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START
#1 GUIDE TO THE ATARI ST
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Volume 3, Number 6
January 1989
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ATARI ST SOFTWARE EDITOR'S CHOICE
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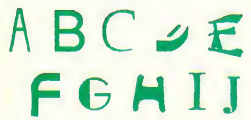

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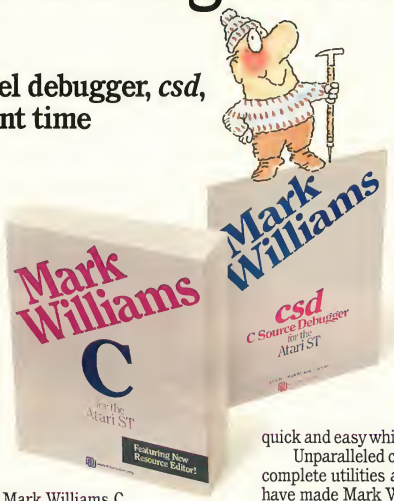

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#1 GUIDE TO THE ATARI ST

START®

JANUARY 1989 VOLUME 3, NUMBER 6

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START #1 GUIDE TO THE ATARI ST

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Editorial

At START, we're determined to bring you the latest news, the best products and the most useful programs, whatever the source. This month you'll find our first **European Report** in this issue, written by Andre Willey, Technical Editor of ST User in England. This will be a continuing column that we hope will provide you with insights into Atari developments in Europe that you'll find nowhere else.

Have you ever wanted to buy a program, but just couldn't find the money? Well, we understand. That's one of the reasons we publish a magazine with a disk—to provide you with the best software available at a reasonable price. When Gordon Monnier, President of MichTron, Inc., made **GFA BASIC 2.0** available to us, we leaped at the chance to bring you a genuine commercial program on your START disk. (We also are offering MichTron's manual by mail or telephone order at a ridiculously low price. See page 31 for details.)

And now, the news:

Neil Harris, Atari's spokesman for years, tendered his resignation in late September and will be involved with marketing at GEnie. We wish Neil all the best. There was more comment in his "No comment!" than in anyone else's at Atari! (Look for **ST: 1999**, Neil's thought-provoking article on the future of the ST in the next issue of START.)

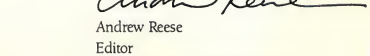
We have mixed emotions about another change. **Jon Bell**, START's Associate Editor, has resigned to become the Managing Editor at Oracle, a multi-million dollar software publisher. Jon has been a part of the Atari world for years, both at Antic Publishing and before that at A.N.A.L.O.G. We want to congratulate Jon for his well-deserved success, but we'll certainly miss him. Jon still has his ST at home, however, and has written an excellent multi-part series on Special Graphics Effects for The Cyber Corner to begin next month.

And still another sad leaving. **ST Applications**, published by Bill Petry, has ceased publication with the September issue. Bill has been a good friend dating back to the 8-bit days and we certainly hope his next venture is a success. But in every loss, there is gain and in this case, the gain is yours. Several of the authors from ST Applications will be published in future issues of START as we further broaden our ST coverage.

Our main feature this issue is **Editor's Choice**. Fifteen of START's Editors, Contributing Editors and contributors present their opinions of the best software in a wide range of applications, from games to programming tools. When we started the project, we thought that we might find one or two programs that were universally used. But we were surprised by the diversity of the results—computer users seem to be as opinionated as economists! (You know the old joke about laying all the economists in the world end-to-end? No two point in the same direction.) We hope you'll enjoy reading it as much as we enjoyed writing it.

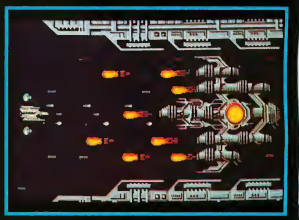
Oh, by the way, have you been missing the **Reader Service Numbers** from the bottoms of the ads? To make it more convenient for you, we've moved them all to the Advertiser's Index at the back of the magazine.

We've filled this issue with our usual collection of great programs, columns and reviews. I'd tell you all about them, but we're out of space. We hope you enjoy this issue and may the best of the holiday seasons be yours.



Andrew Reese
Editor
START, The #1 Guide to the Atari ST

MENACE



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Now an end must be put to their reign of terror. A large scale attack will prove too costly to our space fleets. Draconia has many orbiting defence systems, the sacrifice may be in thousands of lives. A single fighter craft, approaching undetected, may have a chance to avenge those who have perished, by destroying Draconia. You have that chance . . .

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Letters From Our Readers

Forty Folders Fatal?

First let me say thank you for all the support you give to ST users. I have been buying START off the newsstand for some time now, and so far I've found at least one item per issue that has been a great help to me. I am now a subscriber, so please continue the good work. And by the way, I love the look of the October 1988 issue!

I do have some questions for you. Recently I experienced a near-fatal 40-folder crash. I had no idea that I might access that many folders in a session. Is there a desktop accessory that can count folders or alarm you when you get to number 39? How would I get the necessary TOS info to write an ACC? Are there alternate Desktops that have corrected this problem? I've seen a program called NeoDesk from Gribnif Software in Massachusetts that seems to work. Do you know if it's reliable? And is a 40-folder crash potentially fatal to my computer system?

Note to any ST users in the South: everyone here in the eastern part of North Carolina either speaks IBM or Apple and looks askance at the mention of Atari (I smile knowing that my machine can run circles around theirs). I'd truly appreciate hearing from anyone in this area who uses STs or Megas—it's kind of lonely out here.

John Campbell Finnegan
Greenville, NC

According to the manual, NeoDesk does not purport to change the infamous "40-folder limit," however, Atari has released a fix for this problem: FOLDRXXX.PRG, which is in the public domain. You can obtain a copy from a users group, online service or bulletin board; also, check for ads in START for companies that sell disks of public domain software. To use this program, replace the XXX in the file name with the maximum number of folders you think you will use in a session (e.g. FOLDR100.PRG). Put the program in the AUTO folder of your boot disk, and at boot time it will tell you how much memory it has reserved for additional folders.

We were able to locate several Atari users groups in North Carolina; the one closest to you is the Triangle Computer Club in Carrboro. You can get information about meeting times from Russell Gregory at (919) 782-8122.—START Editor.

Where's the Speed?

I have one of the older model 520ST computers with an external drive and TOS in ROM. Until the current issue of START, my only exposure to alternate floppy disk formats was the explanation given in the well-written DBASIC handbook. I remember saying to myself, "Why wasn't this idea of skewed sectors incorporated into the ST?" Recent articles on the Mega ROMs claimed a change in the formatting method—skewed sectors that claimed to almost double the disk read rate.

Now my question: Does Twister achieve its increase in speed in a different way than by skewing sectors? Is it also skewing sectors (which would make your program unnecessary for Megas) or does its format actually improve speed over the Megas? I wish the article had gone into more detail about how to achieve the speed increase.

One more thing I hope you can clear up for me. I used Twister to format my ST BASIC disk, which my kids and I use a lot. However, there seemed to be no increase in speed either loading ST BASIC itself or files under BASIC. Also, why does a computer that can load a 150K file (ST BASIC) in approximately 16 seconds take the same time to load a 6-8K BASIC file. What happened to the speed?

Charles Sabbiondo
College Point, NY

Twister formats disks in a manner similar to Megas, except that Twister adds one sector per track, which increases storage by 40K per disk side. There is no speed difference between Mega and Twister formatted disks.

The reason you're not seeing an increase in speed in ST BASIC is that the program itself takes a long time to load programs. It is probably doing some internal translation of the BASIC file as it goes along; this is separate from the amount of time it takes the drive to physically send the data.—START Editor.

Thanks, Thanks and Thanks Again

Well done and thank you! Antic Publishing is providing one of the most useful magazines I have ever subscribed to. I recently found enough time to read most of the articles and look at the software programs from the past four issues. I am impressed, particularly with Discovery, Vocabularian and Microscope. I have two children in junior high school for whom ▶

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VideoKey has some other nice features. It automatically powers on when your computer is on and in color mode - meaning no power switch for you to turn on and off! It boasts our exclusive Colorloc circuitry that prevents colors from "fluttering" or "floating" across the screen.

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VideoKey was optimized for low resolution use since nearly all games, graphic and animation software is for low resolution. Use with 80-column text is not recommended.

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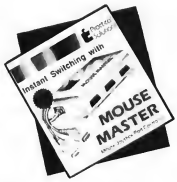

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Dialog Box

these programs will be of tremendous value.

I have found many other useful articles in START written by individuals who obviously understand that not all of us are highly computer literate. I have owned my 1040ST for over a year, but I have very little time to sit down and understand everything it can do for me and my family. But START has gone a long way in aiding me in that process and the cost of the subscription is worth every penny. Thanks again for an outstanding publication.

Robert D. Phipps
Fort Devens, MA

Another Cheer for Discovery

Please accept my thanks for your "World Discovery" program recently published in Special Issue Number Four. In my opinion, it is one of the finest educational programs I've ever seen in terms of accomplishing what it sets out to do in a colorful and entertaining manner.

I look forward to related additions to this wonderful program that builds geography skills.

I also look forward to the START monthly issues coming my way, via subscription. Much success to you!

Les Reynolds
Nashville, TN

If you haven't already, check out our December 1988 issue which has more Discovery files plus a construction set so you can build your own.—START Editor.

Electronic Courseware Systems Responds

We appreciate your editorial staff's willingness to review instructional materials for the Atari ST. (Editor's note: *Jim Pierson-Perry's review of ECS's products appeared in the October 1988 issue of START.*) Unfortunately, the reviewer of our software has little knowledge of the instructional field or the purpose of software which has been published by our company. We have a very strong customer group allied to the publications developed by authors of programs which we publish. The programs which we accept for publication have been tested for a minimum of one year with students, thus validating the educational value of the products.

I do understand that professional musicians have a different view of the capabilities of hardware and a different level of expectation about the sophistication of software. A program, for instance, written for a pre-school child would have little stimulating interest for a professional musician.

Still, I hope that your readers will respond in a favorable way to the article which you have published.

G. David Peters, President
Electronic Courseware Systems, Inc.
Champaign, IL

Jim Pierson-Perry responds that he did not write the ECS review from the perspective of a professional musician, but from one who was interested in using an ST to learn music theory or piano keyboarding. He stands by his original assertion that although the ideas for the programs were sound, the implementation was "abysmal," especially for younger children. His four daughters (aged 3 through 9) became bored with the programs because of the repetition. Also, of the 16 programs in the set, five were essentially the same (although the company's product information doesn't tell you that).

The programs seemed to have been ported quickly with a teaching class in mind and did not seem appropriate for home use. Other than explaining how to boot the programs, there was no instructional material included. Some of the programs did have a good combination of MIDI input and visuals, but certain aspects of the programs' Apple II ancestry were cumbersome. For example, you must reset the computer to exit the programs and they don't take advantage of GEM or any of the ST's other special features.—START Editor. ■

Dialog Box
START
544 Second Street
San Francisco, CA 94107

Alert Box

Mea Culpa, Mea Culpa

Folks, we really *do* know that Lotus 1-2-3 is not published by Microsoft, as implied in the November 1988 Online with START column. This just proves that five professional computer journalists can read the same column at least twice each and still miss an obvious blunder. This is **definitely** not a perfect world.

Save $100

Also in the November 1988 Online with START column, we reported a price of $249.95 for VIP Professional. Nathan Potechin, President of ISD Marketing, was quick to point out that the correct price is only $149.95. Apologies are in order. ■

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News, Notes & Quotes

What's Happening in the Atari World

by Stephen Mortimer

Atari CD-ROM Near Release

The long-awaited $599 Atari CDAR504 CD-ROM player has entered the United States in its final production form and at press time is waiting for FCC certification and more software support. The player can store 540 megabytes and read almost any compact disk format, including High Sierra, GEMDOS and ISO High Sierra extension. It will also allow you to add other CD formats via software drivers. Potentially, you'll be able to read a CD from the Apple CD-ROM under the Magic Sac or Spectre 128 Mac emulators, with the correct software.

Atari's CD-ROM.

Software support for the player is promising. Software Mart has finished a multilingual visual dictionary that takes advantage of the ST's sound and video. Hybrid Arts is developing MIDI software for the player. Companies in West Germany are reportedly using the GEMDOS format to place programs on compact disks. Microsoft and Atari are discussing the possibility of porting the Microsoft Bookshelf retrieval program to the ST. And Grolier's Encyclopedia will probably be available for the player as well.

The CDAR504 features a remote control that detaches from the main unit and allows for play, pause, stop, reverse and forward scan of standard audio compact disks. You can access track programming, music search, left/right channels and all the features on the remote control through a desk accessory. A special adaptor lets you play three-inch CD singles, and the player has a headphone jack with volume control and stereo connectors.

According to Mike Schmal, Atari's Director of CD-ROM Technology, Atari is "looking at spreading the ST as a total retrieval package in a high-resolution graphic atmosphere. For $1,200, the Atari CD-ROM system (based on a monochrome 520ST) is going to cost as much as the competitor's player alone." He expects to see the CDAR504 on the U.S. market by December.

Seybold a Success

The third annual Seybold Desktop Publishing Exposition was held at the Santa Clara (California) Convention Center from September 14-17. Over 12,000 people attended the three-day conference to view products of more than 150 exhibitors.

Atari was present with a small but formidable force. Though it had nothing new to unveil, it did make its booth available to all companies either introducing or demonstrating DTP products for Atari computers. Some highlights:

- St. Louis-based **Soft-Logik Publishing Corporation** demonstrated its Publishing Partner Professional. Soft-Logik's long-awaited DTP software should now be available in its final form. Soft-Logik, 11131 South Towne Square, Suite F, St. Louis, MO 63123, (314) 894-3280.
- **Moniterm**, makers of the large Viking 2400 high-resolution monitors for the ST, unveiled a board adaptor for the Mega (reviewed in December 1988 issue of START). Moniterm, 5740 Green Circle Drive, Minnetonka, MN 55343, (612) 935-4151.
- **Migraph** introduced a number of graphics software packages: ScanArt ($49.95), Drawart ($69.95) and Touchup ($TBA). Touchup and Easy Draw have now been modified to run on Moniterm monitors. Migraph, 720 S. 333rd, Suite 201, Federal Way, WA 98003, (800) 223-3729.
- **ISD Marketing, Inc.**, demonstrated Calamus ($299.95) and Calamus Plus ($449.95) DTP software. ISD, 2651 John Street, Unit 3, Markham, Ontario, Canada L3R 2W5, (416) 479-1880.
- **Navarone Industries** showed its ST Scan Image Scanner (flatbed, $1,779; sheetfed, $1,239). This scanner allows you to capture any image with resolutions of up to 300 dots-per-inch and with 32 shades of grey. Navarone Industries, 454 Kenneth Avenue, Campbell, CA 95008, (408) 378-8177.

News, Notes & Quotes

Atari Sues Over Federated

In September 1988, Atari Corp. filed a lawsuit in federal court in San Jose, California charging that former officers of the Federated Group, along with auditors Ernst & Whinney and investment banker Goldman Sachs, intentionally misled Atari into overpaying for the electronics retailing firm, causing damages of at least $43 million. Federated continues to depress Atari's earnings, despite efforts to cut costs and close unprofitable stores.

In August 1987, Atari purchased all 10.8 million shares of Federated for $67 million, or $6.20 per share. This added significant shelf space for Atari's products in the southern and southwestern United States, where Federated operated 65 stores. Currently, portions of certain Federated stores are being transformed into complete Atari Business Centers. The first such center appeared in the Los Angeles area this past summer, offering the complete line of Atari products and a wide range of software.

Dot Dot Dot. . .

