ATARI EXPLORER

THE OFFICIAL ATARI JOURNAL

May/June 1989
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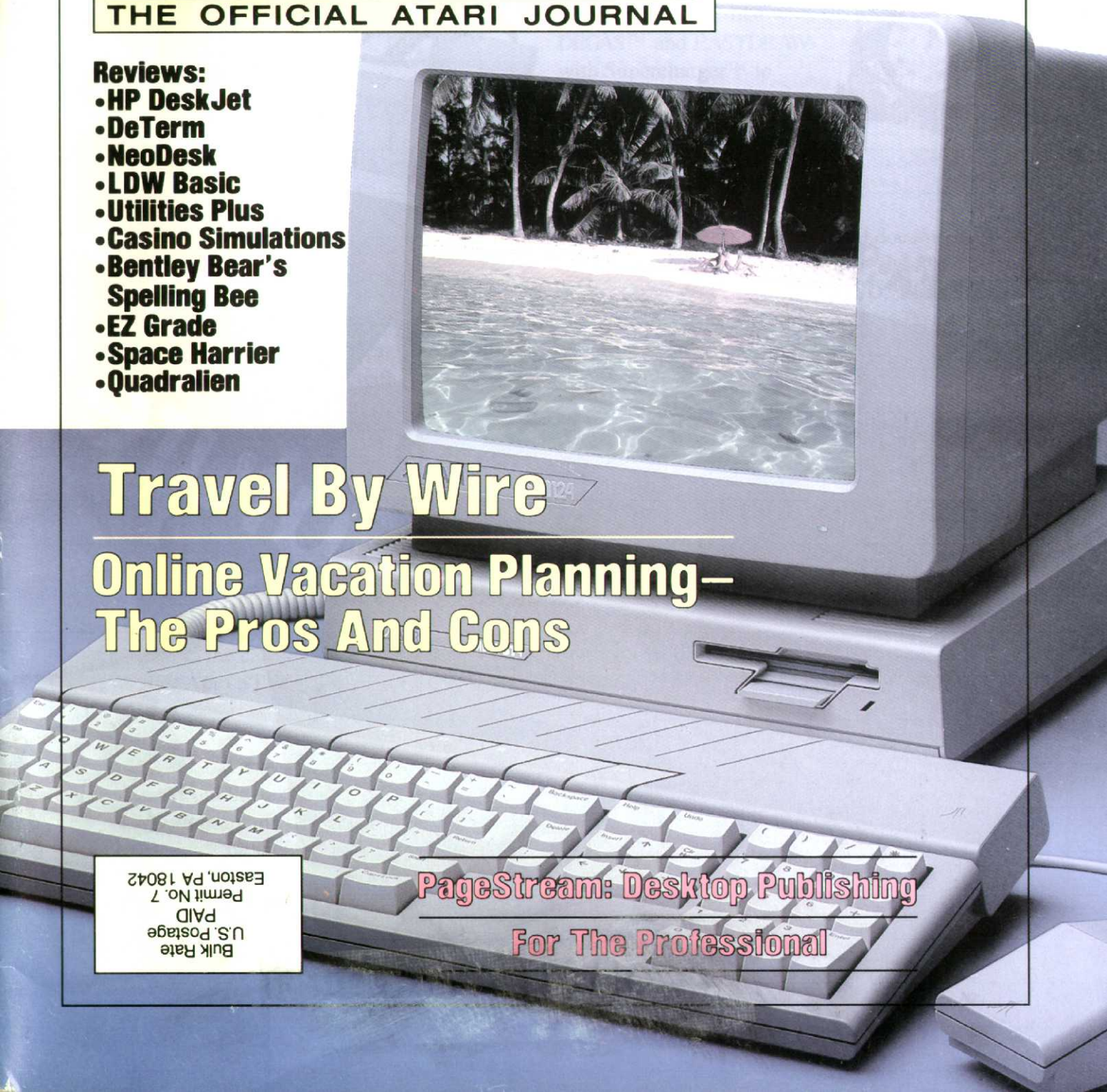

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MAY/JUNE 1989

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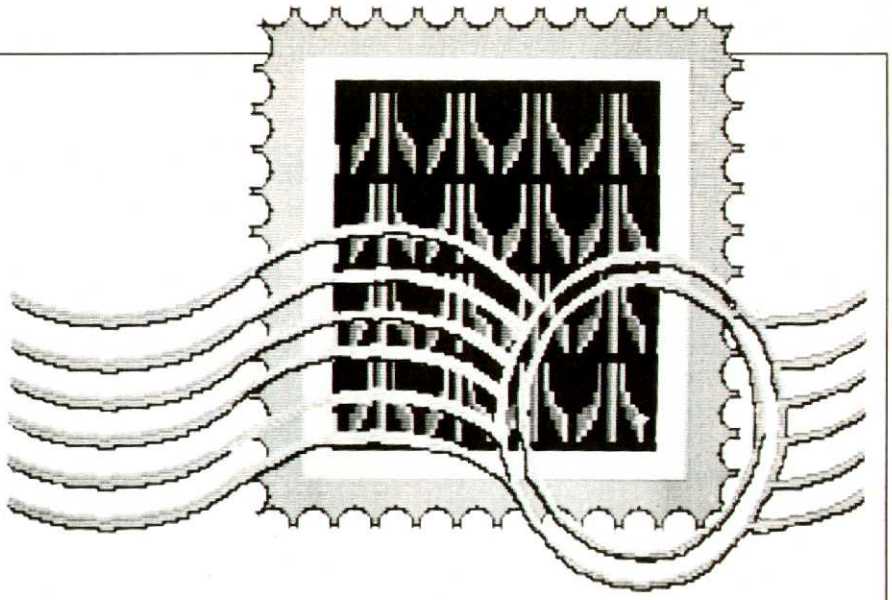

Letters To The Editor

Stirring The Piracy Pot

Dear Editor:

In talking to Atari ST users, we learned that many of you wanted an ST version of our air combat simulator *Falcon*. You also wanted us to take full advantage of the special capabilities of the machine, rather than doing a simple conversion from Macintosh or IBM.

Many of our competitors warned us that releasing an ST product would be a money loser. We were told that within weeks of release the product would be on bulletin boards and sales would fall to zero. We chose to disregard these warnings, because we felt that the majority of ST users were willing to pay for the products they wanted, that piracy was a problem among only a handful of users.

Many of our staff members didn't even want us to copy-protect the product, because copy-protection is not only inconvenient but expensive, adding about $0.50 to the cost of each copy of the game.

However, within 30 days of releasing *Falcon ST*, pirates had it on bulletin boards—complete with diagrams for the code wheel protection, keyboard layout, and mission maps.

The real cost of such software piracy is not the lost $49.95 sale, but the lost industry support for the Atari ST.

Whether the program is designed for IBM, Amiga, C64, Apple II, Macintosh, or Atari, piracy will always exist. Software companies accept this fact and rely on honest users to help them cover the cost of development and publication and allow for a reasonable profit.

Many ST owners argue that ST software is no more prone to piracy than IBM or Mac, and many of us at Spectrum HoloByte believe this to be true. The problem is that the number of installed STs is considerably smaller than the number of installed IBMs and Macs, thus increasing the impact of piracy on total sales. In addition, ST pirates seem better organized, and piracy seems more accepted by ST users.

Falcon ST was converted and enhanced by Rowan Software, a third-party developer. A third-party developer typically receives about $2.00 in royalties on each copy sold. Against that royalty, Rowan spent more than $40,000 and 24 man-months on the ST conversion.

The Amiga version already has double the sales volume of the ST, even though the Amiga version has been on the market for only six weeks, while the ST version has been available for nine weeks. Based on the current sales trend, the ST developer will be lucky to break even, and it will be very difficult to convince him to do another ST conversion.

For publishers, too, it is very costly to produce and market games. When development, marketing, advertising, and production are included, it costs between $250,000 and $500,000 to introduce a new package. After retailers and distributors take their share or the purchase price, the publisher receives between $12 and $20 per copy sold.

There is no clear-cut solution to the piracy problem. All we can ask is that you buy a program if you like it. Think of it as an investment. The more you invest in the reputation of your computer, the more and better titles you will find for it.

Help us send a message to the rest of the industry that there really is an ST market willing to buy good software. Spectrum HoloByte will continue to monitor the ST market, keeping a close eye on what happens to *Falcon ST*, in particular.

It's a shame that a few pirates can destroy a market and deprive thousands of honest ST users of the product support they deserve.

Gillman G. Louie
CEO/Chairman
Spectrum HoloByte
A Division of Sphere Inc.
2061 Challenger Dr.
Alameda, CA 94501

8-Bit Dearth

Dear Editor:

Once again, I find myself disappointed in your magazine. As a loyal Atari 8-bit owner and a subscriber to your magazine, I am forced to seriously consider cancelling my subscription. Why? Essentially because of the lack of articles for 8-bit computers.

In replying to another letter, you mentioned that the lack of software support leads to a lack of articles. Let me ask you this: What ever happened to tips on programming the Atari 8-bit? I would love to see an article in every issue about programming Mac/65. Lists of PEEKs and POKEs are always good, too.

I have read over and over again that everything about the 8-bit has been printed. I simply don't buy it. I have never seen an in-depth look at programming in assembly for the 8-bit, for example. There are many things left to do with the Atari 8-bit systems, but if the same old excuse is used, none of them will be published. I am very upset with Atari and your magazine. Please consider these suggestions; I believe they are valid.

John Quinn
34 Chase Lane
Levittown, NY 11756

We agree with you, and we want to print more 8-bit-oriented articles, but we simply don't have the resources in-house to produce in-depth programming tutorials. You may have noticed in the March/April issue a call for writers of all sorts for the magazine. So far, not one of the respondents has expressed an interest in 8-bit material. We challenge you 8-bitters out there: if you can program and communicate in standard English, send in a sample of your work. Support your fellow Atari owners and win fame and fortune!

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Letters To The Editor

Problems With Degas

Dear Editor:

I have a question about *Degas Elite*, which I have not been able to get answered by Electronic Arts. I have a 1040 ST color system with a Supra 30Mb hard disk, which I autoboot from the C drive.

Even though I have GDOS in my AUTO folder and my ASSIGN.SYS file in my C directory pointing to the location of my font and driver files, I am unable to start *Degas Elite* (or *Easy-Draw* or *VIP Professional GEM* either).

I can, however, run these programs without the hard disk, if I boot my computer with the hard drive turned off. Any ideas?

Herb Chong
23 Maple Crest Dr.
Peekskill, NY 10566

We talked to Tom Hudson, author of the program in question, and he had this to say about your problem: "The most likely cause of this kind of problem is a corrupted version of GDOS. Try re-installing GDOS with INSTALL.PRG, and see if that clears things up."

Notes From Abroad

Dear Editor:

Atari Explorer is quite OK. I don't buy it every month, because it is so expensive here in The Netherlands.

Living here in Europe I have access to lots of good ST software, mainly from the UK and West Germany. Why is the ST a very minor machine in the USA? Is it because of wrong advertisement (as a game machine only)?

I am very interested in Apple Macintosh emulators. Have you heard anything about the Spectre 128? We hear that in the next few months a hardware-based MS-DOS emulator will appear here.

Can't you push Electronic Arts to convert *Deluxe Paint II*, *Interceptor*, and other great Amiga programs to the ST? Have you seen the ST version of *Falcon*? It is superb.

Here at the University of Technology in Delft, we use the ST as a cheap CAD machine. I am studying architecture and use my 1040 ST for CAD, word processing, and games. My opinion is that the ST is a more all-around machine than the Amiga.

Well, I hope that the ST will catch up in the States, because it deserves it.

Jay Lee
Operalaan 37
2907 KA
Capelle a/d yssel
The Netherlands

We, too, are interested in emulators. In this month's New Products, you will find a hint of a new hardware-based PC emulator from Avant-Garde systems, which we will review as soon as it is available. And we have a review of Spectre 128 scheduled for our July/August issue.

Regarding your request for ST versions of popular Amiga programs, please see the letter from Gilman Louie in this very Letters column. It may answer some of your questions and give you an idea of what you can do to improve the ST software situation.

Getting Started

Dear Editor:

About four months ago I saw my first computer-produced newsletter, and immediately knew I wanted to buy a computer so I could make my own professional newsletters.

But, because I knew how expensive computers were, I thought I had no chance at all of ever getting a good system. Then, in my local Federated Store, I noticed a computer section with "affordable systems." I took a look at the similarly priced Atari ST and Amiga computers and knew right away that I wanted one of the two.

Since I still knew nothing about computers, I figured that I would pick up a few Atari and Amiga magazines to help me learn. I thought that this would help me decide on a system, but it only confused me. All the articles are written so that only someone who already owns an Atari/Amiga can understand them.

I realize that if you wrote each article with the non-computer owner in mind, it would be very tedious for those who already know the details, but I think you are losing potential buyers by taking this approach and isolating yourselves in a "computer minds only" world.

I know there are many elderly people and people like me who missed out on the beginning of the computer revolution. They have picked up the computer mags and have been scared away by the jargon that fills the articles.

And by the way, can you tell me that an ST is better than an Amiga for the art, animation, and desktop publishing I want to do? Do you have any suggestions to help me decide which system to buy?

Joey McDaniel
19312 Temre Lane
Rowland Heights, CA 91748

Your point about jargon-filled articles is well taken. Those of us who been involved with them for years tend to forget what it was like when we first became interested in computers and didn't know a 6502 from a null modem. We pledge to try to do better in future issues. As for Amiga vs. Atari ST, we can, indeed, tell you that an ST is better than an Amiga for what you want to do. We can't, however, take the space here to tell you why. We challenge our readers to do that. ST owners, write to Mr. McDaniel and tell him what you do with your ST and why you chose it. Fill his mailbox with love letters to your favorite machine. Do it today, before he makes a mistake he will regret—but whatever you do, don't use jargon!

Rename Your Trash Can

ST HELP KEY

To change the name under the Trash Can icon on the ST desktop, load a copy of your DESKTOP.INF file into any word processor that handles straight ASCII files (*1st Word* works fine). Then locate the line that contains the word TRASH (an example from a typical DESKTOP.INF file is shown below):

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Without altering any other characters (or spaces) in the line, change the word TRASH to something else (INCINERATOR, BLACK HOLE, or WHOOPS!, for example). Then save the file in ASCII format, under the name DESKTOP.INF.

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. ■

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NEW Products

Entertaining, educational, and just plain useful new releases for Atari Computers

SYSTEMS SOFTWARE

Ana-systems announces Modula-2/68 for the Atari ST. The shareware compiler system was designed to be "intuitive enough for the novice to use, yet powerful and flexible enough for the advanced programmer." An application shell controls execution of the compiler, linker, and editor by menu selection or by keyboard control sequences.

Modula-2/68 is available on Bix, Compuserve, and Genie.

Ana-Systems, P.O. Box 4759, Foster City, CA 94404, (415) 341-1768.

IEEE-488 Interface for ST

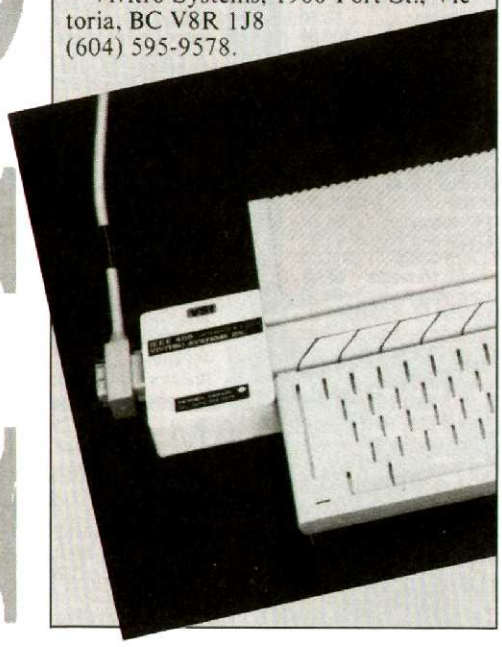
Vivitro Systems has announced an IEEE-488 interface for the Atari ST. The module connects to the the cartridge port of the ST and provides full talk/listen/control capability to the IEEE-488 bus through a standard 24-pin connector.

It allows the ST to be used as a programmable controller or data logger for IEEE-488 instruments in applications that do not require a hardware interrupt facility. A standard clock/calendar circuit with battery backup has been incorporated into the module.

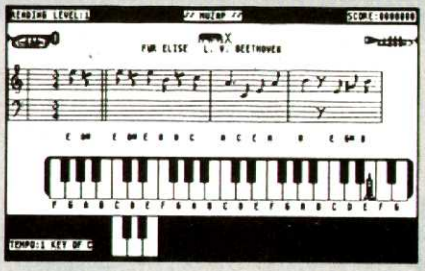
Software supplied with the module includes sample driver programs written in TDI Modula-2 and GFA Basic to send and receive character strings to and from instruments on the bus and programs to set the clock/calendar.

The device carries a retail price of Canadian $478.

Vivitro Systems, 1900 Fort St., Victoria, BC V8R 1J8
(604) 595-9578.



ENTERTAINMENT SOFTWARE



Muzap from **Philos Software** is "an audio/video" game the object of which is to zap music notes before they zap you, and in the process, improve your skills in musical notation and cultivate your musical ear. In all Muzap games, the notes are zapped on a mouse-driven piano keyboard; the player must move the cursor to the key that corresponds with the note that appears on the staff above and click to zap it.

Philos Software, C.P. 1322, Succ. Desjardins, Montreal, PQ H5B 1C4, (514) 766-6029.

Antic Software announces *Crash Garrett*, a game for the ST set in the later 1930's. In it, ace flyer Crash Garrett escorts you through the Hollywood scene to rescue gossip columnist Cynthia Sleeze from Nazi mastermind Baron von Engel Krul and his cronies, who want to kidnap American beauties for use as breeding stock for an Aryan race of superhumans. $39.95.

Bobo, also for the ST, is a disk of six mini-games, in which you join Bobo Inzeeslammer where you help him keep ahead of his menial chores and plan his escape. $34.95.

Antic Software, 544 Second St., San Francisco, CA 94107, (415) 957-0886.

PRODUCTIVITY SOFTWARE

Avant-Garde Systems announces a new upgrade policy for owners of *PC-Ditto*. The company has announced plans to release PC-Ditto II, a hardware-based PC emulator, which will run at the 4.77MHz speed of a PC XT, and registered owners of the original *PC-Ditto* will receive a coupon good for 50% off the new product price.

To receive the coupon, owners must register with Avant-Garde by returning the product registration card included in the original package. Also, owners of *PC-Ditto* version 2.0 should register now to receive version 3.01.

Avant-Garde Systems, 381 Pablo Point Dr., Jacksonville, FL 32225, (904)221-2904.

Sierra On-Line has released *Manhunter: New York* for the Atari ST. The game highlights windowing effects, split-screens, close-ups, and new programming techniques that allow more than 250 screens per disk. This new interface permits the player to view the screen in either the first or third person.

Sierra On-Line, Coarsegold, CA 93614, (209) 683-4468.

Lost Dutchman Mine from **Magnetic Images** is a graphic adventure for the ST set in the Old West. As you search for the lost mine, you can try your luck at a game of cards in the saloon, go fishing in a nearby river, or try to collect the bounty on a bandit. Clues can be found in the mines and caves that dot the landscape. $49.95.

Magnetic Images, P.O. Box 17422, Phoenix, AZ 85011, (602) 265-7849.

Mindscape introduces three new games for the Atari ST. The first, *Hostage*, gives you control of a six-person special forces team assigned to rescue hostages being held by terrorists. You can view the action from overhead, from outside the embassy where the hostages are held, and from inside. $44.95.

You can experience the rigors of military combat training in *Combat Course*, an action game that includes a build-your-own-obstacle-course option. $39.95.

Deja Vu II: Lost in Las Vegas is the newest interactive graphic adventure from ICOM Simulations. It uses the same point-and-click command structure as its predecessor, leaving you free to explore and manipulate the objects on the screen. $49.95.

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

Epyx announces *Technocop* for the Atari ST, a futuristic game that casts you as a member of an elite crime-fighting unit out to eradicate a ruthless crime family. The game features 11 levels of difficulty and combines "the thrills of car chases and the chills of crime-busting." $49.95.

Epyx, P.O. Box 8020, Redwood City, CA 94063, (415) 366-0606.

Captain Fizz Meets the Blaster-Trons from **Psygnosis** is a collaborative, two-player game for the Atari ST. Described as "a gripping mixture of frantic action and deep strategy," the game offers a split screen and 22 "very hard" levels. £14.95.

Psygnosis Limited, First Floor, Port of Liverpool Bldg., Liverpool L3 1BY, United Kingdom.

R/C Flight Simulator

R/C Aerochopper is a radio controlled aircraft simulation system for Atari ST computers. The system includes a Futaba Conquest dual joystick box, a program/interface cartridge, and an owner's manual.

R/C Aerochopper simulates the experience of radio controlled flying, offering the ability to modify any of 131 adjustable parameters that determine flight characteristics, wind conditions, and control parameters. The device sells for $199.95.

Ambrosia Microcomputer Products, 98 W. 63rd St., Ste. 371-K, Willowbrook, IL 60514, (312) 655-0610.

Atari has now replaced the external single-sided disk drive in 520ST systems with an internal 720K double-sided drive at no increase in price. This new system, known as the 520STFM has a 68000 mpu running at 8 MHz; 512K of RAM; parallel, serial, mouse, joystick, and MIDI ports; and the GEM/TOS operating system built in. Suggested list price is $599.95.

Atari in the Eastern Bloc

We recently received a letter from an Atari XL owner in East Germany which read, in part, "Two weeks ago I was able to get an American computer magazine for the first time. It was *Creative Computing*, December 1985. It was very refreshing, informative, and surprising, not at least because of the absence of adequate publications in my country.

"Not many people are using American computers, mainly because these machines are very expensive here, and it is difficult to get software for them. So I am in search of the opportunity to exchange experiences, information, computer magazines, and software. It is very important to me to keep in contact with the computing world."

Why not write to this fellow and send him a care package of magazines or software you no longer need?

Guido Kipp
1421 Vehlefanz
Burgwall 4
D. D. R. (East Germany)

We can vouch for the high prices and scarcity of equipment. On a recent trip to Czechoslovakia and Hungary, we found only one shop in Budapest stocked with American computers. Prices were two to three times the stateside *list* prices, which, in light of the lower wage scale, means that an average person would have to spend three to six months of earnings for a basic Atari 800XL!

And In The U.K.

An interesting new piece of hardware is the Vidi-ST, a video digitizer selling for about $170. It it a real-time frame grabber which can grab and display 60 frames per second (16 colors), which is the speed of standard TV and VCR video.

Speaking of frame grabbers, Romantic Robot has developed a product called Multiface ST, a ROM cartridge that allows you to freeze a running program and save the entire thing out to disk. It has an extensive set of monitor/debugging tools built in and is priced at about $85.

We have no word on when (or if) this product will make it to the American market—but most seem to get here eventually.

Robokit Coming Soon

Personal Robots Ltd. (U.K.), a developer of light industrial robots has recently written a language called Prose—Personal Robot Operating System & Environment which runs under GEM on an Atari ST. This language, coupled with precision modular components, is being used at many universities, laboratories, and company research centers.

Some months ago, Personal Robots Ltd. put together a kit based on Lego Technics components, which Atari will shortly be bringing to market as Robokit. The kit includes the software, interface board, and instruction manual for building several sample robots. In addition to the kit, you will need a Lego Technics set, including at least one servo motor and one sensor.

The interface board, which connects through the cartridge port, offers eight outputs (either logic or power) through which to control a robot. Each logic output controls a bi-directional servo motor, while a power output can supply power to a switch, solenoid or servo motor.

To program the robot, you can use any standard drawing or CAD program to draw the basic structure. Using the Robokit software, you add the icons representing motors, solenoids, and switches. Whenever you click on an icon, the item represented by that icon operates.

Watch for a review of Robokit in an upcoming issue of *Atari Explorer*.

Antic to Distribute GFA Products

Marking the end of the short period that GFA products were in limbo due to the breakup of the GFA/MichTron alliance, Antic Software has announced that it will be the exclusive marketing and support partner of GFA Systemtechnik in the U.S. and Canada.

The extensive line of GFA products, including the long-awaited Basic 3.0 Compiler and GFA Assembler, should be available from Antic now.

Antic Publishing, 544 Second St., San Francisco, CA 94107, (415) 957-0886.

Taito Enters ST Market

Japan-based Taito Corp., well-known for its coin-op games, announced eight games for the Atari ST at Winter CES. All selling for $39.95, they should be on dealer shelves by the time you read this.

In *Alcon* you battle aliens with lasers, homing missiles, and bombs as you maneuver your battle-scarred SW475 over the surface of the planet Orac. In the hot arcade game, *Sky Shark*, you'll get the ride of your life as you pilot your legendary P-40 Tiger Shark deep behind enemy lines.

In *Arkanoid*, a fascinating variant of *Breakout*, you need skill and energy to break down the 33 barriers that stand between you and DOH, the destroyer of the universe. Another oldie, *Qix*, challenges you avoid the sparx while trapping the qix.

You're in for addictive action in *Bubble Bobble* as you and your two buddies, Bub and Bob, battle battalions of evil beasties by blowing and bursting billions of bubbles.

In *Operation Wolf* hostages have been taken, and the only way to save them is to get in, strike hard, and get out fast. Are you ready to be the baddest dude on the streets? In *Renegade*, only you and your flying fists and killer kicks

A new 520ST;
Atari behind the Iron Curtain;
and new products
from CES and abroad

News & Views

By DAVID H. AHL

will put gangs of blood thirsty thugs in their place.

In *Rastan*, you become an invincible warlord, trying to kill off a host of evil lords and their slimy servants before taking on the mighty castle king.

Taito Software, Inc., 267 West Esplanade, Suite 206, North Vancouver, BC V7M 1A5.

Surge Protection

By now you should know that we believe in surge protection for your computers, VCRs, and other sensitive electronic equipment. At CES, Panamax, one of the pioneer companies in the industry, was showing their affordable Max line of 12 surge protectors.

We have been using Panamax surge protectors for many years and can vouch for their quality. Showing their confidence in their products, Panamax now offers a lifetime warranty—the only one in the industry—that guarantees to repair and replace the protector *and* anything plugged into it should it fail.

We were interested to see several new products in the Panamax line adding protection for a coax TV cable to the basic one-, two-, or four-line electrical box. Such a box makes good sense if you are in an area like ours that is subject to severe thunderstorms.

Panamax, 150 Mitchell Blvd., San Rafael, CA 94903, (415) 499-3900.

Atari 800XL in a Budapest computer shop.

Zak McKraken from Lucasfilms

Zak McCracken ($44.95) from Lucasfilms Games features a journalist who writes for the supermarket tabloid, *National Inquisitor*. Zak likes to invent stories about possessed toasters, two-headed turtles, Martian minestrone recipes, and vegetarian vampires. But when he discovers that a story about space aliens taking over the phone company is true, he and you are off on the adventure of your lives.

Lucasfilms Games, P.O. Box 10307, San Rafael, CA 94912, (415) 662-1800.

Epyx Announces Eight

At Winter CES, Epyx announced seven new games. Planned for the first half of 1989 are *Devon Aire in the Hidden Diamond Caper*, the first adventure title from Epyx; *Skate Wars*, the first title in the so-called "future games" line of software; and *Trails of Honor*, a medieval adventure game aimed at advanced players.

Coming action/arcade titles include *Curse Buster*, *Axe of Rage*, and *Undersea Commando*, a unique underwater game in which you must defeat the insidious Yellow Shadow.

Report From NAMM

Music merchants jump on the Atari bandwagon

The National Association of Music Merchants (NAMM) Show is America's—perhaps the world's—largest gathering of music industry representatives. And this year's January show in Anaheim (NAMM hosts a similar convention in Chicago in June), was the largest ever. Spread over some 303,500 square feet of show space in the Anaheim Convention Center and filling large halls in the nearby Hilton and Marriott hotels, January NAMM hosted 617 corporate exhibitors and more than 35,000 attendees.

As you would expect, the giants of the music industry—Yamaha, Casio, Roland, Korg, Ibanez, and Fender—were there in force, most of them fronting truly massive exhibitions. Not far behind them, however, were the computer manufacturers—Atari, Commodore, and Apple.

As most *Explorer* readers know, computers have become an increasingly vital part of the musician's kit, employed for instrument control (via MIDI); video synchronization (via SMPTE); composition, arranging, and copying (via laser printers and specialized desktop publishing software); and other applications. And after an initial flirtation with low-end Commodore machines, the industry seems to have settled on the Atari ST as its computer of choice. Built-in MIDI ports, sophisticated timing, fast processor speed, huge memory, superb graphic interface, inherent desktop publishing capabilities, and low price (the music market is notoriously price-sensitive) have made the ST the international standard for both studio and home music computing. Today, according to figures published in the January issue of *MacUser* magazine, the ST commands fully 30% of the music market for computers—well ahead of both Apple and IBM.

Small surprise, therefore, that in addition to its substantial formal presence at the show, Atari's influence at NAMM extended everywhere. ST music software manufacturers alone filled several aisles of the South Hall, and Atari computers figured prominently in almost every major exhibition of electronic music products.

Casio and Korg—two of the largest exhibitors at the show—were demonstrating their synthesizer products every hour on the hour, under ST control. I counted 26 separate exhibitions featuring one or more Atari machines. The total number of STs at the show must have ranged upwards of a hundred.

That substantial display of computing power was particularly interesting when considered in light of the fact that up until about five years ago, the NAMM show was still dominated by conventional instrumentation (i.e., luthiery and brasswork) plus the still-largely-analog electronics (amplifiers, mixers, etc.) used by poppers, rockers, and studio engineers.

The amazingly rapid proliferation of computers in the music world—like that of computers in the worlds of busi-

By JOHN JAINSCHIGG

ness, finance, and telecommunications—has been attributed to many factors. Yet one factor stands out above all others: the development of the MIDI interface.

Happy 5th to MIDI!

The Musical Instrument Digital Interface (MIDI) is a networking standard that lets computers communicate with electronic instruments such as synthesizers, samplers, and drum machines. Once this connection has been made, the computer can capture and record the output of the instrument—not in terms of sound, but in terms of what are called *events*—key presses and releases, patch selections, button presses, and controller movements.

This performance data can then be modified and edited under computer control. Its timing can be perfected, brought into rigid synchrony with other *tracks* or with video timing signals. It can be transposed or subjected to more complex filtration. It can be converted directly into standard musical notation and output to a laser printer. Finally, it can be played back out to a MIDI instrument—either the one that was used to generate it or, within reason, any other—and the instrument will play.

Simple? You bet. But profound in its implications. You say you're not a good keyboard player? No problem—just set the MIDI system to Step Record and punch in that difficult part, note by painstaking note. Then when it's played back at normal tempo, the only complaint your listeners may have is that it sounds "too perfect."

You say you have written a quartet and want to hear it played, but can't afford union scale for four stringmen? Hook up a multivoice sampler with a good set of string sounds, play each part into the computer, edit and correct the timing, then add back some "human feel" with an algorithmic filter. If you like what you hear, go ahead and have the computer generate sheet music for the parts—copyists are expensive, too.

In other words, and among other things, MIDI has freed musicians from the hegemony of instrumental technique over self-expression, made manageable the awesome logistics of performance, and eliminated much of the repetitive drudgery of recording. But this could never have been accomplished if MIDI had not been adopted as a universal standard.

Much of the work of establishing and promoting the MIDI standard was and continues to be done by the individual and corporate members of the International MIDI Association and the Association of MIDI Manufacturers. Formed in 1983, just after the MIDI 1.0 standard was first formally presented, the groups held a fifth birthday party for MIDI at this year's NAMM show.

Though the party was promoted only at the IMA's tiny booth and advertised with a 2″ deep note on page 17 of the 102-page NAMM show daily, the technical/musical grapevine did its stuff. Several hundred programmers, engineers, instrument makers, and musicians gathered in the second-floor ballroom of the Anaheim Plaza to hear such luminaries as Dave Smith (formerly of Sequential Circuits and one of the original designers of MIDI, along with Chet Wood) and Chick Corea (the influential jazz pianist) talk about the standard that has shaped the music industry today and will continue to shape it tomorrow.

There is a peculiar pleasure in standing in the middle of a room filled with people who are congratulating themselves—and deservedly so—for having made a kind of history. As Smith quipped, "of course, if they were to drop a bomb on this ballroom, that would be the end of MIDI. Looks like most everybody's here."

Although Atari's formal association with MIDI began with the introduction of the ST in 1985, at least one 8-bit Atari was there at the birth. As noted in the IMA's January newsletter, "the January, 1984 NAMM show was . . . the first show that featured MIDI software . . . and who would have thought the unfinished program running on a small Atari in the first IMA Booth would launch one of the largest MIDI software companies in the industry, Hybrid Arts?" Bob Moore, now president of Hybrid Arts, was the programmer of that little demo, and he still speaks proudly of the character graphics used in the display.

Rock and Roll

So much for history. Beginning shortly after the introduction of the ST, Atari began making an effort to focus on the music market. But up until 1988, work in that area was sporadic—the victim of understaffing (the Tramiels' Atari has historically run lean and mean) and of the need to emphasize more lucrative primary business and productivity markets for the new computer line.

Frank Foster's extraordinary energy and marketing expertise made the music area one of Atari's most exciting and fastest-growing submarkets in 1988.

One music industry insider who became an early supporter of the ST was Frank Foster, former marketing VP for Hybrid Arts and now Atari's own director of specialty markets."For years," Frank said in a recent interview, "I had been pushing Atari to do something to make the music market happen. They had a great machine, and the software was beginning to come in. But they needed an overall focus—programs to bring in and educate the music dealers, cooperative promotions, and everything else. So finally they came to me and said, 'Okay, do it.'"

Frank did it. His extraordinary energy and marketing expertise made the music area one of Atari's most exciting and fastest-growing submarkets in 1988. And there was no pause in momentum as Atari hit the NAMM show floor in January. The scaffolded Atari pavilion was the size of a small house and included a reception area, exhibition nooks, a full sound-stage, and offices that seemed to host an unending series of meetings between movers and shakers. Behind the reception desk, a wall of high-resolution monitors displayed demos of some of the more important ST MIDI software packages.

Atari staff working the show included Frank himself; Diana Goralczyk, head of Atari Customer Relations; a covey of engineers and customer service specialists, and a flock of hard-working user group members. Also working the booth was a rotating crowd of third-party software demonstrators, many of

them sent over from their companies' own substantial booths to handle the crowds attracted by Atari's fire-and-lightning demonstrations.

Famous People

Also working the booth were several music industry greats—there to endorse the ST and the software products they use with it. Prominent among the celebrities were Marc Ritter and Greg Whelchel, both with the Pointer Sisters band, who spoke about using STs both on stage and in the studio.

Mike Pinder, founding member of the seminal Moody Blues (remember the line "... Breath deep, the gathering gloom ... Shadows fade from room to room ... " in "Knights in White Satin"? That's this guy), was also on hand, to share some pop music history and expound on a unique philosophy that ties together the disparate threads of technology, creativity, and human spiritual ambition.

He's not just a philosopher and musical genius, either. As this issue of *Explorer* goes to press, Mike and Frank Foster are putting the finishing touches on a pair of promotional videos (which Mike narrated and co-produced) on Atari MIDI and desktop publishing. A further film project, "Musicians and the Atari ST," is now entering its final stages. It will star the Pointer Sisters, Joe Zawinul, Lee Ritenour, Earth, Wind, and Fire, and other big names.

