

FDC 50076

JULY 1989

ISSUE 29

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## Fall '88 COMDEX Report

## How to Produce Professional Animation



### REVIEWS:

G + Plus

WordUp

Fontz

Space Harrier

Black Lamp

and More!

### TYPE-IN SOFTWARE!

Picture Puzzle  
ChemCalc  
Sounds-A-Like







# BREAK AWAY FROM THE PACK



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BY CLAYTON WALNUM

What exactly makes a good game? What urges us to plunk down big wads of cash for a tiny 3.5-inch disk and a manual? Why is *Dungeon Master* the best-selling piece of ST software of all time?

To an extent, each person has his own answers to these questions. It all depends upon what kind of game you like, of course. People who are hooked on shoot-'em-ups are not likely to enjoy text adventures—and vice versa. But no matter what kind you're talking about, there is one element that all the great games share: realism.

What do I mean by realism? I certainly don't intend to imply that the game must be set in the "real" world; that would disqualify many, if not most, of the popular titles. What I mean is that the game must be engineered in such a way as to be convincing to the player—the player should be able to immerse himself in the gaming world as if he had actually physically traveled there.

If you think about it, you'll realize that this is true. The best games are all thoroughly convincing. Take *Dungeon Master* as an example. The carefully drawn graphics and wide range of actions available to the player make it seem as if you are actually in that dungeon. You can almost feel the chill air and smell the dampness.

Computer board games, such as many of the war simulations, have a more abstract kind of reality. They endeavor not to make you feel as if you're in a war, but that you are sitting at a table with a group of friends around a gaming board dotted with hundreds of small playing pieces.

Text adventures, like books, have to create reality through words. It's a dual effort: The author must provide the best descriptions he can, and the player in turn must use his imagination to visualize what the author has written. When this is done successfully, the results can be completely engrossing. You get lost in the game in the same way you get lost in a good novel.

What am I leading up to? Well, this month we asked well-known computer entertainment experts Katz, Kunkel and Worley to do a little research, to evaluate the polls and give us a report on the top games of the year. I won't tell you the results here—you'll have to read the article—but I will tell you that all the games chosen share, in one

form or another, that all-important element of realism. They have all succeeded in drawing us in and making us a part of their worlds.

Of course, we've brought along a couple of our own games too. In this issue you'll find Guy Davis's *Picture Puzzle*, a picture-to-puzzle generator that goes one step beyond the others, allowing you to cut the image into however many pieces you like. Also along for the ride is A. Baggetta's clever *Sounds-A-Like*, an addicting game if ever there was one.

For those of you who are not inclined toward gaming, we've got a few special treats as well. Frank Cohen gives us his report of November's fall COMDEX, and Ian Chadwick does likewise for the first Canadian Atari show in Toronto. In addition, for those who are interested in graphics, we have the first installment of a multipart article by *Step 1* author Maurice Molyneaux on the creation of professional-quality animations.

Does all this sound good? We think so.

In closing, we'd like to ask a favor. If you didn't fill out last month's reader survey, please do so. There's still plenty of time to get them in, and we really would like to hear from you.





# I N T H I S I S S U E

## FEATURES

### The Top Games of 1988 .....Katz, Kunkel & Worley

There were many fine games released during the past year, but if you had to pick only a dozen, which ones would they be?

### ChemCalc .....Richard Repka

Chemistry students take note! This simple program in ST BASIC may help you get an "A" on your next exam.

### The Animation Stand: Groundwork .....Maurice Molyneaux

Ever wonder exactly how to produce professional-quality animation on your ST? This series of articles will show you all the tricks.

### Toronto Atari Show Report .....Ian Chadwick

It was the first Canadian Atari show, and judging from Ian's report, it won't be the last.

### Picture Puzzle .....Guy Davis

Take your ST art masterpieces and convert them into challenging puzzles.

### The Fall '88 COMDEX Report .....Frank Cohen

STLog was there, and here are some of the highlights of what proved to be a most interesting show.

### Sounds-A-Like .....A. Baggetta

For lovers of Concentration-type games, here's an interesting twist on the old theme.

## REVIEWS

### GFA BASIC Training Reboot Camp (Michton) .....Frank Cohen

### Fontz (Neocept) .....Andy Eddy

### G+Plus (CodeHead) .....Gregg Anderson

### WordUp (Neocept) .....David Plotkin

### The ST Gameshelf .....

This month we play-test *Typhoon Thompson*, *Virus*, *Warlock*, *Questron II*, *Space Harrier*, *Black Lamp* and *Off Shore Warrior*.

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fall 1988

## BEST GAMES OF '88 10



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ISSUE 20

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# READER COMMENT

## Comments on prophecies

The letter by Gilbert Bush in the October issue of STLog demands a different answer than the one given by Clayton Walnum. I am a loyal Atari booster, or have been until now. I started into the computer revolution at a late age with an Atari 800 when they were being supplanted by the XLs. I stuck with the 40-column display, the slow execution times and many of the other limitations it had. It was the forerunner of what could be done to satisfy the home user and the needs of the personal computer user in the business environment. It could run rings around the other computers of that day.

Then the bottom dropped out of the home computer market, and all the players took a long, slow ride to the bottom—or worse, were out of the game. Atari survived in spite of Warner Communications. They survived only because of the loyalty of the Atari users who recognized the capabilities of the 8-bit machines that they had.

Then along came Jack! Riding out of the rising sun he came, and he purchased Atari, vowing that Atari would rise above the ashes and conquer the fire-breathing dragons that dominated the personal computer market. We no longer had to dress in blue jeans or eat applesauce. Best of all, we were going to get the option of expanding our Atari-land into the 16/32-bit world—power without the price!

We are now several years older. The ol' world has spun in circles a few more times and so has Atari. It seems we may be back at the same point we were a few years ago: back at the starting gate. This time we not only have an 8-bit game machine, but a 16/32-bit one as well. Applesauce and blue jeans, here we come again. Maybe the commodore of the computer fleet sent Jack over like a Trojan horse to destroy from within.

But some of us will continue to bang on our "mooshi" keyboards, live with the buggy ROM operating system and keep the hope alive that we may still get the implied blitter upgrade for our old 520s and 1040s. We will continue to rely on back-room memory upgrades, public domain software and user groups to keep our machines alive. But there will be many others who will join the crowds that al-

ready follow one of the gurus that wear blue jeans or eat applesauce.

Believe me, I think my 1040ST computer has great possibilities. If I have to, I will continue to operate my computer in a closet as long as it will run. You see, I can't afford a new set of blue jeans, and I gag on applesauce.

I am not one who believes that the warnings verbalized by Gilbert Bush, and others, about the shortcomings of the computer company we are tied to are self-fulfilling prophecies. The only ones who will make that happen will be Jack, et al. Atari must get behind us and see that Atari owners are supported. It must make serious efforts to aggressively market its products. Any failure will be caused by Atari itself, not by those of us who are frustrated with vaporware. So far, all Jack has done is shoot himself in my foot.

—Douglas J. Van Sandt  
Medford, OR

## GEMKIT revision

A simple improvement, a suggestion and a clarification for my program GEMKIT may interest your readers. I say in the article that one of the subroutines creates dialog boxes. They are alert boxes, which are more limited in what they can accomplish than a true dialog box.

Also, any time that special text faces and styles have been used, and you want to return to the default text face, you should use two GOSUB calls: GOSUB NORMAL and GOSUB BLANKOUT. Without the BLANKOUT call, you get some weird stuff.

Finally, before leaving the program, I advised programmers to use GOSUB GETOUT. Here's a new version that resets all the changes that GEMKIT can create. Without the changes, line widths, type styles and such can survive to confound programs that don't use GEMKIT. Here's the new subroutine:

```
GETOUT:title$="OUTPUT":gosub  
newtitle:gosub normal:gosub arrow:gosub  
rtype:gosub blankout:leftend=0:rightend  
=0:gosub endstyle:linewidth=1:gosub  
linewidth:RETURN
```

—Gordon Billingsley  
Murphysboro, IL

*Thanks for the update, Gordon. However, we might mention that although an alert box is more limited than a "true" dialog box, it is nonetheless a dialog box. It is simply a predefined type of dialog box that the creators of GEM included for the convenience of programmers.*

## ST Writer fights back

I enjoyed David Plotkin's article "Doing It Write" in the September '88 STLog. As a long time user and programmer of ST Writer, I need to correct one statement in the article, where it said, "...[ST Writer] lacks the ability to save files in ASCII format. (You can, however, print a document to disk, but printer controls will also be sent to the file.)"

In actuality, ST Writer can save files three ways. The first is the ST Writer SAVE format, where formatting codes are embedded in the text.

The second is a "spooler" file that prints a formatted document to disk and embeds printer control codes, so that the document can be printed to a printer using the desktop "Print" option, for example. The third produces true ASCII files with a CR/LF at the end of each formatted line—and without printer controls. This method is called "Print to disk."

A new, and perhaps final, version (3.0) of ST Writer Elite will soon be made available that includes a "Save ASCII" function from the GEM menus, which will simplify the last option so that you do not need to specify margins. This version will also include the ability to embed ASCII characters with values less than 32 (\$20 hex), useful for placing printer directives at a specific point in a document; but placing these characters will not work easily when justifying text or in double columns. This is because the extra characters will still take up space in the page layout, and as printer directives, they will be stripped out of the document, thus moving the second column text leftward to fill in the gap.

—Bruce D. Noonan, M.D.  
Edmonds, WA

**ALL LETTERS TO BE CONSIDERED FOR PUBLICATION  
SHOULD BE ADDRESSED TO:  
ST-Log, READER COMMENT  
P.O. BOX 1413-M.O.  
MANCHESTER, CT 06040-1413**



# ST NEWS

## Graphics editor from Migraph

Migraph, Inc. has announced a new program for ST users looking for the ultimate image creator. *Touch-Up*, a complete image-design tool for producing high-resolution bit-mapped

as .IMG, Neochrome, DEGAS, Printmaster, MacPaint and PCX. In addition, *Touch-Up* provides such drawing tools as Bezier curves and B-Splines and supports scalable outline fonts in many typefaces and styles.



graphics, can be used to produce images for use in newsletters, presentations, brochures and more. According to Migraph's president, Kevin Mitchell, "*Touch-Up* is the first full-featured graphics application for the Atari that produces bit images not limited by screen size. It combines a wide range of drawing tools with special effects, outline-font technology and screen-editing functions. Users will be amazed at the ease with which they can create high-quality images and headlines."

*Touch-Up*'s features include the abilities to create and edit images larger than the screen and to load and save pictures in a variety of formats, such

as .IMG, Neochrome, DEGAS, Printmaster, MacPaint and PCX. Images created with *Touch-Up* can be used with desktop publishing systems such as *Timeworks Publisher ST*, *PageStream* and Migraph's own supercharged *Easy-Draw*. The program will run on color and monochrome ST systems with at least one megabyte of memory and is expected to retail for under \$200.

.....  
**Migraph**  
200 S. 333rd (220)  
Federal Way, WA 98003  
(800) 223-3729

CIRCLE #130 ON READER SERVICE CARD.

## Taxes made easy

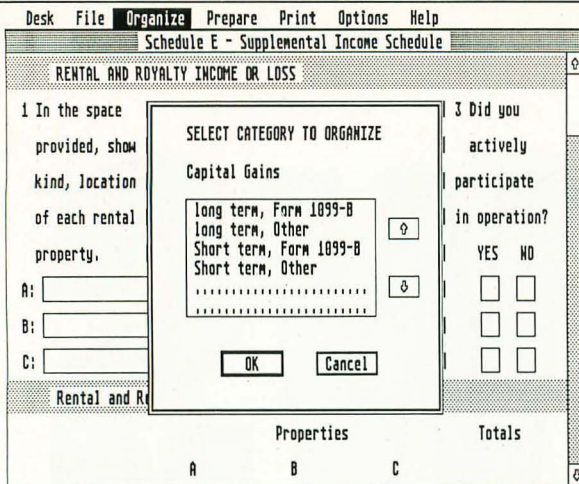
Double Eagle Software has released the 1988 version of its popular *The Tax Advantage*. They report that the program is now capable of importing data from other financial programs, including *Phasar* and the IBM PC versions of *Dollars and Sense*, *Managing Your Money* and *The Home Accountant*. According to Harry Koons, president of Double Eagle Software, "*The Tax Advantage* takes the data you have entered all year in these accounting programs and transfers it to the appropriate line of the tax form automatically."

Five new forms, over and above the standard forms, are included with this

■  
■  
**Five new forms, over  
and above the standard  
forms, are included  
with this year's  
Tax Advantage.**  
■  
■

year's *Tax Advantage*: Schedule R, Credit for the Elderly; Form 2119, Sale of Principal Residence; Form 3903, Moving Expenses; Form 8598, Home Mortgage Interest; and Form 8615, Tax

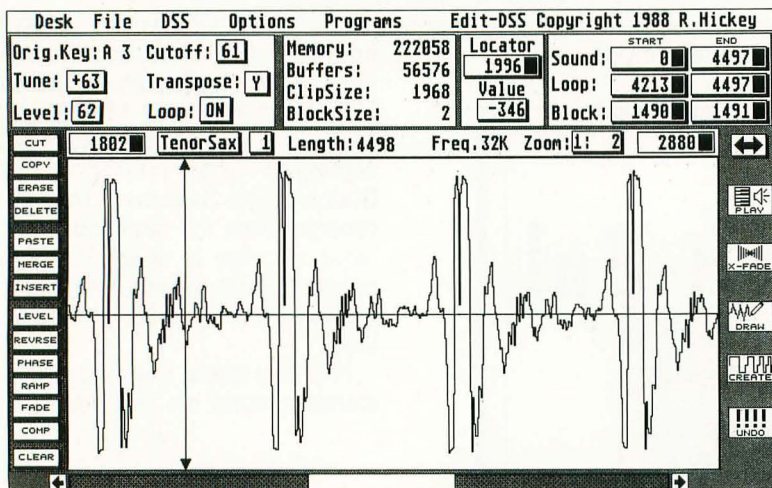




for Children Under 14. Also included in the new version are worksheets for Social Security benefits and IRAs.

**Double Eagle Software**  
2340 Plaza Del Amo, Suite 215  
Torrance, CA 90501  
(213) 212-6611

CIRCLE #131 ON READER SERVICE CARD.



## Korg DSS-1 editing software

Savant Audio has announced the release of *Edit DSS*, a full-featured patch-editing program for owners of the Korg DSS-1 synthesizer. Features include:

- An intuitive mouse and menu interface with high-speed graphics routines.
- Complete waveform editing, including cut, paste, copy, mix, draw, optimize, reverse, compress, invert, crossfade, undo and more.
- High-quality sample playback through the Atari ST speaker, allowing the user to hear edits immediately.
- Complete DSS-1 system in RAM, which holds with up to 16 multisounds, 256 samples and 64 programs instant-

ly available.

- Full-featured patch editing that edits all DSS-1 parameters with two banks of patches in RAM and complete librarian functions, as well as a patch generator.

*Edit-DSS* can be run on both monochrome and color systems, but it does require one megabyte of RAM. It's priced at \$250.

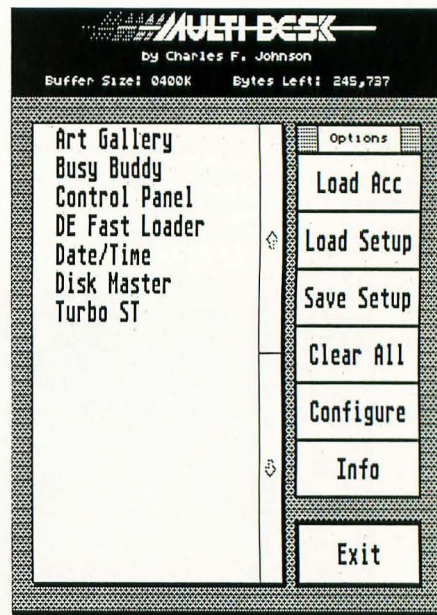
**Savant Audio**  
140 Bellmore Avenue  
Bellmore, NY 11710  
(516) 826-6336

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## CodeHead strikes again

CodeHead Software, publishers of the GDOS replacement *G+Plus*, has just released another "must have" product for owners of ST computers. *MultiDesk* is an innovative new program similar to products like *Suitcase* or *Double Apple* for the Macintosh.

The first ST program to break GEM's limit of six desk accessories, *MultiDesk* lets you load and immediately use almost any standard ST desk accessory—even while you're running a program. You can load up to 32 accessories at a time or load entire groups of desk accessories with a click of the mouse. If you need more than 32 accessories, *MultiDesk* can even be loaded into itself. Desk accessories can also be "unloaded" to make room for new ones.



Flexible memory configuration options let you set up *MultiDesk* to use as much or as little memory as you desire. You can even run *MultiDesk* as a program instead of a desk accessory if you wish, and run any ST desk accessory as if it were a program too. *MultiDesk* sells for \$29.95.

**CodeHead Software**  
P.O. Box 4336  
N. Hollywood, CA 91607  
(213) 466-1868

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### Health programs

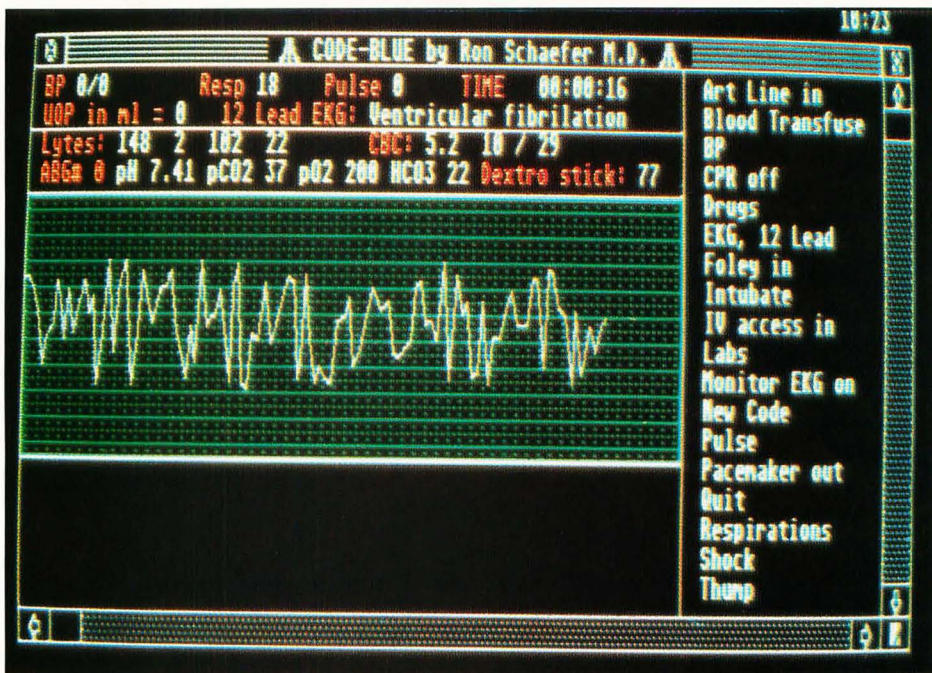
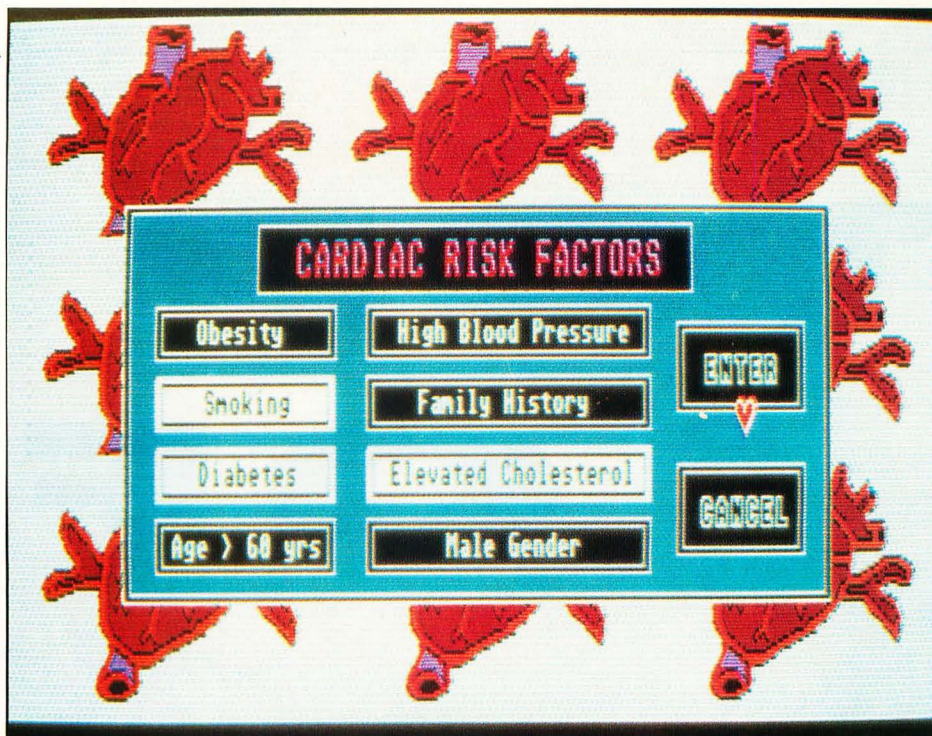
10/12/88—Schaefer SuperGraphics has released several programs that just might help you live longer. *Diet, Version 2.0* is a nutritional-analysis program written by two MDs. Features include the calculation of weight loss, daily caloric requirements and caloric expenditures due to exercise. The program also boasts an expandable GEM-based menu planner and calorie counter; ideal-diet and body-weight recommendations; complete documentation, including discussions on rational weight loss, debunking fad diets and updates on nutrition and exercise. *Diet* runs on any color or monochrome ST and is priced at \$25.

*Longevity*, an enhanced version of *Diet*, will teach you about risk-factor modification, nutrition and the advantages of sensible exercise in an effort to help you maximize your life span. The program performs all the calculations that *Diet* does, with the additional abilities to create nutritional databases, weight-loss calendars, nutritional profiles and more. There are 21 separate subjects covered, including aging, exercise, vitamins, cholesterol, aerobics, cancer, smoking and AIDS. *Longevity* runs on any color ST and retails for \$39.95.

*Code-Blue* is a real-time simulation based on the most recent recommendations of the National Conference on Advanced Cardiac Life Support (ACLS). The program continuously updates such parameters as blood pressure, pulse, respirations, urine output, pH, pO<sub>2</sub>, pCO<sub>2</sub>, HCO<sub>3</sub> and cardiac rhythm, and displays these graphically in real-time on the computer screen. The mouse is used to make selections from a menu of options that include drawing labs, procedures and administering the common ACLS drugs. Scenarios are generated either randomly or selected by the user, and no two are exactly alike. If at any time the user is unsure of what to do next, an artificial-intelligence mode may be activated, which can assess the current patient status and suggest the next appropriate step of ACLS. *Code-Blue* is priced at \$65.95.

**Schaefer SuperGraphics**  
1201 Wilder Ave. #1801  
Honolulu, HI 96822

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### Discovery cartridge released

Happy Computers, maker of the famous "Happy" drives for the 8-bit Atari computers, is now shipping the *Discovery cartridge*, a device for ST computers that allows the user to make backups of any type of disk. The cartridge was designed around a custom chip that allows the ST to read and write virtually any floppy disk format, including Macintosh format disks. Options include direct access to a third and fourth floppy drive, a battery-backed-up clock, sockets for ROMs and EPROMs and a second cartridge port. The basic *Discovery cartridge* is priced at \$249.95, and the cartridge

with all the extra options is \$319.95.

*Note: ST-Log would like to remind readers that the duplicating of copyrighted software for any purpose other than personal backups is a violation of copyright law for which offenders may be subject to criminal prosecution.*

**Happy Computers**  
P.O. Box 1268  
Morgan Hill, CA 95037  
(408) 779-3830

CIRCLE #135 ON READER SERVICE CARD.



# TOP ST OF 1988

**T**he quantity of new ST entertainment software in 1988 wasn't as great as game lovers might wish, but it is hard to fault the quality. Despite the small number of eligible programs, it was still agonizing to separate the "merely" very good from the outstanding.

Why so few new ST games? The reasons are as complex as they are numerous. Some of the most important factors are:

- \* The ST computer has not achieved market penetration in the United States comparable to other major brands.

- \* Atari has emphasized business applications for the ST in its marketing and advertising, which has caused software publishers to emphasize productivity programs rather than games.

- \* Few computer games are developed on the ST in this country. Most are trans-

lated from original designs created for other computers. This has slowed the build-up of the ST entertainment-software library.

- \* More and more ST games are developed overseas, where the ST is gaining widespread popularity. This lengthens the time lag between conception and U.S. publication, so that American ST owners are only now starting to benefit from the European ST boom that started about 18 months ago.

We evaluated all games introduced for the Atari ST between November 1, 1987, and October 31, 1988. The programs described in this article constitute our choice of the best in a strong field. We hope that readers whose favorites didn't make this year's list will be charitable about any seeming omission. Apologies are also due to publishers whose pro-

grams arrived too late for consideration this year. They will be eligible for recognition in the "Top ST Games of 1989" competition.

Games designed by Subway Software (Arnie Katz, Bill Kunkel and Joyce Worley) are automatically ineligible for consideration; no one should judge his or her own work. However, there is no law against checking out *MicroLeague WWF Wrestling* and the *Superstars of Wrestling* match disks (all MLSA).

This year's winners are not segmented into categories. There were few enough new ST games that each release should be considered an event, not pigeonholed into classifications that mean more to critics than consumers.

Now that the alibis are out of the way, let's start with the kings of the software mountain, the best ST games of the year.



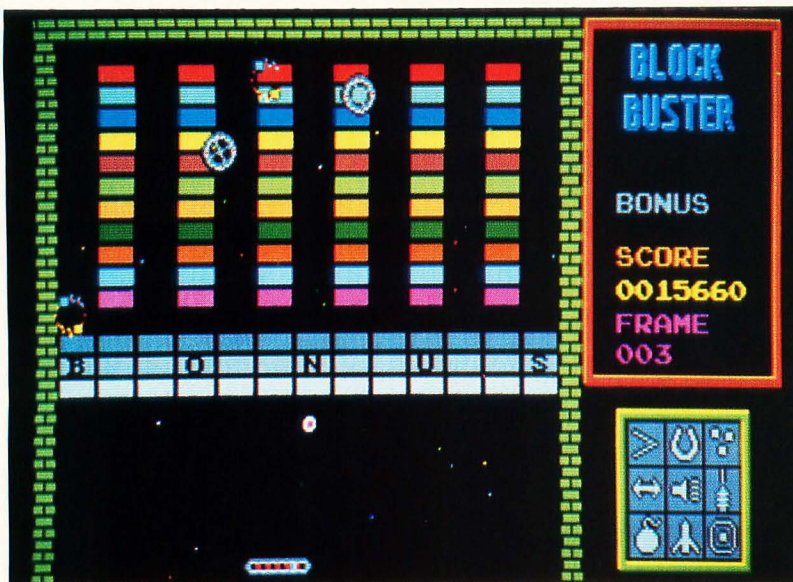
# GAMES

THE CREAM OF THE ENTERTAINMENT SOFTWARE CROP

BY  
ARNIE KATZ  
BILL KUNKEL  
AND  
JOYCE WORLEY





**BLOCK BUSTER** • From Mindscape

A compelling update of the classic wall-bashing theme made famous by Atari's *Breakout* almost a decade ago.

**SUPERSTAR ICE HOCKEY** • From SportTime/Mindscape

The best combination of action and strategy ever made available in a sports simulation.

**TEST DRIVE** • From Accolade

The user gets behind the wheel of a hot sports-car and burns rubber up the side of a dangerous mountain. Unquestionably the finest pure driving simulator ever created.



## Jet

*Jet* (subLOGIC) is a soaring technical achievement, and it is indisputably the finest combat-flight simulator available on the ST. The 16-bit version by Chris Green, Matt Toschlog, Bruce Artwick and Mike Kulas is true state-of-the-art, utilizing technology from both the classic Amiga/ST *Flight Simulator II* and the never-released Amiga program *Radar Raiders*.

Flexibility and variety are the hallmarks of 1988's ST Game of the Year. The program is built around two modern supersonic aircraft. The armchair pilot can head for the unfriendly skies in an F-16 for dogfights, target strikes or combined missions.

Alternatively, the user can experience the unique thrills of sea-based air power in an F-18. The user launches from the deck of a Nimitz-class aircraft carrier and engages in dogfights or target strikes at sea.

Those who find some earlier simulators too complex may be surprised to learn that jockeying a jet is significantly easier than flying a light plane, as in Bruce Artwick's *Flight Simulator II*. A streamlined HUD (heads up display) takes all the drudgery out of flying.

The colorful and detailed graphics provide plenty of scenic thrills and visceral chills. Forthcoming scenery disks, which will be available for separate purchase shortly, interface with the *Jet* game disk.

William Guy's design is not a boot-and-bash affair. It requires a little study and practice to play well, but few products repay this kind of effort more handsomely.

## Blockbuster

*Blockbuster* (Mindscape) is a compelling update of the classic wall-bashing theme made famous by Atari's *Breakout* almost a decade ago. Although the coin-op hit *Arkanoid* obviously inspired Audiogenic Sound Ltd. design, *Blockbuster* adds several innovations of its own to the genre.

As in *Breakout*, the player must clear a wall off the screen one brick at a time. This is accomplished by striking the ball with a horizontally moving paddle located near the bottom of the playfield so that it smashes into the bricks. When one screen is empty, another, even more challenging one, takes its place.

Certain bricks, when destroyed, release tokens that enhance the power of the paddle, making it easier to wipe out the walls. The program's unique wrinkle is that the tokens do not bestow any specific power; instead, the player saves them up until the icon that corresponds to the desired bo-

nus ability lights. These powers include multiple balls, a wider paddle and a laser gun. This gives the player much greater strategic scope.

Add first-rate sound and graphics to complete the picture, and you've got one terrific product. *Blockbuster* is exactly that, a blockbuster for the ST.

**The colorful and detailed graphics provide plenty of scenic thrills and visceral chills. Forthcoming scenery disks, which will be available for separate purchase shortly, interface with the *Jet* game disk.**

## Superstar Ice Hockey

*Superstar Ice Hockey* (SportTime/Mindscape) by Ed Ringler is the best combination of action and strategy ever made available in a sports simulation. Whether running the team from behind the bench, tending goal or playing forward, this game is a rink rat's dream.

The program's multidivisional league format gives would-be general managers a chance to show their mettle. The athletes actually age over the course of a seven-season campaign. The computerist, as general manager, attempts to parlay drafting, trading and special training camps to propel the team to dominance in the SportTime Hockey League.

## Test Drive

The best computer simulators thrust the user into worlds and situations that he or she otherwise might never have. Whether it's flying a jet fighter, commanding a submarine or driving up a mountain in a hot sportscar, the user experiences the excitement without taking the physical risks.

In *Test Drive* (Accolade), by Distinctive Software, the user gets behind the wheel of a hot sportscar and burns rubber up the side of a dangerous mountain. Unquestionably the finest pure driving simulator ever created, *Test Drive* is especially impressive on the ST, with its stunning graphics and animation.

Whether the driver picks the Lamborghini Countach, the Ferrari Testarossa, Porsche, Lotus Turbo Esprit or the humble Chevy Corvette, the cars of *Test Drive* handle, accelerate and brake like the real McCoy. For the first time in an auto simulation, the player is inside the car, operating the stick shift, turning the wheel and monitoring the fuzzbuster.

*Test Drive* may not be a primer on safe driving, but it sure is fun!

## Police Quest

Sierra, best known for the *King's Quest* interactive graphics adventures, explores a more realistic situation in *Police Quest*. It features the same smooth user interface as the popular fantasy adventures, but the plot is a long way from magic kingdoms and stainless steel knights.

The authentic experiences of designer Jim Wall, a retired police officer, are the basis for a grimly realistic crime story. A mysterious criminal known as the "Death Angel" has cast his net of evil over the small town of Lytton. It's up to the player, as a street cop, to solve the numerous crimes and bring the master villain to justice.

## Awesome Arcade Action Pack

Arcadia's *Awesome Arcade Action Pack, Volume I* is the perfect product for penny-wise action aces. It provides three complete games, at least two of which would be worth the price if sold separately. There is a traditional blast-'em-up, *Sidewinder*; an innovative action-strategy contest called *Xenon*; and *Blastaball*, a futuristic variation on ice hockey.

All three games offer excellent visuals and spectacular sound. *Sidewinder* features the most incredible audio effects ever heard on an ST. *Xenon*, *Sidewinder* and *Blastaball* are easy to learn and hard to master, the recipe for long play life.



# ChemCalc

BY RICHARD REPKA

While I was setting up my schedule this term at my college, I found that I needed an elective to fulfill my requirements. Being the type of person who likes to be challenged, I chose Chemistry 1, and I found that the class was not only challenging, but also very mundane, due to the repetition of calculating the molecular weight of various substances. As a programmer and owner of an ST, I saw the potential for a useful program to help me with chemistry.

**ChemCalc** is one of the most used programs I have ever written. Anyone taking chemistry—which happens to be a requirement for most majors—will find it very useful. It accepts whole formulas or only parts of a formula as input. The program will break the input down into separate elements, calculate the weight and find the elemental composition of the molecule.

## Typing it in

Listing 1 is the ST BASIC program for **ChemCalc**. Type the program in, and then use *ST Check* found elsewhere in this issue to check your work.

## Using the program

When entering a formula to be analyzed, you must use proper syntax. Each element symbol has one, two or three letters in it with the first letter always being a capital. For instance, sodium has "Na" as its symbol. Be sure to use Na and not NA. The program will tell you if it has found any error and ask you to please

check your formula and re-enter it. There are also some special characters that the program will accept as input:

- ( — Start of a radical
- ) — End of a radical
- \* — Hydration

For example: Ba(NO<sub>3</sub>)<sub>2</sub> \* 5H<sub>2</sub>O

To use **ChemCalc** simply enter a formula and press Return. Some examples are:

H  
N<sub>2</sub>  
H<sub>2</sub>SO<sub>4</sub>  
\*7H<sub>2</sub>O

The program then checks your input,

and if all is okay, it will tell you it is working. The longer the formula, the longer it will take. The program will then display the molecular weight in grams per mole (g/mol) and a table of elemental composition. The table will list up to eight different elements in your formula. For space reasons it cannot display more. This should not be a problem as I have never encountered a formula with more than eight different elements. The program will then ask you if you want to enter another formula. A y or a Y will mean yes, and anything else will return you to ST BASIC.