Rumors continue to persist that **Atari** is interested in purchasing a manufacturing facility in Houston. An Atari executive said that Atari will "continue to pursue any manufacturing opportunities in the United States," which would supplement the plant in Taiwan. . . **Activision** has changed its name to **Mediagenic**. The company publishes software under the Activision and **Infocom** brand names, while marketing software for the following firms that publish Atari software: Sierra On-Line, Lucasfilm Games, Rainbird Software, Interplay Productions and Access Software. . . A judge has delayed the **Apple Computer** suit against Microsoft and Hewlett-Packard until August 14, 1989. The delay is expected to hurt sales and development of windowing environments for IBM systems. . . The **ST Xformer II** 8-bit Atari emulator has a companion product that lets you connect an Atari 8-bit disk drive directly to your ST, permitting copy-protected software to be run from the emulator. Contact Darek Mihocka for more information at 310-D Bluevale Street North, Waterloo, Ontario N2J 4G3, Canada. ■

Stephen Mortimer is a high school junior and a member of the National Honor Society.

If you have a hot tip or interesting product news for the ST, we'd like to hear from you. Let us know at **News, Notes & Quotes, START, 544 Second Street, San Francisco, 94107.**

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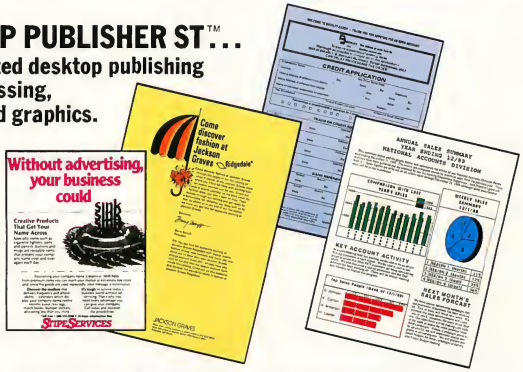

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• **Built-In Fonts:** Chose from thousands of possible type-style combinations! Opt for bold, italic, underlined, outlined, light, and superscript or subscript characters. Type sizes range from 7 to 96 point.

• **Premium Quality Printouts:** PUBLISHER ST uses a special high density printout format to give you superior quality printouts on your dot matrix or laser printer.

• **Built-In Word Processor:** All the features necessary for everyday word processing, plus most of the sophisticated features found in complete word processing programs.

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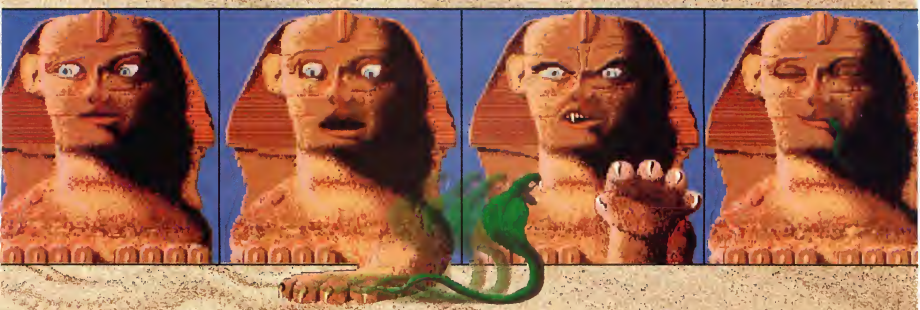

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Art & Film Director can be found at fine stores everywhere. You can also charge it by phone (Visa or Mastercard): (408) 848-3042, Operator #12. Or send your check or money order for $79.95 (tax included) + $5 (shipping and handling) to: EPYX, INC., Dept. #12, 2995 Woodside Rd., Ste. 400-383, Woodside, CA 94062. (Specify name of software product you wish to order and computer type—Apple IIGS or Atari ST.) Please allow 4-6 weeks for delivery. Sorry, no international orders.

Reads artwork from DEGAS™ Elite, Deluxe Paint,™ NEOchrome,™ Paintworks Gold,™ and Paintworks Plus.™

768K memory required for use with Apple IIGS.

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EPYX®

Products Update

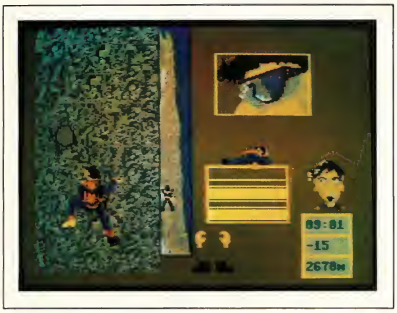
New ST Software and Hardware

compiled by Tom Byron,
START Assistant Editor

Final Assault

Climb every mountain with **Final Assault**, the newest addition to Epyx's popular Sports line. As you scale the world's most treacherous peaks, you learn the terminology and techniques of this often dangerous sport. With design input from renowned mountain climber Eric Escoffier, Final Assault pits "mountaineers" against the ever-present hazards of Europe's Alps. You must conquer snowy slopes and deadly glaciers in order to plant your flag at the summit of an Alpine giant. Final Assault, $49.95. **Epyx, Inc., 600 Galveston Drive, P.O. Box 8020, Redwood City, CA 94063, (415) 368-3200.**

CIRCLE 165 ON READER SERVICE CARD



Experience the fun and adventure of scaling the world's most treacherous peaks with Final Assault from Epyx.

CADD Level 1

Generic Software's **CADD Level 1** is significantly faster than its predecessor, First-CADD. The speed increase also applies to the program's built-in DotPlot printer interface, which lets you print with over 100 brands of dot matrix and laser printers.

Text commands in CADD Level 1 have been completely rewritten for the ST. New commands include Aspect, Slant, Insert, Delete and Replace. The program runs on all versions of the ST and a hard drive is recommended. CADD Level 1, $49.95. **Generic Software, Inc., 11911 North Creek Parkway South, Bothell, WA 98011, (800) 228-3601.**

CIRCLE 164 ON READER SERVICE CARD

DrawArt Professional ScanArt Touch-Up

Add effective, eye-catching graphics to all your publishing projects with one of two graphics collections from Migraph. **DrawArt Professional** contains over 150 illustrations in a variety of themes such as office, sports, transportation and more. **ScanArt** contains over 100 llustrations. DrawArt graphics are saved in GEM format while ScanArt graphics use standard compressed .IMG format.

Touch-Up is a new comprehensive image-design tool for producing high-resolution bit-mapped graphics on the ST. It combines a wide range of drawing tools with special effects, outline font technology and screen editing functions and makes them accessible to all levels of users. It will also run on Moniterm's large Viking 2400 monitors.

Migraph also announced recently that EZ-Draw with Supercharger has been modified to use the Moniterm monitors. Contact Migraph for update policies. DrawArt Professional, $69.95; ScanArt, $49.95, Touch-Up (price not available). **Migraph, Inc., 720 South 333rd, Suite 201, Federal Way, WA 98003, (800) 223-3729.**

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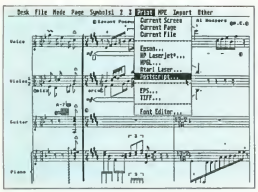
Products Update

Copyist DTP Tunesmith

Two new music programs are now available from Dr. T's.

Copyist DTP is a desktop music publishing, score editing and transcription program that supports both mouse and keyboard input. The program features a complete set of musical symbols and lets you create your own. An extensive manual includes easy-to-follow tutorials and a comprehensive index.

Tunesmith, a second-generation version of Phrase (the program made famous by Jan Hammer), is an algorithmic composition program that supports up to six voices of MIDI output and is completely controllable in real-time. The output from Tunesmith is recorded continuously in a form suitable for use on any sequencer that supports the MIDI file format.



Copyist, from Dr. T's software, is a desktop music publishing, score editing and tronscription program. It provides a complete set of musical symbols and even lets you create your own.

Copyist DTP, Tunesmith, $399, $149. **Dr. T's Music Software, 220 Boylston Street, Chestnut Hill, MA 02167, (617) 244-6954.**

CIRCLE 156 ON READER SERVICE CARD

Better Dead Than Alien, from Discovery Software is on ST version of Space Invaders with o bit more humor ond o lot better grophics than the old 8-bit cortridge.

Better Dead Than Alien

In **Better Dead Than Alien**, a comical, fast-paced arcade game from Discovery Software, you're the galactic hero Brad Zoom and your mission is to battle wave after wave of aliens slithering and crawling down the screen. Some aliens are easily destroyed, while others are deadly. By shooting aliens with glowing green eyes, you can win extra combat powers and, the ability to move around the entire battle screen during Master Alien Waves.

Better Dead Than Alien is reminiscent of the classic Atari game Space Invaders and will provide hours of alien-blasting fun. A color monitor is required. Better Dead Than Alien, $34.95. **Electra Software, Imported by Discovery Software, 163 Conduit Street, Annapolis, MD 21401, (301) 268-9877.**

CIRCLE 168 ON READER SERVICE CARD

ST Scan Image Scanner

Navarone's new **ST Scan Image Scanner** can transfer your line art, photographs, logos and other graphics to your computer. You can capture any image with a resolution up to 300 dots per inch and with 32 shades of gray. ST Scan allows scanning in both line art and halftone mode.

The GEM-based ST Scan features easy-to-use click-on menus and takes only 15 seconds to scan an image. Once the image is digitized, you can use graphics programs like DEGAS Elite and EZ-Draw to edit and crop it. The ST Scan package includes a Canon Scanner, high-speed interface, cable, software and manual. ST Scan Image Scanner, $1,779 (flatbed); $1,239 (sheet fed). **Navarone Industries, Inc., 454 Kenneth Ave., Campbell, CA 95008, (408) 378-8177.**

CIRCLE 166 ON READER SERVICE CARD

Do you have a new ST product? If so, we'd like to hear about it. Please send your press releases and product photos to **Product Update,** *START, 544 Second Street, San Francisco, CA 94107*

EDITOR'S CHOICE

by START's Editors and Contributors

Did you know that there are more than 2,300 software packages available for the ST? That's a lot of software, more than one person could ever use, or even evaluate. If you're looking for software of a particular type, what can you do? You can try out as many as possible, ask your friends and associates for their opinions and read software reviews in magazines you trust.

We at START try our best to present solid, unbiased reviews of new and noteworthy software to help guide you in your decisions. But we, the Editors and frequent contributors to START, also make our own personal decisions about software, not just whether to review it, but also whether to make it a part of our personal libraries. And that's what Editor's Choice is about.

We have the luxury of being able to use almost any piece of software from all that's available. For a program to become part of our own libraries, there must be something special about it. Maybe it's just that it's familiar and reliable. Maybe it does so many things so well that we're willing to put up with its idiosyncracies. And maybe it's truly spectacular, a real advance in software design.

We've listed many of our personal favorites here. If none of us has mentioned your favorite programs, please understand that we're not saying they are bad programs or unworthy of mention. But if we have left out a program you feel should have been included, write and tell us. Who knows? Maybe we'll publish your letter in *Reader's Choice*.

Because of space limitations, we were forced to narrow the categories to those familiar to most of START's readers. The categories we've included are programming languages and tools, word processing and desktop publishing, telecommunications, database managers, graphics and animation, games and entertainment, utilities, MIDI and Music, and spreadsheets.

The Players

Fifteen of us, all devoted ST users, participated in this survey. Not all of us use every category of software listed, but someone in the group does—and has an opinion about it. Here are the participants:

- **Andrew Reese**, Editor.
- **Jon A. Bell**, former Associate Editor.
- **Heidi Brumbaugh**, Programs Editor.
- **Gregg Pearlman**, Assistant Editor.
- **Tom Byron**, Assistant Editor.
- **Tom Hudson**, Contributing Editor and author of DEGAS Elite, CAD-3D 2.0, Cyber Control, Cyber Sculpt, Cyber VCR, and Creation!.
- **Stephen Mortimer**, Contributing Editor and author of our News, Notes & Quotes column.
- **Jim Pierson-Perry**, Contributing Editor and author of our ST/MIDI Connection column.
- **David Plotkin**, Contributing Editor, author of numerous software manuals and articles and author of our Mac & PC on the ST column.
- **David Small**, Contributing Editor, creator of Magic Sac, Spectre 128 and Twister and author of our Small Tools column.
- **Rick Davies**, Contributor and former Editor of Music Technology magazine.
- **Jim Kent**, Contributor and author of Aegis Animator ST, Cyber Paint and START's Audio-Video Sequencer.
- **Jamie Krutz**, Contributor and frequent reviewer of MIDI software.
- **Alex Leavens**, Contributor and author of CardSTak and Wombats II.
- **Jan Moorhead**, Contributor and frequent reviewer of MIDI software.

Unfortunately, we couldn't reach everyone we wanted to include in this survey. For their omission, we apologize. And now to work!

Ever wonder what software the editors of START use in their day-to-day work? What software they fire up on their STs when they relax at home? Well, here's your chance to find out. Join us as we pick our favorite ST programs—some from software houses, some from the public domain and some from START, the most popular ST magazine in the country!

PROGRAMMING LANGUAGES AND TOOLS

Andrew Reese, Editor

Reese: I don't do much programming any more, although Cyber Control bears more than a sneaking resemblance to BASIC. I'm just a basic BASIC programmer with more ambition than time to program.

Brumbaugh: GFA BASIC ver. 2.0 is my programming language of choice; it's structured enough for my needs and at times you really can't beat the instant feedback of an interpreted language.

Pierson-Perry: I use GFA BASIC for almost every programming project that would take less than three days. The only thing I do with Personal Pascal that I can't do with GFA is desk accessories. If you have Personal Pascal, you *have* to get Tacklebox from SRM enterprises. It has hundreds pages of docs on Atari hardware, ST hardware, GEM and how to use them all through Pascal—similar to what you get with Atari Developers Kit, but much better.

Plotkin: My favorite programming language is GFA BASIC, followed closely by Personal Pascal from OSS/ICD. Both are fast and handle GEM very efficiently.

Mortimer: For short programs, I use GFA BASIC.

Hudson: I use Alcyon C from the Atari's developer's kit—their assembler (MADMAC) and linker (ALM) are useful, worthwhile and fast. Atari's Resource Construction Set ver. 2.0 is also part of my development tools.

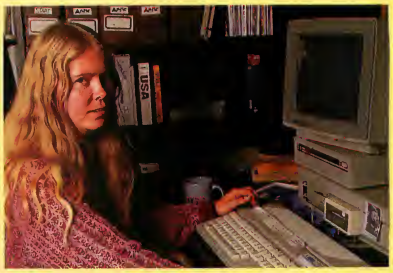
Small: I still use Micro Emacs for development and the AS68 assembler because, unlike MADMAC, I already know all of its bugs. Alcyon is like a comfortable old jalopy; I hate to turn it in.

Kent: For programming, I use Aztec C (unless it's pure assembler code, in which case I prefer the HiSoft assembler, DevpacST). Aztec C is a pretty good compiler and includes the fastest linker around before Laser C. Also, unlike Megamax, Aztec has a separate assembler. For debugging, the Templemon debugger is best—I don't use it much, but when I do I'm glad it's there. My development tools include Beckemeyer's C Shell and Disk Cacher. For text editing, it's Manx's C, the best vi clone I've seen for the ST. (Also, when I first bought my ST, I used Atari Logo quite a bit.)

Leavens: For development I use Mark Williams C and C Source Debugger because it's a professional, solid product made by a solid company. I use Atari's MADMAC assembler and, for dialog boxes, it's the Professional Icon Editor combined with Atari's Resource Construction Set, version 2.1. I could not live without Beckemeyer's C Shell, Make and Tools. My text editor for programming is Micro Emacs version 3.9 1/4, which is in the public domain.

WORD PROCESSING AND DESKTOP

Reese: I use different word processors for different jobs. For fast text entry at work (or long documentation), I use ST Writer Elite, but for screenplays and specialized writing I use WordPerfect. It does everything I want and more. If only it weren't so slow! For Desktop Publishing, I've used Publishing Partner and Easy-Draw with Supercharger. Both have their good points, but for ease of use, simple installation and enough power to do all of my DTP, Timeworks Desktop Publisher ST is my choice.



Heidi Brumbaugh, Programs Editor

Bell: For my work at START and my creative writing at home, I find ST Writer 2.3 perfectly adequate for my needs. It's not WYSIWYG and most of its commands are non-mnemonic, but it's easy to use and it's *fast*—you can't out-type it. The only time I've ever slowed it down was when I worked with a 45,000 word novella as a single file on disk.