Hotz Stuff

The most important news of the show was that Atari is cooperating to help produce and market a totally new kind of MIDI device, the Hotz Translator. This unique "meta instrument" is a hybrid of MIDI mapping and sequencing technology, compact disk technology, and force-sensitive keyboard design. (See "Future Music: Today" elsewhere in this issue.)

Its inventor, Jimmy Hotz, is an independent producer and studio engineer, who has worked with music industry heavies such as B.B. King and Fleetwood Mac. Mick Fleetwood, in fact, is chairman of Hotz Instrument Technology Systems (HITS), formed in early 1988 to develop and market the system. He is a long-time Atari user and supporter and was a constant presence at the show—a long, lean, magical-looking man with the most outrageous blue glasses you've ever seen.

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The Hotz Translator.

Photo by Susan Warner.

The Translator responds to a sparse code woven into the fabric of a digital recording. The code contains data representing the harmonies present in the music as these change over time. This information is employed by an ST as a basis for interpreting incoming MIDI control data from Hotz's innovative, pressure-sensitive keyboard, triggering the playback of appropriate chords, scales, riffs, and other musical components. The result is that anyone using the Hotz Translator can play along with the recording and, with very little practice, sound totally . . . well, if not professional, then at least "OK."

In Hotz's own words,"you can program the Translator so that it's literally impossible to hit a wrong note. At that point, anybody can contribute to the creative process of making music—even the studio janitor. It's going to be an important development in the high end of the music business, because it will let a musician who, for example, is primarily a guitarist, play the keyboard parts on his own album and even perform them onstage.

"In the low end, it will be a fantastic tool for music education and enjoyment. We expect precoded CDs to come out for all kinds of applications—a kind of 'music plus one' development that's going to make at-home listening much more fun and educational. Eventually, we hope that all CD recordings will contain the code."

Hotz and Fleetwood demonstrated the Translator at hourly intervals on the high-tech Atari soundstage. Proving the point that anyone could play the system, regardless of prior musical training or disposition, Hotz asked for volunteers from the audience—especially seeking out drummers and other non-musical (or at least non-tonal) types. Cueing up one of two Hotz-encoded pieces ("Seven Wonders," a poppy track from Fleetwood Mac's latest album or the Jupiter section of Holst's "Planets" suite), he handed over the keyboard to neophyte after tone-deaf neophyte who—exactly as promised—proceeded to wow the audience (and themselves) by producing more-or-less-okay-sounding accompaniment.

One of the volunteer demonstrators, asked to describe the experience of playing the Translator, waxed eloquent. "It's like playing air guitar, but actually hearing yourself," he said, clarifying at once the weird, inverse parallel between Hotz' invention and the Japanese Karaoke devices that suppress the vocal tracks of popular recordings, clearing the way for inebriated patrons of Tokyo nightclubs to sing along. "I mean, you know you're not really in total control, but it kind of feels like you are." Perhaps one new and potentially lucrative application of the Hotz device (anybody want to invest in an air guitar club?) was discovered in that moment.

Another musician (also a drummer) had this to say: "The way music is taught nowadays, nobody really learns to enjoy it. They just get all wrapped up in elitist concepts like talent and virtu-

osity. This device lets anybody enjoy playing." Hear, hear!

Atari has licensed the sole manufacturing and distribution rights to Hotz's technology and will be producing it in many different models as an Atari product. "We're hoping to see it at every price point, from huge expensive studio systems right down to the level where anybody who wants to enjoy it can afford it," Hotz said.

Both Foster and Atari President Sam Tramiel echo the corporation's hopes for this innovative new product line. "We're proud of our association with HITS," said Sam. "We think the Hotz Translator is the 'new wheel' in this portion of the industry, and our involvement with it underscores the fact of Atari bringing tomorrow's technology to the people today."

Product City

Talent and virtuosity might have been breathing their last on the Atari soundstage, but the rest of the show hadn't yet caught on. Atari music software publishers were out in force, showing some amazing new packages aimed at the talented and virtuosic.

Charlie Steinberg, the German genius who produces all that lovely music software for the Steinberg/Jones partnership, was on hand to demonstrate several new products. Among them, *M/ROS*, a true multitasking Music Realtime Operating System for the ST that provides ultra-high resolution timing services and a windowing interface optimized for setting up the kind of "cluttered but everything at your fingertips" control panel displays musicians seem to adore.

M/ROS coordinates MIDI I/O for multiple applications, making it possible to run, for example, a sequencer and sound editor simultaneously, without conflict. Steinberg was also kind enough to demonstrate his new *M/ROS*-compatible sequencer, *Cubit*, which provides 16 Arrange windows with 64 tracks each, a windowed score editor, a graphic keyboard-based editor, and an event editor that gives microscopic zoom in/zoom out control for editing individual MIDI messages. *Cubit* is also unique (I believe) in that it permits up to four musicians to record simultaneously, onto different tracks.

Other Steinberg/Jones innovations included Mimix, an ST-compatible automation system that works as a mixing console with on-screen knobs and faders—very impressive, as are the prices. Mimix 8-channel VCA systems are available starting at $1995; control software and fader-to-MIDI conversion software run an additional $595 and $1195, respectively. Then we get into actual fader systems: 16 channels will run you $5995, and a full, no holds-barred 64-channel system runs as high as $19,995. Not exactly home studio prices, but then again, if you could afford 64 channels of digital recording, you wouldn't quibble over 20 grand.

Not to be outdone, Dr. T's was pushing its very competitive MPE Multi Program Environment for the ST, along with *Level II KCS* (Keyboard-Controlled Sequencer), a program many professionals feel is the best and most complete sequencer/editor package on the market. Also shown were editor/librarians for Yamaha, the Casio VZ-1, and the Korg M1 music workstation; a universal system-exclusive editor called *XOR*; the new version (1.6) of *Copyist* (still probably the most powerful straight sequence-to-score system around); *Clix*, a video-scoring program; and a new, MPE-compatible graphic event editor called *Tiger*.

A good deal of news was to be found in the interesting crossover market between Atari MIDI applications and desktop publishing. To me, one of the most impressive products at the show was *Beethoven ST*, a music DTP system that starts out as a sequencer, letting you play your music into the computer from a standard MIDI keyboard.

Beethoven produces standard notation in real time, but this is just the first step. Then, using the mouse, you can edit your music, adding symbols, changing staffs, and in general, rearranging things with true, object-oriented freedom. *Beethoven* comes with a large library of fonts and symbols, including such useful items as guitar chord boxes, and provides a graphic editor with which truly ambitious musicians can create Cage-ian systems of notation of their own devising.

And *Beethoven* doesn't stop with music. A fairly complete set of justification, column-setting, kerning, *Degas* and *CAD-3D* image-importation, and other standard DTP tools are provided for those who wish to use the program to handle extensive lyrics, annotation, or other text and graphics. Best output is achieved with the Atari SLM804 laser printer, naturally, but many other graphic printers are supported.

Beethoven ST is a music DTP system that starts out as a sequencer, letting you play your music into the computer from a standard MIDI keyboard.

But, as powerful as it is, *Beethoven ST* has some stiff competition. Steinberg's new *Masterscore*, while lacking the graphic flexibility of *Beethoven* (believe it or not, you can score "Gradus Ad Parnassum" medieval modal compositions with historically-correct symbols, using *Beethoven*), has music features slightly more advanced, including the ability to extract parts "intelligently" from comprehensive scores.

Beginning copyists will be interested in the ability of *Masterscore* to prevent scoring errors (this facility, naturally, can be overridden by composers who enjoy being laughed at by snotty first violinists).

Sonus Corporation, also, was showing a DTP entry, *SuperScore*, which, while less powerful than *Beethoven ST* and *Masterscore*, offers (surprise, surprise!) many of the same features in a handy and familiar all-GEM package.

Intelligent Music of Albany, NY, was showing several interesting new products, among them, *Realtime*—a powerful sequencer with a sophisticated graphic interface that permits event-editing during playback. The graphics are set up so as to allow the composer to approach all parts of a composition—drum and rhythm as well as instrumental tracks—simultaneously, making concrete or abstract changes at various levels of detail. A beautiful piece of software that may give Steinberg and Dr. T a run for their money.

MIDIMouse Music was showing *UltraMIDI*, a compound MIDI-mapper/macro system/librarian/sysex-handler

designed to facilitate the control and priming of MIDI instruments in complicated stage-setups. Basically, *UltraMIDI* maps any given MIDI event to any other event or sequence of events, making it possible for one keypress on your performance keyboard to activate any number of events elsewhere in the network. So powerful is *UltraMIDI* that MIDIMouse has coined a new marketing term—*Freeformance*—to describe the experience of working with it.

For beginners, too, plenty of product was available. If 32, 64, or more MIDI tracks and graphic event-editing scare you a little, Steinberg's *Wave* 12-track sequencer might be just the ticket. *Wave* is a simplified version of the well-known *Pro 24* (v. 3) sequencer and is compatible with *Pro 24* sequence files.

As an alternative, Legend Software offers *Final Cut*, a simple sequencer with a reassuring tape recorder graphic motif that provides a good entry point to the terminology and practice of *punch-ins*, *punch-outs*, and other studio stuff.

Nor was the all-important area of music education ignored. Here, the most impressive offerings were from Electronic Courseware Systems. A full set of MIDI-based keyboard tutorials covering basic music skills, ear-training, sight reading, chords, arpeggios, fingering techniques, interval recognition, and even jazz improvisation, was being shown, ranging upward in price from a refreshing $39.95.

Take Note Software of San Francisco was showing their flagship ear-training program, *Take Note*. Generating a complete curriculum of graded exercises covering scales, intervals, and chords, *Take Note* is unique in that it illustrates musical forms on the staff, as well as on graphics of a piano and a guitar neck. The program is MIDI-compatible and will work with any MIDI synth; it can also use the internal sound generators of the ST for much of its work, if a synth isn't available.

Party!

What with all this excitement, third-party support, and press recognition, Atari was really the hit of the show. And, generously, they chose to give back some of the hospitality with which they were received by sponsoring (in association with JBL, DOD Electronics, and *Musician* magazine) a concert by famed Weather Report fusion master Joseph Zawinul (a major Atari user and endorser, incidentally . . . or maybe not so incidentally), and strange, high-tech, and now unaccountably bald, New-Wave rocker, Thomas Dolby.

I go to a lot of concerts, myself, but I was overwhelmed by this one. Held in the Grand Hall at the Inn at the Park Hotel, the show was delayed some 45 minutes because of the number of people waiting to get in (then, further, by the fact that Dolby's guitarist hadn't yet arrived from London). But it was worth the wait. A tighter, more professional show I don't think I've ever seen, and generous performances were given by all.

More Music?

In keeping with Atari's growing importance and influence in the computer music field, *Explorer* is planning to expand its coverage of the music market in upcoming issues. To do this effectively, we need some indication from you, our readers, as to where your abilities and interests in music lie. You are the reason we make *Explorer* happen, and we would like to serve you even better, if we can.

You can help by writing to tell us if MIDI and music coverage is your bag. How many of you out there are professional musicians? How many have home studios? Are there kids at home who you would like to see have the advantage of a little musical training? For the time being, *Explorer* will try to cover the whole Atari music marketplace, emphasizing professional, home, and educational software and hardware in approximately equal proportions. But for future reference, we'd really appreciate hearing from you and learning about your interests . . . after all, you're part of the family. ■

Companies Mentioned

Atari Corporation
P.O. Box 61657
Sunnyvale, CA 94086
(408) 745-2000

Dr. T's Music Software
220 Boylston St., Suite 206
Chestnut Hill, MA 02167
(617) 244-6954

Electronic Courseware Systems
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Champaign, IL 61821
(217) 359-7099

Fleco, Inc. (Karaoke boxes)
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Arcadia, CA 91006

Hotz Instrument Technology
(Anti-elitist boxes)
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W. Los Angeles, CA 90064

International MIDI Association
5316 W. 57th St.
Los Angeles, CA 90056

Intelligent Music
116 North Lake Ave.
Albany, NY 12206
(518) 434-4110

Legend Software
3508 34A Ave.
Edmonton, AB T6L 5E8
(403) 493-8128

MIDIMouse Music
Box 877
Welches, OR 97067
(503) 622-4034

Samson Technologies Corp.
(Beethoven ST)
485-19 South Broadway
Hicksville, NY 11801
(516) 932-3810

Sonus Corporation
21430 Strathern St., Suite H
Canoga Park, CA 91304
(818) 702-0992

Steinberg/Jones
17700 Raymer St., Suite 1001
Northridge, CA 91325
(818) 993-4091

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Atari Classroom

By BETSY STAPLES

Bentley Bear updates Hangman for ST users

It has been a long time since the last installment of Atari Classroom appeared on these pages. That's because it has been a long time since the last decent educational program for an Atari computer crossed my desk.

Recently, however, a nice stack of ST packages arrived from Atari Corp. At long last, Atari has released the Bentley Bear series, which includes Bentley's *Magical Math I* and *II*, the pre-release versions of which we reviewed in the September/October 1987 issue of *Explorer*.

Magical Math III and several other packages are in the hands of other reviewers and will be evaluated in upcoming issues. For this issue, I chose *Spelling Bee*, simply because its name took me back to one of my favorite elementary school activities.

Unfortunately, *Spelling Bee* did not prove true to its name; the game/educational drill has virtually nothing in common with the venerable old exercise of my youth. What it resembles, in truth, is the venerable old game of Hangman, which many years in computer publishing have convinced me is the first game most budding programmers try to computerize.

Fortunately, *Spelling Bee* has virtually nothing in common with the efforts of these programmers, either. The graphics and overall execution of the game are first rate.

The title screen offers you a choice of five difficulty levels, ranging from very easy to very difficult. You simply click on the level you want to try, then move to the center of the screen to click on Start. The blocks on which you click are all large and clearly defined, so that even the youngest speller won't be frustrated by a slip of the mouse.

Playing the Game

When the game screen appears, we see that our friend Bentley has traded his knee-high boots and monogrammed belt for sunglasses and a bathing suit. In the foreground, he lounges in the corner of a swimming pool. On the edge of the pool, near his right paw, is an "ice-cold honey cooler," and at the far side of the screen a big black crow thirstily eyes the drink. (The documentation calls the bird a "pesky seagull," but not even the most land-locked little speller will buy that description. The creature is clearly a crow.)

Across the top of the screen is a string of dashes, each of which corresponds to a letter in a word. The first letter is filled in. At the edges of the screen, the letters of the alphabet are arrayed in order. Your task is to fill in the missing letters and complete the word.

To guess a letter, you simply click on

Spelling Bee

System: Atari ST

Age range: Grades 3 to 6

Copy protection: None

Summary: A high-tech version of Hangman with cute graphics and no bugs

Price: $29.95

Manufacturer:
Atari Corp.
P.O. Box 61657
Sunnyvale, CA 94088

If you grow tired of the pre-programmed word lists, you can add to them or create new ones very easily.

it with the mouse cursor. If that letter is in the word, the Atari version of Vanna White picks up the letter, marches to the top of the screen, and drops it into place.

If the letter you guess is not in the word, the crow shakes his head and hops one step closer to the honey cooler. On the tenth miss, he grabs the straw and drains the glass.

If, however, you fill in the word with fewer than ten guesses, Bentley pulls off his shades and tosses back the refreshing drink. The strains of "La Cucaracha" fill the air, and bird skulks off.

At the close of the musical interlude, you are given a choice of Next (to try another word) or Exit. Exit takes you back to the title screen, where you can either change the level of difficulty or exit the game completely. This sequence is far preferable to the one used in other Bentley Bear programs which requires that you either continue at the current level or exit to the desktop.

If you choose Next, your new word appears at the top of the screen, and the bird returns to menace Bentley's drink.

Each time you guess a word, you earn a point for each step the crow has not taken toward the drink. These points accumulate in the lower right-hand corner of the screen.

The Word Lists

The five word lists that come on the *Spelling Bee* disk are quite good and quite challenging. The very easy words tend to be shorter, but in some ways, not all that easy. Just the fact that there are fewer letters increases the probability of a wrong guess, and how many words can you think of that fit the pattern B __ __ E?

The more difficult lists include adjectives, adverbs, and some unusual nouns and verbs. Examples include *squid, generous, quench, European, and sovereign.*

And if you grow tired of the pre-programmed word lists, you can add to them or create new ones very easily with the program UPDATE.PRG, which can be accessed from the desktop. This is especially useful for students who want to practice a specific list of spelling words.

Documentation

The five pages of documentation that come with the disk are adequate. There are no illustrations, and not one word of non-essential information is included. But everything you need to know to run the program is there. Inaccuracies are limited to the description of the thirsty bird.

Compensating for the sparse documentation is the inclusion of two versions of the program in each package—one for monochrome monitors and one for color monitors. This is an excellent way to keep owners of both systems happy, and we applaud Atari's good judgment in choosing this method of distribution.

Of course, the color version is much more detailed and attractive. But the monochrome version works well, and its mere existence will bring joy to the hearts of kids whose parents have chosen the utility of the monochrome screen over the beauty of the color display.

Spelling Bee is a very cute, bug-free, and well-executed program. The only question that should remain in the mind of a parent or teacher is: "Is it educational?"

Well, it certainly falls into the category of a drill rather than a learning experience, but that's OK. What we really need to decide is whether Hangman and its derivatives are educational.

I have considered that question many times and have come to the conclusion that anything that makes words entertaining is good. Anything that makes correct spelling seem like a desirable thing is worthwhile. And anything that encourages kids to deal with the oft-neglected verbal aspect of education is valuable.

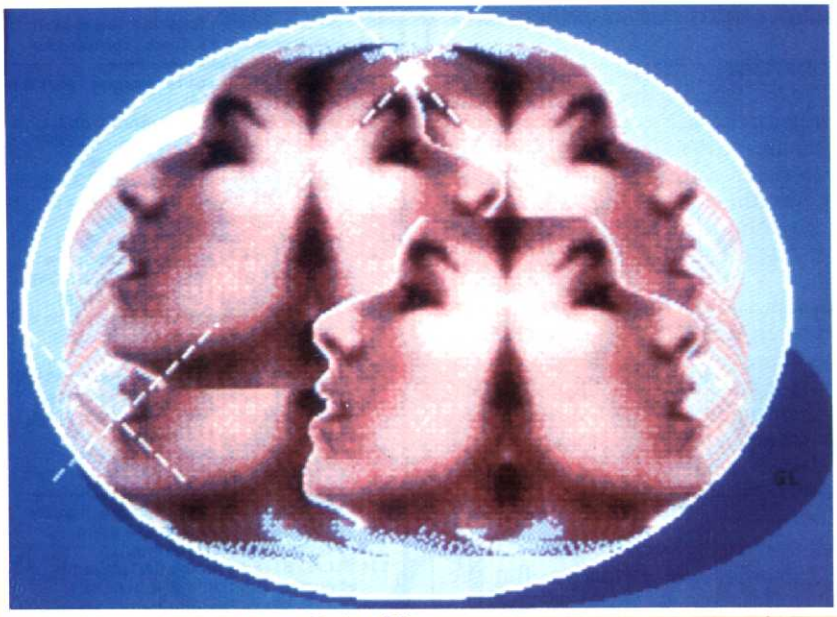
Spelling Bee does these things and, thus, gets my stamp of approval. The program is entertaining, educational, and an overall good value. ■

Graffiti Wall by Marco Marrero, Arroyo, PR.

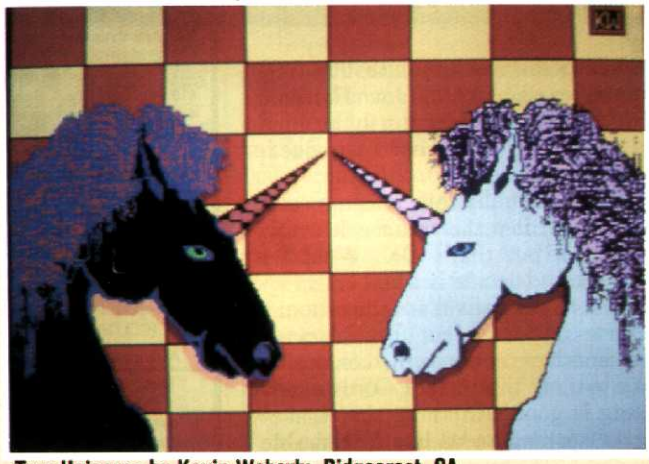
Medusa by Victoria Dickinson, Huntington Beach, CA.

Joshua by Ann Myers, Redding, CT.

Graphics Gallery



Tish Enbubbled by Gene Levine, Venice, CA.



Two Unicorns by Kevin Weherly, Ridgecrest, CA.

Once again, we were inundated with Graphics Gallery entries this issue. As the use of newer graphics packages becomes more widespread, people are beginning to submit entries in them. Much as we would like to accept entries in all possible formats, at the moment we must ask you to submit entries only in *NeoChrome*, *Degas* or *Tiny* formats. Also, we ask you *not* to submit disks full of five or ten images; *you* should make the initial cut down to your one or two best ones.

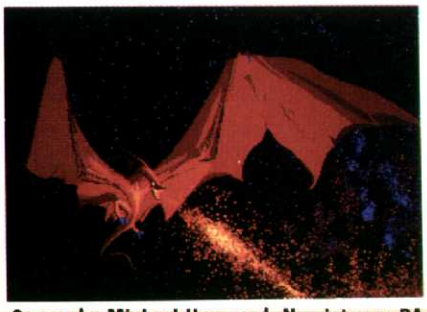
We were encouraged to see several entries from women in this latest batch; keep 'em coming. Our top winner—of a three-year subscription—is Marie Foster with her marvelous, detailed image of a wood duck.

We invite you to enter our 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 (#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 name of your image, and the following statement: "I certify that the image submitted is 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 it, use it in promotional material, or distribute it via telecommunications service, BBS, or disk.
- Winners will receive a subscription to *Atari Explorer.* If you are already a subscriber, include an address label or copy so we can extend the correct subscription if you win. ■

By DAVID H. AHL

Wood Duck by Marie L. Foster, Spokane, WA.



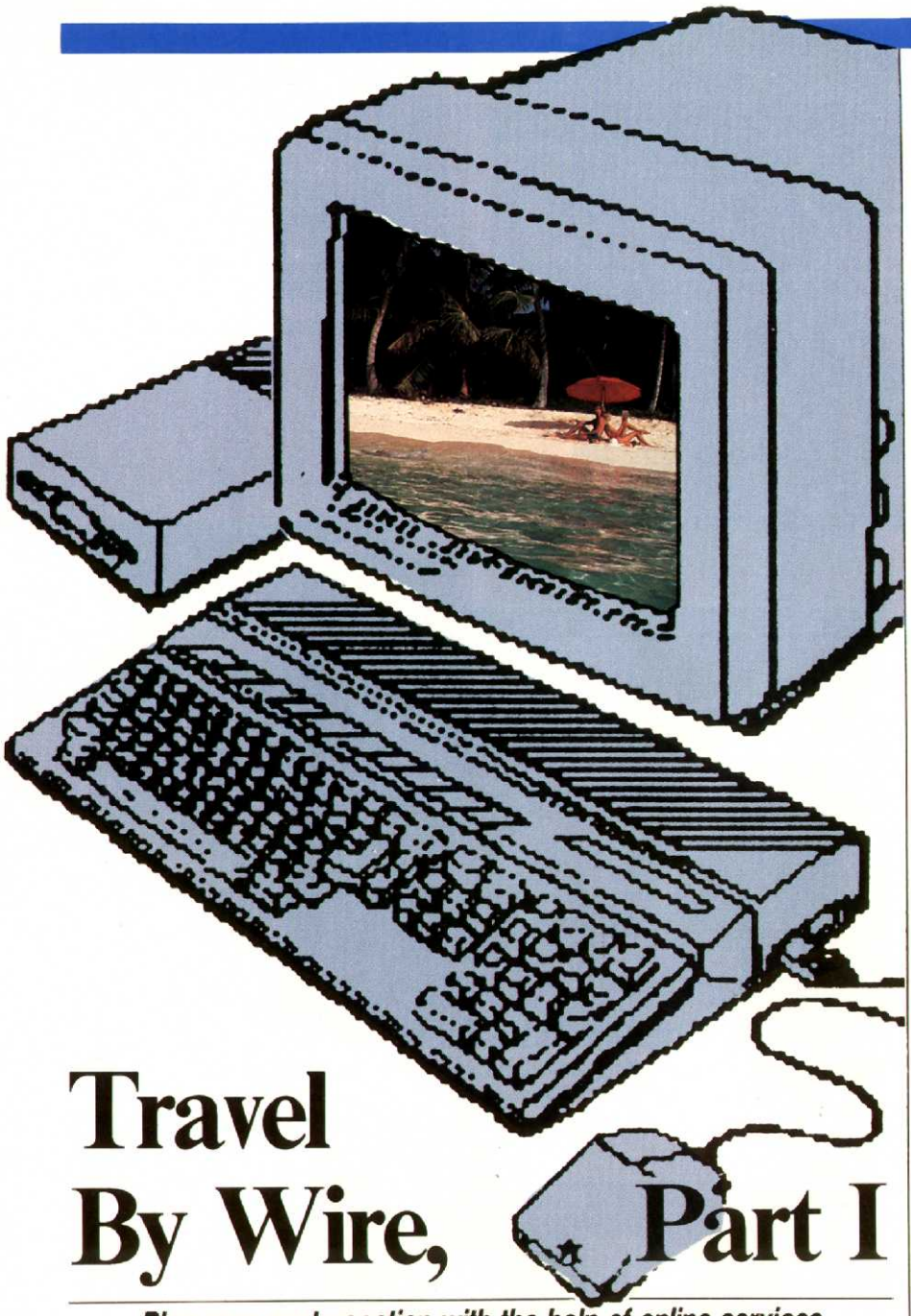
Smaug by Michael Hopwood, Norristown, PA.

Meghan's Dragon by Randy Kutz, Howell, NJ.

North Dakota Centennial by Jim Nevland, Carrington, ND.

Zena by Candice Noakes, Prince George, BC.

F-16 Falcon Emblem by Edward Wehrenberg, Sumter, SC.



Travel By Wire, Part I

Plan your next vacation with the help of online services

Masa Hayashi was determined to make his dreams come true. Using a laptop computer, a CompuServe subscription, and sheer grit, the young Tokyo native made the trip of a lifetime. He toured the United States from sea to shining sea and saw it all—Rodeo Drive, the Grand Canyon, Disneyworld, Capitol Hill, Broadway. He hitched rides and hopped on trains and buses in what looked like a haphazard way. But, in fact, Masa's three-month excursion was carefully planned—just not in the usual way.

Masa planned his trip as he went. Upon arriving in Los Angeles, he purchased a Toshiba T-1000 laptop computer, a pocket modem, and communications software. Then, each day thereafter, he logged onto CompuServe's Travel Forum, asking for advice from the natives of each city he visited. Not only was he looking for recommendations on the best restaurants and tours, but he was also relying on his new-found online friends to help plan his itinerary.

Although he had a rough idea of the places he wanted to see and the order in which he wanted to see them, Masa was open to making side trips and stopping at destinations off the beaten track. The suggestions he received from Travel Forum participants greatly enriched his travel experience.

"I got very important and interesting information from the forum members," he explains. "Since they are natives, they have the real information about whatever city they're in and know about things that are not described in guidebooks." Moreover, even though he was traveling alone, Masa says he never felt lonely, because he had so many electronic companions.

Any traveler with access to a computer and modem can do just what Masa did, utilizing the real experts—those who live and work in your destination city—to help plan a vacation. In addition, numerous other travel services on CompuServe can guide you through everything from selecting a hotel to making airline reservations.

But face it, any good travel agent will provide most of these services—for free. Why do it yourself? Those who enjoy paging through the electronic edition of the Official Airline Guide or using the searchable ABC Worldwide Hotel Guide say they do it for one reason: control. They want to maintain control over their travel planning and management and not leave it in the hands of an agent.

A business executive making a trip across the country or a family going to Florida can use CompuServe's travel products to prepare an itinerary and figure out approximately how much the trip will cost. Even those who don't want to make the reservations themselves can use CompuServe for help in figuring out the best spots to visit, the best hotels in which to stay, and the most interesting excursions to take.

All of the travel services are located in one easy-to-find place: the Travel Menu. Just type GO TRAVEL, and you're there. You'll then be presented with a menu of nine items ranging from airline reservations to international information.

Airline Ticketing

Air Information/Reservations truly takes advantage of the power of electronic databases. You can browse through the available flight times and fares, and when you find the flights that best suit your travel plans, you can

By CATHRYN CONROY

make your reservations right online at any time of the day or night. The biggest advantage of this service is the ability to make reservations when the travel agency is closed. It also allows you to shop for the best available fare—something a good travel agent will do for you, but not something you can necessarily rely on.

CompuServe offers a choice of three systems from which to make reservations. The granddaddy of these is the Official Airline Guide Electronic Edition; the relative newcomers on the scene are EAASY SABRE, which is operated by American Airlines, and Travelshopper, which is under the wing of PARS Travel Information Systems (TWA and Northwest Airlines). Each has its distinct advantages, but any one of the three will allow you to choose the most convenient schedule, find the lowest fare, book your flight right from your home or office computer, and arrange for ticketing. Which system you select is really just a matter of personal preference.

OAG Electronic Edition uses an easy-to-follow question and answer sequence, prompting you for your departure city, destination, and preferred date and time. Although this is the only service that carries a surcharge ($10/hour in the evening and $28/hour during the day), many users say they prefer it because it is the biggest and because they find it somewhat easier to use than the others.

One of the advantages of OAG is that it offers availability information: which seats are left on a certain flight; which special or discount fares can still be purchased; and any restrictions that might apply. OAG has also begun a pilot project, listing online the same flight arrival and departure details you see at the airport ticket counter. Currently, this information is available only for Chicago's O'Hare Airport, but if it proves popular, it will be expanded.

EAASY SABRE carries no surcharge (beyond regular CompuServe connect time rates), although you do have to be a member of the AAdvantage Program to make reservations (membership is free, and you can join online). Quick Path and FAASTRACK services offer expert users faster service by allowing them to enter several commands at a time.

If you are traveling on American Airlines, EAASY SABRE will also tell you which baggage claim outlet your flight will be using, making it quicker for you to pick up your luggage upon arrival at your destination. [*An even more useful service would be one that could tell you where the airline has actually sent your luggage when it fails to appear at the designated baggage claim outlet.—Ed.*]

After you tell TWA's Travelshopper your destination city and date of travel, the service automatically displays a list of flights leaving at or near the time you want to depart. Travelshopper was the first to offer this sequencing of available flights (the other two services have only recently added this facility). This can really save you time, since there is no need to scroll through every display. Although there are no surcharges associated with Travelshopper, you do have to

```
***TRAVELSHOPPER***
Hello...
1 [A] Available Flights
2 [F] Fares/Fare Restrictions
3 [N] Book Mode/Enrollment
4 [O] Other Services/Nice to Know Info
6 [C] CAR Availability/Information
7 [H] HOTEL Availability/Information
[E]-Exit  **Help Desk 1-800-892-1011 **
Key [?] for system commands
>1
AVAILABLE FLIGHTS
Enter departure city or code.  BOSTON or BOS
Expert entry:  bos;Chicago;Sep15;9a
>ewr;lax;jun3;8a
Enter number of seats required (maximum of 4).
>2
03JUN/SAT   NEWARK to LOS ANGELES
#  FLIGHT  LEAVE     ARRIVE     EQP STOPS
1  UA 193  EWR- 800A LAX-1045A D10   0
2  AA  43  EWR- 900A LAX-1129A D10   0
3  CO  21  EWR- 850A LAX-1135A AB3   0
4  US 511  EWR- 700A LAX-1116A 733   1

Key Line # for Booking Details, or Key RETURN to see more
>1
AIRLINE: UNITED  FLT:  193  EQP: D10  MEAL: Breakfast  STOPS: 0
LV: 03JUN EWR  NEWARK          800A
AR: 03JUN LAX  LOS ANGELES     1045A
  CLASS:   BOOKING CODE:  SEATS:
1 First          F        Available
2 Coach          Y        Available
3 Special        B        Available
4 Special        H        Available
5 Special        Q        Available
6 Special        M        Available
7 Special        V        Available
>f
What TYPE of Fares do you want to see?
 1-Normal & One Way Specials
 2-Normal, One Way And Round-Trip Specials
 3-Children (Age 2-11)
 4-Military, Government, Gold and White FFB Card
 5-BY BOOKING CLASS CODES - Enter "5" and the booking class
   code(s) desired. (Max. of 5 codes e.g., 5f or 5c.y or
   5f.c.y.b.m)
>2
UA  Fares for 03JUN - SEE RESTRICTIONS
From: NEWARK          NEWARK NJ
  To: LOS ANGELES     CALIFORNIA
Fare Class of                    Fare
#    Service   OW Amount RT     Code
1 First       $853.00 $1706.00 F
2 Coach       $588.00 $1176.00 Y
3 Special     $500.00 $1000.00 B
4 Special     $467.00  $934.00 BA7P25
5 Special              $458.00 HWE7P25
6 Special              $398.00 QWE14NR
Key Fare Number to See Restrictions
```

Sample Travelshopper dialog. Checking flight schedules—Newark to Los Angeles.

CompuServe Travel Commands

Travel Menu	GO TRAVEL
All travel services	FIND TRAVEL
Official Airline Guide EE	GO OAG
EAASY SABRE	GO EAASYSABRE
Travelshopper	GO PARS
ABC Worldwide Hotel Guide	GO ABC
West Coast Travel	GO WESTCOAST
Adventures in Travel	GO AIT
Discover Orlando	GO ORLANDO
Dept. of State Travel Advisory Service	GO STATE
Visa Advisors	GO VISA
Travel Forum	GO TRAVEL
Florida Forum	GO FLORIDA

complete the electronic enrollment questionnaire (no charge to do this) to book or change a reservation.

The main strength of Travelshopper is the detailed information it offers on various cities around the world, including night life, ground transportation tips, weather, and more. And it features an easy-to-use currency conversion chart that will assist you in changing dollars into pounds or francs into rubles or almost any other combination you can think of.

Each of the three airline reservation services has its own set of commands, which you must learn. Detailed instructions are provided online (novices will find it best to download these, print them out, and keep them handy) and all three provide toll-free telephone numbers for fast help.

Hotels and Lodging

Once you have booked your flight, you will probably want to look for a place to stay. The hotel information CompuServe provides is truly one of the strengths of its travel database. Even if you don't want to make your reservations electronically, you can quickly learn a great deal about the hotels in your destination city.

The best of the hotel information services is the ABC Worldwide Hotel Guide with its comprehensive and up-to-date listings of some 30,000 hotel properties worldwide. All listings contain basic information (address, phone, rates, facilities, and the like), and additional descriptive information—appearance and atmosphere, construction dates, type of clientele, and distance from airport—is included for 7000 hotels.

ABC Worldwide is a searchable database. Following prompts from the system, you tell it the city you wish to visit and then add in any particular services or special features you want, such as a central location, an in-house restaurant, a pool, or facilities for the handicapped. There are, for example, 70 hotels listed for Washington, D.C. You can narrow the field by entering a price range, hotel name or chain, specific location, or amenities desired. (If you narrow it too much, the previous selection set can always be restored.) In addition to searching by city, you can also search by the hotel name or chain, a range of room rates, or any particular feature or service you need.

In addition, the three airline reserva-

Caveat Viator

Because we are committed to ensuring the accuracy of the information we print in *Atari Explorer* and because we happen to be particularly interested in the topic, we spent quite a bit of time trying out the services described in the accompanying article and came up with few caveats and observations of our own to add to Ms. Conroy's.