*Richard Repka is currently attending the University of South Florida where he is majoring in Information Systems Management. He expects to graduate "one of these days, if he's in the mood." His other interests include playing Scrabble with his girlfriend.*

### Chem Calc Listing 1: ST BASIC

```
1000 REM ChemCalc Version 1.0
1010 REM Copyright (c) 1989 by ST-Log
1020 REM
1030 on error goto 2020
1040 gosub INIT: goto CALCWT
1050 INIT:
1060 fullw 2: clearw 2: color 3
1070 gotoxy 29,4: ? "ChemCalc"
1080 gotoxy 26,6: ? "By Richard Repka"
"
1090 gotoxy 28,7: ? "From ST-Log"
1100 gotoxy 27,12: ? "Initializing... "
";
1110 dim etable$(106), wtable(106), fs
s$(25), fsv(25), ptable$(25), pcv(25)
)
1120 for i = 1 to 106: read element$:
etable$(i) = element$: next i
1130 restore 2130
1140 for i = 1 to 106: read wt: wtable
e(i) = wt: next i
1150 for i = 1 to 800: next i
1160 INITFS:
1170 for i = 1 to 25: fs$(i) = "": fsv(i
i) = 0: next i
1180 for i = 1 to 25: ptable$(i) = "":
pcv(i) = 0: next i
1190 totpcv = 0: weight = 0: radmult =
= 1: hydmult = 1
```

```
1200 return
1210 CALCWT:
1220 clearw 2: color 1: gosub INITFS
1230 gotoxy 2,0: line input "Enter For
mula: "; fs
1240 fs$ = fs$ + "\": cnt = 1: pnt = 1:
sub = 1
1250 test$ = mid$(fs$,pnt,1)
1260 if test$ >= "A" and test$ <= "Z"
then goto FINDELE
1270 if test$ = "(" or test$ = "[" the
en goto RADICAL
1280 if test$ = "*" then goto HYDCOMP
1290 if test$ = "\" then goto GETWT
1300 pnt = pnt + 1: goto 1250
1310 HYDCOMP:
1320 cnt = cnt + 1
1330 pnt = pnt + 1: test$ = mid$(fs$,pn
nt,1)
1340 if test$ < "0" or test$ > "9" the
en 1360
1350 goto 1330
1360 hydmult = val(mid$(fs$,cnt,pnt-cnt
t)): cnt = pnt: goto 1250
1370 FINDELE:
1380 pnt = pnt + 1: test$ = mid$(fs$,pn
nt,1)
1390 if test$ = "\" then temp$ = mid$(
(fs$,cnt,pnt-cnt): gosub SEPARATE
1400 if pnt = len(fs$) then goto GETWT
1410 if test$ >= "A" and test$ <= "Z"
then 1440
1420 if test$ = "(" or test$ = "*" the
```



```

en 1440
1430 goto 1380
1440 temp$ = mid$(f$,cnt,pnt-cnt): gos
sub SEPARATE: cnt = pnt
1450 goto 1250
1460 SEPARATE:
1470 j = 1
1480 if mid$(temp$,j,1) > "0" and mid$
$(temp$,j,1) < "9" then 1520
1490 if j < len(temp$) then j = j + 1
1: goto 1480
1500 fs$(sub) = temp$
1510 fsv(sub) = (1 * hydmult) * radmul
lt: sub = sub + 1: return
1520 fs$(sub) = left$(temp$,j-1)
1530 fsv(sub) = (val(mid$(temp$,j)) *
hydmult) * radmult
1540 sub = sub + 1: return
1550 GETWT:
1560 for i = 1 to sub -1: elepnt = 1
1570 if etable$(elepnt) = fs$(i) then
1580 elepnt = elepnt + 1: goto 1570
1590 weight = weight + wtable(elepnt)
* fsv(i)
1600 next i
1610 color 2: gotoxy 2,2: ? "Working..
";
1620 gosub GROUP
1630 gotoxy 2,2: ? "Total Molecular We
eight: ";weight;" grams/mole"
1640 color 3: gotoxy 20,4: ? "Element
Composition"
1650 gotoxy 20,5: ? "-----"
1660 PRTPCT:
1670 for i = 1 to q
1680 pct = cint((pcv(i)*pctval)*100) /
/ 100
1690 if len(str$(pct)) > 5 then pct =
pct + 0.00001
1700 tpos = 40 + (5 - len(str$(pct)))
1710 gotoxy 22,i+5: ? pctable$(i): got
toxy tpos,i+5: ? pct;"%"
1720 next i: color 1
1730 gotoxy 2,16: ? "Another formula?
ly or n1..."
1740 line input choice$
1750 if choice$ = "y" or choice$ = "Y"
then goto CALCWT
1760 end
1770 RADICAL:
1780 x = instr(pnt,f$,"")
1790 for i = x+1 to len(f$)
1800 if mid$(f$,i,1) < "0" or mid$(f$,
,i,1) > "9" then 1820
1810 next i
1820 radmult = val(mid$(f$,x+1,i-x+1))
): pnt = pnt + 1: cnt = pnt: om = i
1830 if pnt = x then 1880
1840 pnt = pnt + 1: test$ = mid$(f$,pn
nt,1)
1850 if test$ >= "A" and test$ <= "Z"
then 1870
1860 goto 1830
1870 temp$ = mid$(f$,cnt,pnt-cnt): gos
sub SEPARATE: cnt = pnt: goto 1830
1880 temp$ = mid$(f$,cnt,pnt-cnt): gos
sub SEPARATE: cnt = om: pnt = om
1890 radmult = 1: goto 1250
1900 GROUP:
1910 q = 0
1920 for i = 1 to 106: telecnt = 0
1930 for j = 1 to sub
1940 if etable$(i) = fs$(j) then telec
nt = telecnt + fsv(j)
1950 next j
1960 if telecnt = 0 then goto 1990
1970 q = q + 1: pctable$(q) = etable$(
i): pcv(q) = telecnt * wtable(i)
1980 totpcv = totpcv + pcv(q)
1990 next i
2000 pctval = 100 / totpcv
2010 return
2020 ERRORS:

```

```

2030 gotoxy 2,2: ? "An error has occure
ed, check formula and re-enter"
2040 goto 1730
2050 ELEMENTS:
2060 data H,He,Li,Be,B,C,N,O,F,Ne,Na,M
Mg,Al,Si,P,S,Cl,Ar
2070 data K,Ca,Sc,Ti,V,Cr,Mn,Fe,Co,Ni,
,Cu,Zn,Ga,Ge,As,Se
2080 data Br,Kr,Rb,Sr,Y,Zr,Nb,Mo,Tc,Ru
u,Rh,Pd,Ag,Cd,In,Sn
2090 data Sb,Te,I,Xe,Cs,Ba,La,Ce,Pr,Md
d,Pm,Sm,Eu,Gd,Tb,Dy
2100 data Ho,Er,Tm,Yb,Lu,Hf,Ta,W,Re,Os
s,Ir,Pt,Au,Hg,Tl,Pb
2110 data Bi,Po,At,Rn,Fr,Ra,Ac,Th,Pa,U
U,Np,Pu,Am,Cm,Bk,Cf
2120 data Es,Fm,Md,No,Lr,Unq,Unp,Unh
2130 WEIGHTS:
2140 data 1.008,4.003,6.941,9.012,10.8
810,12.011,14.007
2150 data 16.000,18.998,20.179,22.990,
,24.305,26.982
2160 data 28.086,30.974,32.060,35.453,
,39.948,39.098
2170 data 40.080,44.956,47.900,50.942,
,51.996,54.938
2180 data 55.847,58.933,58.700,63.546,
,65.380,69.720
2190 data 72.590,74.922,78.960,79.904,
,83.800,85.468
2200 data 87.620,88.906,91.220,92.906,
,95.940,98.000
2210 data 101.070,102.906,106.400,107.
,868,112.410,114.820
2220 data 118.690,121.750,127.600,126.
,905,131.300,132.905
2230 data 137.330,138.906,140.120,140.
,908,144.240,145.000
2240 data 150.400,151.960,157.250,158.
,925,162.500,164.930
2250 data 167.260,168.934,173.040,174.
,967,178.490,180.948
2260 data 183.850,186.207,190.200,192.
,220,195.090,196.967
2270 data 200.590,204.370,207.200,208.
,980,209.000,210.000
2280 data 222.000,223.000,226.025,227.
,028,232.038,231.036
2290 data 238.029,237.048,244.000,243.
,000,247.000,247.000
2300 data 251.000,252.000,257.000,258.
,000,259.000,260.000
2310 data 261.000,262.000,263.000

```

### Chem Calc Checksums

```

1000 data 651,460,935,700,519,135,803,
,15,438,344,5000
1100 data 444,417,101,23,273,342,470,6
677,442,449,3638
1200 data 443,465,707,631,651,975,400,
,799,354,177,5602
1300 data 263,598,956,677,503,564,649,
,567,682,357,5816
1400 data 543,125,478,575,406,570,781,
,952,169,402,5001
1500 data 422,449,805,753,83,392,154,8
830,140,644,4672
1600 data 347,215,10,201,1,164,526,158
8,731,722,3075
1700 data 66,434,436,268,919,668,938,5
520,29,1,4279
1800 data 139,354,289,854,693,151,585,
,706,476,146,4393
1900 data 400,966,854,490,325,364,994,
,211,710,365,5679
2000 data 121,440,515,768,560,790,766,
,644,568,518,5690
2100 data 535,303,635,600,392,194,213,
,220,247,254,3593
2200 data 220,725,734,716,776,828,778,
,668,695,714,6854
2300 data 656,314,970

```



# THE ANIMAT

## GROUNDWORK

BY  
MAURICE MOLYNEAUX

In the past two years the Atari ST has been blessed with a wealth of graphics software, the most exciting of which are tools for creating animation. From the simple animated presentations of programs like *Make It Move*, to the powerful cartoon and object animation capabilities of such software as *Animator ST*, *Art & Film Director* and the *Cyber Studio*, there are almost endless possibilities available to the would-be animator.

Just how to use your ST system to make your own animated presentations, commercials, cartoons, music videos, et al. is what this new series is all about. In a set of *Step 1* articles printed at the end of last year, I discussed how I created a game demo and an animated sales video, but I only related the history of those



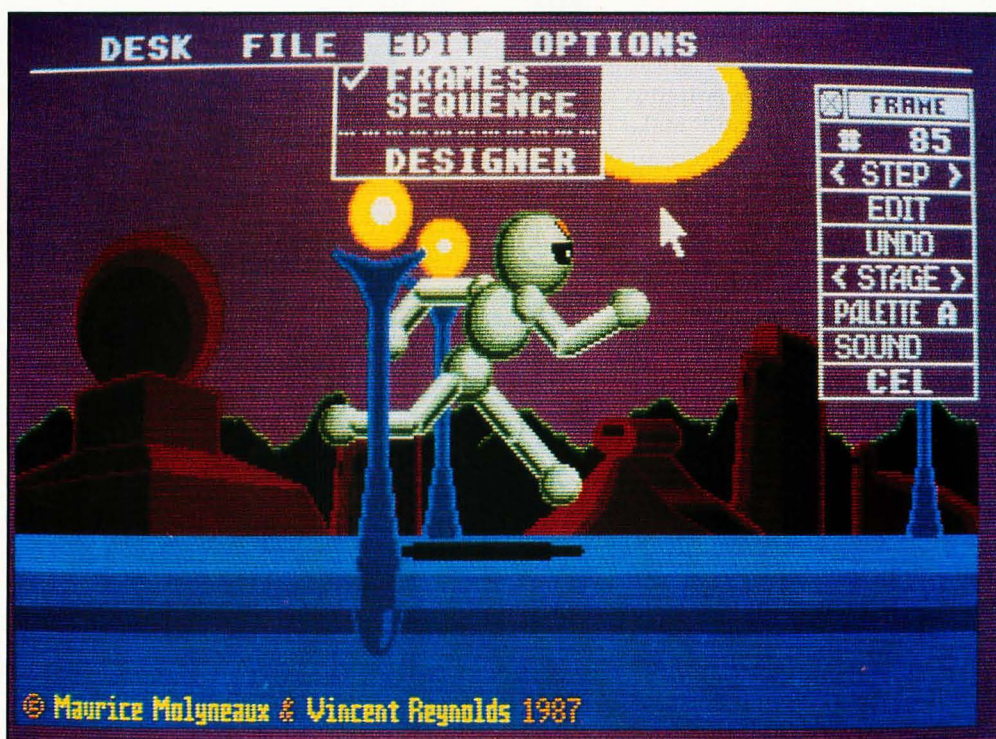
# ION STAND

projects, without delving into the specifics. Well, fear not, for if you are interested in this subject, it is *here* that we will explore the topic of ST animation on a close-in level.

The trouble with trying to cover a machine with so many different animation systems available is that it becomes difficult to get specific without alienating all those other enthusiasts who do not have the same software. Therefore, wherever I can, I will keep the information as general as possible, and where specific

examples are required, I'll try to give tips on how to do the same thing with other programs.

To begin with, the topic will be what you might want and/or need as an ST animator.



ART & FILM  
DIRECTOR



## Choose your weapons

If you don't already have some animation software, you may wonder which programs you'll need. (You might want to note that all of the animation programs discussed here generate only low-resolution images—with one exception—and therefore require a color monitor.) Furthermore, you might wonder what additional animation "paraphernalia" might be required. Let's talk about this, starting with...

## Animation software

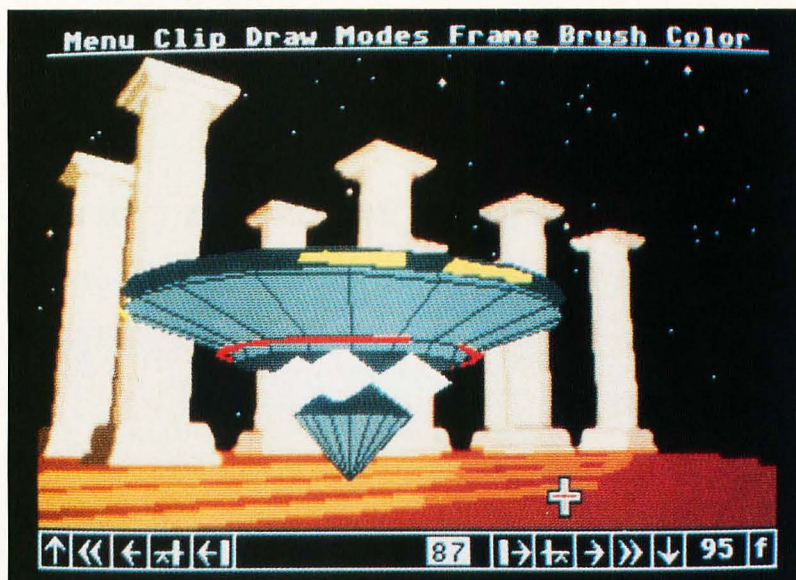
While *Make It Move* (MichTron) is a fairly decent program, it is really better for making animated presentations (sort of like cartoonized slide shows) rather than real animation. If you have it, you certainly can use it; but if you are serious about animation, you might be better off to buy one or more of the more powerful packages.

*Animator ST* is a capable program, but not for animations, featuring detailed objects that have to move swiftly and precisely. Its handling of "cels" (detailed bit-mapped artwork) is limited and a bit clumsy. But cel-type animation is not the reason to buy this program. *Animator ST* is a powerful and flexible "metamorphic" animation system that allows you to manipulate filled and unfilled polygons (closed geometric shapes), and make them change from one form into another as they move. (The program keeps track of the points that define the objects and their relationship to each other, rather than an actual bit map of the screen.) In fact, the program even automatically accounts for perspective when rotating polygons around a point; so that they seem to get bigger as they come around the "near" side of the rotation, and smaller when on the "far" side.

Aegis Development sells clipart that can be used as source material for cel animations with the *Animator ST*, but these should be considered only as a supplement to the metamorphic animation. If you really want an example of the power of the *Animator*, you should try to get a look at Steve Segal's "Dance of the Stumblers" (created with the Amiga version of *Animator*), which runs several minutes in length and matches the antics of a cast of polygonally constructed



ANIMATOR  
ST



CYBER  
STUDIO



MAKE  
IT MOVE



"people" to the music of Rimsky-Korsakov's *The Snow Maiden*. "Dance" was shown at the SI Graph computer graphics show in '87 and is part of "The Computer Animation Show." Jim Kent, the author of the program, tells me that there is some dispute over the publishing of this product, which has up to this point been marketed by Aegis Development. It is possible that a different company will be handling it in the future. I will attempt to keep you up to date on this.

*Art & Film Director* (Epyx) is a two-in-one package, containing a full-featured, 16-color paint program (*Art Director*) and a flexible animation program (*Film Director*). Consider this package the flip side of *Animator ST*, for while *Film Director* does have some polygonal animation functions, they are limited (unfilled only and not anywhere near as flexible). Where it excels, however, is where *Animator ST* fails, in that *Film Director* is a powerful cel animation system. You can draw detailed objects in *Art Director* (or most any other low-resolution paint program) and import those screens as "pattern pages" that provide the source material for animating.

Depending on memory, you can have either a maximum of two or 16 pattern pages available for any given animation. The animations can also be fairly long. (I created several animation files that each ran over a minute in length during playback.) Furthermore, they can also contain built-in sound effects, timed to the animation—something the other major systems lack.

*Film Director* is best suited towards making computer-generated "cartoons" with flexible characters. Not to brag, but (currently) the best example of the capabilities of *Art & Film* is the promotional video I created for Epyx, which is ten minutes of nothing but art/film graphics and animation. The tape is available to dealers from Epyx, though at the time of this writing it was not generally available to the public.

The last major package isn't a single program, but an entire family of products called the *Cyber Studio* (The Catalog). The two keystone products of this family are *CAD-3D 2.0* and *Cyber*

*Paint*. *CAD-3D* isn't really an animation program, but a tool for creating and modeling simulated three-dimensional objects. It generates views with lighting, perspective, etc., and can write a series of these out to an animation file (either low-resolution color or high-resolution monochrome).

*Cyber Paint* is really a complex paint-box utility that stores a series of "frames" by comparing each to the one preceding it and storing only the differences. It can import animations created with *CAD-3D* (low-resolution files only; no monochrome), in addition to creating its own from scratch. Its tools include special effects used for, among other things, moving, sizing and rotating images or parts of images. *Cyber Paint's* real advantage is that its "changes only" method of storage makes it one of the fastest playback systems available. In fact, it has some limited capabilities to import/export data from/to *Animator ST*. *Film Director* animations can also be imported through a very laborious process of saving out frames of an animation as pictures, converting them to either NEO or DEGAS format and reconstructing them in *Cyber Paint*.

In addition to *CAD-3D* and *Cyber Paint* there are other related tools: *Cyber Control* is a programming language that allows you to automate *CAD-3D* (particularly useful for creating animations); *Cyber Texture* lets you "wrap" pictures around 3-D objects for use in *CAD-3D*; and *Cyber Sculpt* is an advanced tool for creating and editing complex 3-D objects. Furthermore, there are also a series of "design disks" providing preconstructed 3-D objects and tools for use in the creation of animations. A demo videotape called *CyberMation* is available from The Catalog (for a steep \$19.95), which gives many good examples of the kinds of things this family of software can do.

This entire system is very powerful, allowing you to do such things as have 3-D cars driving around street corners with perspective, shadows, etc. But to really get the most out of the system, you have to have at least *CAD-3D*, *Cyber Control* and *Cyber Paint*, and they'll cost you around \$200. Add nice tools like *Cyber Sculpt* and a design disk or two, and you could be

laying \$250 to \$300 for software alone. And, while *Cyber Paint* can be used alone (and I recommend buying it even if you have no interest in the other Cyber products), *CAD-3D* isn't that useful to an animator without *Cyber Control*, which is not for the nonprogrammer because it is a programming language similar to BASIC.

So, if you want flashy, colorful animation, and don't need much in the way of small details, you might want *Animator ST*. If you want to make 2-D cartoontype animation with built-in sound effects and nice articulation, *Art & Film Director* is probably for you. But, if you want to recreate the titles of *Star Trek—The Next Generation*, and have a 3-D starship zing by (or have 3-D characters, etc.), you'll need several of the Cyber Studio products. Personally, as a serious animator, I have *all* of these products, but you may not need or want (or be able to afford) so many; so you should choose carefully. Get a look at each of them so you'll have a better idea of what they are, what they can do and if they're what you think you'll need.

## Hardware

Okay, since you're reading ST-Log, we'll assume that you already have an ST. But is the model you have suitable for your plans? Let's see. A 512K ST can run *Make It Move*, *Animator ST* and *Art & Film Director*, though the latter two can't really flex their muscles in such limitations. To run *CAD-3D 2.0* requires a minimum of one megabyte of RAM, and the more memory, the better, particularly in the case of memory-hungry *Cyber Paint*. A one-megabyte machine will do just fine for most things, but if you intend to create complex Cyber animations, I do not hesitate to recommend a four-megabyte ST! I kid you not! I have some Cyber animations that run about two megabytes, and have occasionally topped three megabytes!

Furthermore, if you plan to create a lot of animations, or just plain *big* ones, you'll probably find floppy disks either too slow or too little. What you really need is a hard drive (if you don't already have one). A 20- to 30-megabyte drive is okay; but if you plan to do a lot of



animating, again, bigger is better.

Now, if you plan to do anything other than show your animations on your ST screen, you'll need something to transfer them to. The most likely medium is videotape, of course. You can either tape directly to a VCR by getting a composite video line out of your ST or by videotaping the screen (not an easy task, and the subject of a future article). I recommend the direct composite video methods for most purposes. Just about any VCR will do for recording, although it's best to have one that has a pause that won't show a "jump" when you stop and resume recording. It's not necessary to have one that can record frame-by-frame, as all the animation programs have real-time playback. An effects head, and perhaps sound-on-sound dubbing, is worth having, if you can get it.

The Cyber family supports certain types of computer-interfaceable videotape decks, like the Sony 8mm decks, using a package called *Cyber Video*. This is only useful if you have the right kind of deck and create Cyber playable animations.

Even if you plan to have all of your animation taped on large professional systems (such as on  $\frac{3}{4}$ -inch or one-inch formats), it's a good idea to have your own VCR for creating "director's rough cut" tapes and tests.

Of course, getting the animation on tape in the first place can be a challenge. Except for a handful of 1040STfm machines, only the 520ST models have an RF modulator, and, thus, provide their own composite video output. On such a RF-equipped machine you can either take the antenna-out to the video deck, or "tap" the composite-video line on the monitor port. One of the easiest ways to do this is to use a *Monitor Master* switch box (Practical Solutions), which automatically offers the composite signal if your ST has an RF modulator. (We'll talk about making a custom cable at a later date.) The best solution for just about all STs, RF-equipped or not, is the *VideoKey* (also by Practical Solutions), a device which converts the ST's RGB output to a quality composite-video signal (often better than the composite output provided by RF-equipped STs).

It stands to reason that if you use RF or composite output, you should have something to view it on. A good color TV or composite color monitor will do nicely. You might even leave it connected while creating/testing your animations, so that you can see if everything is clear. What appears on the RGB monitor is often shockingly different on a TV or composite display. Details get lost, colors bleed and hues sometimes look totally different, requiring adjustment before going to tape.

One really fun hardware goody is a *Genlock* device that allows you to overlay your ST's low-resolution graphics on regular video. Currently, JRI is awaiting FCC certification on a *Genlock* device, which should (I hope) be available by the time this article sees print. The major limitation of this first model is that it

■

**One really fun hardware  
goody is a *Genlock* device  
that allows you to overlay  
your ST's low-resolution  
graphics on regular video.**

■

works only on Mega STs (a 520/1040-compatible model is planned). Furthermore, it does not allow "overscanning" like the Amiga *Genlocks* do (overscan means that the computer image is adjusted so the edges of the logical screen do not appear). Look at your ST monitor (make sure it's on!) for a moment and notice the blank "border" around the screen picture. With overscan, that border would not appear.

Overscan or not, the *Genlock* is worth having because it allows for interesting effects. Also, JRI's is so simple to operate that it requires no software. You could even use a program like *Easel ST* to replace the GEM desktop background with a blank black backdrop and *Genlock* MTV under it! So you could watch videos while working with your files. The *Gen-*

*lock* works by making all black pixels transparent to the video image. By black I mean color 000 on your palette.

JRI's mega-compatible *Genlock* plugs into the internal DMA port and expansion bus in a Mega ST. It provides RGB output for ST graphics only, composite-video out with or without the video mix, and a remote control for special effects (fades and dissolves, etc.). It is planned to retail for about \$500.

For the curious: My system is a Mega ST4 with a 65-megabyte hard drive, external floppy drive, monochrome, RGB and composite monitors—*Monitor Master* and *VideoKey*—plus a Supra 2400 modem soon, a *Genlock*! I also have a four-head, digital freeze-frame VHS VCR with slow-motion playback and video-in-video capability. In addition, I have a one-megabyte 520ST with double-sided drive, a 20-megabyte hard disk and an RGB monitor as a backup system.

## Odds 'n' Ends

If you are serious about doing good work, you might also consider obtaining one or more of the following items.

If you plan to make traditional sorts of cartoons, then one of the best things you can do is to purchase (yes, *buy*, don't copy!) videotapes of old theatrical cartoons (not anything made-for-TV, as they tend to be poorly animated). My recommendations are good, high-quality tapes of old Warner Bros. cartoons—just about any of the 24-Karat Collection, and specifically tapes like *A Tribute to Chuck Jones*. Also those Warner cartoons sold by MGM/UA are a good choice (you can safely avoid any tape listing Speedy Gonzales as the star), especially the MGM/UA release of *Tex Avery's Screwball Classics* (study *very* carefully the dust left behind the detective in "Who Killed Who?" when he zips away from a bunch of falling bodies).

If you have a VCR with a good freeze-frame you can learn a lot by studying how various effects (motion blur, etc.) were achieved in these cartoons. I don't recommend too much of the Disney stuff, because they're generally overpriced (three cartoons for the same price that will get you six to eight Warner cartoons), and aren't as funny or innovative.



If you plan to echo a specific style or type of animation, try to purchase videotapes of that type of thing, so that you might study it and learn from the successes and failures of others. If you want to emulate a Japanese cartoon (just *please* animate it better than they do!), study some Japanese cartoons. Also, even if you do plan to work within a certain framework, don't deny yourself the opportunity to broaden your background. Study all kinds of animation, regardless of whether they're what you like or not. You might learn something that you can apply in your own work.

In the book department, almost nothing beats Frank Thomas and Ollie Johnson's exhaustive *Disney Animation: The Illusion of Life* (Abbeville). Try to get the hardcover edition, because the paperback version is edited and missing some interesting chapters and illustrations. No matter what program you're using, many of the observations and lessons discussed in this book can be useful to you.

As a complement to this series, you might also want to look into obtaining copies of *Animation Magazine*, which is

published quarterly by Expanded Entertainment. It is not computer oriented, but that isn't the point. It's a mistake to treat computer animation as a totally different field from cel or stop-motion animation. A one-year subscription is only \$15, and it's interesting reading. For subscription information write to, *Animation Magazine*, 2222 S. Barrington Ave., Los Angeles, CA 90064; or call (213) 477-3066. It also has started to offer videotapes of its theatrical animation shows, the first of which, *The Best of the 19th Annual International Tournee of Animation*, is now available. (Thanks to Charlie Bachand for bringing this organization to my attention.)

Finally, if there's an animated film (and I don't mean those commercial cartoons like the Care Bears or other such pabulum!) or animation festival playing at a local theater, go to it. Don't wait for it to come out on video. Study the animation and pay attention to the parts that people respond to (and in which manner). In doing so you can learn more about what people like and dislike than just about any other way.

## Next time . . .

I'm trying to anticipate what the aspiring ST animator might need to know, but it's possible I might miss some topic or details that you might like/need to know about. Thus if you have any questions, comments or suggestions regarding this feature, please write to me in care of ST-Log, P.O. Box 1413-M.O., Manchester, CT 06040-1413—or send E-mail to me on DELPHI (my username is MAURICEM).

Next issue, it's to work, as the topic will be the act of conceiving an animation project and bringing it to its first great milestone: the storyboard. ■

*Maurice Molyneaux began playing with stop-motion model animation in high school and started working with computer animation on his 800XL using MovieMaker. Using his STs, he has created animated presentation and sales videos for software publishers, and co-authored two Cyber Studio design disks. He continues to produce aftermarket products for ST animation packages and consults on animation systems, as well as continues work on various video-related projects.*

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**I**magine that you've just finished creating a work of art on your ST. For example, you had been using *DEGAS Elite* for a couple of hours every night for the last two weeks. Now, the masterpiece is finished, and you are justifiably proud. Just seeing the results on the video screen is a pleasure, and you want to share that experience with your family and friends. But there is a slight problem.

In order for you to share your new and colorful creation with others, you have to turn on and boot up the ST, run *DEGAS Elite* and then load your file. By the time you get the picture on the screen, you've got an anticlimax on your hands. Not to worry. Take a photograph of it for yourself and posterity. It's easy to do, and the following simple suggestions should allow

want to pass around to friends. To prevent a case of the blurs, use a tripod that provides a steady support for the camera.

If you don't have a tripod, an improvised camera support like a chair or table will do fine. To avoid bumping the camera while the shutter is open, it is best to have an inexpensive (about \$3) shutter release cable. This will allow you to close the shutter without touching or moving the camera. If your camera has a self-timer, you can use that in place of the cable release.

Finally, you need some film. For slides I generally like to use Kodachrome 64. For prints I use Kodacolor 100. It doesn't have to be Kodak film, but the ASA film speeds of 64 and 100 are important since the information that follows

# ST USER

by Arthur Leyenberger

you to take some screen snaps in no time at all.

To take great pictures of your computer screen you don't need much more than a camera, a tripod and some film. Just about any camera will work, but best results come from using a single-lens reflex (SLR) type with a lens between 50mm and 100mm. With an SLR, less guesswork is required to obtain excellent shots because what you see through the viewfinder is what you get on film.

Most people cannot hand-hold a camera when taking pictures using a shutter speed of  $\frac{1}{60}$  second or slower. If they try it, the result will often be a blurred picture—hardly the quality you would

is based on those speeds. Now for the fun part.

Line up your camera so that the back of the camera is parallel with the front of the TV or monitor. With a 50mm lens, the camera will need to be about two to three feet from the screen. Make sure that the lens is pointed at the center of the screen. With the image on the screen that you are going to photograph, adjust the monitor controls for the best possible picture. Get the color and tint balanced first, then adjust the brightness and finally use the contrast control for the crispest image you can get.

Now set the camera to an f-stop of 5.6. This will



be the aperture setting that you will always use. Any variation in the exposure will be done by adjusting the shutter speed. Each marking on the shutter speed dial is either  $\frac{1}{2}$  or twice the previous marking so it is easy to use and understand. Initially set the shutter speed to  $\frac{1}{4}$  second. Focus the camera lens and adjust the distance from the camera to the screen so that you can see two inches on all sides of the video screen. This is important because when the pictures are developed, part of the picture around the edges is lost.

To take the picture, turn off all the lights in the room and press the cable release. It is very important that the room lights be off, otherwise you will get reflections on the monitor screen and on your pictures. If you are using a self-timer, you might want to activate it first, then turn off the room lights until the shot is completed.

If this is your first time taking pictures off of your screen, it would be wise to bracket your shots. To bracket your shot, take two additional pictures with everything exactly the same except the shutter speed. Take one shot at  $\frac{1}{8}$  second (a little faster) and another shot at  $\frac{1}{2}$  second (a little slower.) These two settings will allow the film to receive less light and more light, respectively.

If you are using print film, it is *most important* that you tell whoever is doing the developing that you have CRT shots. If you forget to do this, I can tell you from experience that your prints will come back with washed out and often strange looking colors. The automatic printing machines used by film processors are designed to adjust the color balance of the photograph as if they were pictures of sunsets and the family dog.

This is understandable since 95% of what they process are just these types of snapshots. Screen shots on the other hand contain very bright colors and black areas that are difficult to reproduce photographically. Slide film is not as critical, but it would not hurt to tell the developer that you have CRT shots.

Another decision you have to make is whether to have matte or glossy prints made. If you plan to send them as postcards or handle them a lot, order matte finish. It is more resistant to fingerprints and will not scratch as easily. On the other hand, if you want the sharpest looking print or you are sending prints to a magazine for publication, choose glossy finish. Be sure to handle the prints carefully, along the edges if possible.

I generally use  $\frac{1}{2}$  second shutter speed for slides and  $\frac{1}{8}$  second shutter speed for prints. But you will have to experiment with various exposures until you find the right speed. A good approach is to shoot a roll of film as a test roll. Use different shutter speeds (bracket your shots) and be sure to keep a record of each exposure. Then when the film comes back, pick out the best looking shot, determine what exposure was used, and you will be all set. You can continue to use these settings as long as you do not change the contrast and brightness controls on your monitor.

Regardless of what you do with your screen shots, if you follow these simple instructions and experiment a little I think you will be pleasantly surprised with the results. And so will your friends and family. Happy shooting!

---

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your pictures.**

---

### **Playing the angles**

It's been a long, long time since a game has been interesting and challenging enough to keep me up most of the night playing it. In fact, I don't think I could even tell you the last one that moved me so. But I can sure tell you which one has caught my current fancy: *Arkanoïd* by Taito.

I have always enjoyed *Breakout*, first in the arcades years and years ago, and then on the Atari VCS and 8-bit computers. Basically a *Pong* derivative, *Breakout* has several rows of "bricks" that you knock out with the ball. The ball bounces off of a paddle that you can move horizontally. If you're good, you can even put some spin on the ball by controlling the paddle in just the right way. Simple enough.

To me, *Breakout* is one of those simple

yet appealing games that compels you to keep playing, always trying to top your previous score. Better than *Breakout*, I discovered, was *Super Breakout*. Primarily the same game but with a few twists that make the game more challenging and fun. One game option has the rows of bricks march down the screen. Another option has two extra balls enclosed in small windows surrounded by bricks. Knock out the proper bricks, and the balls are released giving you a little help with more difficulty at the same time.

*Arkanoïd* takes *Breakout* several steps further. Still of the "knock out the bricks" genre, *Arkanoïd* adds complexity and challenge. The major addition is that when certain bricks (energy blocks) are hit, they release various types of capsules. These capsules rotate as they descend and are labeled with a letter, indicating their type.

The paddle is called a Vaus in *Arkanoïd*, and to reap the benefits of the capsules you must catch them with the Vaus. One type of capsule awards you an extra life. Another one temporarily slows down the ball. Still another expands the Vaus to twice normal size, giving you more surface area to deflect the ball with. My favorite capsule is the one that arms the Vaus with a laser weapon that allows you to shoot the blocks and aliens (little fellows that float around and deflect your energy ball when they touch). Other capsules let you catch the ball, advance you to the next screen and release three energy balls instead of one.

*Arkanoïd* has 33 screens, each more difficult than the last. Some of the more difficult screens include blocks that require more than one hit to eliminate, more and faster aliens and more intricate patterns of blocks. The real skill comes when you learn that you should not try to catch all of the capsules. For example, once you catch the laser capsule you can fire lasers at the blocks until you catch another capsule. Sometimes it pays to ignore other capsules and continue using your laser. You also soon learn to always catch the "extra life" capsule.

*Arkanoïd* can be played with either a mouse, joystick or the keyboard. I've found that I have the most control of my Vaus when I use the mouse. *Arkanoïd* retails for \$39.95 and is available now From Taito Software, Inc., 11715 North Creek Parkway South, Suite 110, Bothell, Washington 98011. I highly recommend it, but I warn it's addictive. Have fun. ■



# IAN'S QUEST

by Ian Chadwick

Not long before I wrote this column (about three or four months before you'll be reading it), I was at the First Canadian Atari User Show (see the report elsewhere in this issue), here in Canada. I was pleasantly surprised to see a considerable number of women attending the show—until I paid close attention. Almost all of them were in tow behind their boyfriends or spouses, being dragged out to another event to waste a Saturday afternoon among the boys. A look of practiced boredom graces a lot of female faces at computer shows.

Computer fests, particularly the user-group variety, are usually male-bonding rituals. Like the afternoon of The Big Game, except that the chatter isn't about quarterbacks and snap passes, it's about processing speed, interrupt routines and the latest version of TOS. There aren't a lot of women involved in these discussions, for whatever reason, be it biological or sociological. And that's too bad. I really don't want to be part of a male-dominated hobby. It's too boring.

I often wonder why so few women get involved with computers. Sometimes it occurs to me that they're simply too bright to get caught up in it: boys and their toys, after all. Why spend one's evenings and weekends hacking out some block of code, deciphering protection schemes, trying to nudge the high score up just another 1,000 points?

Seems a bit of a dead end, when you think about it like that.

Susan, a woman possessed of infinite common sense, uses computers in her office, but at home is only rarely interested in them. She sometimes plays a game of *Shanghai* or solitaire, but all of my ST passions—*Flight Simulator*, *Jet*, *Empire*, *Dungeon Master*—leave her cold. If she comes in on me playing a game, when I should be pounding the keys in search of an income, she smiles with a condescending knowledge and understanding that makes me feel like a ten-year-old, caught with a naughty magazine.

Maybe, as many have suggested, it's the

topic matter of most games that make them uninteresting. After all, most action/arcade-style games are violence-ridden, simple-minded efforts, in which one's intellectual capacity is put to sleep while the hand-eye mechanics work in overtime. Shoot, stab, kick, maim, kill. Why wouldn't anyone like that?

Sure, some of it is abstract. It's hard to get emotionally worked up over the droids in *Sentry* or the unmanned bombs in *Missile Command*. But other games are pretty graphic. In *Into the Eagle's Lair*, you shoot Germans, whose digitized death shout is the reward. Worse, you're incited to shoot drunken or sleeping officers in the back. My antipathy towards anything Nazi notwithstanding, I don't feel comfortable playing the game. It puts me in a role I don't care to see myself in.

In *Leatherneck*, it's Rambo vs. the yellow hordes (I assume they're Oriental—who else lives in bamboo huts? Besides, I never saw Rambo in Nicaragua). Violence and racism—it's the Monroe Doctrine in video-form. Soldiers die with that eerie digitized scream again. They throw their hands up and fall to the ground, dead. Lovely.

Very few games even involve female characters, and when they do, they're often stereotyped or thrust into peripheral roles. In *Corruption*, the secretaries are women, the bosses men. One woman can be found filing her nails all day long. In *Leisure Suit Larry*, women exist simply as sexual objects for the player to conquer, then discard. In *Star Trek: The Rebel Universe*, Uhura, the single woman portrayed and the least active member of the team, has a passive role communicating received messages.

*Dungeon Master* is one of the rare games where females can actually play the lead role and do better than the males. On the other hand, I'm not sure that there is any inherent difference between the genders, aside from the graphics. Are there any unique feminine characteristics pro-

grammed in? Only the developers know for sure. The box cover leads you to believe that the men do all the physical work while the women merely hold the candles up. Of course that's not true of the game. But the game's women appear to perform like men with breasts—no significant differences from the males.

Of course, if you want to see real sexism in box art, find a copy of the U.K. games *Barbarian* and *Barbarian II* from Palace Software: photomontage of a well-endowed woman, wearing a totally inadequate bikini, beside a muscled Neanderthal, in fur briefs, with sword. Dead monster on the ground. Tacky? Only a little.

In the September 1988 issue of the U.K. magazine *Atari ST User*, a woman wrote in decrying the state of ST games. She said, "I know that many of the games are blatantly sexist... many games encourage sexism and violence simply by the images and themes they propose." In this intelligent and questioning letter, she went on to ask, "What makes your magazine so sure that the majority of men wish to associate themselves with the very dubious 'macho-male Rambo-type'?"

To which the insensitive and patronizing editorial response was "We're sure that the majority of our readers identify more closely with the macho-male Rambo-type than a wimp."

Uh... is this a trick question? Rambo or a wimp? That rather limits the options, doesn't it? Come on, guys, can't you think of other role models more suited for identification? What if you don't want to identify with *either* character? If I don't like the Rambo films, why would I want to play a game about him?

Rambo and such characters have little or no redeeming social virtues. They're violent killers, working outside the law and society; individuals with a pathological need for indiscriminate violence. The character appeals to the immature or the unsophisticated—usually young males—who are easily fooled by the glossy image and cannot grasp the political, moral or



social issues at stake underneath. What sort of man reads *Soldier of Fortune*?

So who's better? Why not Robin Hood for a start? Lots of action and adventure, humor and very little violence—at least of the killing kind. In legend anyway, Robin Hood seldom killed anyone and even then usually only in self-defense. Not even the mean old Sheriff of Nottingham was killed when he was Robin's captive. Robin won contests, robbed rich barons and distributed the money to the poor, rescued the downtrodden and so on. He's a better role model than Rambo by a light-year.