Brumbaugh: For word processing my standby workhorse is Word Writer ST. It gives me a word count, lets me open up to four windows at once and save files in ASCII with a minimum of effort. I don't like ST Writer because of its non-intuitive interface; the block commands and control combinations for setting margins and italics and boldface are simply annoying; I'm constantly referring to cheat sheets for these. Also, you can only work on one file at a time, and to get an ASCII file you have to reset all the margins and print the file to disk. For vanilla text editing, I'm happiest with the GEM version of the shareware program SEDT. This has a built-in command structure that lets your redefine keys; it uses the keypad for editing and lets you open up to four files at once.

Pearlman: I do my main word processing work with ST Writer Elite, which, though it's a little unwieldy, does everything I need and fast. I also use WordPerfect for word counts and sometimes even for its thesaurus.

Byron: For word processing I go with ST Writer. Since my editor uses it, I figure I might as well too. I've worked with Word Writer ST before but I simply don't have any use for all the WYSIWYG functions it provides. ST Writer does what I need it to do—no more, no less.

Pierson-Perry: ST Writer is fast and gets the job done, but we'll see how I feel about it after I evaluate WordUp from NEOCEPT. For Desktop Publishing, I use Publishing Partner for its ease of use and power. Also, I prefer the way

TELECOMMUNICATIONS

Reese: Like many others, I bought Flash because it was cheap and seemed to do the job. Now I use it because I've learned most of its ins and outs and with Shadow, I can now download in the background. I still want to take a look at ST-Talk Professional and Interlink ST, however.

Pearlman: Flash is really all I've used. I recently installed Shadow on my hard disk, and I like it very much, but it seems to be temperamental.

Pierson-Perry: For telecommunications, I use Flash and Shadow: they've never failed me, and Shadow is tremendous, especially with music files, which are always at least 200K long.

Mortimer: For telecommunications I use Interlink ST and ST-Talk Professional. Interlink is easy to use. ST-Talk Pro is very flexible with its scripting language.

Moorhead: My telecommunications program is Flash—good stuff.

Kent: I use the public domain Bmodem by David Betz. I like this program because it's not GEM-based; it makes it easier to run from a command line shell.

PUBLISHING

the fonts look over those of Timeworks Publisher.

Krutz: My word processor is Word Writer ST. It's not the best word processor in the world, but it does the job. DTP? Publishing Partner. In some ways I like it better than Page Maker—and I'm eagerly awaiting Publishing Partner Professional.

Mortimer: I like WordPerfect because it has all of the features I want, plus a built-in thesaurus and spelling checker, and now it's reasonably fast. It offers more power than all other ST word processors put together. For Desktop Publishing, I use Timeworks Desktop Publisher ST for uniform-looking documents and Publishing Partner in certain instances, such as pages with large fonts. I've been using a beta-test version of Calamus, which has many of the features of both and promises to be a good product.

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Davies: I still use the first one I tried: First Word. It turned out to be really straightforward. I'm still looking for one I really like, however.

Leavens: I use WordPerfect because it's the best there is. I'm writing a book using it; it's the only word processor on the ST capable of handling it, what with indexes, formatting, pagination and the like. It stands above the rest.

Kent: I use ST Writer for word processing because it's there and has word wrap.

Small: I don't use a word processor. I use Micro Emacs for any writing I need to do. Other than that, my favorite word processor is Dungeon Master.

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Jon A. Bell,
former Associate Editor

DATABASE MANAGERS

Reese: Superbase Personal is quite usable, but its reporting interface is lousy. I know I'll end up learning Superbase Pro, but I long for the days of SynFile+.

Brumbaugh: I've tried most of the database managers out there, and SuperBase Professional is far and away my favorite. It's GEM-based, lets you set up files, filters and indexes by pointing and clicking, has a built-in text editor, a programming language and (in the newest release) telecommunications.

Pearlman: The only databases I've used are Superbase Personal and Professional. I'm still just getting the hang of them.

Krutz: My database is Timeworks Data Manager, which is a wonderful non-relational database manager in every way.

Pierson-Perry: My database is Overview, a Mac program, which I run through the Magic Sac. It's an intermediate database that's much more powerful than dBase and dB Master, but doesn't require you to program anything the way dBase does. It runs like a champ on the Magic Sac.

Plotkin: My favorite database manager is Timework's DataManager. Again, it is very simple to use, yet fulfills most flat-file needs. For more sophisticated relational needs, try Precision's Superbase Personal.

Small: Hypercard—running under Spectre 128. Other than that, my favorite database manager is Dungeon Master.

GRAPHICS AND ANIMATION

Reese: To some degree, I'm here as Editor because of my love affair with Cyber Studio. I use the entire Cyber Family regularly: CAD-3D 2.0, Cyber Control, Cyber Texture, Cyber Sculpt, Cyber Paint, Cyber VCR, START's Creation (START Summer 1988) and Audio-Video Sequencer (START November 1988). But I also use DEGAS Elite, Art Director/Film Director, Aegis Animator ST, Spectrum 512 and Unispec (although the user interface confounds me), Pic Switch, Tom Hudson's Antialiaser, and Compute! ST's Snapshot program.

Each of these programs provides some functions that aren't available in the others and if one program had them all, you'd need four megabytes of memory just for the program! I find that, since I'm not much of an artist, I need all the help that this battery of software provides and I wouldn't want to do without any of them. My single favorite graphics program, however, is still Cyber Paint 2.0.

Bell: For my still images, I use DEGAS Elite and Tom Hudson's Antialiaser Desk Accessory. I was working with Tom when he developed the original DEGAS and it (and its successor DEGAS Elite) became my No. 1 drawing programs. I've never created a finished work of art with any other 16-color ST drawing program.

I've used Spectrum 512 for specific applications, but I find its user interface difficult to work with, though not insurmountable. However, the main reason I favor DEGAS over Spectrum is that I do a lot of 16-color animations using CAD-3D 2.0 and Cyber Paint 2.0, and I like doing my backgrounds with DEGAS.

Another one of my favorite graphics programs is Matt Loveless's Pixel-Pro, from the Fall 1987 issue of START. When you save Cyber Paint or CAD-3D animations as separate DEGAS pictures, then use Pixel-Pro to distort those pictures, you can get really striking animated sequences.

And I find Snapshot very useful for freezing fast-paced game action (for START Magazine's color screen shots) and for making DEGAS.PI3s for black and white laser-printed screen dumps.

Brumbaugh: I'm not much of a computer artist, but for low resolution art my paint program of choice is Cyber Paint 2.0. I hardly ever use Cyber Paint's fancier animation features, but I like the interface better than DEGAS Elite. My favorite aspect of Cyber Paint, however, is that I can quickly make a copy of a picture and work on it in another frame without worrying about DEGAS Elite's limitation of eight screens.

Pearlman: While I'm no artist, I've had a lot of fun with DEGAS Elite and Cyber Paint. They're easy to use and fairly intuitive.

Byron: For computer graphics I default to DEGAS Elite.

Hudson: DEGAS Elite is the only one I use.

Plotkin: For graphics, it's a virtual tie between the CAD/Page Layout package Easy-Draw (Migraph) and the Cyber Series of 3-D drafting and animation from Antic Software. Both are well designed and very useful.

Pierson-Perry: For graphics, I use DEGAS Elite and Easy-Draw; they're the industry standards.

Mortimer: DEGAS Elite is my old standby and still one of the better ones out there. I also use Easy-Draw for line-art drawings—I can't leave that one out.

Moorhead: For graphics, my wife and I like to fiddle with DEGAS Elite.

Leavens: I'm using Easy-Draw for object-oriented art and for illustrations for a book I'm working on.

Gregg Pearlman, Assistant Editor

PUBLISHING

the fonts look over those of Timeworks Publisher.

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GAMES AND ENTERTAINMENT

Reese: So many great games, so little time! Flying: Flight Simulator II, Gunship, Skychase, F15 Strike Eagle and Harrier Combat Simulator. Adventure Games: Police Quest, Leisure Suit Larry in the Land of the Lounge Lizards, Bureaucracy, Hitchhiker's Guide to the Galaxy, Deja Vu and Sundog. Arcade: Oids, Joust, Star Raiders II, Plutos, Space Cutter and Typhoon Thompson. Sports: Gridiron and Leader Board. Miscellaneous: Prime Time, Klondike from START Special Issue #4 and Speed Buggy. I don't know what's wrong with me—I just never became a Dungeon Master freak!

If I had to pick one game from each of the above categories, I'd have to pick Gunship as the most complete and varied flight simulation, Joust as the classic arcade game that brings me back time after time, Prime Time as a slightly skewed but delightful simulation, and Leisure Suit Larry as the adventure game with something extra.

Bell: I don't play too many ST computer games, although I used to play quite a few Atari 8-bit games back in the late Triassic age. (Star Raiders is still my favorite computer game, bar none.) I *do* have some ST favorites, though—Chessmaster 2000 and MIDI Maze are fun in completely different ways (you haven't lived until you've played 16-player MIDI Maze at an Atari Fest). I also enjoy playing START's games, such as Klondike Solitaire and Naval Battle, from the Summer 1988 and Special #4 issues of START, respectively.

Brumbaugh: My favorite commercial ST game is Dungeon Master—however, after having played it through a few times I'm ready for something new along the same lines. (Are you listening, FTL?) As Programs Editor for START, I'm in the enviable position of being a professional playtester for all the games we publish; the ones that can't seem to find their way off my hard drive at home are Battle for the Throne (Spring, 1988), Breakout (Fall, 1987), Reversi (Fall, 1986) and Slither (January, 1988).

Tom Byron, Assistant Editor

Pearlman: I've had a lot of fun with Prime Time, Road Runner and Micro League Baseball, and I get a kick out of the bloodcurdling digitized screams in Impossible Mission 2. The Hitchhiker's Guide to the Galaxy is a hoot, but I don't have much patience for adventure games (or maybe it's the other way around).

Byron: For entertainment I enjoy the standard arcade games like Atari's Missile Command and Mindscape's Blockbuster. I also like interactive fiction; I count Infocom's Zork Trilogy and Trinity among my favorites.

Plotkin: Favorite game? Well, um, that's a tough one. Have to say Blockbuster, the bouncing ball game complicated by alien spaceships. Or maybe Broderbund's Typhoon Thompson, an incredibly playable action/adventure. Or maybe—well, you get the idea.

Pierson-Perry: I'm playing Ultima IV right now—only because Ultima V's not out yet—and it doesn't come any better. I also like Chessmaster 2000, Defender of the Crown and Dungeon Master.

Kent: My favorite ST games are Dungeon Master, Psion Chess, Reversi, Shanghai and Bubble Ghost. In the earlier days of the ST, I enjoyed Star Glider, Star Raiders and Gauntlet.

Mortimer: My favorite games are Star Wars, Bard's Tale and Heroes of the Lance, a new game which is quite interesting.

Leavens: Two of my favorite games are from Britain: Super Sprint, a race car game from Electric Dreams Software (a subsidiary of Activision) and Backlash (Novagen Software), a pure adrenalin arcade game like a 3-D color tank on speed. Other favorites are Sundog, Time Bandits and Hex, a radically underrated game, one of first really good-looking games for the ST by Mark of the Unicorn.

Krutz: The only game I have is public domain Asteroids. I think it's great—very true to the original.

UTILITIES

Reese: There are a few utilities that I always seem to have on my boot partition. Number one is Atari's Hard Disk autoboot program, followed by Universal Item Selector II (I prefer the extra features it offers even over our own START Selector; I have learned how to minimize the occasional crashes caused by its conflicts with other terminate-and-stay-resident utilities.) I always have Tom Hudson's ReSTART in memory and have recently discovered that Juggler II is an ideal tool for writing software documentation.

I also like G+Plus, the new third-party replacement for GDOS, Turbo ST to speed up text display, Mega Twister for more floppy disk space and TuneUp for hard disk speed (used carefully). For safety, there no replacement for Virus Killer, FOLDRXXX.PRG to kill the 40-folder bug, and Meg-a-Minute Elite to back up my hard disks. Finally, I use ARCShell, DCopy, Accessory Select, and DC Formatter, all excellent shareware.

Bell: My most commonly used utilities for START are the Universal Item Selector II, ReSTART, from START Special Issue #4 and the Snapshot program from (gasp!) the now-defunct Compute!'s ST Magazine.

Universal Item Selector is a lifesaver—it speeds up file copying, file-access and a host of other seemingly mundane but very important disk functions. My only complaint with it is that it often bombs out ST Writer 2.3 (the GEMified version) when I merge files or save blocks of copy.

ReSTART is incredibly convenient—and for Mega owners, it's an arm-tendon-saver.

Brumbaugh: The utilities I use the most are DCopy and the Archive utilities set driven under Charles Johnson's ARCShell. ARCShell is amazingly easy to use; however, I've found DCopy's compression results to be much better, on the average, than ARC's. When it's time to put together the START Disk every month, disk space is very dear and I need to squeeze and save as much space as I can. Unfortunately, DCopy is a TOS program (it doesn't use the mouse) and its interface requires a great deal of typing to get anything done—it will also crash if you misspell the name of a file you want to archive.

A tool I use a lot is the Byte Mechanic (START Special Issue #4)—it comes in useful for odd problems that can't be solved any other way.

I'm constantly rearranging the files on my boot partition—the public domain Accessory Select is a great tool for that. START Selector is one of the programs in my AUTO folder that is always active; others are the 40-folder-limit fix from Atari (FOLDRXXX.PRG) and the program that sets the time from my ICD hard drive's built-in clock. Atari's Control Panel is almost always under my Desk menu. Some of the other Desk Accessories I use are Partner ST and its scaled-down version Partner Mini—but this program has the annoying habit of popping up every time I boot with a dialog box that asks me if I want to Set-up the accessory or continue. This dialog disappears after five seconds if I don't do anything, but it still drives me crazy. I use my ST for a hundred different things every day and things I don't use all the time (but want to have available) should remain as unobtrusive as possible. I also use STARTKey macros intermittently, mostly for small jobs.

Pearlman: I have ReSTART and the Universal Item Selector in the AUTO folder of my hard disk and I like UIS so much that I now become impatient with the ST's "normal" file selector box. One of my favorites is Accessory Select, which I especially enjoyed when I used a half-meg ST, where I *had* to juggle desk accessories in order to conserve memory.

Small: Most of the utilities I use have been (or will be) published in START. I also find Supra's hard drive utilities set to be a real lifesaver.

Mortimer: My favorite utilities are NeoDesk, a great replacement desktop, and Tune-Up, a savior for my hard disk—it really speeds it up.

Leavens: My favorite utilities are Nametrap and Intercept—two utilities to let files live in other subdirectories. Another favorite is Megmatic, a multiple-function shareware terminate-and-stay-resident program. It has a survivable RAMdisk and lets you perform a cold or warm boot from the keyboard.

Two utilities from Atari's hard drive kit I like are the hard disk booter and DISKBAR.PRG, which flashes a bar on the screen any time your hard drive is active.

I'm constantly coming back to the programs I published in START. P.I.E. lives in my system for both development and custom icons on his Desktop; I use Cardstak for my Rolodex and keep START Calc handy.

Finally, even though Atari's item selector doesn't have all the features I need, I find custom item selectors annoying and don't use them.

Hudson: Not to be self-referential, I love ReSTART since I'm always crashing the system and it's nice to be able to get out of it.

Kent: Utilities I use include the START Selector, Twister, DCFormat and Turtle—my favorite backup utility.