The first is that, although a great deal of information is indeed available online, the user interface sometimes interferes with your ability to access it conveniently. Why, for example, should you have to read Travelshopper's two-screen disclaimer regarding the accuracy and completeness of its hotel listing and repeat your entries for dates of arrival and departure and number of people and rooms every time you want to check hotel availability in a new city? The answer that comes immediately to mind has to do with increased connect time.

And although there is a great deal of information available, it is important to remember that these services are very new—at least as far as their availability to consumers is concerned. It will, therefore, be a while, we think, before the travel industry (which is not a particularly progressive industry) recognizes the importance of making the effort to see that plentiful and accurate hotel and tour information is made available to users of online services.

Choosing a Hotel

For example, the Travelshopper hotel service lists nine hotels in Lima, Peru; ABC Worldwide lists 16. The *Hotel and Travel Index*, the 10 lb., 1000-page Bible from which most travel agents draw their information, lists 32 hotels in Lima. Obviously, the traveller who relies solely on information service data will miss many options.

Another problem with hotel listings concerns what might be called "interpretation." We looked up some hotels and other lodgings in which we had stayed during a recent trip to Peru. Travelshopper disavowed all knowledge of most of the cities in which we stayed, so we concentrated on ABC Worldwide.

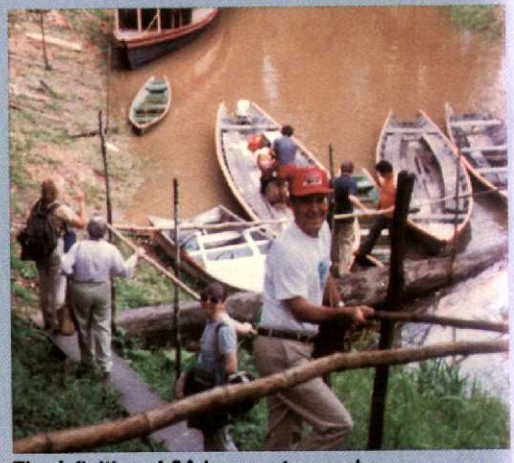
We learned that Explorama Lodge, a naturalist's paradise on the Amazon River, offered 50 rooms in a single-story building with its own bar. We learned that the hotel's facilities included two bars, restaurants, a coffee shop, a 24-hour porter, airport transportation, a travel agency, and a gift shop. We did *not* learn that the walls between the rooms are only seven feet high and made of masonite. Nor did we learn that the property has no running water or electricity.

Please don't misunderstand. We are not knocking Explorama Lodge in any way; it is wonderful place from which to enjoy the beauty of the Amazon jungle, and our stay there was one of the highlights of our trip. We do, however, think that "bar" and "restaurant" are rather grandiose descriptions of a kerosene-powered refrigerator and a screened-in dining hall. And we are glad we knew in advance about the latrine-style toilets and the fact that the 24-hour porters are native boys who run down to the river edge to help you with your bags whenever the thatched-roofed outboard canoe (airport transportation) delivers you to the lodge.

We are still wondering about the gift shop and the conference/convention center that seats 100 delegates.

The listing for the Hotel Turistas in Iquitos, Peru, the city to which you fly if you want to explore the headwaters of the Amazon, boasts that the hotel offers air conditioning—an important item in the tropics. It neglects to mention that the air conditioning is inoperable most of the time and that broken pumps make it necessary for the hotel staff to deliver water to your room in plastic buckets.

The point here is not how accurate or inaccurate a given listing may be but, rather, that you must be aware that the listings are being forced into a mold—a



The definition of 24-hour porter service, we learned, varies widely from hotel to hotel.

tion systems offer hotel information. EAASY SABRE and Travelshopper, however, are the only two of the four hotel databases that allow you to make your reservation electronically. (I like to use the ABC Worldwide Hotel Guide to select lodging and then log on to EAASY SABRE or Travelshopper to make the reservation.)

Car Rental and Beyond

Where would you be without a car? EEASY SABRE and Travelshopper both offer online car reservation services from dozens of car rental companies.

Making reservations is the easy part of travel preparation, and planning in advance what you will do, especially on a vacation, will make your trip more enjoyable. Some unique travel databases and the interactive features of CompuServe's forums offer detailed information unrivaled by printed tour guides.

Information on selected parts of the United States—much of it in the form of a travelogue (without the slides)—is available in West Coast Travel, a series of travel articles written by Lee Foster. Billed as a consumer travel guide, this service focuses on destinations in the western half of the United States as well as neighboring Canada and Mexico. In addition, he publishes a worldwide travel guide called Adventures in Travel that focuses on travel around the globe.

All of Foster's write-ups are based on personal travel research (what a job!). The articles are excellent for getting a feel for the flavor of a place, how to get there, its local history, area attractions and nearby trips.

Discover Orlando, provided by Educational Media Services, is an electronic Chamber of Commerce for the city of Orlando, FL. The idea is to give you in one-stop shopping everything you need to plan a trip to central Florida. The area does have a lot of unique attractions, and this database will help you select those you want to visit. After all, who would want to miss the Elvis Presley Museum or a visit to the Alligatorland Zoo?

Traveling abroad carries its own set of planning hurdles, especially in this day of increased concern over terrorist activities. In just seconds you can find out the latest word from the Department of State Travel Advisory Service on the relative safety of dozens of foreign locales. If a particular country, such as Lebanon, is off limits to Ameri-

mold that may work very well 80 to 90% of the time but which makes no provision for the unique and, therefore, may leave crucial questions—Does the property have running water?—unasked.

Which is not to say that a travel agent would necessarily prepare you adequately for either of these experiences, but a good supply of up-to-date brochures and contacts with colleagues in the travel industry can often be worth more than their weight in connect time.

Travel Advisories

We had heard rumblings about terrorism in Peru—both before leaving and upon our return—so we decided to check the State Department's online travel advisory. The three-page report offerred a fairly realistic description of the situation as we experienced it and did not include any information that would have deterred us from taking the trip.

Recommendations are quite specific—"U.S. government employees are currently prohibited from visiting after dark Avenida Larco and the Ovalo in the Lima suburb of Miraflores"—and include information that applies to a broad spectrum of travel-types, from backpackers to affluent members of tour groups.

Our only criticisms are that the advisory seems to have been typed in by someone oblivious to the niceties of punctuation—"Visitors to Peru must exercise caution despite this threat thousands of tourists safely visit Peru's popular tourist sites such as Cuzco. Machu Picchu and Iquitos which are outside the most seriously affected areas"—and that it is not dated. We are told which advisory it replaces (March 27, 1987) and when it expires (March 28, 1989), but not when it was actually posted. When dealing with information that could affect your health and safety, it would be nice to know exactly how fresh or stale that information was.

Our overall take on CompuServe's online travel services? Lots of fun. Lots of fuel for the travel planner's daydreams. But not quite enough hard data to pass as your only source of reservations and information. It's a great idea, but technologists and travel industry professionals need to spend a lot more time together working out the details before your travel agent will need to worry about lost commissions.—*EBS*

The open "hammock rooms" in the traditional Amazon-style building that houses Explorama Lodge is the closest travellers will come to the "conference center" described in the ABC Worldwide listing.

Guests who neglect to ask about amenities such as flush toilets and electricity may find Explorama's shower stalls a bit of a surprise—but most are eager to try them out after a morning walk in the jungle.

cans, you'll be advised of it.

Searching is easy; countries are arranged alphabetically, so you just select those that are of interest. Each advisory contains an expiration date to aid in your travel planning, although in some very unsettled countries, such as Panama, the date given may be "indefinite."

Securing a passport and visa can be a frustrating lesson in how government bureaucracies function (or don't). Visa Advisors and Electronic Visaguide will provide all the information you'll need to survive this complex and constantly changing world of international travel. Located in the heart of Washington, D.C.'s embassy row, Visa Advisors will actually secure your passport or visa for you.

It is not unusual for an average traveler to find it can take months to secure a visa; Visa Advisors can usually do it in days. Their agents hand-carry important visa documents to the various embassies for required signatures and approvals. And they offer same-day service for passports, if you find you need one urgently. Fees are charged on a per document basis and range from $20 to $100. Detailed information on all the charges is provided online.

If you want to ask a question of an expert, be it a travel professional or a resident of your destination city, chances are you'll find someone in the Travel Forum or—in the particular case of Florida destinations—the Florida Forum. Both are frequented by travel aficionados who love to share their wisdom and advice.

Although CompuServe's travel services are varied, they still do not take full advantage of the available technology. According to Jill Falb, CompuServe's travel product manager, that will soon come. The future will see more microcomputer-based services, so that travelers can compile offline a travel profile that will be stored in the micro and then used by the online system for selecting flights and making reservations. "It will all be automated, so you won't need any expertise to use it. It will definitely be more user friendly," she says.

Falb predicts that eventually users will be able to order theater tickets online and even make restaurant reservations electronically. Until then, *bon voyage!* ■

In the next issue of *Atari Explorer* we will continue our examination of online travel services with a look at travel facilities offered by Delphi.

```
TRAVELSHOPPER
The HOTEL CHAIN or REPRESENTATIVES supply all of the information
provided below and PARS does not warrant the accuracy or
completeness of any information provided.

   Chain                  Hotel Name        Rate Range  Transp
  1-UTELL                 CRILLON            60 -  80   Taxi
  2-JARVINEN ASSOCIATES   MIRAFLORES         69 -  75   Taxi
  3-SHERATON              LIMA               90 - 105   Taxi
  4-JARVINEN ASSOCIATES   SAVOY LIMA         32 -  39   Taxi
  5-SHERATON              LIMA TOWERS       100 - 125   Taxi
  6-UTELL                 EL PARDO           70 -  80   Taxi
  7-UTELL                 MARIA ANGOLA       60 -  70   Taxi
  8-UTELL                 EL PUEBLO          60 -  70   Taxi
  9-UTELL                 GRAN BOLIVAR       50 -  90   Taxi
Key line number for specific room type rates
HD and line number for hotel details
Key H to select new city
>8
Hotel:  UTELL       EL PUEBLO
Location:  4 to 24 miles outside city   Transportation:  Taxi
Guarantee
   Room Types                                    Rates Available
 1-  Twin   (two beds)              2 persons     70
 2-  Single                        1 person      60

UTELL EL PUEBLO Phone:                LIM 000356353
CARRETERA CENTRAL KM 11
5516 LIMA 18 PERU
Nearest airport:   LIMA              PERU   15Miles
Tax 12%          Svs Ch 13%          Extra Person: not available
Rollaway: Adult not available    Child not available
Child Free Under 00
Check-in  100P  Check-out 1200N        Guarantee required
Transportation: Taxi       Location: 4 to 24 miles outside city
Class: Superior      Currency: US
Guarantee Requirement: PSGR ADDR/CC WITH EXP DATE  OR
COMP NAME/ADDR/CC WITH EXP DATE  OR DEPOSIT
Acceptable credit cards
for payment: AX DC CA
for guarantee: AX DC CA
Amenities: Tennis, Golf Nearby, Swimming Pool, Dining/Bar, Sauna

Misc. Information: *SEND 1 NIGHT DEPOSIT DIRECTLY TO HOTEL
CANCELLATION POLICY - 8 DAYS***

LOCATION    -IN SUNNY VALLEY AT FOOT OF ANDES
AMENITIES   -205 ROOMS WITH BATH/SHOWER/RADIO/PHONE/WAKEUP SYSTEM
FACILITIES -24 HR COFFEE SHOP/LIVE MUSIC/WHIRLPOOL/BOWLING/GYM/
            DISCO/HEALTH CLUB/CONFERENCE ROOM/NO PETS ALLOWED/
            4 STAR HOTEL
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Sample Travelshopper dialog. Searching for a hotel in Lima (Peru).

```
ABC WORLDWIDE HOTEL LISTINGS
Enter country: Peru
57 Hotel(s) Found
Enter City, Island, or <CR> for all: Iquitos
5 Hotel(s) Found
 1 Amazon Camp
     Iquitos, Peru
 2 Hotel Amazonas
     Iquitos, Peru
 3 Explorama Lodge
     Iquitos, Peru
 4 Explornapo Camp
     Iquitos, Peru
 5 Hotel Turistas de Iquitos
     Iquitos, Peru
Enter choice !3
        EXPLORAMA LODGE
P.O. BOX 446, IQUITOS, LORETO, PERU
Tel: 235471  Tx: 91014
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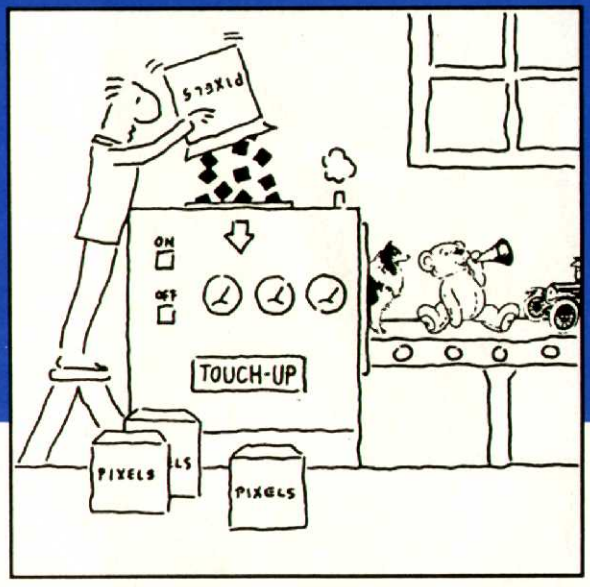

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Photo by Susan Warner.

Jimmy Hotz demonstrates the Hotz Translator at his home studio in Los Angeles.

Future Music: Today

The Hotz Translator:

Brought to you by Atari

The first time I played with an ST I knew it was the perfect computer for a musician. It was also the first hint I had that one of my dreams might, one day, come true.

I have been thinking for some time about putting together a multi-media event in which dancers' movements would trigger a computer-controlled environment consisting of sound systems, lighting systems, and computer and video screens—the whole assembly to be played in real time. But I hesitated, wondering what kind of "music" such a system would produce. Would it be melodic? Attractive? Interesting? Would producing pleasant-sounding music require training the dancers in special ways?

Then, at the January NAMM (National Association of Music Merchants) Show in Anaheim, CA, I learned that Atari had introduced a computer-controlled triggering technology that—theoretically, at least—would solve my problem. The Hotz Translator is a system that bridges the gap between gesture and sound, permitting any kind of movement to produce musically-viable, even beautiful, effects.

Co-developed by Jimmy Hotz and Mick Fleetwood (of Fleetwood Mac fame), the product was being demonstrated at the Atari booth and turned out to be, for me at least, the most impressive announcement at the show. Atari is directly involved in manufacturing this technology, which will be available in music stores by this summer. Needless to say, it employs Atari ST computers as processing engines.

A few weeks after the show, I visited Jimmy Hotz at his home studio and had a chance to get a closer look at the Hotz

By MIHAI MANOLIU

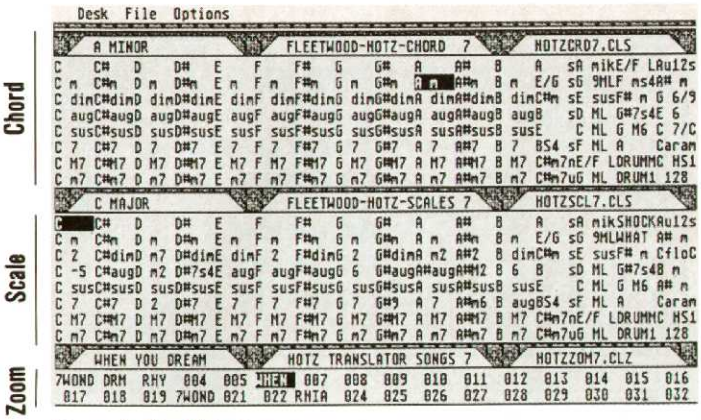

Figure 1. The Main Screen.

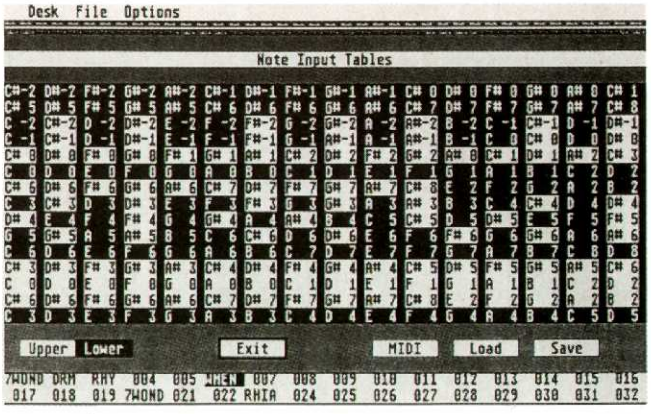

Figure 2. The Pad Assignment Table Editor.

Translator. Jimmy, who lives in the LA area, is no newcomer to the music business. Studio engineer, producer, and consultant, he has worked with the greats—among them, B.B. King, Fleetwood Mac, Steve Winwood, The Scorpions, Leon Russell, and Dave Mason.

Hotz's studio experience led him to design the Hotz Translator as an aid to composition and recording. "I tried to get around having to build it, but I finally had to do it," he said as we discussed the obvious need for a system to harness the power of MIDI. He said that he had thought of doing this as long as four years ago but never quite got around to it. I'm glad he didn't wait much longer; the time is right for an instrument that can optimize the balance between a controller and a computer, as this technology does.

Design of the Keyboard

The Hotz Translator consists of a flat pad covered with FSR's (Force Sensing Resistors), which forms the playing surface of an unconventional keyboard. This keyboard has several advantages over traditional designs: the Hotz system incorporates no moving parts and features increased touch sensitivity, faster response, and optimized placement and spacing of keys.

An Atari ST program is used to interpret these sensors so as to define a shifting set of parameters for the key, chord progression, scales and modes, voicings, and MIDI control data of a given performance. In essence, the computer becomes an invisible partner which makes sure that you remember (and can play accurately) every scale, progression, chord, and voicing involved in the piece and that all your equipment is set correctly for each musical passage.

Because MIDI supports 16 separate channels and most keyboards have hundreds of sounds, it becomes a serious issue to keep all the sounds organized during performance and recording. Anyone involved with large MIDI setups knows that it is not a trivial matter to orchestrate a live performance. The Hotz Translator does all this work and more.

The Software

The output from the Hotz keyboard is routed to an Atari ST (a 520 will do), which gives the user the ability to assign any note value—or other MIDI event—to any sensor via user-programmable software. This software is organized around two types of tables—chord tables and scale tables.

Chord tables are normally accessed from a specified area of the keyboard and contain all the notes of any desired chord, no matter how complex. Scale tables contain all the notes that make up any desired scale and are likewise accessed from a specific area of the keyboard. These two types of tables can be switched independently in real time by the user or under computer control.

The main screen (Figure 1) shows a display of the chord/scale tables available in a particular song. This display clearly shows the changes taking place as the music progresses. Subsidiary screens include facilities for table-editing (Figures 2-4), global functions definition (Figure 5), and managing system-exclusive data (Figure 6). A special zoom mode (Figure 7) allows complex manipulation of many simultaneous MIDI events from a single sensor (such as whole chords being sounded). MIDI channel is assignable on a note-by-note basis for each table, and data such as velocity and pitch bend are also definable (Figures 8 and 9). Since the keyboard outputs MIDI, any sound module can be used for playback, and you can even link several Hotz Translators together.

The Hotz Translator is a system ***that bridges the gap between gesture and sound, permitting any kind of movement to produce musical effects.***

Applications

One obvious application of this technology is in the teaching of music. Because all table changes can be dictated from a master computer, many musician/performers can now play together without the possibility of hitting a wrong note, even if they have no understanding of the chords and scales being used.

Another application might be in a band situation; a songwriter can now bring in his tables for a new song, and all band members will be able to play along without rehearsal. Other obvious appli-

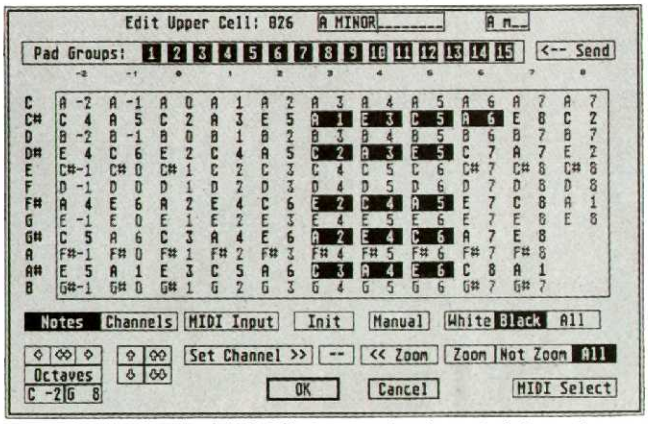

Figure 3. The Standard Cell Edit Screen showing note information.

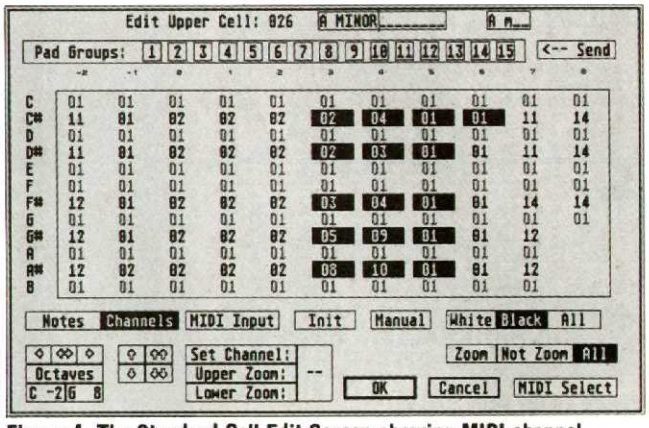

Figure 4. The Standard Cell Edit Screen showing MIDI channel information.

cations in recording, composition, and live performance are too numerous to list here.

Playing the unit is easy—like tapping on a table. The surface of the Hotz keyboard is actually a metal sheet to which thin strips of sensor material are attached. Divisions between sensors are felt as slightly raised borders, not high enough to be an obstacle in gliding easily across the notes, but enough to control finger position with accuracy. In fact, I was astonished by the precision with which the sensors tracked my finger movement. No glitches at all—an amazing feat and a far cry from the performance we have come to expect from old-style, solid-state and "membrane" keyboards.

An interesting thing happens as you play the Hotz system along with a recording and begin to realize that no matter how difficult the chords or scales being played, you can relax and concentrate on the sound and feel of the music rather than its "techtronics" (my way of describing the technical execution necessary to play scales/chords/dynamics on an instrument). You start to lose yourself in the music, so it's a good thing your Atari ST is still with it, playing an intricate dance of its own that manages to keep you straight, technically speaking.

Because a computer, like an instrument, is limited by its programming, the numerous ways in which the Hotz Translator can be programmed constitute another major advance. The tables produced are expected to track closely on the melodies of popular songs; contain voicings, chords, and modal macros corresponding to different musical genres; and represent aspects of a particular artist's unique playing and solo styles.

After playing the system for less than an hour, I was convinced that I had to have one, and I think this feeling is likely to be shared by other serious musicians, songwriters, and producers. As a songwriter, I was impressed by how much easier the Hotz Translator will make the business of laying down master tracks. My keyboard playing is rather limited and my guitar controller is not quite right for some applications, but with the help of the Hotz system, I can play keyboard like a pro.

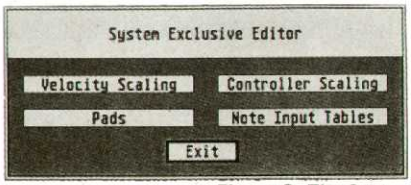

Figure 6. The System Exclusive Editor Options.

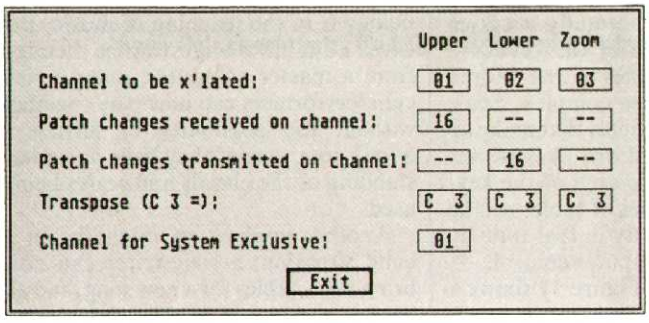

Figure 5. The Global Options Screen.

The Future

Although the full impact of the Hotz Translator will not become apparent until musicians have had an opportunity to use it over time, one thing is certain: It is a gas to play with reckless abandon and still sound in tune. For the first time, you can take a total newcomer to musical creation, set him loose with a full orchestra at his disposal, and perceive even his initial efforts as "musical."

The human desire to play and explore can be rewarded immediately on an instrument that doesn't require decades or even years to master. With the Hotz Translator, it should be possible for *anyone* to become proficient in at least some aspect of musical creation within weeks of starting to play.

Jimmy talks about the first night he had the Translator prototype at his command. "I just couldn't stop playing it," he said as I watched the amazing response to my fingers flying all over the place. This is a musician's dream. No wonder Jimmy feels that "it is a gift to be a part of this."

Try to imagine a future orchestra in a Star Trek scene. The musicians are all playing similar square boards full of sensors that talk to a central computer. They have access to virtually all possible sounds; they play Bach with precision, then segue into an alien dance in which percussion is provided by the movement of the dancers and finally into a ragtime jazz rendition of "When

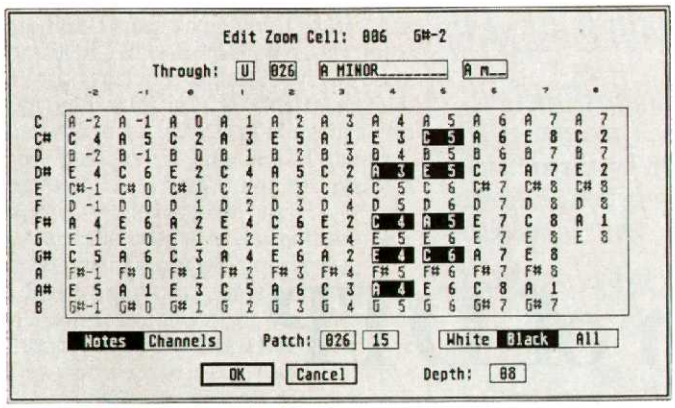

Figure 7. The Zoom Cell Edit Screen.

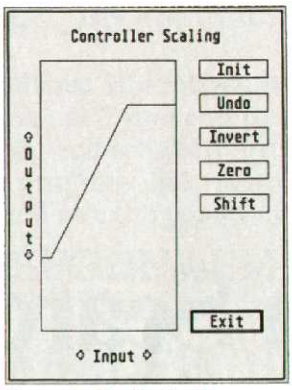

Figure 8. The Controller Scaling Screen.

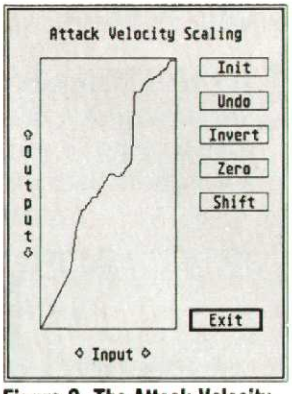

Figure 9. The Attack Velocity Scaling Screen.

the Saints Come Marching In," complete with screaming saxophones. The beings playing the music are as different as the planets from which they come; the computer, the Translator, and their love of music are their only common bonds. The Hotz Translator is a major step in the direction of a universal instrument.

This technology is bound to make playing music easier than ever and offer at the same time a tremendous range of options to musical and multi-media performance. The Hotz sensors, for example, need not be located on a keyboard box. They are flexible enough to be worn on the body (Mick Fleetwood wore a MIDI vest on the Fleetwood Mac 1987-88 world tour), taped to the floor, or attached to other instruments. The variety of ways in which sensors can be located and used can combine with the variety of MIDI parameters to present an artist with a range of choices hardly even dreamed of. Anyone who can tap his fingers on a tabletop can sound like a string orchestra, a foghorn, Van Halen, anything! The potential for new art forms is limitless.

. . . as is the potential for non-art forms. Consider: the Hotz Translator can turn any gesture into a musically-pleasant experience. So where is the artistry? The sophistication of modern technology is blurring the distinction between "mere" talent—as a simple facet of human nature—and developed or productive talent.

Compensating for the loss of this distinction is the fact that, while devices like the Hotz Translator do indeed make possible the creation of mediocre but acceptable music by untrained and uncommitted people, they also make possible the creations of future Beethovens—geniuses whose circumstances, handicaps, or other limitations might have made self-expression impossible in other times.

MIDI, sampling, and computers have joined together to allow us to create sounds never heard in the natural world, to sample the sounds of real life and work with them in musically interesting ways, and to compose and perform music, the dynamics, chordings, or tempos of which would make it impossible for unassisted human artists to play. The Hotz Translator, it seems to me, complements these already-powerful technologies well in that it extends human capabilities. While the result, over the short term, may indeed be Christmas carols sung by barking beagles, the long term will doubtless reveal music—beautiful music—yet unheard.

There is no question in my mind; the Hotz system is a milestone in music technology. How significant that milestone turns out to be will depend on the extent to which it is accepted by professionals and mass-market consumers. An intelligent interface to massive MIDI is the only way for the pros, but novices will gravitate to the Hotz device only if they can use it to express themselves in simple and entertaining ways.

In fact, Atari expects to offer the Hotz technology in different configurations—to suit both professionals and mass-market consumers. The range of models that will be available by next year will offer flexibility in both features and pricing.

As a musician and multi-media artist, I am happy to see Atari backing such an important technology. As an Atari user, I am very glad to see Hotz working with Atari. Atari's involvement with the Hotz Translator is an example of the right vision with the best technology at the right time. ■

Installing Applications

ST HELP KEY

The Install Application selection on the desktop Options menu lets you assign filename extenders (.DOC, .TXT, etc.) to application programs. When you double-click on a file whose extender has been assigned to a specific application, the application is automatically loaded with the selected file in place, saving lots of steps. The only limitation is that the installed application and its files must be located in the same folder, or the application must be in the root directory.

There is nothing to prevent you from assigning more than one three-letter extender to an application. For instance, you could install *1st Word* to work with any file with a .DOC extension. Then after that installation, you could choose Install Application a second time and install *1st Word* to work with any file with a .TXT extension. The act of installing the second extension (.TXT) doesn't cancel the first installation (.DOC).

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.

In Search of DTP

Can a graphic design professional find true happiness with an Atari desktop publishing system and PageStream from Soft-Logik?

By PETER KELLEY

I'm no hacker.

Sure, I'm a designer of publications about computers. I have friends who subject me to the latest adventure and arcade games, and I dabble with the odd drawing program. But personally, I've never had much use for personal computers.

My professional interest is in the design and production of articles for national magazines. I use *real* type. The kind typesetting vendors charge *big money* for. The kind that comes from mainframe computers that require *data processing departments* just to turn on the terminals.

Once I get that type, I need T-squares, X-acto knives, rubber cement, and crazy-looking angled desks before I can even think about putting together something that my publisher can send to a printer. Maybe my editors use personal computers to write the articles; maybe the ad salesmen use computers to track accounts, but I have never viewed the computer as a tool *I* could use in the art department.

Dawn of Desktop

Then, a few years ago, I heard one of my editors talking about "desktop publishing," now shortened to the insider's "DTP." What could it possibly mean?

It seems people are uncomfortable giving up reports, presentations, brochures, and correspondence in favor of the hypothetical "paperless office" served only by computer disks and screens. For the crucial step of presenting finished results, even the most dedicated screen jockey wants a tangible piece of paper to distribute at the meeting.

So the next logical task for the computer becomes not only to process words and numbers efficiently but to manipulate their presentation *on paper* in a truly professional manner. When this capability evolves into a sophisticated, flexible, powerful, and easy-to-use graphic tool, even the Luddites in the art department sit up and take notice. This is the promise of desktop publishing.

The maverick Macintosh was the first to suggest that computer output could be more than blocky dot matrix or typewriter surrogate daisywheel. It held out the hope of processing type in all its variety and sizes and, even more amazingly, of processing entire pages. Instead of cutting and pasting mechanicals, the computer could allow the arrangement and rearrangement of words and images before ink ever hit paper.

Three things are required before the promise of DTP can become reality. First, machines must have the power to handle the vast amount of data needed not only to process words but to describe each line and curve of each letter and to map them onto the page. Second, devices to output these pages must have sufficient resolution and quality to rival professional typesetters costing hundreds of thousands of dollars. Third, and perhaps most important, software must be able to create page constructions, output them to printers, and put the graphic tools of the designer in the hands of every computer user.

Atari's family of ST and Mega computers fulfills the power requirements of byte-hungry would-be publishers. Its SLM804 Laser printer outputs at a near typeset quality 300 dots per inch. And finally, with Soft-Logik's release of *PageStream* version 1.5, the reality of professional quality desktop publishing has come to Atari.

My Type of Characters

The first impression you get from any *PageStream* output is of the quality of its type. It may well be the best-looking type you have ever seen produced by an Atari computer. Figure 1 shows sample output produced with the SLM804 Laser printer.

PageStream

System: Atari ST

Version reviewed: 1.5

Required equipment: Monochrome monitor

Copy protection: None

Summary: Powerful desktop publishing tool representing an important advance for ST. Packed with features comparable to state-of-the-art DTP programs for the Mac and IBM.

Price: $199.95

Manufacturer:
Soft-Logik
11131 South Town Square
Suite F
St. Louis, MO 63123
(314) 894-8608

The program disk includes two type families: Tymes and Helv. The first is a version of Times Roman, the workhorse of serif typefaces and the style of body copy and titles used in this magazine. The second is a version of Helvetica, the most popular of sans serif typefaces. (See sidebar, which is an example of a page constructed entirely by *PageStream* and output to a Linotron, for a discussion of typographic terms.)

Eight additional fonts are provided on a separate fonts disk, which also includes the Tymes and Helv fonts. For users who want to install fonts in a separate partition or who do not have the hard disk space to install program and fonts in one drive, fonts can be stored on a separate drive and the path specified within the program.

Public domain fonts are also available from Soft-Logik, dealers, CompuServe, and Genie. Some examples are shown in Figure 2. Soft-Logik plans separate release of at least 15 additional fonts.

PageStream uses its own page description language to output to the laser printer and dot matrix printers. However, PostScript font versions of Tymes and Helv are included, with PostScript downloadable fonts of the other faces available (more on PostScript later).

Tabula Rasa

With just a cursory glance at the manual, it is possible for the eager user to be off and creating simple pages. But a desire to make full use of the powerful features available in the program will ultimately compel an in-depth exploration of all the menus and the manual.

When a new file is opened, *PageStream* opens a dialog box that determines the page size and orientation of the blank page that will be used in the file.

The *layout* of a document specifies how the various *page elements* are to be positioned on the page. Page elements include *text* columns and *graphic* elements. Text is entered or imported into the columns. Graphic elements like bitmapped or object-oriented pictures can be imported, and rules, boxes, circles, ellipses, arcs, and even freehand drawing can be created from within the program. Headers, page numbers, captions and headlines are also considered page elements.

Figure 3 shows a newly opened blank file window. Rulers along the top and side of the page window and a grid of dots on the page allow accurate place-

Figure 1. PageStream sample output from the Atari SLM804 Laser printer reproduced actual size.

Figure 2. Many fonts are available in the public domain.

