7667


A startled cry, a sudden veer, and a ruinous car crash. When consciousness returns, your brother is missing, and the only hope of help lies in the shadowy house by the side of the road. Enter here (if you succeed in escaping the car) for a mystery-filled tour of a spooky mansion. But beware! You are *Uninvited*, and the residents of the house, dead and alive, are not all that happy to see you.

ICOM Simulations burst onto the game design world in the mid-80's with *Deja Vu*, a murder mystery wrapped around an interactive adventure system that boasted digitized sounds, handsome animation, and a point-and-click system of game control. Players took to the action like a mouse takes to a new pad, and now that first hit game has a successor, *Uninvited*. The new game uses exactly the same control scheme as *Deja Vu*. A mouse-controlled cursor combines with the onscreen command menu to provide interaction. A mere eight commands, used singularly or in combination, unlock the mysteries of the scary world ICOM has designed. You can grab an item with the cursor, then examine, open, close, speak to, operate, hit, or consume it. You can even drag it right out of the active window into your inventory and carry it with you.

The eighth command is Go. An Exits window on the side of the main interactive picture maps all ways out of the current chamber. To leave, you click on Open, then on the small white box in the Exits window. Locked doors open equally easily—if you have the key in your inventory. Click on the key, next on Operate, then on the door, either in the picture or on its effigy depicted in the Exits window.

The graphics do the ST proud. Each room of the haunted mansion is stylishly furnished and decorated with many lovely items. Some of these things are useful in the exploration; others serve no apparent purpose.

The adventure is a rather straightforward exploration of the old house, coupled with mysterious encounters with its denizens. As you wander from room to room, ghosts and spirits dog your steps, but give way when presented with the proper items. Be sure to save the game in progress often; the wraiths and wildlife are quite deadly until you stumble on the right items to thwart each encounter.

This, in fact, is my chief criticism of the game. Each room presents a puzzle, with items to pick up and shuffle to other spots in the house, spirits to be pacified, and even animals to evade. You can explore, interact with, and admire this beautiful haunted house for hours, but only good luck or an intense trial-and-error effort will get you through the adventure. There is little or no logic in the way things are scattered through the house, or, for that matter, in the reactions of the various creatures to these objects.

Fortunately, an excellent Clue and Hint Guide, available from Mindscape, provides some of the answers. Even with the Guide, this is a challenging exploration. Without the Guide, the mystery may be unsolvable.

It's a bit difficult to get the hang of manipulating items, but once you learn the routine, it becomes logical. The documentation gives examples and leads you through the Command Menu. There is also a quick reference card.

The documentation would have benefitted by inclusion of a story; more background about the house might have answered some of the imponderable questions and made exploration more fun. For that matter, an explanation of who the player is and what he is doing there would have helped you get in character.

But the flaws in *Uninvited* are secondary. It is a house of mystery waiting to reveal its secrets to you via one of the most usable, exciting adventure systems ever devised. Point-and-click technology make this haunted house a delight to explore.

***—Joyce Worley***

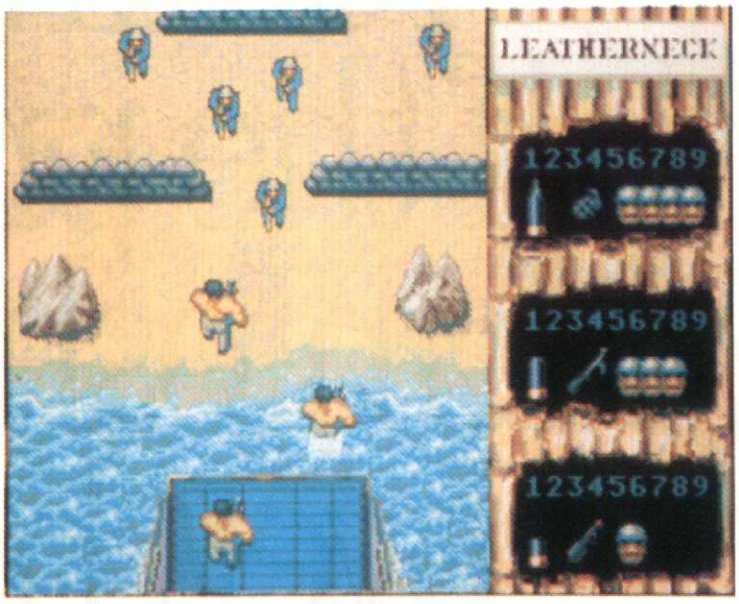
Dedicated ST users will no doubt know of Charles F. Johnson. His powerful public domain utility programs—an improved file selector, an alternate font loader, a mouse editor and animation accessory, and many others—have appeared in ST magazines and helped countless ST users derive greater utility and enjoyment from their machines.

His first commercial release, *Macro Mouse*, is an input recorder, which tracks keyboard entries, mouse moves, and button clicks and saves them into a file for later playback. More powerful than a keyboard macro program, it lets you automate tedious procedures, such as formatting a page in your word processor, initiating a file transfer in a telecommunications program, even starting up a program right after boot-up. It is positively eerie to watch it take control

## Leatherneck

EASE OF LEARNING
CHALLENGE
GRAPHICS
DOCUMENTATION
OVERALL RATING

**System:** Atari ST
**Required equipment:** Color monitor; Microdeal Dual Joystick Adapter optional
**Copy protection:** Yes
**Summary:** Another graphic, scrolling war-cade game
**Price:** $39.95
**Manufacturer:**
Microdeal
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700




Sylvester Stallone and Chuck Norris have helped to make war a legitimate (if you really care to call it that) source of entertainment. "Rambo" and "Missing In Action" have both lured the American moviegoer back to the theater for action-packed sequels, and it was probably inevitable that the theme would make its way into computer software.

*Leatherneck* is the latest such game. Armed with machine guns and grenades, you land on the beach and take up to four characters (each controlled by a separate player) into combat.

The game places all four warriors at the entry, but it cleverly determines which ones are being controlled by human players and kills off the excess baggage. Strangely, you get 1000 points for killing one of your own troops; I'm not sure why that should do more for your score than dispatching the enemy does.

As noted above, up to four people can play this game simultaneously, but to do so requires an additional piece of hardware—the Microdeal Dual Joystick Adapter, which allows you to connect the extra controls. That device costs an extra $14.95.

Another complaint I have also concerns the four-player mode. After you boot up, a tap of the F10 key changes the game from two-player to four-player mode. Unfortunately, there doesn't seem to be any way, short of rebooting, to return to the original configuration if you change your mind.

Another inconvenience has to do with changing weapons. To switch from gun to grenade (or back), you must press a key in the portion of the keyboard that has been assigned to you. Player 1, for example, must press a key to the left of the 7/Y/H/B column. At times, particularly in a multi-player game, it can be quite distracting to switch your attention from the joystick to the keyboard to find your group of keys.

These are minor complaints, however. After a while, you learn to work around them, and once you do, you will find the action quite engrossing.

***—Andy Eddy***

## Macro Mouse

EASE OF USE
PERFORMANCE
ERROR HANDLING
DOCUMENTATION
OVERALL RATING

**System:** Atari ST
**Version reviewed:** 1.0
**Copy protection:** None
**Summary:** A powerful procedure recorder and utilities package
**Price:** $34.95
**Manufacturer:**
Antic Software
544 Second St.
San Francisco, CA 94107
(800) 234-7001

of your ST.

Beneath the surface, however, *Macro Mouse* (and the accompanying Macro Utilities program) is much more. It gives you the ability to call many Control Panel functions without using an additional accessory slot. You can set the system palette (saving up to ten different palettes for instant call-up), alter the key delay and repeat, and change the time and date settings. Other features let you check how much RAM is left, set the drive for use in the file selector, cold- and warm-start the ST from the keyboard, turn off disk write verification for quicker saves, and more.

The best aspect of *Macro Mouse* is that it can be called from almost any program, GEM or not. You just press Alternate-Help, and the *Macro Mouse* menu appears at the top of the screen. From there, an additional keypress invokes one of the functions.

You will also find a separate configuration program for setting the *Macro Mouse* parameters to your liking and certain "hot" keys, which you can use to trim time, once you become familiar with program operation.

A utility should solve more problems than it creates. *Macro Mouse* fills that requirement and, like all of Johnson's programs, appears to be totally bullet-proof. The documentation runs you through the features with little dallying, providing all the information you need to use the program effectively. Johnson's versatile ST Selector replacement file selector has been included as a bonus.

*Macro Mouse* has Charles Johnson's signature of quality all over it. It's a four-star program. ***—Andy Eddy***

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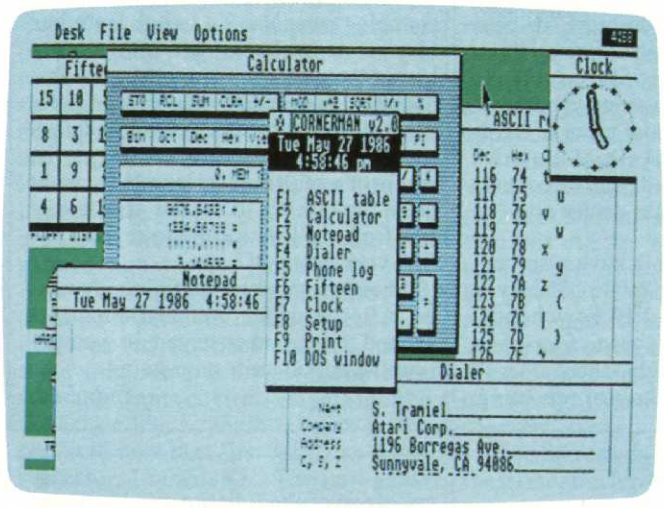