If he's going to be a male, make my hero Albert Einstein. Put me in the shoes of Robert Oppenheimer. See if I make the same choices. Or Andrei Sakharov. Gandhi. Roy Chapman Andrews. Timothy Leary. Chuck Yeager. Nikolai Tesla. Fats Waller. Ralph Nader. Roald Amundsen. Jacques Cousteau. There are a million suitable, interesting or controversial people to portray. If they're not all the best subjects for a game based on competition, maybe that opens another aspect of consideration: games based on cooperation. Currently rarer than hen's teeth.

I'd love to see games based on topics like the race between Scott and Amundsen for the South Pole: competitive, challenging, with real-life heroes, lots of adventure and action, but no violence. Games of discovery, exploration, science, knowledge. Competition doesn't have to be violent to be exciting. How about a game to try and save the crumbling ecological balance of the planet?

It's time to bring women into the fore and make them appear more realistic. Female characters in Anne McCaffrey's *Dragonrider* series or the women mages in Barbara Hambly's books are strong, independent, intelligent, capable and sensitive. Pretty good subjects for games. In real life we've certainly got enough women to respect—Cleopatra, Joan of Arc, Catherine the Great, Madame Curie, Golda Meir, Jane Goodall.

But we consistently get males as the lead characters: *Rogue*, *Barbarian*, *Defender of the Crown*, *Cosmic Relief*, *Sundog*, *Questron*, *Rings of Zilfin*, *Out Run*, *Space Quest*, *Time Bandits*—just a few games where male characters rule the game. The ads for *Out Run* say, "Hot car. Hot music. . . and the blonde next to you." There's not a cute guy in the seat.

And the themes: *Bomber Command*, *Star-glider*, *Dive Bomber*, *Warship*, *Missile Command*, *Foundation's Waste*, *Goldrunner*, *Leatherneck*, *Empire*, *Phantasm*, *Carrier Command*, *Gauntlet*, *Roadwar 2000*—kill, destroy, hack, slash, destroy, nuke, murder,

cripple and so on.

Think we've gone a trifle overboard on the violence bit? For every nonviolent game (e.g., chess, cards), for every game with a socially redeeming message, such as *Police Quest* (although the officers are male and the game is quite violent) or *Global Commander* (although its scope is limited and doesn't address environmental or social issues at all), there are maybe 100 of the kill-shoot-stab-hack variety.

Even when the game isn't a shooting arcade in window dressing, there are few females in an active role. Adventures, like *Corruption*, *The Pawn* and so on, usually give the center stage to male characters and relegate females to peripheral positions, often stereotyped ones. Then there are the blatant games—*Leisure Suit Larry* or *Leather Goddesses of Phobos*—vain attempts to hide sexism under a veneer of humor. In *King's Quest II*, the whole idea is to find King Graham a "good and kind" woman with "an inner beauty of spirit as well as beauty of the face and form" for him to marry. He's the active participant, she's passive. And nothing is ever mentioned about qualities *he* has to have. He might be Godzilla, for all she can do about it.

One of the better adventures, Datasoft's *Alternate Reality*, does not differentiate between the sex of the player character, but most of the encounters are with males. At least *AR* provides some alternatives to combat, as well as many nonviolent situations. However, the game characters certainly have a propensity for attacking the player character.

It hardly surprises me that I can't interest Susan in most ST games. And she's not a technophobe. She uses similar machines daily in her working world. She just doesn't find either the themes, the presentation or the play of most computer games very interesting.

And we're passing the image of violence and sexism along to our children through every medium: TV, books, comics, computer games. I think it's unhealthy. We should try to temper our lust for violence. Think about the message underlying these games. Look at the artwork on the cover (or in the screens). Bikini-clad women with low-browed linebackers (usually somewhat more fully clothed than the women). Is that how we want our children to perceive male/female relationships?

Personally, I prefer strategy (abstract) games like chess, Crossword, Othello and so on. I'm still hoping someone will write or port a Go game (*Nemesis* or *Cosmos* on the PC) to the ST.

I'm a student of military history, so war games appeal to me, especially those

which simulate particular battles. Most war games are somewhat abstract, so despite the topic, they are not violent per se, although the military theme is flagrant throughout. But no digitized screams or the thunder of hooves as cavalry grind infantry into the mud. Not even the booming of a cannon. So you'd have to include among the men I admire: Napoleon, Wellington, Julius Caesar, Shaka Zulu and a few others of the hawkish persuasion. But these are real characters, historical personages. Studying them doesn't necessarily lead to a warlike disposition.

Games like *Empire* and *Colonial Conquest* are abstract in the extreme as war games go. There are no dying men, no cities gutted and firebombed. Just flags or symbols changing hands. Not very violent at all—sort of like spirited variations on chess. In *Global Commander*, in the role of a U.N. moderator, you try to stabilize a world plagued by growing unrest and keep it from breaking out into war.

However, war as a *goal* is not a healthy message to get across either. We don't want to encourage people to think we can solve diplomatic crises by sending in the Marines every time (or worse, jumping to nuclear war as in *Balance of Power*). I don't recommend it as a subject for everyone's taste. Maybe games ought to have rating codes like the movies?

There are simulation games which have no violence at all—*Shuttle II* is an example. You have action, but you must apply a lot of cerebration to the task. And the goal is not violent—it's peaceful: the accomplishment of a NASA mission. The message of a game like *Shuttle II* is far healthier than that of *Leatherneck*, both MichTron products.

I've been told publishers don't produce this sort of game often, because they don't sell well. I wonder if the reverse isn't the case: They don't sell well, because they aren't produced or promoted well enough. Maybe violent, sexist games only sell well, because we have had little choice so far and have very little exposure to the other sorts of products. Given a greater choice, we'd prove ourselves mature and sensitive by buying the games that project a better social image. Maybe the publishers underestimate the intelligence or the value system of their audience.

I hope so. I'd hate to think they were hitting the nail right on the head. ■

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*Ian Chadwick is a Toronto writer who is currently writing a novel about spies and police work in the Soviet Union. About the time you read this, he and his wife will be taking a well-deserved vacation in Colombia.*



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This month I was planning to write about the infamous Atari GDOS, describing what it is, what it's for and how to use it (or a replacement for it). However, after writing a lighthearted *Footnotes* column for a future issue of ST-Log, concerning dangers that threaten a computer, and then seeing continual references to computer "viruses" in everything from magazines to *Bloom County* comics, I thought that perhaps I should write about the kinds of things that can harm your ST system, and how to minimize the danger of catastrophe befalling you. So, GDOS will have to wait until next time.

### General dangers

There are a number of things that can endanger almost any piece of electronic equipment. These range from things as seemingly insignificant as dust to dangers as obvious as dropping a piece of hardware.

Let's start small and work our way up.

Dust is a common and unavoidable occurrence. You really can't go anywhere on Earth's surface and evade it. It is generally a more severe problem in more arid climes, but a problem everywhere nevertheless. Why? Dust particles may be small, but lots and lots of them like to settle down on things, slowly working their way down inside anything that has openings to its interior (like the ventilation slots in your computer and peripherals). A little bit generally doesn't cause much trouble, but enough of it can really mess things up. For example, while it is not really much of a fire danger (unless you have a lot of it!), dust is very good at getting into and interfering with contacts, like under the keys on your keyboard, making them function sporadically or not at all. Combine this with a little humidity, and you can get some real grime down in your system.

There are even cases when enough dust in the just the wrong place can actually interfere with the contacts between components, forming a short circuit! The best

# STEP 1

## Danger Zone

by Maurice Molyneaux

way to deal with this problem is to get dust covers for your system's components and cover them up when they are not in use (and *only* when they are turned off). You should also dust off your equipment periodically (especially the keyboard). If you have a lot of dust, it might be a good idea to purchase one of those little compressed-air blowers made especially for dislodging dust from electronic equipment.

Dust is most dangerous in disks and disk drives. If dust gets on the surface of a disk, it can obscure or obliterate some bits, and even a few bits botched can crash a program or destroy a data file if just the right ones get clobbered. However, since most ST users use 3.5-inch disks, with their little "doors" that cover the area of the disk that is exposed on a 5.25-inch floppy, this is not as common an occurrence as with older systems. However, this is not to say that this is completely safe. When a 3.5-inch disk is inside a drive, the door is held open, and if the inside of the drive is dusty—*cough, cough*—well, you get the picture.

Probably the most common dust-related problem is in regard to the disk drives themselves—specifically, the disk heads getting dirty. Like a tape deck, a disk drive has a "head" that moves over each side of the disk, magnetically read-

ing and writing data. If the head(s) get dirty, it can interfere with its proper operation and can damage your disks. It is a good idea to clean your disk-drive heads now and again. There are many kits available for doing this. Find one that is for the right size and type of drive (for example, if you have a double-sided drive, you want a kit that will clean *both* heads, not one, and you certainly don't want to get a kit for 5.25-inch drives when yours are 3.5-inch).

Most of these kits recommend cleaning your heads every month or so, but this is a bit too often (unless you are accessing your disk drives all the time, day after day). Using such drive cleaners too much can actually cause wear and tear on your disk-drive's heads; so you should use them only occasionally (many people clean the heads only once a year, and have no problems). Once every few months is about the most I would recommend.

All true hard disks for the ST are "closed" units, with the disk(s) encased in vacuum-sealed mechanisms where dust cannot go. You cannot clean a hard disk's heads, nor should you even want to try. So don't worry about it.

Smoke, as from cigarettes, pipes, cigars, et al., is as bad if not worse than dust. It carries many particles containing tar and other unsavory substances, which are not



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only bigger than dust particles, but adhere to things more effectively than dust. This is why it is not a good idea to smoke or allow smoking in the area of a computer.

We all know the famous formula  $W + E = Z$ , or, more precisely, Water + Electricity = ZAP. Computers and liquids just do not get along. The chaos resulting from civil unrest in South Africa cannot begin to compare with the discord that occurs when water hits an electrical circuit. Not only does it result in a short circuit that can cause your system to malfunction, but the short itself can allow electrical current to go where it wasn't designed to, which can result in damaged chips, blown resistors and even fried power supplies. Needless to say, you shouldn't keep your can of Coke or mug of coffee sitting next to your keyboard or atop your monitor or disk drive. One spill and it's *crackle, bzzzz, zap, pop!* "Hello, Atari technical support...?"

This likewise goes for food. Crumbs and the like are just no good for your computer. I don't care if you think your ST likes Wheat Thins—or even if it *asks* you for them. Computers and what we dubiously call food just don't mix.

### Fatal attraction

"Drawn like a magnet" may be an effective literary allusion, but it's not applicable to computers, where it might be more precise to say "drawn *by* a magnet." That's because when your computer writes data to a disk, it does so magnetically, turning bits on and off (ones and zeros, used in binary numbers). As you know, it's the arrangements of these bits that make your data actual data and not just a random magnetic pile of zeros and ones.

Since disk drives do manipulate data via magnetism, it should be fairly obvious that magnetic fields other than those created by your drives can also play with the data on a disk. This is not desirable, for while a disk drive manipulates said data in very specific ways, other magnetic fields do not. Therefore, if you expose a disk to a strong magnetic field, it is possible that some of the bits on your disk will be switched, obliterated or otherwise changed from what they should be. As I said earlier, this is not good, for you may find your data altered to the point where it is damaged or just downright un-loadable.

Now, you may be wondering just what in your home or office could generate

**If you expose a disk to a strong magnetic field, it is possible that some of the bits on your disk will be switched, obliterated or otherwise changed from what they should be.**

such a potentially dangerous magnetic field. Well, the most obvious one is sitting with your ST: the monitor. Not only are there magnets inside it, but when turned on it generates an electromagnetic field. Now, mind you, this field is pretty weak, but it *is* there. The supplied paperwork with most monitors usually warns of this and recommends that you keep your disks at least 12 to 15 inches away from the monitor.

In all honesty, probably next to none of us do this. For example, my SM124 monochrome monitor sits on top of my Mega ST4, which contains a disk drive. And situated next to the computer is my external floppy drive, with my SC1224 RGB monitor next to it. It's a bit difficult to keep my disks from getting within a foot of my monitors under such circumstances. Do I have a lot of disk failures? No. Why? Well, the operative word about the magnetic field created by most monitors is "weak." Chances are that the monitor's magnetic field won't do a thing to your data, but that's not to say it couldn't. The warning is just to let you know that it is possible, and if you wish to play it safe, you should keep your disks at arm's length from a monitor. Probably the safest compromise (if you have room) is to place your disk filing cases a foot or more away from any monitors. Thus, your disks will only come within the danger zone when you stick them in a drive.

Most hard disks are fairly well shield-

ed against such weak magnetic fields, and some are even designed to go directly under a monitor, so the same warnings don't generally apply.

Other household/office items that could generate a potentially dangerous magnetic field are utility magnets (don't ever hang a disk on the refrigerator using a kitchen magnet, because you're taking a serious risk), any equipment which generates a strong electromagnetic field, or any small child who can get his/her hands on a magnet. If you have kids don't let them have magnets for toys. No, telling them not to bring them near the computer isn't good enough. We all know how kids are. They forget these things. I mentioned this in an early *Step 1*, but it bears repeating: I one day met a fellow at a local computer shop who was copying dozens of public domain disks. He explained that his son had put a big magnet on top of one of his disk cases, ruining *all* of his software. Give kids safe toys, like a Coleco Sidewinder missile, but no magnets!

If you own cassettes, you're probably aware of this; but if you don't know much about audio systems, you may not realize that your stereo system may contain the biggest and most powerful magnets in your home. Where? In the speakers. The bigger the speakers, the larger the magnets—and the bigger the risk. It's a well-known fact that you shouldn't put cassette or reel-to-reel tapes on top of or next to speakers, because, like disks, tapes store their data magnetically, and a speaker's magnets can wreak great havoc on them. Likewise, if you have stereo speakers near your computer work area, avoid putting disks or disk cases in close proximity to them. (I once saw a fellow who kept all his disk cases on top of a really *big* speaker. Gives me the chills just to think about it.)

### Off track

Another danger to your data is a mass-storage device that goes out of alignment, like a disk drive that does not spin the disk at the proper speed, or one with heads that do not move to quite the precise positions that they are supposed to. This can result in your inability to read disks formatted on machines with proper alignment and perhaps even leave you unable to read disks you formatted before the drive went out of adjustment. Furthermore, if you format disks and write data to them on a drive that is misaligned, you may find yourself unable to read the disk



when you have the drive readjusted or when you use the disk in another drive.

If you find you are having trouble reading older disks or disks that originated on other STs, you may want to take your drive to a service center and have it checked. I do not know of any programs for checking drive alignment, but there are a number of programs, many in the public domain, which you can use to check the speed of a floppy drive. (ST 3.5-inch drives should run at around 300 rpm.)

Hard disks can have alignment problems as well, and sometimes these are more serious. If the drive motor does not spin the disk(s) at the proper speed, many times the drive cannot be used at all! This is a difficult problem to tend to because hard-disk mechanisms are vacuum sealed with the motors inside, and opening one for repair should only be done in a "clean room" (one filtered from dust, etc.), which is a very expensive proposition.

### Aftershock

It ought to be fairly obvious that you shouldn't drop your computer and/or peripherals onto desks, floors or out of high-rise windows; but there are movements with far less impact that can still affect your system. For example, just lugging your ST around a lot may cause it to act up. This is due to vibrations during movement, which can, in time, cause socketed chips and snap-on connectors to loosen, resulting in sporadic or lost contacts and eventual malfunctions.

Some ST users who have experienced repeated problems with chips coming "unseated" have taken to dropping their machines onto their desks from a height anywhere between several inches to over a foot! This to jar the chips back into place. I do *not* recommend this rather severe solution. A really hard bump can actually fracture the circuit boards inside system components, or even just cause hairline cracks in the traces of the boards' circuitry, both sometimes causing total component failure.

The best solution to this chip-unseating problem is to open up the afflicted unit (not always an easy task, as it often requires removing lots of screws, wiggling off a puzzle box of case pieces and disconnecting RF shielding), push down on each socketed chip and check all plug-in-type connectors to make certain that they are in place. Although opening a unit of your ST system will void the warranty,

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chances are it has already expired by the time you'd have such a failure. If you are unsure about doing something like this, contact a qualified repair facility and have them do it.

The one piece of equipment (aside from the fragile picture tubes of monitors) that you should exercise the most care with is a hard drive. These mechanisms are very delicate in some ways, especially while they are running. The average hard disk has multiple heads and one or more disks (usually aluminum, coated with an oxide). When operational, they can spin at over 3,500 rpm (over 1,000 times as fast as an LP record), with the disk heads skimming mere thousands of an inch above the surface! If you shock the drive during operation, one or more of the heads may hit the disk—and at this rate of rotation it would severely damage the affected heads and gouge the magnetic coating on the disk, ruining the mechanism.

Even if the disk is not spinning, a head crash can still be serious. To avoid this, hard disks are designed to be "parked" before moving. Parking simply means that the heads are moved off to one side where they cannot hit the disk. Some drive mechanisms auto-park when you turn them off, but others require you to run a special program which does this job. Even if you don't plan to move your hard drive you should park it whenever you turn it off, just to be on the safe side.

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## Feel the power

Electricity is the very lifeblood of your entire computer system, but your computer requires very specific amounts of it, or it will not work. Furthermore, much like our own circulatory system, our computers can suffer from what one might term the electronic equivalent of low or high blood pressure. Technically, these are known as the brownout and the power surge and/or spike. The brownout is one we've all experienced, where for some reason the power coming into our homes or offices drops to a much lower level. The usual sign of this is the picture on your monitor shrinking to a smaller size, some wavering, quite often followed by a system crash or just a plain out-and-out power failure.

While a brownout may just seem more annoying than anything, it can potentially be *very* bad. A fast way to damage some electronic devices is to try to run them on insufficient voltage. A few moments of this could cause your system to crash, but if it continued for more than a few seconds, it could cause some damage. If the power drops and stays low, the safe thing to do is to shut your system completely off, rather than letting it sit there, waiting for the power to come back up to strength.

The reverse, an unexpected rise in the electrical current, is even worse, causing what is known as a surge or a spike. Sometimes these are also followed by power outages; but the real danger is that this extra blast of electrical energy will get to your computer's power supply and maybe even send a jolt deep into the heart of your hardware. This can blow a power adapter to kingdom come or fry a weak chip. Even if no obvious damage occurs, it's not good for your system and can shorten the lives of the electronic components in it.

The answer to this problem is, of course, a power strip designed to suppress surges/spikes. This is simply a device which splits one electrical socket into multiple ones while at the same time providing hardware for suppressing increases in voltage. Many have cutoff points and will act like a circuit breaker, flipping off if the voltage exceeds a certain level.

Suppressing excess electrical current is not quite the same thing as providing a steady stream when the power level drops. There are special devices for this as well, containing batteries that store power while the current is running properly and can keep the voltage reaching your system from dropping when the incoming pow-

**A virus is not a disease, but a mere program. The key thing about a virus is that it is a program that spreads and reproduces like its biological namesake.**

er does. (They usually also include spike suppression.) They will even function when the power completely dies, but not for long. Depending on their capacity, they may keep your system running from anywhere between five minutes to upwards of half an hour. Of course, the more devices you have running, the faster the battery will discharge. At the very least, such a device will allow you to save your work if the power completely dies, and make working more bearable if you live in an area prone to power fluctuations and brownouts.

You should realize that devices of this type are not cheap, and often cost hundreds of dollars. But, if you are a serious user, it might be worthwhile to purchase one. If you don't need one of these, you should at least have a surge suppressing power strip. Otherwise, you're taking unnecessary risks.

If you have a modem, it is possible to get spikes over the telephone lines, which can damage the modem proper. Since the phone system is separate from the electrical, surge protection on the electrical outlets alone will not suffice. There are surge suppressors designed for use on phone lines, and some of the better power outlet suppressors also feature spike suppression for telephone lines (meaning you have to run the cable from the modem to the power strip, and then from there to the phone jack).

## Disk doctoring

As I write this, there has been a lot of press concerning computer viruses. While many people think such things are limited to big mainframe systems, viruses can be found on most types of computers—even our STs.

A virus is not a disease, but a mere program. The key thing about a virus is that it is a program that spreads and reproduces like its biological namesake. How does it start? You somehow obtain a program that contains the virus. When you run the program, it places the virus program in your computer, which then writes itself to the boot sector of every disk you put into your disk drives. Sometimes they even locate hard-drive mechanisms and write themselves into the boot sectors there.

You can also get a virus in your system by booting with a disk containing the virus. Please note that the virus does not remain in your computer forever. Turning it off will effectively "kill" the virus program. However, once it has written copies of itself to disks, any time you boot your system with an "infected" disk, the virus will get into your system and go about its business of reproducing on any disks you use in that session.

Now, a self-perpetuating program is not, in and of itself, a dangerous thing. However, many viruses do more than just replicate. Most wait for a specific incident to occur, like a certain date or time, or a specific program to be run, etc., and then they execute their main code. A few do silly things like put up dumb messages. Other are more serious. Some do things like try to format every drive on your system (perhaps even your hard drive!), or trash files, etc. It's these malicious ones that are the most dangerous, because if you are not ready to deal with them, you could lose a lot more than your temper!

There exist programs to check for viruses. What they do is look at the boot sector of any floppy you insert and look for any code there that is out of the ordinary. They will then inform you if it suspects a virus is present and will rewrite the boot sector of the afflicted disk, wiping out the virus.

Most of these virus-killer programs can not distinguish between a virus and special auto-boot program codes that many commercial games use; so you should use them cautiously and not on commercially purchased applications. Most users' group libraries will have some virus-killing programs, and new ones are post-



ed periodically on online services such as DELPHI, GENie and CompuServe.

To safeguard against getting a virus in the first place, be careful about any non-commercial software disks you obtain. Boot with a disk you know is safe, and check all new disks with a virus-killing program. If you don't have one of these programs and must boot the system with a disk you are unsure of, power down your system when you are done trying out the disk, and then reboot with a safe disk.

Furthermore, if you have a hard disk, the first few times you run any unknown public-domain program you could use an accessory like "The Protector" by Timothy Purves, which "locks" your hard drive to keep it from being written to.

**Electricity is the  
very lifeblood  
of your entire  
computer  
system; but your  
computer  
requires very  
specific amounts  
of it, or it will  
not work.**

### **You have been warned**

Well, there you have it: some of the most common dangers to the well-being of your ST and how to safeguard against them. Next month we'll be delving where no *Step 1* has gone before—into understanding and using the dreaded GEM Graphics Device Operating System, otherwise known as Atari's GDOS. ■

*When not writing articles for STLog or otherwise working on computers, Maurice Molyneaux studies classic cel and modern computer animation, deadens his eardrums with loud classical music and further damages his already questionable sanity by listening to recordings of Monty Python, Tom Lehrer and Laurie Anderson. Otherwise he just makes a nuisance of himself. His DELPHI username is MAURICEM.*

# Attention Programmers!

**ST-LOG Magazine** is interested in programs, articles, and software review submissions dealing with the Atari home computers. If you feel that you can write as well as you can program, then submit those articles and reviews that have been floating around in your head, awaiting publication. This is your opportunity to share your knowledge with the growing family of Atari computer owners.

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(from page 13)

## Cross-Town Crazy 8

Just when it seemed like game designers had already done every imaginable card game for the home computer, XLent Software comes along with a new game and a new way to play it. *Cross-Town Crazy 8* is the year's nicest surprise for card sharks.

For those who've never played Crazy Eights, it's a game in which players attempt to match pairs. The winner is the first player to get rid of all his or her cards. Author Patrick Dell'Era's computer opponent is one sharp customer, but if human competition is what you're after, *Cross-Town Crazy 8* is playable over a modem with opponents across town or around the world.

Attractive graphics and speedy play make this a winner in the area of classic strategy games.

## Typhoon Thompson

Dan Gorlin has maintained a fairly low profile since creating *Choplifter* and *Raid on Bungeling Bay* in the early 1980s. *Typhoon Thompson in Search for the Sea Child* (Broderbund) shows that this master designer has not lost his touch. Gorlin has incorporated the essence of his abortive

*Air Heart* into a well-rounded design that features a solid story line and truly amazing visuals.

The player becomes adventurer Typhoon Thompson, who searches the planet Aguar for a child who was kidnapped by Sea Sprites. A pair of Spirit Guardians empower Typhoon Thompson with a Jet-sled and weapons so he can capture the Sea Sprites and, ultimately, retrieve the child.

Sprites, which look like large frogs, can only be captured by firing at their island-like hiding places. A successful hit brings one or more sprites out into the open in their various flying and hover-style crafts. The player must destroy the flyers and then swoop near enough to the dazed

Sprite to capture it. This game is as difficult to stop playing as it is to explain. *Typhoon Thompson* is one of the year's most compelling and imaginative action adventures.

## Bubble Ghost

*Bubble Ghost* (Accolade), by the French design team Infogrames, is a charming collection of kinetic puzzles. The user must employ hand-eye skill combined

**Just when it seemed like game designers  
had already done every imaginable card  
game for the home computer,  
XLent Software comes along  
with a new game and a new way to play it.**

with brain power to solve a series of fascinating screens.

The player manipulates an on-screen ghost with the joystick. The phantom propels a balloon through Rube Goldberg-style mazes, with gentle puffs of air. Floating the balloon through a room full

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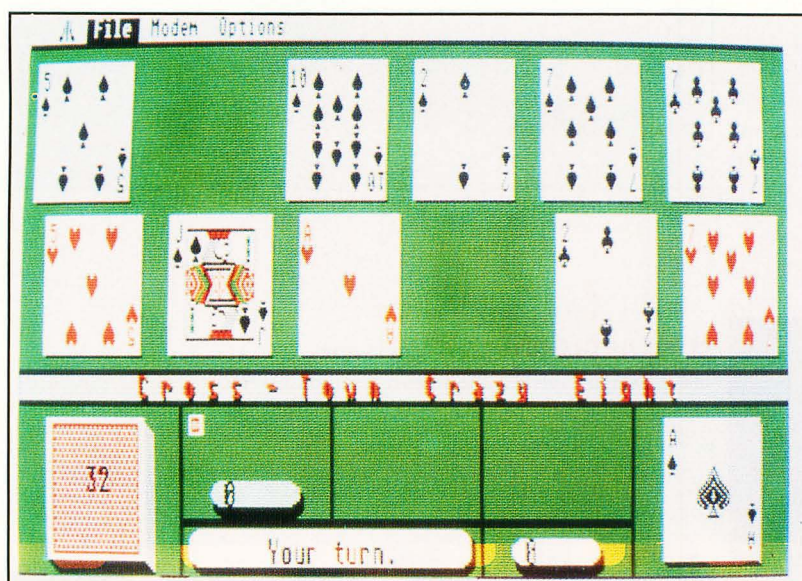
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**POLICE QUEST** • From Sierra

The authentic experiences of designer Jim Wall, a retired police officer, are the basis for a grimly realistic crime story.



**CROSS-TOWN CRAZY 8** • From XLent Software

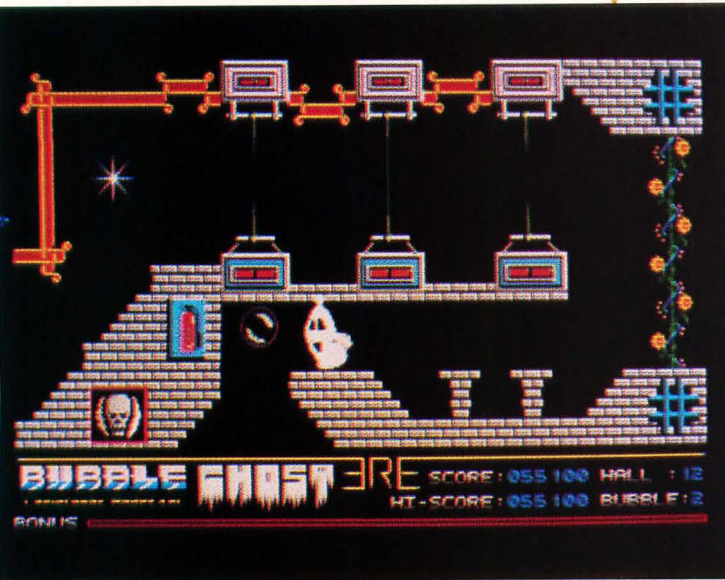
This is the year's nicest surprise for card sharks. What's more, with a modem, you can play this with opponents across town!



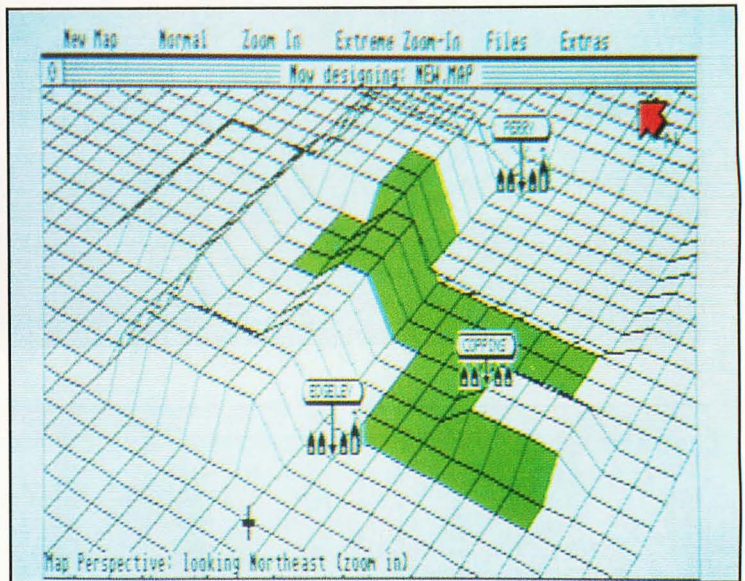
**TYPHOON THOMPSON** • From Broderbund

The player becomes adventurer Typhoon Thompson, who searches the planet Aguar for a child who was kidnapped by Sea Sprites.



**BUBBLE GHOST** • From Accolade

By the French design team Infogrames, *Bubble Ghost* is a charming collection of kinetic puzzles. The user must employ hand-eye skill combined with brain power to solve a series of fascinating screens.

**UNIVERSAL MILITARY SIMULATOR** • From Firebird

The relatively simple scenario-builder permits the computerist to construct a battle from just about any historical period.

**PRIME TIME** • From First Row Software

Lets computerists fulfill a dream. For anyone who has ever twirled the channel selector around the dial in a fruitless quest for something to watch on television, this is the ultimate power trip.

**CAPTAIN BLOOD** • From Mindscape

The player, as a dying alien, searches the universe for his clones, but the plot is secondary to the eye-popping graphics and play system.





of spikes, candles, fans and other hazards calls for a delicate touch.

*Bubble Ghost* lacks the frenzied excitement of all-out blastathons, but its subtle play mechanic overcomes the absence of slam-bang action. It's the kind of action-strategy contest that appeals to the entire family, not just the joystick jockeys.

### Captain Blood

Also by Infogrames is *Captain Blood* (Mindscape), a game that looks better than it plays. Of course, *Captain Blood* is so visually impressive that it might have made the "best of the year" list on its graphic merits alone.

The player, as a dying alien, searches the universe for his clones, but the plot is secondary to the eye-popping graphics and play system. The user moves an on-screen hand over the ship's control console to work its technological wonders. The most significant is a tiny creature called an "Oorxx," which descends to a planet's surface and relays everything it sees back to the ship.

When a scan of a planet reveals signs of life, the player locates it with an Oorxx. The player then uses a sophisticated set of icons to communicate with the alien life-form.

The graphics are heavily influenced by both Kubrick's *2001: A Space Odyssey* and the work of artist H.R. Giger (best known for his work on the science fiction/horror film *Alien*). *Captain Blood* is the kind of game ST owners will buy to impress friends and demonstrate the state of the art in computer graphics.

### Universal Military Simulator

Ezra Sidran, creator of *Universal Military Simulator* (Firebird), is one of the few American designers who develop entertainment software for the Atari ST. His unorthodox construction kit for military simulations has outraged a few war-gaming purists, but it perfectly fills the bill for those who weren't weaned on Avalon Hill and SPI board games.

The relatively simple scenario-builder permits the computerist to construct a battle from just about any historical period. The pseudo-3-D perspective endows *Universal Military Simulator* with visual excitement non-war gamers often complain is lacking in contests that feature an overhead view of the battlefield. Armchair generals should look elsewhere for exacting realism, but *Universal Military Simulator* is a mind-stretcher for mainstream gamers.

### Prime Time

*Prime Time* (First Row Software) lets computerists fulfill a dream of everyone who has ever twirled the channel selector around the dial in a fruitless quest for something to watch on television. Author Mike Breggar plants the player behind the desk of a network programming chief. The gamer must build a viable schedule, adding new series and specials through competitive bidding against rival network executives.

Although *Prime Time* is crammed with intriguing strategic possibilities, Breggar always remembers his sense of humor. The sly digs at big-time television keep the tone light in what might otherwise be a cutthroat encounter with network broadcasting. *Prime Time* is prime entertainment software.

### Conclusion

Primarily due to the games described here, 1988 ranks as the best year so far for Atari ST entertainment software. While the future, so dependent on the success of the hardware system, is very hard to forecast, most signs are positive. The rising influx of European-produced games, plus slightly higher domestic output, should make the current year even more exciting for computer gamers than 1988.

Companies mentioned in this article:

**Accolade**  
20813 Stevens Creek Blvd.  
Cupertino, CA 95014  
(408) 446-5757

**Arcadia**  
711 W. 17th Street  
Mesa Business Center,  
Unit 9G  
Costa Mesa, CA 92627  
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**Broderbund**  
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San Rafael, CA 94903-2101  
(415) 492-3200

**First Row Software**  
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Philadelphia, PA 19104  
(215) 662-1400

**Mindscape**  
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Northbrook, IL 60062  
(312) 480-7667

**Rainbird Software**  
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Menlo Park, CA 94026  
(415) 329-7699

**Sierra**  
P.O. Box 485  
Coarsegold, CA 93614  
(209) 683-6858

**subLOGIC**  
713 Edgebrook Drive  
Champaign, IL 61820  
(217) 359-8482

**XLent Software**  
P.O. Box 847  
Springfield, VA 22150  
(703) 644-8881





# The First Canadian Atari User Convention

There was a certain confusion among the members of the Toronto Atari Federation as the crowd began to swell the exhibit area of the show. No one had expected this sort of enthusiastic response. They weren't prepared for it. Within an hour of the doors being opened, the hall was crammed, shoulder to shoulder, with attendees eager to visit the 50 booths. It quickly became evident that they couldn't handle the number of people who wanted to get in, so for a while, they were forced to control the entrance, only letting people inside when others left.

Fifteen seminars and two workshops were well attended, most by more than the 20 people nominally permitted in each. The topics ranged from online systems (Alan Page, author of *Flash*), desktop publishing (Bruce Corbett, Atari Canada), ST databases (Frank Cohen, Regent Software), MIDI (technicians from Steve's Music), the future of the 8-bit Atari (Shelley Merrill) and even my own talk on the ST-PC link.

The show was dominated by the ST, although the 8-bit still holds its own and refuses to die as everyone predicts. Although little new has emerged for the 8-bit line, USA Media had its "STjr" and Diamond OS software, an interface that makes the 8-bit Atari look and work like the ST, with icons, mouse and GEM-like desktop. Very nice. Commodore had its own graphics interface, GEOS, out years ago. I hope that this one isn't too late to compete.

by  
**Ian  
Chadwick**

Many of the booths were run by retailers and the show had a bit of the "flea market" feel. During the day, prices dropped to almost wholesale level as many dealers competed with the same products. Electronic Playworld's booth dominated the retail area, with the largest space and selection. Curiously, only one company had 3.5-inch disks on sale anywhere in the show—Fuji. I wasn't able to discover why BASE, Maxell, Dysan and others weren't represented.

Of the publishers and manufacturers represented, most are familiar to the U.S. audience: Regent, MichIron, Sierra, Gribnif (NeoDesk) and CodeHead. Frank Cohen generated a lot of sales with his springs to strengthen the mushy ST keyboard, as well as a special offer on *Regent Word II*. Personally, I think the springs are a touch of genius on Regent's part. Now if only someone could market a keyboard with keys of the proper *size*! CodeHead, after initial problems getting its software across the border (you land in Toronto, your luggage goes on to Montreal. Welcome to Canada...), drew crowds with two excellent products, *MultiDesk* and *G+Plus*.

Other exhibitors were Canadian with little or no marketing in the U.S., including Philos Inc, with its musical learning game, *Muzap*, and Byte-Size, a local manufacturer of floppy and hard-disk drives. The Byte-Size hard drives include a full DMA pass-through for device chaining, a built-in SCSI expansion slot for such devices as a tape backup and a ten-megabyte SCSI floppy drive, and an intelligent disk cache (software). Nice & Software was showing an inventory-control and cash-register package.

Several users groups (not including TAF, of course) were present, most selling copies of their magazine and group disks.

Some of the show's highlights:

**MIDI software.** There were *too many* synthesizers playing in the small space, and at times it sounded like the battle of the chips. Even a guitar and saxophone got into the act! Musicware, Saved by Technology (retail), Steve's Music (retail) and Philos all showed off products.

**Calamus.** Atari Canada was rightfully proud of this new entry into the desktop publishing field from ISD. They believe it marks a new era in ST professional sales. *Calamus* attracted more interest than probably any other single product. There was no sign of *Pagestream* (a.k.a., *Publishing Partner Professional*) anywhere at the show. ISD's *DynaCADD* was also shown off in the Atari Canada booth.