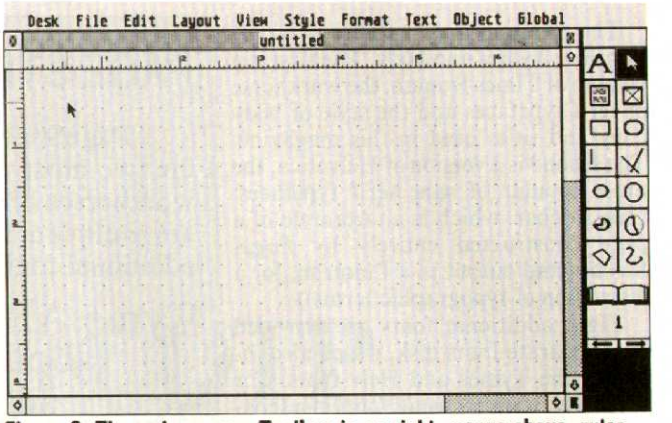

Figure 3. The main screen: Toolbox is on right, menus above, rules and grid delineate the working blank page, scroll bars position the viewing window on the page.

ment of the page elements. As the cursor is moved, hash marks on the rulers indicate its vertical and horizontal position. Scroll bars on the right and bottom of the document window control the placement of the window over the document. Pulldown menu headings appear across the top.

The Toolbox on the right provides easy access to the page elements; the icons represent different modes, each of which governs the creation of a different element or provides a different kind of control over the same element.

The column icon, for example, is represented by the page (second from top on left) and is used to create columns on the page. Columns can be linked so that imported text automatically flows from one to the next. Columns are objects that can be repositioned or resized; the text within them automatically adjusts to these changes.

After a column is created, text can be entered in it using the Text mode represented by the letter A. The word processing capabilities available in Text mode include all the standard keyboard functions like delete, caps lock, and cursor keys as well as editing functions like cutting, copying, pasting, deleting, searching, and replacing.

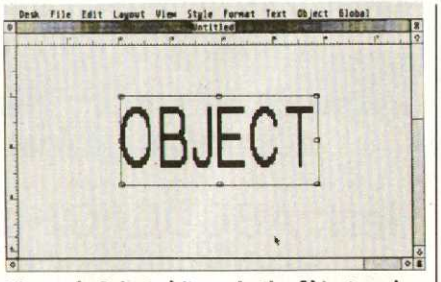

Figure 4. Selected items in the Object mode are surrounded by six squares, which are used to resize the object. Dragging inside the object allows repositioning.

Text mode is also used to manipulate such type attributes as point size, font, and special effects. You can either set these attributes before entering the text or change selected blocks of text after it has been entered.

Graphic elements can be created using the box, straight line, angle line, circle, ellipse, arc, polygon, and freehand drawing icons located above the book symbol in the toolbox.

The arrow icon represents the Object mode. It is used to select a page element for the purpose of editing or manipulating it. When the cursor is positioned on an element while in Object mode, a left click selects the object, surrounding it with a set of six small *sizing squares* (Figure 4), which can be dragged with the mouse to reshape the selected object along its different sides. Clicking and dragging inside a selected object allows repositioning by a hand icon without changing the size of the object.

Selecting a text column in Object mode makes certain menu functions available. For example, you can modify the type attributes of font, point size, etc. for an entire column of type by selecting the column and choosing the desired attributes from the menus. This saves the step of highlighting text within Text mode and then changing type attributes.

Individual type attributes can also be selectively searched for and replaced (leaving other type intact) while in Object mode. For example, you could change 10-point Tymes body copy with two points of leading to 12-point Helv with three points leading while leaving 16-point Helvetica bold subheads unchanged. To effect this change in Text mode, you would have to highlight successive blocks of body copy, being careful not to highlight the subheads.

Text objects are blocks of type that are entered from Text mode while the cursor is outside any existing text column. In Object mode, you can resize or reposition these objects or choose new font attributes for them. Headlines and captions are typically entered as text objects so that they can be accurately and independently positioned on the page.

The second icon on the right—an X with a box around it—is the resize icon. It allows precise cropping and reshaping of selected objects.

The Vocabulary of Desktop Publishing

Like all professions, graphic arts—of which typography is a subset—has its own vocabulary, which may baffle the uninitiated. To help you make the leap from word processing to desktop publishing as an informed consumer, we provide here a brief introduction to the vocabulary of typography. (If you have have specified type conventionally, you will be pleased to find that *PageStream* uses familiar measuring systems and concepts.)

The size of a character is measured from the top of its highest ascender to the bottom of the lowest descender in *points*, of which 72 equal one inch. Typical type sizes for body copy run from 8 to 14 points, while headlines run as large as 72 points—or even larger in advertising.

A complete set of all the characters in a particular type design is called a *font*. Attributes of the type in a font include its weight, whether it is *Roman* or *italic*, and whether it is *serif or sans serif*.

Weight refers to the relative thickness of the type and ordinarily comes in bold, medium, and light varieties, but many styles include extra bold, black (even thicker), and compressed or extended (in which the type looks squashed or stretched).

Roman is the name given to regular type standing straight up. Italic refers to the slanted style used for emphasis or for names of publications and software packages. It is interesting to note that italic type was first designed to mimic the cursive effect of handwritten calligraphy, while Roman type originally reflected the design of type chiselled in stone.

Many conventional typefaces completely redesign the characters in their italic style to maintain a fluid appearance. Computerized typesetters (and *PageStream*) often create italic characters simply by slanting the Roman characters rather than using another whole font.

Serifs are the small lines at the ends of the main strokes of type. They help move the eye along a line of type, so the large amounts of body copy needed in books and magazines are typically set in serif type (like the Times Roman you are reading now). Sans (without) serif type, without these embellishments, can have a stronger impact and is often used in headlines.

Other attributes that *PageStream* can give type are outlines, shadows, underlines, set upside down, and mirrored. Like slant italics, these special styles can be effected by computer manipulation rather than the creation of entirely new fonts as is conventionally required.

Typefaces with different attributes that nonetheless share a general design are called a *type family*. Times regular, italic, bold, and bold italic form a family. Traditionally the word *font* referred to the set of lead pieces of type needed to print one size, style, and weight of characters. Some computer software retains this meaning of font, because a different file is needed for each size.

PageStream uses a scalable algorithm to produce different sizes from a single data file and therefore refers to all sizes of one typeface as a font. Most attributes, such as italics, boldface, outline, are generated by computer manipulation for output on a laser or dot matrix printer. Soft-Logik will soon have a font editor available to create more exacting fonts for particular sizes and styles of type.

In addition, when PostScript output is produced, some different weights or styles normally produced by computer manipulation are available as separate fonts. For example, a true italic Tymes can be output in PostScript, while the dot matrix laser version uses a slanted Roman style.

The spacing between letters is determined by the font. Occasionally, a specific combination of letters appears too airy or too tight. *Kerning* is the process of removing space between two letters that appear too far apart.

At one time, strips of lead were inserted between lines of mmovable type so that the letters would not sit on top of each other. The term *leading* (pronouced "ledding") is still used to refer to the space between lines. Ten-point type with two points of leading is referred to as 10 on 12. Six lines of such type would be one inch in depth.

Lines of type can be set to align on one side only (such as flush left, ragged right), to have each line separately centered, or to align on both the right and the left sides of the copy. This is called *justification* and is important to giving long columns of text a uniform appearance.

Justification can be difficult for an unsophisticated program to achieve, because it is accomplished by adding space between words, between individual letters, or both. Sometimes, especially on narrower columns, this kind of spacing alone can result in unpleasantly open and airy lines. *Hyphenation* is, then, required to break up long words and put a similar number of characters on each line. *PageStream* supports hyphenation both by algorithm and manual addition.

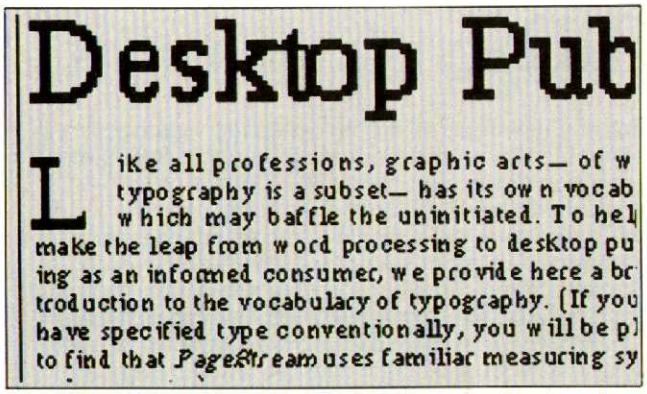

Figure 5. Portion of screen in Actual Size viewing mode, shown here full size. For the sake of speed and efficiency, screen fonts represent, but do not exactly reproduce, eventual output.

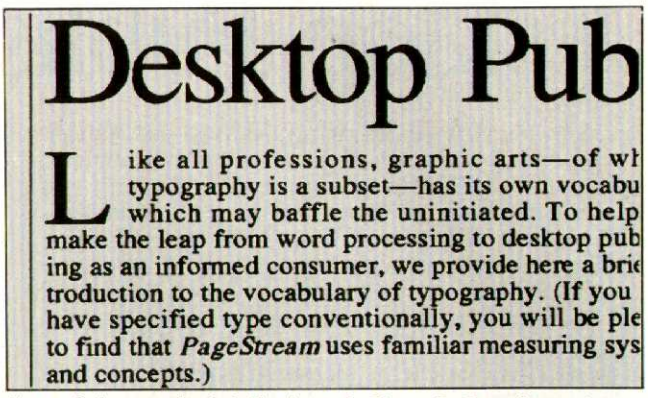

Figure 6. Laser output of file shown in Figure 5 shows how printer fonts make full use of the PageStream capabilities.

The open book icon below the drawing icons represents the master pages, which hold information about the elements—page numbers, headers, footers, and repeated graphic formats—that are repeated on every page of the document. If your document is two-sided, you must prepare two master pages—one for right-hand pages and one for left-hand pages.

The number and arrows at the bottom of the toolbox allow you to choose which page of your document is displayed. The number is the number of the page currently in the window. Entering another number calls that page to the display directly, while clicking on the arrows moves the display from page to page sequentially.

What You See is What?

One mouthful of a catchword that the desktop publishing revolution has spawned is WYSIWYG—What You See Is What You Get—pronounced "whiz-ee-wig." Figure 5 shows a simple column, including text and a headline, as it appears on the screen. Figure 6 shows laser output of the same file. Obviously, some explanation of the discrepancy is needed.

Deep within the manual a paragraph clearly explains the situation to those not versed in the mysteries of computer screens and printers: "The fonts shown on the screen display may appear blocky or crude when used at certain character sizes; however, they will be perfectly smooth when printed. This is accomplished by using scalable outline fonts when printing. These fonts are generated with complex mathematical formulae and thus require a large amount of processing. The screen display is computed in a simpler fashion. Only the important aspects of WYSIWYG, spacing and general appearance, are maintained in order to significantly speed up display redraws."

This may be understating your ability to visualize such subtle details as kerning and headline style from the screen. However, given the speed of the program, frequent proofing of output to the printer for critical appraisal is not difficult.

The program does offer a wide variety of viewing options. Figure 7 shows

Figure 7. Menu options for viewing the page at different magnifications.

the pulldown menu for them. Reductions like Full Page and 50% are useful for visualizing the entire page and for creating large columns. Actual size does offer the WYSIWYG functions (within the limitations noted above).

Full width automatically scales the document width to that of the window, eliminating the need to scroll back and forth horizontally. In addition, there is a user-defined scale which can, for example, size active columns to the width of the document window or magnify up to 1500%. There is even a successive zoom feature, which blows up areas you define by dragging the mouse.

The View menu includes commands to show or hide the rulers, grids, guides, tabs, and column outlines used in page layout. The text routing between columns can be visibly identified with code numbers. Screen redraws can be speeded up by toggling off the display of bitmapped pictures and by using "Greeking" or backslashes to represent the text in situations where it is important to concentrate on the page layout rather than on the actual text or images.

Paging Philip Morris . . .

The Layout menu controls the overall page layout for the document. The Cre-

Figure 8. Examples of the type attributes that are controlled with the Style menu.

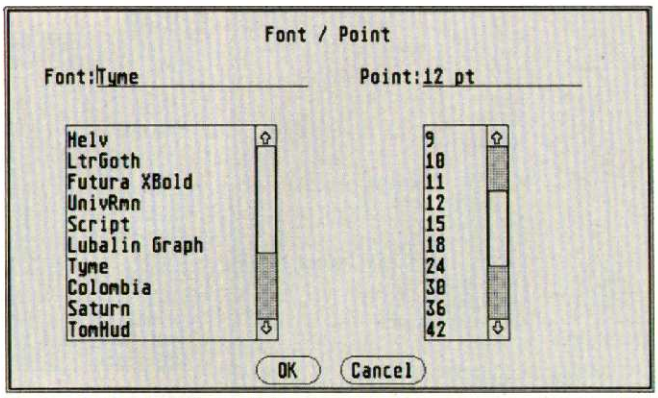

Figure 9. The Font/Point dialog box lists font and size options. Width and height of type can be separately specified on the Point line.

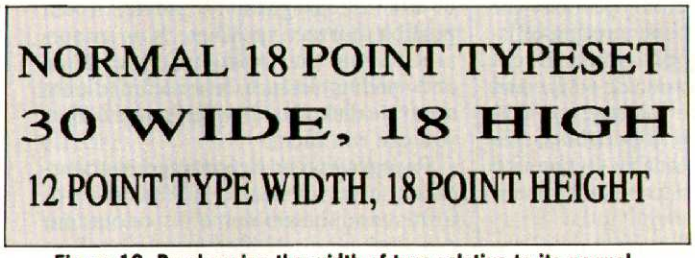

Figure 10. By changing the width of type relative to its normal height, one font can yield great variety.

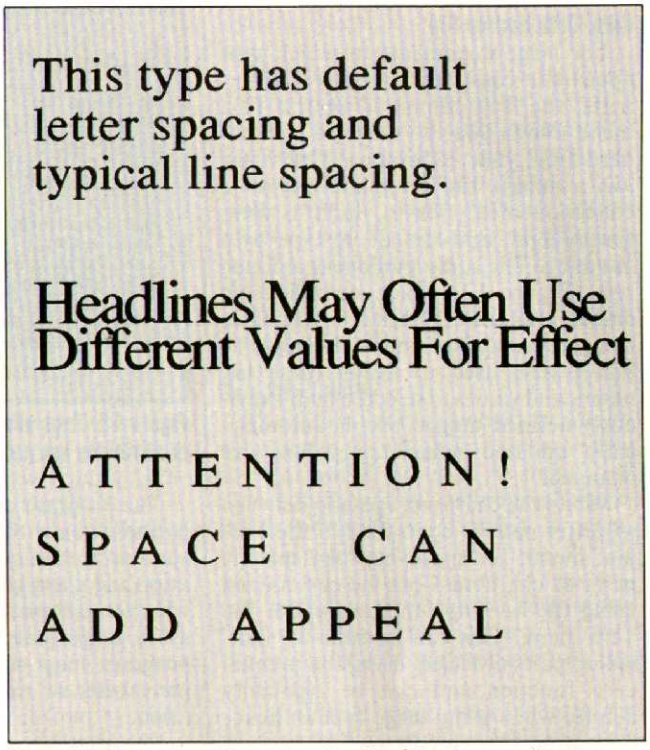

Figure 11. Examples of how changing the default parameters for letter spacing and leading can dramatically change the look of text.

ate Column command is an alternative to the Text Column command found in the toolbox. It is used to create multiple columns of equal dimension and like position on a range of pages. Clicking on Create Column opens a dialog box that requests margin size, column spacing, and number of columns. Given the specified page size, the column size is determined from this information. Text routing can be automatically included by linking the columns created.

The grid and guide system of layout is a powerful aid to creating accurate page structure. The grid is a non-printing array of vertically and horizontally aligned points. When the snap feature is activated, the corners of any object created will be automatically pulled to the nearest points. The grid can be customized, and the axes can have different graduations. This allows creation of accurately placed and sized columns and graphic elements like rules and boxes even when the relatively crude Full Page viewing option is chosen.

Guides are user-defined horizontal and vertical axes which pull to themselves only objects in proximity to them. Unlike the grid, guides pull in only one direction, aligning objects along the axis.

The Layout menu is also used for *page management*. Blank pages can be inserted between active ones, and active pages can be moved or deleted. Page numbering can be automatically inserted in regular Arabic numbers or in a choice of upper- or lowercase Roman numerals. Text routing of columns can be manually changed, and master page elements, such as page numbers, can be toggled off for specific pages.

If You've Got It, Flaunt It

The Style menu provides for control of font attributes such as those discussed in the sidebar. A setting can be initialized before text is entered or text styles can be imposed on existing type using the techniques mentioned in the toolbox discussion above. Figure 8 shows how the different styles specified in the menu appear.

The first entry on the menu, Font/Point, commands the text font and character size. It opens a dialog box (Figure 9) which displays the fonts available and choice of type size. A particularly powerful way of changing the appearance of a font is to vary its width and height. The dialog box allows the specification of a width different from the height of a font. Figure 10 gives examples of the variation possible.

While the Style menu controls the appearance of text, the Format menu controls its placement. Format commands can be used to raise or lower text relative to the baseline to make it superscript and subscript. The exact amount of the displacement is controlled by a dialog box.

There is a complete set of line alignment commands for flush left, flush right, centered, and justified lines. If you choose to have your text justified, you can choose the way it will be done; space can be added between characters or between words or both (auto justify).

Sophisticated adjustment of line and character spacing is possible with the Line/Char Spacing command. It opens a dialog box in which the *leading* between lines can be controlled as a function of the height of the tallest character or as a fixed value. It is even possible to have negative leading in which lines overlap. Even though the descenders of one line will extend below the level of the ascenders of the next line, with large type it is likely that no letters will actually overlap, and the tightened spacing can be pleasing.

Character spacing can similarly be increased or decreased to an eye-catching openness or a crunching tightness (Figure 11).

Ollie, Ollie Umfree Oh!

For large documents in which type appears in consistent and repeated formats, the Tag command in the Text menu allows you to save time by standardizing your attributes. Operating like a macro, the command assigns a collection of attributes, such as font, size, weight, and format, to type by a nametag. The command opens a dialog box (Figure 12) which compiles tag names and their associated attributes using a series of sub-menu choices. The box is also used to assign these tag names and values to selected text. Previously defined tagged text is automatically updated when tag values are changed.

While the character spacing between all letter pairs is controlled in the Format menu, the space between specific pairs of characters can be customized using the *kerning* functions under the Text menu. This can be done for individual pairs of letters using the manual kern function and can be especially helpful when using large type in headlines or advertisements.

In addition, blocks of type or whole documents can be scanned and the desired kerning performed on all pairs as specified in tables of kerning pairs, which are defined for each font. These tables can be accessed under the Global menu and amended by the user.

A similar process is used in hyphenation. Early page layout programs were unable to hyphenate words, which often made justified text look unpleasantly airy. *PageStream* has the powerful ability to hyphenate text in batches. When the text has been entered into columns and the font and type size chosen, the Batch Hyphenation function scans the text, breaking longer words in order to place a similar number of characters on each line.

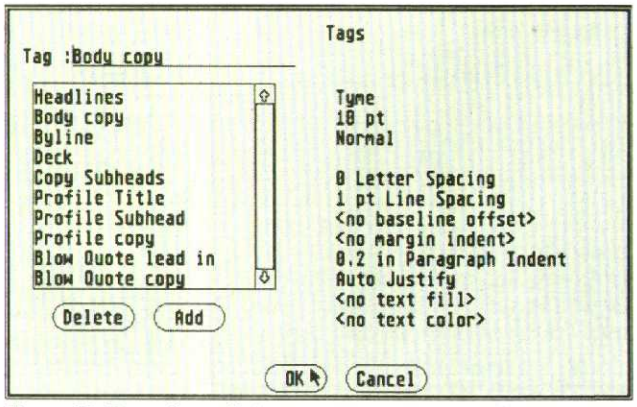

Figure 12. Tags allow efficient specifying of formatted text. Bundles of attributes are named and accessed with a single dialog box.

Figure 13. The Object menu.

The program can either perform the hyphenation without interruption or issue a prompt at every potential hyphenation and allow you to decide where and whether to hyphenate. Because hyphenation is governed by algorithms, the program may occasionally hyphenate incorrectly or miss a correct hyphenation.

The dictionary of correct hyphenations is expanded each time you correct a hyphenation proposed by the program. In addition, the parameters within which hyphenation occurs (such as the acceptable number of lines in a row ending with hyphenations and the size minimums of parts hyphenated) can be redefined. Manual hyphenation allows you to insert hyphens in words without accessing the global hyphenation features.

Spell checking is another feature you can access from the Text menu. As in Batch Hyphenation, the checker scans the document and issues a prompt whenever it finds a word that is not in its dictionary. At the prompt, you can manually correct the word, skip over the prompt, add the word to the dictionary, or ask the program for advice about possible correct spellings. It is important to note that both the hyphenation and spelling features are included on a separate disk and must be loaded before you can run them.

Paragraphs can be indented, outdented, or not formatted at all. The choice of format and the amount of in- or outdent can also be controlled from the Text menu.

I Object

The Toolbox provides a selection of different page elements in Object mode. The Object menu (Figure 13) allows for further manipulation of these objects.

When multiple objects coexist, the selected object can be moved behind other overlapping objects or brought to the foreground.

Objects can be grouped so that operations affect all selected objects at once. For example, the relationship of type columns and pictures can be preserved when they are moved as a group. For the opposite effect, the Ungroup command can be used to separate a grouping of objects.

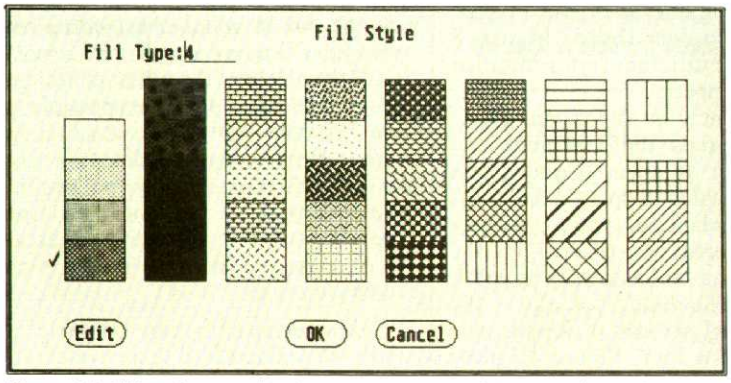

Figure 14. Fill options can be chosen or customized from the dialog box.

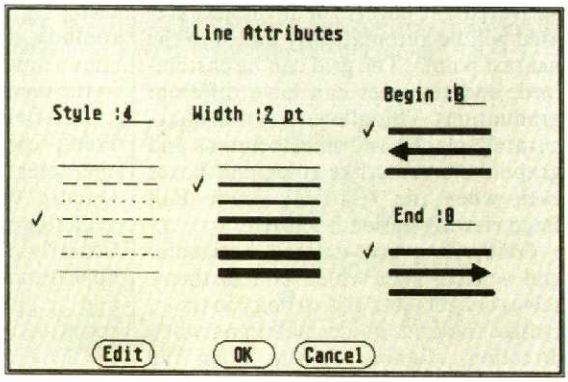

Figure 15. A variety of line styles are available.

Graphic objects like boxes and lines can be filled or customized via dialog boxes opened by commands in the Object menu (Figures 14 and 15).

The position of a selected object can be displayed and changed with great accuracy using the Edit Coordinates command; *PageStream* is capable of controlling increments equal to $^1/_{3600}$".

Selected objects can be aligned in relation to one another using the Align command. Groups of objects can be aligned left or right or centered horizontally or to the top, bottom, or center vertically. For instance, all objects can be pulled horizontally to align with the leftmost edge of the leftmost object in the group.

Rotate opens a dialog box that allows a given object to be rotated (spun on its axis), slanted (tipping only vertical elements), or twisted (horizontal elements displaced). Figure 16 illustrates these effects.

When a document window becomes filled with text columns, graphic elements, and text objects, it can be a tricky operation to select only those objects that require further changes. The Lock command anchors an object, so that it is not moved inadvertently. Unlock obviously reverses the situation.

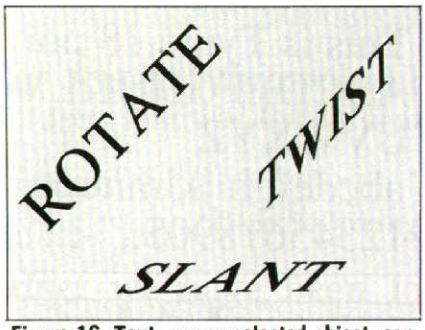

Figure 16. Text, or any selected object, can be rotated, slanted or twisted.

Text Runaround controls the flow of copy around an object placed in the column. This is a powerful graphic device that can greatly enhance the relationship of text and art in a layout, but it is difficult to accomplish using conventional layout techniques, because it requires labor-intensive custom typesetting from carefully measured dummy layouts. Revisions require costly resetting.

The Runaround command in *PageStream* supports user-defined standoff (margin around the inset object) and five different styles of text wrap—no runaround (type overlaps object), copy jumps over the object with no text on either side of the object, copy wraps to the left, or to right, or to both sides of the object.

Duplicate allows exact copying and placement of objects.

Its a Small World

The Global menu controls program-wide settings, which can be saved to serve as initial defaults. As mentioned above, hyphenation, spelling, and kerning information is accessed by commands in this menu. In addition, the file paths used by the program to seek system and data files can be customized from this menu, and macros to simplify the execution of common functions can be defined.

The Global menu also includes the Measuring System command, which se-

Figure 17. Comparison of laser printed type with output from a Linotron typesetter at 2400 dpi using the ability of PageStream to save files in Postscript format. Samples are shown actual size and magnified 300%.

lects the units of measure used throughout the program. Inches, picas, points, centimeters, millimeters, ciceros, didot points, and metric points are available along with the *PageStream* absolute measuring system in which 3600 units equal one inch.

No matter which default measuring system you choose, you can still use any available system when entering measurements as you go along. For example, you could define a customized grid, specifying the x-axis in inches and the y-axis in picas. Type size, however, always initializes in points.

The Configure Printer command is used to select and load the printer driver, choose which port will be used for output, and specify page order and paper size. A wide range of printers is already supported with drivers, and more are promised.

PostScript Without the Price

One interesting *PageStream* feature is its ability to save a document to disk with a PostScript printer driver installed. If you have x-ray vision and are not satisfied with even laser output, you can take your *PageStream* output a step further and enter the world of true typeset quality.

Because PostScript is a page description language that is not dependent on the resolution of the printer, it can provide output to 1200 or even 2400 dpi typesetters. Independent output services, which can print files on these high quality devices for a fraction of what conventional typesetting would cost, are springing up all over the country. Using one of these services, a desktop publisher can proof and correct a laser-printed document as many times as necessary until the final layout is approved. That final layout can then be saved to disk using the PostScript driver, and the file can be sent by modem or the disk carried to a service for output. Figure 17 shows a file output at 2400 dpi.

What's up Doc?

PageStream is an extremely powerful and flexible program. The user manual adequately explains the complexity inherent in such a tool, but lacks something when it comes to organization and attention to detail.

The most glaring omission is an index. Technical support staff at Soft-Logik assured me that one is in the works and that the current version is available on their BBS (314-894-0057). A somewhat less serious but still annoying omission is the appendix containing type samples that is referenced in the text but not included.

The reference section comprehensively describes command functions in the order in which they appear on the menu bar, but a better overview of concepts would be helpful. For example, the Toolbox description comes at the end of the manual, burying the important discussion of the Object mode.

A revised manual is promised. Even so, a tool as flexible as *PageStream*—no matter how accessible its manual—demands serious study and experimentation before all its features can be fully exploited.

And while we are on the subject of support, it should be noted that the quality of Soft-Logik's technical support may be a moot point for some users simply because of apparent inadequacies in the company's telephone system.

I tried for days to reach someone at the published tech support number, but never succeeded; the line was busy early in the morning, late at night, in the middle of the day, on weekdays, and on weekends. I was finally able to get through on the company's main number by autodialing repeatedly for 20 minutes one afternoon.

Being unwilling to risk a referral to the tech support number, I identified myself as a reviewer the minute the phone was answered and was treated very courteously. I cannot, however, comment on the quality of support an "average user" might receive. I can only admonish you not to wait until you are up against a deadline to start asking questions.

A company with the technical savvy necessary to create a program as good as *PageStream* should have the marketing savvy to invest some of the revenue generated by that program in a few extra phone lines.

Cut to the Chase

In attempting even a brief discussion of its many capabilities, I fear I may have overwhelmed my enthusiasm for this program with description. The fact is, the Atari community which has led the computer world in graphics, gaming, and overall value has had some catching up to do in the field of desktop publishing.

With the advent of *PageStream*, however, Atari has been catapulted into the DTP game with a vengeance; its features match or exceed those of competing programs for the Mac and IBM listing at double and triple its price.

Graphic designers will find their most demanding requirements met by *PageStream*. Teachers, businesspeople, and hobbyists will use the program to turn out reports, brochures, and newsletters with the ease of art school graduates. At $199, it is a worthwhile purchase for anyone who professes an interest in quality presentation; it is a must for SLM804 owners—at any price. ■

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."
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- o optionally boots DOS from hard disk
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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

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- o IBM PC-DOS or Compaq MS-DOS version 3.2 or above recommended
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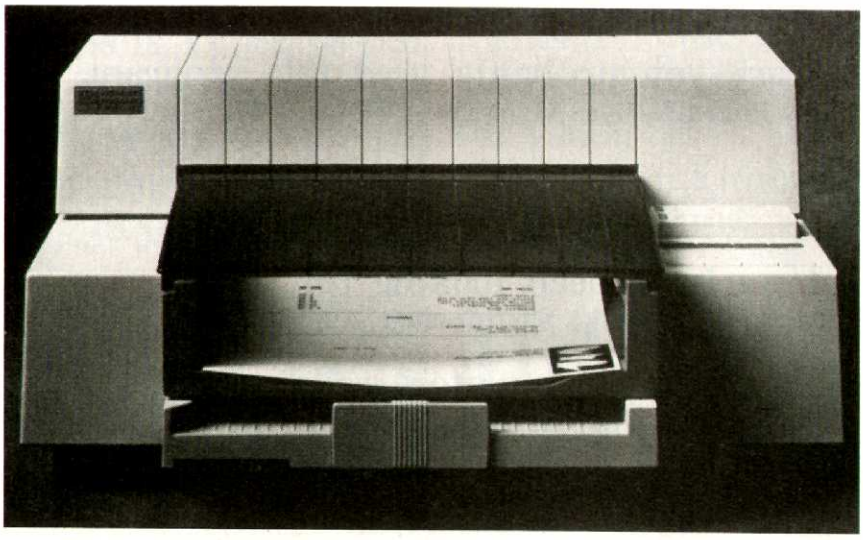


HP DeskJet Professional Printer

Hewlett-Packard offers near-laser-quality output for business users

By RANDY PARLIN

The Hewlett-Packard DeskJet is a LaserJet-compatible inkjet printer with the same graphic resolution (300 dots per inch) as a standard laser engine. It is slower than a laser ("only" 120 cps. in letter-quality mode, 240 cps. in draft, as opposed to 8 pages per minute), and it doesn't offer quite the same "blacker than black" print quality, but unless you intend to use your printer for creating camera-ready material for photo offset, you will probably never notice. For every other purpose—low volume letter-quality printing, forms design, and one-off desktop publishing, for example—the DeskJet performs almost as well as a laser and costs quite a bit less than most models.

HP DeskJet Printer

System: Atari ST

Summary: A quick, capable inkjet printer for high-end output needs

Prices: Printer, $995

128K RAM add-on (2 required for soft fonts), $150

Epson FX-80 emulation cartridge, $75

Font cartridges: $75-$125

Print cartridge (black): $18.95

Manufacturer:

Hewlett-Packard Inquiries
19310 Pruneridge Ave.
Cupertino, CA 95014
(800) 752-0900

Unpacking and Setup

The DeskJet—like all HP hardware—has a finished look about it that bespeaks quality. You know how some computer equipment, with all its swept-back lines, fins, and vents, seems to be designed to evoke a vehicular aesthetic? By contrast, the HP DeskJet has a stepped, squared-off look that is strongly reminiscent of a building by Frank Lloyd Wright . . . it looks terrific on an Eames table.

Setting up the DeskJet involves removing a few strips of packing tape and some cardboard protectors, installing the paper-out tray and printhead/ink reservoir unit, and plugging in. Most setup details will be self-evident to an experienced computer user, though full-scale hand-holding is provided in the documentation for those who need it.

The DeskJet is light enough (14.3 lbs.) to rest on any surface and occupies just slightly more desk space (about 14″ × 17″) than a wide-carriage dot matrix printer. It requires about 8″ of overhead clearance, but since the controls and paper trays are accessible from the front, it is possible to shelve the DeskJet in a 9″ vertical space, assuming sufficient ventilation is provided. For the print quality and speed it offers, the DeskJet is a remarkably compact and manageable piece of hardware.

The DeskJet has connectors for both Centronics parallel and RS-232 serial interfacing. These are tucked away in a recess at the bottom of the machine, making for a neat permanent installation. The location of these connectors, however, will frustrate those who require the printer to serve two computers with the same type of interface; constant plugging and unplugging just isn't practical.

The DeskJet employs an inkjet printing process by which minute drops of ink are electrostatically fired at the surface of a piece of paper, then thermally impressed upon it. Because the potential for clogging exists over the long term, HP has opted for a throwaway design that combines the ink reservoir and printhead in one disposable cartridge.

Installation is accomplised by removing the cartridge from its sealed container, stripping a piece of protective tape from its nose, and seating the cartridge in its cradle—clean and simple. The Prime key is then pressed to force an initial spray of ink through the nozzles, and the printer is ready for use. The cartridge should occasionally be reprimed to maintain good print quality. HP says a cartridge is good for a million draft-quality characters or up to 525,000 letter-quality characters before it has to be replaced.

The DeskJet power switch is located at the bottom front on the left-hand side—a little difficult to find initially but readily accessible once you know where to look. On power-up, the DeskJet goes through a 15-second priming cycle and is then ready to operate.

Controls for the printer are located on the right-hand side of the front deck and are clearly labeled. The usual On/Offline and Formfeed buttons are

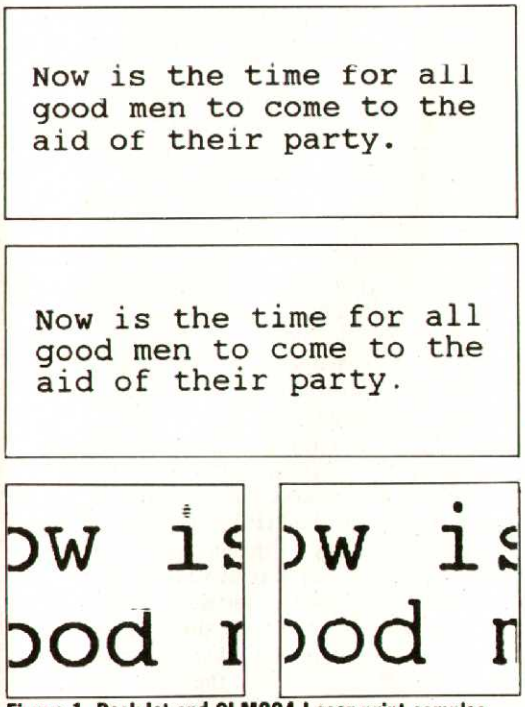


Figure 1. DeskJet and SLM804 Laser print samples, actual size and enlarged. Can you tell which is which?