PRODUCTS MENTIONED

PROGRAMMING TOOLS

Alcyon C, **Resource Construction Set ver. 2.0**, **MADMAC Assembler**, **AS68 Assembler**, distributed with Developers Kit. Atari Carp., 1196 Barregas Avenue, Sunnyvale, CA 94086, (408) 745-2000.
CIRCLE 180 ON READER SERVICE CARD

Aztec C, $199 for Professional System, $299 for Developer System. Aztec, 1 Industrial Way, Eatantawn, NJ 07724, (800) 221-0440; (201) 542-2121 in New Jersey.
CIRCLE 191 ON READER SERVICE CARD

MT-C Shell, $129.95; **Disk Cacher**, $39.95; **Micro Make**, $34.95; **Hard Disk Tools**, $29.95. Beckemeyer Development Tools, 478 Santa Clara Avenue, Oakland, CA 94610, (415) 452-1129.
CIRCLE 192 ON READER SERVICE CARD

DevpacST, $79.95. HiSaft, The Old Schaal, Greenfield, Bedford MK45 5DE, (0525) 718181.
CIRCLE 193 ON READER SERVICE CARD

Personal Pascal, $99.95. ICD, 1220 Rack Street, Rackford, IL 61101-1437, (815) 968-2228.
CIRCLE 194 ON READER SERVICE CARD

Mark Williams C, $179.95. Mark Williams Company, 1430 West Wrightwaad, Chicaga, IL 60614, (312) 472-6659.
CIRCLE 195 ON READER SERVICE CARD

GFA BASIC 2.0, START, January 1989.

Templemon Debugger, public damain.

Tacklebox, SRM Enterprises, na langer distributed.

WORD PROCESSORS, DTP

Micro Emacs, distributed with the Atari Develapers Kit. Atari Carp., 1196 Barregas Avenue, Sunnyvale, CA 94086, (408) 745-2000.
CIRCLE 180 ON READER SERVICE CARD

Calamus, $299.95. ISD Marketing, 2651 John Street, Unit 3, Markham Industrial Park, Markham, Ontaria, Canada L34 6G4, (416) 479-1880.
CIRCLE 172 ON READER SERVICE CARD

WordUp, $79.95. NEOCEPT, 908 Camina Das Rias, Thausand Oaks, CA 91360, (805) 498-3840.
CIRCLE 181 ON READER SERVICE CARD

Publishing Partner, $89.95; **Publishing Partner Professional** $199.95. SaftLogik Carp., 4129 Old Baumgartner, St. Louis, MO 63129, (314) 894-8608.
CIRCLE 182 ON READER SERVICE CARD

Timeworks Desktop Publisher ST, $129.95; **Word Writer ST**, $79.95. Timeworks, 444 Lake Cook Raad, Deerfield, IL 60015, (312) 948-9200.
CIRCLE 171 ON READER SERVICE CARD

WordPerfect for the ST, $395. WordPerfect Carp., 288 West Center Street, Orem, UT 84057, (801) 227-4010.
CIRCLE 170 ON READER SERVICE CARD

SEDT, Shareware. Available an anline services.

First Word, na langer distributed.

ST Writer Elite, START, Winter 1987.

TELECOMMUNICATIONS

Flash, $29.95; **Shadow**, $29.95. Antic Saftware, 544 Secand Street, San Francisca, CA 94107, (800) 234-7001.

Interlink ST, $39.95, Intersect Saftware, 3951 Sawyer Raad, Suite 108, Sarasata, FL 34233,(800) 826-0130; (813) 923-8774 in Flarida.
CIRCLE 196 ON READER SERVICE CARD

PC/Intercomm, $124. Mark of the Unicarn, 222 Third Street, Cambridge, MA 02142, (617) 576-2760.
CIRCLE 197 ON READER SERVICE CARD

ST-Talk Professional, $39.95. Quantum Micrasystems Inc., P.O. Bax 179, Liverpaal, NY 13088, (315) 451-7747.
CIRCLE 198 ON READER SERVICE CARD

B-Modem, public domain.

DATABASES

Superbase Personal, $79.95; **Superbase Professional** $349.95. Precisian Inc., 8404 Sterling Street, Suite A, Irving, TX 75063, (214) 929-4888.
CIRCLE 183 ON READER SERVICE CARD

Timeworks Data Manager, $79.95. Timewarks, 444 Lake Caak Raad, Deerfield, IL 60015, (312) 948-9200.
CIRCLE 171 ON READER SERVICE CARD

CardStak, START Special Issue #3.

GRAPHICS, ANIMATION

Snapshot, Compute!'s ST, ABC Publishing, 1330 Avenue af the Americas, New Yark, NY 10019, (212) 887-8513 in New Yark.

Aegis Animator ST, $79.95. Aegis Develapment, 2115 Pica Blvd., Santa Manica, CA 90405, (213) 392-9972.
CIRCLE 185 ON READER SERVICE CARD

Cyber Studio (CAD-3D 2.0, CyberMate), $89.95; **Cyber Control**, $59.95; **Cyber Texture**, $49.95; **Cyber Sculpt**, $89.95; **Cyber Paint**, $79.95; **Cyber VCR**, $69.95; **Spectrum 512**, $69.95. Antic Saftware, 544 Secand Street, San Francisca, CA 94107, (800) 234-7001.

DEGAS Elite, $49.95. Electranic Arts, 1820 Gateway Drive, San Matea, CA 94404, (415) 571-7171.
CIRCLE 176 ON READER SERVICE CARD

Jim Pierson-Perry, Contributing Editor

Dovid Platkin, Contributing Editor

Art Director/Film Director, $79.95. Epyx, P.O. Box 8020, 600 Galvestan Drive, Redwood City, CA 94063, (415) 366-0606.
CIRCLE 165 ON READER SERVICE CARD

Antialiaser, $19.95. Tom Hudson, P.O. Box 3374, Shownee-Mission, KS 66203.

Easy-Draw with Supercharger, $149.95. Migroph Inc., 720 S. 333rd Street, Federal Woy, WA 98003, (800) 223-3729, (206) 838-4677.
CIRCLE 167 ON READER SERVICE CARD

Creatiant, START, Summer 1988
Audia-Videa Sequencer, START, November 1988
Pixel-Pra, START, Fall 1987

Unispec, $49.95. Trio Engineering, P.O. Box 332, Swampscott, MA 01907, (617) 964-1673.
CIRCLE 186 ON READER SERVICE CARD

Pic Switch, shorewore.

ENTERTAINMENT

Leader Board, $39.95. Access Software, 2561 Sauth 1560 West, Suite A, Woods Cross, UT 84087, (801) 298-9077.
CIRCLE 199 ON READER SERVICE CARD

Bubble Ghost, $34.95. Accolade, Inc., 550 Winchester Blvd., Suite 200, Son Jose, CA 95128, (408) 985-1700.
CIRCLE 200 ON READER SERVICE CARD

Shanghai, $39.95. Activision (Mediogenic), 3885 Bahonnon Drive, Menla Park, CA 94025, (415) 329-0500.
CIRCLE 201 ON READER SERVICE CARD

Missile Command, $29.95; **Star Raiders**, $29.95; **Joust**, $29.95. Atari Carp., 1196 Borregas Avenue, Sunnyvole, CA 94086, (408) 745-2000.
CIRCLE 180 ON READER SERVICE CARD

Gridiran, $49.95. Bethesdo Softworks, 15235 Shady Grove Raad, Rockville, MD 20850, (301) 926-8300.
CIRCLE 202 ON READER SERVICE CARD

Jan Maarhead, Contributar

Alex Leavens, Contributar

Typhoan Thampson, $34.95, **Ultima IV**, $59.95. **Skychase**, $39.95; **Star Wars**, no price set. Broderbund Software, Inc., 17 Paul Drive, Son Rofoel, CA 94903. (800) 527-6263.
CIRCLE 177 ON READER SERVICE CARD

Defender of the Crawn, $49.95. Cinemawore, 4165 Thousond Ooks Blvd., Westlake Village, CA 91362, (805) 495-6515.
CIRCLE 203 ON READER SERVICE CARD

Speed Buggy, $39.95. Dato East, 170 Needles Drive, Son Jose, CA 95112, (408) 286-7074.
CIRCLE 204 ON READER SERVICE CARD

Super Sprint, Electric Dreams Saftware. Na infarmotian ovoilable.

Chessmaster 2000, $44.95; **Bard's Tale**, $49.95. Electronic Arts, 1820 Gateway Drive, Son Moteo, CA 94404, (415) 571-7171.
CIRCLE 176 ON READER SERVICE CARD

Impassible Mission 2, $39.95. Epyx, P.O. Box 8020, 600 Golvestan Drive, Redwood City, CA 94063, (415) 366-0606.
CIRCLE 165 ON READER SERVICE CARD

Prime Time, $39.95. First Row Software, 570 West DeKolb, Suite 204, Building 4, King of Prussio, PA 19406, (215) 337-1500.
CIRCLE 205 ON READER SERVICE CARD

Sundog, $39.95; **Oids**, $34.95; **Dungean Master**, $39.95. FTL Gomes, 6160 Lusk Blvd., Suite C-206, San Diego, CA 92121, (619) 453-5711.
CIRCLE 206 ON READER SERVICE CARD

MIDI Maze, $39.95. Hybrid Arts, 11920 W. Olympic Blvd., Los Angeles, CA 90064, (213) 826-3777.
CIRCLE 207 ON READER SERVICE CARD

Bureaucracy, $14.95; **Hitchhiker's Guide to the Galaxy**, $14.95; **Zark Trilagy**, $49.95; **Trinity**, $14.95. Infocam, 125 CambridgePork Drive, Cambridge, MA 02140, (617) 576-3190.
CIRCLE 208 ON READER SERVICE CARD

Hex, $39,95. Mork of the Unicorn, 222 Third Street, Cambridge, MA 02142, (617) 576-2760.
CIRCLE 197 ON READER SERVICE CARD

Time Bandits, $39.95. MichTron, 576 S. Telegroph, Pantiac, MI 48053, (313) 334-5700.
CIRCLE 151 ON READER SERVICE CARD

Micra League Baseball II, $59.95. Micro League Sparts Associatian, 2201 Drummond Plazo, Newark, DE 19711, (302) 368-9990.
CIRCLE 209 ON READER SERVICE CARD

Gunship, $49.95; **F-15 Strike Eagle**, $39.95. Micraprose Software, 180 Lakefront Drive, Hunt Valley, MD 21030, (301) 771-1151.
CIRCLE 210 ON READER SERVICE CARD

Harrier Cammand Simulator, $49.95; **Gauntlet**, $49.95; **Plutas**, $29.95; **Blackbuster**, $39.95; **Deja Vu**, $49.95; **Raad Runner**, $49.95. Mindscope, 3444 Dundee Rood, Northbrook, IL 60062, (800) 221-9884, (312) 480-7667.
CIRCLE 211 ON READER SERVICE CARD

Backiash, $35.98. Novogen Software. No Infarmatian available.

Psian Chess, na price listed. Psion Ltd., Psion House, Harcourt Street, London W1H 1DT.
CIRCLE 212 ON READER SERVICE CARD

Starglider, $29.95; **Space Cutter**, $29.95. Rainbird Saftware, 3885 Bahannan Drive, Menla Park, CA 94025, (415) 322-0412.
CIRCLE 213 ON READER SERVICE CARD

PRODUCTS MENTIONED

Police Quest, $49.95; **Leisure Suit Lorry in the Lond of the Lounge Lizords**, $39.95. Sierra On-line, P.O. Box 485, Coarsegold, CA 93614, (209) 683-4468.
CIRCLE 214 ON READER SERVICE CARD

Klondike, START, Special Issue #4
Novai Bottie, START, Speciol Issue #4
Bottle for the Throne, START, Spring 1988
Breokout, START, Fall 1987
Reversi, START, Foll 1986
Slither, START, Jonuory 1988

Heroes of the Lonce, $39.95. Strotegic Simulotions Inc., 1046 Rengstorff Avenue, Mauntain View, CA 94043, (415) 964-1353.
CIRCLE 215 ON READER SERVICE CARD

Flight Simulator II, $49.95. Sublogic Corp., 713 Edgebrook Drive, Chompaign, IL 61820, (217) 359-8482; (800) 637-4983.
CIRCLE 179 ON READER SERVICE CARD

Asteroids, public domoin.

UTILITIES

Professionol Icon Editor, $29.95. Antic Softwore, 544 Second Street, San Froncisco, CA 94107, (800) 234-7001.

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G+Plus, $34.95. CodeHead Softwore, P.O. Box 4336, North Hollywood, CA 91607.
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NeoDesk, $29.95. Gribnif Software, P.O. Box 350, Hodley, MA 01035.
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START Selector, START, Speciol Issue #3
Tom Hudson's ReSTART, START, Speciol Issue #4
Meg-o-Minute Elite, START, November 1988
Byte Mechanic, START, Speciol Issue #4
STARTKey, START, Winter 1987
START Calc, START, Fall 1987
Mega Twister, START, Summer 1988

Supra's hord drive utilities, $24.95. Supro Corp., 1133 Commerciol Woy, Albony, OR 97321, (503) 967-9075.

Portner ST, $49.95. Timeworks, 444 Lake Cook Rood, Deerfield, IL 60015, (312) 948-9200.
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ARCShell, DCopy, Accessory Select, DC Formotter, shoreware.

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The Notator, $595; **Sound Designer**, $349. Digidesign, 1360 Willow rood, Suite 101, Menlo Pork, CA 94025, (415) 327-8881.
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	Laser C			Mark Williams C v3.0		
	Compile/ Link	Run	Error	Compile/ Link	Run	Error
Hello.c	2.43	—	—	15.98	—	—
Apskel.c	8.88	—	—	26.5	—	—
Sieve.c	4.59	2.45	—	23.9	2.77	—
AES	35.6	—	—	103	—	—
Savage	6.31	36.4	1.73×10^{-10}	30.82	83.0	1.18×10^{-7}

All times in seconds.
AES consists of nine source files totaling 1142 lines of code.
AES is built using Make.
Mark Williams C using RAM disk.

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ON DISK!

GFA BASIC 2.0

Go where no BASIC interpreter has gone before! GFABASIC.ARC on your START disk.

Since its introduction, GFA BASIC has been the BASIC of choice—and to a large degree the programming language of choice—in the ST community. And no wonder. GFA is a powerful interpreted BASIC. It gives you easy access to GEM features, such as drop-down menu bars, to give your programs a professional look. GFA is a structured language; it lets you call procedures by name and has a full array of looping commands. What's more, the GFA editor will automatically indent your code and check for syntax errors as you type. And now START is happy to bring you this interpreter—a $59.95 value—on your START disk!

To use the GFA BASIC ver. 2.0 interpreter, copy the file GFABASIC.ARC onto a blank, formatted disk and un-ARC the file, following the disk instructions elsewhere in this issue. This new disk will contain the interpreter itself (GFABASIC.PRG), the run-only program (GFABASRO.PRG) that lets you share your BASIC programs with friends who don't own a copy of the interpreter and a quick reference text file (GFA-BASIC.TXT) you can print or show from the Desktop or load into your favorite text editor or word processor. Use the same procedure to un-ARC GFADEMOS.ARC; this file contains demos which will help you explore the power of GFA BASIC.

Although MichTron is still providing customer support for GFA BASIC ver. 2.0, START has been supplementing that with our Programming in BASIC column began in our Summer 1988 issue. Now is the time to go through your back issues and improve your programming using our tools and tips.

From Summer 1988 to October 1988 we ran a three-part series on generating and using dialog boxes in GFA BASIC; a sample program (DIALOG.PRG) is on October's disk. In November, we ran the Putmaker which lets you grab a portion of a picture, save it to disk, and later load it into your BASIC program for flashy title screens. In December we had a double-header: the Menu Builder and Generalized Input Routines. The Menu Builder let you design drop-down menus as easy as 1-2-3. Generalized Input Routines let you make sophisticated input and menu screens to give you and your program's user the ultimate in flexibility. Finally, on this issue's disk is a cross-referencer that will save you hours of debugging time.

If you prefer to begin at the beginning, you can order MichTron's GFA BASIC manual directly from Antic at the low price of $9.95 (plus shipping and handling). And if you bought START without disk, you can order this issue's disk to get your copy of GFA BASIC at the same time.

Coming Soon

START will be continuing its support of GFA in future issues, when we'll publish MichTron's GFA Vector and GFA Object, which let you create and animate 3D objects and then incorporate them in your programs. ■

PRODUCTS MENTIONED

GFA BASIC ver. 2.0 manual, $9.95 + $3.50 shipping and handling. Antic's Disk Desk, 544 Second St., San Francisco, CA 94107, (800) 234-7001.