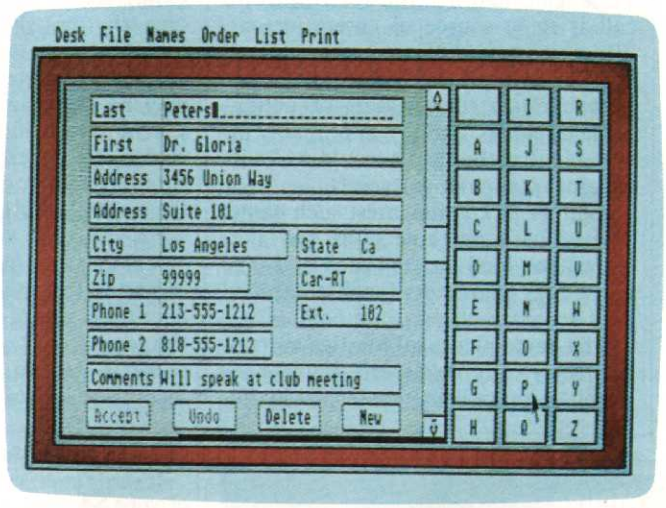


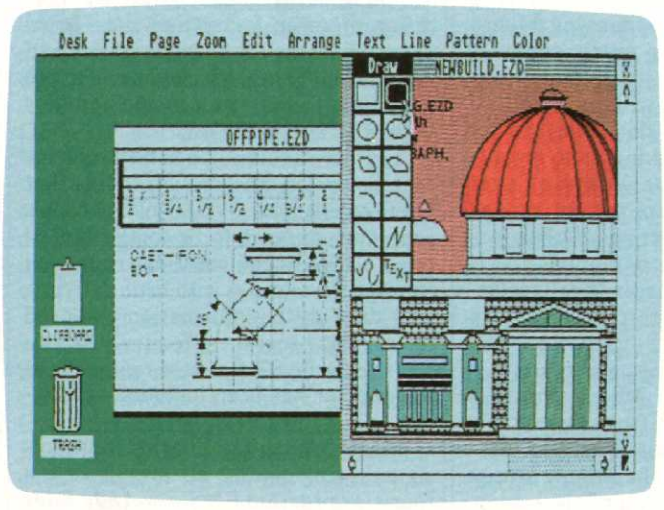


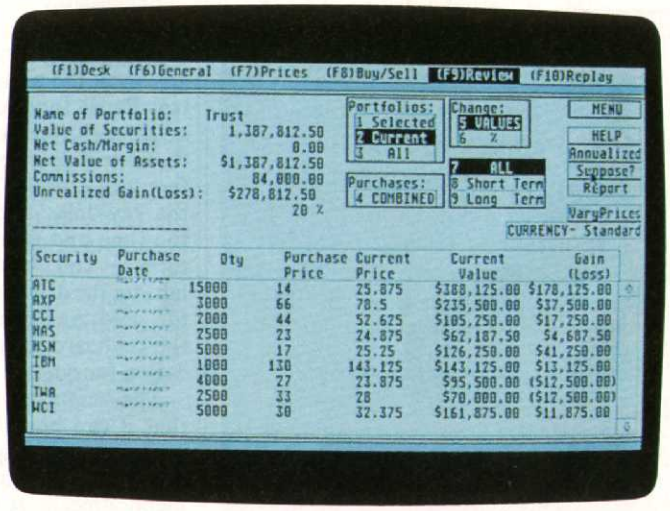

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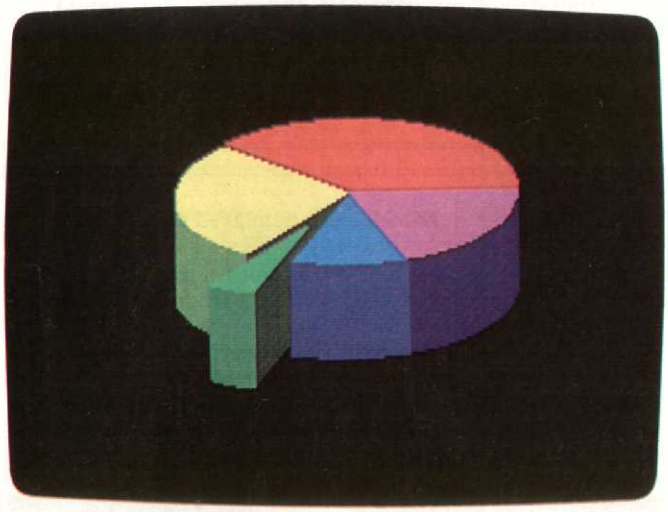

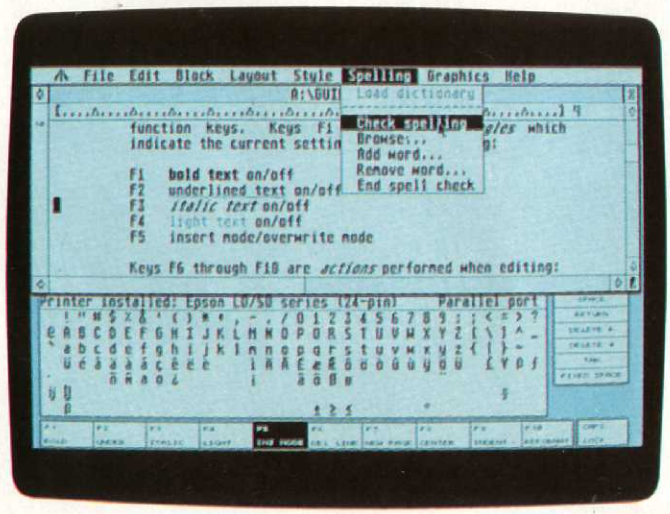


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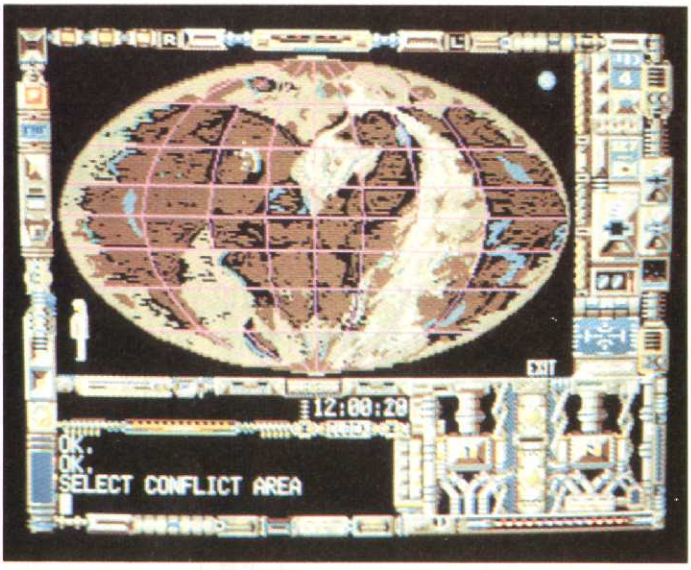
## Phantasm

**System:** Atari ST
**Required equipment:** Color monitor
**Copy protection:** Yes
**Summary:** A challenging three-dimensional shoot-em-up
**Price:** $34.95
**Distributor:**
Scorpion Software
19 Harbor Dr.
Lake Hopatcong, NJ 07849
(201) 663-0202

EASE OF LEARNING
CHALLENGE
GRAPHICS
DOCUMENTATION
OVERALL RATING




In *Phantasm* from Exocet Software we find a neat three-dimensional shoot-em-up game imported from England. You pilot your ship, the Pegasus, in a deadly struggle with hordes of aliens on a distant moon. Your goal is to destroy the eight "re-constitutions," which are used to rebuild the aliens you have destroyed. Until you find and eliminate all of them, you will never run out of opponents.

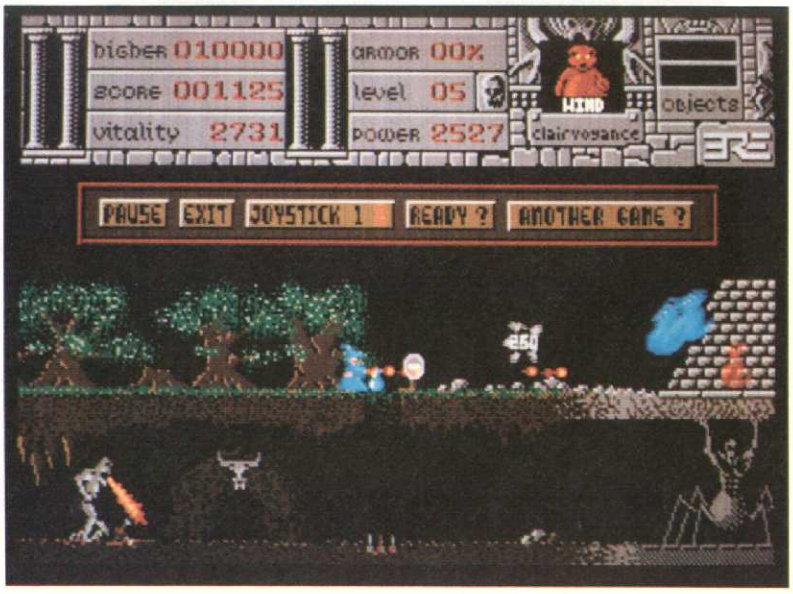
You control Pegasus with a joystick or the keyboard. The mouse is used at the beginning of the game to select difficulty levels, to toggle sound on and off, to choose keyboard or joystick, and to indicate where on the moon you will start the battle. The keyboard must also be used for such functions as launching missiles and changing your height above the terrain.

There are four difficulty levels. The first is for training purposes; you travel around the moon blasting away at sau-

## Warlock

**System:** Atari ST
**Required equipment:** Color monitor; joystick optional
**Copy protection:** Yes
**Summary:** An action adventure with a ghostly theme
**Price:** $34.95
**Manufacturer:**
Three-Sixty Pacific
2105 S. Bascom Ave.
Campbell, CA 95008
(408) 879-9144

EASE OF LEARNING
CHALLENGE
GRAPHICS
DOCUMENTATION
OVERALL RATING




In *Warlock*, a new action/adventure game from Three-Sixty Pacific, you are a staff-carrying wizard in search of the stolen Karna jewel. To find the Karna you must find eight other magic objects, including Druid stones, magic books, and scrolls. This is not an easy task, because ghouls, goblins, traps, and other terrors have been placed in your path to impede your progress.

When you boot up *Warlock*, you see an animated sequence that sets the mood for the game. An evil demon bows to its master as a goblin looks on. In the background, spooky lightning flashes and eerie sound effects set the stage. When your wizard dies, the evil "He," who stole the Karna, chuckles with glee at your demise.

*Warlock* can be played with joystick or keyboard. The playing screen is divided into two sections—above and below ground. You pass from one section to another by standing on any grey tile or in front of any doorway or opening and pushing on the joystick.

Your wizard starts with a set number of vitality points, depending on which of the three difficulty levels you choose.

cer-like aliens (Strikers and Killers) and escape pods. The other levels get progressively harder and allow you to achieve higher scores.

I like the way the terrain in *Phantasm* looks. The surface of the moon is dotted with craters, boulder-shaped monuments, and alien forts. An especially useful feature is the ability to swivel your view 360°, even while your ship is moving forward. You can use this technique to scan the horizon for approaching aliens or undiscovered re-constitutions. You can also fire in any direction as you move.

The graphics are colorful, though a bit on the simple side. A heads-up radar screen is overlaid on your viewscreen with crosshairs for firing your lasers and missiles. Anything on the terrain shows up as a white dot on the radar. When you see clumps of dots you know you are close to either a knot of Killers and Strikers or a much-needed fuel or ammunition depot.

The control panel display is well-designed. It quickly shows you the speed, direction, and status of Pegasus and whether the aliens have you in their sights and are firing at you. Objects in range in the crosshairs are also identified for you.

*Phantasm* comes with very skimpy instructions printed in color on two sides of a card. On one side is a Mission Brief, which describes the controls and game levels. On the other side is a description of the control panel display. A cute extra is the "Danger Zone, Mission in Progress" card that you can hang on your doorknob. Taken as a whole, however, the package is quite meager.