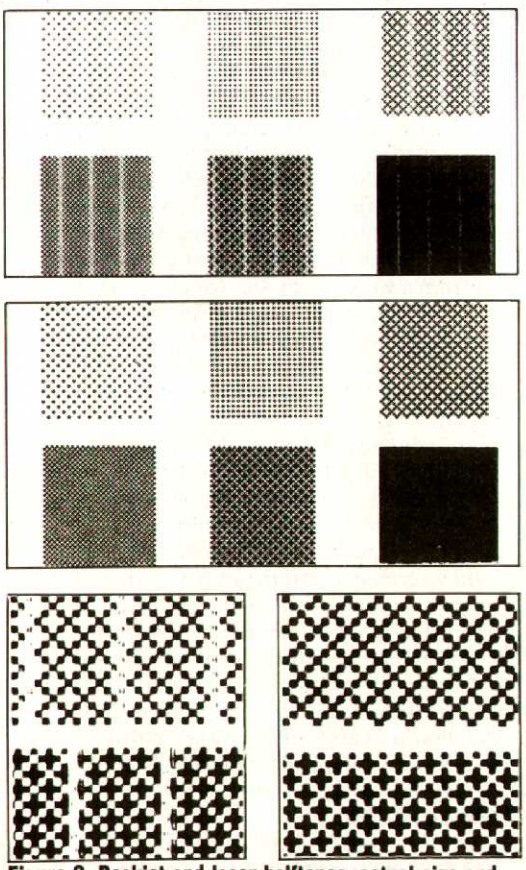


Figure 2. Deskjet and laser halftones, actual size and enlarged.

present along with the Prime switch, a Font Select switch, a reset button, a pair of sheet-feeder controls, and a Mode switch for changing from draft to letter-quality print. Green LEDs indicate the current font setting, print mode, and printer status.

The DeskJet at Work

The inkjet process is friendly to a wide variety of paper types. Best results are obtained with smooth-finish xerographic paper, though results are acceptable even with textured finishes and other high-quality cotton stock. In general, the more "tooth" the surface of the paper has, the lighter and more feathery the print will be. The documentation details the proper approach for evaluating new papers prior to purchase.

Like a laser printer, the DeskJet is designed to print only on cut sheets of paper. The input tray accommodates American and European papers up to 8½"×14" and can hold a sheaf about ½" thick (up to 100 sheets, depending on paper weight)—more than enough for an average day's work. Envelopes (up to standard # 10 business size!) can be fed singly through special guides in the output tray, so you can address an envelope without removing the paper from the input tray.

The DeskJet paper-handling mechanism seems robust and tolerates different paper types very well. The paper path is simple: paper comes in from the lower hopper, turns around the platen, where printing occurs, and is ejected into the upper hopper, where it is dropped face-up onto the growing stack of output by a pair of levers.

This causes your output to be collated in reverse order, which is a bit annoying, but the output-and-drop arrangement permits you to ignore the printer during all but the longest print runs. I was able to print out an 80-page document without disturbing the printer in mid-process to clear the output bin.

The overall mechanical registration—the precision with which paper is brought into the machine and placed for printing—is extraordinarily good. I ran several sheets through the machine more than once, printing the same text each time, in order to check how subsequent print runs overlaid themselves on one another. To my eye, it looked as if the print simply got darker with each printing.

Envelope-handling is not so tolerant. The envelope guide system on the input tray is fairly tight and, though it works acceptably well with stiffer envelopes, tends to crush the corners of envelopes made of 15 lb. and lighter stock. I solved the problem by creating an envelope insertion guide out of oaktag cardboard—something I could slip beneath an envelope before inserting it into the machine, then remove before printing.

Unlike laser printers, which commonly employ internal fans, the DeskJet is completely silent when not actually printing. In operation, the only real noise is produced by the paper-handling mechanism, which clicks and clacks to itself in a reassuring way. The actual print process is almost inaudible—a muffled, adderlike hiss as each line is blown onto the paper.

The print quality of the DeskJet is superb. In letter-quality mode, print is in almost every way comparable to that produced by a laser or daisywheel device. The absolute resolution of the DeskJet is 300 dpi—equivalent, as noted above, to that of a standard laser engine. Indeed, because the inkjet process produces a slightly more feathery impression, the DeskJet print may appear to exceed laser quality under certain circumstances. The feathering produces a sort of artifactual anti-aliasing that reduces the impression that DeskJet characters—like laser characters—are made up of dots (see Figure 1). The DeskJet lags behind a laser, however, in its ability to cover large areas with uniform black or finely-figured halftones (see Figure 2).

The DeskJet and Software

In the absence of special software printer drivers, the DeskJet can print out only an ASCII character stream formatted with standard carriage return, line feed, and form feed control codes. (Such a stream is produced, for example, when you print a text file from the ST desktop.) To make use of the advanced features of the printer—multiple fonts and type sizes, italics, boldface, several styles of underlining, proportional spacing, superscripts, subscripts, fine vertical and horizontal positioning, and high-resolution dot graphics—you must either program the printer manually, via escape sequences, or install DeskJet drivers for each piece of software you use.

Though HP does not provide such drivers with the DeskJet package, they are readily available for most popular ST packages, and most of them are in the public domain. I was able to locate drivers for *1st Word* and *Publishing*

```
#include <osbind.h>
#include <bios.h>

#define PRINTER 0              /* BIOS printer handle */
#define ESC     27             /* ESC character (code 27) */

/* ESC sequences for DeskJet control */

char ml[] = {ESC,"*p150X"};    /* Printhead 150 dots from left margin */
char m2[] = {ESC,"*p154X"};    /* Printhead 154 dots from left margin */
char jm[] = {ESC,"*p+1100X"}; /* Printhead 1100 dots to right */
char sm[] = {ESC,"(s6V"};      /* Set 6 point type */
char bg[] = {ESC,"(s14V"};     /* Set 14 point type */
char ff[] = {ESC,"&l0H"};      /* Eject current page */
char lf[] = {13,10,0};         /* CR/LF combination (null-terminated) */

main(argc,argv)
int argc;
char **argv;
{
int i;
char buf[1000];
char *s = buf;

strcpy(buf,ml);          /* set left margin */
strcat(buf,bg);          /* set 14 point type */
strcat(buf,"EQUATION/Jainschigg Associates");     /* print this */
strcat(buf,lf);          /* linefeed */
strcat(buf,m2);          /* set left margin */
strcat(buf,sm);          /* set 6 point type */
strcat(buf,"INTELLIGENT MACHINES");               /* print this */
strcat(buf,jm);          /* move 1100 dots to right */
strcat(buf,"98 Kent Street, Brooklyn N.Y. 11222   (718) 383-9338");
strcat(buf,ff);          /* formfeed */
strcat(buf,ff);          /* formfeed */

i = atoi(argv[1]);       /* get # copies required */

for(;i > 0;i--){         /* produce copies */
     while (*s != '\0') Bconout(PRINTER,(int) *s++);
     s = buf;
     }
}
```

C program to create a letterhead on the DeskJet.

EQUATION/Jainschigg Associates

INTELLIGENT MACHINES 98 Kent Street, Brooklyn N.Y. 11222 (718) 383-9338

Figure 3. Sample output produced by letterhead program.

!"#$%&'()*+,-./0123456789:;<=>?@ABCD
EFGHIJKLMNOPQRSTUVWXYZ[\]^ `abcd
efghijklmnopqrstuvwxyz{|}~▒

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFG
HIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
pqrstuvwxyz{|}~▒

!"#$%&'()+,-./0123456789:;<=>?@*
ABCDEFGHIJKLMNOPQRSTUVWXYZ
[\]^_`abcdefghijklmnopqrstuvwxyz{|}~

!"#$%&'()+,-./0123456789:;<=>?@ABCD*
EFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdef

Figure 4. DeskJet Times Roman fonts, cartridge-based.

Partner (along with fonts) in Data Library 5 of CompuServe's Atari Productivity Forum (GO ATARIPRO), along with a stand-alone application to print out *Degas* pictures.

At least one company, Migraph (of *Easy-Draw* fame) has developed a GDOS driver and printer font library ($49.95) for the DeskJet, and this software should work with other GDOS-compatible software, such as Microsoft *Write* as well. Therefore, it should be fairly simple and inexpensive to outfit yourself with drivers and fonts that will enable you to use the DeskJet effectively in its "native mode."

Even if you can't, you still have several alternatives. Since the basic features of the DeskJet are accessed in a fashion compatible with the HP LaserJet, HP suggests that drivers for their more expensive laser printer may serve as interim solutions to special software interfacing problems. As a final alternative, a special cartridge, available at extra cost from HP, can make the DeskJet software-compatible with an Epson FX-80 printer. Though certain advanced features are lost under FX-80 emulation, it should always be possible to interface software to a DeskJet running in this plain vanilla mode.

The more technically-inclined may wish to exploit the advanced features of the printer by programming them directly, either by embedding escape sequences (a short stream of characters beginning with the ESC character—decimal 27—which is interpreted by the printer as a command) in text submitted from a word processor, for example, or by writing stand-alone printer control programs in Basic or another programming language.

The DeskJet is compatible with an extended version of HP's Printer Control Language (PCL) Level 3, meaning, in plain English, that an escape sequence exists to control virtually every aspect of printer operation, from graphics to envelope-feeding. A small C program to create a letterhead is shown in Figure 3, along with its output. Note that even in text mode, the Deskjet printhead can be positioned in an absolute or relative sense by individual dot position (units of $1/300$") as well as by "decipoints" (units of $1/72$") and character cells (units dependent on point size).

Fonts and Graphics

In its simplest configuration, the DeskJet supports only the Courier typeface (familiar to users of IBM Selectric

Figure 5. Sample page produced on the DeskJet with Publishing Partner.

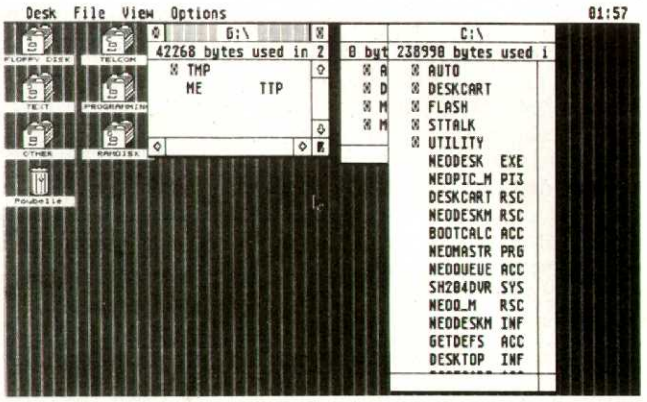


Figure 6. Captured medium-resolution screen, converted to Degas

Figure 7. Degas medium-res image digitized from a photograph and printed out on the DeskJet with the same public domain utility.

typewriters) in a variety of point sizes and pitches. Additional typefaces can be installed via font cartridge (Courier, Helvetica, Times Roman, Letter Gothic, Prestige, and Presentation cartridges are available, some in several formats offering a range of type sizes up to 14 points) or downloaded from disk, if you have the optional 128K or 256K of RAM installed.

Downloadable "soft" fonts number in the hundreds, and many are available in the public domain. In CompuServe's HP and Atari forum databases, I was able to locate at least a dozen excellent-quality monospaced and proportional fonts as well as font-downloading programs in GFA Basic and Pascal.

Once a font is installed in the printer, it can be switched into use either from the front panel of the printer or, more conveniently, under software control via escape sequence. Naturally, users who want to mix DeskJet native fonts in their documents will have to master the software-driver problem more completely than those who want to use just one font on a given page. This mastery may involve considerable trial and error with all but the most sophisticated word processors. Figure 4 shows a sample of the fonts available in the Times Roman font cartridge at approximately actual size.

As an alternative, font freaks may wish to drive the DeskJet graphically via a desktop publishing program. As noted above, most popular DTP software already supports or, as in the case of *Publishing Partner* 1.02 and higher, can be reconfigured to support the DeskJet, either through GDOS or with proprietary fonts and drivers. My experiments with *Publishing Partner* DeskJet/LaserJet drivers and fonts (only Helvetica and System were available as of mid-February) yielded satisfactory results (see Figure 5).

Likewise, as noted above, the DeskJet can be used like a laser printer, as a graphics engine. Though I was unable to find a resident ST graphic screen-dump emulator in the public domain, I did locate a stand-alone program capable of printing out *Degas* .PI1, .PI2, and .PI3 pictures. Its output is shown in Figures 6 and 7.

Conclusion

At $995 the HP DeskJet represents an excellent value for ST owners searching for an easy-to-use, versatile, true letter-quality printer with graphics capabilities. While certainly overkill for most home applications, the speed and print quality of the DeskJet make it a reliable, lower-cost alternative to a full-fledged laser for all but the most demanding business and home office applications.

There's no getting around the fact, however, that if you add in the RAM memory option, Epson FX-80 emulator, several font cartridges, and a few print cartridges per year of use, you're talking about a substantial piece of change for a full DeskJet installation—$1100 dollars or more, even at discount.

At that price, it might very well make sense to include a low-cost, GDOS-compatible laser printer such as the Atari SLM804 among your purchase options. While only a few hundred dollars more expensive than the DeskJet, the laser offers clear software-interfacing, speed, and overall quality advantages to the Atari user. ■

NeoDesk

System: Atari ST

Version reviewed: 2.02

Copy protection: Yes; Install program unprotects

Summary: Alternative desktop with convenient and powerful features

Price: $49.95

Manufacturer:
Gribnif Software
P.O. Box 350
Hadley, MA 01035
(413) 584-7887

Gribnif Software releases version 2.02 of its alternative desktop for ST power users

NeoDesk

By JOHN JAINSCHIGG

Most Atari users are admirably motivated to maintain current versions of the software they use. By staying up-to-date, they keep abreast of new developments and profit from new ideas. Most ST owners, however, don't realize that the ST desktop—the program they most often use—is software as well; therefore subject to updating, revision, and reinterpretation.

Updates appear, periodically, from Atari in the form of new ROM revisions. But the designers of the ST assumed that third-party manufacturers would also wish to reinterpret the desktop and distribute these reinterpretations on disk. Therefore, "hooks" that permit easy substitution of an alternative desktop for the standard one built into the ST ROM were built into GEM.

NeoDesk by Gribnif Software is an alternative desktop aimed at ST power users. The average ST owner (i.e., nonprogramming user of one or two basic applications) will probably not fully appreciate *NeoDesk*. However, anyone who does ST programming, employs the functions of the desktop frequently, requires more than four desktop windows open at one time, or simply wishes to alter the appearance of the desktop to more closely represent a particular nonstandard system configuration (or hey, make all the disk icons look like Bill the Cat, Gribnif doesn't care) will find *NeoDesk* a welcome addition to his software arsenal.

Getting Started

NeoDesk is distributed as a pair of executable files (NEOMASTR.PRG and NEODESK.EXE) plus resource files for color or mono. The executables are, according to Gribnif, rendered loadable by use of an Install program that requires you to enter registration information, formally agreeing to Gribnif's licensing terms. (Which are, basically, like everybody else's licensing terms; they don't want people to steal their software.)

Upon unprotecting *NeoDesk*, the Install program deletes itself. *NeoDesk* can then be copied freely and will execute from any drive. Since I'm a law-abiding kinda guy, myself, I followed Gribnif's installation instructions before testing to see if the *NeoDesk* files were viable prior to the installation process, so I can't confirm or deny. But since you end up with a piece of unprotected software in the end, I certainly don't see anything to beef about in going through this initial procedure. Clearly, Gribnif just wants people to take a moment to consider the implications of software use, both negative (it's not nice to steal software) and positive (if you buy software instead, you get low-cost upgrades and tech support). This is probably a good idea.

And you get more than just *NeoDesk* in the package. Three really interesting public domain packages are included as *lagniappe*—a command-line interface; a *Michtron Utilities*-style memory/file/disk editor, framed as a desk accessory (very nice!); and an autostart utility that will execute a GEM program on startup. This last can be put to use right away as a vehicle for loading *NeoDesk*, making the boot cycle a smooth transition to your new working environment.

This is done by copying STARTGEM.PRG to the AUTO folder, making sure that it is the last program to be saved there. Then, using any text editor, you create a STARTGEM.INF file in the root directory of your boot disk, containing a simple drive\path specification for the GEM application you want loaded automatically. For example, if you are booting from the hard drive and want to load *NeoDesk* automatically at boot time, STARTGEM.INF would probably contain C:\NEOMASTR.PRG.

Beware, however! If you fail to place a valid STARTGEM.INF file in the root directory of your boot disk (*not* the AUTO folder), the system may hang on bootup. This is no great problem if you boot from floppy but is a real hassle (not unrecoverable, but annoying) if you boot from the hard disk. I mention this, because it happened to big, smart, Senior Technical Editor me.

Once this is all done, however, the autoboot process is fairly unremarkable. STARTGEM.PRG is different from some of the GEM autostart utilities I have encountered, in that it seems to execute its target program directly rather than by taking over the mouse. This makes for neat, quick boots. Unfortunately, STARTGEM does not pro-

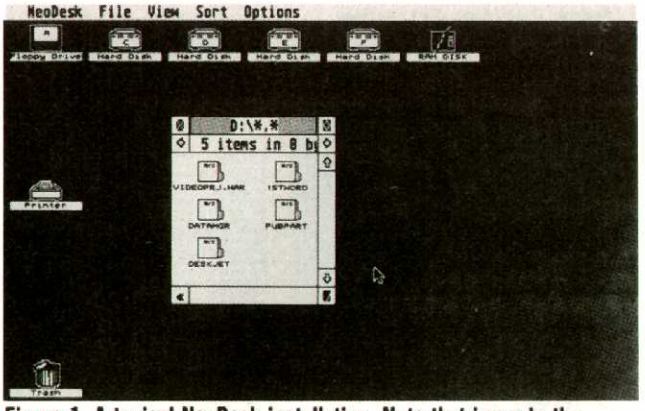


Figure 1. A typical NeoDesk installation. Note that icons in the window are arranged vertically, for clear visibility.

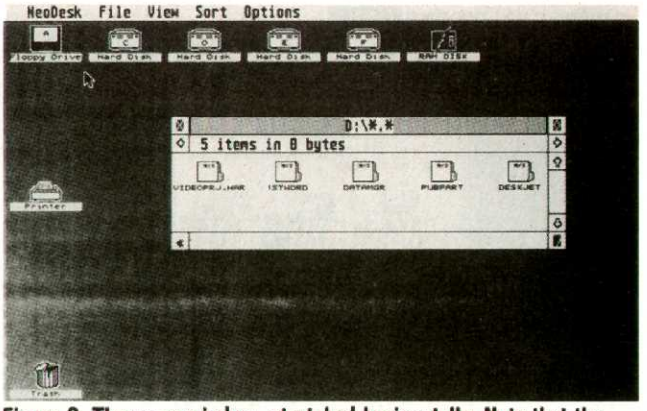


Figure 2. The same window, stretched horizontally. Note that the position of objects has changed, maintaining easy access.

vide a way to abort the autostart process, as some other programs do, so if this is important, you will probably want to substitute another utility.

Interestingly, version 2.02 of *NeoDesk* will autostart another application, if you wish. So, if you are in the habit of, for example, using your autostart utility to launch *1st Word* on boot, you can continue to do so under *NeoDesk*. Just use STARTGEM to launch *NeoDesk*, and let *NeoDesk* autostart *1st Word*. As an alternative to all of the above, you can simply load *NeoDesk* as you would a standard application.

Any program as complex as *NeoDesk* is bound to consume a significant amount of memory—about 150K, according to the manual, plus memory for buffers and, if desired, 32K for an alternative screen background image (more on this later). However, the two main *NeoDesk* executable files, NEOMASTR.PRG and NEODESK.EXE, work together to prevent memory problems.

If you have lots of memory, the whole *NeoDesk* system can be kept in RAM at all times. Otherwise, you can arrange (via the Set Preferences menu item) to have the NEOMASTR program unload the greater portion of *NeoDesk* prior to launching an application, leaving only about 24K in RAM. The desktop will be reloaded when the application exits. This works beautifully on a hard disk system, somewhat more slowly (but not onerously so) from floppy.

From what I can tell, *NeoDesk* is transparently compatible with virtually all TOS and GEM applications and desk accessories. Even the most powerful and tightly-written (hence, one assumes, fragile) of these last (DeskCart, for example) execute flawlessly in the *NeoDesk* environment. Compatibility problems seem more or less to be confined to certain meta-applications such as autobooters and TSRs.

Certainly, in my own normal suite of working software (your basic power user collection of productivity, graphics, number-crunching, and programming tools and DAs) I have found nothing that fails to work as advertised under *NeoDesk*.

NeoDesk works with GDOS and with GDOS applications, though it exhibits the same slight slowing-down as the regular desktop when forced to draw itself using GDOS calls. In general, *NeoDesk* is faster than the standard desktop, because certain graphic nonessentials such as growboxes have been eliminated.

Using NeoDesk

Upon loading *NeoDesk*, you are immediately struck by the new icon forms it implements. The standard GEM desktop is built around an office metaphor which represents components of the computing system as objects found in a traditional office (disk drives become file cabinets and so on). This approach employs a symbolism that assists new users in managing the difficult transition from traditional ways of working to computerized methods. It is perhaps less appealing to the experienced computer user, who might wish that his icon tools more powerfully signify the actual data-processing equipment and data objects at his disposal.

The default icons are thus "computery." The icon representing a floppy drive looks like a floppy disk; that for a hard drive is a good rendition of the SH204 front panel in perspective. The trash can remains a trash can (hard to think of another image that could express that idea more succinctly), and the printer is represented by a printer.

Wait . . . printer? Yes, indeed—the designers of *NeoDesk* decided to frame the printer—quite properly—as just another (in this case, write-only) peripheral. You can click-drag-copy items to the printer, just as you can from disk to disk. Moreover, a printer queue accessory, which lets you copy multiple files to the printer, then rearrange their order or delete them, prior to printing, is included.

The print queue is beautifully designed: it reads files from disk in 8K chunks and sends them to the printer via interrupt. You can run a GEM application in the foreground during this process, and the queue system will silently continue drawing information from the disk and sending it to the printer. TOS applications screw up this process slightly by making it impossible to properly arbitrate conflicting access to the disk drives. However, the print queue automatically blocks after 8K if you try to multitask with a TOS program and then (at least in theory, and insofar as I can determine, in practice) resume printing after the TOS program has terminated.

Note also that the *NeoDesk* print queue is not a general purpose, in-memory print spooler designed for use with applications. These also work under *NeoDesk* (usually), but they approach the printer through different channels.

But, back to icons. As noted above, a very nice set of default icons for peripheral devices, hard disk partitions, and basic file types is included with *NeoDesk*. But any or all of these can be changed, if you wish, using the icon editor. The desktop background can also be redefined to reflect any mode-valid combination of pattern and color.

Alternatively (fun stuff, here!) any mode-valid *NeoChrome* or *Degas* pic-

Figure 3. The Install Desktop Icon dialog, showing some of the NeoDesk default icons, plus a revised RAM Disk icon.

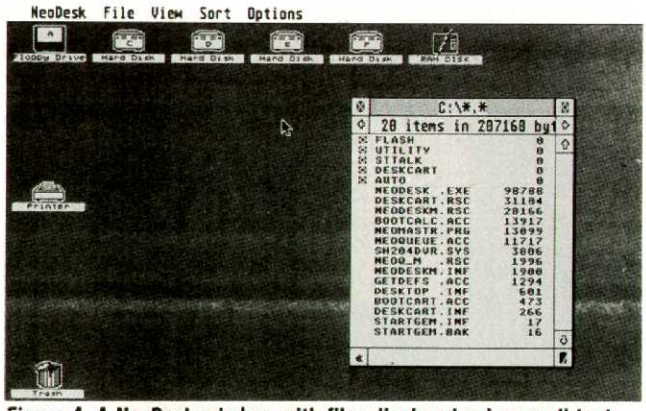


Figure 4. A NeoDesk window with files displayed using small text.

ture can be installed as the desktop background, simply by renaming it NEOPIC_M or NEOPIC_C (for mono or color, preserving the normal *Degas* .PI# or *NeoChrome* .NEO extender) and copying it to the directory in which you have placed the *NeoDesk* executables.

On to minutiae: while the normal graphic operations (click, select, drag, rubberbox, etc.) are supported by *NeoDesk*, they work somewhat better here than on the standard desktop. For example, peripheral icons can be positioned by pixel, rather than automatically snapped to an icon grid (automatic snapping is, however, supported via a menu item). Another example: when you use a rubberbox under *NeoDesk* to select multiple files, the box is anchored in the normal manner (by clicking within a window), but it can then be dragged in any direction, instead of just down and to the right.

NeoDesk permits the same kind of basic operations as the standard desktop: you delete objects by dragging them to the trash can and copy objects by lassoing them (or clicking on them) and dragging their shadows to another object.

The *NeoDesk* delete and copy functions are, however, more orthogonal than their standard desktop equivalents. You can delete all the files on a disk, for example, by dragging the disk icon to the trash (the standard desktop will tell you to reformat the disk instead). And you can copy the contents of one floppy to another under all circumstances. If the floppies are formatted in different ways, *NeoDesk* will offer you the option of performing a file-by-file copy or reformatting the target disk on the fly to match the source.

When copying, *NeoDesk* uses a buffer that exploits all of available memory, minimizing disk-swapping on single-drive systems, and it tells you how many disk swaps you can expect to make, if any are required.

Lots of Windows

Up to seven windows can be open simultaneously, in contrast to the standard desktop limit of four. *NeoDesk* windows themselves are "enhanced," in that they contain a vertical, but no horizontal, slide bar. This is because the drawing routines arrange icons or filenames within a window in such a way that none is completely hidden off to the right.

NeoDesk also supports a nifty set of Show as Text options, for those who prefer (as I do) to see their directories in this more informative fashion. You can display filenames using large or small type (to fit more into a small window), display them in one long column or in more than one column (optimized automatically to fit as well as possible in the current window), and display them with or without size, creation date, and time information (to fit even more in a small window). This is a killer feature set that will gratify those who began using *NeoDesk* with version 1.0, which did not support a Show as Text option.

The *NeoDesk* windows are enhanced in other ways, as well. For example, you can (finally!) impose a search template on the contents of a directory window. By selecting the Select Template option from the View menu, you can type in a search string, including wildcards, that will cause only those files whose names satisfy its conditions to be displayed in the currently active window. This vastly simplifies, for example, the matter of manipulating groups of files with similar, but not alphabetically-related names, and dissimilar extensions. The template imposed on a window can be turned off and on again as long as the window is open. When closed, the template reverts to the standard *.*, which displays all files.

In addition to template display, *NeoDesk* offers the standard data-object sorts—by name, size, date, and type (or extension). These are associated with function keys 1 through 4, making it easy to alter the way data is displayed, more or less on the fly.

A No Sort option (F5) is also supported. This causes items to be displayed in the order in which they occur in the physical directory of the disk, which is useful for determining, for example, whether a file is, in fact, the first or last file in the AUTO folder (many specialized programs want to be either first or last to load—for example, the autostart utility, STARTGEM.PRG, described above).

When no items in a window are selected, the information line of the window shows the number of items and total number of bytes in all items in the window. Selecting a single item causes the information line to display the size in bytes, dates of creation and last modification, and protections of the selected item. Selecting more than one item causes the line to display the number of items selected, and the sum of the number of bytes they represent. Regardless of current window width, the information line can be scrolled left or right with arrow buttons to reveal all the data it contains.

This status display is a very handy feature, particularly when used in combination with template pattern-matching. The Show Info dialog is similarly enhanced when used with files, supporting a Touch facility that can be used to change the date and time stamp of a file

to match the current clock, as well as the usual file protections (read-write/read-only). This is very useful for programmers who employ Make and similar date-time-sensitive utilities.

When used with floppy disks, Show Info reveals volume name, formatting data, and number of bytes used and free, and total bytes. When used with folders or hard disk volumes, it reveals creation dates, number of subsidiary folders, and other relevant material. All of these functions are substantially improved over their standard desktop equivalents.

All of the major features of *NeoDesk* can be accessed by control-keypress combinations or other keystrokes. While not especially necessary, this is a nice addition, and certain of the keyboard controls are very useful. For example, windows and information lines can be scrolled using the arrow keys—a very nice touch, and something that I have already used a lot.

Menu-by-Menu

NeoDesk is so feature-laden that it poses a real problem for a reviewer with limited space at his disposal. Perhaps I can best summarize the rest of the most significant features by describing them in the order in which they appear.

NeoDesk will format floppy disks with between 79 and 82 tracks per side, using either 9 or 10 sectors per track. It handles "twisted" formats automatically and writes MSDOS-valid boot sector information on all disks it formats, guaranteeing compatibility with IBM 3½" drives.

The Install Application facility of the GEM desktop has been enhanced by the addition of support for .TOS, .TTP, and .BTP (*NeoDesk* batch-file processor) file types.

An Edit Environment feature permits entry and maintainance of up to ten environment strings of the form NAME=VALUE. Though as noted in the *NeoDesk* manual, most programs ignore the environment pointer they are passed on execution, certain significant ones (for example, the Mark Williams C compiler) can exploit this information.

Set Preferences has been severely enhanced. With *NeoDesk* you can select Copy (selected files are duplicated at destination), Move (selected files are moved to destination and originals deleted), or Ask (desktop inquires whether file operations are to be processed as Copy or Move) mode. You can specify whether the desktop is to confirm deletes and overwrites and/or to pause for a keystroke or mouse-click after TOS applications (very useful—many TOS apps return so swiftly to GEM under the normal desktop that you can't read the last bits of information they return).

You can also specify whether or not to dump and reload *NeoDesk* on program execution. Here, you can also specify an alternative search path for *NeoDesk* executables, a path for the system batch-file interpreter, and a program to auto-execute at load time.

As noted, *NeoDesk* includes a batch-file executive called COMMAND.TOS, which supports a variety of interesting commands. Unfortunately, it is undocumented. No matter, really—the *NeoDesk* batch-processing subsystem will support any shell or CLI that recognizes command line parameters passed to it on execution. Michtron's DOS Shell is said to work, as does the Mark Williams MSH shell.

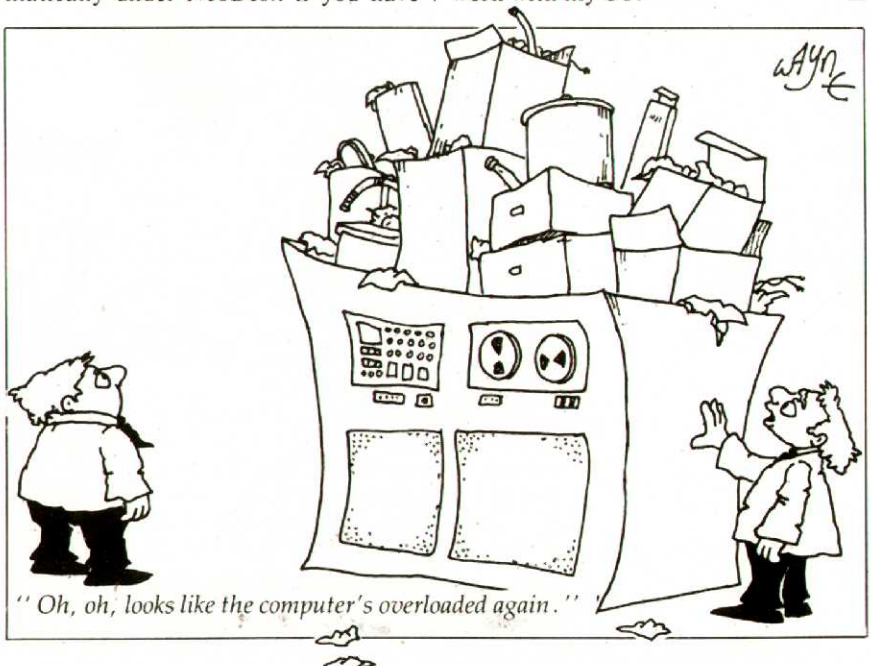
You can execute a batch file automatically under *NeoDesk* if you have installed the batch processor as an application. Alternatively, pressing Control-B from the desktop will bring up a command-line interface that you have installed under Set Preferences. Also, if you have done this last and want a batch file executed automatically at load time, simply rename the batch file NEOAUTO.BAT and put it in the same directory as *NeoDesk*.

Even the most powerful and tightly-written (hence, one assumes, fragile) desk accessories execute flawlessly in the NeoDesk environment.

Documentation

NeoDesk is documented very nicely. Each feature is discussed at some length in a well-written, professionally-printed, 69-page manual. The manual is unindexed, but a complete table of contents is offered.

All in all, *NeoDesk* is one of the most impressive pieces of basic system software I have seen—so impressive that it has become part of my own working ST system. As I begin to adapt to the luxury of the powerful features *NeoDesk* affords, it will undoubtedly become even more significant in defining the way I work with my ST. ■



"Oh, oh, looks like the computer's overloaded again."

DeTerm

A feature-laden terminal program for 8-bit users

DeTerm

System: 48K Atari 8-Bit Computer
Version reviewed: 1.59
Copy protection: None
Summary: An excellent terminal program, loaded with features
Price: Shareware
Author:
Jim Dillow
P.O. Box 2552
Sarasota, FL 33578

My copy of *DeTerm* came via CompuServe, but I am sure that you can obtain it from other sources as well. *DeTerm* is shareware, which is to say that although it is freely available, it is not technically free; the author expects (or at least hopes) that users will compensate him for his efforts. If you decide to add the program to your library, I urge you to do so.

I had been aware of *DeTerm* for some time but, because I was quite satisfied with the 8-bit terminal programs I was using, never seriously considered trying it. Recently, however, the rave reviews on my local user group BBS piqued my curiosity to the point where I could no longer resist having a look.

I liked what I saw and now pass on to you my version of a rave review.

Requirements

DeTerm is written in assembly language and will run on any Atari 8-bit computer with at least 48K of RAM and one disk drive.

There are versions for MPP, Hayes-compatible, and Atari SX212, XM301, and 1030 modems and for the Atari 850 and the ICD MIO and P:R: Connection interfaces. There is also a version that comes without a booter or handler, so you can supply your own.

Operating systems with which *DeTerm* works include Sparta DOS, MyDOS, and Atari DOS 2.0 and 2.5. It also supports RAMdisks.

Using the Program

DeTerm uses a GEM-like interface, complete with windows and pulldown menus. You navigate around the screen and access the menus by pressing Option and Select and the left- and right-arrow keys. Once the desired menu is displayed, you use the up- and down-arrows to make you selection.

Help files, which are available for all commands, can be called up simply by placing the cursor bar over the menu header or command and pressing the ? key. I printed out the Help files as an additional aid but found that I could navigate easily without referring to the printed copy.

The most unusual feature of *DeTerm* really has nothing to do with telecommunications. The author has included a game—a simple version of Breakout—which gives you something to do while waiting for a connection or during a long download. The game is accessed via a Control-Shift keypress combination.

Other functions you can activate via Control-Shift combinations are word wrap, duplex, translation, and edit window toggles, timer reset, screen-to-buffer snapshot, clear buffer, escape from terminal mode, and send macros. You can also use a joystick to send commands directly to your modem.

The file transfer protocols supported by *DeTerm* are Xmodem (128-byte blocks; 1-byte checksum), Xmodem CRC (128-byte blocks; 2-byte checksum), and Xmodem 1K (sometimes called Ymodem; 1024-byte blocks; 2-byte checksum). Ymodem Batch download and upload are also supported. During both download and upload, a data window provides information about the activity taking place—number of frames, blocks, and attempts, and elapsed time in minutes and seconds.

The Modem menu allows you to maintain, in addition to the normal list of phone numbers by name, a list of numbers by city—a handy feature for users of PC Pursuit.

The author has included a simple version of Breakout, which gives you something to do while waiting for a connection or during a long download.