**Midi Maze.** Atari Canada ran a *Midi Maze* contest, mostly for the kids, although several adults (including yours truly) got into the act. They used the game to sponsor a charity drive for the Hospital for Sick Children in Toronto.

**Spectre 128** (distributed in Canada by Software Plus). The newest in the line of Macintosh clone cartridges, from David Small, who gave us the *Magic Sac*.

**Reset**, a Canadian ST publication, launched *ST Week*, a biweekly newsletter. Let's hope there's enough to fill it.

**ST World, ST User and ST Action.** Many Atari owners got their first look at these three glossy ST magazines from the U.K. What surprised many was not only the quality of the magazines, but the enormous number of ads they contain for software, most of it never seen over here!

## **The show was dominated by the ST, although the 8-bit still holds its own and refuses to die as everyone predicts.**

**CB-Chat.** Canada's first national online Atari user/support group works through the iNet 2000 service (iNet 2000 users can also use the Datapac system to access DELPHI). Due to the complexity of the iNet billing structure, the monthly fee (\$3.30 even, if you don't use it) and CB-Chat's decision to increase hourly fees in the evening while the iNet costs drop, it may still be more economical and less trying to deal directly with DELPHI or other U.S. online services.

Despite some initial confusion (TAF changed hotels midstream and didn't inform everyone immediately. I learned about the change through CompuServe!) and a rather disorganized show management, the First Canadian Atari User Convention was a success. TAF members sometimes got a little headstrong in their role as "security" and—maybe because they were new at it or because they were too young for the job—were sometimes less than amiable and polite. Nonetheless, the show came off well. I look forward to next year's event.

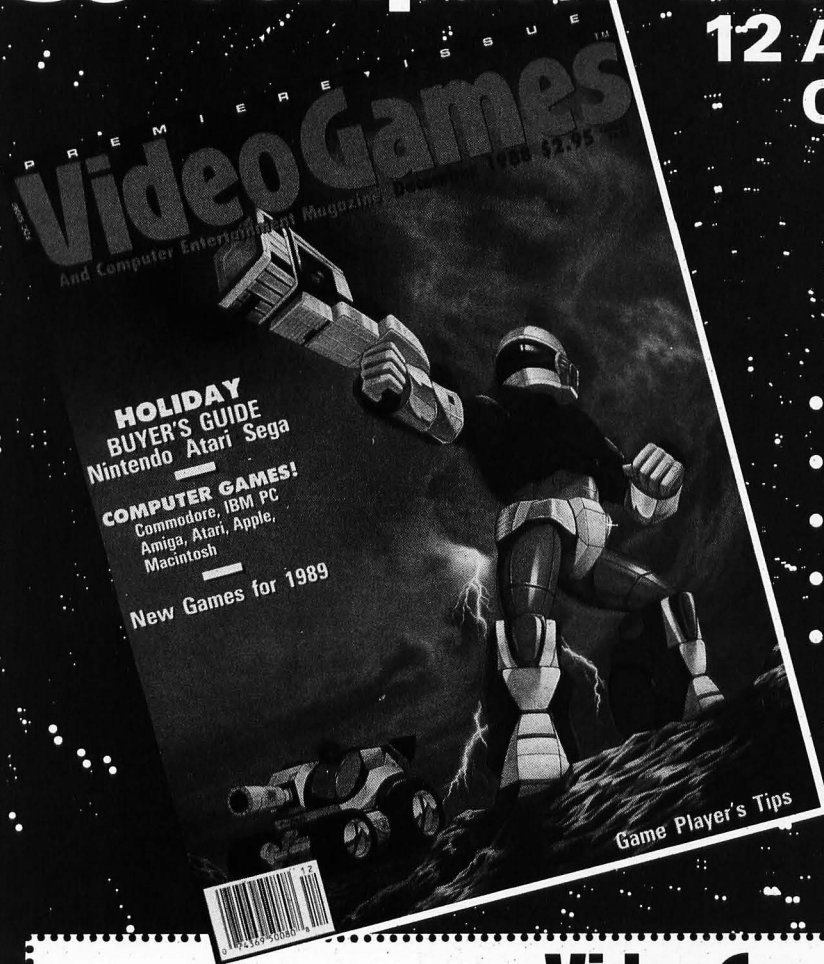


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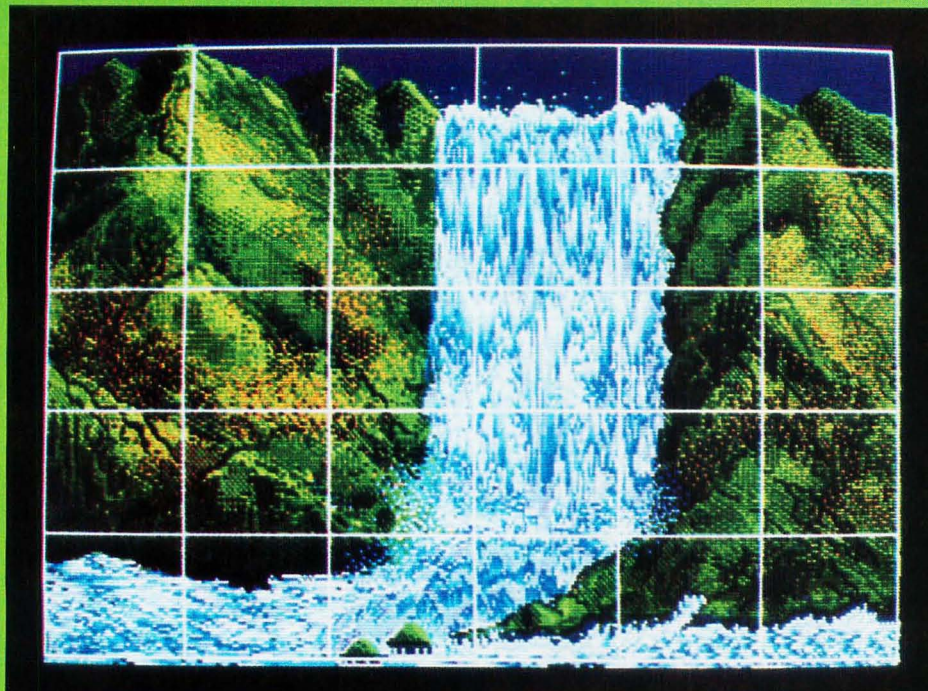
# PICTURE PUZZLE

P

icture Puzzle was written to add another dimension to the artwork currently available on the Atari ST. With it, you can read in a picture file of type .NEO or .PI\* and then break up that picture into rectangles of equal size. These rectangles are then shuffled up, and you are required to put the pieces in the correct order, restoring the picture to its original form. *Picture Puzzle* works in all three resolutions, so anyone can enjoy the program.

BY  
GUY  
DAVIS





◀ BEFORE

By hitting the right-arrow key you will increase the number of vertical rectangles displayed on the screen.

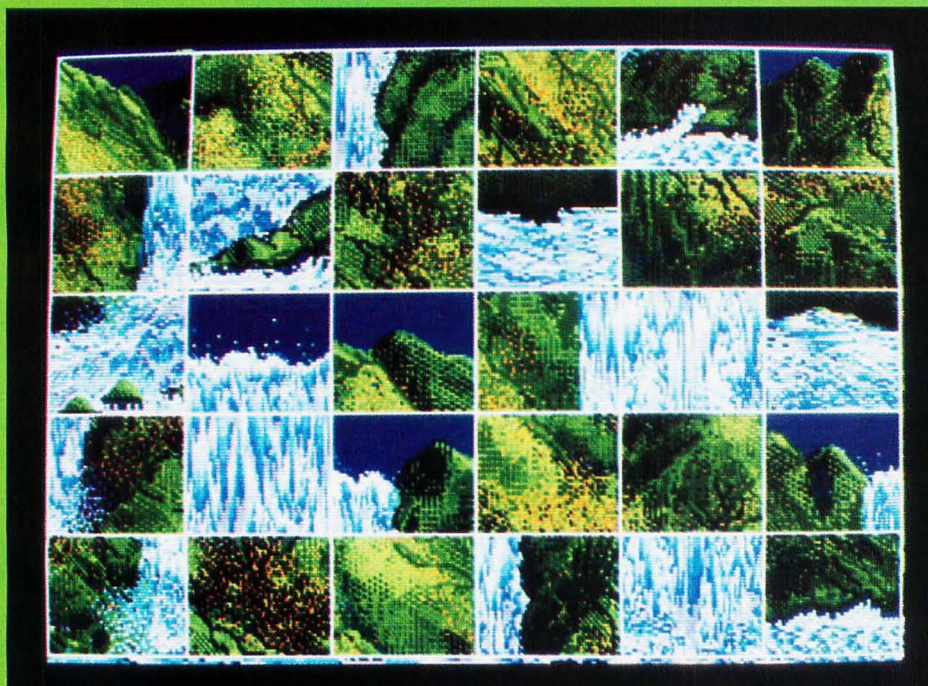
Hitting either the left-arrow key or the down-arrow key will decrease the number of vertical or horizontal rectangles displayed on the screen.

### Getting started

Listings 1 and 2 (PICPUZZL.PAS and BITBLIT.PAS) are the two source files needed to create the program. You may type in the listings and compile them with *Personal Pascal*, or you may find the complete program on this month's disk version or in the databases of the STLog users' group on DELPHI.

When the program is run, you will be greeted with a dialog box detailing the copyright information pertaining to the

program. Click on the OK button. Next you will be presented with a file-selection dialog box. To exit the program, select the cancel button whenever this dialog box is active. Since we don't want to stop now, insert a picture disk, containing picture files of type .NEO or .PI\* into Drive A. Select one of those files. If the file is the correct format and resolution, it will be loaded into memory. Otherwise, an alert box will be displayed describing your er-



◀ AFTER



ror. If everything went well, the picture will be displayed on the screen. At this point you may do several things.

First off, play with the arrow keys. By hitting the up-arrow key, you will be presented with a vertical line in the middle of the screen, splitting the picture up into two horizontal rectangles. Hit the up-arrow key again. Now you have three rectangles. By hitting the right-arrow key you will increase the number of vertical rectangles displayed on the screen. Hitting either the left-arrow key or the down-arrow key will decrease the number of vertical or horizontal rectangles displayed on the screen. You may have as much as 22 horizontal and/or vertical rectangles or as few as one of each (no lines at all). Anything more than 22 would make the picture hard to see and the puzzle too difficult to solve.

If the color of the lines is not to your liking, hit the F1 key. You will be presented with a dialog box displaying all the possible colors in the current color palette. The color currently being used to draw the lines will have a check mark on it. To change the color, click on the color you would like for the lines, and then click on the OK button. The lines will change immediately.

If you wish to load another picture at this point, hit the escape key. Hitting this key at any point in the program will return you to the file-selection dialog box.

Finally, if you are satisfied with the way the picture is broken up, you may hit the return key. After you do this you will notice that the rectangles are shuffled up, thus mixing up the picture. It is now up to you to put the picture back together again.

### What a mess!

You are faced with a mixed-up picture. Now what? In order to put the picture together, you must exchange rectangles. Click on any two rectangles with the left mouse button, and they will change places. Continue to do this until you have restored the picture. If you need help, you may hold down the right mouse button, which will display the original picture. Releasing the button will return you to the mixed-up picture. Again, if you wish to exit to the file-selection dialog box, hit the escape key at any time.

After completing the picture puzzle, you will be congratulated, and you may then load in another picture or exit the program.

### For the programmers

The source code contains examples of calls to the VDI and XBIOS. The major problem that I had to overcome was the fact that the GEM call to get an event will not support a mouse-button event if that button event occurred in the menu area. This was especially irritating because I was not using menus. Luckily a VDI call exists that allows the programmer to sample the mouse-button state without the use of the event routines. This call is No. 124 and returns the x and y mouse position along with a button status, where 0 equals no button pressed, 1 equals left button pressed, 2 equals right button pressed and 3 equals both buttons pressed.

If you wish to change the program to your own specifications and recompile it, you must first compile the source code in the file BITBLIT.PAS creating BITBLITO. Then enter BITBLITO as a file under your link options and compile and link the source, PICPUZZL.PAS.

If the color of the lines is not to your liking, hit the F1 key. You will be presented with a dialog box displaying all the possible colors in the current color palette.

### Happily ever after

That's it. I hope you enjoy the program. The program took me a little under two weeks to code and debug, with a major portion of that time spent refining the program. Personal Pascal is a fine language to program in, and I urge anyone looking for an alternative to BASIC to check it out. ■

*Guy Davis lives in San Diego and is a member of the San Diego Atari Enthusiasts. He has been an Atari owner since 1981 when he bought an 800, and he has now owned an ST for about two years. An applications programmer for the last five years, Guy holds a bachelor of technology degree from the Rochester Institute of Technology.*



# PICTURE PUZZLE

## Listing 1:

Pascal

# PICTURE PUZZLE

```

(*****)
(* Picture Puzzle is a game that takes a picture of format .NEO, *)
(* .PI1, .PI2, or .PI3 and let's you break that picture up into *)
(* several pieces. Those pieces are then shuffled and you must *)
(* rearrange those pieces into the picture again. This program *)
(* was written so the author could create routines to read in *)
(* picture files. It was also written as an introduction to the *)
(* bit blit operations available on the Atari ST. *)
(* *)
(* COPYRIGHT 1988 BY ST-LOG MAGAZINE *)
(*****)

PROGRAM Picture_Puzzle ;

CONST
  ($I GEMCONST.PAS)
  right_arrow = $4D00 ;
  left_arrow = $4B00 ;
  up_arrow = $4800 ;
  down_arrow = $5000 ;
  PF1 = $3B00 ;
  Low_Resolution = 1 ;
  Medium_Resolution = 2 ;
  High_Resolution = 3 ;

TYPE
  ($I gemtype.pas)
  palet = ARRAY [0..15] OF Integer ;
  PI_Record = Record
    res : Integer ;
    palette : palet ;
    image : Array [1..16000] OF Integer ;
  END ;
  NEO_Record = Record
    res : Long_Integer ;
    palette : palet ;
    miscellany : Array [0..45] OF Integer ;
    image : Array [1..16000] OF Integer ;
  END ;
  scrn_memory = ARRAY [1..16000] OF Integer ;
  mfdb_fields =
    (addr1, addr2, wid_pix, ht_pix, wid_wds, flag, num_planes, r1, r2, r3) ;
  mfdb = ARRAY [mfdb_fields] OF Integer ;

VAR
  screen, backup, image_area : MFDB ;
  screen_buffer : scrn_memory ;

  PI_file : FILE OF PI_Record ;
  PI_image : PI_Record ;

  NEO_file : FILE OF NEO_Record ;
  NEO_image : NEO_Record ;

  palette, save_palette : palet ; ( working palette )

  Xmax, Ymax, Wmax, Hmax, resolution, dummy, key, event,
  palette_max, vertical, horizontal, rect_width, rect_height,
  left_margin, top_margin, chosen : Integer ;

  msg : Message_Buffer ;
  default_path : Path_Name ;
  block_position : Array [0..21, 0..21] OF Integer ;
  puzzle_solved : Boolean ;
  res_string : Array [0..31] OF Str255 ;
  alert_str : Str255 ;

  ($I gemsubs.pas)

(*****)
(* These two routines are linked with the program. They were *)
(* taken from O.S.S.'s bulletin board and allow me to use bit *)
(* blit operations. *)
(*****)

PROCEDURE init_form(var form: MFDB ; var addr : scrn_memory ;
  resolution : Integer) ;
EXTERNAL ;

PROCEDURE copy_rect(var s,d : MFDB ;
  from_x, from_y, to_x, to_y, wid, ht: Integer) ;
EXTERNAL ;

(*****)

```



## PICTURE PUZZLE

```

(* I call this routine in order to retrieve the current color *)
(* register settings. This is in order to return the original *)
(* colors when exiting the program. *)
(*****)

FUNCTION st_clr( register, color: integer): integer ;
  Xbios( 7 );

(*****)
(* These are the random number routines taken from the O.S.S. *)
(* bulletin board. I call these routines to choose random rec- *)
(* tangles when I shuffle up the picture. *)
(*****)

Function XB_Rnd : Long_Integer; ( get xbios random 24-bit number )
  Xbios( 17 );

Function Rnd : Real;
  Begin
    Rnd := XB_Rnd / 16777216.0;
  End;

Function Random( Low, Hi : Integer ) : Integer;
  Begin
    Random := Low + Trunc( Rnd * ( Hi - Low + 1 ) );
  End;

(*****)
(* This routine is used to determine the mouse x/y position. *)
(* I previously used the Get_Event function but this was only *)
(* partially effective as it did not recognize a mouse event at *)
(* the top of the screen in the menu area. *)
(*****)

PROCEDURE sample_mouse( VAR status, x_posit, y_posit: integer ) ;

  TYPE
    Ctrl_Parms      = ARRAY [ 0..11 ] OF integer ;
    Int_In_Parms    = ARRAY [ 0..15 ] OF integer ;
    Int_Out_Parms    = ARRAY [ 0..45 ] OF integer ;
    Pts_In_Parms     = ARRAY [ 0..11 ] OF integer ;
    Pts_Out_Parms    = ARRAY [ 0..11 ] OF integer ;

  VAR
    control : Ctrl_Parms ;
    int_in   : Int_In_Parms ;
    int_out  : Int_Out_Parms ;
    pts_in   : Pts_In_Parms ;
    pts_out  : Pts_Out_Parms ;

  PROCEDURE VDI_Call( cmd, sub_cmd : integer ; nints, npts : integer ;
    VAR ctrl : Ctrl_Parms ;
    VAR int_in : Int_In_Parms ; VAR int_out : Int_Out_Parms ;
    VAR pts_in : Pts_In_Parms ; VAR pts_out : Pts_Out_Parms ;
    translate : boolean ) ;

  EXTERNAL ;

begin
  VDI_Call( 124, 0, 0, 0, control, int_in, int_out, pts_in, pts_out, false );
  status := int_out[0] ;
  x_posit := pts_out[0] ;
  y_posit := pts_out[1] ;
end;

(*****)
(* I call this routine to set the color palette to the colors *)
(* read in from the picture files. *)
(*****)

PROCEDURE Set_Palette( pal: palet ) ;

VAR x: Integer ;

BEGIN
  FOR x := 0 TO palette_max DO
    BEGIN
      IF x = palette_max THEN
        palette[1] := pal[x]
      ELSE
        CASE x OF
          0,4,12 : palette[x] := pal[x] ;
          1,2,7,8,9,10 : palette[x+1] := pal[x] ;
          3,11 : palette[x+3] := pal[x] ;
        END
      END
    END
  END

```



## PICTURE PUZZLE

```

        5,13 : palette[x+2] := pal[x] ;
        6,14 : palette[x-1] := pal[x] ;
    END ;
    (set colors here)
    FOR x := 0 TO 15 DO
        Set_Color( x, Shr(Shl(palette[x],5),13)*124+62,
                    Shr(Shl(palette[x],9),13)*124+62,
                    Shr(Shl(palette[x],13),13)*124+62) ;
    END ;

    (*****
    (* This procedure is called to erase the screen. *)
    (*****

PROCEDURE erase_screen ;

    BEGIN
        hide_mouse ;
        clear_screen ;
        show_mouse ;
    END ;

    (*****
    (* This function returns the resolution in which the program is *)
    (* currently being executed. *)
    (*****

FUNCTION Get_Res: Integer ;

    BEGIN
        Work_Rect( 0, Xmax, Ymax, Wmax, Hmax ) ;
        IF Wmax=320 THEN
            Get_Res := Low_Resolution
        ELSE
            IF Hmax>200 THEN
                Get_Res := High_Resolution
            ELSE
                Get_Res := Medium_Resolution ;
            END ;
        END ;

    (*****
    (* This is the main loop. Within it the picture file is chosen, *)
    (* and then manipulated by the user. *)
    (*****

PROCEDURE Main_Loop ;

    VAR file_name: Path_Name ;
        file_to_input, valid_ext: Boolean ;
        x, result, pi1_spot, pi2_spot, pi3_spot, neo_spot: Integer ;

    (*****
    (* This routine will always display the picture image in it's *)
    (* completed form. *)
    (*****

PROCEDURE Display_Picture ;

    VAR x: Integer ;

    BEGIN
        hide_mouse ;
        copy_rect(image_area, screen, 0, 0, 0, 0, Wmax, Hmax) ;
        show_mouse ;
    END ;

    (*****
    (* This routine allows the user to break up the picture in any *)
    (* combination of rectangles. *)
    (*****

PROCEDURE get_squares ;

    VAR x, y, vert_lines, horz_lines,
        offset_1, offset_2, work_1, work_2: Integer ;

    (*****
    (* This routine is called if the user hits the PF1 key while *)
    (* breaking up the picture into rectangles. It allows the user *)
    (* to select the color of the lines which separate each rectan- *)
    (* gle. Only those colors in the current palette may be chosen. *)
    (*****

PROCEDURE change_line_color ;

```

(to page 69)



# COMDEX

## fall 1988

**A T A R I**

**S H O W S**

**I T S   S T U F F**

The fall 1988 Computer Dealer's Exposition (COMDEX) brought most of the Atari community back to Las Vegas, Nevada, for a good step forward into the future of the ST computer and Atari as a computer manufacturer. With ever-increasing computer-industry sales figures, many market analysts have noted the absence of progress in bringing the Atari ST computer to the public. Attending COMDEX was, therefore, important for Atari. But it was also expensive: Estimates range from \$300,000 to \$500,000 to create a respectable display.

▼

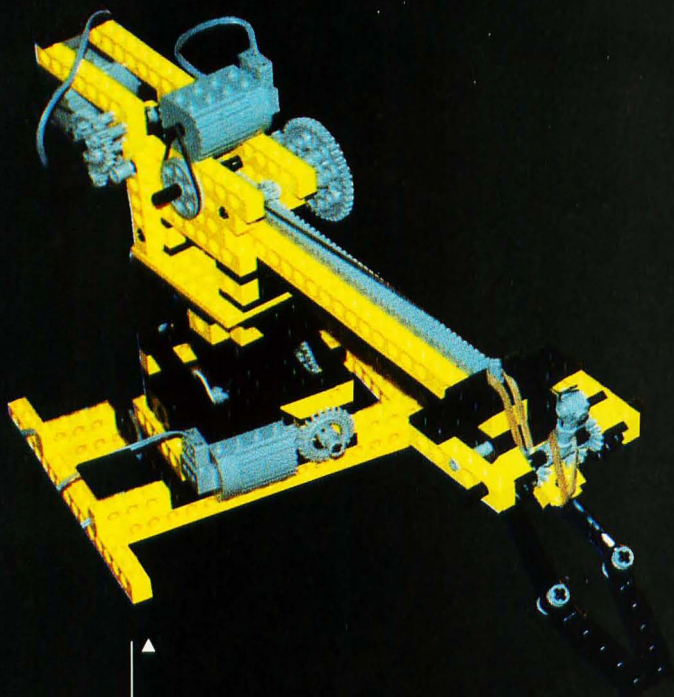
**B Y   F R A N K   C O H E N**



# EX







▲ **Atari ST Robotics Interface Kit teaches students the basics of how to operate a robot.**



▲ **Bentley Bear's Education Series teaches your kids spelling, math and logic.**

## New people, new production

Since the Tramiels bought Atari Corp. in '84, STLog has been introduced to a new vice president of sales at every COMDEX show: Jerry Brown, Chuck Babbit, Tony Gould. All of them have been leaders of Atari's sales force, and all of them have been canned when things didn't work out with the Tramiels. So, you can imagine what it felt like to be introduced to Mike Dendo, the new VP of sales for Atari Corp.

Dendo joined Atari Corp. in August '88, which makes him the longest lived of all Atari's past VPs of sales. He has a strong history of computer and technology sales and was previously the western regional and national military sales manager for Star Micronics, the well-known printer manufacturer. Prior to Star Micronics, Dendo was the VP of dealer sales for National Business Systems, a manufacturer of point-of-sale terminals and high-speed embossing equipment.

Dendo lists Atari Corp.'s limited chain of retail outlets as the No. 1 reason that the ST has failed to make significant inroads into the U.S. personal computer market. He cites the limited supply of machines and poor dealer relations as the major culprits behind Atari's current retail woes.

Dendo believes the improved DRAM situation will open up several new distribution outlets and permit a new advertising plan to commence. Dendo is negotiating with Microware Distributors, a nationwide consumer electronic and home computer distributor, to enter the ST distribution game in 1989. Dendo expects Microware to become a major ST vendor with an established \$2 million line of credit.

Dendo also reported that Atari will roll out a small advertising plan for the ST computer. At Atari's COMDEX booth, several new television and print advertisements for the ST computer were shown. Dendo's first moves were to locate the dealers that could support local, regional and national advertising efforts for the ST and Atari's future products.

"Spots will run on Cable News Network's [CNN] *Larry King Live* show," said Dendo. The ads will also be shown in several local markets, depending on ST sales. Dendo gave a strong indication that Atari's ads will be run in established markets—New York, Houston, Chicago and Los Angeles—as a push to shore up addition losses to Commodore Amiga. Ads promoting the ST have already appeared in the *New York Times*.

## Atari MIDI connection

The central attraction of Atari's COMDEX booth was developed by Frank Foster, Atari's new director of MIDI products. Foster co-founded Hybrid Arts in 1985 to create new software products that take advantage of the ST's electronic music interface (MIDI) built into the ST computer. Hybrid predicted a booming MIDI market for the ST. After three years, Foster's vision of the ST has become a reality. Atari estimates it has captured as much as 40% of the MIDI computer market.

Foster's connections to the electronic music world brought Mick Fleetwood, of Fleetwood Mac, to Atari's COMDEX booth. Fleetwood brought the male members of Fleetwood Mac to the Atari booth for an hour show, demonstrating what MIDI and the ST can do for professional musicians.

## Publishing

Atari made a strong point in favor of its desktop publishing system. At an average system price of \$5,000, the Atari system is built around a Mega ST and laser printer. With



*Page-stream* (formerly named *Publishing Partner Professional*) and *Ultrascript*, a PostScript clone, Atari users can have the equivalent of a \$8,000 Macintosh system with laser printer.

After three years of slow progress in the desktop publishing (DTP) field, the Atari ST now has available several excellent software packages for publishers and graphic artists.

*Deskset* is a high-end DTP system developed by G.O. Graphics, a Massachusetts-based firm that has already developed a similar product for MS-DOS machines. Atari Corp. will market *Deskset* as its official DTP system at a retail price of \$299. *Deskset* is not, however, designed for the average ST user. It requires a Mega ST4 and SLM804 laser printer.

G.O. Graphics uses its own font and graphic operating system to display and print documents, and fonts from Compu-graphic—a huge typesetting equipment manufacturer—have been licensed for use with *Deskset*.

*PageStream* is the "sequel" to the very successful *Publishing Partner*, which supported the use of PostScript printers for high-quality output.

Unfortunately, when using *Publishing Partner* on a non-PostScript printer, a complex page of text and graphics could take up to ten minutes to print. *PageStream* was completely rewritten to overcome the slow printing speed. But the rewriting also introduced a number of new "bugs" into the program.

At the show, Atari unveiled its new PostScript emulator, *Ultrascript*. A GEM program that reads a PostScript file, *Ultrascript* creates high-quality printed output on the SLM804 laser printer. The program requires two megabytes of memory to function, though, so it is usable by most ST owners. Atari has not announced a price or availability date for *Ultrascript*, but insiders expect the program to be out by this summer.

A prerelease version of *Calamus*, a high-end DTP package for use with the Mega ST and a SLM804 laser printer, was shown at COMDEX. At \$299.95, *Calamus* advertises a huge assortment of tools and functions. ISD Marketing, who brought the *VIP Professional* spreadsheet to the ST, expects *Calamus* to be the top-of-the-line DTP system for the ST when it is released later this year. If the finished product is as powerful as advertised, *Calamus* will surpass Adobe *Pagemaker*, the leading DTP program for the Mac. Considering *Pagemaker's* \$695 list price, it is conceivable that the Mac might lose ground to the ST.

All of the DTP programs shown at COMDEX support pseudo what-you-see-is-what-you-get (WYSIWYG) screen displays. *Deskset* features outstanding fonts, but was much slower updating the screen than the others. *PageStream* offers PostScript compatibility and style sheets, but early versions are bug-ridden. *Calamus* appears to be the most powerful DTP system for the ST, however, it is not yet available. *Timeworks Publisher ST* is inexpensive and good enough for most small-time publishers, however, it is a GDOS program and therefore difficult to install.

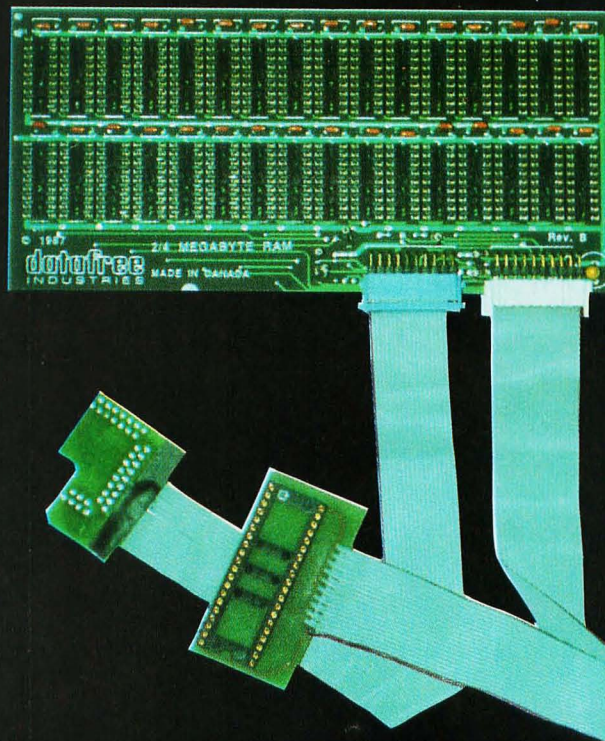
## The transputer arrives

The Atari Transputer Workstation (ATW) is Atari's latest piece of hardware. Final versions of the ATW—previously known as the ABAQ—were on display at the COMDEX computer trade show. The ATW comes in a freestanding white IBM PS/2-style cabinet. The 3.5-inch floppy-disk drive and power indicator make a deceptively simple-looking front panel. The ATW is a very powerful computer.

Inside the ATW is a T800-20 transputer processor, four



Greenwich Marketing Corporation brings us Le SHIELD.



Datafree Industries' offers the 2/4 Megabyte Memory Upgrade for use with the Atari 520 ST, 520 STfm and 1040 ST.





► The Atari Transputer Workstation is Atari's latest piece of hardware.

megabytes of memory, high-speed serial ports controlled by a 68000 processor and a video display system capable of showing 16 million colors at 1024 x 768 dots of resolution.

Unlike the ST, the ATW computer uses more than one processor to handle programs and instructions. When ST instructions are performed, a single command is moved into the 68000 CPU and processed. The ATW supports up to 17 processors, each processor handles a different procedure at the same time. This is called parallel processing, and it allows programs written for the ATW to run significantly faster than single processor computers.

The ABAQ system may be expanded by adding expansion cards similar to IBM PC cards. Each expansion card holds four T800-20 processors and an additional megabyte of memory. The ATW system processes ten to 12 million instructions per second, which is ten times quicker than an IBM AT computer. Atari claims that the system may be expanded to eventually handle 100 million instructions per second by connecting multiple ATW systems together using very high-speed interfaces.

The ATW computer uses Inmos T800 processors, true 32-bit microprocessors that use reduced instruction set computer (RISC) technology to produce ten to 12 million instructions per second processing speed. RISC takes the approach that "less is more." The RISC instruction set contains only a few commands, as compared to the 68000 processor that contains a large number of commands to process a wide variety of special tasks. RISC provides assembly-language programmers with a small portion of the most commonly used instructions from other microprocessors. RISC-based applications run quicker than conventional microprocessors, because they rely on the RISC programmer to develop programs to handle complex operations using the small RISC instruction set.

Atari sees the transputer as the leading edge of personal computer technology. Perihelion Software of the U.K. is developing the *Helios* operating system for the ATW computer. Atari's objective is to establish *Helios* as the standard transputer operating system. *Helios* has been described as a UNIX-like system that is being designed for the multiprocessor environment. *Helios* will be delivered running XWINDOWS, the UNIX visual interface system similar to GEM and the Macintosh OS.

The ATW system is being promoted as a powerful numbers cruncher, but it lacks the high-speed channelized input/output systems that make minicomputers and mainframe systems quicker and more efficient than microcomputers.

However, in the areas of computer aided design (CAD), animation, 3-D modeling, networking, robotics and artificial intelligence, the ATW is a viable and powerful computer.

### Atari 68030 UNIX System

Atari President Sam Tramiel announced at COMDEX plans for an ST computer that uses the advanced 68030 central processor chip from Motorola. The announcement confirms a rumored Atari TT (32-bit) computer, although the final name has not been chosen. Tramiel anticipates having a supply of prerelease machines available for developers in the early months of 1989.

To match the huge processing power of the 68030 brain, the new system will feature the UNIX operating system. Tramiel said the Atari UNIX computer will be TOS compatible and



will operate under UNIX System 5.

Industry analysts view the announced UNIX computer as another Atari attempt to mass-market high technology, while undercutting its competitor's prices. Atari has had poor results marketing the ST computer as a business system. Today's standards require a business computer to support a local area network (LAN), have a multiuser operating system and provide reliable hardware support. The ST computer fails in these areas. Atari will have to resolve these issues before the 68030 UNIX system is a success.

"Part of my job is to create positive movement that will put our dealers behind the 68030 [computer]," said Mike Deno. Atari is trying to change its dealer/distributor channel to be able to handle the new, more sophisticated products Atari has under development.

## Languages

Mark Williams showed its new source level debugger, *CSD* (\$69.95 list), available for its C ST development language. *CSD* operates like a C interpreter, allowing programs to be interrupted and variables or memory to be checked. In separate GEM windows, the source code, program evaluation and run-time history are displayed.

MichTron is no longer marketing *GFA BASIC*. Only two months after the release of the eagerly anticipated new version, GFA Systemtechnik pulled the marketing rights, having decided to open a U.S. marketing office of its own. GFA USA is expected to arrive late this year to handle sales, marketing and technical support of GFA's extensive line of ST products.

MichTron announced two new BASIC languages to replace *GFA BASIC*: *Hisoft BASIC* and *Power BASIC*, both of which are *Microsoft BASIC* compatible. The two new packages fill out MichTron's line of development languages for the ST.

*Hisoft BASIC* (\$79.95 list) is a BASIC interpreter that gives programmers full access to the GEM system. Compiled output can also be generated, making this inexpensive BASIC language a high-quality, low-end development package. A symbolic debugger is included for program testing and debugging.

*Power BASIC* (\$159.95 list) is MichTron's new high-end BASIC compiler and comes with an editor, compiler and debugger.

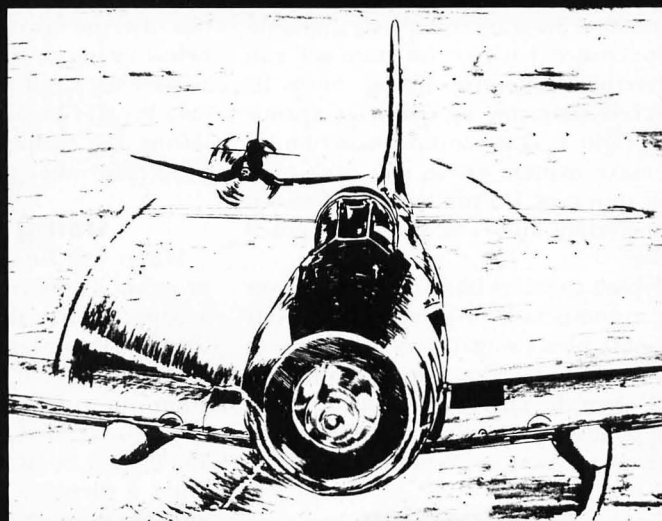
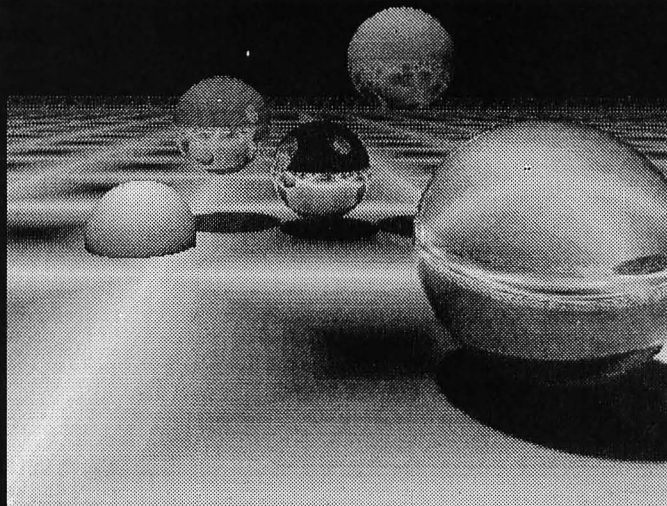
## Deutschland BASIC, Ja!

Atari Germany began shipping *Omikron BASIC* as the standard Atari ST BASIC language late last year. Since then 11 other European countries have followed the Omikron standard. *Omikron BASIC* is very close to *MBASIC* and *GW BASIC* for MS-DOS machines, and the development package comes with an interpreter, compiler and a large library of precompiled programs for use in specialized applications. The Omikron library has routines for GEM, MIDI, numerics, statistics, complex numbers and financial mathematics. The libraries make it easier for beginners to understand how to develop complex applications.

Omikron attended COMDEX, in part, to find an American distributor to handle U.S. and Canadian marketing of its products. If the U.S. version of *Omikron BASIC* is well-packaged and supported, it could give *GFA BASIC* a run for its money.