*Phantasm* is fun to play. I had a great time blowing up aliens while I searched for the reconstitutions. The radar screen makes it even more fun, because you can plan ahead and plot your course over the surface of the moon. As you travel about, time passes and night eventually falls. The task of eliminating the aliens, which is challenging in daylight, becomes downright difficult as they fade into shadows by night. But this just adds to the fun. If you find yourself in a tight spot, you can call on your boosters to help you escape in a

*Phantasm* is a simple game designed simply to entertain you. It succeeds well at this, so it gets my recommendation.

***—John S. Manor***

The easiest level gives you 5000 vitality points to start; the hardest only 2000. You lose vitality with each second that passes and each time you are hit by ghouls, ghosts, monsters, or traps. When you run out of vitality points your wizard dies, and the game ends.

The game consists of 20 levels or screens, each more horrible than the one before. A box near the top right of the screen diplays the names of the monsters and treaures that await you. These include green zombies, deadly hydra-monsters called Kraken, spiders, bats, ghosts, and even a flying eyeball. You dispatch these monsters with fiery bolts from your staff, but there are always more on the next level.

When you find one of the eight magical objects and pick it up, it is displayed in a box in the far upper right of the screen. So far, I have found only six objects on the easy level. There are also lesser objects to help you on your quest for the Karna. Monsters and ghouls sometimes leave behind bottles of potion that will give you vitality points and scarabs that add to your armor. So far, though, I haven't found enough of these to do me much good.

*Warlock* is a fairly difficult game to conquer. After fighting my way through several screens of monsters and walking into trap after trap, for example, I have come to a sea with brick platforms scattered over it. You have to hop your wizard across these platforms as watery spirits attack—a challenge I have not yet managed to survive.

The sound effects—eerie howls and constant thunder—and graphics in the game are reminiscent of Halloweens past. You could turn the lights off and easily scare the wits out of somebody with its ghostly sounds. The graphics are carefully detailed, and the levels and monsters are cunningly designed.

Sneaky traps scattered throughout the levels *will* get your wizard the first time you come upon them. To progress, you must figure out how to get around them the next time.

*Warlock* comes on a single-sided disk with an instruction card that is barely adequate for its purpose. The game is not difficult to learn how to play, however. Most players will be able to pick up the joystick and just start playing.

I like the ghostly theme that is so well executed in *Warlock*; it gives the game a rich playability that I haven't seen in many other games. Even after you have played all the levels and know what terrors they hold, you will have find it a real challenge to complete the game.

***—John S. Manor***

*Useful and fanciful programs win prizes for 8-bit and ST programmers*

# 1K Programming Contest

Two ST and two 8-bit listings are in the spotlight this month, as the *Atari Explorer* 1K Contest enters its third round. In past issues, winners have been drawn primarily from the games and entertainment category. This time, however, a logic puzzler, a graphic program, and a utility claim the laurel wreath.

### Nim by Scott Stephen

Nim is an ancient game of wits in which two players face each other over a board upon which 11 tokens (coins, jacks, or the shrunken heads of captured rival chieftains) have been laid. The players take turns removing one, two, or three tokens from the board, each attempting to force the other to remove the last token in his turn.

Scott Stephen, of Pointe Aux Trembles, PQ, has sent us a version of Nim in which Atari 8-bit owners can match their wits against the raw number-crunching power and Spock-like logic of the 6502 microprocessor—and occasionally win. Granted, playing with asterisks is nowhere near as dramatic as playing with the shrunken heads of captured rival chieftains, but then again, if you lose, your Atari won't proceed to add your head to the pile for the next tournament.

**NIM**

**ATARI KEY**

- Any Atari 8-bit Computer
- Atari Basic

**Listing 1.**

```
1 REM by Scott Stephen -- 88/03/04
90 Z=INT(RND(1)*5):N=10+Z
100 D=0:? CHR$(125)
105 FOR Q=1 TO N:? "* ";:NEXT Q:? :?
110 S=INT(RND(1)*2):S=S-1:ON S+1 GOTO 130,120
120 IF S THEN ? "HUMAN":GOTO 200
125 GOTO 132
130 C=INT(RND(1)*3):IF C<1 OR C>3 THEN 130
131 ? "COMPUTER":GOTO 150
132 ? "COMPUTER"
135 IF N<5 THEN C=N-1:GOTO 150
140 C=H-1:IF C=0 THEN C=3
150 ? C:S=1:D=C:GOTO 300
200 INPUT H
210 IF H<1 OR H>3 THEN 200
220 S=0:D=H
300 N=N-D
310 FOR Q=1 TO N:? "* ";:NEXT Q:? :?
315 IF N=1 THEN 350
320 GOTO 120
350 IF S THEN ? "COMPUTER WINS!":GOTO 370
360 ? "HUMAN WINS."
370 ? "AGAIN (0-NO 1-YES)";:INPUT P
380 IF P THEN 90
390 END
```

### Plane View by Dave Bohlke

Plane View plots a 3-D perspective view of a planar equation on your display. Math students and budding engineers will find it especially useful in visualizing surface functions. But anyone who enjoys good computer graphics will get a big kick out of exploring the forms inherent in number systems.

Plane View plots three different views of the equation you supply—from above, from the front, and from the side—so you can grasp every detail of the resulting graph. It also permits you to modify the orientation and apparent size of the plane in 3-D space by entering values for ax, the left-right rotation, ay, the up-down rotation, and zm—a "zoom factor." Experiment with these

**By JOHN JAINSCHIGG**

## PLANE VIEW

### ATARI KEY

- Any Atari ST Computer
- GFA Basic

**Listing 2.**

```
Setcolor 0,7,7,7
Setcolor 15,0,0,4
Color 1
Do
  M=100
  N=M
  S=3
  K=200
  L=K
  Input " ax,ay,zm ";T,U,W
  Cls
  Print At(1,25);T;" ";U;" ";W;
  Gosub P1
  M=280
  N=35
  T=0
  U=0
  K=60
  L=60
  W=5
  Gosub P1
  N=100
  T=90
  Gosub P1
  N=165
  T=0
  U=90
  Gosub P1
Loop
Procedure P1
  V=2*S/10
  Q=T*Pi/180
  R=U*Pi/180
  For J=-S To S Step V
    P=0
    For I=-S To S Step V
      Gosub Pt
    Next I
  Next J
  For I=-S To S Step V
    P=0
    For J=-S To S Step V
      Gosub Pt
    Next J
  Next I
Return
Procedure Pt
  Y=Log(Abs(Cos(I)+0.1))*J
  Y=Y*W
  X=I*W
  Z=J*W
  H=(-X*Sin(Q)+Z*Cos(Q))*1.2+M
  G=N-(-(X*Cos(Q)+Z*Sin(Q))*Sin(R)+Y*Cos(R))
  If H<M-K/2 Or H>M+K/2 Or G<N-L/2 Or G>N+L/2
    P=0
  Else
    If P
      Draw  To H,G
    Else
      Plot H,G
      P=1
    Endif
  Endif
Return
```

```
Y=I*I
Y=I*J
Y=SIN(J)
Y=2*J+I
Y=COS(3*I)
Y=I/(J+0.1)
Y=J/(COS(I)+0.1)
Y=J*J*J
Y=J*J*J/I
Y=SQR(ABS(J))
Y=LOG(ABS(J+0.1))
Y=I*I/(J+0.1)
Y=LOG(ABS(I))*LOG(ABS(J))
Y=SIN(I)/(COS(J)+0.1)
```

**Figure 1. Sample equations for Plane View, by David Bohlke.**

values to find the best view of each equation you plot.

To change the equation used by Plane View, you must modify line 900 in the Atari 8-bit listing or the first line of the subroutine Procedure Pt in the ST GFA Basic listing. Equations must begin with the expression Y= and conclude with any functional expression using the variables I and J. Equations must not result in illegal conditions, such as trying to divide a number by zero or take the square root of a negative value. Some sample equations are reproduced in Figure 1.

Two versions of Plane View are provided in Listings 2 and 3—one for ST owners in GFA Basic and one for the 8-bits in standard Atari Basic.

### Genelist by Alain Dussault

Another Canadian entrant, Alain Dussault, has sent us a very neat little utility for ST systems written in OSS Personal Pascal v. 2. Genelist—short for General Lister—is a substitute for the automatic PRINT function of the ST and offers added capabilities.

Genelist printouts are page-numbered and contain 61 lines of text per page (for best results, move the paper up a line or two before beginning to print). Lines may be numbered or not, as you prefer, and lines containing more than 78 characters will be broken and wrapped without disturbing the line-numbering scheme.

## PLANE VIEW

### ATARI KEY

- Any 32K Atari 8-Bit Computer
- Atari Basic

**Listing 3.**

```
10 GRAPHICS 8:SETCOLOR 2,0,0:COLOR 1
20 M=110:N=80:S=3:K=220:L=160:? "AX,AY,ZM ";:INPUT T,U,W
22 GRAPHICS 8:SETCOLOR 2,0,0:? T,U,W:GOSUB 200
40 M=280:N=30:T=0:U=T:K=60:L=K:W=5:GOSUB 200
42 N=80:T=90:GOSUB 200
44 N=130:T=0:U=90:GOSUB 200
60 GOTO 20
200 V=2*S/10:Q=T*3.14159/180:R=U*3.14159/180
220 FOR J=-S TO S STEP V:P=0:FOR I=-S TO S STEP V:GOSUB 900:NEXT I:NEXT J
240 FOR I=-S TO S STEP V:P=0:FOR J=-S TO S STEP V:GOSUB 900:NEXT J:NEXT I
250 RETURN
900 Y=LOG(ABS(COS(I)-0.1))*J
920 Y=Y*W:X=I*W:Z=J*W
930 H=(-X*SIN(Q)+Z*COS(Q))*1.1+M:G=N-(-(X*COS(Q)+Z*SIN(Q))*SIN(R)+Y*COS(R))
940 IF H<M-K/2 OR J>M+K/2 OR G<N-L/2 OR G>N+L/2 THEN P=0:RETURN
950 IF P THEN DRAWTO H,G:RETURN
955 PLOT H,G:P=1:RETURN
```