The Disk menu offers a bountiful selection of operating system functions—the best I have found in a terminal program. Essentially, it allows you to use most of your DOS functions—from examining the contents of a file to formatting a disk—without exiting the program.

Although I was reluctant to abandon my old faithful terminal program for an untried new one, now that I have used *DeTerm* for a while, I am glad I did, and I urge other 8-bit telecommunicators to do the same. ■

By DAVID NOYES

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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.

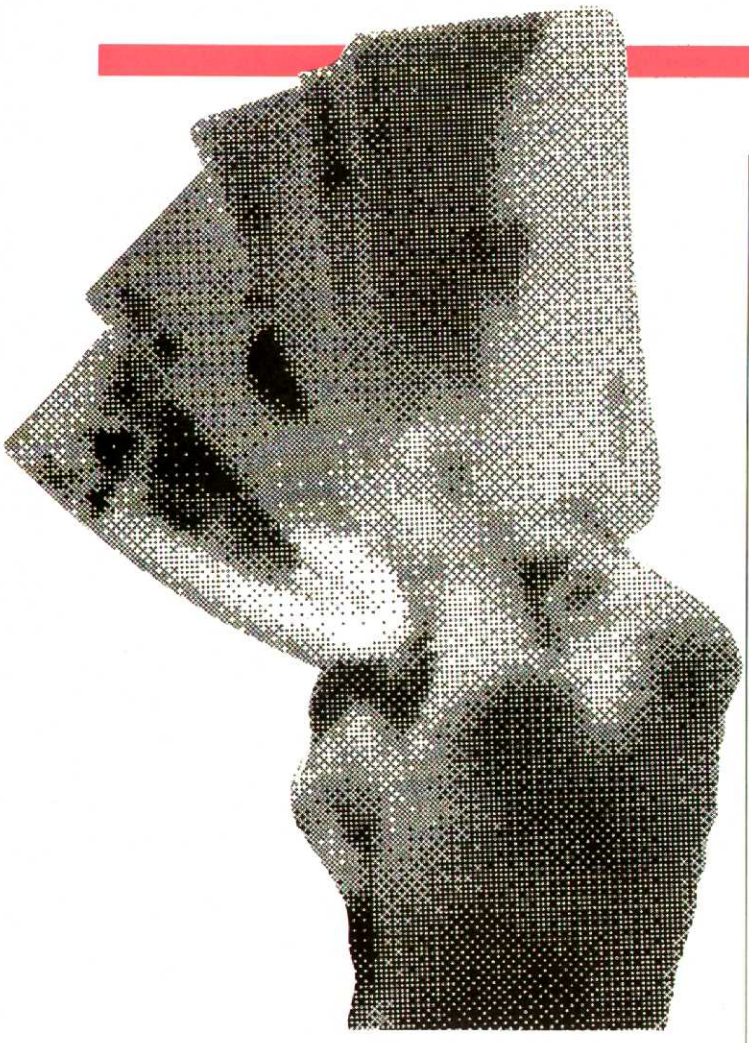
8-Bit Programs

Action, ICD/OSS	3.6	**Lightspeed C**, Clearstar Softechnologies	3.0
B/Graph, Electronic Arts	1.1.1	**MYDOS**, Supra	4.3
Bank Street Writer, Broderbund	1.0	**MagniPrint II+**, Alpha Systems	4.1
Blazing Paddles, Baudville	04422	**Parrot II**, Alpha Systems	2.8
Celebrity Cookbook, Merrill Ward	2.0	**Print Shop Companion**, Broderbund	1.0
Chipmunk, Microdaft	3.04	**Print Shop**, Broderbund	1.0
ComputerEyes, Digital Vision	1.3	**QuickCode**, Stardust	1.1
Desktop Performance Studio, Virtusonics	1.4	**Scanalyzer**, Alpha Systems	3.6
DOS XE, Atari Corp.		**SpartaDOS Construction Set**, ICD/OSS	3.2D
Draper Pascal, Draper	2.0	**Super Archiver**, Computer Software Services	3.03
Elite Personal Accountant, Clearstar Softechnologies	3.0	**Super Archiver II**, Computer Software Services	3.03EHN
Enhancements To Basic II, Hathaway Electronics	5.0	**Top-DOS Plus**, Eclipse	1a
FlashBack, ICD/OSS	1.4	**Top-DOS Professional**, Eclipse	1c
Guitar Wizard, Baudville	11602	**Top-DOS**, Eclipse	1.5a
Kyan Pascal, Kyan	2.02	**Turboword Plus**, Micromiser	1.0

ST Programs

1st Word Plus, Prospero	2.02	**DigiSound**, Alpha Systems	1.62
1st Word, Atari	1.06	**Disk Library**, Classic Image	1.2
•**Accounting Series**, Hi-Tech Advisers	4.00	**Dollars & Sense**, Monogram	1.2
APL.68000, Spencer Organization	6.05C	•**DynaCAD**, ISD Marketing	1.42
Aegis Animator, Aegis Development	1.2	**EZ Calc**, Royal	1.33
Alice Pascal, Looking Glass	1.5	**EasyDraw**, Migraph	2.3
Animatic Animation System, Kinetic Microsystems	1.0	**Edit-8000**, Savant Audio	1.1
Athena II, Iliad	1.9	**Edit-DSS**, Savant Audio	1.0
Award Maker Plus, Baudville	23716	**First CADD**, Generic	1.0
BB/ST, QMI	1.12	**Flash**, Antic	1.6
BBS Express ST, ICD/OSS	1.3	•**FlashBack**, ICD/OSS	2.2
Backup, MichTron	1.94	**Fleet Street Publisher**, MichTron	1.1
CAD 3D, Antic	2.03	**Fontz**, Neocept	1.11
•**Calamus**, ISD Marketing	1.081	**Fortran for GEM**, Prospero	2.14
Church Manager, Hi-Tech Advisers	2.0	•**Fuel-Pro**, Hi-Tech Advisers	4.00
ComputerEyes Color, Digital Vision	1.32	**GFA Basic**, Antic	3.0
ComputerEyes Mono, Digital Vision	1.0	**Hard Disk Accelerator**, Beckemeyer Development	1.13
Copy II ST, Central Point	2.5	•**Hard Disk Toolkit**, Beckemeyer Development	2.00
Cross-16, Memocom Development Tools	2.2	**IS Talk**,Electronic Arts	2.03
Cyber Mate, Antic	1.1	**Interlink ST**, Intersect	1.85
Cyber Paint, Antic	2.0	**Inventory Manager**, La Foret	1.2
Dac-Easy Accounting, Dac	1.0	**Inventory Master**, Royal	1.5
Dac-Easy Payroll, Dac	1.0	**Inventory-Pro**, Hi-Tech Advisers	4.00
Data Manager ST, Timeworks	1.1	**LDW Basic Compiler**, Logical Design Works	2.03
•**DataTrieve**, Abacus	E2.05	**LabelMaster Elite**, Migraph	1.0
Degas Elite, Electronic Arts	1.1	**Laser C**, Megamax	1.01
dbMan, Atari	4.0	**MT C-Shell**, Beckemeyer Development	1.20
DeskCart, QMI	1.02	**Magic Sac**, Data Pacific	6.1

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	2.73
Micro RTX Developer Kit, Beckemeyer Dev.	1.13
Modula 2, Jefferson	1.5
Modula-2, TDI	3.01A
Multi-Manager Professional, New World	1.6
Multi-Manager, New World	1.0+
NeoChrome, Atari	1.0
PC-Ditto, Avant-Garde Systems	3.01
Partner ST, Timeworks	1.0
Pascal for GEM, Prospero	2.14
•**Payroll Master**, Royal	2.3
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	2.0
Professional OS-9/ST, Microware	2.2
•**Prospero C**, Prospero	1.12
Publishing Partner, SoftLogik	1.03
Real Basic, Computer Crossware Labs	1.3
Regent Base 2, Regent	073088
Regent Word 2, Regent	870827
•**Regent Word Student**, Regent	9/14/88
Revolver, Intersect	1.1
ST Control, Trio Engineering	1.5
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**, Hi-Tech Adviserp	4.00
Sales-Pro Plus, Hi-Tech Advisers	4.00
Solapak, Solar Powered Software	3.0
•**SQL Database**, Regent	1.0
Super Directory, MichTron	2.0
SuperBase, Precision Incorporated	1.049
SuperBase Professional, Precision Incorporated	2.03
•**Super Sales-Pro**, Hi-Tech Adviserp	4.00
•**SwiftCalc ST**, Timeworks	2.0
SwitchBack, Alpha Systems	2.0
The Chameleon, Future Software Systems	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	1.4
Tweakit, Savant Audio	1.0
•**Ultra-Speed Plus**, Computer Software Services	1.5
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



Gambling On Your ST

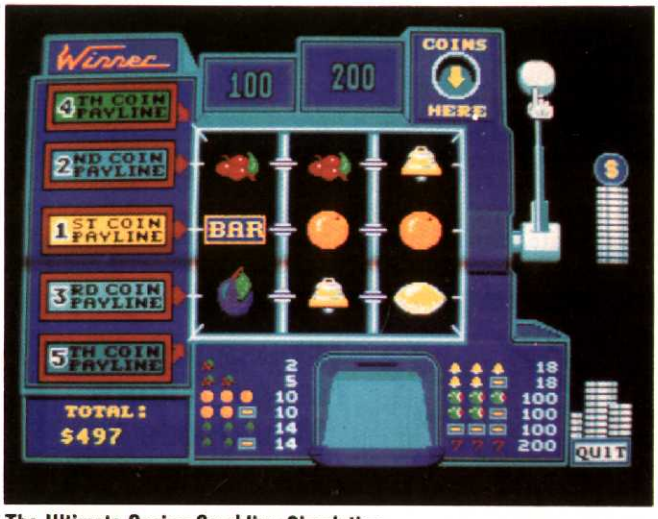
Casino simulations for Atari gamers

The ability of the computer to simulate the random distribution of cards, colors, numbers, and other symbols on which "games of chance" are based makes it the perfect partner for those who enjoy gambling but may have trouble finding the friends or funds with which to do the real thing.

Casino simulations have existed in other formats for years, but ST programmers seem only recently to have discovered that card games and other mainstays of the Las Vegas/Atlantic City trade can provide a welcome respite from the violence of shoot-'em-ups and the intensity of adventures games.

A quick glance at our software review

Aussie Joker Poker



The Ultimate Casino Gambling Simulation

Vegas Craps

By R. BRADLEY ANDREWS

Aussie Joker Poker

System: Atari ST

Copy protection: None

Summary: An imported multi-player game with an interesting twist

Price: $49.95

Manufacturer:
Joker Software
P.O. Box 22380
Gilroy, CA 95021
(408) 848-4391

Ultimate Casino Gambling

System: Atari ST

Required equipment: Color monitor

Copy protection: Yes

Summary: Trump Castle with an obtrusive interface

Price: $39.95

Manufacturer:
Capstone
14160 S.W. 139th Ct.
Miami, FL 33186
(305) 252-9040

Home Casino

System: Atari ST

Required equipment: Joystick optional

Copy protection: Yes

Summary: A nice collection of card games in a Plain Jane wrapper

Price: $39.95

Manufacturer:
Omega Soft
P.O. Box 139
Harrells, NC 28444
(919) 532-2359

shelf recently revealed four casino-inspired games for the ST. Let's take a look at them.

Aussie Joker Poker

Aussie Joker Poker is based on a version of poker that features an interesting twist. As the game begins, you are dealt a hand of five cards. You can then accept the value of the hand as it was dealt or discard and replace one or more cards in an attempt to improve it. This process can be repeated indefinitely, as long as you improve your hand with each redeal. Should the redeal produce a hand of equal or lower value, you bust and receive no points for that game.

The value of a hand is determined just as it would be in a poker game. A pair of kings, for example, is worth more than a pair of tens. The hand that earns the most points, a royal flush, is also the hand that is the least likely to occur.

In addition, the suits are ranked, with red cards being worth more than black ones. Thus, a player who risks two black queens and draws two red queens is allowed to continue.

A game consists of a series of hands—usually about three. Two or more players must complete in each game, and the player who ends up with the highest score wins. Each player completes his hand, by either busting or staying with a hand he likes, before control is passed to the next player. This gives later players an advantage, because they know what score they must beat. This works out well in practice though, because the order of play is determined by the scores of the previous hand, with the high scorer playing first.

The sound and graphics in *Joker Poker* are acceptable. The screen is very colorful, but there is little depth to the display. Either the keyboard or the mouse can be used to control play, and both work well.

The instructions that come with the package cover the fundamentals of game play and even suggest a way to use the game as an icebreaker at a party. Up to 90 people can play, so this could actually work—especially if a prize is offered for the highest score of the evening.

Ultimate Casino Gambling Simulation

The next game on the table is *The Ultimate Casino Gambling Simulation*, a program based on the games played at Trump Castle in Atlantic City; Blackjack, Roulette, Craps, Keno, Video Poker, and Slot Machines are all included.

The graphics here are, again, merely adequate. While colorful, the display has the same two-dimensional look we saw in *Joker Poker*. Even the Roulette wheel, which comes closer to looking three-dimensional than any of the other games on the disk, lacks the depth we know is possible in ST graphics.

The Home Casino version of Blackjack goes beyond the basic game, offering many added features.

The biggest shortcoming of the game, however, is in the user interface. A keyboard guide for the IBM PC is included, but none of the listed keys works on the ST, so the mouse must be used for nearly all input. This might be acceptable in some games, but in *Ultimate Casino*, you are required to perform many of the tedious tasks associated with gambling over and over again, which can lead to extreme fatigue of your mouse hand and your brain. For example, prior to each pull of the slot machine handle, you must drag a coin over to the input slot of the machine.

This gets very tedious very quickly; some way should have been provided to repeat the bet made on the previous pull in one action. While this may be a true simulation of the motion required, it interfered with my enjoyment of the game.

Ultimate Casino uses the password method of copy protection, which usually allows you to use a backup copy as long as you have the original documentation on hand to provide the password. I was not, however, able to load a backup copy of the program, which both annoyed and perplexed me.

Home Casino

Home Casino is a game that reinforces the admonition against judging a book by its cover or a software package by its box—or lack thereof. The packaging is very basic—a reminder of a less sophisticated time, when users were so happy to find software of any kind that they seldom gave a thought to the paper or cardboard in which it was wrapped.

Plain Jane packaging notwithstanding, *Home Casino* is a respectable product that is well worth a second glance. The package includes three popular card games—Stud Poker, Draw Poker, and Blackjack. Draw poker is actually a rendition of the Video Poker machine theme with some additions, including jokers and wild cards. You are dealt five cards. You can then discard and replace as many of them as you want. The new hand is then scored, with a pair of Jacks or better usually the requirement for the minimum payoff.

Stud Poker is played with any combination of four human or computer players. If you use computer opponents, you choose from six players, each of which has a slightly different playing style—a feature that adds color to the game.

The version of Blackjack also goes beyond the basic game, offering many added features. Once again the graphics have a two-dimensional look, though somehow this game is more satisfying graphically than the other two. [*Unfortunately, we can't show you a picture of these great graphics, because Omega Soft was unable to provide one.—Ed.*] The sound is also simple, supplying an innocuous backdrop to play.

While control is limited to either keyboard or joysticks, several combinations of these are available, so you should be able to find one that is comfortable for you.

Vegas Gambler and Vegas Craps

Vegas Gambler and *Vegas Craps* are separate programs sold by the same publisher, Logical Design Works. While the games covered are quite different, the packages have a very similar look and feel.

Vegas Craps is billed as a complete simulation of the game of Craps—complete enough to prepare you for a trip to a real casino—and it lives up to that billing. *Vegas Gambler*, which includes Slot Machines, Blackjack, Video Poker, and Roulette, also offers faithful renditions of their casino counterparts.

Vegas Gambler and Vegas Craps

System: Atari ST

Copy protection: Yes

Summary: Good versions of casino games with quality graphics and a simple interface

Price: $34.95

Manufacturer:
Logical Design Works
780 Montague Expwy.
Suite 403
San Jose, CA 95131
(408) 435-1445

The graphics in these two packages are by far the best of the bunch. While the display is obviously in two dimensions, the games really give you the feel of playing with 3-D cards, chips, and dice. And while the mouse is required for all input, in this case, control is smooth and unobtrusive. Both games use the password method of copy protection.

When the Chips are Down

Even though each of these packages includes a different selection of gambling games, they can be compared on on the bases of play value and accuracy of implementation.

Ultimate Casino falls at the bottom of my rating scale because of its cumbersome user interface, which requires that you spend more time involved in the mechanics of moving bets than in the enjoyment of play.

Next comes *Aussie Joker Poker*. The concept is novel and entertaining, but the graphics in this import are fairly simple and at least two people are required for play, unless one person wants to play two hands. As most computer gamers know, it isn't always easy to find a partner when you want to play.

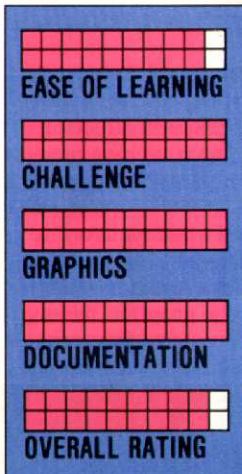
Home Casino manages to outshine its simple packaging with decent graphics and effective control. It should provide many hours of enjoyment for card game fans.

My top award goes to *Vegas Gambler* and *Vegas Craps*. The quality graphics and intuitive interface common to these two packages combine to create a first-rate playing experience. ■

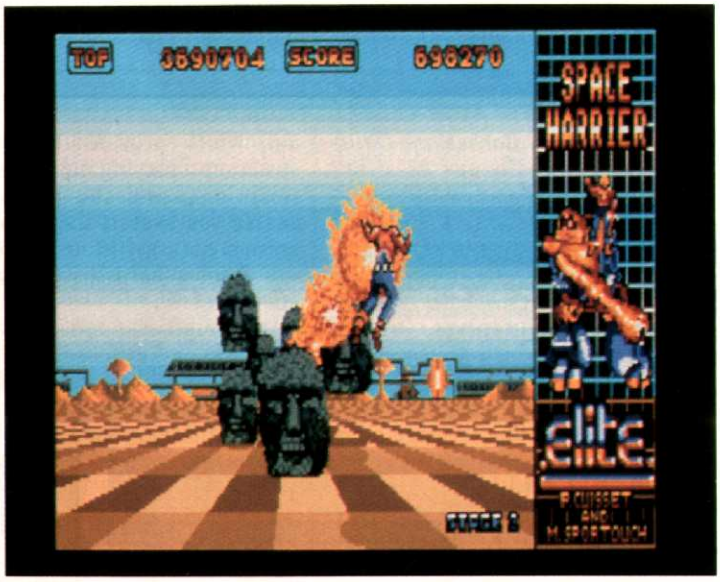
Software Survey

Lots of new software packages to fill the shelves of your library

Space Harrier



System: Atari ST
Required equipment: Color monitor
Copy protection: Yes
Summary: 3-D shoot-em-up with marvelous graphics
Price: $49.95
Distributor:
Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667



Well I remember the night I first saw the original arcade version of *Space Harrier*. The 3-D graphics were amazing, and the symbolism bizarre: segmented dragons out of Chinese mythology, floating in figure-eights over surreal terrain; stone heads from Easter Island, levitating and throwing fireballs. I blew a good handful of quarters learning to navigate this dreamscape and have waited patiently for somebody to come out with a decent home version.

My assumption was that no standard home computer could reproduce the visual quality of the arcade version—but Sega's release of *Space Harrier* for the ST is—there's no other word for it—superb. Virtually every graphic nuance of the arcade version of Harrier has been preserved.

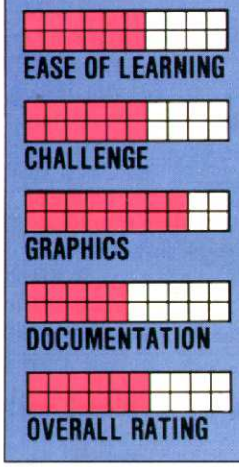
Briefly, the player stares over the shoulder of his hero, who runs or levitates toward his opponents over a 3-D landscape filled with obstacles. Each round of the game comprises a new landscape and a new combination of foes—dragons, levitating boulders, stone masks, cyborgs, and more. Enemies approach repeatedly, then glide into the distance, breaking apart and attacking separately, then attacking in formation.

The game requires extraordinary reflexes, and the 3-D effects are exploited beautifully. Adding to the fun are digitized sound effects (including the death scream of the hero—quite chilling) and a lively and interesting musical score.

It is rare to find any game that combines so much good imagery with so much playability. Sega's *Space Harrier* is a real gem, and will win even more fans for this modern-day classic.

—John Jainschigg

Global Commander



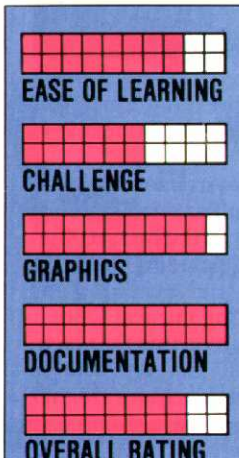
System: Atari ST
Required equipment: Color monitor
Copy protection: None
Summary: Futuristic run-the-world simulation that doesn't quite make it
Price: $39.95
Manufacturer:
Software Toolworks
19808 Nordhoff Pl.
Chatsworth, CA 91311
(818) 885-9000

Global Commander, gives you the opportunity to assume the role of commander of the forces of the United Nuclear Nations, a global entity made up of all of the nuclear powers in existence at the time of its creation. Members include the United States, Canada, and the Soviet Union, as well as such newcomers to the nuclear club as the Black African Alliance, the Central American Alliance, and Israel.

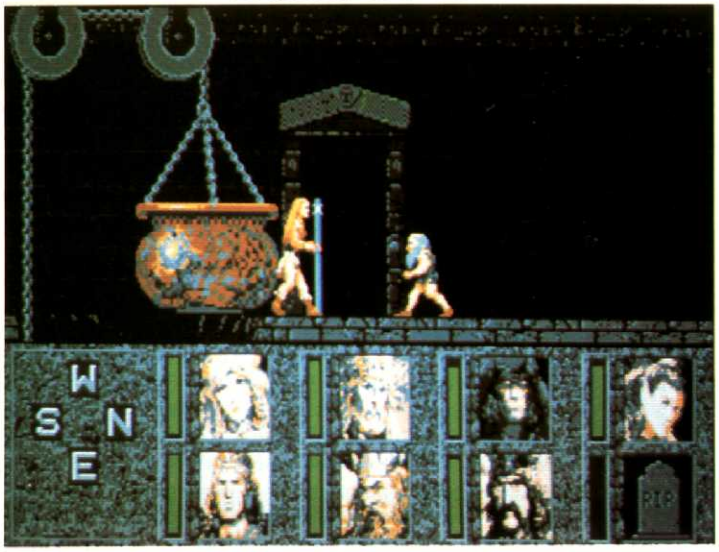
The job of the global commander is to keep the peace during his term in office—not an easy task, because although these countries have joined together to form the UNN, they are not quite what you would call bosom buddies. Armed conflict is still a possibility, and the commander must use his resources to keep the member nations under control and, if an outbreak occurs, to minimize the damage it causes.

Predictably, the member nations were unwilling to cough up the money required to make the UNN forces strong enough to truly keep the peace.

Heroes of the Lance



System: Atari ST
Required equipment: Color monitor; joystick optional
Copy protection: Password
Summary: Good arcade game; poor adventure
Price: $39.95
Manufacturer:
Strategic Simulations
1046 N. Rengstorff Ave.
Mountain View, CA 94043
(415) 964-1353



Like *Moebius*, *Barbarian*, *Obliterator*, and dozens of other graphic/arcade adventures, *Heroes of The Lance* offers excellent graphics. The characters in your party of eight adventures are rendered in skillful detail, as are the hordes of trolls, spiders, draconians, dwarves, wraiths, and dragons with which you must do battle.

Heroes of the Lance comes on three single-sided disks with a 25-page manual, which provides background, instructions, playing tips, character descriptions, and the passwords that enable you to start the game. The program is not copy-protected, so it can be run from a hard drive if you have a 1040ST.

Although the movement controls (joystick or keyboard) are somewhat sluggish, the arcade quality of the combat scenes in *Heroes of the Lance* is excellent: some characters can run and jump; others can fly; some fight with swords; others fight with spears, bows, slings, axes, or magic. Sound effects include the footfalls of approaching monsters, the clash of swords, and the grunts of fury in battle.

However, the first time you try to switch heroes, magic spells, or clerical spells the user interface reminds you all too effectively that the program has its roots in MS-DOS. You must first press the spacebar to invoke the main menu,

Therefore, the resources available are limited and must be used judiciously. Your resources include a six-satellite SDI-type laser defense system; four big bird satellites, which allow you to spy on member countries to verify their compliance with the UNN charter; and a small force of elite soldiers, which can make its presence felt in any one member country, usually with the result that that country becomes very friendly with the GC.

The pen, while never mightier than the sword in this game, definitely has some power. The GC can write to request that members perform actions that will enhance world peace. Whether a country complies or not can be problematic, but in general, countries are willing to comply with requests for technology and food transfer, though most are loath to make reductions in their missile totals. The GC can also send letters of reprimand or commendation and call for talks between member countries.

Game play is mouse-controlled through interaction with on-screen icons and pop-up windows. This provides a very intuitive interface, which helps you get started quickly, but it becomes cumbersome once you learn your way around the game.

The main drawback in the game is the lack of action. After several turns of redistributing food and technology and lowering some missile levels, nothing much seems to happen until a war breaks out. It is also hard to understand how the GC's actions affect the course of events. When things are going well, the game is almost boring, but wars can arise unexpectedly and ruin your whole day.

Another shortcoming is the inability to get an overview of the entire world situation on the screen. Play aids help you to keep track of the relations between countries, but these do not integrate well, and they tend to lose their usefulness after several games.

Unfortunately, *Global Commander* does not live up to its billing and can be recommended for only a limited audience. You must spend many hours playing the game to gain a good feel for what you must do to become a successful global commander, and I doubt that the average player will be willing to make that investment. ***—R. Bradley Andrews***

which then allows you make the switch; use, take, give, or drop an item; save or restore a game; check your score; or exit the menu. It is a cumbersome system that does not add to your enjoyment of the game.

Nevertheless, *Heroes of the Lance* is a decent and playable arcade game.

When considered as an adventure game, however, *Heroes of the Lance* leaves something to be desired. In designing this game, the programmers at Strategic Simulations have fallen into the trap that has ensnared many modern movie producers—too many special effects and not enough character or plot development.

To begin with, the game presents a world that is populated by evil creatures and your party of eight adventurers—no one else. You fight the creatures, but you never interact with them, and aside from a few traps and many dead-end paths, they are the only obstacles you face—not very exciting or realistic.

In playing the game, you travel in aimless circles until at last you stumble upon the trail that leads you deeper into the dungeon. Now I don't mind being misled by a game, if the programmer gives me a chance to use my wits to extricate myself, but this wandering is not misleading; it is cheating. I felt as if the game were stealing my time with unproductive, non-entertaining activity.

Another thing the game lacks is meaningful goals. Although you are given a token goal—to descend into the dungeon and recover the Disks of Mishakal—the true object of *Heroes of the Lance* is to score points by collecting gold, shields, swords, and other items, none of which you ever really need. In fact, after you have completed the game once, you will find that you can proceed directly to the end without retrieving any of the objects that are found along the way.

As for the details that can bring a fantasy world to life, *Heroes of the Lance* provides nothing of value. Your heroes never get hungry or thirsty, nor do they need rest. Each of the eight characters has a different appearance and special abilities, but none of them ever grows stronger or smarter with experience. In short, there is nothing *involving* about the game.

My conclusion? *Heroes of the Lance* is an arcade game, not a role-playing adventure. If you want an arcade game, you will enjoy it, but if you are looking for an adventure, spare yourself some disappointment and steer clear of this one. ***—Mike Harrington***

StarRay

EASE OF LEARNING

CHALLENGE

GRAPHICS

DOCUMENTATION

OVERALL RATING

System: Atari ST

Required equipment: Color monitor; joystick optional

Copy protection: Yes

Summary: Space arcade game with great graphics and lots of action

Price:$29.95

Distributor:
Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1200

You've made it! You have finally graduated from StarRay training school, and you have a fighter of your own to command. Ever since seeing your first space opera show, you have coveted this opportunity, and you are about to embark on what you hope will be a long career with a patrol on the planet Gorbaxa.

So begins *StarRay*. You command one of the galaxy's fastest and most nimble space ships, fighting 21 waves of aliens on seven different worlds. As mentioned, play begins on the planet Gorbaxa, where the unused Kryptium-Energy Cells from mammoth star cruisers are stored.

If you successfully fend off three waves of aliens, you can move on to the planet Sirion, where, once again, you must protect the outpost from three waves of alien attacks. Should you survive this mission you can go on to Sharlon and the four other worlds that require protection.

The game screen offers a side view of the action and horizontal scrolling similar to that of the arcade classic Defender. The planet itself is small, and flying straight to the right or left eventually brings you back to your starting point. Each world has its own highly detailed backdrop, which adds to your enjoyment of the game.

Also unique to the various levels are your opponents—giant mosquitos on the forest planet, for example. Similarly, the bases you must protect range from simple fuel containers to an elaborate mushroom-shaped edifice.

Your craft is armed with a super laser and a limited supply of vaporizers, which come in handy when you want to eliminate a screenful of aliens all at once. Some aliens, when shot, leave behind special bonus balls, which provide bonuses such as increased speed or limited invulnerability. To keep the bonuses in effect, you must be careful not to destroy the balls.

Each time your ship hits an alien or its bullets, your power is drained. The game is over when your power runs out. Bonus power is added after every third wave, giving a needed boost. Play also ends if all of the your bases are destroyed.

You can control your StarRay fighter with either a joystick or the keyboard. Unfortunately, however, the vaporizer button is on the keyboard, so it is very difficult to use it during joystick play.

StarRay is an exciting action game that should be part of the software library of any arcade action fan.

—R. Bradley Andrews

Quadralien

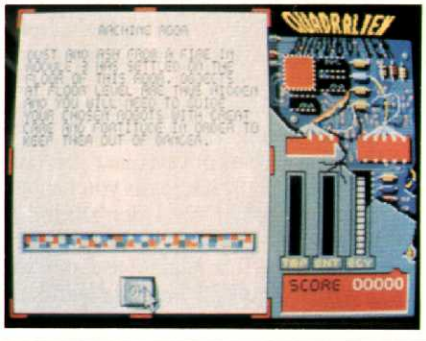
Astra, the last and largest of humanity's fission reactors is in trouble. Placed in orbit around Jupiter, it regularly transmits quantum-quantum beams to supply power to most of the machines and outposts in deep space. Its central computer and the maintenance drones were supposed to keep it operating flawlessly for a long time. Somehow, unsuspected, the alien Quadraliens have managed to ride one of the beams into the station and threaten to destroy it. Only you can stop them.

The first part of your two-fold mission is to prevent the complete breakdown of Astra. The station will cease to function if either its core temperature rises too high or its operational energy level sinks too low. These variables can be controlled by pushing coolant barrels and energy cells down any of the utility chutes located throughout the station, but you must work fast to complete your mission in the available time.

The second part of your mission is to find and destroy the Quadralien Mother that has taken over the core of the station. Astra is made up of three different levels, with a core area controlling the entire operation. Each level is further subdivided into six areas, each of which contains its own hazards and challenges.

Because the computer has sealed off all but the first level, you must work your way through each level in succession and then face off with the Quadralien Mother in the core. After sufficient points are obtained on a level by absorbing radiation and shooting aliens, you learn the password for the next level. Passwords remain the same from game to game, so subsequent play can begin on any level for which you know the password.

Six droids of varying capabilities are available to aid you in your task. Only two of the droids can be active at any one time, but these can be swiftly changed on all levels except the core



EASE OF LEARNING

CHALLENGE

GRAPHICS

DOCUMENTATION

OVERALL RATING

System: Atari ST

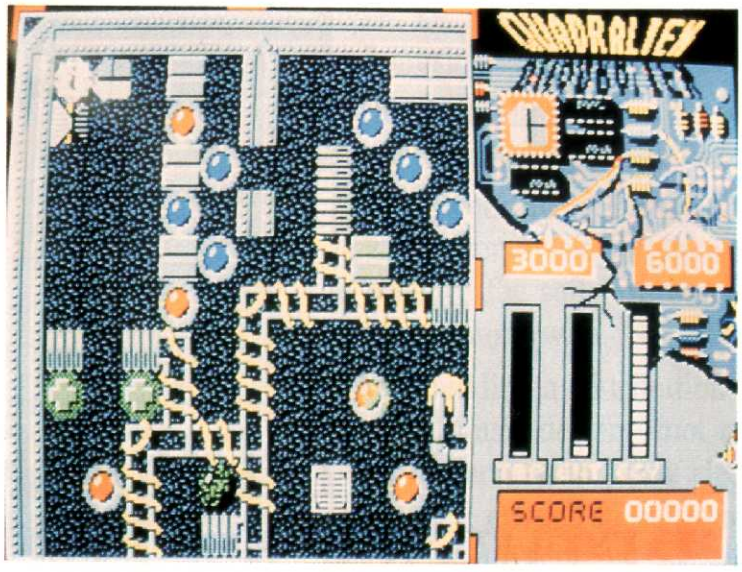
Required equipment: Color monitor; joystick optional

Copy protection: Yes

Summary: Well-executed action/strategy game

Price: $29.95

Distributor:
Spinnaker Software
One Kendall Square
Cambridge, MA 02139
(617) 494-1200



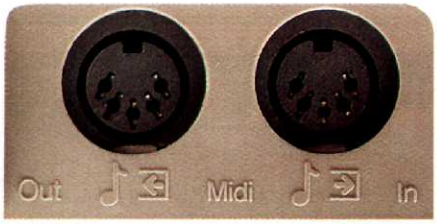
area.

Each room calls for a different strategy. Some require wholesale elimination of all obstacles, while others require careful navigation of varied obstructions. It is very important to select the most appropriate droid for the task, or you will soon find yourself with insufficient energy to complete your task.

The game can be controlled by the keyboard, joystick, or mouse, all of which work reasonably well. The graphics are very crisp and detailed, and the use of sound really enhances game play. A save game option allows you to break playing time into manageable chunks.