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by Jeff Baker: Newport Classics recording artist and piano teacher.

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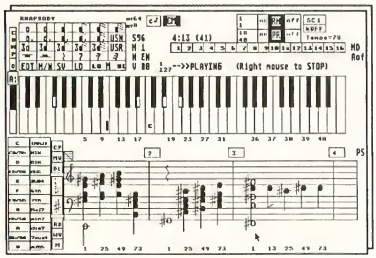

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START is a magazine with disk; if you bought the non-disk version then you're missing out on a dynamite disk that has two utilities, an exciting game, a collection of macros, a great educational program and—as an unbelievable bonus—GFA BASIC ver. 2.0: a $59.95 value! Call toll-free (800) 234-7001 for your START disk or use the bound-in order form elsewhere in this issue. Only $10.95! ■

THIS MONTH ON YOUR START DISK

ARE YOU KIDDING?

The **GFA BASIC 2.0** interpreter is on this issue's START disk! Now you can write hit programs using the ST community's all-time favorite BASIC. The GFA BASIC interpreter, some sample files, a quick reference file and the run-only program are all in the compressed file GFABASIC.ARC; runs in any resolution.

This month we bring you a new educational program called **Spanish Mastery**. Anthony Barbieri wrote this Spanish verb tutor that teaches conjugations in any tense and person. Review conjugations or take a quiz to pinpoint areas that require more study. File SPMASTER.ARC; runs in medium or high resolution.

Slither, by Thomas Bürglin, is January's game of the month. Lead Spencer the Snake through hazardous arenas as he avoids walls, barriers and his own tail while searching for apples. File SLITHER.ARC; runs in low or high resolution.

Wayne Longman's **STARTKey macro files** work with 1ST Word and 1ST Word Plus—they replace all your drop-down menu options with function key selections. Use the keyboard template included with the article for easy reference. File MACROS.ARC; requires STARTKey from the Winter 1987 issue.

Dave Small's tool of the month is a **partition analyzer**. It tells you the size, starting sector and type of each partition on your hard drive(s). File PARTITAN.ARC; runs in medium or high resolution.

Finally, our Programming in BASIC column brings you a **cross-referencer** by David Archibald. Xref creates a list of all the variables, procedures and labels in your GFA BASIC program—examine this listing and save hours of debugging time. File XREF.ARC; runs in medium and high resolution.

Disk Instructions

How to Get Our Programs Up and Running

Each article in this issue with a disk icon next to its title on the Table of Contents or "On Disk" on its first page has an accompanying file on your START disk. These files are *archive* files – they've been *compressed* with the Archive Utilities Set, or ARC, a public domain program available for many personal computers. We use the ARC utility to squeeze the many files that may go with a particular article into *one* compressed file, which may be only 40% of the total size of the original files.

In addition to the archive files, you'll find the program ARCX.TTP, which stands for ARChive eXtract, on your START disk. You'll use this program to *decompress*, or extract, the disk files we've shrunk down with ARC.

Getting Started

To use the files and programs on your START disk, please follow these simple instructions. You'll need two blank, formatted single- or double-sided disks to properly extract the files.

Your START disk is not copy-protected and you should make a copy of it *immediately* to the first blank disk. Make sure the write-protect window is *open* on the START disk at all times to insure that you don't accidentally erase the disk.

Note: If you are unsure how to format a disk, copy a disk or copy individual files, please refer to your original Atari ST or Mega manual and study these procedures carefully before going on.

After you've copied your original START disk, store it in a safe place and label the copy disk "START Backup."

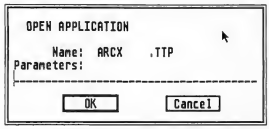
Now, put your START Backup disk in Drive A of your computer and double-click on the Drive A icon to see the disk's contents.

Un-ARCing the Files

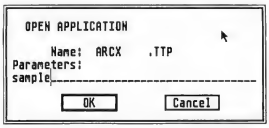
To use START's compressed disk files, please follow these steps:

1. Copy the ARCed file you wish to use and the program ARCX.TTP from your START Backup disk onto your second blank formatted disk. When you're finished, label it *Un-ARC disk.*

2. Now you'll extract the compressed files from the ARC file you just copied. Insert your Un-ARC disk into Drive A and press the Escape key on your ST to see the disk directory. Double-click on ARCX.TTP. The following dialog box will appear:



3. Type in the name of the ARC file you just copied over to your Un-ARC disk as shown in the example below and press Return. You do *not* have to type in the extender .ARC.



(Note: If ARCX.TTP can't find a file, it may be because you have misspelled the name of the ARC file. You must type the filename *exactly* as it appears in the directory.)

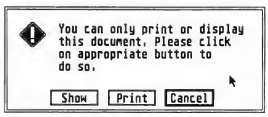
4. As the program runs, it will display the names of the individual files as it extracts them, similar to the example below.

```
Archive: SAMPLE.ARC
Extracting file: EXAMPLE.PRG
Extracting file: FILE.TXT
Extracting file: SAMPLE.PIC
Extracting file: README
```

When ARC has successfully extracted all the files, it will return to the Desktop and you will see the original files within the directory window, along with the archive file and the ARCX.TTP program. You may now use any of the START files as you wish; just follow the instructions in the appropriate article in this issue.

To use any other archive files on your START disk, simply repeat the above procedures.

In addition to the runnable programs, some ARC files may also contain source code listings or an ASCII text file (called BREAKDWN.TXT, for example) which describes the program's structure. You can examine this file from the ST Desktop by double-clicking on its icon and then clicking on Show (to see it on the monitor) or Print (to print it out) as shown in the example below.



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GFA BASIC 3.0

The New Standard?

by David Plotkin

When GFA BASIC first reached the United States from Germany, it created quite a stir. It was the first general purpose interpreted language for the ST that was fast, easy to use and accessed GEM in a relatively straightforward manner. It became even more attractive upon the release of the GFA BASIC Compiler, which could turn your program into a stand-alone .PRG file.

GFA BASIC became the language of choice for many ST owners, especially since it did *not* need the complicated Compile-Link-Debug cycle required by C. Since its introduction, GFA BASIC has become the most popular ST language for magazine listings as well. (Editor's Note: *We receive more program submissions at START in GFA BASIC than in any other language.*)

GFA BASIC 3.0, the newest version of this popular language, adds many more features and functions and is considerably faster. Let's look at version 3.0 and see what it has to offer.

The Editor

The GFA 3.0 editor does not use standard GEM menus. Instead, there are two lines of functions at the top of the screen, similar to version 2.0's editor. To activate a function, you can click on it with the mouse or press the corresponding function key (or Shift-function key combination). The function bar has standard commands such as loading, saving, printing a listing, block operations and merging. Differences from the GFA 2.0 editor include a real-time clock in the function line at the top of the screen and a toggle that switches the screen to GEM format to let you access desk accessories and load or save programs.

ELLEN SASAKI

Another new feature is a line counter that keeps track of your place in the program. While GFA BASIC does not use line numbers *per se*, you can type in the line counter value for a particular line and the editor will jump to that line.

To enter a program in the editor, just type it in or load it from disk. Each line can contain only one command. The editor automatically indents loops and procedures (more on this later) and you can set it to capitalize commands and put variables in upper-lower case automatically. You can also set the format of printed listings by adding headers and footers, setting the maximum line length and doing other things you couldn't do with version 2.0.

Various key combinations move the cursor around in the editor—you can even set the number pad to control cursor movement much as it does on the PC. Reminiscent of 8-bit Atari BASIC, GFA BASIC 3.0 and 2.0 analyze each line for proper syntax as you go. If you try to leave a line that has a syntax error, the bell will sound, a message will appear at the top of the screen and you must correct that line before moving on.

Once you've typed in or loaded a program, you can run it just by clicking on Run in the function bar. If any errors occur, the program will return you to the editor with the cursor on the offending line and a brief error message at the top of the screen. You can also shift to the output screen to give single commands in ▶

"direct" mode, useful for checking the values of variables, etc.

Commands, Variables and Operators

In terms of commands, GFA 3.0 is about the most full-featured language I have ever seen, containing more than 400 commands. The "normal" BASIC commands (such as **Print**, **If**, etc.) are included, but these just scratch the surface.

The variable types include Byte, Boolean, Word, Integer, Floating Point and String. Each of these can be used in arrays as well. Commands are available to fill an array with a specified value, to set and find the dimensions of an array and to find the addresses of arrays and variables. Further, GFA 3.0 is exceptionally flexible in its variable handling with commands to convert one type of variable to another, convert among octal, binary, decimal and hex, convert numbers to strings and back, swap variable values, do two types of sorts and access memory directly for handling variables. One of the most interesting commands is **Inline**, which lets you reserve space (for storing a picture or assembly code, for example) right in the program listing, so that the information in that space will be saved and loaded with the program listing itself.

GFA 3.0 provides arithmetic operators for handling floating point and integer operations and a full range of logical operators (such as **And**, **Or** and **Eqv**), string operators and comparison operators (such as >,= and <), mathematical functions including trig and log functions, **Max** and **Min**, a square root function and a random number generator. A complete complement of bit operators, such as **Shift**, **Set**, **Clear**, **Test** and **Change** round out these functions.

The new key operators in GFA 3.0 let you redefine the function keys. As in version 2.0, file management commands let you use different directories, change drives, erase a file, check for the existence of a file, check the length of a file and determine the amount of space on a disk. Enhancements include the ability to rename a file and to query or set the contents of the disk transfer address. Both versions of GFA BASIC let you set the file pointer value, copy a memory area to and from disk and use random access files so you don't have to keep an entire file in memory at once.

You can communicate with peripherals plugged into any of the ST's ports. As in version 2.0, the program provides direct mouse support (including setting the pointer shape), but version 3.0 takes this one step further and lets you (finally) access the joystick. Sound support includes the **Wave** command and two variations of the **Sound** command.

GFA BASIC 3.0 is about the most full-featured language I have ever seen.

Structured Programming

With version 3.0, GFA BASIC continues to support structured programming. In addition to the standard **If-Else-Endif** in version 2.0, you now have **Elseif**, which largely eliminates the (formerly required) nested **Endifs**. **Select Case** structures now allow branching to multiple sections of code based on the value of an expression. Because the value specified for **Case** can be a single number, a range of numbers or a list of numbers, this feature is very flexible. There's also a **Default** option so that if none of the **Case** values are satisfied, the code for the **Default** is executed. **Case** can even test for non-numeric characters.

As with version 2.0, the new version supports **Repeat Until**, **While/Wend** and **Do Loop**. However, **Do Loop** variations now include **Do Until**, **Do While**, **Loop Until** and **Loop While** for even more options.

In many BASICs—and in GFA versions 2.0 and 3.0—procedures have replaced subroutines. (A procedure is simply a separate section of code.) In languages that use subroutines, procedures can sometimes be executed accidentally. But in both versions of GFA BASIC, they must be called *specifically* in order to be executed. Procedures have another advantage over subroutines in that you can pass different parameters to them.

A variable can be declared local to a procedure so that it will not affect a variable with the same name elsewhere in the program. The procedure can also modify the value of a passed parameter if it is declared as a **Var** parameter (as in Pascal). This gives you a great deal of flexibility. Another nice touch is that a procedure can be called simply by using its name as a command—no longer must you use **Gosub** or * (although you can if you want).

GFA 3.0 supports two types of functions. Just as in version 2.0, there are single line functions which are defined with **Deffn** and called with **Fn**. Parameters can be passed to them, but the values of the parameters cannot be modified. The result of the **Fn** call will return a value, just like built-in functions such as **Sin** or **Cos**. The second type of function is even more powerful; it can be more than one line long—a special kind of procedure that returns the result of a calculation.

Full error handling, setting of breakpoints and interrupt programming are also supported. **Every** ensures that a procedure will be executed repeatedly at specific time intervals. **After** makes sure that a procedure will be executed once after a specified number of clock ticks.

The GFA 3.0 tracing functions for debugging are very powerful. You can specify a procedure to execute after every command—perhaps the procedure would output the values of important variables to the printer. The system variable **Trace$** contains the command being executed,

so that you can always find out where you are in the program.

Graphics, GEM and Other Goodies

A complete complement of graphics for circles, boxes, filled shapes, polymarkers, patterns and lines are available. Text attributes and rotation can be specified and text strings can be put on the screen at any location. Limiting graphics to a given screen rectangle (clipping), direct Line-A support (with sprites), bit blitting, 16 graphics modes and a set of commands for simulated Logo "turtle graphics" are all available.

As with GFA 2.0, you can build GEM menus and install them at the top of the screen. **On Menu** can detect not only when a menu item has been selected, but other "events" such as GEM messages, window events (close box selected, slider clicked on, window moved, etc.), key strokes and mouse events. Various messages are returned to the application in the array **Menu()**, enabling the program to detect what happened and respond appropriately. The application can keep an eye out for any combination of events. The built-in window commands let you set a window title and info line, clear a window, set a window's attributes or close it. Four windows can be open; each must have one corner anchored in a corner of the screen, only the center point (where the four windows meet) can be specified. You must modify the **Windtab** directly in order to get around this limitation.

GFA 2.0 and 3.0 support alert boxes and file selector boxes, with the latter *returning* the full name of the selected file. Also, GEMDOS, BIOS and XBIOS calls are available, but you must supply the number of the desired function as well as any additional parameters. However, three appendices of the GFA 3.0 manual detail the syntax of each command and give a short explanation of its purpose. This is generally not enough to use the function if you are not familiar with it, but a good GEM/BIOS/XBIOS reference guide will fill in the missing information.

GFA's programmers have also provided a complete set of commands in version 3.0 for calling assembly subroutines, using C routines located at a given address (perhaps in a string), for setting 68000 registers and even for loading and running another program.

Finally, version 3.0 lets you use almost all VDI and AES calls by name; you no longer need to remember the number of the call. You have direct access to those arrays (INTIN, ADDRIN, etc.) that must be initialized before being called. The VDI and AES libraries are amazingly

GFA lets you use almost all VDI and AES calls by name.

complete, including graphics, object trees (dialog boxes, etc.), event trapping, the shell library, menus and windows.

Manual Labor

My only major complaint about version 3.0 is the manual. It's a disaster. It's so bad that much of the power of this language may go unrealized, simply because too many users won't be able to figure out how to use important commands. The manual is rife with incomplete sentences, stilted language, missing words and whole sections that make no sense.

Unfortunately, the manual *really* fails when it comes to the new commands. The German-to-English translator must not have known English very well. Or GFA BASIC. Or both. I'm an experienced GFA programmer and yet I found myself reading sections over and over again and finally giving up. Even worse, at least a third of the program listings *simply don't work* due to typographical errors. Attempts to enter the programs result in syntax errors and correcting the syntax sometimes resulted in spectacular crashes.

This manual *must* be rewritten. MichTron is aware of the problem, but it'll probably be a while before a revision comes along. It's not clear at this date whether the revised manual will be provided to current owners. If it is, you'll probably have to return your old manual to MichTron and pay a substantial charge—after all, the manual is over 600 pages. (This is to prevent piracy; MichTron naturally doesn't want you to give your old manual to a friend, although you might *lose* that friend if you did!)

I also don't like the way the manual is arranged. Similar commands are grouped together—program structure, string management, graphics, etc.—rather than alphabetically by command. While that makes some logical sense in terms of the language structure, it makes it very difficult to find a particular command. You must look a command up in the index in order to find it in the manual.

The Ultimate Question

The question, then, is should you buy this immensely powerful language? The answer is a qualified *yes*. The only qualification is that unless you need GFA BASIC 3.0's power right away or are willing to expend the time necessary to decipher the manual, wait until version 3.0 is available with a revised manual. ■

Contributing Editor David Plotkin has an MS in Chemical Engineering from UC Berkeley and is a Data Analyst for Chevron Corporation.