## GENELIST

### ATARI KEY

- Any Atari ST Computer
- OSS Personal Pascal v. 2.0 or later

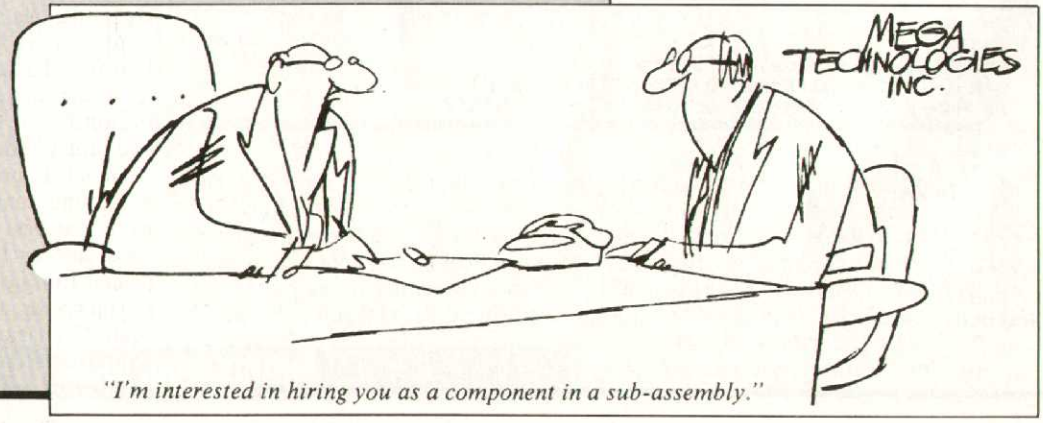
**Listing 4.**

```
PROGRAM List;
{$I Gemsubs}

CONST
P=61;

VAR
D,M,W:String[99]; N,S:Boolean;

PROCEDURE Pt;

VAR
T,Pr:File of text; Lc,I,Ln,C,S,E,A,B:Integer; R,R1:Char;

BEGIN
ReSet(T,M); ReWrite(Pr,'PRN:');
N:=False; Lc:=1; Ln:=1; S:=1; E:=0; B:=1; C:=1;
REPEAT
A:=Do_alert('[0][ Numbering the listing? ][ Y | N ]',1);
UNTIL (A IN [1..2]);
IF A=1 THEN N:=true;
REPEAT
A:=Do_alert('[0][ Complete | Partial listing? ][ C | P ]',1);
UNTIL (A IN [1..2]);
Writeln(Pr,B:40);
IF A=2 THEN BEGIN
Clear_screen;
Write('Start,Endline: '); Read(S,E); E:=E+1;
END;
WHILE (NOT Eof(T)) DO BEGIN
IF (Ln>=S) and N THEN Write(Pr,Ln:6,'  ')
ELSE IF (Ln>=S) AND NOT N THEN Write(Pr,'      ');
Readln(T,W); Writeln(Pr,W);
Ln:=Ln+1;  Lc:=Lc+1;
IF Lc>P THEN BEGIN
Lc:=1; C:=C+1;
FOR I:=1 TO 3 DO Writeln(Pr);
B:=B+1;
Writeln(Pr,B:40);
Writeln(Pr);
END;
IF Ln=E THEN BEGIN
Writeln(Pr); Halt;
END;
END;
Close(T);
END;

BEGIN
IF Init_Gem>=0 THEN BEGIN
D:='A:\*.*'; S:=Get_In_File(D,M);
IF S THEN Pt;
END;
END.
```

### Call for New Entries

The 1K Contest continues! For those of you who aren't already working on your entries, here are the contest rules:

- Programs—including data, dimensioned arrays, etc.—must fit in 1K (1024 bytes) or less RAM.
- Programs may be written on either an Atari 8-bit or ST computer in any standard, widely-available language. Machine-language programs should, if possible, be provided with a Basic loader (the size of which will not figure in the 1K limit for contest entries) that will permit a neophyte to type in and use the program.
- The program should be submitted on a disk containing the program itself (in executable form), extra modules (e.g., a Basic loader or other ancillary code), plus source code, commentary, and full instructions for use. These last three items should be saved as standard ASCII (or ATASCII) files (we don't own a copy of every word processor in the world), or, in the case of ST disks, as *1st Word*-compatible files. If possible, also enclose printouts and sample program runs.
- Entries should be submitted to 1K Contest, Atari Explorer, 7 Hilltop Rd., Mendham, NJ 07945. Materials submitted are non-returnable. All submissions become the property of *Atari Explorer*.
- Winning programs will be chosen on the basis of usefulness, originality, and quality of programming style. Winners will be notified by mail or phone.
- One or more programs will be selected as winners every issue and will appear in *Atari Explorer*. Thereafter, certain of these programs may be disseminated by BBS or other online service at the discretion of the editors.
- The author of each winning entry will receive a 3-year subscription to *Atari Explorer*. ■




*"I'm interested in hiring you as a component in a sub-assembly."*

# Puzzles & Problems

By DAVID H. AHL

No computer needed to solve these problems; all you need is a bit of simple algebra, logic, and clear thinking.

Answers are on page 80.

## Young Wife

"It's remarkable how time flies," said the husband to his young wife. "When we were married, 25 years ago, I was exactly twice as old as you." He looked at her in astonishment and continued, "but now I am only half again as old." How old are they now, and how old were they when they were married?

## Quickie

You have 30 seconds to solve the three parts of this problem.

a. What is the smallest number that can be formed by two different integers?

b. What is the smallest number that can be formed by three different integers?

c. What is the largest number that can be formed by four different integers?

No fractions please, and zero is considered an integer.

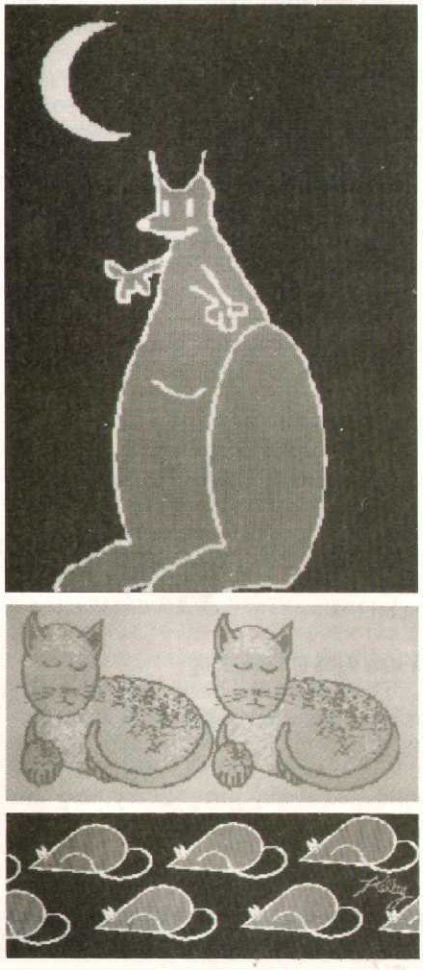
## Carroll's Animals

The following short sequence of sentences was devised by Lewis Carroll to teach youngsters the basic principles of logic. What is the conclusion that descends naturally from these ten statements?

1. All the animals in my house are cats.
2. All animals that love to look at the moon are domesticated.
3. When I detest an animal, I avoid it.
4. Only carnivorous animals go out at night.
5. All cats kill mice.
6. No animal belongs to me except the ones in my house.
7. Kangaroos cannot be domesticated.
8. Only carnivorous animals kill mice.
9. I detest animals that do not belong to me.
10. Animals that go out at night always love to look at the moon.

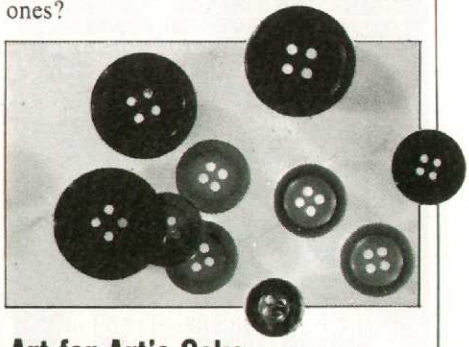
## Hit Song

Recorded on Side A of a 45-rpm record is a musical number that lasts exactly three minutes and twenty seconds. How many grooves are there on this side of the record?



## Bright Buttons

A tailor, rushing to finish a gaudy sports jacket for a customer, asks his young son to go to the button box and bring him four matching buttons. In the box are 84 blue, 32 turquoise, 28 light blue, and 4 pale green buttons. As the boy is colorblind, what is the minimum number of buttons he must bring to his father to be sure he has four matching ones?



## Art for Art's Sake

After four hours of discussion, famed art dealer Giorgio Parconi reached the end of his patience. "Four Max Ernst drawings are worth five Magritte sketches. Do we agree?"

"All right," the equally famous Parisian gallery owner Cesar Blanchard said reluctantly.

Parconi pressed him. "I want an agreement that two of Magritte's sketches plus one of Max Ernst's drawings are worth exactly two of Bacon's watercolors. Right?"

"Good," said the Frenchman.

"Then I'm offering you four Ernst drawings and a Magritte sketch for three Magrittes and two Bacons. Is this an agreeable exchange or not?"

Blanchard kept silent because he sensed that something wasn't quite right. Is the deal proposed by the Italian art dealer an equitable one or not?

## Poker Party

Taking a mini-van to the airport, you overhear five people, obviously related, talking about their poker party last night. As they are strangers, you mentally assign them names: Ann, Betty, Carol, Don, and Ed. From these snatches of conversation, determine who is who and how much each one won or lost.

Male 1: My wife and I lost ten bucks.

Female 1: Heck, my sisters-in-law lost $20.

Male 2: That's nothing. My brother-in-law and I lost $120!

Female 2: Well, I guess if you combine my results with those of Don's wife, Ann, we're ahead.

Female 3: Not my family! My sister, brother, and I combined lost $90. Carol, when are you going to get married?

## Atari sysops—up close and personal

# Teletalk

This month's Teletalk introduces you to two people who have become central figures in the Atari world via the revolutionary medium of telecommunications: Ron Luks, sysop of the Atari Forums on CompuServe, and Darlah Hudson, sysop of the Atari Roundtables on Genie. Both of these entrepreneurial innovators have created unique environments for information exchange in the Atari community.

Kathryn Conroy, a contributor to CompuServe's *OnLine Today*, spent some time talking to Ron Luks and has rendered that conversation into a profile of the man and his work. Former Associate Editor Owen Linzmayer, who spoke with Darlah Hudson, has chosen to present their conversation in the traditional interview format.

## Ron Luks

One cold December evening in 1979 Ron Luks walked from his Wall Street brokerage office to his Manhattan home thinking about the computer—a spanking new IBM PC—he had ordered. The dealer had basically told him to take a number and stand in line. It would be weeks before he would see the machine.

Meanwhile, as he passed New York's store windows all decked out for Christmas, something—and it was not a mechanical Santa—caught his eye. There in a computer store window was an Atari 800 merrily playing a game.

"I fell in love with it," he says and bought it on the spot. So begins the saga of Ron Luks, the CompuServe sysop of the oldest and largest online Atari forum in the world.

Although he had no inkling at the time, that purchase would change his life in ways he could not even begin to imagine. What started out as a game machine and nothing more (after all, he was still waiting for his "real" computer), would eventually lead him to quit his Wall Street job, become gainfully self-employed, and move from Manhattan to sunny Boca Raton.

Luks played every Atari game he could get his hands on that first winter. Finally, the computer store owner told him there were no more games. (Still no IBM PC, either.) What's a man to do? Buy a modem and sign up with CompuServe!