(to page 56)

▲  
**Ultrascript brings PostScript to the ST with some dazzling effects.**

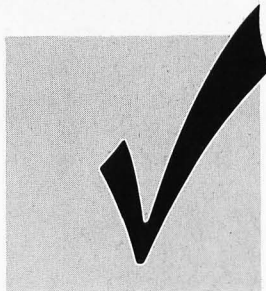


▲  
**Air Warrior from General Electric Co., USA is an interactive flight-simulator game only on GENie.**



# ST-CHECK

## A CHECKSUM PROGRAM FOR THE ST



BY CLAYTON WALNUM

ALL RESOLUTIONS

**T**yping in a BASIC program listing can be a frustrating and time-consuming task. Just one mistyped character will frequently render a program completely unusable. So to ensure that your program will run correctly, the entire listing must be checked character by character against the original. This can take many hours. To make matters worse, you can't trust your own eyes. Do you know how easy it is to overlook an O where a 0 is supposed to be?

Typing checkers like *ST-Check* take over the arduous task of proofreading your program files. Using this program can cut down your debugging time by a huge factor. When the checker's output matches that published with the listing, you can be sure your typing is accurate.

### Introspection

When you run *ST-Check* against itself, you will get one of several results. The program may just give up and crash. In that case, go through the listing character by character until you find your typing error.

A second possibility is that the program will run okay, but will create all bad checksum data. This may indicate an error somewhere between Lines 80 and 420.

Find the typo and correct it.

The last possibility is that the checksum data will have only a few bad values. In this case, use the normal method detailed below to locate your errors.

*Warning:* Until you get your checksum data for *ST-Check* to match the data following the listing, you can't trust it to proofread other programs.

### Using ST-Check

When you finish typing a ST BASIC program listing from the magazine, save a copy to your disk, and then run *ST-Check*. The program will first ask for a filename. Type in the name for the program you wish checked (the one you just saved to the disk), and press RETURN. You'll then be asked for a "bug" name. Enter a filename for the checksum file (this can be any name not already on the disk), followed by RETURN.

*ST-Check* will now proofread the program. When the checking process is complete, you'll have a file on your disk (saved under your bug name) which contains the checksum data for the program checked.

Check the last value of each line. If it matches the value in the published checksum data, go on to the next. If it doesn't match, you've got a typo.

To find the error, look at the line number of the data statement in which the bad value occurred. This number is equivalent to the first program line the data evaluates. Let's call this "Line X." Count the entries in the data line until you get to the bad value. We'll call this count "Y." Now look at the program you typed in. Starting with and including Line X, count down Y lines. The line you end up on will be the one containing the typo.

Correct the error, and then rerun *ST-Check*. When you get all the checksum data to match that published in the magazine, your new program is ready to run.

### Passing the buck

Okay, friends. Here's where the truth comes to the fore. I can take only minimal credit for *ST-Check*, as it's virtually a direct translation from *D:CHECK2 (ANALOG #16)* by Istvan Mohos and Tom Hudson. All accolades and tribute should be directed to those two fine gentlemen. I'm sure they'll divvy it up fairly, and perhaps pass a small share onto me. Thanks, guys!

You may now type in this month's ST BASIC program, secure in the knowledge that the searching eye of *ST-Check* is primed and ready.



## ST-Check Listing 1 — ST Basic

```

10 'ST CHECK typing validator by Clayt
   on Walnum
20 'based on a program by Istvan Mohos
   and Tom Hudson
30 if peek(systab)=1 then cl=17 else c
   l=32
40 fullw 2:clearw 2:gotoxy cl,0: "ST
   CHECK":ex=0:sp=0:x=0
50 input "Enter filename: ",f$:input "
   Enter BUG name: ",f1$
60 on error goto 590:open "0",#1,f1$:o
   pen "I",#2,f$:close #2
70 open "I",#2,f$:on x goto 140,220
80 color 2:?: "Counting lines":lineco
   unt=0:color 1
90 on error goto 570
100 line input#2,i$:linecount=linecoun
   t+1
110 ? " ":goto 100
120 close #2:q=int((linecount/10):dim c
   (linecount),r(q)
130 x=1:goto 70
140 range=0:lyne=0:color 2:?:?: "Fill
   ing array":color 1
150 ? " ":count=0
160 line input#2,i$:count=count+1
170 lyne=val(i$):r(range)=lyne:range=r
   ange+1
180 on error goto 580
190 line input#2,i$:count=count+1:if c
   ount=10 then 150
200 goto 190
210 close #2:x=2:goto 70
220 color 2:?:?: "Calculating checksu
   ms":color 1
240 for i=1 to linecount:checksum=0:li
   ne input #2,i$:l=len(i$)
245 if mid$(i$,1,1)=" " then l=l-1:got
   o 245
250 for z=1 to l:number=asc(mid$(i$,z
   ,1))
260 if number=asc(" ") and ex=0 and sp
   =1 then goto 320
270 if number<asc(" ") then sp=0 else
   sp=1
280 if number<34 then 300
290 if ex=1 then ex=0 else ex=1

```

```

300 if ex=0 and number>=asc("a") and n
   umber<=asc("z") then number=number-32
310 product=x*number:checksum=checksum
   +product:x=x+1:if x=4 then x=1
320 next z:?: " "
330 checksum=checksum-1000*int(checksu
   m/1000):c(i)=checksum:x=2:next i
340 close #2:lyne=r(0):item=0
350 color 2:?:?: "Creating BUG file":
   color 1
360 count=10:total=0:if linecount<10 t
   hen count=linecount
370 i$=str$(lyne):i$=i$+" data "
380 for i=1 to count:datum=c(10*item+i
   )
390 i$=i$+str$(datum):i$=i$+",":total=
   total+datum:next i
400 i$=i$+str$(total):print #1,i$:?: "
   "
410 item=item+1:linecount=linecount-10
   :if linecount<1 then 430
420 lyne=r(item):goto 360
430 close #1:clearw 2:?:gotoxy 0,1
440 ? "To check BUG data against the c
   hecksum data found in the magazine,"
450 ? "Return to the GEM desktop and d
   ouble click your BUG file. You may"
460 ? "then SHOW the data on your scre
   en or PRINT the data to your printer."
   :?
470 ? "The line number of each data st
   atement coincides with the first line"
480 ? "of the user program the data st
   atement evaluates. Numbers within"
490 ? "each data statement represent c
   onsecutive lines of the user program,"
500 ? "The last number is the total.":
   ?
510 ? "Check the last number of each s
   tatement against the version in the"
520 ? "magazine. Only when there's a
   discrepancy need you check each number
   "
530 ? "in the data statement.":?
540 ? "Take note of the lines containi
   ng typos, then make corrections. When
   "
550 ? "all corrections have been made,
   rerun this program to double check."
560 ? "Press <RETURN>":input i$:close
   #1:close #2:end
570 if err=62 then resume 120
580 if err=62 then resume 210

```

```

590 if err=53 then ? chr$(7):"FILE NOT
   FOUND!":close:resume 50
600 ? "ERROR #":err:?" at LINE ":erl:en
   d

```

## ST-Check Checksums

```

10 data 447, 129, 203, 518, 661, 160
   , 942, 482, 640, 556, 4738
110 data 25, 905, 797, 52, 79, 349,
   852, 644, 9, 402, 4114
210 data 883, 479, 834, 822, 42, 498
   , 255, 165, 826, 410, 5214
310 data 337, 1, 166, 578, 136, 801,
   898, 937, 271, 769, 4894
410 data 363, 99, 155, 889, 243, 764
   , 168, 192, 906, 156, 3935
510 data 757, 251, 146, 509, 146, 91
   6, 539, 541, 733, 845, 5383

```

# ST CHECK

END

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NEW

## Regent Base II

A 4GL SQL Database System

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A Fourth Generation Language (4GL) lets you use a language like C or BASIC and an easy to use screen layout system to create your own GEM programs. If you thought developing GEM applications was impossible, you haven't tried Regent Base II.

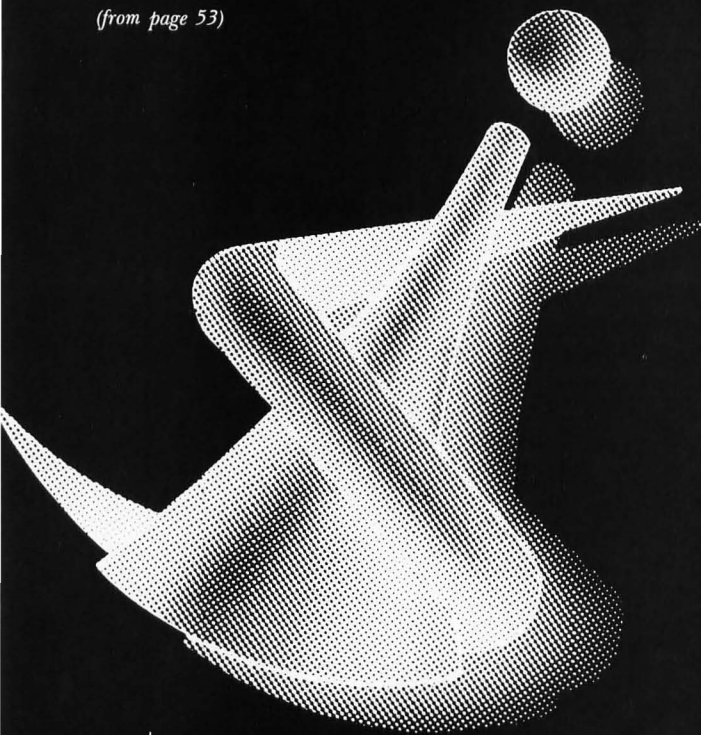
The Structured Query Language (SQL) was developed for novice database users. Now the standard American database language, SQL is very easy to learn and yet much more powerful than dBase III Plus! Print complex reports, create custom entry screens, even share data from other databases.

"You might lose a weekend learning the Regent Base II language, but the results just can't be beat!" Current Notes

For More Information

Regent Software, P.O. Box 14628, Long Beach, CA 90803  
(213) 439-9664





## INTERSECT SOFTWARE

Intersect Software is committed to the development and production of high-quality software products for Atari computers.



The Diskaroo Travel Pack from Kao In-fosystems Company (KIC) is a handy way to transport diskettes.

## ST COBOL

*COBOL/MST* (\$199.95 list) is a new COBOL compiler for the ST marketed by Castech. "More than 80% of all new business applications in the mainframe and minicomputer world are written in COBOL," said Cheney Bath, *COBOL/MST*'s programmer. Bath sees *COBOL/MST*'s market as students learning COBOL at the university level, Atari ST developers working on business products and mainframe computer programmers who would like to use their ST system at home to program in COBOL.

Since the language is fully compatible with the American National Standards Institute (ANSI) 74 COBOL standard, its code is compatible with COBOL compilers on other machines. A special feature called STRICT even flags Atari-specific COBOL code to ensure compatibility with other machines and compilers.

## Emulation

David Small and Bill Teal were on hand, demonstrating the latest versions of their emulation systems for the ST. Small's new system is *Spectre 128*, a Macintosh Plus emulator. Teal talked about *pc-ditto*, an MS-DOS emulator. Atari has found that PC and Mac software libraries support is important to a business community trying to convince itself that Atari can make a non-game computer.

Richard Plom of Intersect Software (and the author of *Revolver*) brought Small and Teal together to discuss operating *Spectre 128* and *pc-ditto* as one package. "It would be like owning three computers in one," Plom said enthusiastically. ST owners could use the PC version of *Word Perfect 5* for word processing, then switch the Macintosh version of *Excel* for spreadsheet operations, and then use *PageStream* for desktop publishing.

"Leonard Tramiel hates the idea," Plom said, "meaning it is probably a good one."

## Mainframe communications

Tozd Kooperacija showed an interface box that permits a Mega ST to emulate an IBM 3270 terminal. Sounds like fun, doesn't it? When you consider the \$30,000 price IBM charges its customers for a 3270 terminal, the \$6,500 price of a Mega ST and the Tozd interface box becomes very appealing.

The Tozd 3270 emulator box allows up to eight computers to emulate IBM terminals. Engineering shops looking for a low-cost alternative to the Digital Equipment or IBM solution are finding the Mega ST to be a powerful workstation.

## Laptop ST

Atari seems to have ridden out the wave of anti-Atari feelings that plagued the Atari industry last year. After a series of announced-but-never-released products, Atari employees became gun-shy when talking about future products. But has Atari really mended its ways? A case in point is the rumored Atari ST Laptop computer.

When asked about seeing the ST Laptop, Mel Stevens, Atari's trade show coordinator, said, "What laptop?" The same message came from Sig Hartmann, director of corporate communications. But, when the dust settled, STLog was given a rare glimpse at a prototype ST Laptop computer.

"One of our major markets is MIDI," said Michael Dendo.



The portable's built-in MIDI ports and an existing library of music composition and editing software are expected to create an instant market for the new ST laptop.

A hardware prototype of the ST computer was shown to ST Log in Atari Corp.'s suite. Using an Epson LCD display, the ST Laptop computer is the portable equivalent of a 1040 ST monochrome system. All existing software that works with the 1040 should run on the ST Laptop.

Although Atari was not ready to give details on the Laptop's operation or hardware specifications, Sam Tramiel, Atari president, gave some information about the internal design. A rechargeable battery pack powers the 12-pound unit for up to five hours. The Laptop uses battery packs that can be recharged while still inside the unit.

Creating the Laptop LCD display was Atari's biggest engineering challenge. A special LSI chip, nicknamed Shadow, has been designed to drive an Epson LCD display panel. At first glance, the display updates fast enough for quick movements of the mouse to be visible. However, LCD technology is only so fast; so you might not be able to see the outline animation when a window is opened or closed. Several other displays are being tested.

For mouse functions, the laptop uses a small trackball placed in the lower right corner next to the keyboard, with the mouse buttons placed above the trackball. Although a functional model of the trackball was not available, one has to wonder how easy users will find the trackball for typical click-and-drag functions. And what about left-handed users?

The preliminary price of the ST laptop is less than \$1,200.

### Genlock video system

John Russell demonstrated the new JRI Genlock System for the ST. Genlock mattes the ST's video graphics over an external video source. Usually used for creating video titles, the JRI Genlock System opens the ST up to several new markets. Local cable-television stations, student television-production facilities and consumers bent on high technology will find the \$500 system an inexpensive alternative to the \$10,000 commercial video-graphics system.

### International connection

Many exhibitors at the COMDEX Atari booth were from Europe, England and South America. This marks a distinct change in the makeup of Atari third-party software vendors since the spring COMDEX in Atlanta. Visitors to the Atari booth found most of the new products and technology breakthroughs developed by the international exhibitors. The French are coming on strong in the areas of graphic-related programs and optical character recognition (OCR) systems. The English appear to be focusing on technology and entertainment, while the Germans are importing business products.

Human Technologies is a French company that exhibited two new graphic arts programs for the ST. *ZZ Lazy Paint* could be easily mistaken for *Silicon Beach*, a very popular painting program for the Macintosh. Users of *MacPaint* will also find *ZZ Lazy Paint* to be very familiar.

A unique feature of *ZZ Lazy Paint* allows the definition of resolution and picture size according to the printer being used. If an Epson MX-80 is being used, the drawing resolution may be set to 150 dots per inch.



The Diskaroo Travel Pack contains ten multicolored 3.5-inch diskettes.



Astra's series of A/B switchers control your ST's I/O ports.





Publishing Ink.'s *GraphicPad* features an original lithographed, full-color, computer-generated graphic on its high-quality mouse pad.



Optical Character Recognition (OCR) system from Navarone Industries permits a scanned image to be translated into a graphics file.

Backup your hard disk with a standard cassette tape.



The drawing size may then be defined in terms of dots, millimeters or inches. *Lazy Paint*'s only disadvantage for American and Canadian users is its limitation to monochrome monitors. On the other hand, Human Technologies' other program, *ZZ Rough*, works only in low resolution.

*ZZ Rough* is a free-hand drawing program. A spline drawing object lets the user place several points within a drawing, then the program draws a smooth line between all of the points. Another drawing object plots three-dimensional arrowed lines between several points. Up to eight full-sized pictures can be "roughed" at once, with optional commands to load and save parts of a picture to a disk file.

Although the software has been released in France, *Lazy Paint* and *ZZ Rough* are not available in the United States or Canada. Human Technologies has translated the manual and program in English, and is currently searching for a marketing company to handle the products domestically.

## Optical character recognition

Upgrade Editions, a French ST software developer, displayed *Reading Partner*, a new OCR system for the ST. OCR technology permits a scanned image to be translated into a text disk file. OCR is very important when large volumes of printed text must be loaded into a computer system.

OCR is not an easy system to develop. With every new printed document, the system must "learn" a new style of type. *Reading Partner* analyses a scanned page by matching the graphics it views from the scanner with a library of type styles. When a group of characters is illegible, the program displays the image and allows the user to enter the correct letter. Once learned, additional occurrences of a new type style are converted into ASCII text without user intervention.

Not to be outdone, a Yugoslavian company, Tozd Kooperacija, displayed its own OCR system for the ST. Marjan Jesih, director of Tozd, showed the OCR program using images scanned with a high-resolution Hawk scanner. The program reads *DEGAS* and *IFF*-format picture files as input. The Tozd system is similar to *Reading Partner* in use; when unknown characters are located, the user is asked to type in the correct character.

"We will have an OCR system available [in 1989]," said Vincent Martel, sales manager for Navarone Industries. Navarone produces a scanner package, *ST Scan*, for the ST. Martel expects the OCR package to have an estimated \$425 list price.

## Atari 190 ST computer

The German emphasis on precision engineering was shown in the newly designed 190 ST (approximately \$1,500 list) computer. IBP is a German engineering firm that uses the ST chip set in a rack-mounted version of the ST computer. IBP developed the 190 ST as an industrial computer processor system for use in manufacturing and machine-controlled applications.

The 190 ST is essentially a Mega ST, minus the keyboard and video display. Packaged in a 19-inch industrial box, the 190 ST is equipped with several standard bus interfaces (Eurobus-E, ECB and VME) for communication with equipment and other computers. Special chip sockets program the 190 ST for dedicated operations. German ingenuity has even developed slots for mathematical and graphic coprocessor chips to be installed into the 190 ST. The 190 ST includes GEM and TOS and runs all existing Mega ST-compatible software.



## Verbatim erasable optical disk

As time goes by, storage mediums keep shrinking. In the 1970s, the floppy disk held little more than 100,000 bytes of information on a large eight-inch floppy diskette. In 1978, the 5.25-inch floppy diskette offered 200,000 bytes of storage on a single-sided disk drive. Later, with the availability of the double-sided drive, the 5.25-inch floppy storage improved to 400,000. The 1980s have seen the rise to the 3.5-inch floppy diskette, which holds 760,000 bytes of data. At COMDEX the next step in storage technology was announced.

Verbatim demonstrated the TMO 3.5-inch Erasable Optical Disk, a medium that can hold 60,000,000 bytes of information on one 3.5-inch diskette. The disk is inserted into a special disk drive that uses a combination of lasers and magnets to create erasable optical disk storage technology. The disk spins at 2400 RPM and provides performance similar to current hard-disk systems. Verbatim's drive will feature a high-speed SCSI-compatible interface, making it compatible with several existing ST computer interface cards. Verbatim expects a summer 1989 release date of the finished system, pricing was not known.

## Final note

The months leading up to the COMDEX show were precarious for the Atari ST computer. With losses to Amiga and other personal-computer systems, Atari must create a new marketing strategy to keep the ST computer alive. COMDEX showed that Atari is committed to the ST and will continue to support the product line with new hardware software.

*Frank Cohen has been developing Atari programs since his first commercial product, Clowns & Balloons. He later developed Regent Base 2, a GEM-based SQL 4GL database, and is currently involved with several other ST-related productivity and small-business software packages. If you have questions or comments, he may be contacted directly on CompuServe (76004,1573) and GENie (FCOHEN), or directly at P.O. Box 14628, Long Beach, CA 90803-1208.*



TMO System 35/60, Verbatim Corporation's initial, 3.5-inch, TMO erasable, optical disk product, is a subsystem with the drive, power supply and SCSI controller card packaged in a box that fits neatly under most monitors.



It might not look like a Mega ST, but Hybrid Arts' rack-mounted ST is finding its way into music labs.

## COMPANIES MENTIONED:

### Atari Corp.

1196 Borregas Ave.  
Sunnyvale, CA 94086  
(408) 745-2000

### Avant-Garde Systems

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

### Castech Software Systems

P.O. Box 147  
Grandview, MO 64030  
(816) 767-1233

### Gadgets by Small, Inc.

40 W. Littleton Blvd., #210-211  
Littleton, CO 80120  
(303) 791-6098

### GMC

600 Summer St.  
Stamford, CT 06901  
(800) 877-2232, ext. 683

### Intersect Software

2828 Clard Rd., Ste. 10  
Sarasota, FL 34231  
(800) 826-0130  
In FL: (813) 923-8774

### ISD Marketing, Inc.

2651 John St., Unit #3  
Markham, Ontario L3R 2W5  
(416) 479-1880

### JRI

P.O. Box 5277  
Pittsburg, CA 94565  
(415) 458-2087

### Mark Williams Company

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Lake Bluff, IL 60044  
(800) 692-1700

### MichTron

576 S. Telegraph  
Pontiac, MI 48053  
(313) 334-5700

### Navarone Industries

454 Kenneth Ave.  
Campbell, CA 95008  
(800) 624-6545  
In CA: (408) 378-8177

### Regent Software

P.O. Box 14628  
Long Beach, CA 90803-1208  
(213) 439-9664

### Soft-Logik Publishing Corp.

11131F S. Towne Square  
St. Louis, MO 63123  
(314) 894-8608

### Verbatim

445 India Way  
Sunnyvale, CA 94086  
(408) 773-5777



*Note: Although the complete listing for this program has been included here for those who are interested in GFA BASIC, the program will not run without the file TAPESCRN.PHI. This picture file can be found on this month's disk version or in the databases of the STLog ST users' group on DELPHI. (No, we didn't do this to force you to buy the disk. We just didn't think that many readers would want to type in 32,000 bytes of data.)*

# SOUND





# DS-A-LIKE

BY A. BAGGETTA

**T**hey say that an old song played with a new twist is like listening to a new song. A new person's ideas can make the old song sing anew. Well, I guess the same could be said for games, especially those designed for computers.

*Sounds-A-Like* is just that: an old game with a new twist. You remember that old memory game (no pun intended) where you have in front of you a grid of cards facedown on the table. Each card has a mate, and all of the cards have been placed down randomly. Now you must pick up two cards at a time in hopes of matching them. Some versions of the game use pictures. Other games use letters, words, phrases or famous sayings.

Lots of computer games have been created that use this similar theme, and *Sounds-A-Like* is now going to join them. The thing that makes this game a little bit different is that you will not be matching pictures or words. You will be matching sounds.

The game is easy to play, and it is "mousified," which means that you can play the entire game with minimal use of the keyboard.

When you boot up the main program, *SOUNDS.PR*G, the disk drive will begin to whirl, loading in the main screen. You will need a color monitor to run the game. (The screen, by the way, was done with *Cyber Paint* and saved as a *DEGAS*

screen.) Be sure to turn up the sound on your monitor so that you can play the game. What good is a sound game without volume?

The game uses a cassette tape metaphor. To hear the sound recorded on a tape, you use the mouse to click on the little *A* on the left of each cassette tape (pretty good—tapes that play themselves).

But first you must click on the start box in the lower right of the screen. You will be given the option of playing as a beginner or an expert. Beginner means that you will have 100 seconds to complete the matches. The expert will get only 50 seconds to do the same.

Clicking on each tape now will bring forth the sound recorded on that tape. The sound will be identified in the scoreboard box on the right of the screen. After you have tried two tapes, you will be notified of your success or your abysmal failure. Success will add ten points to your score. Failure will reduce your score by score minus time divided by 50 points. This is recorded in the scoreboard box also.

You will be working against time, so work briskly. The time allotted to you will

be displayed in the top time register, and the time that is being used up will be updated periodically in the lower time register. Keeping your eyes here can be distracting; but then this is a game, and a little tension adds to the excitement.

You will finish in one of two ways. Either you will run out of time, or you will match all of the recorded sounds. In any event you will be given a screen at the end that will announce to the world how well you did, not only in this game but also in the previous game you played. While this is basically a one-player game, it can be played alternately with an opponent. The previous score would then be that of the person who last played.

The game is fun to play. In addition, it was easy to write, and it demonstrates some of the built-in power of *MichTron's* GFA BASIC. Have fun. ■

---

*Albert Baggetta is an English teacher and a professional guitarist. He resides in Agawam, Massachusetts, with his wife Beverly and their two children. He frequently can be found wandering the Atari SIGs on DELPHI.*



## SOUNDS-A-LIKE

Listing 1:  
GFA BASIC

```

' Sounds-A-Like
' Atari ST Computers
' Gfa Basic
' August 1988
'
DIM oldcolri(15),oldcolrr(15),oldcolrg(15),oldcolrb(15)
DIM n(4,4),g(2)
CLS
GOSUB colr_get
oldscore=0
start:
HIDEM
GOSUB ld_screen
GOSUB rand_sel
DEFFILL 0,1
score=0
acu=0
count=0
f11=0
f12=0
f13=0
f14=0
f15=0
f16=0
f17=0
f18=0
f19=0
f110=0
f111=0
f112=0
f113=0
f114=0
f115=0
f116=0
PRINT AT(34,11);"0 "
PRINT AT(34,13);"0 "
PRINT AT(35,19);"0 "
PRINT AT(35,16);"0 "
PRINT AT(28,22);" "
PRINT AT(28,24);" "
DEFINE 1,3,0,0
SHOWM
DEFTXT 1,0,0,4
COLOR 2
RBOX 233,170,293,187
PRINT AT(31,23);"Start"
WAVE 8,3,8,1000,10
WAVE 0,0
info$="          SOUNDS-A-LIKE| By A. Baggetta v.1.0 | "
info$=info$+CHR$(189)+" 1989 | ST-Log magazine "
REPEAT
  MOUSE a,b,c
  a=INT(a/8)+1
  b=INT(b/8)+1
  IF c=2
    ALERT 0,info$,1,"Ok!",bbb
  ENDIF
UNTIL a=31 OR a=32 OR a=33 OR a=34 OR a=35 AND b=23 AND c=1
WAVE 8,3,8,1000,10
WAVE 0,0
COLOR 0
RBOX 233,170,293,187
PRINT AT(31,23);" "
COLOR 1
PRINT AT(30,22);"Expert"
PRINT AT(30,24);"Beginner"
DO
  MOUSE a,b,c
  a=INT(a/8)+1
  b=INT(b/8)+1
  IF a=30 OR a=31 OR a=32 OR a=33 OR a=34 OR a=35 AND b=22 AND c=1
    alot=50
    GOTO elop
  ENDIF
  IF a=30 OR a=31 OR a=32 OR a=33 OR a=34 OR a=35 OR a=36 OR a=37 AND b=24 AND c=1
    alot=100
    GOTO elop
  ENDIF
LOOP
elop:
PRINT AT(30,22);" "
PRINT AT(30,24);" "
WAVE 8,3,8,1000,10
WAVE 0,0

```



```

tmr=TIMER
PRINT AT(34,11);alot
WHILE acu<>8
  count=count+1
  PRINT AT(35,16);count
  f1=0
  f2=0
  f3=0
  f4=0
  f5=0
  f6=0
  f7=0
  f8=0
  f9=0
  f10=0
  f11=0
  f12=0
  f13=0
  f14=0
  f15=0
  f16=0
  t=1
  FOR guess=1 TO 2
    PRINT AT(28,22);"GUESS ";t
    over:
    e=0
    DO
      MOUSE a,b,c
      a=INT(a/8)+1
      b=INT(b/8)+1
      z=INT((TIMER-tmr)/2)/100
      EXIT IF INT(z)=>alot OR c=1
    LOOP
    PRINT AT(34,13);INT(z);" "
    EXIT IF t>2 OR INT(z)=>alot
    PRINT AT(28,22);"GUESS ";t
    IF a=1 AND b=9 AND c=1 AND f1=0 AND f11=0
      ON n(1,1) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(1,1)
      f1=1
      t=t+1
      e=1
    ENDIF
    IF a=8 AND b=9 AND c=1 AND f2=0 AND f12=0
      ON n(1,2) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(1,2)
      f2=1
      t=t+1
      e=1
    ENDIF
    IF a=14 AND b=9 AND c=1 AND f3=0 AND f13=0
      ON n(1,3) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(1,3)
      f3=1
      t=t+1
      e=1
    ENDIF
    IF a=21 AND b=9 AND c=1 AND f4=0 AND f14=0
      ON n(1,4) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(1,4)
      f4=1
      t=t+1
      e=1
    ENDIF
    IF a=1 AND b=14 AND c=1 AND f5=0 AND f15=0
      ON n(2,1) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(2,1)
      f5=1
      t=t+1
      e=1
    ENDIF
    IF a=8 AND b=14 AND c=1 AND f6=0 AND f16=0
      ON n(2,2) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(2,2)
      f6=1
      t=t+1
      e=1
    ENDIF
    IF a=14 AND b=14 AND c=1 AND f7=0 AND f17=0
      ON n(2,3) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
      g(t)=n(2,3)
      f7=1
      t=t+1
      e=1
    ENDIF

```

```

  IF a=21 AND b=14 AND c=1 AND f8=0 AND f18=0
    ON n(2,4) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(2,4)
    f8=1
    t=t+1
    e=1
  ENDIF
  IF a=1 AND b=19 AND c=1 AND f9=0 AND f19=0
    ON n(3,1) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(3,1)
    f9=1
    t=t+1
    e=1
  ENDIF
  IF a=8 AND b=19 AND c=1 AND f10=0 AND f110=0
    ON n(3,2) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(3,2)
    f10=1
    t=t+1
    e=1
  ENDIF
  IF a=14 AND b=19 AND c=1 AND f11=0 AND f111=0
    ON n(3,3) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(3,3)
    f11=1
    t=t+1
    e=1
  ENDIF
  IF a=21 AND b=19 AND c=1 AND f12=0 AND f112=0
    ON n(3,4) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(3,4)
    f12=1
    t=t+1
    e=1
  ENDIF
  IF a=1 AND b=24 AND c=1 AND f13=0 AND f113=0
    ON n(4,1) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(4,1)
    f13=1
    t=t+1
    e=1
  ENDIF
  IF a=8 AND b=24 AND c=1 AND f14=0 AND f114=0
    ON n(4,2) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(4,2)
    f14=1
    t=t+1
    e=1
  ENDIF
  IF a=14 AND b=24 AND c=1 AND f15=0 AND f115=0
    ON n(4,3) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(4,3)
    f15=1
    t=t+1
    e=1
  ENDIF
  IF a=21 AND b=24 AND c=1 AND f16=0 AND f116=0
    ON n(4,4) GOSUB s1,s2,s3,s4,s5,s6,s7,s8
    g(t)=n(4,4)
    f16=1
    t=t+1
    e=1
  ENDIF
  IF e=0
    GOTO over
  ENDIF
  NEXT guess
  EXIT IF INT(z)=>alot
  PRINT AT(28,22);" "
  IF g(1)=g(2)
    FOR rpt=1 TO 3
      PRINT AT(28,24);"Match!! "
      SOUND 1,10,1,6,5
      PRINT AT(28,24);" "
      SOUND 1,10,1,4,5
    NEXT rpt
    SOUND 1,0,0,0,0
    score=score+10
    IF score<0
      score=0
    ENDIF
    PRINT AT(35,19);INT(score)
    GOSUB match_chk
  ELSE
    FOR rpt=1 TO 3

```



```

PRINT AT(28,24);"No Match!"
SOUND 1,10,1,2,5
PRINT AT(28,24);"
SOUND 1,10,1,1,5
GOSUB nomatch_chk
NEXT rpt
SOUND 1,0,0,0,0
score=score-(INT(z)/50)
IF score<0
score=0
ENDIF
PRINT AT(35,19);INT(score)
ENDIF
WEND
' put in a routine for timer here
' erase screen etc.
PRINT AT(28,22);"
PBOX 1,52,201,196
DEFLINE 6,2,0,0
RBOX 1,52,201,196
DEFTXT 2,16,0,6
TEXT 55,70,"GAME OVER"
' End Sound
FOR drop=5 TO 1 STEP -1
SOUND 1,9,5,2,2
SOUND 2,10,drop,5,2
NEXT drop
SOUND 1,0,0,0,0
SOUND 2,0,0,0,0
IF INT(z)>alot
PRINT AT(4,12);"You ran out of time!"
ELSE
PRINT AT(4,12);"You beat the clock!!"
ENDIF
PRINT AT(4,13);"-----"
PRINT AT(4,15);"Your old Score > ";INT(oldscore)
PRINT AT(4,17);"Current Score > ";INT(score)
PRINT AT(4,19);"You played for:"
PRINT AT(6,21);INT(z);" seconds"
oldscore=score
PRINT AT(28,24);"Again? Y/N"
DO
MOUSE a,b,c
a=INT(a/8)+1
b=INT(b/8)+1
IF a=36 AND b=24 AND c=1
WAVE 8,3,8,1000,10
WAVE 0,0
GOTO start
ENDIF
IF a=38 AND b=24 AND c=1
WAVE 8,3,8,1000,10
WAVE 0,0
GOTO finish
ENDIF
LOOP
' sound voice, volume, note, octave, duration
' wave voice, envelope, form, length, duration
PROCEDURE s1
TEXT 215,140,"Whoopie!"
FOR i=1 TO 9
SOUND 1,10,i,5,1
NEXT i
FOR i=9 DOWNT0 1
SOUND 1,10,i,5,1
NEXT i
SOUND 1,0,0,0,0
TEXT 215,140,"
RETURN
PROCEDURE s2
' space sound
TEXT 215,140,"Warp Zone!"
SOUND 1,15,1,3
WAVE 1,1,12,90,0
PAUSE 100
WAVE 1,0
SOUND 1,0
TEXT 215,140,"
RETURN

```

```

PROCEDURE s3
TEXT 215,140,"Buzzer"
SOUND 1,10,9,5,0
WAVE 1,1,8,50,25
SOUND 1,0,0,0,0
TEXT 215,140,"
RETURN
PROCEDURE s4
TEXT 215,140,"Woodpecker"
SOUND 1,10,5,5,0
WAVE 1,1,8,200,25
SOUND 1,0,0,0,0
TEXT 215,140,"
RETURN
PROCEDURE s5
TEXT 215,140,"Laser Gun"
FOR i=1 TO 15
WAVE 8,1,8,i,1
NEXT i
WAVE 0,0
TEXT 215,140,"
RETURN
PROCEDURE s6
' air
TEXT 215,140,"Air Leak"
WAVE 16,2,0,40000,3
PAUSE 50
WAVE 0,0
TEXT 215,140,"
RETURN
PROCEDURE s7
TEXT 215,140,"Spinner"
FOR i=5 DOWNT0 1
SOUND 1,10,5,5,i
SOUND 1,10,4,5,i
SOUND 1,10,3,5,i
SOUND 1,10,2,5,i
NEXT i
SOUND 1,0,0,0,0
TEXT 215,140,"
RETURN
PROCEDURE s8
' chime
TEXT 215,140,"chime"
SOUND 1,15,8,5
WAVE 1,3,0,30000,8
TEXT 215,140,"
RETURN
' *****
' Ld Degas Screen
' *****
PROCEDURE ld_screen
res=XBIOS(4)
OPEN "I",#1,"TAPESCRN.PI1"
y=INP(#1)
x=INP(#1)
IF x<>res
ALERT 1," Wrong resolution ",1,"okay",dummy
END
ENDIF
FOR n=0 TO 15
x=INP(#1)
y=INP(#1)
z=x*256+y
c=XBIOS(7,n,z)
NEXT n
SEEK #1,34
BGET #1,XBIOS(2),32000
CLOSE #1
RETURN
' *****
' keep the old color pallett
' *****
PROCEDURE colr_get
FOR ix=0 TO 15
@vq_color(ix)
oldcolri(ix)=ix
oldcolrr(ix)=rx
oldcolrg(ix)=gx

```



```

oldcolrb(ix)=bx
NEXT ix
RETURN
PROCEDURE vq_color(ix)
DPOKE CONTRL,26
DPOKE CONTRL+2,0
DPOKE CONTRL+4,0
DPOKE CONTRL+6,2
DPOKE CONTRL+8,0
DPOKE INTIN,ix
DPOKE INTIN+2,1
UDISYS
rx=DPEEK(INTOUT+2)
gx=DPEEK(INTOUT+4)
bx=DPEEK(INTOUT+6)
RETURN
' *****
' restore old colors and end
' *****
finish:
FOR ix=0 TO 15
inx=oldcolri(ix)
rx=oldcolrr(ix)
gx=oldcolrg(ix)
bx=oldcolrb(ix)
GOSUB vr_color(inx,rx,gx,bx)
NEXT ix
END
PROCEDURE vr_color(inx,rx,gx,bx)
DPOKE CONTRL,14
DPOKE CONTRL+2,0
DPOKE CONTRL+6,4
DPOKE INTIN,inx
DPOKE INTIN+2,rx
DPOKE INTIN+4,gx
DPOKE INTIN+6,bx
UDISYS
RETURN
' *****
' Random Selection
' *****
PROCEDURE rand_sel
ct1=0
ct2=0
ct3=0
ct4=0
ct5=0
ct6=0
ct7=0
ct8=0
FOR r=1 TO 4
FOR c=1 TO 4
k=0
REPEAT
x=INT(RND*8)+1
IF ct1<>2 AND x=1
n(r,c)=x
ct1=ct1+1
k=1
ENDIF
IF ct2<>2 AND x=2
n(r,c)=x
ct2=ct2+1
k=1
ENDIF
IF ct3<>2 AND x=3
n(r,c)=x
ct3=ct3+1
k=1
ENDIF
IF ct4<>2 AND x=4
n(r,c)=x
ct4=ct4+1
k=1
ENDIF
IF ct5<>2 AND x=5
n(r,c)=x
ct5=ct5+1
k=1
ENDIF
IF ct6<>2 AND x=6
n(r,c)=x
ct6=ct6+1
k=1

```

```

ENDIF
IF ct7<>2 AND x=7
n(r,c)=x
ct7=ct7+1
k=1
ENDIF
IF ct8<>2 AND x=8
n(r,c)=x
ct8=ct8+1
k=1
ENDIF
UNTIL k=1
NEXT c
NEXT r
RETURN
PROCEDURE nomatch_chk
IF f1=1
f1=0
ENDIF
IF f2=1
f2=0
ENDIF
IF f3=1
f3=0
ENDIF
IF f4=1
f4=0
ENDIF
IF f5=1
f5=0
ENDIF
IF f6=1
f6=0
ENDIF
IF f7=1
f7=0
ENDIF
IF f8=1
f8=0
ENDIF
IF f9=1
f9=0
ENDIF
IF f10=1
f10=0
ENDIF
IF f11=1
f11=0
ENDIF
IF f12=1
f12=0
ENDIF
IF f13=1
f13=0
ENDIF
IF f14=1
f14=0
ENDIF
IF f15=1
f15=0
ENDIF
IF f16=1
f16=0
ENDIF
RETURN
PROCEDURE match_chk
IF f1=1
f1=1
PBOX 1,52,43,81
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f2=1
f2=1
PBOX 53,53,96,81
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f3=1
f3=1
PBOX 106,53,148,81

```

```

WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f4=1
f4=1
PBOX 158,53,201,81
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f5=1
f5=1
PBOX 1,92,44,120
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f6=1
f6=1
PBOX 53,92,96,120
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f7=1
f7=1
PBOX 106,92,149,120
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f8=1
f8=1
PBOX 158,92,201,120
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f9=1
f9=1
PBOX 1,129,44,157
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f10=1
f10=1
PBOX 53,129,96,157
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f11=1
f11=1
PBOX 106,129,149,157
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f12=1
f12=1
PBOX 158,129,201,157
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f13=1
f13=1
PBOX 1,168,44,196
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f14=1
f14=1
PBOX 53,168,96,196
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f15=1
f15=1
PBOX 106,168,149,196
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
IF f16=1
f16=1
PBOX 158,168,201,196
WAVE 8,3,8,1000,10
WAVE 0,0
ENDIF
acu=acu+1
RETURN

```





Illustration by Jean Francois Podevin ©

# Datadbase **DELPHI**

BY  
ANDY  
EDDY



Whenever I get to turn the calendar to March, it always brings a smile to my face. That means the cold winter is nearly gone and we're on a downhill ride to spring. Although it makes the skiers unhappy, the snow is starting to melt. (Okay, it leaves a slushy residue behind, but we're getting there.) Of course, now that I've taken residence in California, March will bring much the same weather as the rest of winter, if today is any indication. I'll have to get used to Frosty being a sandman, instead of a snowman.