PRODUCTS MENTIONED

GFA BASIC 3.0, $99.95 ($40 for registered owners of earlier versions). MichTron, Inc., 576 South Telegraph, Pontiac, MI 48053, (313) 334-5700.
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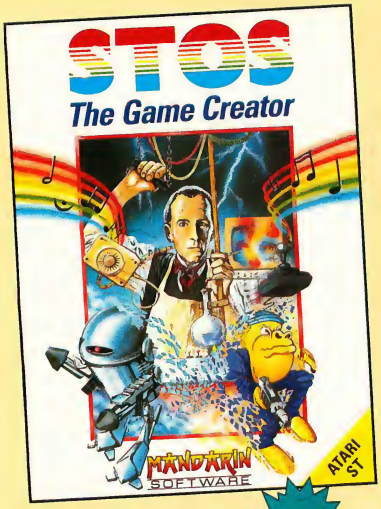

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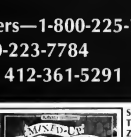

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The European Report

Robots, Games and a Pocket PC

by Andre Willey
START European Editor

Over the coming months in this column, I will try to keep you in touch with the latest news from all over Europe. There will necessarily be a bias towards the U.K., since after all, this is where Atari is currently working on some of their hottest new products, such as the new transputer-based Abaq workstation, a portable laptop ST (code-named Stacey), and the hand-held PC, pictured here. Keep in mind that the news I present in The European Report is just that: news. Some of these products may never actually appear in the United States, but I would like to keep you up-to-date on European Atari developments.

DIP prototype of the Pocket PC, which is currently being "Atari-ized." The only things missing are function keys and a numeric keypad.

The Pocket PC

Perhaps the most surprising announcement from Atari U.K. at this writing is the prototype for the Pocket PC, the world's first pocket-sized IBM PC clone, designed in the U.K. by the Guildford-based Distributed Information Processing (DIP). This product is based on a series of custom-built low-power chips and a variation of the "smart card" system—used instead of conventional disk drives. DIP already has a pretty good track record for such designs—their managing director, David Frodsham, and their development director, Peter Baldwin, have both held senior positions as Psion, the company responsible for the popular Organizer and Organizer II systems.

The Pocket PC is roughly the same size as the Organizer II and unfolds to reveal a full push-button QWERTY keyboard, minus numeric keypad or function keys. The Super Twist LCD display occupies the upper half of the unit and gives eight lines of 40 characters each, plus a simplified graphics capability. The Pocket PC will use a 5Mhz 8088 processor with 128K of CMOS RAM, expandable to 256K in 32K steps. This advanced CMOS technology has made the Pocket PC so power efficient that it runs on just two AA batteries or a separate AC adaptor. Atari has planned the official unveiling of the Pocket PC for ▸

the November COMDEX show.

Targeted at a release price of 200 Pounds in the U.K. (approximately $336 U.S. at current exchange rates), the Pocket PC will include an integrated five-in-one software package consisting of a word processor, spreadsheet, diary/time planner, address book and calculator—all linked by a universal "Clipboard" system that lets you pass notes and data among applications freely.

All of this software will be part of the machine's 256K ROM and should use very little RAM, thus leaving most of your 128K available as work space. The spreadsheet is Lotus 1-2-3-compatible and the word processor lets you export text to other systems in one of two ways: first, you'll be able to buy a smart card reader for full-sized IBM machines at around 100 pounds ($168 U.S.), which can read and write to the memory chips housed in these credit-card-sized packages. Although the cards work on a purely electronic storage method, the PC will be fooled into dealing with them just like any other external media—such as a floppy disk, for example.

Alternately, a special cable will be available to link the Pocket PC to the parallel port of other full-sized machines for fully bidirectional data transfer. Once you've transferred the information, you can store it on ordinary 5¼-inch or 3½-inch disks.

German Atari User Show

Atari held its own German Atari User Show in West Germany from September 2-4, 1988, for over 27,000 dedicated Atari ST enthusiasts. They certainly weren't disappointed! Among the new items was the RoboKit interface system, complete with its computer-controlled robot arm system and plenty of Fisher Technic add-ons. Designed by Personal Robots Inc. from Henley-Upon-Thames, England, the basic kit will be available in four configurations: large and small versions of the robot arm itself, an elevator device and a mobile tractor/truck. These will connect to the ST via a special interface card that plugs into the cartridge port and supplies eight output and eight input control lines. These kits should help ST owners develop and test a host of practical engineering jobs.

The software, which has taken considerable time to develop, lets you experiment with various engineering ideas and concepts using graphical representations of the real world—even before connecting the actual robot to the interface. The icon/menu system lets you plan your robot's activities in the sure knowledge that you can't run over the neighbor's dog—unless he too is represented in the computer's RAM-based model!

Atari U.K. has announced the first releases in a series of high quality wargames for the ST.

Also on display was Calamus, ISD Inc.'s new desktop publishing system that supports Linotronic output. (Editor's note: *A review of Calamus will appear in an upcoming issue of START.*)

European Software Snippets

Atari U.K. has announced the first releases in a series of high quality wargames for the ST. Known as Battlescapes, the programs are extremely large—containing some 400K of code and a separate data disk—and feature an innovative system of real-time 3D views of the landscapes instead of the more usual, and rather dull, overhead view maps.

The gameplay is unusual in that the human player takes the part of the overall commander of his chosen army and supplies the game with ordinary written commands, just as in a text adventure game. From there on, the computer directly supervises the actions of all the subordinate generals and other officers and men, and then responds on behalf of the opposing forces.

The first title in the series, Borodino, sets the action during 1812 with Napoleon's French army pitted in a huge battle against the Russians. The second game is set 400 years ago during the time of the Spanish Armada—as the enemy fleet sails up the English Channel, will Sir Francis Drake finish playing bowles in time to defeat the Armada? Only you can supply the answer.

The author, Dr. Peter Turcan (also the author of Computer Scrabble, reviewed in the November 1988 issue of START), has spent over three years working on these first two releases, and he plans more in the series. By the time you read this, both games should be available for the ST for 29.95 pounds (about $50 U.S.), with PC versions following soon.

Next Month

Next time I'll bring you an update on the latest Atari hardware developments—including the Stacey laptop ST and perhaps a rumor or two about the new super-secret Super ST with stereo sound and 4,096 colors, plus a report from the U.K.'s leading home computer exhibition, the Personal Computer Show at London's "Earl's Court" venue. ■

Andre Willey is the Technical Editor of Atari User magazine, the leading United Kingdom professional Atari publication.

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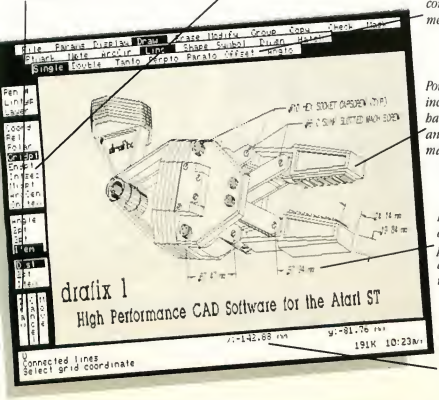

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SPANISH

Learn the difference between ser *and* estar *and have fun at the same time. Find out how in the file SPMASTER.ARC on your START disk.*

Fail that last Spanish test because you couldn't remember the present subjunctive form of* beber*? START will help you pass the next one with Spanish Mastery, your ST Spanish tutor. It also makes a perfect companion to The Vocabularian featured in the October 1988 issue of START.

If you study Spanish, or plan to, START provides the ideal tutor in an educational program called Spanish Mastery. This comprehensive Spanish verb reference is not a complete language teacher. Rather, it turns your ST into a helpful assistant in the challenge to learn Spanish. Spanish Mastery is equally suited for the home, high school or college classroom and provides a vital resource to people whose careers require bilingual communication.

As a Spanish tutor, Spanish Mastery will help you learn:

- Proper conjugation of all regular and most irregular verbs.
- Translation of common English verbs into Spanish.
- Conjugation of verbs into eight tenses, six persons and two participles.
- Reflexive constructions.

Spanish Mastery runs in medium or high resolution and includes instructional help screens and a verb quiz. The program works with either the mouse or the keyboard.

Important note: Spanish Mastery lets you access the Spanish characters in the ST's extended-characters set. To enter a vowel with an accent mark, just hold down the Alternate key while typing the vowel. To add a tilde (~) over an "n," type Alternate-N.

To run Spanish Mastery, copy the files SPMASTER.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC the file following the Disk Instructions elsewhere in this issue. Double-click on SPMASTER.PRG. When the title screen appears, click on OK. You are now at Spanish Mastery's desktop.

The Drop-Down Menus

Not counting the Desktop Info, Spanish Mastery contains four drop-down menus: Options, Verb, Tense and Person. Each of the drop-down menus has a Help! option for quick and ready explanations.

Options

The first two items in the Options menu are Single Forms and All Forms. The first lets you choose only a single form of a verb (i.e. only the *Usted* form of the preterite). The second lets you choose among all forms of a verb (50 in all). Single Form offers two advantages: it's less cluttered and displays more information about the specific form. All Forms displays the verb in greater latitude. For instance, if your teacher asks you to translate to Spanish a paper on hearing, you'll need to know many forms of the verb *oir*. Choose All Forms to get this information quickly. The All Forms options does not, however, show which person (*yo, tu, el*, etc.) each verb is referring to.

Once you've selected all of the characteristics of your verb, click the mouse on Perform (or press Control P) to display the verb in either its single form or all its forms.

The Options menu includes an item called Verb Quiz. Don't click here yet, it'll be explained momentarily—I want to save the best for last.

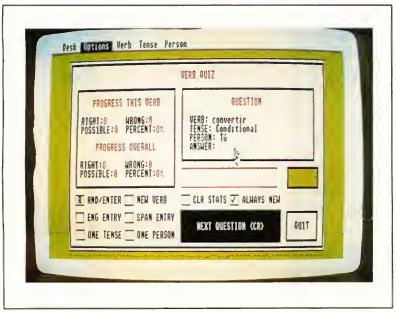
Verb, Tense and Person Menus

The drop-down Verb menu lets you enter the actual verb you want to use. Its options are Spanish Infinitive and English Infinitive.

Use the Spanish Infinitive option when you already know the specific Spanish verb you want (e.g., *hablar, ir*). A dialog box will appear requesting the verb. To use the verb already on the screen, click on OK. To enter a new verb, backspace over the old verb and type the new one in. Remember that the verb must be in its infinitive form. Click on Cancel to leave. The same procedure applies for the English Infinitive mode, though it isn't necessary to type the word "to" before your verb.

MASTERY

by Anthony Barbieri



Spanish Mastery isn't a Spanish teacher, but it's the next best thing: a sophisticated Spanish-verb *tutor*.

A side note: if the English verb is not in the program's vocabulary or if the Spanish verb is not a proper Spanish verb, alert boxes will appear when you Perform the conjugation.

At the Tense menu simply click on the tense you want. You can switch tenses at any time, although the whole menu is inactive when All Forms is requested from the Options menu. At the Person menu click next to the pronoun you want. This menu is inactive when the tense is either a participle or All Forms is requested from the Options menu. If command is the tense selected, a different set of choices will appear in the Person menu. Therefore, it's best to select the tense first and then the person to avoid confusion.

Now that you've familiarized yourself with most of the drop-down options, let's try a little experiment with this new-found knowledge. In other words, let's see if this part of the program works!

Use the drop-down Options menu to select either One Form or All Forms. Now go to the Verb menu and select either an English entry or a Spanish entry. Backspace over the old entry, then type in your verb in the appropriate language. Click on OK or press Return.

Once you've selected your Form from under the Options menu, select a tense from the Tense menu. Next, select a pronoun from the Person menu. Move back to Options and click on Perform to display the finished product. Depending on the which of the Forms you chose, information on your verb will be displayed.

The Verb Quiz

I said I wanted to save the best feature of Spanish Mastery for last, so here it is. The third item under the Options menu is a Verb Quiz to test your knowledge of proper verb conjugation. In the quiz, a Spanish verb will appear on the screen and you must then give the correct conjugation according to the tense and person listed.

In the upper left-hand corner of the screen are statistics that show your progress. The top set of statistics keeps track of your progress on a specific verb. So, every time, say, *hablar* appears, you can see how you're doing on that specific verb. It is immediately reset when a new verb appears. The bottom statistics monitor your overall progress. Click on the CLR STATS box to reset.

The box in the top middle part of the screen is where the actual question and its answer will appear. If the tense happens to be a participle, there will be nothing listed under Person.

The box above Quit will tell whether your answer is right or wrong. On a color monitor, correct is green and incorrect is red. On monochrome monitors, white is correct and black is incorrect.

More on the Quiz

When an R appears in the box marked RND\ENTER, the verb will be selected at random from the program's internal list of common Spanish verbs. Click the mouse in this box and the R will change to an E for Enter. This means that when you request a NEW VERB, you can enter one yourself in either English or Spanish, as requested.

The ENG ENTRY box is only active when the RND\ENTER box reads E. Click on this box to enter a new verb in English. Click on the SPAN ENTRY box to enter a new verb in Spanish.

Say you want to be quizzed on only one of the 10 tenses in the Spanish lan- ▶

guage, preterite forms for instance. Click on ONE TENSE. A menu will then appear giving you a choice of tenses. Select one or click on CANCEL if you change your mind.

The ONE PERSON function works much the same as ONE TENSE, except that you can choose which person (i.e., *yo, tu, el*, etc.) to use in the quiz. The ONE TENSE and ONE PERSON features can both be used at the same time.

Click the mouse on the NEW VERB box to change the verb from the one used in your previous question. If RND\ENTER reads E, then the program will ask you to enter a new verb (in the language indicated by ENG ENTRY or SPAN ENTRY). Click on OK or press Return when finished.

If ALWAYS NEW is checked each question will have a new verb selected randomly. ALWAYS NEW can only be selected when the RND\ENTER box reads R. Don't forget to reset the statistics box by clicking CLR STATS.

When you've finished setting up your quiz, click on the NEXT QUESTION box or press Return to bring up the next question. Type in your answer and press Return when you're finished. The colored box will indicate whether or not you're correct and the correct answer will be displayed directly above your response.

Fin

Spanish Mastery is by no means a Spanish instructor—it doesn't teach sentence structure, vocabulary or conversation. But as a teaching aid, it's of proven value. So if you're studying Spanish or plan to, *buena suerte, mis amigos*! and let START magazine and your ST provide all the help you'll need. ■

Anthony Barbieri wrote Pro Calendar in the November 1988 issue of START. He studies Computer Science at California State University at San Jose and his CompuServe I.D. is 71451,550.

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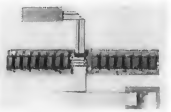

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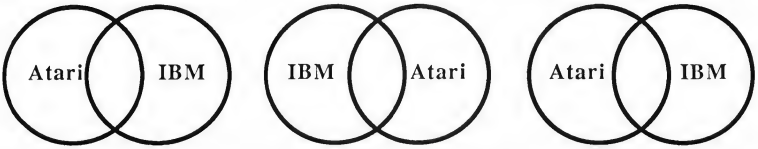

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Magic Sac and Spectre 128: State-of-the-Art Macintosh Emulators

by David Plotkin

This issue and next, I want to take a good look at the Macintosh emulators available for the ST. There are now two on the market: The Magic Sac from Data Pacific and Spectre 128 from Gadgets by Small. Although very different in application, both emulators have seen quite a few changes since their respective beginnings.

Data Pacific's Magic Sac is the first Macintosh emulator for the ST. It required 64K ROMs and therefore can't run programs requiring 128K ROMs.

The Magic Sac

Created by David Small, the Magic Sac is the better-known of the Macintosh emulators. It's a cartridge into which you insert a set of 64K Mac ROMs. Since its inception over two years ago, the Magic Sac has undergone several software revisions. Early versions couldn't run much Macintosh software without crashing—which wasn't necessarily the fault of Magic Sac. In fact, the emulator was written on the assumption that Apple's rules for Mac programming applied. Unfortunately, many developers—often including Apple itself—had violated the rules, so the Magic Sac had to be revised to run as much of this non-conforming software as possible.