### A New Kind of Computing

Those were the early days of online computing, when subscribers were pretty much on their own. There was no documentation, no online help menu, no guidance of any sort. "Everything was pretty cryptic then," Luks recalls, but that didn't stop him.

He searched online for some informa-

***"It takes three to four years to really get a forum going, and it requires a terrific amount of time."***

**By CATHRYN CONROY and OWEN LINZMAYER**

tion about Atari, though he didn't come up with much. "I got stubborn, and just assumed that a system as big as CompuServe would have to have something on Atari. But I only found stuff on Apple."

Then he stumbled into the Popular Electronics Forum and quickly realized that there were quite a few other Atari owners hanging around talking about their computers. In a few months, Luks convinced the sysop to let him manage—without compensation—a single message section and data library of the forum that would be devoted to Atari.

"At that point, I just played around and tried not to break anything online," he quips, remembering how difficult it all was without any documentation on how to run a forum section.

The Atari section became extremely popular—so popular, in fact, that Luks thought a complete forum devoted to Atari might actually be successful. His first proposals to CompuServe brass were turned down. Then, in the late summer of 1980, they changed their minds. "They said, 'Go build it and call when you're ready.' No documentation, no training, no guidelines. I did it all by brute force," he recalls.

### Open for Business

The task took one week. SIG*ATARI opened for business in the fall. (He chose the name while sitting in a Greenwich Village coffee shop.) Luks was the sysop, and he "hired" as assistants (in exchange for free access time in the new forum) some of the more active Atari section members from the Popular Electronics Forum.

To expand the newborn forum, Luks began madly logging onto Atari bulletin board systems around the country, collecting public domain files and spreading the word about SIG*ATARI. Since the forum could be accessed (in most cases) with a local phone call to the nearest CompuServe node and many users could participate at one time, it appealed to users who were tired of hefty long distance phone charges and frustrating busy signals.

Luks stayed on Wall Street through the end of 1982. "The royalty checks were very low at first; it was really more a hobby than anything else. Telecommunications was still very new, a real novelty, and CompuServe was the only game in town." The stress and tension of a high-pressure brokerage firm being swept into a raging bull market finally led Luks to bid farewell to tickers and CUSIP symbols. "I needed to rethink my life. Besides, I wanted to play with the computer more. The forum was getting busier and busier; it had become a full-time job in terms of hours if not money."

Some good investments and a tidy nest egg in the bank allowed him the freedom to become a full time sysop. But it wasn't too much longer before the royalty checks began to grow, and it dawned on him that he didn't need to work elsewhere to pay the rent. His hobby was paying off.

"It takes three to four years to really get a forum going, and it requires a terrific amount of time," he admits. On the average, Luks spends more than 50 hours a week on forum business with the busiest season being October to February. He views his role as an information provider and so spends half of his time gathering information from the industry and the rest "policing" the forums—answering messages, merging files, and so on.

Being a sysop has several advantages, including the freedom to work from home with very flexible hours and live anywhere in the world (as long as there is a CompuServe node nearby), but it is a seven-day-a-week job. "I can take an afternoon off if I want, but I do get called at the oddest hours."

### On-Line Today

As the forum grew in popularity and as Atari expanded its line of computers to include the 16-bit ST, Luks saw that it was time for a change. ST users didn't want to wade through messages pertaining to 8-bit machines, nor vice versa. In the fall of 1986, SIG*ATARI split, much like a dividing cell, and became four forums—the Atari 8-Bit Forum, the Atari 16-Bit Forum, the Atari Developer's Forum, and the Atari Vendor's Forum. Another split is about to occur.

The Atari 8-Bit and Atari 16-Bit Forums, true to their names, are devoted to the concerns of those particular computers. The 8-Bit Forum covers such topics as games and entertainment, telecommunications, utilities, sound and graphics, hot news and rumors, programming, and hardware upgrades.

The 16-Bit Forum has become too busy, so it will soon divide into two forums; one will be devoted to Atari graphics and entertainment, and the other to more technical aspects of the 16-bit machine, including programming and applications.

The Developer's Forum, which focuses on GEM, providing a direct line to Atari Corp., new product announcements, and tutorials on Pascal, Modula 2, and C programming, will merge with the new 16-bit Technical forum.

**The Atari Vendor's Forum offers vendors of Atari software and hardware peripherals a chance to provide online support for their products.**

The Atari Vendor's Forum offers vendors of Atari software and hardware peripherals (along with *Atari Explorer* magazine) a chance to provide online support for their products. Some of the vendors include ICD, Intersect Software, MichTron, Regent Software, and Avant-Garde. New vendors continue to join.

To visit any CompuServe SIG*ATARI forum, type GO ATARI.

Luks insists that the magic ingredient that makes his forums successful is the fact that he and the other sysops do not dictate policy. "The users guide us. The direction the forums take is always a response to what the users want," he says.

The goals he had when he first began the forum eight years ago have not changed. "I wanted to have a true forum—a place where you could get on and talk to someone at a reasonable price and exchange information easily and painlessly. I wanted to give users a means of talking to Atari Corp. easily."

Luks has seen many changes since 1980, but none greater than that of the technology itself. "The CompuServe forum software is far more sophisticated now than it was back then. The sub-

scribers used to operate exclusively with 300 baud modems; now 2400 is typical."

He says the change in modem speed has had a definite effect on the the way the forum is used. At 300 baud, users preferred to talk to each other in real-time conferencing; at 2400 baud they want to download files and leave messages on the board, waiting for a response until the next time they log-on.

The father of this impressive Atari network is newly married to Dawn Gordon Luks, the sysop of CompuServe's Consumer Electronics Forum and is happily living and scuba diving (when he is not computing) in Boca Raton, FL. Just as a point of interest, he says he is proud of the fact that he and Dawn did not meet electronically and rarely exchanged electronic messages while they were dating. They had a very traditional courtship.—***Cathryn Conroy***

## Darlah Hudson

**Atari Explorer:** How did you first get involved with computers?
**Darlah Hudson:** I had a mild interest in computers when I first saw an ad for the Atari 400, which I bought and fell in love with. Then I bought an Atari 800, which I still own today. Over the years, I acquired an 800XL, a 130XE, two 520STs, and a Mega ST. I have swayed from the Atari at times with whims but have always kept my love for the Atari line.

**AE:** What were you using your Atari computer for?
**DH:** During that time, I owned a plumbing business, which I ran with the help of my 130XE. I used *Peachtree 123* to keep track of my accounts receivable, accounts payable, and the general ledger. I found it quite an easy and complete business application for a small business like the one I had. I was in the process of trying to find a comparable program for the ST when I sold the business.

## On-Line Directory

Many Atari software publishers and hardware manufacturers have on-line representatives available to help answer questions, solve problems, and keep in touch with their customers. This support is usually provided free of charge and complements the conventional technical help hotlines that most firms operate.

The benefits of on-line support include direct access to top personnel, prompt and thorough replies, and savings in long distance telephone calls to company headquarters.

Printed below is a partial list of companies that may be found on the CompuServe and Genie telecommunications networks. The individuals assigned to these accounts will usually reply to inquiries promptly or, at the very least, direct your comments to the appropriate employees within their company.

| Company | CompuServe | Genie |
|---|---|---|
| Analog | 76004,2010 | - |
| Antic | 76703,1077 | ANTIC |
| Argonaut | 72247,3661 | - |
| Atari Canada | 70007,1070 | J.OKLAMCAK |
| Atari Corporation | - | MJANSEN |
| Atari Developer Support | - | CINDY.C |
| Atari Developer Support | - | ATARIDEV |
| Atari Explorer | 76004,1616 | EXPLORER |
| Atari Journal | 76004,1676 | J.DURRE |
| Atari Technical Support | - | DMAY |
| Atari Technical Support | - | DANSCOTT |
| Atari Technical Support | - | TOWNS |
| Avant-Garde Systems | 76004,1621 | AVANTGARDE |
| Beckemeyer Development | 74236,625 | - |
| Brosis | 72637,144 | - |
| Circular Logic | 73147,3171 | T.MCCOMB |
| Comnet Systems | 72655,1231 | M.SINGER |
| Data Pacific | - | STACE |
| Data Pacific | 76004,1612 | - |
| Dolphin | 73245,1001 | M.GIAMBRUNO |
| Drafix | 76703,4226 | - |
| FTL Games | 76244,130 | FTL |
| Factory Programming | - | JWEAVERJR |
| Focus Computer | 72767,2563 | - |
| Groundglass Systems | 76410,267 | GROUNDGLASS |
| Hi-Tech Advisers | - | HITECH |
| Hybrid Arts | 76237,562 | S.DAYSTROM |
| ICD/OSS | 76004,1600 | ICDINC |
| Iliad | 76246,1051 | DL.SHOWALTER |
| Infocom | 76703,4270 | - |
| Intersect | 76004,1577 | INTERSECT |

## *I started getting heavily involved with recruiting developers to participate online, because I wanted to continue "talking" with them—at the lower rates Genie offered.*

**AE:** How did your interest in telecommunications develop?

**DH:** At first I participated in a local bulletin board system, but I soon felt the need for more information and contact with developers online. I signed on as a CompuServe subscriber and soon became a frequent caller. About that time, I was program director for the San Diego Atari Computer Enthusiasts group, SDACE. My job was to contact developers and others in the computer field and convince them to come to talk at our local user group meetings. Being online on a national service helped significantly in this area. That was before Genie existed.

### On Being a Sysop

**AE:** What were your first impressions of Genie and how did you eventually become sysop of the Atari RTs?
**DH:** I heard about Genie through John DeMar of QMI. He told me all about this great service. I decided to give it a try and found it really slow, because it was brand new. But the people online were exceptionally friendly, and I really liked the ease with which I could get in touch with people.

It was, however, the low price that won me over. I started getting heavily involved with recruiting developers to participate online, because I wanted to continue "talking" with them—at the lower rates Genie offered. Then, because I had so many industry contacts and had spent so much time recruiting, I was asked to establish a more formal relationship with Genie—first as an assistant sysop, then as a contract holder (sysop).

**AE:** What do you feel is the most satisfying aspect of being a Genie sysop?
**DH:** I find working on a national information service very rewarding. Where else could I meet people from all over, gain insight into what is going on in this field, and be able to help users who are desperately looking for specialized information?

### On Genie

**AE:** What do think is Genie's competitive advantage over other networks?
**DH:** Beyond the low price, we have some of the best developers actively involved in our bulletin board, lending support for their products, and a large base of users always willing to help. I am extremely pleased with our following.

We also have lots of Atari Corporation employees online. Genie is their official telecommunications service, so they almost always participate in our weekly conference. And many of them are involved in the bulletin board section of the RTs. We have an average of two formal conferences per month with guest speakers and informal chats each Wednesday at 7:00 p.m. Pacific time for the ST and every Thursday at 7:00 p.m. for the 8-bit line. Both are growing tremendously.