Overall, Logotron, the developer, has struck a good balance between action and strategy in *Quadralien.*

—R. Bradley Andrews



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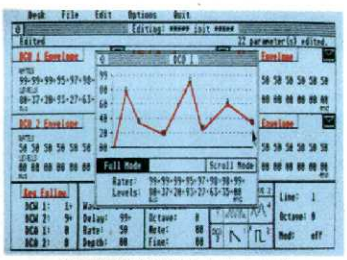

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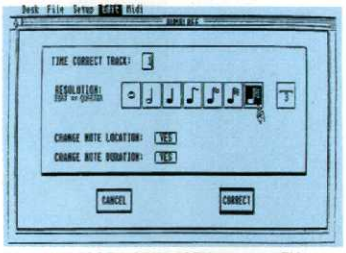
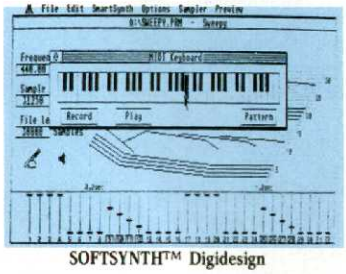


MIDISOFT STUDIO™ Passport™



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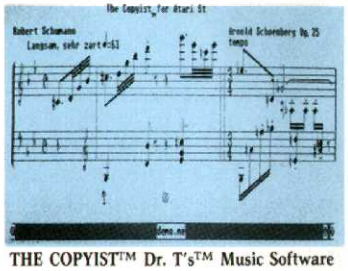

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Final Assault


EASE OF LEARNING


CHALLENGE


GRAPHICS


DOCUMENTATION


OVERALL RATING

System: Atari ST

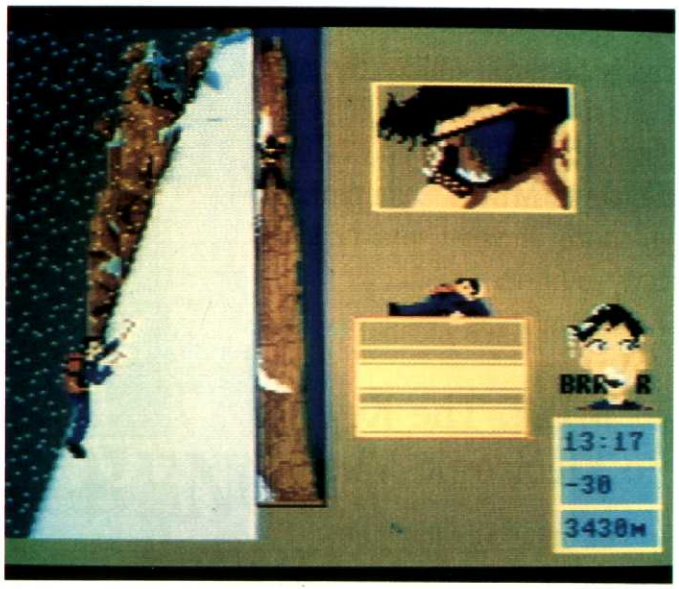
Required equipment: Color monitor; joystick recommended

Copy protection: None

Summary: An entertaining and educational simulation of a challenging sport

Price: $19.95

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



In *Final Assault* your goal is to scale some of the most treacherous mountain peaks in the Alps. Mountain climbing is not a sport for everyone; in fact, I suspect that most of us would rather sit in front of a computer with a mug of hot cocoa than scale a peak of even average height.

Now, however, even the least adventuresome ST user can enjoy some of the thrills of the sport without leaving the warmth and comfort of home. Just remember to read the instructions before setting out on your climb; there's no turning back once you reach the side of the mountain.

The opening screen of *Final Assault* displays a view of the majestic Alps, challenging you to defy them. You can climb one, two, or three routes at a time from the six routes outlined on the sides of the mountains. Each of the routes, which bear names like Edge of Fright and Footloose, is rated for difficulty.

Before you start climbing, you must stock your rucksack with the equipment and supplies you think you will need. Your rucksack is displayed on the left side of the screen, already packed with an assortment of useful items. You can accept or reject it.

If you reject it, a display of equipment and supplies appears on the right side of the screen. You can select as many of any of these items as you want (three loaves of bread, one tent, two containers of coffee, one ice pick, and so on), but you must keep in mind that you have to carry all this weight up the the mountain. Your weight limit is 25 kilograms (about 55 pounds).

The next step is to choose the season (and thus the weather conditions) in which you will attempt to scale the mountains. You can choose spring or winter; I chose winter.

The game offers a practice mode, which I recommend, because it is a good way to get used to climbing. In practice mode, instructions appear on the screen to help you improve your skills, and your falls are never fatal. Once you conquer a few peaks in practice mode, you are ready for the real thing.

When you start a climb, you are walking across a glacier, complete with dangerous hidden crevasses. You control your climber with a joystick or the keyboard. You make him walk by moving the joystick back and forth in a steady rhythm. You carry a stick with which to check the ground in front of you before you take a step.

When you reach the mountain, the screen switches to a side view of the climber on the icy face of the mountain. Moving the joystick causes him to swing his pick into the ice, plant his feet, and pull himself up. This takes some practice at first, but soon becomes second nature.

As you climb, you encounter stretches of barren rock for which you must change equipment. You wear crampons (metal spikes) on ice, but they won't help you on rock. You must don soft shoes and a helmet and powder your hands with chalk for a better grip. You move the climber's hands and feet, looking for firm holds in the rock. Then he pulls himself up. Rocks occasionally tumble toward you, so you must be prepared to move sideways.

You switch between ice, rock, and level ground all the way up the mountain. Then, when you reach the peak, a fanfare sounds as you plant your flag.

On the way up, your climber may become tired, hungry, thirsty or overheated. His animated face appears at the right side of the screen when he needs something. He sweats if he is too hot and pants if he is thirsty. His eyes droop if he is tired.

When he is tired he must either rest (hanging ten thousand feet in the air) or risk a fall. If you can't get him to level ground, you can attach him to the ice with a strap and get a hammock from the pack (you did bring one didn't you?). On level ground you can set up a tent or use a shovel to build an igloo.

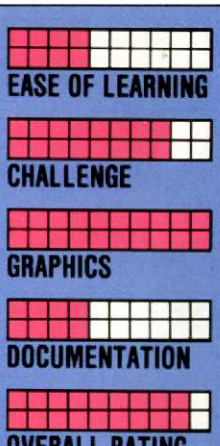
Mountain climbing, especially on a sheer wall of rock, is treacherous, but you have a rope you can use to attach yourself to the mountainside. Working with the rope takes some practice. You climb as far as it will let you go, take it in, then select it again from your rucksack.

Final Assault comes with a clearly written and interesting manual that not only shows you how to play the game but also helps you learn something about the sport of mountain climbing. The manual covers such topics as packing for the trail, using the rope, and hiking and jumping. The appendix has a climber's notebook and a glossary of terms.

Final Assault is a detailed and entertaining simulation of the sport of mountain climbing. The game gives you a really good idea of how it feels to be hanging on the side of a mountain. If you want to get above it all, to get out there where it's just you (and your mug of hot cocoa) against the elements, then *Final Assault* is the game for you.

—John S. Manor

Terrorpods



System: Atari ST

Required equipment: Color monitor; joystick optional

Summary: Challenging arcade/strategy game with splendid graphics

Price: $39.95

Manufacturer:
Psygnosis Ltd.
Liverpool L3 1BY
United Kingdom

Distributor:
CSS
2150 Executive Dr.
Addison, IL 60101
(800) 669-4912

Judging a game by its package is not usually a wise thing to do. But in the case of Psygnosis products, the extra attention to detail you see in the packaging is only a foregleam of the experience that awaits when you open the box.

It is a class act from beginning to end. The artwork is striking. Three screen shots, which are actual photographs of the screens, not artists' renderings, testify to the quality of the graphics you will see on the two disks you find in the box.

The instructions are printed on a single piece of glossy paper, which must be folded out to reveal the text. The information is all there—well, almost all there—but you must fiddle around with the fold-outs to find where the documentation starts and where each subsequent section begins; there are no page numbers. I much prefer a manual or a quick reference card to this poster-type documentation.

But don't let this one shortcoming stop you from picking up *Terrorpods*, because you will find that information about many of the key commands can be accessed from within the program by pressing Help and a function key.

Now about the information being "almost all there." This product was programmed in the U.K., where players are encouraged (by lack of documentation) to learn as they play. For example, the manual shows a drawing of the screen display on which each item of importance is identified by a letter. The letters are repeated below alongside a description of the item. When you get to letter G, the description reads, "Intelligence panel. These are important but you will have to determine their function for yourself."

In *Terrorpods*, you find yourself in charge of running and protecting all mining facilities on Colian, a planet known to possess the galaxy's richest deposits of Detonite, an explosive; Quaza, an energy-giving crystal capable of regenerating molecular structures; Zenite, a magnetic ore capable of storing immensely powerful magnetic fields; and Aluma, the hardest metal known to man.

Of course, not all the powers in the galaxy are happy that the Federation has laid claim to Colian, and some will try to wrest control of the planet from you. The mothership of the Empire is in orbit and has sent out Spoilers and Terrorpods to accomplish the overthrow. In addition to defending the colony from the invaders, you must attempt to fabricate Terrorpod parts and master Terrorpod construction. You aren't told why, but I imagine that once you have done this, you may be able to turn the tide of the invasion by using the Empire's own weapons against it.

Terrorpods is billed as an arcade/strategy game, but I would put the emphasis on the arcade aspect. The strategy concept, while well founded, it is not very logical. You rely heavily on your planetside facilities to provide you with the necessary fuels to combat the enemy. Those same facilities rely heavily on you for protection, and this is where the strategic concept breaks down.

The facilities will not just give you what you need; you must barter, offering them the same supplies with which you plan to protect them. The documentation offers three examples of successful bartering, but it takes a lot experience to get the ratios right.

Only one word—*awesome*—truly describes the graphics of the game. The title screen shows a fully animated Terrorpod, bending its head to the ground like a huge mechanical camel, to allow entry of an alien, who steps out of a planetside facility, walks over to the waiting vehicle, and climbs inside. The head closes behind him and retracts to the upright position. Not bad for just a title screen!

The boot continues automatically when you insert disk B, and you are soon presented with a realistic 3D view of the planet surface and mining and resource facilities. To enhance the effect ever further, each facility, Terrorpod, Spoiler, and enemy missile smoothly changes size as you move your DSV (Defense Strategy Vehicle).

Really, the screen just sparkles with color. The foreground—the surface of the planet—scrolls in 3D, while the huge rock formations in the background scroll left or right at a slightly different rate, providing the illusion of depth. The special effects, such as laser blasts and explosions, are also extremely realistic.

Game control is accomplished by a rather unorthodox combination of joystick, mouse, and keyboard commands, all of which seem completely necessary. For example, to move your DSV, you can use the joystick or cursor keys. Only the mouse, however, can be used to move the on-screen cursor, which aligns your weapons systems. And the programmers at Psygnosis get extra points for including a save game feature.

In conclusion, *Terrorpods* is a bona fide hit! It maintains Psygnosis' position at the forefront of 68000 graphics and game design, a position that is challenged by very few software companies—over here or over there

—Frank Eva

"Greetings. I am your hacker's muse."

OmniRes ST

EASE OF USE

PERFORMANCE

ERROR HANDLING

DOCUMENTATION

OVERALL RATING

Version reviewed: 3.2

System: Atari ST

Copy protection: Key disk

Summary: Software alternative to buying two monitors

Price: $34.95

Manufacturer:
Hypertek/Silicon Springs
2571 Shaughnessy St., Ste. 205
Port Coquitlam, BC V3C 3G3
(604) 942-4577

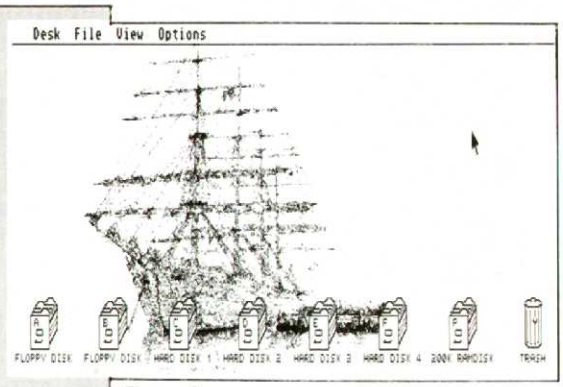


Figure 1.

If you are an Atari ST owner of average means, you probably had to choose either a monochrome or a color monitor when you bought your computer. Since then, you have had to be careful to buy only software that supports the one you chose.

A Canadian firm is attempting to liberate ST owners from this hardware limitation with an innovative software product called *OmniRes*.

OmniRes is actually a group of programs, each one designed to provide a different form of crossover. It allows you to run most color-only software on a monochrome monitor and vice versa. The *OmniRes* programs trick your ST into thinking it is operating in the correct resolution. You can, for example, edit color *Degas* pictures on a monochrome monitor.

It is important to note that this process isn't 100% guaranteed. Each of the modules provides a degree of compatibility, but you forfeit something in the bargain—either speed or screen size.

If, for example, you want full shading, you must use either OmniRes3 or 7 program (OmniRes7 is slightly different, altering the "color" palette when needed). The result is a smoother blend of monochrome shades corresponding to the spectrum of colors designed in the original—but you sacrifice the speed you would expect on a color monitor. Figure 1 shows what a monochrome desktop looks like in this mode.

If you want more speed, you should use OmniRes1 or 5. The result is faster movement of the mouse pointer, but the screen is squashed to a quarter of its normal size as in Figure 2, and there is no grey scale to correspond to color shading.

Programs 1 through 4 can also be used to display monochrome images on a color monitor (OmniRes4 requires a minimum of 1 Mb of memory, but offers faster display speed). This procedure can be toggled (without running other programs for different effects) with the Shift-Alternate-Help key combination.

The initial screen (Figure 3) is a representation of the whole monochrome desktop; striking the above-mentioned keys gives you a full-screen display of the top half of the desktop; another strike gives the bottom half; and one more strike will show half the desktop, but you can scroll with the mouse to get to any part you wish. As

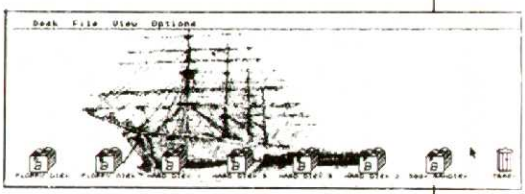


Figure 2.

the documentation states, the latter can be goofy to get used to, as any mouse movement causes the on-screen image to bob.

I found the *OmniRes* package to be annoyingly sloppy in some respects. For instance, when I ran the MAKEKEY program (the software that lets you run the unprotected modules from something other than the master disk) to set up my boot disk with a keycode so I could run *OmniRes* from the AUTO folder on my hard disk drive, the screen that came up told me to "Insert the One Res disk . . ." This sent me scurrying around to find that disk, but I later discovered the program was referring to the *OmniRes* disk.

Also, when I was prompted for the keydisk, *OmniRes* instructed me to insert it into drive B, even though I have a single drive system. But the ST seemed to think I was using a drive B and had me "pseudo-swapping" disks from one drive to another.

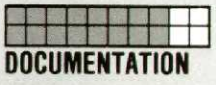
The other restriction of *OmniRes* is that much self-booting software, including many games, won't work with it. Fortunately, Hypertek is talking about making *OmniRes* "reset-proof." This would allow you to install it under the auspices of the particular monitor you wanted to use, reset the computer with the boot disk in place, and run the program with *OmniRes* still installed.

OmniRes is an interesting hack that in certain cases can save a casual user from having to pick up another monitor. For the serious ST user, however, I think the extra expense of a second monitor is worth considering. Unfortunately, even with all of the options it gives, *OmniRes* doesn't pull off the magic routine comfortably enough to be considered a high-quality fix to the two-monitor dilemma.

— Andy Eddy

Figure 3.

EZ-Grade



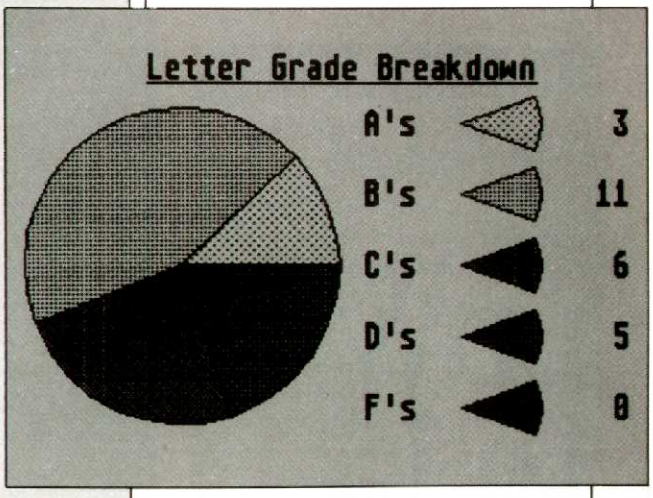
System: Atari ST

Copy protection: None

Summary: A useful electronic gradebook for teachers

Price: $39.95

Manufacturer:
Integral Software
6211 Beachview Dr., #65
Indianapolis, IN 46224
(317) 243-9218



Brent McKim's *EZ-Grade* is a teacher's tool designed to automate bookkeeping chores and make student reports and summaries easier to prepare. Better still, it enables the teacher to evaluate class grade histories in several ways to get a good picture of how the group is progressing.

EZ-Grade should be a welcome addition to the software libraries of ST-using teachers. Replacing a dog-eared gradebook with this high-tech alternative is equivalent to replacing a manual typewriter with a state-of-the-art word processor. I guarantee that, once you master the technique, you will never consider returning to your old methods.

The menu bar across the top of the screen makes the program easy to use. Enter lets you start a new student record or a whole new class, post a grade, or note absences. Classes are indexed first by ID number (McKim suggests using the period number), then by class name.

You can choose to enter the grade level for every student (when there are students from several grades in the same class) or to enter it only once for the entire class. Each student's last and first names are then typed into the databank. Data on up to 60 students can be contained in each file; larger classes must be broken up into groups of 60 or less. Names can be rearranged by point-and-drag or alphabetized using the Modify option.

A series of menu options guides you through grade entry. Once the class roster is in memory, you choose Enter New Grade and move the pointer to one of the six types of grade—homework, quizzes, laboratories, tests, miscellaneous, and extra credit. The manual points out that these predefined categories can be used for other grade types even if the name doesn't quite fit.

Next you enter a specific description of the material graded, such as the homework page number assignment or the name of a worksheet, the number of possible points for the grade, and finally, the score for each student.

The program assumes that you will not enter absences daily (although it certainly would be possible) but rather keep a cumulative total, perhaps for the week. It prompts for the number of absences for each student since the last date entries were made but does not keep track of the dates of the absences.

The grading scale is customized by assigning numerical values through 12 settings (A+ through D-). An individual grading scale is stored with each class data file. Grade weighting can be toggled off or on. When used, it assigns a specific percentage to each of five grading areas: homework, laboratory, miscellaneous, quiz scores, and test scores, so final grades are aggregates of these items, each given its proportionate importance in the total.

To use the Curve Scores option, you click on a grade, then enter the number of points on which you want the curve to be based. Other useful tools are the Drop Low Scores option and Collapse Grades, which combines all the scores in a grading group into one total, then suggests the total possible points as its value, and guides you through new grade weighting settings to incorporate the collapsed grade.

The data can be viewed student by student or as a class. Groups can be studied alphabetically or ranked by grades. The Histogram constructs a barchart to depict the number of students in each letter grade. Class Data generates a four-part record with letter grades, class history, attendance history, and grade composition.

The Student Data Screen contains the date and the student's name, grade level, and number of absences. It lists the item number and description of each score-producing entry, its date, the possible tally, the actual score, and the percentage and letter grades. It then gives totals in each category.

All statistical reports, class lists, summaries, data, and even blank gradebook pages can be viewed on screen or printed. Progress reports can be printed out with or without personal notes to students or parents.

All information can be changed or modified at any time, which makes the system mistake-proof. Although the program is designed to work without passwords, it is possible to input a password to protect all this classroom data.

The manual is large (more than 50 typewritten pages) and rather rambling. Better organization would have made the book easier to use, but a thorough index does help. Fortunately, the program is largely self-teaching, once you get past the opening screens and the puzzling first menu, which lists the classes on file. When the program is new, of course, there are no classes listed, and the GEM menu doesn't pop up until you click on Cancel. This is a sensible arrangement when the teacher working with several classes wants to enter grades. But for the new user, it seems odd to start with a menu that has nothing to offer.

The manual is supplemented with information in a README file, which contains a note of thanks for buying the program, a plea for users to abstain from pirating it, and Brent McKim's address and phone number, in case you need help or have questions. Also in the file are additions and corrections to the manual, including information on merging grades and special tips for preparing progress reports.

EZ-Grade is a useful program that simplifies record-keeping and gives teachers more time to teach.

—Joyce Worley

LDW Basic v. 2.03

A powerful new Basic compiler offers signficant improvements in speed and capability over ST Basic

Listing 1. This utility program demonstrates some of the powerful graphics features of LDW Basic.

```
'      ************      LDWDEMO.BAS          V.2      **************
'                          (C) Mike Harrington
'                         *************************
' ------------------------------------------------------------------------
'
'       After accepting three user selected Neochrome picture files, this
'   program performs a demonstration slide show that illustrates some of the
'   graphic strength of the LDW Basic Compiler.  The included REM statements
'   should provide sufficient information for those who wish to incorporate
'   this, or a similar, routine in their own programs.
'       The program runs in either medium or low resolution, but for the
'   best effect, you should use medium.
'
'                                          Mike Harrington
'
' ------------------------------------------------------------------------
'               DEFINE THE INTEGERS & DIM THE VARIABLES
'               ---------------------------------------
'
'
DEFINT H-Z
MOUSE 256                       ' Hide the mouse.
'
DIM Palette@(3,17)    ' Stores current color palette plus three palettes
                                ' to be loaded with respective NEO files.
'
DIM STATIC P_address%(2)        ' Store pointers to palette addresses.
'
DIM STATIC Canvas1%(8200)       ' Stores first NEO picture.
DIM STATIC Canvas2%(8200)       ' Stores second NEO picture.
DIM STATIC Canvas3%(8200)       ' Stores third NEO picture.
'
DIM CanvShape%(4000)            ' allows 16000 bytes for shape copying.
'
'
' ------------------------------------------------------------------------
'                     GET A FEW ANSWERS FROM XBIOS
'                     ----------------------------
'
XBIOS 3                         ' Get Logical screen base address.
SBASE%=STATUS                   ' Returns as long.
'
```

Aside from the increased speed of program execution that is provided by a Basic compiler, version 1.0 of LDW Basic offered few significant improvements to the ST Basic that was shipped with the early Atari STs. The current version (2.03) of LDW Basic, however, is a great deal more than a mere a Basic compiler. Equipped with a new arsenal of command functions, a full shell programming environment, and the ability to utilize almost any text editor, LDW Basic v. 2.03 is a powerful and versatile programming tool.

The LDW Basic Compiler package includes two single-sided, disks (not copy-protected) and a loose-leaf reference manual. You can run LDW Basic on any Atari ST system, but having a pair of floppy drives, a hard drive, and/or enough memory to support a RAM-disk will speed up the compilation process considerably.

LDW Basic compiled programs are stand-alone applications, requiring no special runtime package. However, if you plan to distribute applications written in LDW Basic, an LDW copyright notice must be included.

Although LDW Basic still supports array-oriented access to GEM (the LDW manual even includes a complete listing of the bindings with a definition of the necessary arrays), new GEM commands such as Ask Mouse, Ask File, Activew, Alert, Box, Button, Dialog, Edit Field, Event, Mat Sound, Menu, Mouse, Redraw, RGB, Text$, Vslider, Hslider, and many others, offer significantly easier access to operating system functions.

For low level system access, LDW has included several variations of the commands Base_page, Bios, Gemdos, Gemsys, Gemdos, and Xbios. The sample program in Listing 1 shows some of these commands at work and provides an example of some of the powerful graphics functions available to LDW Basic users.

Other valuable commands provide easy methods of setting the date and time, converting strings between upper and lower case, accepting single- and multiple-key input, and reading bytes, words, integers, or doubles. Both dynamic and static arrays are supported.

If-Then-Elseif block structures provide smoother program control and improve program readability. Sub-programs can be handled as procedures that support local variables, passed variables, and global variables. With the Openw statement you can automatically create up to four windows, defining width, height, slider size, and window type. Or if you prefer to "roll your own" windows, you can use the full screen-control environment.

Version 2.03 also includes two meta-commands that direct compiler options from within a Basic program. The $Event command switches generation of additional code for event trapping on and off. This can be used to increase the execution speed in sections of a program where event trapping is not needed.

The second meta-command, $Include filename, instructs the compiler to include another source file in the present compilation, just as if it were part of the main program source. This is great for creating libraries of often-used

By MICHAEL HARRINGTON

```
XBIOS 2                         ' Get Physical screen base address.
PhysBase%=STATUS                ' Also returns as long.
'
XBIOS 4                         ' Get Screen Rez.
Rez@=STATUS                     ' Returns as word.
'
'
WorkPalette%=SBASE%-124
'     The first two words (4 bytes) of NEO data is trash.  The next
'     16 words (32 bytes) are used to store the color palette.  The
'     next 46 words (92 bytes) are used for color cycling.  In order
'     to store the color palette in our arrays, we must copy 16 words of
'     data starting from the address of SBASE%-124.  Then we can move the
'     palette back to this address when needed.
'
'
' ------------------------------------------------------------------------
'             Set a starting path for the files.
'             ----------------------------------
'
A$="E"                          ' I am working out of drive "E".
'
D$=A$+":*.*"                    ' Patch drive to wild cards for path name.
N$="*.NEO"                      ' Use NEO extender for search pattern.
'
'
'  ------------------------------------------------------------------------
'               Load the NEO files.
'               -------------------
'
FOR L%=0 TO 2
     ASK FILE D$,N$,FN$,Ex_val%
          IF Ex_val%=0 THEN
          CLEARW 0
          ?:?:?:?
          ? "NO FILE CHOSEN -- press a key to exit"
          A$=INPUT$(1): END
          ENDIF
     '
     MOUSE 256                  ' Hide mouse again.
     '
     '
     BLOAD FN$,SBASE%-128       ' Since NEO uses 128 bytes for color data
                                ' we must load 128 bytes before logical screen.
     '
     '    Store the drawings.
```

LDW Basic

System: Atari ST

Version reviewed: 2.03

Copy protection: None

Summary: Powerful and versatile, but insufficiently documented, Basic compiler environment

Price: $89.95

Manufacturer:
Logical Design Works
780 Montague Expy., Suite 403
San Jose, CA 95131
(408) 435-1445

```
? TIME$
FOR L%=1 TO 5000
     A!=((4+L%)-4)*(L%/(6*12))
NEXT L%
? A!
? TIME$
```

Listing 2. Speed benchmark for LDW Basic.

routines and for managing large-scale programming projects in multiple files.

In short, LDW Basic version 2.03 is a power-packed programming language. It functions from within a GEM-based shell that manages the entire editing and compilation process, and the enclosed editor, MicroEMACS, can be accessed easily from within that shell. The editor is not fully integrated, but this can be considered an advantage, because it permits you to substitute another editor, if you prefer.

Separate paths for source and object files can be set from within the shell; help files can be accessed; and common file-management functions such as copying, deletion, and printing, can be performed. Compilation and linking can be performed separately or in automatic sequence.

The Speed Issue

With the shell set to compile and link automatically, I was able to compile a 211-line program in only 22 seconds on a system with hard drive and RAMdisk. Compiler options controlling error checking, trace, stack, integer overflow, window environment, list, register, and line numbers were all disabled, but only the error checking and trace options actually affect compilation speed.

At the other extreme, I recently compiled a 32-page dungeon master's helper program written in ST Basic (very little change in code is required for LDW Basic to compile most ST Basic programs). With all compiler options were enabled, this took approximately 10 minutes to compile.

To test the execution speed of programs compiled under LDW Basic, I used the code shown in Listing 2.

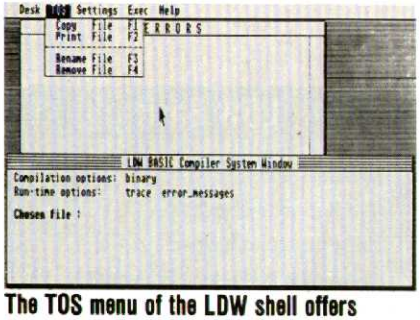
The benchmark took 16 seconds to compile (this seems to be about the minimum). Program execution for the test loop under standard ST Basic took 26 seconds. The LDW Basic compiled program performed the same loop in 8 seconds.

For further comparison, Lattice C version 3.03 took 2.5 seconds to execute the test loop but nearly 2.5 minutes to compile.

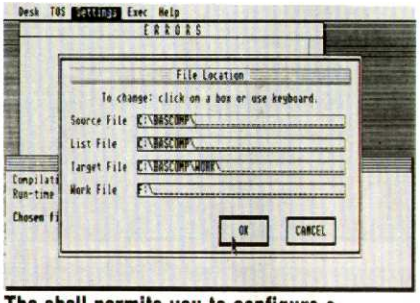
LDW Basic version 2.03 is a power-packed programming language that functions from within a GEM-based shell that manages the entire editing and compilation process.

A 4.77 MHz IBM PC XT running BasicA (the IBM standard Basic interpreter) took 51 seconds to execute the same program. Compiling under Microsoft Basic 4.0 improved the speed to 33 seconds. The same amount of time was required to execute the program under standard (interpreted) Basic on an Apple IIGS.

In general, it seems that LDW Basic offers an increase in execution speed of



The TOS menu of the LDW shell offers access to commonly-used file functions.



The shell permits you to configure a programming environment with separate source, list, and object pathnames.

about 300% over ST Basic. It should be noted, however, that some test programs showed as much as a 500% improvement.

Documentation

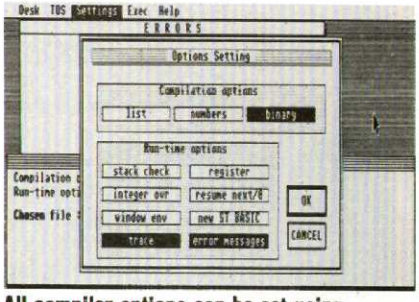
Although the LDW Basic manual is stocked with many useful bits of information, it is both poorly organized and vague. Significant terms and concepts are left undefined or unindexed, and many of the sample programs contain errors. The result is that it can be difficult or impossible to use the compiler effectively without supplementary documentation. The original LDW compiler manual and the ST Basic Sourcebook will be enough to start, but those interested in low level or extensive GEM programming will also want to acquire Compute's *Atari ST Machine Language Programming Guide* or Abacus' *Atari ST GEM Programmer's Reference.*

Documentation aside, however, I found LDW Basic 2.03 to be a versatile and powerful programming tool. The shell environment it offers, though lacking a fully-integrated editor, is efficient and well-implemented. Compilation speed is rapid, and improvement of execution speed over interpreted Basic is significant—often as much as 500%. I recommend it highly to all serious Basic programmers. ■

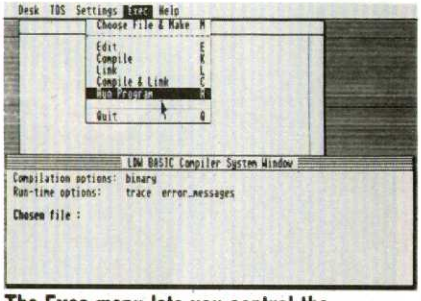
```
     IF L%=0 then
          SSHAPE 0,0,319,199,Canvas1%()     'This captures an entire low
     ELSEIF L%=1 THEN                       'rez. screen, but only half of
          SSHAPE 0,0,319,199,Canvas2%()     'a med. rez. screen.  Leave it;
     ELSE                                   'I like the effect.
          SSHAPE 0,0,319,199,Canvas3%()
     ENDIF
     '
     '    Store the color palette.
     FOR Start%=WorkPalette% TO WorkPalette%+32 STEP 2    ' Get it in words.
          P_address%(L%)=VARPTR(Palette@(L%+1,0))  ' Get pointer to palette.
          Ck!=P_address%(L%)/2                     ' Must be an even byte
          Ck!=P_address%(L%)/Ck!                   ' value.
          IF Ck!<>2 THEN
               P_address%(L%)=P_address%(L%)+1     ' Inc. if not.
          ENDIF
          '
          G_add@=PEEK_W(Start%)                    ' Get the color value.
          AdOffSet%=(Start%-WorkPalette%)          ' Get address offset.
          POKE_W P_address%(L%)+AdOffSet%,G_add@   ' Copy the color to address.
     NEXT Start%
     '
'
NEXT L%  ' Get next file
'
'
' ------------------------------------------------------------------------
'              Get and store the original RGB values.
'              --------------------------------------
'
     Start%=16745024               ' Pointer to hardware color palette.
          '
     FOR L%=Start% TO Start%+32 STEP 2
          Palette@(0,((L%-Start%)/2))=PEEK_W(L%)   ' Copy the colors.
     NEXT L%
'
'
' ------------------------------------------------------------------------
'              Do something impressive.
'              ------------------------
'
IF Rez@>0 THEN
        POKE_B 16745056,0              ' Tell GEM we want LOW rez.
        POKE_W 1100,0                  ' Tell it here too.
ENDIF
'
GOSUB MakeScroll              ' Flip through memory to view pictures.
'
'
GOSUB GetApiece               ' Do something else impressive.
'
' Reset the original color palette.
        '  Move the color palette to the address of WorkPalette.
        FOR Pt%=0 TO 15
              POKE_W (WorkPalette%+(Pt%*2)),Palette@(0,Pt%)
        NEXT Pt%
        '
        '  Set color palette pointer to the address.
        XBIOS 6,WorkPalette%
        '
IF Rez@>0 THEN
        POKE_B 16745056,1              ' Return GEM to MED. rez.
        POKE_W 1100,1                  ' Tell it here too.
ENDIF
'
GOTOXY 10,10
? "Press any key to exit"
A$=INPUT$(1)                  ' Wait for a key press.
'
' ------------------------------------------------------------------------
' ------------------------------------------------------------------------
END     '********************   END OF THE LINE   ************************
' ------------------------------------------------------------------------
' ------------------------------------------------------------------------
'
MakeScroll:      ' Scroll through pictures at decreasing speed
'                ----------------------------------------
'
FOR J%=1 TO 30
    FOR L%=1 TO 3
        '
        '  Which picture to view.
        IF L%=1 THEN
              GSHAPE 0,0,Canvas1%()
        ELSEIF L%=2 THEN
              GSHAPE 0,0,Canvas2%()
        ELSE
              GSHAPE 0,0,Canvas3%()
```

```
        ENDIF
        '
        '  Set color pointer to the proper palette address.
        XBIOS 6,P_address%(L%-1)
        '
        '
        FOR DE%=1 TO 1000*J%: NEXT DE%    ' Need time to see changes
    NEXT L%
NEXT J%

RETURN
'
' ------------------------------------------------------------------------
GetAplece:
'
' Display one of the pictures.
        GSHAPE 0,0,Canvas1%()
'
' Set color palette pointer to the address.
        XBIOS 6,P_address%(1)
'
'  Save part of picture.
        SSHAPE 20,20,150,100,CanvShape%()
'
' Display a different picture.
        GSHAPE 0,0,Canvas2%()
'
' Set color palette pointer to the address.
        XBIOS 6,P_address%(2)
'
' Display the saved shape on the current screen.
        GSHAPE 10,10,CanvShape%()
'
' Give you time to see the change.
        FOR L%=1 TO 500000: NEXT L%
'
CLEARW 0
'
RETURN
```



All compiler options can be set using a simple dialog box.



The Exec menu lets you control the edit-compile-execute process.

Notes on newsletters and a utility to redefine printer characters

User Friendly

By DAVID NOYES

I read about 150 Atari user group newsletters a month. From them I try to choose for the User Friendly a couple of articles or parts of articles that I think will be of particular interest to the readers of *Atari Explorer*.

This recent quest, coupled with my experience as editor of my own user group's newsletter, has enabled me to formulate a model of a "typical" Atari user group newsletter, which I thought you might find interesting. Naturally, because this is a composite, neither you nor I will probably ever find a single newsletter that conforms to the model in every respect—there are just too many variables involved—but I think this is an accurate overview.

First, a few obvious observations. There are ST only, 8-bit only, and mixed coverage newsletters. Of those that are mixed, some lean to one machine or the other; some provide a balanced presentation. The appearance of newsletters runs the gamut from "quick copied," cut-and-paste editions assembled from typewritten, dot matrix, and daisywheel output to professional looking near-magazines featuring inkjet, laser, and even typeset text.

Appearance

Physically, our monthy communiques may be full size ($8\frac{1}{2}$"×11") or products of various levels of reduction. Some are folded and "bound" magazine-style (saddle-stitched) with a staple through the spine; others are held together by one or more staples in various locations; and still others arrive more or less loose and can be fastened together in whatever manner suits the recipient.