Another development that forced changes in the Magic Sac's software was Apple's release of the Macintosh II. The Mac II was a considerably enhanced version of the Mac, boasting a color monitor, slots for add-in cards and a host of other features. Unfortunately for software vendors (and fortunately for Magic Sac users), the Mac II also would not run software which didn't follow the rules. Thus, software vendors scrambled to revise their software to run on the Mac II, and in the process much of the revised software could run on Magic Sac as well.

How Do You Get the Software?

A further kink in the Magic Sac's history has been its lack of compatible Mac software. Although the ST and the Mac use the same size diskettes, they can't read each other's disks. The original solution was the development of Magic-format disks, which the Magic Sac can read. Data Pacific sells a cable that lets you connect a Mac to an ST, along with software for transferring programs from the Mac to the ST. Of course, this re- ▶

quires having access to a Mac, which many people don't.

Some software stores started selling Mac software in Magic format, but these were few and far between. So David Small and Data Pacific developed the Translator, a computer that plugs into the ST's MIDI ports and lets ST disk drives read and write Macintosh-format disks. The Translator also allows the Magic Sac to run some protected software that couldn't be ported to Magic format.

Spectre 128 is the new Mac emulatar fram Gadgets By Small. It requires 128K ROMs and is campatible with Data Pacific's Translator, so it can read disks in Magic, HFS and MFS farmats.

There are, however, limits to what the Magic Sac can do because it's based on the 64K ROMs. About three years ago, Apple introduced the first Macintosh based on 128K ROMs, the Mac Plus. Not only did the new ROMs fix many of the problems and limits associated with the 64K ROMs but Apple provided an easy upgrade path for all owners of earlier Macs. As a result, Apple no longer supports the 64K ROM-equipped Macs. Thus, quite a bit of software can't run on the older machines (and thus will not run on the Magic Sac), including MacWrite 5.0, MacPaint 2.0, Suitcase, Ready-Set-Go and Pagemaker (desktop publishing packages), Adobe Illustrator, Freehand and MicroSoft Powerpoint (presentation graphics).

Apple's Hypercard, packaged with all new Macs, also requires the new 128K ROMs. Hypercard is a pictorial programming language as well as an extraordinarily useful utility. You can build your own applications using all the basics that make the Mac famous for its ease of use. Hypercard has taken the Mac world by storm, but you can't use it with Magic Sac.

Another limitation addressed by the new ROMs is the disk filing system. The original system, MFS (MultiFinder System), was fine for single-sided disks with few files, but it couldn't handle disks with several files. The old Macs could use the more powerful *HFS* (Hierarchical Filing System) format, but only after loading a special (and reportedly buggy) file called Hard Disk 20, which worked with double-sided floppies *and* hard drives in HFS format. Unfortunately, Hard Disk 20 had to be loaded in order to enable the old Macs to recognize HFS, which meant the boot disk *had* to be MFS. Complicated instructions had to be followed to enable Magic Sac to boot up from the hard drive and use an HFS-formatted drive. Not only that, the instructions in the Magic Sac documentation differ from those in the Translator docs. But just remember, owners of the original Mac had to deal with the same problems.

Introducing Spectre 128

The 128K ROM Macs run more software, read HFS- and MFS-formatted disks and have full hard-drive support. Data Pacific had planned a 128K ROM Mac emulator but never got around to developing it. Instead, the 128K ROM Mac emulator, Spectre 128, was produced by David Small's new company, Gadgets by Small. Spectre 128 is a cartridge that requires a set of 128K ROMs, and can read Magic-format disks. It is also compatible with the Translator so that it can read and write both MFS- and HFS-formatted Mac disks. It requires at least one megabyte of memory. There's no provision for porting Mac software, however, so you're on your own to get your Mac software into a usable format.

Next month, we'll take a long, hard look at Spectre 128, as well as some of the dynamite programs you can use with it. ■

Contributing Editor David Plotkin is a chemical engineer at Chevron USA and has published several articles in Antic and START.

PRODUCTS MENTIONED

Magic Sac, $149.95. Data Pacific, Inc., 609 West Speer Bauleverd, Denver, CO 80203. (303) 733-8158.
CIRCLE 219 ON READER SERVICE CARD

Spectre 128, $179.95. Gadgets by Small, Inc., 40 West Littletan Baulevard, #210-211, Littleton, CO 80120. (303) 791-6098.
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ON DISK!

Hard Disk Lore and First Aid Part II:

A Peek at Partitions

by David Small

See what your hard drive is made of! File PARTLOOK.ARC on your START disk.

This month we continue the no-holds-barred introduction to the truth behind hard disks. We'll cover partitions and the Desktop icons, and demolish several myths about same.

Partitions

The first rule is that because of a typo in the GEMDOS program, you can't have a hard disk directory structure that's bigger than 16 megabytes. (True! It should be a 32-megabyte limit. Why 32 megabytes? Because that's the limit Microsoft designed into MS-DOS for the IBM PC, and GEMDOS is an IBM look-alike.) ST hard disks are typically 20 megabytes, but they're getting bigger all the time. (See my article *Megabytes, Not Megabucks*, in the Winter 1987 issue of START for an example of how Atari hard disk owners are doing this.)

To get around this 16-megabyte limit, we have to subdivide or "partition" the hard disk into pieces smaller than 16 megabytes.

First Atari (and then various after-market manufacturers) released a partitioning program, which subdivides the hard disk into many hard disklets, called "partitions." In a *very* common example, we take a 20-megabyte hard disk and split it up into four 5-megabyte partitions. Lots of people do this.

```
Enter SCSI device:
Enter SCSI unit:

Stats for device 0 unit 0

Partition info:
 #      start   size    meg     type
 1:     1       22148   11      GEM     enabled bootable
 2:     22149   22128   11      GEM     enabled
 3:     0       0       0
 4:     0       0       0
 5:     0       0       0
 6:     0       0       0
 7:     0       0       0
 8:     0       0       0
 9:     0       0       0
10:     0       0       0
11:     0       0       0
12:     0       0       0
Dump another? no
```

Partlook gives you the complete breakdown of partitions on your hard drive. Learn where each partition begins and ends, and its size, type and status.

At this point, GEMDOS is fooled into thinking you've got four separate 5-megabyte hard disk units hooked to your ST. Most hard disks begin as drive C; in our example, the hard disk would be drives C, D, E and F.

Now, how do partitions work?

The first sector of the hard disk, sector #0 (programmers often begin counting at 0), contains a "partition table." This tells GEMDOS how the hard disk is subdivided. In our example it looks like this:

(partition sector: sector #0:).
Drive C: Sectors 1–10,001
(10,000 sectors long, 5 mb)
Drive D: Sectors 10,002–20,002
(10,000 sectors long, 5 mb)
Drive E: Sectors 20,003–30,003
(10,000 sectors long, 5 mb)
Drive F: Sectors 30,004–40,004
(10,000 sectors long, 5 mb)
Total: 40,000 sectors, or 20 megabytes

Let's say GEMDOS asks for the first sector of drive C from the hard disk unit. Hard disk physical sector number 1 is returned to GEMDOS. So far, no ▶

surprises. But if GEMDOS asks for the first sector of drive E, then the hard disk code looks in this partition table, sees that E begins at physical sector 20,003, and actually returns physical sector number 20,003 (the first sector of E).

For example, this is why you can have only one drive "letter" damaged on your hard disk. Let's say sector number 20,003, which I happen to know GEMDOS will need for any access to drive E, is damaged. Then, anything you try to do to drive E will fail. But, drives C, D and F will work just fine, because you're skipping over the damaged region. GEMDOS thinks these are totally separate disk drives; while it thinks the drive you have hooked up as drive E is defective, it also thinks the other drives are fine.

And, of course, if your partition sector gets damaged, you are doomed. There's no access to the hard disk without the tables in this first sector. That's why Dan and I included a special option to "Restore Partition Sector" in Meg-A-Minute, and always backed up the partition sector. It is the one sector on the hard disk that is essential to getting to everything else.

Remember, there is nothing magical about these partitions. There's nothing in hardware that prevents you from overriding them in software. It's all done by this partition table and by the hard disk handler software; all the hardware knows about it is reading or writing sectors.

So, we've seen how we can break up a hard disk into four partitions. Now, that still limits us to 64 megabytes (four 16-megabyte partitions), but aftermarket drive makers like Supra wanted to sell (and people wanted to buy) units much bigger than 64 megabytes. So, Supra came up with the "expanded" partition sector design, which lets you have 12 partitions, not just four. It works just the same way as Atari's scheme shown above. As I understand it, Astra, BMS and ICD agreed to Supra's 12-partition scheme, so now everyone except Atari uses it.

Supra's Utilities

Supra also wrote the Supra utilities to examine your hard disk and fix it if need be. You *want* a copy of these, regardless of whose brand disk drive you've got. They're the best hard disk tools around. They'll work on any brand hard disk; many are the times they've saved me. They are my first line of defense against hard disk troubles; one of the few disks I keep on my actual desk.

Mac partitions show up as ACK; we named them for Bill the Cat.

As far as I know, there isn't anything like them available from anyone else.

Supra's tools let you examine and change any sector on the hard disk, reformat or repartition the hard disk, make the hard disk autoboot (boot without floppy) and even give you *source code for the driver* if you'd like to access the hard disk directly, bypassing GEMDOS.

Desktop Icon Letters

Now that you understand what partitions are, let's talk about the drive letters you see on your Desktop icons. There is a great deal of confusion on this subject, so let's walk through it.

Doubtlessly you've gone through the Install Disk Drive pull-down menu on the Desktop in order to make a C icon to talk to the hard disk's first partition. Now what does this do? Does it somehow magically activate the hard disk?

Nope. Most people have the wrong image of what the "Desktop" is about.

The Desktop is just a program that happens to be put into the Atari's ROMs. There is nothing special about it. The ST runs it as a program just as it runs Publishing Partner or any other program; it happens to be the program run when the ST finishes its powerup work, and happens to be what is run when other programs finish up. That's all. It is not even needed to run the ST; you can do everything via a "Command Line Interpreter", or CLI, where, for example, you type in commands (DIR C:, etc) instead of double-clicking on drive icons.

The important thing to realize is that the Desktop is just a program for dealing with disks visually. An icon gives you the ability to double-click on it to get a directory, move files to and from it, etc. Whether you have a Desktop icon for the hard disk has nothing to do with whether or not the system can field hard disk requests right then! *That* was determined at startup time, when the partition sector of the hard disk was read in by the hard disk driver program.

Desktop icons, their names, and their screen positions are stored in a file called DESKTOP.INF. This file is created or updated anytime you choose Save Desktop under the Options menu. The Desktop reads in that file at startup to determine what icons it plots.

That's where icons come from, not from any such "working hard disk." You can edit or remove those icons with Install Disk Drive, but don't kid yourself; you're not installing or removing anything but an icon.

In summary, the Desktop is just an alternative program for dealing with disks, and it has no idea of whether or not its disk icons even hook to anything.

Poking Around

Since the partition sector is the key to everything we've talked about this month, we're including a program to dump its information out to you so you can look it over.

To run this program, copy PARTLOOK.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC the file, following the Disk Instructions elsewhere in this issue. Double-click on PARTLOOK.TOS.

When Partlook runs, it will ask you which SCSI device and unit numbers to read; press Return for the defaults of 0. Next, it will read the partition sector off that hard disk drive and output the partition's number, starting sector and length, the partition type (GEMDOS, Macintosh, etc.). This is a three-letter code; GEM is short for GEMDOS, ACK partitions are Macintosh. We named them for Bill the Cat from the Bloom County comic strip, there during the long nights of writing the Magic Sac hard disk support. The listing will also tell whether the partition is enabled and whether it is bootable or not.

The Desktop is just a program for dealing with disks visually.

To look at another partition, press Return at the "Dump another?" prompt; otherwise, type "no" and press Return.

If you want to back up your hard disk's partition sector (if you get nothing else out of this article, do this), use Meg-a-Minute Elite from the November 1988 issue of START and back up any partition; the partition sector will be backed up as well. At restore time, you can pick to restore only the partition sector if you wish.

Coming next month: A discussion of RWABS, the system call that handles disk access. ■

Dave Small's new company, Gadgets by Small, is currently marketing the Spectre 128 Macintosh emulator.

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Compiled by Stephen Mortimer

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NOTES:

1. *The above information was based upon manufacturers' claims and is current as of mid-July.*
2. *With all updates, a letter requesting the update should accompany the other material listed here.*

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The RIGHT System

by Andrew Reese
START Editor

There's little doubt that the ST/Mega line is the *right* computer for many different uses. Now that we've had three years of enjoyable ST use, the breadth of hardware and software available let the ST fulfill almost any role you may want. In this column, we'll explore some of the different ways you can use the ST—and the hardware you'll need for each.

There are several general observations to make first. All applications require a disk drive of some sort. While games and word processors, for example, are generally published on single-sided disks, a double-sided disk drive can lessen the disk swaps required for a complex program. And for the ultimate in speed and convenience, there's nothing like a hard disk drive.

If your needs run to word processing, desktop publishing and high resolution graphics (such as CAD), then you need a monochrome monitor. You can use the color monitor for many of these applications, but the mono monitor far outperforms it in day-to-day use. Graphics and games, however, cry out for color and a color monitor is imperative. If you are fortunate enough to have both monitors, then a monitor switch will save you time and trouble.

Word Processing and Desktop Publishing

Nearly every ST/Mega owner uses his or her machine for word processing. The system requirements for word processing are modest, but if this is your primary use, you can select hardware that will make the task a little easier.

If you use a simple word processing program such as STWriter, 512K of memory should be adequate. For a full-featured word processor like WordPerfect for the ST or Word Writer 2.0, you will need at least a megabyte of memory to take full advantage of all of the features. There's little need for more than one megabyte for word processing, unless you are writing a Dickensian novel and want it all in memory at once.

Finally, you need a printer. If high-quality output is important to you, you should look into a 24-pin NLQ printer, an ink jet printer or a laser printer. For draft quality work, an older 9-pin printer should be adequate.

For desktop publishing, sufficient memory is vital. For example, Calamus, the new DTP package from ISD, Inc., is about 500K in length—and that's just the program! To have the flexibility to lay out multiple pages at once, a megabyte of memory is the bare minimum. If you can afford a Mega 2 or Mega 4, so much the better, particularly if you use the Atari Laser Printer with it's high demands on memory. For high-quality DTP output, a laser printer is preferable to a dot matrix printer.

There are several peripherals that will make your DTP efforts more creative. First is a scanner to bring hardcopy artwork into your ST. While there are several low-cost printer add-ons that do a creditable job, for the best quality there's really no substitute for a true scanner, such as Navarone's. An alternative would be a monochrome video digitizer, camera and copy stand. Finally, a super monitor, such as the Moniterm Viking 19-inch pictured on last issue's cover, opens up new dimensions in page layout. You *do* need software that can display output on this monitor and you *do* need to spend as much for it as for a Mega 4, but for professional use, it's superb.

Business

Since businesses primarily use computers for word processing, the above comments apply here too. But a business may also need to use an ST for accounting, billing, etc. The ST and Mega can handle such chores with ease, but ▶

heavy-duty output requires a heavy-duty printer designed to take the pounding of constant daily use. A business also needs reliable, high-speed output with 132-column capability for wide accounting forms. A business printer, therefore, will resemble a light-duty printer in function only.

Businesses may need *two* printers: one for spreadsheets and accounting forms and another letter-quality printer for correspondence. This brings up the whole area of printer switches, *automatic* printer switches, print buffers and the like. If you want to use an ST or Mega in business, see your dealer for the accessory devices available.

Graphics

The term "graphics" encompasses both still and animated artwork. Paint programs are much less memory-intensive than animation programs. DEGAS Elite, for example, will give you two work-screens in a 520ST and up to eight in a 1040ST, while a *minimum* of one megabyte is required for the animation program Cyber Paint. And with animation, the more memory you have, the better.