We continue to encourage new developers to join us to support and promote their products. Without all these fine folks, our information would be limited. Beyond all the information, programs and data files available in the libraries, the Atari roundtables have a large, sociable group of users, who are very knowledgeable and willing to help beginners and advanced users alike.

**AE:** Do you have any final thoughts you would like to share with the readers of *Atari Explorer?*
**DH:** Genie is one of the largest, fastest growing national telecommunication services, and I hope we never lose sight of what makes this service so great: the fantastic developers, dealers, user groups, users, and staff who are helping me make this service what you want it to be. My hat is off to all of you . . . you know who you are. ***—Owen Linzmayer***

*Editor's note: Darlah didn't mention it in this interview, but we happen to know that she, too, is a newlywed*

| Company | Compuserve | Genie |
|---|---|---|
| Interstel | 73637,3032 | INTERSTEL |
| Kyan | 73225,450 | KYAN.SOFT |
| Magic Elf | 73637,317 | - |
| Marathon Computer Press | 75766,505 | GRIFJOHN |
| Megamax | 73766,1027 | MEGAMAX |
| MichTron | 76004,1607 | GORDON |
| Migraph | - | MIGRAPH.KCM |
| Navarone | 76004,1666 | - |
| Neocept | 73637,1066 | NEOTRON |
| Pecan Software Systems | 71310,105 | - |
| Practical Solutions | 74206,356 | PRACTICALS |
| QMI | 76004,1601 | QMI |
| Reeve Software | 71521,2200 | REEVESOFT |
| Regent | 76004,1573 | F.COHEN |
| ST Applications | - | STAPPLIC |
| Seymor-Radix | - | T.PAINTER |
| Sierra On-Line | 76701,222 | SIERRA |
| Softlogik | 76004,1676 | J.DURRE |
| Softrek | - | W.BUCKHOLDT |
| Stardust | 74030,3712 | - |
| Supra | 76004,565 | SUPRATECH |
| Synergist | - | SYNERGIST |
| TDI Software | 75026,1331 | - |
| The Computer Room | 76625,1210 | - |
| Timeworks | 72347,3017 | - |
| UltraBasic | 72347,1643 | - |
| Virtusonics | 70007,1565 | - |
| Visionary Systems | 76224,66 | COREY |
| WordPerfect | 72447,3427 | JRWILSON |
| World Music | - | MOORE.R |
| Zmag | 71777,2140 | - |

## Using BRUN, BPUT, and BGET in Turbo Basic

# User Friendly

**By DAVID NOYES**

User Friendly is dedicated to sharing the best material culled from the dozens of Atari user group newsletters sent to our editorial offices each month. These newsletters range from several photocopied pages stapled together to professionally typeset publications that rival the quality of consumer magazines.

All of the reprints found here appear with the gracious permission of their authors and the publishers of the newsletters in which they first appeared. While very attempt is made to retain the style and flavor of the original, most items are edited for length and clarity.

Note to newsletter editors: If *Atari Explorer* is currently on your user group's mailing list, please check the address. Many groups are still sending their newsletters to us by way of Sunnyvale—a route that adds weeks to the delivery time. If we are not already on your mailing list, we would like to be. Please send all newsletters to *Atari Explorer* at 7 Hilltop Rd., Mendham, NJ 07945.

### BRUN Command

As the European import, Turbo Basic, gains popularity among 8-bit users, some excellent articles have appeared in user group newsletters. The following article is from a Turbo Basic tutorial by Ed Foerster in the newsletter of the Dallas Atari Computer Enthusiasts, Volume 9, Issue 9, September, 1988.

Would you like to have a menu program that can run either Basic or binary load programs? Stay tuned: we are about to present one, courtesy of the Turbo Basic BRUN command.

The BRUN command (as opposed to RUN, which runs Basic programs) is used to load and run binary load programs from Turbo Basic. What is a binary load file?

For most of us, it is a file that tells us ERROR 21, LOAD FILE ERROR, when we try to load the file from Basic. Actually, it is a machine language file that is created with an assembler. It is usually identified with an .OBJ, .EXE, or .COM extension.

The program shown in Listing 1 will list up to 21 files with the extensions .BAS and .OBJ to the screen. You may have to rename the files to make sure that they have the proper extensions. If your disk is bootable and if you rename TURBASIC.COM as AUTORUN.SYS and name the program in Listing 1 AUTORUN.BAS, the menu program will automatically run when the disk is used to boot your system, letting you execute the desired program with a single key press.

FILE$ receives the INPUT as each file is read from the directory. To read the directory, you have to open a channel as in line 150. The 6 in the OPEN command is a special command to read the disk directory (see your Atari Basic Reference Guide for other legal parameters). The file specification D:*.* means that all files will be INPUT when the directory is read. The input statement in line 190 reads one file each time through the loop.

FILE$(1,1) will contain an * if the program is write-protected. The next character is a blank. FILE$(3,10) contains the filename and, if the filename is less than eight characters long, is filled with spaces. FILE$(11,13) contains the extension. Note that the period before the extension is not included in the directory listing drawn from the disk. FILE$(14) contains a space followed by three digits, representing the number of sectors occupied by that file.

Line 200 tests to see if the file has a BAS or OBJ extension. If so, N, the number of files, is incremented, and the file is added to the string MENU$. The last item INPUT from the directory is "nnn FREE SECTORS." This is a perfect opportunity to use the REPEAT-UNTIL loop (lines 180-250) using FILE$(5) = "FREE SECTORS" as the exit condition.

The FOR-NEXT loop at lines 260-300 lists the filenames to the screen without their extensions. The listing is double-spaced unless more than 11 files are to be listed (lines 270,280). Each filename is preceded by a letter, produced by the expression CHR$(97+A). By adding the value of looping variable A to the ATASCII code for "a," codes for the characters "a" (A=0), "b" (A=1), etc., can be produced in sequence. Note that in GRAPHICS 1 and GRAPHICS 17, small a is displayed as capital A and takes on the color found in color register 1.

The letters are displayed in a separate color register so you can modify that color to produce a rainbow effect. Line 340 executes the machine language rou-

tine loaded in lines 130-140, producing this effect by continually changing the value in color register 1. The routine returns to Basic when a keypress is detected. If you want to turn your eyes inside out, change the 23 in the DATA statement to 26. This produces the rainbow effect on the background.

Another REPEAT-UNTIL loop in lines 320-360 executes until a letter in the permitted range is depressed. Lines 370-380 then calculate the starting point of the filename in MENU$ and assemble the filename in FILE$ with the D: at the beginning and the period before the extension.

Line 400 determines if the file is a binary load file. Lines 410-420 remove any blank spaces from the filename. This is accomplished using the INSTR function to get the location of any spaces in the filename and then deleting those spaces. Finally, the command to run the desired program is executed in line 430.

### BPUT and BGET Commands

The Turbo Basic BPUT and BGET commands are used for transferring data directly between memory and a disk file. The BGET command can be used to replace the long list of DATA statements in a Basic program and the associated FOR-NEXT loop that READs and POKEs this data. Even though the Menu program listing does not itself have a great many DATA statements, we can use it to explain and demonstrate these commands.

Using BPUT and BGET saves memory both on disk and in a program. For example, the machine language data in line 140 of Menu occupies 64 bytes of program space—six bytes for DATA statement overhead, plus one byte for each digit and comma in the data list. By contrast, the memory image of that data occupies only 16 bytes—one byte for each machine language opcode.

By using BPUT to save the machine language module from memory to disk, then using BGET to load it directly into memory from its own file, you eliminate the need for a separate DATA statement and FOR-NEXT loop in your program, and you eliminate the initialization time required to READ and POKE the data.

To convert Menu as shown in Listing 1 into a program that makes use of BPUT and BGET, enter the following line after the FOR-NEXT loop that READS and POKES the data:

```
145 OPEN #1,8,0,"D:filename.DAT":
BPUT #1,1536,16:CLOSE #1:STOP
```

## MENU.BAS

### ATARI KEY

- Any Atari 8-Bit Computer
- Turbo Basic

**Listing 1.**

```
100 REM ***MENU.BAS***
110 REM ***DISPLAYS FILES WITH .OBJ OR .BAS EXTENSION THEN BRUNS OR RUNS FILES
120 DIM FILE$(17),MENU$(400)
130 FOR A=1536 TO 1551:READ B:POKE A,B:NEXT A
140 DATA 104,232,142,10,212,142,23,208,173,252,2,201,255,240,242,96
150 OPEN #1,6,0,"D:*.*"
160 GRAPHICS 17
170 N=0
180 REPEAT
190 INPUT #1,FILE$
200 IF (FILE$(11,13)="BAS" AND FILE$(3,10)<>"AUTORUN")OR FILE$(11,13)="OBJ"
210 N=N+1
220 MENU$(N*17-16)=FILE$
230 ENDIF
240 IF N>20 THEN EXIT
250 UNTIL FILE$(5)="FREE SECTORS"
260 FOR A=0 TO N-1
270 Y=2*A:IF N>11 THEN Y=A
280 POSITION 2,Y
290 ? #6;CHR$(97+A);" ";MENU$(3+A*17,10+A*17)
300 NEXT A
310 POSITION 0,23:? #6;"ENTER SELECTION";
320 REPEAT
330 POKE 764,255
340 A=USR(1536)
350 GET A
360 UNTIL A-64>0 AND A-64<=N
370 A=(A-64)*17-14
380 FILE$="D:"FILE$(3)=MENU$(A,A+7):FILE$(11)=".":FILE$(12)=MENU$(A+8,A+10)
390 CLS #6:POSITION 0,5:? #6;"LOADING: ";FILE$(3,10)
400 OBJ=(FILE$(12,14)="OBJ")
410 A=INSTR(FILE$," ")
420 IF A>0 AND A<11 THEN FILE$(A)=FILE$(11)
430 IF OBJ:BRUN FILE$:ELSE:RUN FILE$:ENDIF
```

***The program will list up to 21 files** with the extensions .BAS and .OBJ to the screen.*

The 8 in the OPEN command opens IOCB #1 for output to the designated file. The BPUT command transfers data to IOCB #1 starting at memory location 1536 for a total of 16 bytes.

Run the program, and when it stops at line 145, delete lines 130,140, and 145. Then enter the following line to replace those lines and SAVE the edited program:

```
130 OPEN #1,4,0,"D:filename.DAT":
BGET #1,1536,16:CLOSE #1
```

The 4 in the OPEN command opens the designated file for input. The BGET transfers 16 bytes of data from the file to memory, starting at location 1536. This technique can be used to transfer character sets, player/missile graphics data, screen dumps, and data generated by your special applications. Be sure to change the address for the data and the number of bytes to reflect the intent of the program with which you are working. ■

# New and Improved

***Need to know the latest version of a software package? Find it here.***

Software packages are constantly being enhanced by their publishers to add features, fix bugs, and incorporate the latest technological advances. To derive the maximum benefit from your software investment, it is important to know what updates have been made to the packages you use. If you are not using the most current version of a package, contact the manufacturer to find out what enhancements have been made and what you must do to obtain the new version.