Just the same, it's too early for most of the country to consider starting a late-winter softball game just yet. There is enough of a chill in the air to make sitting in front of a computer and going online a more preferred activity. So we'll take this month's column to finish up our discussion that we began last month, of the Library area on DELPHI. That end-of-the-year term paper is coming up, and student research can be easily done with this section of DELPHI.

## Refresher course

To begin, we'll start from the Library menu that appears off the main menu of DELPHI. To get to the Library from any other part of the system, you can type "GO LIB" from most any prompt (short for LIBRARY).

### LIBRARY Menu:

CAIN	Online Gourmet
BOS - DELPHI/Boston	Personal Advisor
KC - DELPHI/Kansas City	Research Library (Dialog)(\$)
Grolier Encyclopedia	Terra Nova
HealthNet	Violette Wine Reports
Hearing Impaired Forum	WorldLine Country Search
Kussmaul Encyclopedia	Dialog-Help
Librarian	HELP
MetroLine City Search	EXIT

Again, we'll take these entries from where we left off in alphabetical order.

**The Online Gourmet is a real help to budding and experienced chefs alike, offering a database of recipes to try from the cookbook of Cintra Reeve, a famous New England chef.**

### Shhh... it's a library!

The *Librarian* selection puts a professional database research team at your beck and call, though the service is pricey and not for less-than-serious queries: It costs between \$275 and \$475 to have them complete a search on most any topic for you, with the results ported to your DELPHI mailbox. If you choose, you can have the findings sent to you by U.S. Mail or Federal Express also.

They claim to do their research by scanning through a bank of over 3,000 trade journals, newspapers, magazines and other periodicals to answer your questions on "any topic, company, product, industry, technology or person in the news." For more information on this service, you can ask them questions by picking the "INquire (ask about the Librarian service)" (type IN) selection from the Librarian

ian menu, as the service's scope is too vast to go through in this column.

*MetroLine City Search* is a handy way for travelers to get more information on possible locations for "touristing." If you pick this selection, you'll be asked for the location for your search.

For example, prior to moving to Los Angeles I used *Metroline* to get a listing of places that I might take my family to. Here's what my search looked like:

Which CITY? los angeles

LOS ANGELES

LOS ANGELES, CALIFORNIA

Additional topics available:

AEROBICS CENTERS	AIRPORT-INFO
AMUSEMENT PARKS	ART GALLERIES
BEACHES	CAMPING
FISHING	GARDENS
GENERAL INFORMATION	GOLF COURSES
HAUNTED HOUSES	LODGING
MANSIONS	MOTION PICTURE STUDIOS
MUSEUMS	OUTDOOR SCULPTURE
PARKS	RODEO DRIVE MAP
SCENIC VIEWPOINTS AND DRIVES	SPORTS ARENAS AND STADIUMS
TELEVISION STUDIOS	TENNIS COURTS
TRANSPORTATION INFO	VISITOR ATTRACTIONS
ZOOS AND ANIMAL SANCTUARIES	EXIT

Under "Haunted Houses," here's a sample entry for Houdini's Mansion:

### HOUDINI'S MANSION

Houdini's Mansion, 2388-98 Laurel Canyon Blvd, was the eerie home of the famous magician and escape artist Henry Houdini. During the 1920's many seances were conducted in this house which is now in ruins. The staircase that remains is supposed to be haunted by Houdini and other wandering souls.

Keep in mind, not all cities will have a large number of entries, such as those under Los Angeles, but you can get some quality info before any journeys you make.

The *Online Gourmet* is a real help to budding and experienced chefs alike, offering a database of recipes to try from the cookbook of Cintra Reeve, a famous New England chef. Under the primary menu, you'll find subcategories such as New Recipes, Main Courses, Desserts and Vegetarian. The recipes are very simple to read and understand, giving you the chance to tackle exotic meals and snacks like shrimp risotto, gingerbread, glazed oranges and corn pudding. New recipes are added each week, for a fresh outlook on the culinary world.

*Personal Advisor* is a version of a newspaper's advice column. You can ask "Uncle Max" for help with problems you may have, or read through some of the



selected questions and answers Max has posted. There is also an area to read through essays created by readers or a character named the "Advisor." Some of these essays include ponderings on the meaning of life, talk shows and Christianity.

Also, if you wish, you can request a real-time online conference with the Advisor, using the "Online Advisory Application" selection of the menu. This seems to match the '80s and its focus of getting help for any problems that ail you. Many will find the *Personal Advisor's* offering invaluable.

Much like the Librarian, the Dialog Information Online Service, termed *Research Library (Dialog)* from the Library menu, will help you speed up whatever research you may need accomplished. Unlike the Librarian, though, all information you need must be tracked down yourself. Dialog is a major clearinghouse, run by Lockheed, that lets you pore through all sorts of periodicals electronically to find what you desire. As we mentioned before, this service is not for lightweight requests: Dialog's fees vary from one database to another, with *per-hour* costs upward of \$300! (This is why there is a "\$" character next to the Research Library selection

of the menu, to indicate a surcharged service.) This service is quite a bit more difficult to use than the rest of DELPHI, utilizing a separate command set to do searches, though it can be made easier by picking the *Dialog-Help* selection of the Library menu as a tutorial of sorts. For more detailed information about Dialog, call them directly at 1-800-3-DIALOG.

*Terra Nova* is DELPHI's link to multilingual online usage. As you can see, there is support for many different languages, with features much like other SIGs on DELPHI:

Terra Nova Menu:

Announcements	Guided Tour
Conference	ENGLISH - Helpful Hints
Databases	ESPAÑOL - Informacion Util
Forum (Messages)	NIHONGO - Hinto
MAIL (Electronic)	DEUTSCH - Nuetzliche Tips
Member Directory	FRANÇAIS - Conseils Pratique
Help (Access, Index, Hints)	ESPERANTO - Utiliaj Informoj
Index of DELPHI Commands	Questions & Comments
Aventure Francaise	Exit

There's not much for me to comment on here. If you have a desire to experience DELPHI in another language or to get one of your relatives from the "native country" online, *Terra Nova* is the place to start.

The *Violette Wine Reports* offer you the knowledge of Richard Kzirian's Cambridge, Massachusetts-based *Violette Monthly Wine Reports* so you can make discriminating purchases. In fact, you can purchase the listed wines online from this area.

The last area to note from the Library menu is the *WorldLine Country Search*. Much like the *MetroLine City Search* we spoke of previously, this database gives you basic information on where to get good food and how to find the best shopping spots. Weather reports are available too, as well as information on visa requirements and native customs. International travelers should stop here before taking that next trip.

## Closing time

We hope you get a lot of assistance from the Library area of DELPHI. All too often, users stick to the SIG that contains information on their specific brand of computer. There's a wealth of data contained in the system, if only you seek it out. We'll keep referring you to the *hidden* benefits of DELPHI.

Also, if you want your own source of DELPHI help, you'd be wise to pick up a copy of Michael A. Banks' *DELPHI: The Official Guide*. You can find it at most

major bookstores, or you can order it online by typing "GO US MAN!" (This takes you to the Manuals selection off the Using DELPHI menu.) Of course, the accompanying sidebar will get you signed up to DELPHI and get the book for a good price.

Till next month, C U online. . .



## Make the DELPHI connection

As a reader of ST-Log, you are entitled to take advantage of a special DELPHI membership offer. For only \$19.95, plus shipping and handling (\$30 off the standard membership price!), you will receive a lifetime subscription to Delphi, a copy of the 500-page *DELPHI: The Official Guide* by Michael A. Banks, and a credit equal to one free evening hour at standard connect rates. Almost anyone worldwide can access DELPHI (using Tymnet, Telenet or other networking services) via local telephone call.



## To join DELPHI

1. Dial 617-576-0862 with any terminal or PC and modem (at 2400 bps, dial 576-2981).
2. At the Username prompt, type JOINDELPHI.
3. At the Password prompt, enter STLOG.

For more information, call DELPHI Member Services at 1-800-544-4005, or at 617-491-3393 from within Massachusetts or from outside the U.S.

DELPHI is a service of General Videotex Corporation of Cambridge, Massachusetts.

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CIRCLE #110 ON READER SERVICE CARD.



(from page 47)

# PICTURE PUZZLE

```

VAR color_dialog: Dialog_Ptr ;
    pattern, x, ok_button: Integer ;
    color_item: palet ;

BEGIN
    color_dialog := New_Dialog( 18, 0, 0, 27, 12 ) ;
    ok_button := Add_DItem(color_dialog, G_Button, Selectable|Exit_Btn,
                           11, 8, 5, 2, 1, 0) ;
    FOR x := 0 TO 15 DO
        BEGIN
            IF x>palette_max THEN
                BEGIN
                    pattern := 1 ;
                    color_item[x] := Add_DItem(color_dialog, G_Box, None,
                                                (x*3)+2-(8*(x DIV 8)*3), (x DIV 8)*3+2,
                                                2, 2, -1, x|(pattern*16)|4096) ;
                END
            ELSE
                BEGIN
                    pattern := 7 ;
                    color_item[x] := Add_DItem(color_dialog, G_Box,
                                                Selectable|Exit_Btn, (x*3)+2-(8*(x DIV 8)*3),
                                                (x DIV 8)*3+2, 2, 2, -1,
                                                x|(pattern*16)|4096|128) ;
                END ;
            END ;
        FOR x := 0 TO 15 DO
            IF x = chosen THEN
                obj_setstate(color_dialog, color_item[x], checked, false) ;
                set_dtext(color_dialog, ok_button, 'OK', system_font, TE_Center) ;
                center_dialog(color_dialog) ;
                dummy := do_dialog(color_dialog, 0) ;
                While dummy<>ok_button DO
                    BEGIN
                        FOR x := 0 TO 15 DO
                            IF dummy = color_item[x] THEN
                                BEGIN
                                    chosen := x ;
                                    IF Obj_State(color_dialog, color_item[x])&checked=0 THEN
                                        BEGIN
                                            obj_setstate(color_dialog, color_item[x], normal, true) ;
                                            obj_setstate(color_dialog, color_item[x], checked, true) ;
                                        END
                                    ELSE
                                        BEGIN
                                            obj_setstate(color_dialog, color_item[x], checked, true) ;
                                            obj_setstate(color_dialog, color_item[x], normal, true) ;
                                        END ;
                                END
                            ELSE
                                BEGIN
                                    IF Obj_State(color_dialog, color_item[x])&checked<>0 THEN
                                        BEGIN
                                            obj_setstate(color_dialog, color_item[x], selected, true) ;
                                            obj_setstate(color_dialog, color_item[x], checked, true) ;
                                            obj_setstate(color_dialog, color_item[x], normal, true) ;
                                        END ;
                                    dummy := redo_dialog(color_dialog, 0) ;
                                END ;
                            Line_Color(chosen) ;
                            end_dialog(color_dialog) ;
                            delete_dialog(color_dialog) ;
                        END ;
                    END ;
                BEGIN
                    display_picture ;
                    horizontal := 1 ;
                    vertical := 1 ;
                    line_style(1) ;
                    draw_mode(1) ;
                    event := Get_Event( E_Keyboard, 0, 0, 0, 0, False,
                                       0, 0, 0, 0, False, 0, 0, 0, 0, msg,
                                       key, dummy, dummy, dummy, dummy ) ;
                    WHILE (key=right_arrow) OR (key=left_arrow) OR
                           (key=up_arrow) OR (key=down_arrow) OR (key=PF1) DO
                        BEGIN
                            CASE key OF
                                right_arrow: IF horizontal<22 THEN

```

```

(*****
(* This is the beginning of routine get_squares. The user uses *)
(* the arrow keys and the PF1 key to break up the picture. The *)
(* user may hit the escape key at any time whereupon the program *)
(* will return to the file selection menu. *)
(*****

```



# PICTURE PUZZLE

```

horizontal := horizontal + 1 ;
left_arrow: IF horizontal > 1 THEN
             horizontal := horizontal - 1 ;
up_arrow:   IF vertical < 22 THEN
             vertical := vertical + 1 ;
down_arrow: IF vertical > 1 THEN
             vertical := vertical - 1 ;
END ;

IF key=PF1 THEN
  change_line_color ;

display_picture ;

vert_lines := 0 ;
horz_lines := 0 ;
left_margin := 0 ;
top_margin := 0 ;
rect_width := Wmax ;
rect_height := Hmax ;

hide_mouse ;
IF vertical > 1 THEN
  BEGIN
    REPEAT
      vert_lines := vertical-1+2 ;
      rect_width := (Wmax-vert_lines) DIV vertical ;
      left_margin := (((Wmax-vert_lines) MOD vertical) DIV 2) + 1 ;
      IF rect_width=0 THEN
        vertical := vertical-1 ;
      UNTIL rect_width>0 ;
    END ;

    IF horizontal > 1 THEN
      BEGIN
        REPEAT
          horz_lines := horizontal-1+2 ;
          rect_height := (Hmax-horz_lines) DIV horizontal ;
          top_margin := (((Hmax-horz_lines) MOD horizontal) DIV 2) + 1 ;
          IF rect_height=0 THEN
            horizontal := horizontal-1 ;
          UNTIL rect_height>0 ;
        END ;

        IF left_margin>0 THEN
          offset_1 := left_margin-1
        ELSE
          offset_1 := left_margin ;

        IF top_margin>0 THEN
          offset_2 := top_margin-1
        ELSE
          offset_2 := top_margin ;

        IF vertical > 1 THEN
          BEGIN
            work_2 := (horizontal*rect_height)+horz_lines+offset_2-1 ;
            FOR x := 1 TO vert_lines DO
              BEGIN
                work_1 := (x-1)*(rect_width+1)+offset_1 ;
                line(work_1, offset_2, work_1, work_2) ;
              END ;
            END ;

            IF horizontal > 1 THEN
              BEGIN
                work_2 := (vertical*rect_width)+vert_lines+offset_1-1 ;
                FOR x := 1 TO horz_lines DO
                  BEGIN
                    work_1 := (x-1)*(rect_height+1)+offset_2 ;
                    line(offset_1, work_1, work_2, work_1) ;
                  END ;
                END ;
              END ;

            show_mouse ;

            event := Get_Event( E_Keyboard, 0, 0, 0, 0, False,
                               0, 0, 0, 0, False, 0, 0, 0, 0, msg,
                               key, dummy, dummy, dummy, dummy ) ;

          END ;
          FOR x := 0 TO horizontal-1 DO
            FOR y := 0 TO vertical-1 DO
              block_position[x,y] := x*vertical+y ;
            END ;
          END ;
        END ;
      END ;
    END ;
  END ;

```



# PICTURE PUZZLE

```

(*****
(* This routine is called after the user has broken up the pic- *)
(* ture into rectangles. This routine randomly shuffles up *)
(* those rectangles. *)
(*****

```

```
PROCEDURE shuffle_picture ;
```

```
VAR x, x1, x2, y1, y2, hold: Integer ;
```

```
BEGIN
```

```
hide_mouse ;
```

```
FOR x := 1 TO horizontal*vertical*2 DO
```

```
BEGIN
```

```
x1 := Random(0, horizontal-1) ;
```

```
x2 := Random(0, horizontal-1) ;
```

```
y1 := Random(0, vertical-1) ;
```

```
y2 := Random(0, vertical-1) ;
```

```
hold := block_position[x1, y1] ;
```

```
block_position[x1, y1] := block_position[x2, y2] ;
```

```
block_position[x2, y2] := hold ;
```

```
copy_rect(backup, screen, rect_width*y1+y1+left_margin,
rect_height*x1+x1+top_margin,
rect_width*y2+y2+left_margin,
rect_height*x2+x2+top_margin,
rect_width, rect_height) ;
```

```
copy_rect(backup, screen, rect_width*y2+y2+left_margin,
rect_height*x2+x2+top_margin,
rect_width*y1+y1+left_margin,
rect_height*x1+x1+top_margin,
rect_width, rect_height) ;
```

```
copy_rect(screen, backup, 0, 0, 0, 0, Wmax, Hmax) ;
```

```
END ;
```

```
show_mouse ;
```

```
END ;
```

```

(*****
(* This routine is called after the rectangles are shuffled. *)
(* The user must now rearrange the puzzle by clicking the left *)
(* button on any two (2) rectangles which will interchange. If *)
(* the user pushes the right mouse button and holds it down the *)
(* picture in it's original stage will be displayed. *)
(*****

```

```
PROCEDURE exchange_squares ;
```

```
VAR mx1, my1, mx2, my2, x1, y1, x2, y2,
```

```
x, y, hold, left_button, right_button: Integer ;
```

```

(*****
(* This routine checks to see if the right mouse button has been *)
(* depressed. If it has it then displays the original picture *)
(* until the mouse button is released. *)
(*****

```

```
PROCEDURE check_right ;
```

```
BEGIN
```

```
right_button := Get_Event( E_Keyboard|E_Button|E_Timer, 2, 2, 1, 0,
False, 0, 0, 0, 0, False, 0, 0, 0, 0, msg,
key, dummy, dummy, dummy, dummy, dummy ) ;
```

```
IF (right_button&E_Button)>0 THEN
```

```
BEGIN
```

```
hide_mouse ;
```

```
copy_rect(screen, backup, 0, 0, 0, 0, Wmax, Hmax) ;
```

```
show_mouse ;
```

```
display_picture ;
```

```
right_button := Get_Event( E_Button, 2, 0, 1, 0, False, 0, 0, 0, 0,
False, 0, 0, 0, 0, msg, key, dummy, dummy,
dummy, dummy, dummy ) ;
```

```
hide_mouse ;
```

```
copy_rect(backup, screen, 0, 0, 0, 0, Wmax, Hmax) ;
```

```
show_mouse ;
```

```
END ;
```

```
END ;
```

```

(*****
(* This is the start of procedure exchange_squares. *)
(*****

```

```
BEGIN
```

```
puzzle_solved := True ;
```

```
FOR x := 0 TO horizontal-1 DO
```



# PICTURE PUZZLE

```

FOR y := 0 TO vertical-1 DO
  IF block_position[x,y] <> (x*vertical+y) THEN
    puzzle_solved := False ;
  WHILE (NOT puzzle_solved) AND (key <> $011B) DO
    BEGIN
      left_button := 0 ;
      WHILE (left_button <> 1) AND (key <> $011B) DO
        BEGIN
          sample_mouse(left_button, mx1, my1) ;
          IF left_button=1 THEN
            BEGIN
              y1 := (mx1-left_margin) DIV (rect_width+1) ;
              x1 := (my1-top_margin) DIV (rect_height+1) ;
              IF (y1=vertical) OR (x1=horizontal) OR (y1<0) OR (x1<0) THEN
                left_button := 0 ;
            END
          ELSE
            check_right ;
          END ;
          IF key <> $011B THEN
            BEGIN
              (wait for left button up)
              FOR x := 1 TO 30000 DO ;
                left_button := 0 ;
                WHILE (left_button <> 1) AND (key <> $011B) DO
                  BEGIN
                    sample_mouse(left_button, mx2, my2) ;
                    IF left_button=1 THEN
                      BEGIN
                        y2 := (mx2-left_margin) DIV (rect_width+1) ;
                        x2 := (my2-top_margin) DIV (rect_height+1) ;
                        IF (y2=vertical) OR (x2=horizontal) OR
                           (y2<0) OR (x2<0) THEN
                          left_button := 0 ;
                        END
                      ELSE
                        check_right ;
                    END ;
                    IF key <> $011B THEN
                      BEGIN
                        (wait for left button up)
                        FOR x := 1 TO 30000 DO ;
                          hide_mouse ;
                          y1 := (mx1-left_margin) DIV (rect_width+1) ;
                          y2 := (mx2-left_margin) DIV (rect_width+1) ;
                          x1 := (my1-top_margin) DIV (rect_height+1) ;
                          x2 := (my2-top_margin) DIV (rect_height+1) ;
                          copy_rect(backup, screen, rect_width*y1+y1+left_margin,
                                     rect_height*x1+x1+top_margin,
                                     rect_width*y2+y2+left_margin,
                                     rect_height*x2+x2+top_margin,
                                     rect_width, rect_height) ;
                          copy_rect(backup, screen, rect_width*y2+y2+left_margin,
                                     rect_height*x2+x2+top_margin,
                                     rect_width*y1+y1+left_margin,
                                     rect_height*x1+x1+top_margin,
                                     rect_width, rect_height) ;
                          copy_rect(screen, backup, 0, 0, 0, 0, Wmax, Hmax) ;
                          show_mouse ;
                          hold := block_position[x1,y1] ;
                          block_position[x1,y1] := block_position[x2,y2] ;
                          block_position[x2,y2] := hold ;
                          puzzle_solved := True ;
                          FOR x := 0 TO horizontal-1 DO
                            FOR y := 0 TO vertical-1 DO
                              IF block_position[x,y] <> (x*vertical+y) THEN
                                puzzle_solved := False ;
                            END ;
                          END ;
                        END ;
                      END ;
                    END ;
                  END ;
                END ;
              END ;
            END ;
          END ;
        END ;
      END ;
    END ;
  END ;
END ;

(*****
(* This function checks the resolution passed to it with the *)
(* current resolution. If they do not match an alert box is *)
(* displayed saying so and a -99 is returned to indicate that *)
(* the picture read in can not be displayed in the current res- *)
(* olution. *)
(*****)

FUNCTION Check_Res(image_res: integer): Integer ;

BEGIN

```



## PICTURE PUZZLE

```

check_res := 0 ;
IF (resolution-1) < image_res THEN
  BEGIN
    alert_str := Concat(['[3][',
                        res_string[image_res],
                        '|resolution to|load this file!|',
                        '[Cancel]']);
    dummy := Do_Alert(alert_str,1) ;
    check_res := -99 ;
  END ;
END ;

(*****
*) This function reads in a file with the extension of .NEO. *)
(*****)

FUNCTION Get_NEO: Integer ;
VAR result, x : Integer ;

BEGIN
  Reset( NEO_file, file_name ) ;
  NEO_image := NEO_file^ ;
  IO_Check(False) ;
  Get( NEO_file ) ;
  result := IO_Result ;
  Close( NEO_file ) ;
  IO_Check(True) ;
  IF result=0 THEN
    BEGIN
      result := Check_Res(INT(NEO_Image.res)) ;
      IF result=0 THEN
        BEGIN
          Set_Palette(NEO_image.palette) ;
          FOR x := 1 TO 16000 DO
            screen_buffer[x] := NEO_image.image[x] ;
          init_form(image_area, NEO_image.image, resolution) ;
        END ;
      END ;
      Get_NEO := result ;
    END ;
  END ;

(*****
*) This function reads in a file with the extension of .PI*. *)
(*****)

FUNCTION Get_PI: Integer ;
VAR result, x : Integer ;

BEGIN
  Reset( PI_file, file_name ) ;
  PI_image := PI_file^ ;
  IO_Check(False) ;
  Get( PI_file ) ;
  result := IO_Result ;
  Close( PI_file ) ;
  IO_Check(True) ;
  IF result=0 THEN
    BEGIN
      result := Check_Res(PI_Image.res) ;
      IF result=0 THEN
        BEGIN
          Set_Palette(PI_image.palette) ;
          FOR x := 1 TO 16000 DO
            screen_buffer[x] := PI_image.image[x] ;
          init_form(image_area, PI_image.image, resolution) ;
        END ;
      END ;
      Get_PI := result ;
    END ;
  END ;

(*****
*) This procedure is called at the start of the program. It *)
*) displays the copyright information on Personal Pascal. *)
(*****)

PROCEDURE copyright_dialog ;
VAR copy_dialog : Dialog_Ptr ;
    ACD: Array [0..6] OF Integer ;
    ACD_OK : Integer ;

BEGIN
  copy_dialog := New_Dialog( 10,0,0,36,17) ;

```



# PICTURE PUZZLE

```

ACD[0] := Add_DItem( copy_dialog, G_String, None, 7, 2, 0, 1, 0, 0) ;
ACD[1] := Add_DItem( copy_dialog, G_String, None, 5, 4, 0, 1, 0, 0) ;
ACD[2] := Add_DItem( copy_dialog, G_String, None, 2, 5, 0, 1, 0, 0) ;
ACD[3] := Add_DItem( copy_dialog, G_String, None, 5, 6, 0, 1, 0, 0) ;
ACD[4] := Add_DItem( copy_dialog, G_String, None, 2, 8, 0, 1, 0, 0) ;
ACD[5] := Add_DItem( copy_dialog, G_String, None, 2, 10, 0, 1, 0, 0) ;
ACD[6] := Add_DItem( copy_dialog, G_String, None, 14, 11, 0, 1, 0, 0) ;
ACD_OK := Add_DItem( copy_dialog, G_Button, Selectable|Exit_btn,
                    15, 13, 6, 2, 0, 0) ;

Set_Dtext( copy_dialog, ACD[0], 'Picture Puzzle Program',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[1], 'Written in Personal Pascal',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[2], 'Copyright (c) 1986, OSS and CCD.',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[3], 'Used by Permission of OSS.',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[4], '      Author: Guy Davis',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[5], 'User Group: San Diego Atari',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD[6], 'Computer Enthusiasts',
            System_Font, TE_Left) ;
Set_Dtext( copy_dialog, ACD_OK, ' OK ',
            System_Font, TE_Center) ;

```

```

center_dialog(copy_dialog) ;
dummy := do_dialog(copy_dialog, 0) ;
END ;

```

```

(*****)
(* This procedure checks the extension of the file selected. *)
(* This extension can only be .PI1, .PI2, .PI3, .NEO. If none *)
(* of these extensions are present then an alert box is shown *)
(* and the user is then asked to read in another file. *)
(*****)

```

```
FUNCTION valid_extension(file_name: String): Boolean ;
```

```

BEGIN
  pi1_spot := Pos( '.PI1', file_name) ;
  pi2_spot := Pos( '.PI2', file_name) ;
  pi3_spot := Pos( '.PI3', file_name) ;
  neo_spot := Pos( '.NEO', file_name) ;
  IF (pi1_spot|pi2_spot|pi3_spot|neo_spot)<>0 THEN
    valid_extension := TRUE
  ELSE
    valid_extension := FALSE ;
  END ;

```

```

(*****)
(* This is the start of the main_loop procedure. *)
(*****)

```

```

BEGIN
  erase_screen ;
  copyright_dialog ;
  valid_ext := FALSE ;
  file_to_input := TRUE ;
  file_name := '' ;

  WHILE (NOT valid_ext) AND file_to_input DO
    BEGIN
      file_to_input := Get_In_File( default_path, file_name ) ;
      valid_ext := valid_extension(file_name) ;
      IF (NOT valid_ext) AND file_to_input THEN
        BEGIN
          erase_screen ;
          alert_str := Concat(['[3][.PI* and .NEO|',
                              ' files only!][Cancel]]') ;
          dummy := Do_Alert(alert_str, 1) ;
        END ;
      END ;

      WHILE file_to_input DO
        BEGIN
          erase_screen ;
          IF neo_spot<>0 THEN
            result := Get_NEO
          ELSE
            result := Get_PI ;

          IF result=0 THEN

```



# PICTURE PUZZLE

```

BEGIN
  init_form(backup,screen_buffer,resolution);
  get_squares ;
  IF key<>$011B THEN
    BEGIN
      shuffle_picture ;
      exchange_squares ;
      IF puzzle_solved THEN
        BEGIN
          alert_str := Concat(['[1][Congratulations!!You solved ',
                                'The|Picture Puzzle!![ Hurray ]') ;
          dummy := Do_Alert(alert_str,1) ;
        END ;
      END ;
      erase_screen ;
    END
  ELSE
    IF result<>-99 THEN
      BEGIN
        alert_str := Concat(['[3][Illegal picture|format! Pick|',
                              'another file!![Cancel]') ;
        dummy := Do_Alert(alert_str,1) ;
      END ;
    END ;

    valid_ext := FALSE ;
    file_to_input := TRUE ;

    WHILE (NOT valid_ext) AND file_to_input DO
      BEGIN
        file_to_input := Get_In_File( default_path, file_name ) ;
        valid_ext := valid_extension(file_name) ;
        IF (NOT valid_ext) AND file_to_input THEN
          BEGIN
            erase_screen ;
            alert_str := Concat(['[3][.PI* and .NEO|',
                                  'files only!![Cancel]') ;
            dummy := Do_Alert(alert_str,1) ;
          END ;
        END ;
      END ;
    END ;

    (*****
    (* This procedure is called at the start of the program to init- *)
    (* ialized program variables.                                     *)
    (*****)

    PROCEDURE Initialize ;

    VAR x: integer ;

    (*****
    (* This procedure sets the variables associated with the current *)
    (* resolution.                                                       *)
    (*****)

    PROCEDURE Set_Res_Vars(resolution: Integer) ;

    BEGIN
      CASE resolution OF
        Low_Resolution:
          BEGIN
            Wmax := 320 ;
            Hmax := 200 ;
            palette_max := 15 ;
          END ;
        Medium_Resolution:
          BEGIN
            Wmax := 640 ;
            Hmax := 200 ;
            palette_max := 3 ;
          END ;
        High_Resolution:
          BEGIN
            Wmax := 640 ;
            Hmax := 400 ;
            palette_max := 1 ;
          END ;
      END ;
    END ;

    (*****
    (* Start of procedure Initialize.                                   *)
    (*****)

```



# PICTURE PUZZLE

```

BEGIN
  init_mouse ;
  resolution := Get_Res ;
  set_res_vars(resolution) ;
  screen[addr1] := 0 ;
  screen[addr2] := 0 ;
  res_string[0] := 'Change to low' ;
  res_string[1] := 'Change to medium' ;
  res_string[2] := 'Change to high' ;
  chosen := 0 ;
  Line_Color(chosen) ;
  default_path := 'A:\*.PI*' ;
  FOR x := 0 TO 15 DO
    save_palette[x] := st_clr(x, -1) ;
  END ;

  (*****
  (* This is the program loop. Gem is initialized, the program *)
  (* variables are initialized, the main loop is called and then *)
  (* the palette is returned to it's original state. *)
  (*****

  BEGIN
    IF Init_Gem >= 0 THEN
      BEGIN
        Initialize ;
        Main_Loop ;
        Set_Palette(save_palette) ;
        Exit_Gem ;
      END ;
    END.
  
```

## PICTURE PUZZLE

### Listing 2: Pascal

```

($M+)
($E+)
(*****
(* This program is to be linked with PICPUZZL.PAS. These are *)
(* the routines needed to do the raster operations. *)
(*****

program addr_stuff;

const
  low_resolution = 1 ;
  medium_resolution = 2 ;
  high_resolution = 3 ;

type
  (* These are echos of types in PICPUZZL.PAS *)
  scrn_memory = array[1..16000] of integer;
  mfdb_fields = (addr1, addr2, wid_pix, ht_pix, wid_wds, flag, num_planes, r1, r2, r3);
  mfdb = array[mfdb_fields] of integer;

PROCEDURE init_form(var form : MFDB; addr : long_integer; res: integer);
  ( initializes a form to point to a chunk of memory off screen )
  ( note that the caller passes a 32K chunk of memory as what it
    thinks is a var parameter, thus passing its address )
var
  hi_byte, lo_byte : integer;

begin
  ( convert the address to integers )
  lo_byte := int(addr & $0000ffff);
  hi_byte := int( SHR(addr,16) & $0000ffff);
  ( and initialize all fields of the MFDB )
  form[addr1] := hi_byte;
  form[addr2] := lo_byte;
  IF res = high_resolution THEN
    BEGIN
      form[wid_pix] := 640 ;
      form[ht_pix] := 400 ;
      form[wid_wds] := 40 ;
      form[num_planes] := 1 ;
    END
  ELSE
    IF res = medium_resolution THEN
  
```



```

    BEGIN
      form[wid_pix] := 640 ;
      form[ht_pix] := 200 ;
      form[wid_wds] := 40 ;
      form[num_planes] := 2 ;
    END
  ELSE
    BEGIN
      form[wid_pix] := 320 ;
      form[ht_pix] := 200 ;
      form[wid_wds] := 20 ;
      form[num_planes] := 4 ;
    END ;
  form[flag] := 0;           { device dependent }
end;

PROCEDURE copy_rect(src,dst : long_integer;
                    from_x,from_y,to_x,to_y,width,height : integer);
  { heres where we actually copy a rectangle from one loc. to another }
  { using gem raster copy function }

TYPE
  Ctrl_Parms      = ARRAY [ 0..11 ] OF integer ;
  Int_In_Parms    = ARRAY [ 0..15 ] OF integer ;
  Int_Out_Parms   = ARRAY [ 0..45 ] OF integer ;
  Pts_In_Parms    = ARRAY [ 0..11 ] OF integer ;
  Pts_Out_Parms   = ARRAY [ 0..11 ] OF integer ;

VAR
  control : Ctrl_Parms ;
  int_in  : Int_In_Parms ;
  int_out : Int_Out_Parms ;
  pts_in  : Pts_In_Parms ;
  pts_out : Pts_Out_Parms ;

  hi_byte,lo_byte : integer;

PROCEDURE VDI_Call( cmd, sub_cmd : integer ; nints, npts : integer ;
                   VAR ctrl : Ctrl_Parms ;
                   VAR int_in : Int_In_Parms ; VAR int_out : Int_Out_Parms ;
                   VAR pts_in : Pts_In_Parms ; VAR pts_out : Pts_Out_Parms ;
                   translate : boolean ) ;

EXTERNAL ;

begin
  { put source MFDB address in control array }
  lo_byte := int(src & $0000ffff);
  hi_byte := int( shr(src,16) & $0000ffff);
  control[7] := hi_byte; control[8] := lo_byte;

  { and same for destination MFDB }
  lo_byte := int(dst & $0000ffff);
  hi_byte := int( shr(dst,16) & $0000ffff);
  control[9] := hi_byte; control[10] := lo_byte;

  int_in[0] := 3;      { replace mode }

  { set the points for src and dest }
  pts_in[0] := from_x; pts_in[1] := from_y;
  pts_in[2] := from_x + width - 1;
  pts_in[3] := from_y + height - 1;

  pts_in[4] := to_x; pts_in[5] := to_y;
  pts_in[6] := to_x + width - 1;
  pts_in[7] := to_y + height - 1;

  { do the copy }
  VDI_Call(109,0,1,8,control,int_in,int_out,pts_in,pts_out,false);

end;

{ just a module, no main program }
begin
end.