Page counts range from a single sheet to 60 or more pages per issue.

Most newsletters are cut-and-pasted from bits of from dot matrix printer output, although more and more groups are switching to 16-bit desktop publishing software. I have even seen a few produced with 8-bit desktop publishing programs such as *The Newsroom* (Springboard) and *News Station* (Reeve). The one thing that all newsletters demonstrate is that a considerable amount of time and effort has gone into their preparation.

And because the user groups that sponsor these letters are almost all nonprofit organizations, few, if any, of the people who contribute this time and effort are compensated—financially, that is; I'm sure that most of them derive considerable satisfaction from their unpaid positions and enjoy to opportunity to vent their creativity on fellow Atarians.

In most cases, the appearance of a club's newsletter is tied directly to the economic health of the club, which is, in turn, related to the size of the group and the overall economic climate in the geographic area it serves. For most user groups, regardless of size or condition, the newsletter is the single greatest expense in the budget.

Content

Of course, the most beautiful newsletter in the Atari world is worthless without editorial content. Content is what ultimately determines the value of a newsletter. And the value of the content is dependent almost entirely on the quality of the submissions the editor receives.

Content is knowledge, experience, interest, questions, answers, opinions, enthusiasm, and disgust. Content is information (technical and non-technical), misinformation, humor, art, fiction, poor writing, and polished style.

Content is original, borrowed, copied, and downloaded.

Content comes from user group members and non-members, the computer literate and less literate, the anonymous.

In short, anything created by anyone in any way, shape, or form may find its way into a user group newsletter. However, getting back to my unscientific model, let's look at basic categories of editorial material found in newsletters:

- Programming tutorials
- Program listings
- Software reviews
- Hardware reviews
- Hardware modifications
- Application hints and problem solving
- Software library listings
- Club business
- Advertising
- Editorials
- Rumor propagation
- Wishful thinking and crystal ball gazing
- Atari bashing

I think that most readers are familiar with the majority of these categories. The percentage of each varies, of course, from newsletter to newsletter, but basically, all categories are present in most newsletters, most of the time.

What's the point? Well, remember that I started by describing my quest for material to fill the pages of User Friendly. If you glance at these categories with that in mind, you will see that many are clearly unsuitable for the column. Reviews, for example, have their place elsewhere in *Explorer*. Tutorials are usually serialized, and those that are not tend to be quite long.

Hardware modifications usually void manufacturers' warranties and can harm the user's equipment. Furthermore, for me even to consider including a hardware modification in this column, I would have to have done the modification myself, and I have neither the time nor a large enough assortment of hardware to allow me to do that.

Club business, advertising, and software library listings are, of course, unique and appropriate only to the newsletter in which they appear. So are most editorials.

Rumors, whether based in fact or not, are only rumors and, more often than not, all but indistinguishable from wishful thinking and crystal ball gazing.

We are now left with Atari bashing, a category that finds its way into most user group newsletters at one time or another. In some, it takes the form of a *de facto* column—recurring and predictable. The bashing generally falls into two categories—one dealing with marketing, the other with support.

***In most** cases, the appearance of a club's newsletter is tied directly to the economic health of the club.*

Most bashers miss the mark, however, giving short shrift to that corporate *sine qua non*, profitability. User groups are, understandably, focused groups of dedicated users—a minority, however, of the market-base. Competition, component availability, manufacturing costs, and a volatile market are only a few of the variables that shape a corporation's response to the market, and Atari bashers would do well to look at the whole picture before trying to second-guess the mother company's motives.

The other subject of Atari bashing, support, has many components, including product warranty, new product development, compatibility with third-party products, and technical support by phone and publication—all of which exist for Atari owners. I, myself, have found the folks in Sunnyvale extremely helpful. In addition, my local dealer handles an excellent array of both Atari and third-party software and hardware for both the 8-bit machines and the ST. Nearby is an Atari-authorized repair center, sufficiently well-stocked and competently-staffed to repair anything I have ever had to take in.

So you can see why I take a dim view of Atari bashing and give it no room in User Friendly. In my book, Atari clear-

ly deserves more—not fewer—friendly users. I think the bashers are an extremely vocal minority.

One other item, which is not, strictly speaking, a category is writing style. While this one disqualifies far more items than it qualifies, it is important. Some adherence to accepted standards of English grammar and style is required in the articles that appear in this column.

Atari bashers would do well to look at the whole picture before trying to second-guess the mother company's motives.

Why this lengthy prologue? Remember, again, that I mentioned earlier that I read at least 150 Atari user group newsletters a month. I enjoy reading them, of course, but I am also constantly on the lookout for material to print in this column. The point is that even with such a large pool of information, it is often quite difficult to find articles that qualify for inclusion.

A Program to Redefine Printer Characters

One piece that did qualify was the following article by Robert S. Ely, taken from the December, 1988, issue of "Between Bytes," the newsletter of the Jersey Atari Computer Society. Bob's Basic XL program for the Atari XL or XE allows you to redefine, save, and download characters to an Epson-compatible printer. I place this one in the "application" category.

The program was designed for the Epson-compatible Panasonic KX-P1091 printer. The KX-P1091 limits the number of redefinable characters to 40, but your printer may have a different limit, so check your owner's manual for this info.

It takes 12 bytes of data to tell the printer what the new character looks like and which character to replace. In all cases, the first two bytes are Esc and y. This sequence tells the printer to get ready to download the next 10 bytes as character data.

The next byte is the ASCII character position in memory, and The next nine bytes are column dot pattern data bytes.

CHARACTER EDITOR

ATARI KEY

- Any Atari 8-Bit Computer
- Panasonic KX-P1091 Printer
- Sparta DOS
- Basic XL

```
5 Poke 82,0:Poke 730,1
10 Fast :Clr :Dim Chdat$(12),Char(10,1),Line$(2,240),Text$(240):Mode=0:Opt=3
20 Kbd=53279:Key=764:Graphics 0:Setcolor 2,0,0:Rj$="&&&"
30 Gosub 40:Mode=0:Goto 60
40 Rem FILENAME DATA ENTRY 2
50 Position 0,20:? "ENTER FILE NAME TO SAVE DATA TO":Input "(Dn:filename.ext)  ,
File$:Return
60 Rem MAIN MENU 3
70 Graphics 0:Setcolor 2,0,0:? "}       PRESS [1 to 6]  TO SELECT!":Key=764
80 ? :? "1).................CREATE NEW CHARACTER";
90 ? :? "2).....................EDIT A CHARACTER";
100 ? :? "3).............STORE CHARACTER IN MEMORY";
110 ? :? "4).....................SAVE FONT TO DISK";
120 ? :? "5)...................SEND FONT TO PRINTER";
130 ? :? "6)...CHANGE FILENAME FOR DISC READ/WRITE";
140 Poke 764,255
150 If Peek(Key)=255 Then 150
160 If Peek(Key)=31 Then Poke Key,255:Gosub 340:Gosub 380:Gosub 450:Gosub 540:Go
sub 740:Goto 60
170 If Peek(Key)=30 Then Poke Key,255:Gosub 230:Goto 60
180 If Peek(Key)=26 Then Poke Key,255:Gosub 1240:Gosub 1370:Goto 60
190 If Peek(Key)=24 Then Poke Key,255:Gosub 1480:Goto 60
200 If Peek(Key)=29 Then Poke Key,255:Gosub 1440:Goto 60
210 If Peek(Key)<>27 Then Poke Key,255:Goto 150
220 Poke Key,255:Gosub 40:Goto 60
230 Rem SUBMENU (EDIT A CHARACTER) 4
240 ? "}       PRESS [1 or 3]  TO SELECT!":Key=764
250 ? :? "1).................USE ROM CHARACTER SET";
260 ? :? "2)...................LOAD FONT FROM DISC";
270 ? :? "3).............EDIT CHARACTER IN MEMORY";
280 Poke 764,255
290 If Peek(Key)=255 Then 290
300 If Peek(Key)=31 Then Poke Key,255:Gosub 340:Gosub 810:Gosub 910:Gosub 580:Re
turn
310 If Peek(Key)=30 Then Poke Key,255:Gosub 1010:Return
320 If Peek(Key)<>26 Then Poke Key,255:Goto 290
330 Poke Key,255:Gosub 340:Gosub 1080:Gosub 1130:Gosub 1150:Gosub 540:Gosub 580:
Return
340 Rem GET KEY VALUE-ATASCII VALUE 5
350 ? "PRESS CHARACTER KEY(s) FOR CHARACTER":? "TO BE WORKED ON OR EDITTED"
360 Close #1:Open #1,4,0,"K:":Get #1,Key:Close #1
370 Atascii=Key:Key$=Chr$(27),"y",Chr$(Atascii):Return
380 Rem SCREEN DISPLAY 6
390 ? "}":Poke 752,1:Cnt=128:Pos=0
400 Position 0,0:? "COL.>  ABCDEFGHI              ASC,CHR$"
410 Position 0,1:? "ROW v                "
420   For Inc=2 To 9:Position Pos,Inc:Print  Using Rj$,Cnt;:? "-              ":C
nt=Int(Cnt/2):Next Inc
430 Position 6,10:? "            ":Position 6,13:? "PRESS [OPTION] FOR MENU"
440 Return
450 Rem CALCULATE COLUMN VALUES 7
460   For Inc=1 To 9:Position 20,Inc:? "COLUMN ";Chr$(Inc+64);"=":Next Inc
470 Ind=128:Poke 752,1
480   For Inc=1 To 9:Char(Inc)=0:Next Inc
490   For Cols=7 To 15:  For Rows=2 To 9
500     Locate Cols,Rows,Dat
510       If Dat=160:Char(Cols-6)=Char(Cols-6)+Ind:Else :Char(Cols-6)=Char(Cols-
6)+0:Endif
520     Ind=Int(Ind/2):Next Rows
530   Ind=128:Next Cols:Return
540 Rem LIST COLUMN VALUES 8
550   For Inc=1 To 9
560   Position 29,Inc:Print  Using Rj$,Char(Inc)::? ",";Chr$(Char(Inc));"    "
570 Next Inc:Col=7:Row=2:Return
580 Rem CHECK KEYBOARD INPUT 9
590 Poke 764,255:Key=764:Left=6:Right=7:Up=14:Down=15:Esc=28:Dot=31:Blank=50
600 If Peek(Kbd)=Opt Then Gosub 470:Return
610 If Peek(Key)=255 Then 600
620 If Peek(Key)=Left Then Col=Col-1:Poke Key,255:Goto 700
630 If Peek(Key)=Right Then Col=Col+1:Poke Key,255:Goto 700
640 If Peek(Key)=Up Then Row=Row-1:Poke Key,255:Goto 700
650 If Peek(Key)=Down Then Row=Row+1:Poke Key,255:Goto 700
```

```
660 If Peek(Key)=Dot Then Poke Key,255:Pos=160:Gosub 780:Goto 740
670 If Peek(Key)=Blank Then Poke Key,255:Pos=32:Gosub 780:Goto 740
680 If Peek(Key)=Esc Then Poke 764,255:Gosub 470
690 Poke Key,255:Goto 600
700 If Col<7 Then Col=15
710 If Col>15 Then Col=7
720 If Row<2 Then Row=9
730 If Row>9 Then Row=2
740 X=Col+58:Y=Row-2:Y=Y%15:Y=Int((((2^Y)/128)+1)/2)
750 Position 0,11:? "COL=";Chr$(X);" ROW=";Y;"    ";:Position 20,11:? "ATASCII VA
LUE=";Atascii;
760 Poke 752,1:Goto 580
770 Rem PRINT PIXEL IN GRID 10
780 Locate Col,Row,Dat
790 If Pos=32 Then Position Col,Row:? Chr$(32):Mode=2:Goto 740
800 If Pos=160 Then Position Col,Row:? Chr$(160):Mode=2:Return
810 Rem COLLECT ROM CHARACTER DATA 11
820 If Key>127 Then Key=Key-128
830 If Key<32 Then Goto 620
840 If Key>=32 And Key<96 Then Key=Key-32
850 If Key>=96 And Key<=127 Then Key=Atascii
860 Chbase=57343:Offset=8:Chloc=Chbase+(Offset*Key)
870   For Inc=1 To 8:Char(Inc)=Peek(Chloc+Inc):Next Inc
880   If Atascii>128:Goto 890:Else :Goto 900:Endif
890   For Inc=1 To 9:Char(Inc)=(Char(Inc)%255):Next Inc
900 Mode=1:Gosub 390:Mode=0:Return
910 Rem PLOT ATASCII ROM CHAR. DATA INTO GRID 12
920 Inx=0:Ind=128:Inc=0
930   For Row=2 To 9:Inc=Row-1
940     For Col=7 To 15
950     Dat=Int((Char(Inc)-Inx)/Ind)
960     If Dat=1 Then Inx=Inx+Ind
970     Ind=Ind/2
980     If Atascii>127 And Col=15 Then Dat=1
990     If Dat=1 Then Position Col,Row:? Chr$(160)
1000     Next Col:Ind=128:Inx=0:Next Row:Return
1010 Rem LOAD FONT FROM DISC 13
1020 Close #1:Open #1,4,0,File$:Key$=Chr$(27),"y"
1030   For Cnt=1 To 2:  For Inc=1 To 240
1040     Trap 1070:Get #1,Pos:Text$=Text$,Chr$(Pos)
1050     If Len(Text$)<=1 And Pos<>27 Then Text$=""
1060     Next Inc:Line$(Cnt;)=Text$:Text$="":Next Cnt
1070 Close #1:Return
1080 Rem COLLECT CHAR. DATA FROM LINE$ 14
1090   For Cnt=1 To 2
1100   Pos=Find(Line$(Cnt;),Key$,0)
1110     If Pos>0:Goto 1120:Else :Next Cnt:? Chr$(125);Chr$(253);"CHARACTER NOT
FOUND":Goto 1310:Endif
1120 Chdat$=Mid$(Line$(Cnt;),Pos+3,12):Return
1130 Rem CONVERT DATA IN CHDAT$ TO NUMBERS 15
1140   For Inc=1 To 9:Char(Inc)=Asc(Mid$(Chdat$,Inc,1)):Next Inc:Return
1150 Rem PLOT CHARACTER DATA INTO GRID 16
1160 Mode=1:Gosub 390:Mode=0
1170 Ind=128:Inx=0
1180   For Col=7 To 15:  For Row=2 To 9
1190 Dat=Int((Char(Col-6)-Inx)/Ind)
1200 If Dat=1 Then Inx=Inx+Ind
1210 Ind=Int(Ind/2)
1220 If Dat=1 Then Position Col,Row:? Chr$(160)
1230 Next Row:Ind=128:Inx=0:Next Col:Return
1240 Rem LOCATE CHARACTER DATA IN LINE$ 17
1250   For Cnt=1 To 2:  For Inc=1 To Len(Line$(Cnt;)) Step 12
1260     If Mid$(Line$(Cnt;),Inc,3)=Key$:Pop :Goto 1330:Else :Next Inc:Endif
1270   If Len(Line$(Cnt;))<192 And Inc=Len(Line$(Cnt;)):Pop :Goto 1370:Else :N
ext Cnt:Endif
1280 If Cnt=2 And Len(Line$(2;))=240 Then ? Chr$(125);Chr$(253);"FONT FULL PLEAS
E SAVE TO DISC":Goto 1310
1290 Return
1300 Rem ERROR RECOVER POINT 18
1310 ? "PRESS ANY KEY TO CONTINUE":Poke 764,255
1320   If Peek(764)=255:Goto 1320:Else :Return :Endif
1330 Rem REPLACE OLD CHAR. DATA WITH NEW 19
1340 Text$=Left$(Line$(Cnt;),Pos+2)
1350   For Inc=1 To 9:Text$=Text$,Chr$(Char(Inc)):Next Inc
1360 Trap 70:Text$=Text$,Right$(Line$(Cnt;),Len(Line$(Cnt;))-(Pos+12)):Pop :Retu
rn
1370 Rem APPEND CHAR. DATA TO END OF LINE$ 20
1380   For Cnt=1 To 2
1390   If Len(Line$(Cnt;))<=280 Then Pop :Goto 1410
1400   Next Cnt
1410 If Len(Line$(Cnt;))>=240 Then Cnt=Cnt+1
1420 Line$(Cnt;)=Line$(Cnt;),Key$
1430   For Inc=1 To 9:Line$(Cnt;)=Line$(Cnt;),Chr$(Char(Inc)):Next Inc:Return
1440 Rem DUMP FONT IN MEMORY TO PRINTER 21
1450 Lprint Chr$(27);"@";Chr$(27);"s";Chr$(1)
1460   For Cnt=1 To 2
1470   Lprint Line$(Cnt;):Next Cnt:Return
1480 Rem SAVE DATA TO DISC 22
1490 Close #1:Open #1,9,0,File$
1500   For Cnt=1 To 2:  For Inc=1 To Len(Line$(Cnt;))
1510     ? #1;Mid$(Line$(Cnt;),Inc,1);:Next Inc:Next Cnt:Close #1:Return
```

A column is made up of eight pins, designated 1, 2, 4, 8, 16, 32, 64, and 128 (2^0, 2^1, 2^2, 2^3, 2^4, 2^5, 2^6, 2^7) from the bottom up. As you can see, this is just binary code to tell the printer which pins to fire to print dots on the page.

A value of 255 fires all the pins. A value of 155=1, 2, 8, 16, and 128 and subsequently fires pins 1, 2, 4, 5, and 8 from the bottom up. Another note is that you shouldn't try to fire the same pin twice in a row, because the printer needs time to retract the pin before it can be fired again. This means that you should plan to leave at least one column of dots blank between each pair of dots in a horizontal line.

The purpose of this program is to give you a little variety, so you don't have to use the default character set in the printer all the time. With the program, you can:

- Use the computer ROM characters (except keyboard graphics).
- Edit characters that you have saved from this program.
- Create your own characters from scratch.
- Save fonts to any device or file.
- Dump your font to your printer.

The program is menu-driven with single-key selections, and editing is designed to be easy. You move the cursor around the edit block by pressing the arrow keys (Control is not used). To specify a dot to be printed, press the 1 key. To remove a dot, press the 0 key. To return to the main menu, press Option. To recalculate the values of the columns, press Esc.

Note: If you press the Option key and later want to modify the character, from the Main menu press 3, then 2, then 3, then press the key for the character value you were working on. This saves the character data in a string and recalls it for editing. When you are finished, just re-save the character, and the old data will be replaced.

Program notes: The characters in line 410 are a CHR$(145) followed by nine CHR$(146)'s and a CHR$(133). The characters in line 420 are a CHR$(252) at each end of nine spaces. In line 430 we find a CHR$(154) followed by nine CHR$(146)'s and a CHR$(131). This creates the edit grid box.

If you make an enhancement or modification to this program, please send a copy to User Friendly, Atari Explorer, 7 Hilltop Rd., Mendham, NJ 07960, and we will consider including it in a future column. ■

New Atari Development Tools

MADMAC, the assembler, and DB, the debugger

I procrastinated in sitting down to write this report, because I was at a loss to say anything warm and fuzzy about 68000 assembly language programming. The 68000 is not what you would call a friendly little chip, if you know what I mean. In fact, there is something a little intimidating about all those addressing modes. Just as I was beginning to despair of ever finding a way to introduce the piece, however, an old friend managed to hit me over the head with the rubber mallet of inspiration.

This guy is a Lisp programmer, you see. And Lisp, being a symbolic processing language, is way over on the other end of the abstraction spectrum from assembly language. A really modern Lisp development environment keeps you about as far from the machine as you can get before people start calling you a poet instead of a programmer. "I'd love to try my hand at programming microcomputers," he said, "but I'm used to a more high level approach. I don't know if I'd enjoy working without real development tools."

The upshot was that after about half an hour of listening to him talk about intelligent browsers and object flavors, I was ready to say something warm and fuzzy about hand-assembling Z80 code for a Timex/Sinclair 1000. 68000 assembly-language? Piece of cake. Lemme at it.

MADMAC and DB, released somewhat recently by Atari, comprise a complete assembly language development environment for the ST (less editor, shell, and 57 lbs. of manuals). They may, in fact, represent the *ultimate* assembly language development environment for the ST, since they were written by Atari staff programmers for use in their own work. Specifically, MADMAC was written mostly by Landon Dyer and DB by Allan Pratt—programmers and nice guys who would never shoot themselves in the feet by designing bad development tools.

MADMAC

The MADMAC assembler is a blindingly fast (30-40,000 lines per minute) 68000 macro assembler capable of generating executable code or linkable modules in Alcyon or Mark Williams format. Switches permit MADMAC to be employed as a back-end to the Alcyon C compiler (supplanting AS68) or as a 6502 cross-assembler optimized for 8-bit video game development. The assembler currently runs on both the VAX-11/70 and the ST. Only the latter version is discussed here.

MADMAC is most definitely a command-line system, designed for use under a TOS shell. Apologies to GEM purists, but there are inordinate advantages to making it thus, ease of interfacing with Make utilities and other programming tools being one of them. Like all command-line-driven assemblers, the behavior of MADMAC is controlled by a combination of switches and

By JOHN JAINSCHIGG

arguments entered after the program name, though it also supports an interactive mode in which successive command lines can be entered, facilitating multiple assemblies.

Several of the MADMAC switches—including -i (specify include directory path), -o (generate named object file), and -v (verbose option)—will be familiar to those who have worked with command-line-driven, standard C compilers. Among the switches unique to MADMAC are several very useful items, including -d, which permits arguments to be defined on the command line—great for controlling conditional assembly runs; -fm and -fmu, which cause MADMAC to generate Mark Williams format object code; -6, which causes the system to accept source from the Alcyon C compiler; and -q, a unique switch which causes the assembler to install itself in RAM in a RAMdisk-like arrangement, speeding up assembly times for users of floppy-based systems.

The MADMAC source format is fairly standard. Comments begin with a semicolon (or a star in column 1). A label may start with an upper- or lowercase letter, underscore, question mark, or period, and may continue with any combination of letters, irrespective of case, digits, a dollar sign, or a question mark. A label must always end in a colon. Normal labels are considered global within the source file; local labels begin with a period, and their scope is confined between bounding normal labels.

MADMAC supports the usual MC68000 mnemonics and synonyms, though the synonym list is somewhat shorter (particularly as regards branches) than the lists of some other assemblers I have seen. Register names are reserved as keywords and can be combined in the usual fashion as register lists. Additionally, register list masks can be generated deliberately by use of the .regs pseudoinstruction.

Literal operands can be framed in decimal (no leading character), in hex (beginning with $), octal (with @), binary (with % followed by a string of 0's and 1's), and ASCII (bound by single- or double-quotes). A set of C-compatible backslash-escapes is supported for use in strings (the manual notes that use of the C-standard backslash as an escape code means that backslashes in GEMDOS pathnames must be doubled, i.e., C:\1stword\ must be represented as C:\\1stword\\).

A broad set of C-compatible operators is supported for use in expressions. In addition, a set of four special unary operators is provided that evaluate to true or false (non-zero or zero, respectively) depending on conditions. The ^^defined operator tests to see if its symbol argument is defined, the ^^referenced operator tests to see if its symbol argument has been referenced yet, the ^^streq operator tests two strings to see if they are equal, and the ^^macdef operator tests to see if a given macro name has been used in a definition.

Additional special operators include ^^date and ^^time, which evaluate to the current date and time in GEMDOS format. Expressions are evaluated from left-to-right with no regard for operator precedence, though parentheses and brackets can be used to force pre-evaluation of subexpressions.

An economical set of pseudo-operations and directives is supported; these include the usual initializers (equ, .init), allocators (.ds), conditional-assembly primitives (.if, .else, .endif), listing-control directives (.title, .subtitle, .eject), and macro commands. Of the unusual pseudo-operations, the most interesting are .rept and .endr, which serve to begin and end automatically-repeated sections of code or data; .cargs, which evaluates a list of arguments in terms of the offsets they would occupy on a C language parameter-passing stack; and .goto, which is used to prevent macro expansion in subsections of a macro definition.

Macros begin with the .macro and end with the .endm directive. Parameters to macros are entered as an argument list, separated by commas. Several special forms of escape expression are supported for use within the macro body. Of these, the most interesting is probably the \! expression, which expands to the "dot-size" (.b, .w, .l, etc.) specified when the macro was invoked. Using this operator permits the creation of single macros that will expand differently, depending on the size of operands specified.

The construction \~ expands automatically to a unique label consisting of the letter M, followed by a number that is unique to a specific macro invocation. If, for example, you had designed a macro that required three unique confined labels within its body, you could specify them as .a\~, .b\~, and .c\~ which would expand to .a*n*, .b*n*, and .c*n* respectively, the value *n* changing with every invocation.

The .6502 and .68000 directives change MADMAC into a 6502 cross-assembler and back again. When in 6502 mode, the assembler recognizes standard 6502 mnemonics and supports standard 6502 addressing mode syntax (except for "register direct" instructions such as ROR A, which must be rewritten implicitly: ROR).

Five additional special addressing mode formats are also recognized to maintain compatibility with the Atari CoinOp assembler. MADMAC saves an assembled 6502 object file as a 64K map of 256 256-byte 6502 pages, appropriate for downloading to a 6502 target system as a memory-image file or for further processing to produce a "load and go" file for the target system.

MADMAC is a one-pass assembler, meaning that it reads a source file one time only and looks backward to resolve address references. For this reason, the assembler is incapable of optimizing forward branches, though if the -s switch is used, it will announce them. Other than this, it performs the same optimizations and substitutions that one would typically expect of a full-fledged 68000 assembler, generating the "address register direct," "quick," and "immediate" forms of instructions based on the nature of their operands.

The MADMAC assembler is a blindingly fast 68000 macro assembler capable of generating executable code or linkable modules in Alcyon or Mark Williams format.

DB

DB is designed to replace SID as the assembly level debugger of choice for the Atari ST series. Normally, the bulk of DB will be resident on the same system on which a client program is run-

(*Continued on page 80.*)

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 Barbara Edwards at (201) 543-6007 for details.

CALIFORNIA

Mid-Cities Comp/Soft
9406 Flower St.
Bellflower, CA 90706
(213) 867-0626/8994
Full Atari ST specialty store with over 500 titles in stock, including professional MIDI software. Also a wide range of 8-bit software and peripherals.

B&C Computervisions
3257 Kifer Rd.
Santa Clara, CA 95051
(408) 749-1003
Atari specialty store. Full line of software and hardware for both 8-bit and ST computers. Large public domain software library. Write or call for free catalog. Open 10-6, Tues-Fri; 10-5 Sat; closed Sun-Mon. Authorized Atari service center.

LTC COMPUTERS
2431 North Tustin Ave.
Santa Ana, CA 92705
(714) 667-1575
The complete Atari computer store. Authorized Atari ST and Mega computer sales and service. Southern California's largest and oldest Atari software and peripheral dealer. Open Mon-Fri 10-6, Sat 10-5.

COMPUTER·OUTLET
5945 Mission Gorge Rd.
San Diego, CA 92120
and
344 East H St.
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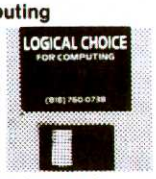

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(*Continued from page 77.*)

ning and will thus operate as a standard debugger via the screen and keyboard. While still entirely resident on the target system, DB can also be set up to stub via the serial or MIDI lines. This way of using DB is called *remote debugging*.

DB is normally started from within a TOS shell or as a TTP program. It installs itself according to switches entered on the command line: -g, -b, -s, or -m, indicating that it should use screen/keyboard I/O via GEMDOS, BIOS, or direct via serial or MIDI hardware. It then looks for (and executes, if found) a script file called db.rc (rdb.rc when the debugger is functioning in remote mode), which is essentially an ASCII file of DB commands. This can be used to exercise a client program or perform the early, rote portion of a debugging procedure automatically—getting a client program set up to execute, setting initial breakpoints, etc.

Finally, DB displays its prompt (:) and awaits input of commands. Once a client program has been loaded, it can be executed with a variety of trace/go commands (go, trace, untrace, and verbose-trace), or be prepared with standard or *counted* breakpoints (breakpoints which activate when they have been passed a certain number of times).

Checkpoints can also be set; these cause a program under trace to stop when the contents of a particular memory location changes, rendering a checkpoint expression "true" (comparison checkpoints), or when the contents of a particular area of memory change (region checkpoints). Unlike breakpoints, which cause a processor exception and thus halt execution automatically, checkpoints must be evaluated by DB before a program can be halted. Checkpoint evaluations are performed only during *opportunities*, which correspond to processor exceptions.

In addition to the trace and go commands, DB supports a wide variety of commands for examining registers, performing stack tracebacks, and listing, disassembling, setting, searching, and saving the contents of memory. A full range of logical, binary, address, and mathematical operators are supported for use in range and literal expressions.

DB expressions are entered in a stack notation (i.e., (* 3 4) for 3 * 4) to simplify evaluation. Macro command facilities are supported by the load and unload commands, which execute and abort execution of script files saved on disk, and the alias command, which can be used to create macro-like combinations of DB commands. Aliases are recursive, and DB will expand up to 256 of them in a single line.

Auto-execute aliases, which are processed automatically if a related checkpoint reaches a given value, and IF and GOTO commands give DB the power to respond intelligently and automatically to conditions. Included in scripts, these commands create the possibility of designing semi-automatic debugging runs.

MADMAC and DB are documented in exceptionally clear, well-written manuals, containing numerous practical examples. Registered developers should contact Cindy Claveran at Atari, 1196 Borregas Ave., Sunnyvale, CA. 94086 for pricing and product availability information. ■

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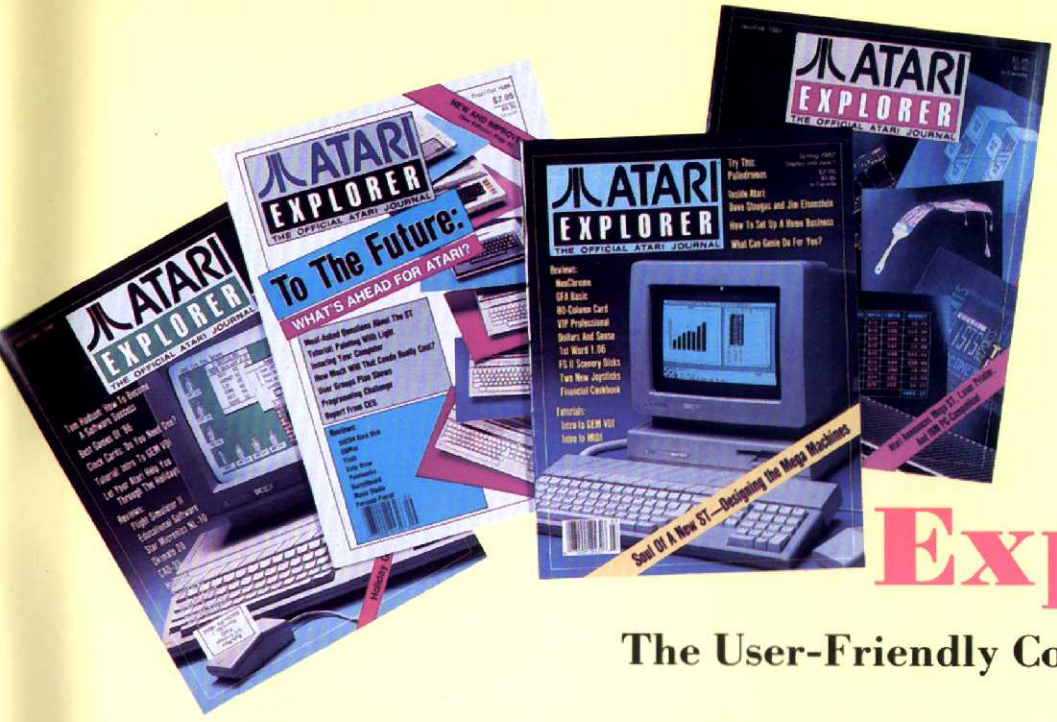
INDEX TO ADVERTISERS



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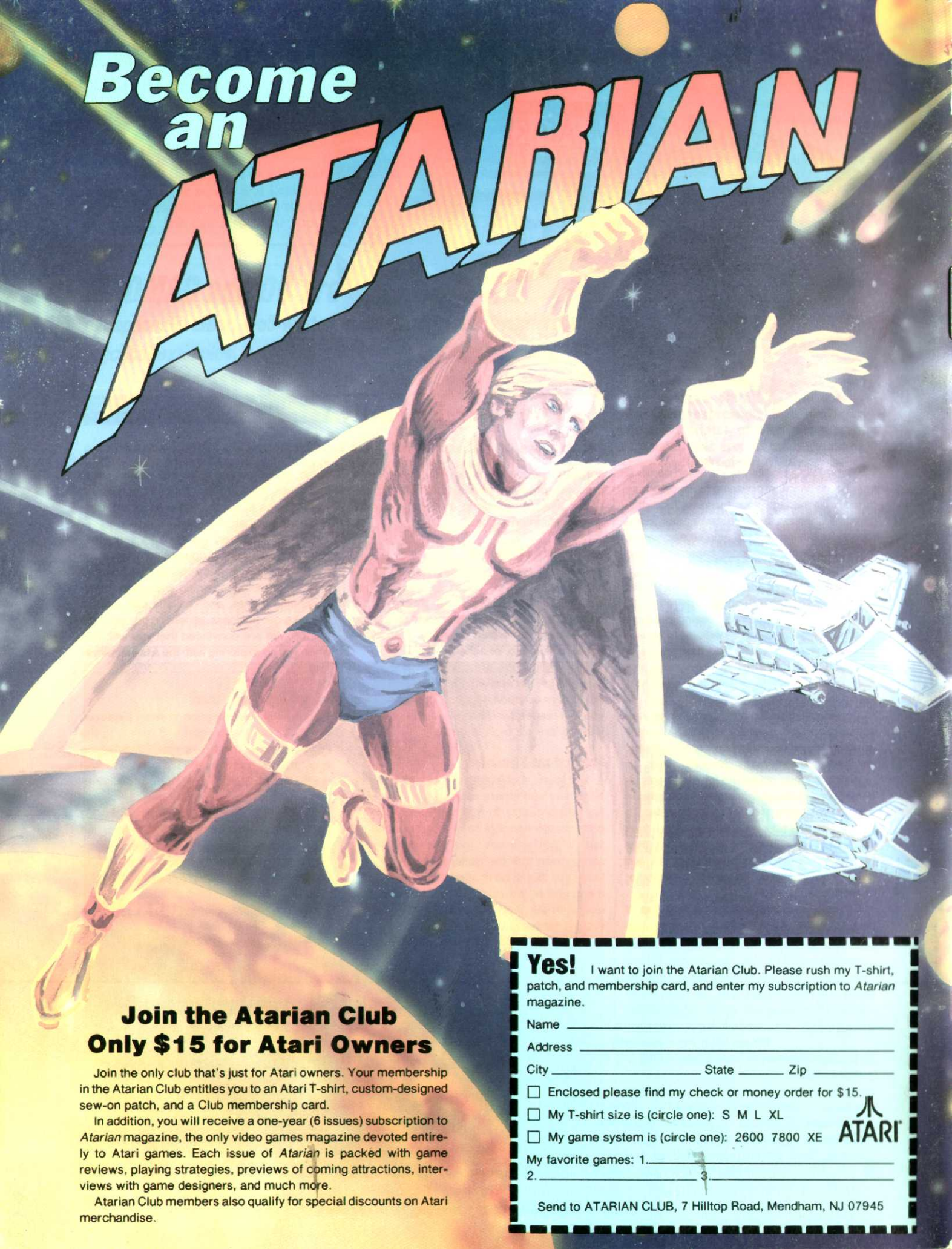

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