Working from information provided by the publishers themselves, we have compiled a list of the most current version numbers of many popular 8-bit and ST software packages and software/hardware products. Program version numbers are often found printed in the documentation, on the title screen, in a README text file on disk, or in an About . . . item in the left-most menu on the GEM desktop.

While every attempt has been made to make this list as comprehensive as possible, we realize that a few fine products may have been omitted. If you would like to see a specific program added to this list, please send your suggestion to New and Improved, *Atari Explorer*, 7 Hilltop Rd., Mendham, NJ 07945.

Note: we have not included entertainment and educational programs in this list because, as a general rule, these packages are not updated frequently.

•Bullets indicate a new listing or program update.

## 8-Bit Programs

| | |
|---|---|
| **Action**, ICD/OSS | 3.6 |
| **B/Graph**, Electronic Arts | 1.1.1 |
| **Bank Street Writer**, Broderbund | 1.0 |
| **Blazing Paddles**, Baudville | 04422 |
| **Celebrity Cookbook**, Merrill Ward | 2.0 |
| **Chipmunk**, Microdaft | 3.04 |
| **ComputerEyes**, Digital Vision | 1.3 |
| **Desktop Performance Studio**, Virtusonics | 1.4 |
| **Draper Pascal**, Draper | 2.0 |
| **Elite Personal Accountant**, Clearstar Softechnologies | 3.0 |
| **Enhancements To Basic II**, Hathaway Electronics | 5.0 |
| **FlashBack**, ICD/OSS | 1.4 |
| **Guitar Wizard**, Baudville | 11602 |
| **Kyan Pascal**, Kyan | 2.02 |
| **Lightspeed C**, Clearstar Softechnologies | 3.0 |
| **MYDOS**, Supra | 4.3 |
| •**MagniPrint II+**, Alpha Systems | 4.1 |
| **PaperClip with Spellpak**, Electronic Arts | 2.1 |
| **Parrot II**, Alpha Systems | 2.8 |
| **Print Shop Companion**, Broderbund | 1.0 |
| **Print Shop**, Broderbund | 1.0 |
| **QuickCode**, Stardust | 1.1 |
| **Scanalyzer**, Alpha Systems | 3.6 |
| **SpartaDOS Construction Set**, ICD/OSS | 3.2D |
| **Super Archiver**, Computer Software Services | 3.02 |
| **Top-DOS Plus**, Eclipse | 1a |
| **Top-DOS Professional**, Eclipse | 1c |
| **Top-DOS**, Eclipse | 1.5a |

## ST Programs

| | |
|---|---|
| **1st Word Plus**, Prospero | 2.02 |
| **1st Word**, Atari | 1.06 |
| **APL.68000**, Spencer Organization | 6.05C |
| **Aegis Animator**, Aegis Development | 2.10 |
| **Agenda**, Inagem Technologies | |
| **Alice Pascal**, Looking Glass | 1.5 |
| •**Animatic Animation System**, Kinetic Microsystems | 1.0 |
| **Athena II**, Iliad | 1.9 |
| **Award Maker Plus**, Baudville | 23716 |
| **BB/ST**, QMI | 1.12 |
| **BBS Express ST**, ICD/OSS | 1.3 |
| **Backup**, MichTron | 1.94 |
| •**CAD 3D**, Antic | 2.03 |
| **Celebrity Cookbook**, Merrill Ward | 2.0 |
| •**Church Manager**, Hi-Tech Advisers | 2.0 |
| **ComputerEyes Color**, Digital Vision | 1.32 |
| **ComputerEyes Mono**, Digital Vision | 1.0 |
| **Copy II ST**, Central Point | 2.5 |
| **Cross-16**, Memocom Development Tools | 2.2 |
| •**Cyber Mate**, Antic | 1.1 |
| **Cyber Paint**, Antic | 2.0 |
| **Dac-Easy Accounting**, Dac | 1.0 |
| **Dac-Easy Payroll**, Dac | 1.0 |
| **Data Manager ST**, Timeworks | 1.1 |
| **DataTrieve**, Abacus | E 2.04 |
| **Degas Elite**, Electronic Arts | 1.1 |
| **dbMan**, Atari | 4.0 |
| **DeskCart**, QMI | 1.02 |
| **DigiSound**, Alpha Systems | 1.62 |
| **Disk Library**, Classic Image | 1.2 |
| **Dollars & Sense**, Monogram | 1.2 |
| •**DynaCAD**, ISD Marketing | 1.38 |
| **EZ Calc**, Royal | 1.33 |
| **EasyDraw**, Migraph | 2.3 |
| **Edit-8000**, Savant Audio | 1.1 |
| **First CADD**, Generic | 1.0 |
| **Flash**, Antic | 1.6 |
| •**FlashBack, ICD** | **2.0** |
| **Fleet Street Publisher**, Spectrum Holobyte | 1.1 |
| **Fontz**, Neocept | 1.11 |
| •**Fortran for GEM**, Prospero | 2.131 |
| **GFA Basic**, MichTron | 3.0 |
| **Hard Disk Accelerator**, Beckemeyer Development | 1.13 |
| **Hard Disk Toolkit**, Beckemeyer Development | 1.05 |
| **IS Talk**,Electronic Arts | 2.03 |
| **Informer**, Soft-Aware | 2.00 |
| •**Interlink ST**, Intersect | 1.83 |
| **Inventory Manager**, La Foret | 1.2 |
| **Inventory Master**, Royal | 1.5 |
| **Inventory-Pro**, Hi-Tech Advisers | 3.00 |
| **LDW Basic Compiler**, Logical Design Works | 2.03 |
| **LabelMaster Elite**, Migraph | 1.0 |

## ST Programs

| | |
|---|---|
| **Laser C**, Megamax | 1.01 |
| **MT C-Shell**, Beckemeyer Development | 1.20 |
| **Magic Sac**, Data Pacific | 5.91 |
| **Mail-Pro**, Hi-Tech Advisers | 2.10 |
| **Mark Williams C**, Mark Williams | 3.0 |
| **Master Tracks Pro**, Passport Designs | 2.1 |
| **MasterPlan**, ISD Marketing | 1.0 |
| **Micro C-Shell**, Beckemeyer Development | 2.72 |
| **Micro RTX Developer Kit**, Beckemeyer Development | 1.13 |
| **Modula 2**, Jefferson | 1.5 |
| **Modula-2**, TDI | 3.01A |
| **Multi-Manager Professional**, New World | 1.2 |
| **Multi-Manager**, New World | 1.0+ |
| **Music Studio**, Activision | 1.3 |
| **NeoChrome, Atari** | **1.0** |
| **PC-Ditto**, Avant-Garde Systems | 3.0 |
| **Partner ST**, Timeworks | 1.0 |
| •**Pascal for GEM**, Prospero | 2.131 |
| **Payroll Master**, Royal | 2.2 |
| **Personal OS-9/ST**, Microware | 2.2 |
| **Personal Pascal**, ICD/OSS | 2.02 |
| •**Phasar**, Antic | 3.01 |
| **Power Print**, Alpha Systems | 2.1 |
| **Print Master Plus**, Unison World | 1.61 |
| **Professional OS-9/ST**, Microware | 2.2 |
| **Publishing Partner**, SoftLogik | 1.03 |
| **Real Basic**, Computer Crossware Labs | 1.3 |
| **Regent Base II**, Regent | 073088 |
| **Regent Word II**, Regent | 870827 |
| **ST Hard Drive Utility Disk**, Supra | 3.19 |
| **ST Sprite Factory**, Future Software Systems | 1.1 |
| •**ST-Replay**, MichTron | 4.0 |
| •**ST-Talk Professional**, QMI | 2.0C |
| **STAccounts**, ISD Marketing | 2.0 |
| •**Sales-Pro Plus**, Hi-Tech Advisers | 4.00 |
| **Solapak**, Solar Powered Software | 3.0 |
| **Super Directory**, MichTron | 2.0 |
| •**SuperBase**, Precision Incorporated | 1.049 |
| •**SuperBase Professional**, Precision Incorporated | 2.03 |
| **SwiftCalc ST**, Timeworks | 1.1 |
| •**SwitchBack**, Alpha Systems | 2.0 |
| **The Chameleon**, Future Software Systems | 1.0 |
| **The Manager**, BMB Computerscience | 1.0 |
| **The Navigator**, Antic | 2.0 |
| •**Thunder**, Electronic Arts | 1.32 |
| **True Basic & Run-time**, True Basic | 2.0 |
| **TuneUp**, MichTron | 1.25 |
| •**Turbojet**, Neocept | 1.11 |
| **Turbo ST**, Softrek | 1.0 |
| •**Universal Item Selector**, Application & Design | 2.0 |
| •**Utilities Plus**,MichTron | 1.0 |
| **VIP Professional**, ISD Marketing | 1.2 |
| •**Video-Pro**, Hi-Tech Advisers | 3.0 |
| **Word Writer ST**, Timeworks | 2.0 |
| **WordPerfect 4.1**, WordPerfect | 08/01/88 |
| •**WordUp**, Neocept | 1.30 |
| **Zoomracks II**, Quickview Systems | 1.0 |

## Keep A Tidy Desktop

### ST HELP KEY

Tired of overlapping desktop windows? To control where windows appear on your desktop, start by opening four windows (the maximum number allowed) and positioning them where you want. Next, close all or some of the windows, depending on whether or not you want them opened automatically on bootup. Finally, click on Save Desktop to create a new DESKTOP.INF file.

The next time you boot, any windows left open when you saved the desktop will be opened automatically in the spots they previously occupied, and windows opened subsequently will fall neatly into the spots that were occupied by the windows that were closed before you saved the desktop.

From *The Atari ST Book of Tips, Instructions, Secrets and Hints*, © 1988 by Ralph C. Turner, Index Legalis Publishing Co., P.O. Box 1822-20, Fairfield, IA 52556, (515) 472-2293.

# ATARI DEALER DIRECTORY

The following is a list of dealers who carry Atari products. Please patronize them and mention *Atari Explorer* when you do. Dealers: List your store here. Call Julie Winston at (201) 543-6007 for details.

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and
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and
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ATARI

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# Old Book, New Release

## *When H.A.R.L.I.E. Was One, Release 2.0*

In the spirit of software, new versions of which are released practically monthly, Bantam Books has released a brand new version of David Gerrold's 1972 novel, *When HARLIE Was One*.

Frankly, given the advances that have been made in computing during the past 16 years, HARLIE needed updating. HARLIE purports to be the ultimate artificial intelligence. Along about page 24, David Auberson, the lead programmer on the HARLIE project, realizes that HARLIE is truly "another intelligence, another being, another form of life."