```

# PICTURE PUZZLE<sup>END</sup>

# GFA BASIC Training Reboot Camp

by Dorothy Brumleve and Michael Marks

**MichTron**  
**576 S. Telegraph**  
**Pontiac, MI 48053**  
**(313) 334-5700**  
**\$12.95, 259 pages**

**Reviewed  
by  
Frank Cohen**

In 1987, Atari ST users looking for a BASIC programming language found Atari ST BASIC their only choice. ST BASIC was included with the machine and was advertised as being Microsoft BASIC compatible, but it didn't take long for the public to realize just how many problems came with Atari ST BASIC. Now the Atari ST user has a better choice: GFA BASIC.

Along the road from Atari ST BASIC to GFA BASIC, the ST user has been approached by many companies advertising their own flavor of BASIC for the ST. At one point, more than five BASIC languages were available for the ST. *True BASIC* was offered by the two gentlemen who created the BASIC language in the 1960s: John Kemeny and Thomas Kurtz. *Real BASIC* from CCP Technologies offered a friendly working environment, with very good performance. Metacomco, the developer of Atari ST BASIC, released its own up-

graded version of BASIC. Several other BASICs were announced, but never released.

With so many BASIC packages available, it's easy to see why a strong competition has arisen among the various manufacturers. True BASIC says, "Buy me! I'm the original." Atari BASIC says, "Use me! I'm compatible with Microsoft BASIC." GFA BASIC says, "I'm a lean, mean fighting machine!" The popular consensus seems to favor GFA BASIC as the preferred BASIC language for the ST.

*GFA BASIC Training Reboot Camp* is a tutorial for GFA BASIC. With little or no computer knowledge, the book teaches the basics of BASIC, with easy-to-read text and plenty of examples that allow the novice to follow along at an easy pace.

*Training Reboot Camp* is divided into 14 chapters, each devoted to a fundamental concept involved in GFA BASIC programming. Chap-

**With so  
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it's easy to see  
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competition has  
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manufacturers.**



ters are broken up into modules; it is easy to establish a learning pace that works best for you. The text is about what you would expect from a beginner's tutorial; even students in the fifth grade should be able to follow along.

The book begins with a good explanation of the GFA program editor. The editor is both a great advantage and disadvantage for GFA BASIC users. As commands are typed, the program editor checks the syntax of each command. This feature is very powerful for testing and debugging GFA BASIC commands. On the down side, many beginners have found the program editor confusing, especially when entering first pro-

set, but no attempt is made to explain the *style* of programming needed to write truly powerful BASIC programs. GFA BASIC includes many commands to implement GEM functions such as windowing, drop-down menus, dialog and alert boxes, etc. GFA BASIC can be used to create commercial products, but only if these subjects are covered in the literature supporting GFA BASIC. *Training Reboot Camp* does not adequately cover these subjects.

For all the good information contained in the book, many parts suffer from poor production. The sparse illustrations were drawn using a low-quality printer, and they have very little imagination or

**Along the road from Atari  
ST BASIC to GFA BASIC,  
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of BASIC for the ST.  
At one point, more than five  
BASIC languages were  
available for the ST.**

grams. *Training Reboot Camp* gives a well-illustrated explanation of the program editor, then covers some of the more advanced functions.

Each chapter ends with a self test. You can use these tests to evaluate how well you understood the information that was presented. Answers to the self test are also given.

Each chapter presents a new concept and a new sample program, most of which build on previously described programs. New commands are shown in bold typeface, making it easy to edit previous commands without retyping all of the commands again. The tutorial expects you to enter and test each of the sample programs presented. Something sorely missing is a complete listing of all the programs at the end of the book. However, MichTron offers a diskette with all of the programs recorded for an extra \$12.95.

*Training Reboot Camp* does a good job describing the usage of GFA BASIC's extensive command

flair. The text cries out for more illustrations, especially for the more difficult concepts. The layout of the text is often confusing, and the text face can be boring considering the content.

An index of subjects was placed at the end of the text. The index is even shorter than the table of contents, making it a poor source for beginners wishing to find information on a particular subject. This is too bad, as *Training Reboot Camp* could be a nice addition to GFA BASIC's user's manual.

Although not standard BASIC (according to ANSI), GFA BASIC does provide most of the structured programming tools necessary for someone familiar with True BASIC, Pascal or C to develop Atari ST applications.

It might be said that standards are formed when a majority uses one particular program. *Training Reboot Camp* helps add new users to the already large GFA BASIC enthusiast's troop and is a good introduction to GFA BASIC. ■

*Frank Cohen has been developing Atari programs since his first commercial product, Clowns & Balloons. He later developed Regent Base, an SQL 4GL database, and is currently involved with several other ST-related productivity and small business software packages. He joined ANALOG and ST-Log's staff as a contributing editor last year. You may contact Frank directly on CompuServe (76004, 1573) or GENie (FCOHN).*

# Fontz!

**Neoecept, Inc.**  
**547 Constitution, Unit A**  
**Camarillo, CA 93010**  
**(805) 482-4446**  
**\$34.95, medium or high resolution**

**Reviewed  
 by  
 Andy Eddy**

It seems that people just can't stop finding different uses for their computers. People are working out of their homes more frequently, either as an offshoot of their companies—in the form of *telecommuting*, a buzzword that describes laborers passing their work in over the phone lines—or starting their own businesses out of their houses.

As an example of this, desktop publishing (or DTP, as it is abbreviated) has become the latest fad on the computer block, enabling anyone with a DTP software package, a decent printer and sufficient RAM to create quality graphics and documents. Cottage DTP shops are springing up all across the nation.

As with any new application, the advent of DTP has spawned a whole breed of buzzwords to add to the lexicon. One of the terms that previously existed only for printing houses and publishing firms, but is now being used heavily by computer users, is *font*, which describes characters of a particular style. Your computer screen shows one type of font; a typed sheet of paper shows another. *Font Tricks*, Charles Johnson's font loader for the ST, was previously published in the Janu-

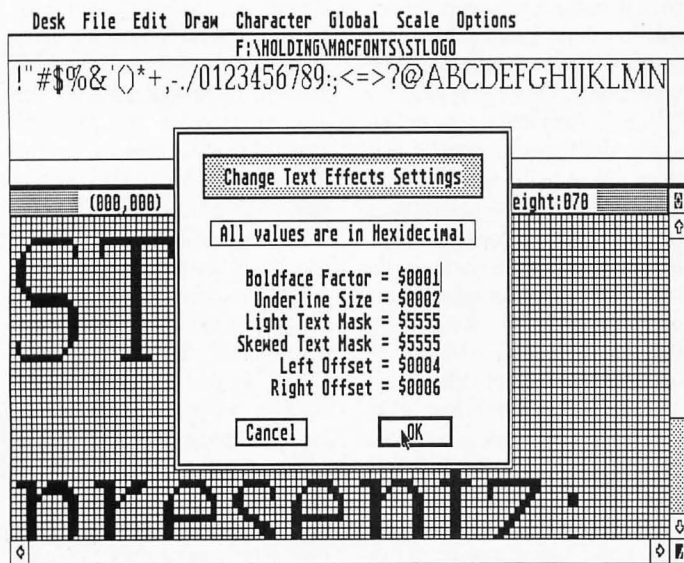
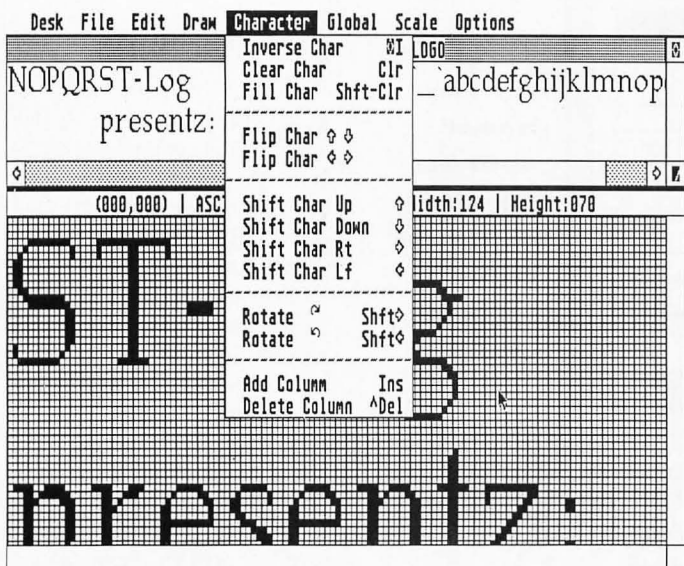
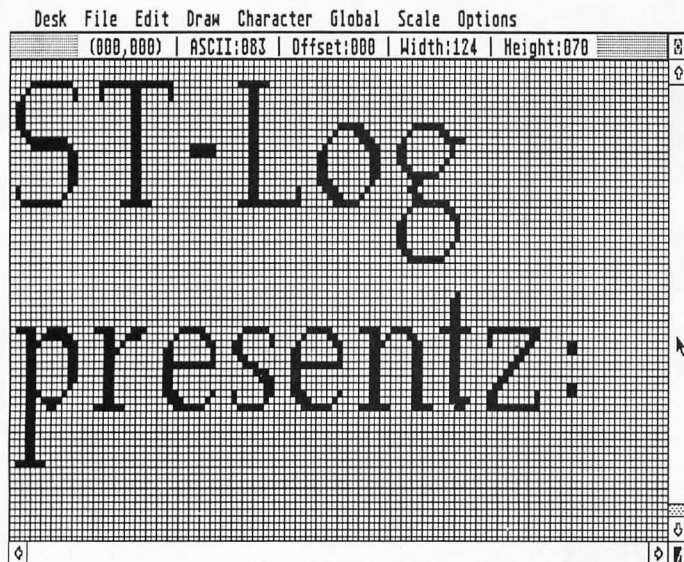
ary 1987 issue of ST-Log, and gave the user the power to import DEGAS and 8-bit fonts for use as the screen font.

To support the font fever in the ST world, Neoecept (formerly known as Neutron Engineering, makers of the *WordUp* word processor) has released a font editing program called *Fontz!*. Then again, to label it as simply a font editor wouldn't be fair, as it's loaded with other strong features that we'll get to in a minute.

Loading *Fontz!* brings up all of the tools you may need to create or edit your own font. There are eight menu bar headers, such as File, Edit and Scale, for accessing the various functions that *Fontz!* comes equipped with. These features—many of which have keyboard equivalents—let you handle basics such as rescaling of a font to a selected point size (a printer's measure where one point equals  $1/72$  of an inch), changing the font's ID or name, in addition to a multitude of character-manipulation and drawing functions.

For instance, you can rotate and move characters within their grid, toggle all of the pixels in a character to the opposite "color," flip a





character's pixels so it mirrors left to right or top to bottom, as well as copy and paste selected blocks or whole characters back and forth between the copy buffer and editing grids.

Similarly, many rudimentary paint-program functions are programmed into *Fontz!*, such as drawing a line between two points, arc creation between three points, as well as circle and box (both filled or outlined). These simplify the generally tedious process of creating your own font.

I know that some of you reading this are saying, "But, Andy, creating a font from scratch is too much work for me!" In that case, I'll introduce you to what I see as the real power of *Fontz!*, which is the ability to import font types from sources other than the ST-compatible, GEM format.

*DEGAS Elite* comes equipped with two programs—one for editing and creating fonts, the other for converting them to GEM format—that some users took advantage of to build font libraries. Many of those font artists also released their creations to the public domain. So people with access to an ST bulletin board with a file library or an online service (like DELPHI) have numerous public-domain fonts available to them. And *Fontz!* allows you to load *DEGAS* fonts.

Another source of fonts is the short-lived Hippopotamus Software company. If you have access to fonts for *HippoWord* or *Hippo Pixel*, they can be loaded into *Fontz!* too.

Lastly, *Fontz!* recognizes font files from the Amiga and Macintosh computers. The Mac, in particular, has a large quantity of fonts available in public domain, as well as through various over-the-counter font packages. With all these sources of high-quality characters, the ST/DTP connection never looked better.

Once a compatible font is imported into *Fontz!*, the user can save the characters in two formats: the standard GEM format, which is being used by DTP and paint programs alike, and the lesser-used *Paintworks/IN-Vision* format. The latter is fairly similar

to GEM, but *Fontz!* will differentiate between the two when you load one in. The manual explains that some incompatible fonts may crash the program, but in my tests it appeared to be mostly bullet-proof, with a box coming up when attempting to bring in an incompatible format.

The manual is well written, providing over 90 pages of informative documentation. Thankfully the program is mostly self-explanatory with its menus, and any technical situations that you may come across are covered amply in the docs. Even if you make a mistake, the Undo key will usually bring you back to before your last move.

One weak spot I noticed was the lack of a cutting routine. There are commands for adding columns and rows to the character grid, but those can only be appended to the ends of the character. If you want to trim out some white space between sections of a logo or similar intra-character editing, you have to go through some pretty involved procedures to accomplish it. Unfortunately the manual wrongly mixes the terms *copying* and *cutting* of a block into the buffer: copying should duplicate a chunk while leaving the character intact, while a cut should *remove* the intended block—much as you would do with text in a word processor.

On the positive side of the coin, the documentation does what it can to lessen "GDOS trauma." GDOS is GEM's connection to hard-copy printouts, but information on its use is hard to come by. Additionally, the creation of an ASSIGN.SYS file (that governs what fonts will be loaded in for specific purposes) is discussed at a level that will make it easier for the user to successfully put one together.

In summary, *Fontz!* is a handy tool for DTP purposes, serious business applications or just for fun. The simple mouse- or keyboard-selectable menus make building or altering a font library less tedious. Most of all, it accepts various font resources even from other computers and lets you turn your ST into a powerful DTP workstation. ■

# G + Plus

**CodeHead Software**  
**P.O. Box 4336**  
**N. Hollywood, CA 91607**  
**(213) 466-1868**  
**\$34.95**

**Reviewed  
 by  
 Gregg Anderson**

**Faster than a speeding hard disk, more powerful than a 68000, able to leap tall memory stacks in a single bound. What is it? Only the latest utility from CodeHead software, *G + Plus*.**

So what's *G + Plus*? Just the nicest little GDOS replacement you could ask for. Created by the same folks who brought us *Desk Manager*, *MultiDesk*, *Arc Shell* and many other shareware and commercial enhancements for the ST, *G + Plus* is what GDOS was expected to be from the beginning but never was.

What's GDOS? Basically, GDOS (graphics device output system) is the part of the ST's operating system that enables it to display and print graphics (such as complex CAD designs or graphics-based fonts like *WordUp* and *Write*) to various output devices. Originally, GDOS was supposed to be released as an integral part of TOS (the operating system). But something happened at either Atari or DRI (creators of GEM), and it was delayed until well after the 520ST hit the streets. Because of this, GDOS was later released as a software "patch" to be loaded and used only by those programs that needed it. But the delay of its release, added to a general lack of specific details on GDOS, and its inner workings, meant that a lot

of programs were written without being tested for GDOS compatibility. Care to guess what that caused? You got it, lots of programs that wouldn't run worth beans with GDOS installed.

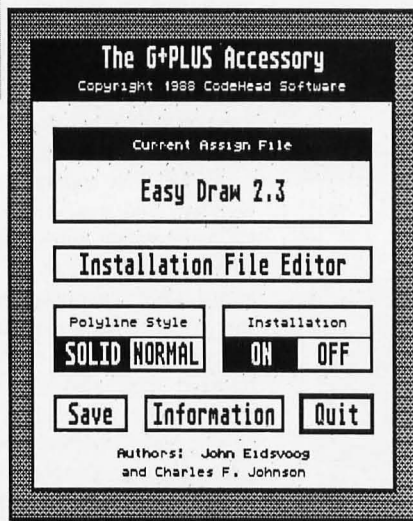
GDOS had (and continues to have) other problems as well.

First of all, it has to be installed in the AUTO folder and loaded at boot-up. This means you have to reboot without GDOS each time you want to run a non-GDOS application—or risk bombing. Second is that GDOS requires that a properly written ASSIGN.SYS file be present on your boot disk (with a GEM/GDOS.SYS folder holding matching fonts and drivers), or it refuses to load. Once booted, you can't change these fonts and drivers, as GDOS will read them only once and remains set to the booted configuration until you power-off. Finally, GDOS often has a very adverse effect on the execution speed of programs on some

STs. The exact cause of this is uncertain, but on some STs the speed of the entire system often slows down to a crawl, acting more like a C-64 than an ST.

For three years ST fans have asked Atari to rewrite the GDOS code to eliminate these problems, and for three years the general response has been less than overwhelming. "What speed loss?" or "We're looking into it over in Germany. We'll let you know if anything develops" have been the replies from Sunnyvale. Needless to say, these have done little to reassure heavy GDOS users in the Atari community. All seemed lost, until Charles F. Johnson and John Eidsvoog formed CodeHead Software and stepped into the picture.

By dissecting the current GDOS, they found some clues as to what it did and how it did it. In doing this, they discovered the interference that was causing the speed losses and even found a way to re-read



***G + Plus*  
 is what  
 GDOS was  
 expected to  
 be from the  
 beginning  
 but never  
 was.**

an ASSIGN.SYS file without forcing a reboot. Though similar to GDOS in its operation, *G + Plus* is not a derived product and is fully the creation of CodeHead Software.

So what can *G + Plus* do for you? Let me give you an idea with a little chart. *G + Plus* comes with a small "Zoomtest" program that lets you measure the speed losses and gains with GDOS and *G + Plus*. It runs through a short series of "open box/close box" AES/VDI calls and counts the time and number of VDI calls used. I used that program on my system (a Mega ST4) with only the desktop control panel and *Turbo ST* accessories loaded to reduce interference with the normal operation of the system. I included *Turbo ST* in the test, since it's also used to increase the response speed of the ST's desktop. The following test is for 50 box-opening and -closing calls. (See Table 1.)

So what does this tell us? For one thing, it tells us there is a drastic slowdown when you install GDOS, around a ten-second difference across the board. It also shows us that in normal mode, *G + Plus* brings the overall operating speed back very close to that of non-GDOS ST systems. Most surprising of all is the effect *G + Plus*'s "solid" mode has. Not only does it bring back the origi-



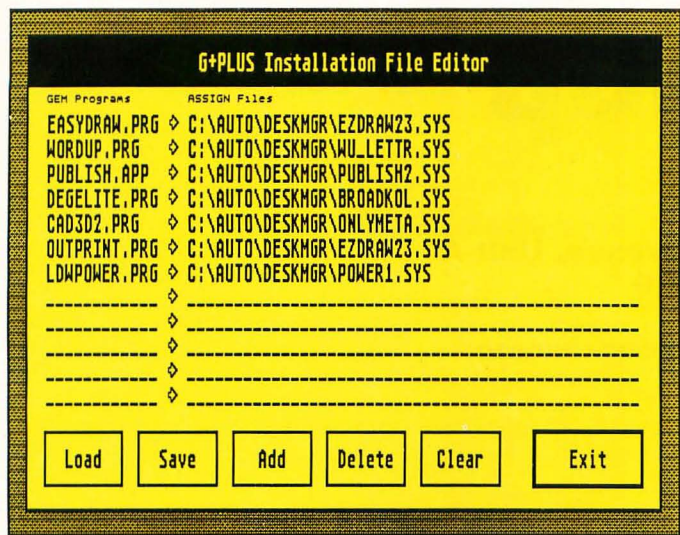


Table 1

TurboST on/off	Blitter on/off	Nothing installed	GDOS installed	G + Plus Normal mode	G + Plus Solid mode
off	on	22.12	33.19	22.85	16.88
off	off	22.9	33.96	23.62	18.06
on	on	22.64	33.7	23.33	17.39
on	off	23.38	34.47	24.13	18.54

nal speed, but it actually increases the speed of execution, making your program's boxes, windows, menus and graphic displays faster than you've ever seen them before. I was surprised to see that *Turbo ST* produces a slight speed loss in graphics operations, but the loss is fairly small, and the increase in text speed more than makes up for it. In fact, with both *G + Plus* and *Turbo ST* installed, my desktop acts more like it's powered by a 68020 than a 68000.

"Normal mode? Solid mode? Now what is he talking about?" When you install *G + Plus*'s desktop accessory, you're given two options for your display mode. The first mode is "normal." Normal mode retains all the visual operations we're used to on the desktop display. Solid mode, however, replaces a tiny part of this with a different system, though you'd probably never notice this unless you looked for it. You can best see the difference when you open or close a disk directory window. In normal mode you'll see the box dissolve and shrink away in a series of thin gray lines and boxes. These gray lines and boxes are actually just dotted lines drawn by the computer. Solid mode replaces

these dotted lines with solid ones, nothing more, nothing less. The only visual clue you have (other than a marked increase in speed) is the black lines instead of gray ones as your windows open and close. I don't know about you, but giving up tiny gray lines is a small sacrifice to make for this type of speed improvement. Don't worry about losing the use of gray or dotted lines in your application software though; *G + Plus* doesn't touch these.

The second advantage that *G + Plus* offers is compatibility. As I mentioned before, GDOS has some major problems with most non-GDOS software: sometimes not letting it load, sometimes just crashing it when you start to work with it. CodeHead Software has managed to avoid this with *G + Plus*. I've been working with *G + Plus* for over a month now and have yet to find a program (auto-boot games don't count) that refuses to work with it installed. Best of all, some of these non-GDOS programs benefit from *G + Plus*'s speed increase, though not as much as GDOS applications do. Charles and John went well out of their way to follow the rules when writing *G + Plus*. By doing

this, they've just about guaranteed that it will remain compatible with all future GDOS applications as well as non-GDOS ones.

The third, and final, major advantage of *G + Plus* is its ability to select and deselect different ASSIGN.SYS files without rebooting the computer. Like GDOS, *G + Plus* requires that you install it in your AUTO folder and have an accurate ASSIGN.SYS file that reflects the contents of your GEM/GDOS.SYS folder. Unlike GDOS, however, if you've installed the *G + Plus* accessory file, it will allow you to access several ASSIGN.SYS files. It gives you the option of selecting which file you want loaded, either when booting or from the desktop. You still can't change ASSIGN.SYS files from within a program, but that's because none of the current GDOS programs will allow it.

Assuming you've followed the directions in the manual correctly, *G + Plus* gives you several options for loading your desired ASSIGN.SYS file. You can select the ASSIGN.SYS you want when booting your application by pressing the Alternate key and double-clicking on the program's name/icon. This presents you with a box allowing you to load whichever ASSIGN.SYS file you want or retain the one currently in memory. Whichever file you've decided to use will appear in the *G + Plus*, accessory window display; so you'll always know which file you're working with.

You can also manually change the ASSIGN.SYS file by calling the *G + Plus* desktop accessory from the desktop's Desk menu. This will then present you with the list of available ASSIGN.SYS files, and you can take your pick from any ASSIGN.SYS file available on your system. *G + Plus* can even "automate" the procedure for you. By installing the exact filename of your program and the path the program must take to read the desired ASSIGN.SYS file, *G + Plus* will automatically read and load the correct ASSIGN.SYS file whenever this program is run and delete any ASSIGN.SYS file currently in memory. All in all, a flexible system; one that takes most

of the pain out of using GDOS.

The manual that comes with *G + Plus* is short but thorough. It gives a brief explanation of GDOS, what it does and doesn't do in your system, the differences between it and *G + Plus* and a reasonably understandable description on using *G + Plus*'s enhanced features. It also outlines the building of an ASSIGN.SYS file and even includes some "developer's notes" on accessing the inner workings of the program for the programmers among us.

Needless to say, the program is not copy-protected (no utility should be). John and Charles are relying on us not to pirate *G + Plus*. It would be a sad comment on us all if this outstanding utility-producing pair had to call it quits due to piracy, like so many have in the past. Let's do the right thing here and support them. That way we can expect even more from CodeHead in the future.

What more can I say? *G + Plus* seems to have not only taken most of the hassle out of using GDOS on a day-to-day basis, but has even increased the execution speed of GDOS applications as well. What Atari couldn't do in three years, CodeHead Software has done in six months—and with additional features to boot. I'm impressed with this program and totally hooked on it. My favorite feature of *G + Plus* is its faster program execution, but the added flexibility it offers for switching ASSIGN.SYS files may well be its most impressive feature.

*G + Plus* is a must for any serious (or even casual) GDOS user, and at only \$35 retail, it's a bargain as well. Run—do not walk—down to your local dealer (or call CodeHead at the number listed) and get this program. You won't regret it. ■

*Gregg Anderson, a captain in the USAF with a background in electronics repair, has been an avid Atari user since 1982 and upgraded to an ST about a year and a half ago. His roommate, a cat, often leaves messages on DELPHI under his username, and Gregg insists, "One of these days, I'll catch him at it."*



# WordUp

**Neocept**  
**547 Constitution Avenue, Unit A**  
**Camarillo, CA 93010**  
**(805) 482-4446**  
**\$79.95, color or monochrome**

**Reviewed  
 by  
 David Plotkin**

**WordUp** is a powerful word processor for the Atari ST that utilizes GDOS to produce high-quality printed output, as well as multiple sizes and typefaces, both on the screen and in print. It has many features not found in other word processors in its price range, although it does not have all the features of *WordPerfect*.

It should be stated right up front that I wrote the original manual for *WordUp*. However, as I was paid a lump-sum fee and have no stake in the company, you can be sure that this review is totally unbiased. I do know the program quite well and am also a writer who has outgrown several of the low-end word processors available for the ST. I will say that I like *WordUp* and feel it is an excellent writer's tool.

## Getting started

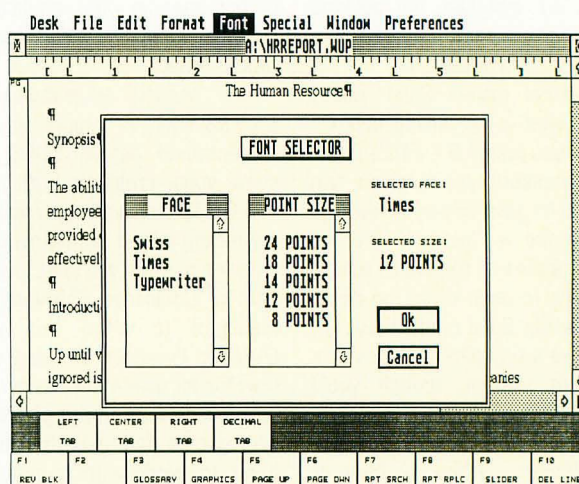
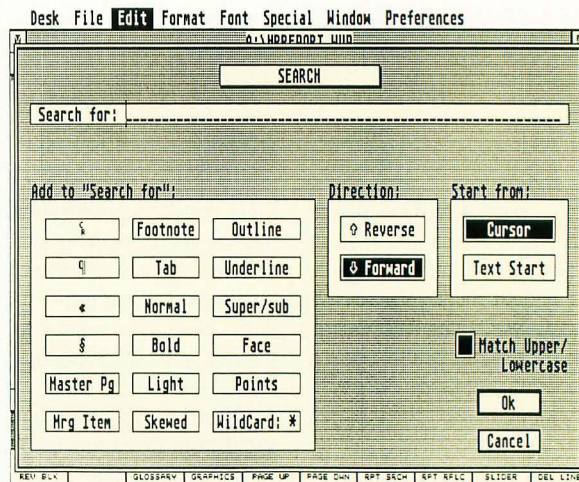
As mentioned earlier, *WordUp* is a GDOS application, able to use many fonts and capable of printing in the highest resolution your printer can handle. Usually, GDOS means an agonizing and confusing setup procedure, with many false starts. The original *WordUp* manual had a lengthy section on how to get everything set up. I often felt that it was the most complex thing about the program! However, the current version includes an installation program that questions you about your system (how many drives, whether they are double-sided, how much memory, etc.), then proceeds to painlessly extract

the files you need and copy them to backup disks for you. Compare this installation procedure with the one for *Microsoft Write* (which I never did figure out).

## Write on

*WordUp* supports all the functions that have come to be expected from any program that calls itself a word processor. Four files can be open at once in separate windows, and you can cut and paste blocks of text (including between the documents) whenever you like. Of course, you can merge text, search and replace, use various text attributes (bold, italics, etc.) and set the text format. From there, though, the list of additional features is quite impressive.

As mentioned earlier, you can select from multiple typefaces and point sizes in the document, and these will appear on the screen looking pretty much like they will when printed. You can also import three different formats of graphics: Neochrome, DEGAS (both compressed and uncompressed) and GEM (\*.IMG) files. Once a graphic has been added, you can resize it, crop it and adjust the aspect ratio using the mouse or keyboard commands. A ruler runs across the top of the screen, making it easy to set and remove the four different kinds of tab stops (left, right, center and decimal) as well as set margins. The text automatically reformats as you type in new text.



Handy utilities available from the menus let you format a disk, check disk space and rename or delete a file. If you have activated *WordUp*'s backup feature, you can even

revert to an old version of your document. Another nice feature is that you can select the text you want to work on (for block operations, for example) by clicking and



dragging with the mouse. This may seem like a small thing, but many word processors for the ST only allow you to select whole lines using click and drag. You can select a whole paragraph by double-clicking in the left margin alongside of it, and there are keyboard equivalents for all menu options. *WordUp* even lets you select the word or sentence the cursor is currently on with two keystrokes. When a block has been highlighted, you can modify its font, limit the search-and-replace to just that block or adjust other attributes, such as margins.

Of course, you can set top, bottom, left and right margins, but here again, *WordUp* allows a lot of flexibility. You can set the margins for the entire document, just a paragraph or for a section (that usually contains multiple paragraphs). Tab stops can be set for the document or by section as well. What this means is that paragraphs can have different margins and be indented or tabbed differently for effect. Margins and tabs can be set using the menu, which brings up a dialog box, or by using the mouse with the ruler at the top of the screen.

Even the rather mundane search-and-replace functions have some extras built in. For example, you can search for special characters (carriage returns, section markers) as well as text effects—that is, where the text becomes bold, underlined or changes face or point size. Note that while you can search for special effects, you can't include the effect in your replacement string. Searching can be either forward or backward, and can start from the cursor position or from the beginning of the document.

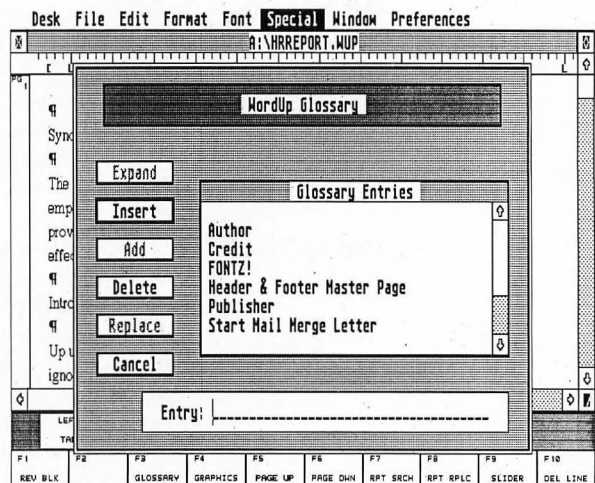
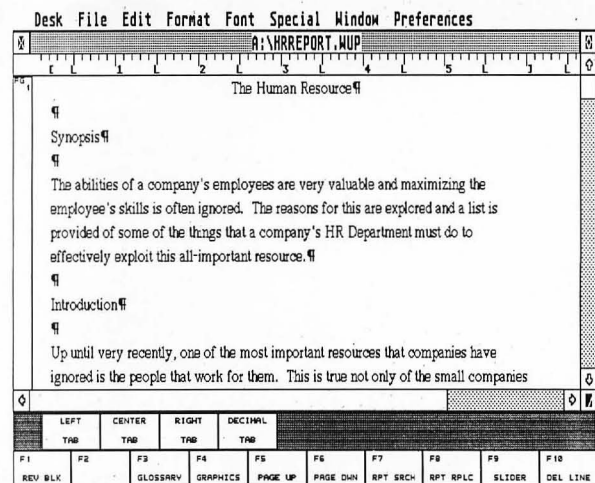
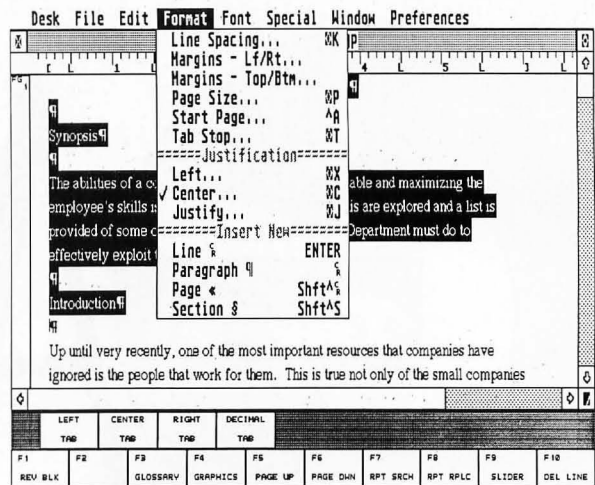
*WordUp* also supports "master pages." A master page sets the text (and graphics, if you like) that will appear on every page when the document is printed out. Thus, you can put headers, footers and letterhead graphics on a master page, and these will print out on every page. You can have different master pages for left- and right-side pages, and you can use as many different master pages as you need. The current time and date can be printed anywhere in

the document, including in headers and footers. Endnotes (but not footnotes) are supported, and you can set a different font for the endnote. The manual and tutorials make quite a few references to footnotes (which were supported in earlier versions, but had problems).

There are also some extras built into *WordUp* that will be appreciated by "power writers." The glossary feature lets you expand single words or short phrases into whole blocks of text, including special formatting. You can even store a whole document as a single glossary entry. Blocks of text can be added to the glossary by simply highlighting the block and selecting the appropriate button from the glossary dialog box. Full mail-merge capabilities are also supported. Mail-merge is a little complex, because it involves a text file, a database file and a control file, which puts the two together. However, mail-merged letters are very flexible, and both fixed field length and SDF-type files are supported. An appendix to the manual details how to set up a file with many of the popular databases.

*WordUp* is missing some things that make it less ideal for long documents. It has no index- or table-of-contents-generation capabilities, and no spell checker. Also, the price paid for the multiple typefaces and point sizes is that the scrolling speed is quite slow. It is not so slow that it is unusable, but scrolling over long distances can be cumbersome. The problem is that the screen is drawn in graphics, and the ST's built-in character set is not used. The current version of *WordUp* is quite a bit faster than the original, so progress is being made in addressing the slow scroll speed.

As is true with other programs using GDOS, the output is still ooow. Even when you don't need to use fancy fonts, there is no way to get quick draft output (perhaps just using the printer's built-in font) except by printing in ASCII format, which loses so much of the document's formatting information that page breaks may not be in the right place. It would be nice to get a good-quality printout that didn't include



changing typefaces, etc., when that was necessary.

*WordUp* is more than a simple word processor, yet not quite a desktop publishing program. Its powerful formatting features, multiple text faces and sizes, ability to import graphics and high-quality output make it a serious business tool for short- to

medium-size documents. There are better word processors for writing books, but they cost much more, and are harder to learn to use. All in all, if you do any more writing than an occasional letter or keep a diary, and can live with the slow speed of scrolling, you should take a look at *WordUp* for your writing needs. ■

# GAME

The ST

*Typhoon Thompson*  
**Broderbund**  
17 Paul Dr.  
San Rafael, CA 94903-2101  
(415) 492-3200  
\$34.95, color only

Reviewed  
by  
Andy Eddy

It's understandable that people remember the name of a program, rather than its author. Names like *GFA BASIC* and *Dungeon Master* are recognizable, but very few remember who wrote them (Frank Ostrowski wrote *GFA BASIC*, and Doug Bell handled the major coding chores for *DM*, by the way). As you can see, software development doesn't often bring celebrity status.

Those of you who are veteran personal computer gamers will remember a game called *Choplifter*. Programmed by Dan Gorlin, this was one of the best computer games of its time, requiring you to carefully pilot a helicopter and rescue hostages. It also has the distinction of being one of the only programs in recent memory to make its start on the PCs, then find itself translated to a coin-op game.

Well, Dan Gorlin's name has surfaced again, this time attached to a stunning, new creation from Broderbund called *Typhoon Thompson in Search for the Sea Child*. (We'll refer to it as *TT* from here on.) A team of creative artists, under the Dan Gorlin Productions umbrella, has put together a smoothly animated, arcade-action contest that will keep you on the edge of your chair.

The game revolves around Typhoon Thompson (controlled by you, of course) and his exploits to retrieve a sole survivor—a tiny baby—from the clutches of the sly Sea Sprites. Their home is the watery planet of Aguar, where Flight 396 crashed, and where three other rescue missions have perished before you.

The local Spirit Guardians help you out somewhat by telling you what artifact you'll need to retrieve from the Sprites. They also provide you with additional weapons that'll increase your chances for successful completion of the first four levels. Every weapon you receive offers you better capability with which to do your deeds, though each level is progressively more difficult... *incredibly* difficult! Your trusty vehicle in these pursuits is the Jet-Sled, a futuristic water skimmer that will take you from place to place rapidly, both over the surface and underwater.

The Sprites, looking like large frogs, live in small island villages. They persistently try to put a crimp in your plans by piloting various crafts called Flyers, each with a particular ability to hinder your quest. For example, a Whomper bounces on the water's surface like a pogo stick;

**continued on page 91**



# SHELF

*Virus*  
**Rainbird Software**  
**P.O. Box 2227**  
**Menlo Park, CA 94026**  
**(415) 322-0412**  
**\$29.95, color only**

**Reviewed  
by  
Clayton Walnum**

For those of you who have, over the years, become expert at controlling video-game spaceships, *Virus* offers a new challenge. Its simulated 3-D universe gives you a chance to pilot your craft not only around your computer screen's 2-D plane, but also "into" and "out of" the screen. Of course, this added control makes piloting your hoverplane a skill that you'll need to spend some time mastering; but chances are you'll agree that the effort was worth it.