The plot of the book is predictable. Top company executives think too much money is going into the HARLIE project and want to cut it off. To keep the project going, Auberson finds an ally in the beautiful secretary to the company president. HARLIE, meanwhile, is busy taking over various computer networks (communications, banking, etc.) and helping Auberson work toward the preservation of the project.

But real meat of the book is not in its somewhat banal plot; rather it is in the series of coversations between Auberson and HARLIE. In them we see the rapid awakening of a very precocious child trying to understand emotions like love and fright, concepts like trust and fairness, and experiences like laughter and death.

These conversations between Auberson and HARLIE are interesting and thought-provoking, sometimes even touching. Unfortunately, the conclusions that Auberson comes to with HARLIE's help—or perhaps it is the other way around—are often disturbing and, for me, detract from the book.

The central conclusion of the book, for example, is perhaps best expressed by this paragraph. "The machine would be able to extrapolate the effect of every piece of information. It would know right from wrong. It would work for the most good for the most people. Some it would teach and others it would counsel. It would be a benevolent dictator. 'No,' said Auberson to himself, 'no, the machine will be God!'"

And for the next 40 pages we read how wonderful it would be to have for our God a machine that would show us how to be gods ourselves. If you can stomach that as a premise, then the book is a "good read." If not, go pick up Tom Clancy's latest.

David Gerrold, *When H.A.R.L.I.E. Was One, Release 2.0*, Bantam Spectra Books, 1988, 287 pages, $3.95. ■

**By DAVID H. AHL**

## INDEX TO ADVERTISERS



## Puzzles & Problems

### ANSWERS

Problems are on page 69.

**Young Wife**

They are now 50 and 75, and they were 25 and 50 when they were married.

**Quickie**

a. 10, b. 102, c. 9876.

**Carroll's Animals**

The logical conclusion is: I avoid kangaroos.

**Hit Song**

One continuous groove.

**Bright Buttons**

13 buttons. Conceivably, 12 buttons might have three each of the four colors, but the thirteenth will assure one matching set.

**Art for Art's Sake**

The deal is inequitable. If you express the exchanges as algebraic equations, you will find that the Italian is offering one fifth of an Ernst drawing less than he would receive from the Frenchman.

**Poker Party**

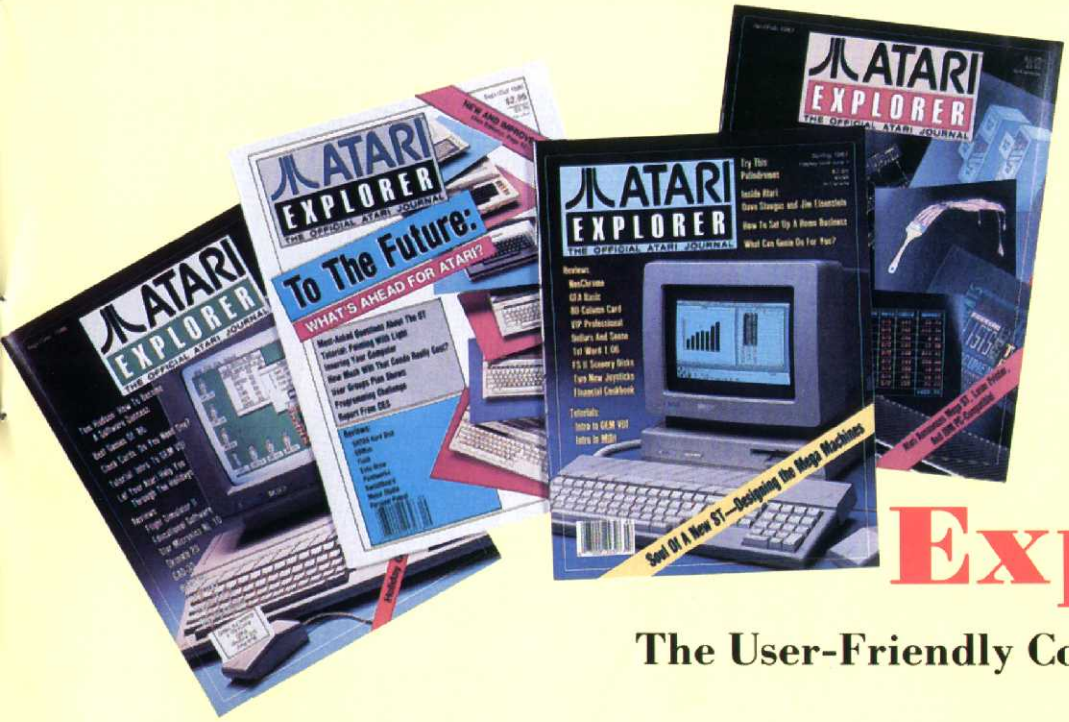
Male 1, Ed, is married to Betty, and he lost $50.

Male 2, Don, is married to Ann, and he lost $70.

Female 1, Ann, won $140 (the combined won/loss amounts of the other players).

Female 2, Carol, lost $60.

Female 3, Betty, won $40. She is the sister of Carol and Don.




# Atari Explorer

## The User-Friendly Computer Magazine

Why did you originally buy an Atari computer? To do word processing? To compose music? To manage your business? To play games? Chances are, whatever your initial reason for buying an Atari, you've discovered that it has many additional capabilities and potential applications.

The flip side of the coin is that you've probably experienced some frustration as well. Maybe your word processing package won't do subscripts or underlining. Perhaps your database won't sort on as many fields as you need. Or, it could be that when you write a program, your whole system acts user-hostile.

Depending upon the balance between your satisfaction and your frustration, you may continue to use your computer or set it aside. But there is a better way: **Atari Explorer**.

As the premier magazine for Atari computer owners, it is our responsibility to make sure that you get the most out of your computer. To us, that means making sure your Atari does more than you bought it to do, more than friends' and associates' computers do, and more than you ever imagined a computer could do.

To make sure that you get the most out of your computer, **Atari Explorer** brings you objective, in-depth reviews of hardware and software; up-to-date information about new products; practical tutorials; stimulating columns; thought-provoking articles; and valuable inside information.

### Hard-Hitting Evaluations

At **Atari Explorer**, we obtain new peripherals and software packages as soon as they are released. We put them through their paces in our on-site laboratory and also in the environment for which they are intended—home, office, lab, or school.

Our evaluations are unbiased and accurate. We are not afraid to call a spade a spade or a lemon a lemon. Our first obligation is to you, our readers, and editorial excellence and integrity are our highest goals.

### Practical and Stimulating

We know that some of our readers are beginners and others are experts. Thus it is our responsibility to make what we publish both comprehensible to newcomers and interesting to veterans. That does not necessarily mean that the material is simple; we know you like to be challenged. What it does mean is that we provide the inexperienced user with every possible means to seize the subject matter and make it his own.

However, we don't want the experts to be bored, so although articles are accessible to beginners, they are theoretically non-trivial, cover topics in depth, and present information on more than one level.

At **Atari Explorer**, we are intensely interested in all aspects of computing. Ours is the magazine of pragmatic applications, communicative graphics, stunning animation, mind-expanding games, and realistic simulations. We take our business seriously, but we have fun too. We are convinced that you will, too, when you go exploring with the **Atari Explorer** family.

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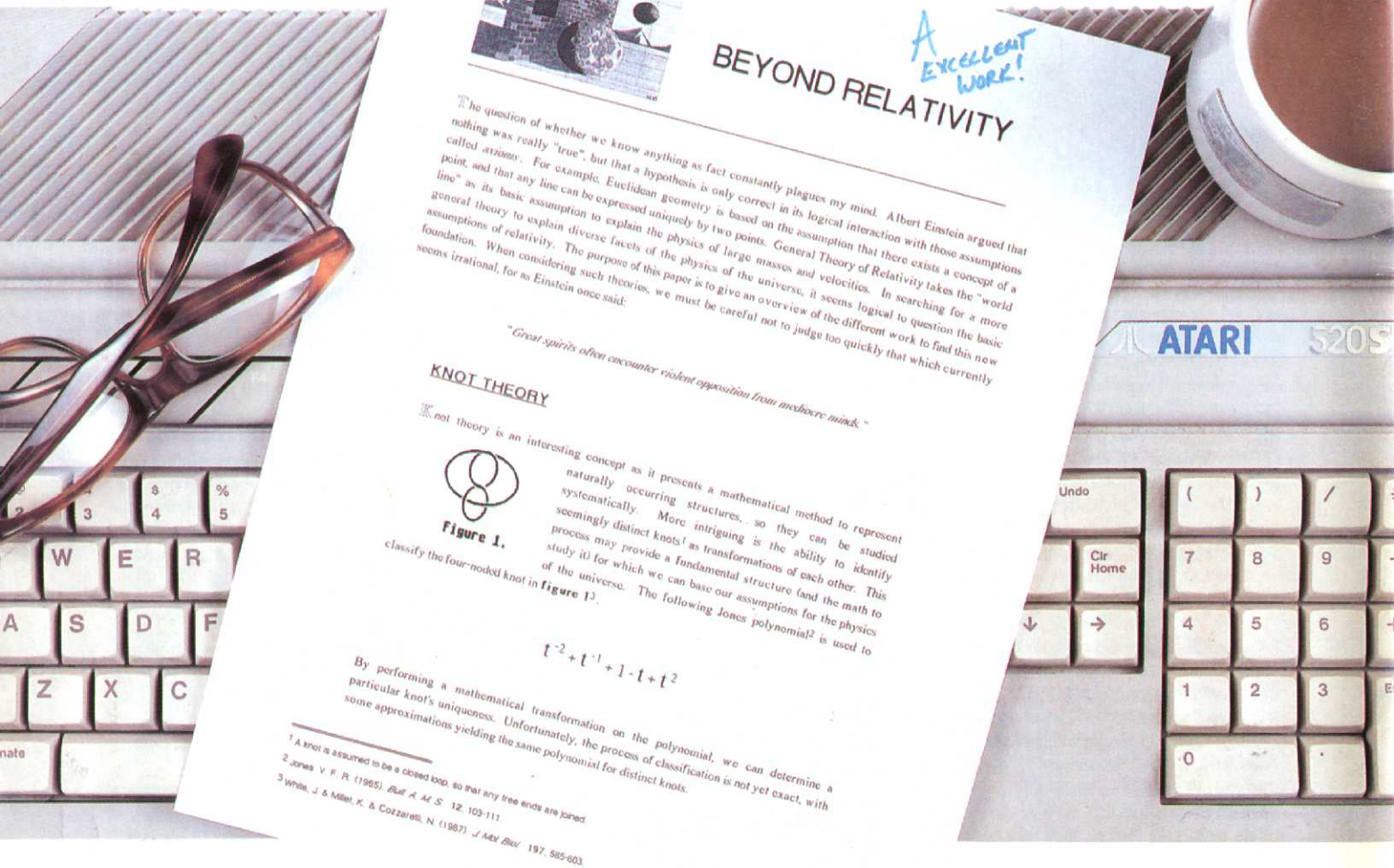


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