The scenario: It seems that wave after wave of alien spaceships are attacking the planet and spreading a nasty "red virus." The virus spreads quickly, mutating the vegetation, thus changing the healthy green landscape to a sickly brown. You are the pilot of a state-of-the-art hoverplane and have at your command a laser cannon, a long-range scanner and a few homing missiles. It's up to you to destroy the alien invaders and stop the spread of the virus.

The long-range scanner, located in the upper left of the screen, gives you a full, overhead view of the landscape, and the alien ships can be seen there as colored dots. (Your hoverplane is also marked on the map). You need to keep referring to

the long-range scanner in order to fly the hoverplane to the right locations.

Flying the hoverplane is the tricky part. It can be rotated to any direction and positioned with its nose up or down. When you apply thrust, the hoverplane will move rapidly in the opposite direction of the thrust. To slow down, you must apply reverse thrust (unless, of course, you are going up, in which case gravity will eventually take over). The hoverplane can be controlled either with the mouse (*very* difficult) or using the keyboard (the better alternative). If you're not happy with the keys the programmer's have chosen to control the hoverplane, you can completely redefine them.

As I said, you can fly the hoverplane in any direction, including "into" and "out of" the screen. No matter which direction you fly, the graphics will keep up with you. And you *will* be impressed. The main display shows the landscape in a "spotter" view—that is, as if you were watching your hoverplane from another craft a few yards away. As you fly over the landscape, you'll be treated to a marvelous 3-D effect. The full range of movement allows you to actually move around and behind objects,

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*Warlock*  
**Three-Sixty Pacific, Inc.**  
**2105 S. Bascom Ave., Ste. 290**  
**Campbell, CA 95008**  
**(408) 879-9144**  
**\$34.95, color only**

**Reviewed  
 by  
 Clayton Walnum**

And speaking of games for those who are willing to practice, *Warlock* ain't exactly a piece of cake either. This magical shoot-'em-up will certainly present a challenge for even the most masterful joystick jockey. But it'll be worth the fight, because the animation in this game is so superb that you can't wait to move on to the next screen to see what comes next.

*Warlock* consists of 20 levels, all filled with more enemies than you can shake a stick at, as well as many useful items: potions for restoring your strength, magic books for giving you more power, trea-

sure chests to increase your score and "Protecto Scarbs" that add strength to your armor. Your goal is to collect the eight magical objects that are also scattered about the screen (and frequently guarded by powerful nasties), and then recapture the "Karna," a precious jewel that was stolen by a thief so treacherous he is referred to only by the moniker "HE."

I can't think of another game that has so many different creatures bent on the player's destruction. Whoever designed

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*Questron II*  
**Strategic Simulations, Inc.**  
**1046 N. Rengstorff Ave.**  
**Mountain View, CA 94043**  
**(415) 964-1353**  
**\$39.95, color only**

**Reviewed  
 by  
 Betty D. DeMunn**

Yes, Goldilocks, this one is not too hard, not too soft, but ju-u-u-st right! So sit down, boot up and embark on an adventure that is both playable and solvable. Nothing fancy, mind you, but solid action from start to finish.

*Questron II* is a fantasy adventure game of exploration, quest and combat. Mesron, the great wizard, sends you back in time to Landor, where you must find a way to destroy the Evil Book of Magic before it is written. This book is so-oo-o evil that its very existence poses a threat of corruption and doom to all civilizations in our continuum. So go get 'em, kid!

Wafted to Landor with the bare essentials, (a dagger, rawhide armor, 200 food points, 200 hit points and 200 gold pieces), you begin your exploration of the area, and before you know it, you're dead. Not to worry. Mesron resurrects you from the winds of time. Next time remember to suit up and arm yourself. Now, visit some towns, update your weapons and armor and speak to everyone. Hints and clues abound. Find Mesron in the Hall of Visions and receive your first instructions. But until you're stronger and stocked with a little magic don't take on the castle guards or venture too far into the tomb. You may have been resurrected, but it's back to Square 1 with only the basics.

The game is controlled by mouse and/or keyboard. Personally, I like the keyboard because, with practice, you can play it like Rubinstein. The commands in the long menu are easily called up by initials, and when multiple strokes are required, they come to your fingers much more quickly than maneuvering the mouse. You prepare a character disk holding nine characters, but saving a game overwrites the previous saved game for your current character.

Speaking of characters, I had to over-

come an immediate aversion to this game when I named my heroine "Cher" and a picture of Arnold what's-his-name appeared. *When are you guys going to realize that women are playing too?* Wise up.

Having played the first 8-bit version of *Questron*, I was eager to see the enhanced graphics on the ST. If anything, the landscapes are a tad overdone. My little guy would have been much clearer in a lighter costume or at least white sneakers. He almost disappears in the terrific detail of the forests and swamps and grasslands and mountains. But that's nitpicking. The glorious colors of the castle corridors and the gleaming enticement of the treasure chests more than compensate for my hero's camouflage. The sound track is eminently satisfying. Especially the *crr-r-ack* of a Magic Missile hitting a Carrion Creeper or a Disemboweler. The theme music echoes the first *Questron*, complete with endearing clinkers.

The review disk (Version 1.0) had some peculiar quirks. Once I bought three magic missiles and received over 300! (Needless to say, I was delighted.) Scrambled graphics caused some problems. Worst of all, the game crashed completely a couple of times. (By this time I'm sure these bugs are extinct.) And, for some paranoid reason, this ST adaptation calls for frequent proof of honesty; five times in one hour I was required to consult the manual for answers to questions. Hey! Once is enough! I've played *Questron II* on another computer and the protection was reasonable. Why so suspicious of Atari owners?

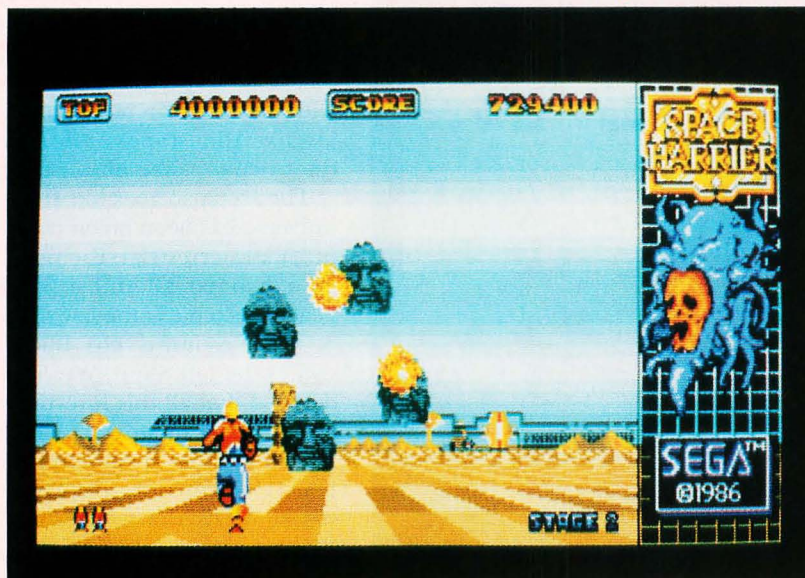
Maybe it's my lack of coordination, but I kept overrunning the creatures I meant to confront. Wanting to fight or speak, I would escape unintentionally, thereby missing a juicy bit of gossip or a reward-

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*Space Harrier*  
**Sega**  
**Distributed by Mindscape**  
**3444 Dundee Rd.**  
**Northbrook, IL 60062**  
**(312) 480-7667**  
**\$49.95, color only**

**Reviewed by**  
**Clayton Walnum**



Sega has been a big name in the video-game business for quite some time now, with successful home systems as well as some of the top arcade coin-ops to its credit. *Space Harrier* is a translation of one of its coin-op machines, and although I can't comment on the arcade version of the game, having never played it, I can say that the ST version is addicting indeed.

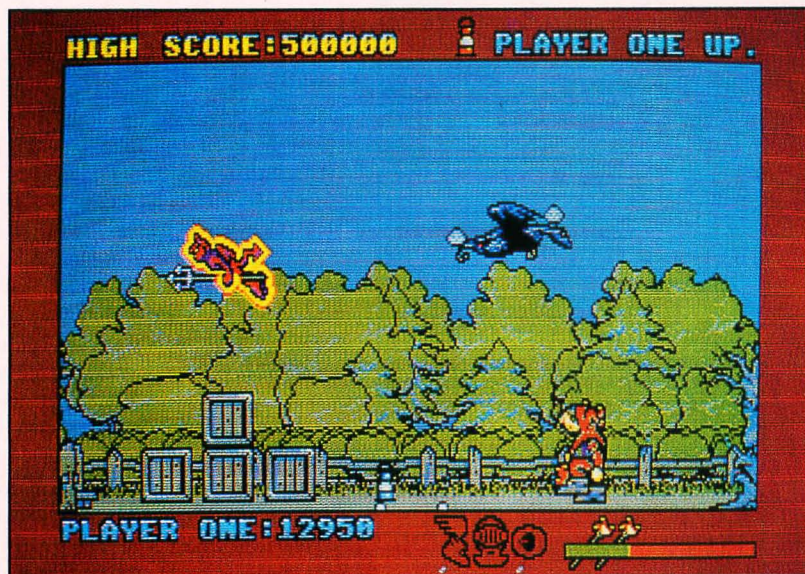
To quote from the game's instruction sheet, "You are Space Harrier—one of the most experienced astral exterminators in the galaxy. But even for someone with your skill and cunning, this is one treacherous assignment, because this once-peaceful land was invaded by an army of the most ghastly creatures ever to pollute the galaxy."

Yep. This is a straight shoot-'em-up, and the action is *sizzling*. As you control the figure of Space Harrier on the screen via the joystick or mouse, you're going to have to have sharp reflexes to guide him through each level as he plunges "into" the screen at dizzying speeds. (It seems like you're traveling at least 100 mph.) The scenes come streaming toward you in a convincing simulated 3-D. There are many obstacles on the ground and in the air that you must maneuver around or

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*Black Lamp*  
**Rainbird**  
**P.O. Box 2227**  
**Menlo Park, CA 94026**  
**(415) 322-0412**  
**\$24.95, color only**

**Reviewed by**  
**John S. Manor**



*Black Lamp*, from Rainbird Software, is an arcade adventure starring Jolly Jack the Jester who must free the kingdom of Allegoria from evil times. The kingdom's peace and prosperity had been guaranteed by magic lamps that are now missing, and you, as Jolly Jack, must find the lamps. Complete this task and King Maxim will grant Jack his dream of marrying the princess. (Jack is not a handsome fellow, so he takes this chance very seriously.) You control Jack using the joystick, mouse or keyboard.

Allegoria is full of monsters that will attack Jack on sight as he searches for the lamps. Fortunately, Jack was given a belt buckle that fires bolts of pure magic. He also has five magical lives and gets another life after every 100,000 points.

The monsters, who come at Jack constantly, range from ugly green trolls, vampire bats and goblin soldiers to spitting witches and an evil knight called the Slayer. There are also swarms of dragonflies and wasps that swoop down and attack Jack. All these adversaries can do different amounts of harm. The worst are the dragons; the least dangerous are the swarms of wasps and dragonflies. Jack can

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*Off Shore Warrior*  
**Titus Software**  
 20432 Corisco St.  
 Chatsworth, CA 91311  
 (818) 709-3692  
 \$39.95, color only

Reviewed by Clayton Walnum



Titus Software seems to have a great love for racing games. Its first game, *Crazy Cars*, which I reviewed several months ago, was a standard car-race "simulation" that was lacking a lot of the flare that makes for a great game. It certainly couldn't compete with Data East's excellent *Speed Buggy*. This time around, Titus has changed the cars into speedboats and the scenery into futuristic landscapes. Along the way it also added a little firepower to the boats, and the result is a game that, though not particularly original, is far superior to the first offering, and one that I can recommend (although, just like Mindscape's *Space Harrier*, I think the price is a wee bit on the high side).

The scenario goes like this: The entire universe has been taken over by a group of "Extraterrestrial Pacifists," and they have banned all things violent. Their Peace Doctrine is the law of the galaxies. A noble venture, eh? But then along comes the Off Shore Warriors who have decided that all this love-and-peace stuff is too much to stomach. They invent a new sport that involves piloting speedboats down treacherous channels, while killing off all opponents in any manner

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#### QUESTRON II-CONTINUED

ing battle. Beware of this syndrome. The traveling movement of your character can become too rhythmic or too fast.

All minor complaints. For rookie adventurers *Questron II* is first-rate. It teaches the folly of believing everything you hear, how to use magic wisely, how to wield weapons effectively, how to search for bargains in equipment, how to map, how to kill, maim and pillage. There are gambling casinos to further corrupt young minds—play blackjack, hi-low or Wizard's Squares. I financed the whole journey through long and patient sessions at the latter table.

For so-called experts who are desperate in *Dungeon Master*, twisted in *Tanglewood* or pooped in the *Pool*, may I suggest playing *Questron II* covertly? None of your buddies need know that you're having a good old-time romp through a game that remembers that solvability is just as important as playability. And you'll slam-bang through to victory without a hint book. Feel good again!

On her scales from 1 to 10, the BeeDee Dragon gives *Questron II* six puffs.

**Recommendation:** For graphic adventure fans.







### WARLOCK-CONTINUED

the graphics for this game had quite an imagination. On your trip through the various levels, you'll encounter everything from ghosts, goblins and flying eyeballs to some creatures that you could only visualize in a nightmare. Fire-breathing ogres, walking plants, killer bats—you name it, they're all here.

As you progress from left to right, you'll have to keep your trigger finger greased because the creatures come at you relentlessly. Trapdoors, holes or ladders allow you to move below ground where most of the magical items you need to gather are hidden. Once you clean out one of the below-ground areas, it's back to the top to move to the next screen.

There are some interesting sound effects in the game, but many of them are either too quiet to hear well or turn on and off for no apparent reason. For example, the sound the fireballs make when the warlock shoots is sporadic at best. The programmers should have paid more careful attention to the balance of the sounds and the use of the ST's limited (only three voices) sound chip.

**Recommendation:** For diehard shoot-'em-up fans.

### TYPHOON THOMPSON-CONTINUED

but if the Whomper contacts your Jet-Sled, you'll be left with a crumbled shell, and forced to swim back to the sanctuary of the Spirit Guardians.

Your sled comes equipped with Laser Cannons and Thrusters, basic battle gear that allows you to respectively hightail it out of danger or blast the enemy Flyers. Striking an island with your craft or with a shot from your cannons releases the Flyer(s) contained there, out onto the open sea.

Blasting the Flyer with the laser releases a Sprite (or Sprites, as you'll see in later levels) into the water. You must then cruise your sled over the creature(s) to pick it up and stow it away. But if you take too long to pick up a Sprite, it'll come back to its senses and start swimming for the haven of an island. You must either stun him again with your laser, or restart the process after he reaches the island. Again, later levels increase the number of Sprites at an island, doubling your workload.

Once each of these islands is cleared of Sprites, you will receive the artifact for that level, and then must proceed back to the Spirit Guardians for upgrading of your weaponry and details of what item







### VIRUS-CONTINUED

as well as fly over them from any direction. Though the graphics aren't finely detailed, they are nonetheless impressive.

During a round of play, you must keep your eye on the line that shows how much fuel you have left. If it runs down to zero, you'll crash and lose a life. At the end of each wave, you'll be shown how well you did, with the amount of infected and uninfected areas listed as a percentage.

With *Virus*, Rainbird has offered up a graphically interesting game. However, mastering the game's controls requires practice, especially if you expect to maneuver your hoverplane successfully when battling the alien ships. If you're not a lazy gamer, this one may hit the spot.

**Recommendation:** For those willing to practice.

### TYPHOON-THOMPSON

to acquire next. In the final journey you attempt to snatch back the baby: a nearly impossible feat to accomplish.

Rarely do programmers take full advantage of the power of the computer. The detail of *TT*'s animations—for instance, the opening sequence is randomly picked from three different animations, each impeccably done—is a treat for the eyes. Throughout the game, you are treated to little audible and visual nuances (they appear little in final analysis, but in fact are quite a bit of busywork for a programmer/artist).

Attention to details is what helped make *Dungeon Master* popular when it was released; unfortunately, these details are too often missing in other games. *TT* has got it all. For example, when Typhoon comes flying out of the sea on his Jet-Sled, he shakes the water out of his hair; if a bubble is shot from a Flyer and catches Typhoon, he wiggles and shakes in an effort to get free, but the bubble pops and he is gone; even the movement of the Sprites in the water is true to life. These are the images that stick in your mind after you play, and most of all add to the realism *while* you play.

Of course, the lure of a game isn't just in how it looks. In *TT*, the game control—which is handled from mouse and button combinations—is top-notch too. Also, the game concept is fresh, rather than being a rehash of other arcade-like battles already on the shelves.

The year 1988 appears to be the year

of the high-quality game: *Dungeon Master*, *Oids* and now *Typhoon Thompson* have all demonstrated that when a programmer sets his mind to it, arcade quality can be achieved on a personal computer. I still recommend *DM* as the finest game on the ST, but *TT* comes close behind it.

**Recommendation:** Buy it.

### OFF SHORE WARRIOR-CONTINUED

possible, including blasting them with missiles or forcing them onto the rocks. Hmmmmmm.

Now, although you might think that as the player it is your job to bring peace back to the universe, to bring all the powers you have at your command down on the heads of these evil people who find killing more sporting than family picnics, the fact is that *you* are one of the Off Shore Warriors, and your goal is simply to wipe out your opponents and win the race.

Hmmmmmm.

Okay, so the scenario is a little flip-flopped. *Off Shore Warriors* is still okay. The action is smooth, the 3-D effect is adequate, and the scenery is nice indeed. Combine all this with a traditional racing-type game, then add the ability not only to pass your opponents but to blast them right off the "track" and you've got a playable and enjoyable piece of video entertainment. (Is there something wrong with

me that I equate "blasting your opponents off the track" with "enjoyable video entertainment"? For some reason, I winced when I wrote that. Must be my peace-loving conscience trying to convince me again that there is much too much violence in today's video games. Naw, couldn't be.)

As I said, the Off Shore Warriors drive speedboats, not cars; so obviously some changes had to be made to that aforementioned "traditional racing-type game" to make it compatible with the new scenario. But not too many changes. Instead of driving your car down a two-lane road, you're piloting your boat down a channel in a lake—said channel marked off by orange markers. If you allow your boat to slip out of the channel, you'll likely find yourself colliding with a rock.

Other than piloting your boat down a channel, nothing else in *Off Shore Warriors* (except the ability to shoot) is particularly different from the traditional racing games. The image of your boat stays at the bottom-center of the screen, while the rest of the scenery flows toward you, shifting left and right with the movement of the joystick to simulate the steering of the boat.

So if you're a fan of racing games, you'll probably get a kick out of *Off Shore Warriors*. If you've grown tired of this type of game (it has been done 100 times before, after all), then maybe you'll want to skip this one. On the other hand, you might find it great fun to blast your fellow racers



out of the water—enough fun to make up for the game's lack of originality. Does that sound like fun?

Hmmmmmm.

**Recommendation: Get a demonstration before buying.**

### SPACE HARRIER-CONTINUED

blast out of your way. The on-screen figure can be maneuvered in any direction, and he can fire on the enemy using his laser blaster, which seems to have an unlimited supply of energy.

While the sound effects are only average (the digitized voice that tells you to "get ready" for the next round is barely understandable; it took me a while to even figure out what it was saying), the graphics are truly spectacular. Once you get into the game, you be fighting as much to see what's on the next level as you will be to attain a high score.

And speaking of high scores, *Space Harrier* really racks them up for you. Scores in the millions are typical. In fact, within the first hour or so of play, you'll probably break the two-million mark. (I know. I know. Scores are only relative. Just because they crank them up faster doesn't mean you're actually getting anywhere—but, man, it sure *feels* like it.) The top seven scores are saved to the game disk, so you find yourself saying, "Oh, just one more game" as you attempt to break your own record.

Although the graphics are splendid, the animation is less than satisfactory. On the lower levels, when there is not so much happening on the screen, things move along smoothly. But when you get to Level 3 or 4, on-screen action gets very jerky. Rather than slowing down the action to compensate for the extra number of images that must be handled (not a satisfactory solution either), the images are just not updated as often. What this means is that, as they move quickly, the animated objects seem to vanish from one place and reappear in another, with no movement between. This gives the game a sluggish feel on the higher levels.

Still, I keep loading the thing up and trying to blast my way onto a higher position on the high scoreboard. If you like fast-action shoot-'em-ups, you'll probably adore *Space Harrier*. On the other hand, the game does have an unusually high price tag; so you might want to be sure the game is right for you before plunking down the cash.

**Recommendation: Get a demo before buying.**

### BLACK LAMP-CONTINUED

defeat all his enemies pretty easily with his magic bolts. But his enemies are so numerous that he can quickly become overwhelmed. Thus the use of strategy in staying out of harm's way is an important part of winning the game.

The missing lamps come in different colors and are scattered all around Allegoria. When Jack finds a lamp, he can pick it up by walking over it. It is then displayed at the top of the screen. If he walks over another lamp while he is holding one, he trades lamps. Jack must put one lamp of each color in each of the 20 storage compartments.

The black lamp is the most important. It is always guarded by a winged fire-breathing dragon. The dragon breathes fireballs at Jack with unerring accuracy and does a lot of damage quickly. Jack must hit the dragon in every part of its body with magic bolts, turning it black. Once the dragon is dead, it drops its lamp, and Jack can then safely pick it up.

When Jack recovers all the lamps, he saves the kingdom and wins his lady's hand. The game then goes on to the next level, which is faster, has more lamps generally and more black lamps guarded by dragons.

The kingdom of Allegoria is a vast and varied place. Each time you play a game, the locations of lamps, buildings and objects are different; so there is no pattern to be learned. Jack walks left, right, forward and backward through doors, gates and other openings. He climbs up and down ladders, on top of crates and other objects, and jumps through the air. You have to think in several directions at a time to get back to that blue lamp you needed or to find that storage compartment you passed two screens ago. Jack might have to climb up a ladder, jump over a gap in the floor, exit right to go to another room, then face forward at a doorway (marked by white dots) and walk outside. I've played *Black Lamp* extensively, and I'm still finding many buildings, streets and rooms I've never seen before.

While Jack is adventuring through Allegoria he is under nearly constant attack. His energy level is displayed in a bar graph at the bottom of the screen, as well as by the number of lives left (represented by baubles that look like scepters). If his energy reaches zero, he loses a life. If he loses all his lives, he disappears in flames with a surprised look on his face.

Scattered throughout Allegoria are objects that will help Jack in his adventures. Musical instruments give him a high

"bounce factor"—that is, if he jumps from a great height he won't die. If he collects five jewels, he gets a temporary shield that protects him from hits. If he collects a weapon, Jack can fire magic bolts that will dispatch any enemy with one shot. Food and drink are also to be found. They give Jack more life energy, very important to his continued progress through the adventure.

What makes *Black Lamp* really special is its outstanding graphics. The game's colorful graphic detail and animation is nearly as entertaining as playing the game itself. The hammer-carrying ugly green trolls walk along hunched over, with their long burly arms swinging. When they spot Jack they pound their hammers against the ground, shooting sparks at him. Some of the witches spit gobs of green slime at Jack (*yuck!*). The goblin warriors are archers, foot soldiers or spearmen. Each is carefully animated. The archers draw their bows to fire arrows. The heads of spears detach and rocket forward at Jack. Many times I paused the game to look more closely at the animation in action. It was truly amazing. Jack, determined as he is, skips along on his journey, undaunted by his foes. He's really comical to watch. (Why not? He *is* a court jester.)

The background scenery is also varied and sharp. Jack hops along through villages, entering buildings in his search. He may walk out into the countryside, where there are only trees and fences with inviting gates or paths. (There is occasionally a body hanging from a tree. Remember, the kingdom has been taken over by evil.) He can also enter a castle and go exploring its many labyrinthine rooms.

*Black Lamp* comes on a single-sided disk with a clear and informative instruction manual and a quick-start card that briefly tells you how to load and play the game. The manual also describes Jack's opponents, how dangerous they are and how many points you get for zapping them.

I enjoyed playing *Black Lamp*, but after a while it began to feel like many other maze and ladder games I've played, such as *Jump Man*. This type of game is not new, but *Black Lamp* does manage to far outdistance these earlier games because of the size and complexity and the variety of Jack's enemies. With its eye-popping graphics and fascinating animation, *Black Lamp* stands out as an accomplished addition to the arcade-adventure game genre.

**Recommendation: For arcade-adventure fans.**



# High-Tech Temptation

by Michael A. Banks

I recently noticed yet another of science fiction's stock concepts becoming a reality—something that seems to be happening more and more nowadays.

The concept is this: all the world's knowledge neatly packaged and ready for instant access. Tap a few keys to tell a computer what you want to know, and *voila*, the facts you need, complete with cross-references, are displayed on a screen or printed out. No bothering with library card catalogs and books. No loading a mere half-megabyte database. No dialing up an online service (science fiction heroes would never put up with "Your request has been entered; one moment please" and the ensuing ten-minute wait). And, best of all, it's accessible to the typical "person on the street" of average means and knowledge.

It's virtually on our doorsteps, folks. (Or, more properly and appropriately, on our desktops.)

In case you haven't guessed, this particular science fiction concept has manifested itself in the form of the CD ROM. And what an exciting manifestation it is. But, as with so many realizations of science fictional dreams, it is a metaphorical two-edged sword, carrying with it the potential for harm as well as for good. (But technology in general is like that. Consider dynamite.)

The two-edged nature of this metaphorical sword of information is the focus of discussion here—that, and something I've labeled the "Ultimate Temptation." But before I get into that, let's take a closer look at what's happening with CD ROMs, namely personal computers.

## Where we're at

CD ROMs have already carved out their niche in the personal computing ecology. There are few personal computers for which CD ROMs aren't made or planned. Potential CD ROM consumers, already conditioned to accept the odd-size

disks by audio CDs, are now being educated, through advertisements and articles and books, on the glories of CD ROM.

And CD ROMs *are* glorious. CD ROM access speeds leave hard disks babbling in the bit bucket, and the quantity of data that can be stored on a typical CD ROM is a staggering 660 megabytes. (You don't think that's staggering? Try these equivalents: 300,000 pages of typewritten text, or 500 or so copies of Stephen King's *The Stand* or an encyclopedia.)

Couple such awesome storage capacity with high-speed text search capability, and you have a computing tool that is rivaled only by the resources of online services such as Dialog. But it's not much of a rivalry: CD ROM access is not subject to being slowed down by packet switching networks and modems and the problems of serial data transfer. (And remember that the quantity of CD ROM data is not limited to one disk. Swapping CD ROMs is faster than moving from one database to another.) Then there's the fact that, if you make use of the data on a CD ROM with any frequency, the cost, when compared with accessing an online information service, is more than attractive.

And, to ice the cake, CD ROMs are far more durable than standard floppy or hard disks.

Of course, all this doesn't come cheap. The price of admission to the world of CD ROM is still relatively expensive—for most systems, the cost of CD ROM drives is barely below a \$1,000 suggested retail. (CD ROM drives for the ST, however, have the distinction of being the lowest in cost: The CDAR500 was introduced at a mere \$599, which is half the cost of CD ROM drives for the Apple. [Now if they'd only release the darn thing.—Ed.]

The disks themselves are priced on a "value added" basis, according to the information they contain. Want an encyclopedia at your instant on-screen beck and call? Figure on shell-



ing out \$395 for Grolier's *Electronic Encyclopedia* (the same one you find on DELPHI and other services), and additional cash for updates. (The price is actually comparable to what you'd pay for the bound books themselves, though.) The ticket for the *American Heritage Dictionary*, *Roget's Thesaurus*, *Bartlett's Familiar Quotations* and *The U.S. Zip Code Directory* on one CD ROM disk is \$295. There are some 500 specialized and general CD ROM "data products" currently available—and there will be more, many more. Even Dialog has put some of its content on CD ROM!

But don't let the prices for hardware or disks scare you. As you've probably already figured out, costs will drop as demand increases. They're already selling these things in Sears Business Centers, which implies a lot. Knowledge is power, and when the costs bottom out (give it five years) ROMs will be putting power in the hands of a lot of people.

Thus the information revolution approaches maturity.

### Where we're going

As I implied earlier, it hasn't been long since this kind of information-retrieval capability was little more than a background concept used in science fiction novels and short stories. Then, in the late 1970s, it edged into the fringes of mass reality via personal computers, modems and online information services that one of average means could afford. Certainly, network-accessible databases existed before the late 1970s, but only a privileged few could access them.

Now, total and ultimately convenient access to massive quantities of information is here, complete in form if not in content. The technology has been perfected. Hundreds of data products are available, with many more under development. Vast quantities of information are conveniently accessible by almost anyone.

The social, technological and personal implications of the widespread use of CD ROMs are interesting. What happens, for example, when heavy research and self-education become so easy that even the laziest nonreading computer freak can't resist it? As computer use increases, and CD ROM drives become as common as floppy disk drives, will the general education level of the population increase? It's likely that people who haven't cracked a book in years will become knowledge-mavens, given such easy access to information.

Will major reference books disappear from libraries as they appear in eminently accessible CD ROM format? I think that CD ROMs will become a fixture in even small-town libraries within a decade. You'll be able to access data in your library via CD ROM, and eventually you'll be able to check out an entire encyclopedia on disk.

Continuing with that thought, might books eventually disappear? CD ROM data can, after all, include graphics, and typing a few commands is far easier than searching through the pages of books. If, in 20 years or so, the price of CD ROM drives and disks are so low that CD ROM systems become as common as VCRs (and computers, of course, that trend's already established), publishers may well find the demand for books too low and the cost

too high. There's a potential for low-cost dedicated CD ROM systems, too.

Books could indeed go the way of the 45-rpm record. When CD ROM systems are generally and inexpensively available, we might see all the really important works published only in CD ROM-form, with shorter works (fiction, mainly) published in book-form. And imagine the trend going full circle, to where owning bound, hardcopy books is a status symbol, with all the expense that implies.

But what happens to those who don't have access to information in this new format because of lack of finances or lack of knowledge, or both? Will a kind of "knowledge minority" develop? Will such a minority demand and receive compensatory aid?

On another front, we'll probably see all sorts of CD ROM-based businesses popping up overnight. Coin-operated CD ROM libraries. Cottage-industry researchers armed with scores of specialized CD ROM data products, benefiting from the lack of computer sophistication (or economic feasibility) on the part of the vast majority of the business community. That particular market is already being tapped by people with modems, by the way.

Or will cheaper CD ROM drives and disks make knowledge so accessible that the paid researcher virtually disappears?

### The "Ultimate Temptation"

Okay, so I've given you a few negatives and a few positives here, and I'm sure that your imagination has been fired to the point where you're ready to buy a CD ROM drive—at least as soon as the cost drops to meet your budget. Now for what to me is the major point of this article: the "Ultimate Temptation."

In a word, the ultimate temptation is plagiarism. No, I'm not talking about copying expensive reference works from CD ROM, although this is certain to come up, thanks to the new THOR technology, and to the fact that the data on a CD ROM can, in one way or another be copied to conventional disks.

The ultimate temptation is using textual data from reference works on CD ROMs in documents and representing it as one's own work. And, between CD ROM search-and-retrieval software and word processing programs, it can be done.

*Big deal, you're thinking, so what if a few kids copy part of an article from a CD ROM encyclopedia into a report? Is that such a crime? Kids have been copying passages from encyclopedia articles for years.*

Well, actually, yes—it is a crime, with the major victim being the person who does the copying, since he/she ends up benefiting less from not writing the report. The kid does not learn.

But it's worse than that, because a lot of professional writers are and will be using CD ROMs.

Right. Imagine you're a writer with an assignment to write an article about the history of computers. The article is due to be E-mailed to your editor this afternoon—in two hours, to be exact. For whatever reasons, you are just now getting around to writing the article.





A CD ROM storage case sits in front of you. In it are disks that contain every reference you could possibly need. Nice. You write the intro, then pop a CD ROM encyclopedia disk in the drive, and do a quick search for articles on the history of computing.

It suddenly hits you that you can't possibly do the article in the time available, and everything you need is right in front of you. And you have to get that piece in.

As Karl Malden says in the American Express commercials, "What will you do? What *will* you do?"

The easy way out is to lift the encyclopedia article. And for all too many, it'll be a direct lift—don't even file off the serial numbers and streamline it. Just drop the entire article into the word processor file, reformat it, write a summary, save it and E-mail it under your byline.

Thus you crank out a 4,000-word article in 15 minutes. Nice work if you can get it. And it's work that I fear all too many writers and would-be writers are going to be "getting." It's easy to see how a writer could plagiarize under the pressure of time. And it's equally easy to see how a neophyte writer would be tempted to "borrow" a little professional text to bolster his undeveloped talents.

And, yes, it is being done now. Plagiarism is an old and dishonored practice, one that's existed since writing has existed. There are endless well-documented instances of writers with quill pens or typewriters, copying work from existing books and magazines. More recently, it's become far easier to do; dial up an online service, access a magazine's contents, an encyclopedia or a newsletter, and you can easily find an article or an entire book chapter that might be lifted.

Fortunately, a minority of writers have access to online services. CD ROMs are, if you'll pardon the expression, another story. They're easier to use than online services, and they are going to be less costly. This means that more information will be available to more writers in a "liftable" format. And, interestingly enough, there are a lot of writers who have, with justification, chosen the ST as the base for their word-processing hardware. And don't forget that the lowest-cost CD ROM drive is made for the ST.

Naturally, I'm concerned: I make my living as a writer, and I don't want my work used in any manner without compensation. At the same time, I find myself more than a little disturbed that someone might get away with such a rip-off, and

not just because of principles. I possess such hardihood that I would spend the time and effort to write an original piece, and it would gall me to see someone get equal credit (and cash) for taking the easy route. Especially someone who can't write.

Of course, if you're not a writer this doesn't affect you—or does it? What if the majority of writers took to merging already published material into their works? In a worst case scenario, such writers might end up with a hold on the majority of the market, thus driving legitimate writers out of the business. And, a couple years on, you, the reader, would find nothing out there but rip-offs and rehashes to read.

That's extreme, but it's worth considering.

Of course, all writing is derivative to a certain extent, especially nonfiction writing, which is the kind of writing where the ultimate temptation comes into play. All writers depend on printed work for research, and even quotes. And, as my friend Vernor Vinge says, "The lines between simple note taking and quoting and outright plagiarism are very blurred and gray." While we probably won't see the extreme case cited two paragraphs back, I think we're going to see a lot of unoriginal writing on the part of writers as CD ROMs move onto the desktops of writers and students.

This implies a lot of unoriginal thinking pipelined through certain media from which most of us currently derive our information.

This in turn implies a certain kind of society.

Call it a "Frankenstein Complex," or the information revolution backfiring. Call it what you will, but it's a very real possibility. I hope editors pick up on it soon.

CD ROM offers more potential than you and I together can imagine. What I've laid out here is merely the tip of the implied informational iceberg, but I hope it's started you thinking about potential for both the good and the bad that CD ROMs offer.

We're in for interesting times—perhaps even a renaissance, if we can avoid certain temptations. But technology in general is like that. Again, consider dynamite. ■

*In addition to having published science fiction novels and books on rocketry, Michael A. Banks is the author of DELPHI: The Official Guide and The Modern Reference—both from Brady Books/Simon & Schuster.*

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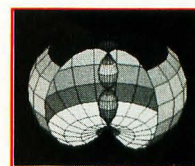
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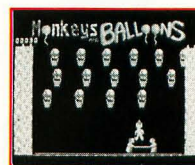
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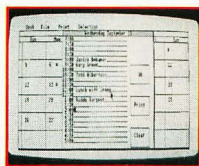
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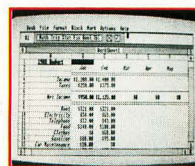
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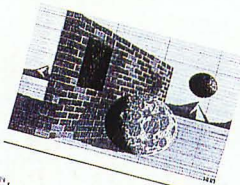


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The question of whether we know anything as fact constantly plagues my mind. Albert Einstein argued that nothing was really "true", but that a hypothesis is only correct in its logical interaction with those assumptions called *axioms*. For example, Euclidean geometry is based on the assumption that there exists a concept of a point, and that any line can be expressed uniquely by two points. General Theory of Relativity takes the "world line" as its basic assumption to explain the physics of large masses and velocities. In searching for a more general theory to explain diverse facets of the physics of the universe, it seems logical to question the basic assumptions of relativity. The purpose of this paper is to give an overview of the different work to find this new foundation. When considering such theories, we must be careful not to judge too quickly that which currently seems irrational, for as Einstein once said:

*"Great spirits often encounter violent opposition from mediocre minds."*

## KNOT THEORY

Knot theory is an interesting concept as it presents a mathematical method to represent naturally occurring structures, so they can be studied systematically. More intriguing is the ability to identify seemingly distinct knots as transformations of each other. This process may provide a fundamental structure (and the math to study it) for which we can base our assumptions for the physics of the universe. The following Jones polynomial<sup>2</sup> is used to



Figure 1.

classify the four-noded knot in figure 1<sup>3</sup>.

$$t^{-2} + t^{-1} + 1 + t + t^2$$

By performing a mathematical transformation on the polynomial, we can determine a particular knot's uniqueness. Unfortunately, the process of classification is not yet exact, with some approximations yielding the same polynomial for distinct knots.

<sup>1</sup> A knot is assumed to be a closed loop, so that any free ends are joined.  
<sup>2</sup> Jones, V. F. R. (1985). *Bull. A. M. S.* 12, 103-111.

<sup>3</sup> White, J. & Millett, K. & Cozzarelli, N. (1987). *J. Math. Biol.* 197, 585-603.

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