To digitize images into your graphics program, you'll need a color digitizer and video camera. To obtain the highest available quality output for your VCR, you'll need an RGB-to-composite converter like Practical Solutions' Video Key. The ultimate graphics system must include a Mega 4 and JRI's Genlock to enable you to overlay computer images over other video signals.

Music

The newest MIDI software is extremely powerful and demands a great deal of memory. With a Mega 4, you can have several programs in memory at once and switch between them as your needs arise. Typical of software offering this kind of flexibility is Dr. T's MPE (Multi-Programming Environment).

I won't go into MIDI music hardware itself; that's another whole column or three. But you should be aware that complex MIDI disk files are *l-a-r-g-e* and a hard drive (the bigger the better), is an absolute requirement. Also, most MIDI programs work in color or monochrome; the choice is yours between the crispness of monochrome or the pleasing hues of a color monitor.

Scoring programs require high quality printing capabilities and that usually means laser printing. But don't despair; you can produce quite acceptable printed scores with a dot-matrix printer.

CADD

Computer-Assisted Design and Drafting requires the very highest resolution monitor available and at this time, there's nothing higher than the Moniterm Viking. It quadruples the screen area of the Atari monochrome monitor.

Just as a bigger monitor is a plus, so, too, is more memory. The Viking can run only on a Mega and to use it *and* an Atari laser printer, you need the full memory of a Mega 4.

CADD output can take two forms, either printed or plotted. A plotter mechanically duplicates the strokes of a draftsman's pen to produce clear, straight lines with no dots to blur them. The best CADD packages can support a variety of plotters; which you choose is up to you (and your wallet).

It's often necessary in CADD to use a more accurate drawing device than a mouse. A digitizing tablet (also useful in graphics) enables you to use a stylus or puck to more accurately define points in a drawing. There are several ST graphics tablets to choose from.

Home Use and Entertainment

Other than the word processing requirements outlined above, home use and entertainment require the least equipment. A color monitor is usually required for games and most home programs can run on both color and monochrome monitors. If you're only buying one monitor for the home, buy color. Then all you'll need is a joystick or two and perhaps a Mouse Master from Practical Solutions to eliminate unplugging your mouse to play games.

Conclusion

If you have an application that hasn't been covered here, it will at least resemble one of the ones described. Choose your hardware accordingly. But no matter which ST hardware you have, you can take satisfaction in knowing that you own the best low-priced microcomputer on the market. ■

PRODUCTS MENTIONED

WordPerfect 4.1 for the ST, $329. WordPerfect Corp., 288 West Center Street, Orem, UT 84057, (801) 225-5000.
CIRCLE 170 ON READER SERVICE CARD

Word Writer 2.0, $79.95. Timeworks, Inc., 444 Lake Cook Road, Deerfield, IL, 60015, (312) 948-9200, (800) 535-9497.
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Calamus, $299.95 and **Calamus Plus**, $449.95. ISD, Inc., 2651 John St., Unit 3, Markham, Ontario, Canada L3R 2W5, (416) 479-1880.
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Viking 1 19-inch monitor and board, tentative price $1,995; **Viking 2400** 24-inch monitor, tentative price $2,595. Moniterm, 5740 Green Circle Drive, Minnetonka, MN 55343, (612) 935-4151.
CIRCLE 173 ON READER SERVICE CARD

Video Key, $119.95; **Mouse Master**, $39.95. Practical Solutions, 1930 Grant Road, Tucson, AZ 85719, (602) 884-9612.
CIRCLE 174 ON READER SERVICE CARD

Genlock ST, approximate price $400. John Russel Innovations, P.O. Box 5277, Pittsburg, CA 94565.
CIRCLE 175 ON READER SERVICE CARD

Keyboard Controlled Sequencer (contains the Multi-Program Environment), $249. Dr. T's Music Software, 220 Boylston Street, Suite 300, Chestnut Hill, MA 02167, (617) 244-6954.
CIRCLE 156 ON READER SERVICE CARD

DEGAS Elite, $59.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, (415) 571-7171.
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Cyber Paint ver. 2.0, $79.95. Antic Software, 544 Secand Street, San Francisco, CA 94107, (800) 234-7001.

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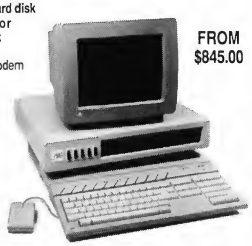

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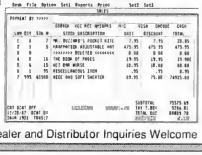

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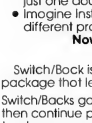

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Creator and Notator

Super Sequencing, Super Scoring

by Jan Paul Moorhead

Some people get jaded by the advances in music technology, but I keep looking into the future and waiting for what's next. Sequencers are a case in point. I'm a "love 'em and leave 'em" sequencer user, but with C-Lab Software's Notator and Creator, I think I've now found my true love. These programs fill in almost every slot on my wish list for sequencers and promise yet more features to come.

What are the differences between these two programs? First, Notator is a subset of Creator. Typically, MIDI developers have sold music notation and sequencing programs separately, forcing you to leave one program and boot up a new environment in order to notate. However, C-Lab's software is different. Notation functions are nested very nicely into Creator's editing section, thus creating a new program, Notator. Here, I'll describe the most notable features offered in both programs and then move on to the additional features offered by Notator.

Basic Structure

The first question musicians ask about sequencer programs is usually, "Does it run like a tape recorder or like a drum machine?" The answer is "yes." Other programs offer both these options but none I've seen do it with such ease and flexibility. You can make patterns (strings of notes) of any length and start them before beat one. This way you can catch those pick-up notes that in other programs require their own pattern. In

ELLEN SASAKI

Arrange mode, you can start and end anywhere within a pattern. You can run up to four patterns at a time and you can also have noncontiguous beginnings and endings.

The Creator screen (*Figure 1*) shows you the starting point of each pattern, its length, name, transposition, etc. There are only two main screens in Creator, thus making all the necessary information quickly and clearly available. There are programmable mutings for the arrange mode that you can access with the function keys. You can also disable the transposition option on different tracks, so when you're doing pattern transpositions, your drum tracks don't end up sounding like a bad accident in a kitchen implement factory.

Basic Recording and Large Scale Editing

Recording your patterns is as simple as pointing to a track and clicking on Record. Creator lets you access all the record and "transport control" buttons from the keyboard, a remote controller or the mouse. You can cycle between the locator points on the screen and continuously overdub parts to create drum parts. Another option is to have each successive pass in the cycle mode erase the previous pass, which lets you continue to play a part until you get it right. You also have automated punch-in and punch-out.

You can copy a track in a pattern by clicking and dragging it to the new location. Erasing a track is easy: just drag it off the center of the screen. The Undo button will restore data from before the last change. You can copy groups of tracks, pieces of tracks and between patterns with the Copy Menu. The pro- ▶

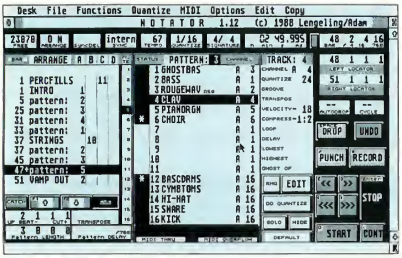

Figure 1: The Creator screen shows you the starting point of each note pattern, its length, name and transposition.

gram is intuitive enough that you don't need the manual for most of the options.

Creator's recording resolution is a very respectable 192 ticks per quarter-note, and its quantization options are outstanding. First, there are variable Capture Parameters that control how tightly the quantization will operate. I regard this option alone as a basic necessity for any sequencer you're going to use for anything other than "robot grooves." All together there are 17 options under the Quantization Menu!

One feature to be added to Creator that's presently available only on Notator is the ability to quantize a track to the groove characteristics of another track. This is a first on any sequencer. For instance, if you lay down an excruciatingly hip-feeling bass part, you can quantize the drum part to the feel of that bass part. The unique feel of the bass part can then be transferred to the other parts of the patterns.

None of this quantization is data destructive, and quantizing is real-time and reversible—it only becomes permanent when it goes to disk. This means you can rapidly switch between, and compare the feel of, different levels and types of quantization while the program is running. You don't have to make backup copies of tracks to preserve the original data in the event you don't like the results of the quantization. This is the best sequencer I have ever encountered for the pursuit of the killer groove.

Creator has two kinds of functions: data-altering and play parameters or functions. Play parameters operate in real-time and do not affect the actual data. Quantization is sort of in-between a data-altering function and a play parameter. Quantization is a data-altering function but as far as we're concerned it acts like a play parameter (meaning it operates in real-time and it's reversible). A list of various parameters beside the Pattern Window on the main screen features basic track characteristics such as MIDI channel, quantization, transposition, arithmetic velocity boost or cut, and others.

Bells, Whistles and Beyond

You can compress or expand velocities on each track for each pattern. This is useful for expanding dynamic range on a track to make it more dramatic or funky. You can also use it to compress tracks to make velocity variations less extreme, to suppress modulation or create other effects that may be velocity-dependent. The program allows independent looping of tracks or portions of tracks within a pattern. (This is entirely different and in addition to the Cycle Mode mentioned earlier.) Tracks can be pushed forward or backward by ticks or milliseconds. You can set pitch limits for easily extracting bass parts from a two-handed piano part or other applications. Here is a nice feature: you can "ghost" (clone) a track without using up extra memory. Any changes in the parent track are echoed to the ghost track. This is great for quickly creating MIDI delays or echo effects, doubling octaves, or creating parallel harmony parts.

Creator also has a 16-track Real-Time MIDI Generator. You can assign any controller to any track and use it to control various parameters. You can manipulate the screen sliders with the mouse or other devices such as a keyboard's pitch wheel. All the changes can be recorded for replay. One way to use this is to control MIDI volume, thus giving you automated MIDI mixing. Notator's Real-Time MIDI Generator features are probably most useful in live performance situations.

Editing and Notation

Creator lets you do basic editing piano-roll style (see *Figure 2*). For me, this took a little getting used to, but it does offer the advantage that you have note graphics plus MIDI list editing simultaneously. By pressing Cue you hear the part while the notes scroll by. With the mouse, you can speed up or slow down the scrolling. Step entry is a breeze using a MIDI controller. Drag notes around the graphic display and stretch or squash them to alter rhythms.

Creator's editing is very good, but with Notator it's outstanding. Traditional music notation is presented on the screen in addition to the list and graphic editing capabilities. Traditional notation is very poor at showing exact note lengths and rhythms but has the advantage of being much easier and quicker to read than list or piano-roll displays. Either display is optional or simultaneous. The traditional notation display scrolls in real-time while playing, as do the other graphics. This gives you four sets of real-time cues while editing—the MIDI list, graphics, traditional notation and aural. What else could you ask for?

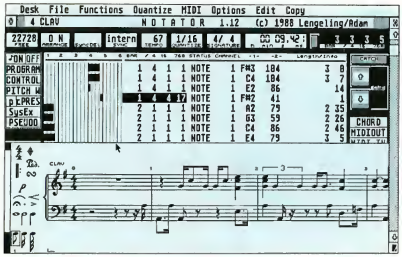

Figure 2: Creator lets you do basic editing piano-roll style—by pressing Cue you hear the part while the notes scroll by.

So far I've found that even the nastiest rhythms are correctly notated, including triplets and sixteenth notes in the same display! Change pitches and rhythms by dragging them on the staff. I could go on and on about how deftly you can edit with this program but instead, imagine having the standard tools you have in DEGAS Elite to manipulate your music and graphics!

Nit-picking

Nothing in this world is perfect, and that includes Creator and Notator. For the extremely picky, beaming is always horizontal, and complex interwoven beaming is not supported yet. The notation will continue to be refined as time goes along and C-Lab is very open to user feedback. The program also displays time in bars, beats, subbeats and ticks, and in hours, minutes, seconds and milliseconds. I would very much like to see MIDI Time Code or SMPTE on the screen as well but that's coming later.

As yet, the programs support Epson-compatible printers, but not laser printers and Postscript (although C-Lab says other printer drivers are on the way). For you hackers, the programs include a utility to write your own printer driver, but I haven't steeled myself to perform that odious task.

Creator's manual could be better; it doesn't contain some of the program's most recent features. (However, once I got the hang of the program's basic logic I found very little need to look at the manual anyway.) The program isn't copy-protected but you have to insert an enclosed cartridge key into your ST before you can use the program. Creator works in color or monochrome, though there are a couple of very minor bugs in the color version that C-Lab is fixing (apparently I was the first to encounter them). At present Notator runs only in monochrome although that is supposed to change.

Conclusion

Creator and Notator have a great deal more features, but they're beyond the scope of the space for this review. I can, however, leave you with this: for power, ease of use and speed of the user interface, C-Lab's Creator is by far the best sequencer I've encountered in any MIDI environment—IBM, Apple *or* Atari. ■

Jan Paul Moorhead is a professional musician and the owner of Pulse Music Studios in Los Angeles.

PRODUCTS MENTIONED

Creator, $349; **Notator**, $595. Upgrade from Creator to Notator available from Digidesign for $246. C-Lab Software, distributed by Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025, (415) 327-8811.
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Flight notes # 2D

Flight Simulator's second 3D window view is an extremely valuable flight aid, yet many of you who don't fly a real aircraft may not use it to best advantage. I personally like to set it up as a left-window view almost every time I use Flight Simulator. This is partly because pilots are accustomed to flying a left traffic pattern at non-tower airports (all turns to the left unless otherwise specified) but also because, if you think of yourself as sitting in the left seat, it is your best side view. If you're used to what a normal field of view looks like, you can "cheat" and set the second window to a wide-angle view to give yourself the most information on what's off to your left. This can be an invaluable flight cue, whether you're in an airport traffic pattern or flying cross-country. It can give even more valuable pitch information when performing aerobatics. Coming next month in this column, we'll begin an introduction to aerobatics.

Wrapping Up Europe - The deadline for entering our "Find Red Square" contest was November 15th, 1988. Current plans call for a mid-December drawing to determine the contest winner. This contest, requiring you to use **Flight Simulator** or **Jet** to locate Red Square on our new **"Western European Tour" Scenery Disk,** was as much fun for us as it was for you! Watch for another Scenery Disk promo contest next year.

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The Now and Future MIDI

by Jim Pierson-Perry
START Contributing Editor

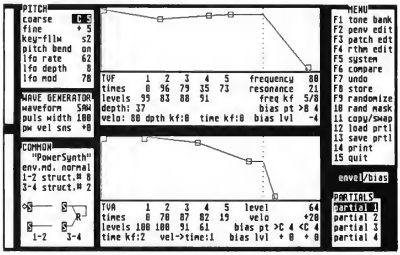
This month, we'll cover some new MIDI products, upgrades and a wish list of MIDI application software.

New Hardware

Astra continues to dominate the MIDI hard drive market. Their latest release is the RM60/120, a 60-megabyte (Mb) rack-mount hard drive expandable to 120Mb. They also offer the MIDI Distribution Box interface. This box plugs into the Atari MIDI ports and supplies one *In*, two *Thru* and three *Out* ports.

The Phantom is a SMPTE synch box from Dr. T designed to work under his proprietary Multi Program Environment (MPE). It plugs into the ST serial port and can synch with all industry-standard SMPTE formats, song pointer encoded FSK or standard pulse. It also provides one MIDI *In* and two auxiliary MIDI *Out* ports.

The Video Jambox is a high-end SMPTE-to-MIDI interface from Southworth Music Systems. Designed for video applications, it has all the features of its predecessor (Jambox/2) plus direct synch to video frames. It can also superimpose SMPTE frame numbers, metronome clicks and status information over the video signal.



The Dr. T D-10/110 Patch Editor. Software for all MIDI applications seems to be the motto for Dr. T.

Akai now offers upgrade cards for their popular S900 sampler that lets it work with Atari (IB101/A) or Supra (IB101/S) hard drives. The cards use the DMA port and cut the time for a full memory load to eight seconds.

New Software

Software for all MIDI applications seems to be the motto for Dr. T—they've just released new patch editors for the Roland D-10, Casio CZ and VZ-1 and Kawai K1 synthesizers. The initial D-10 editor release did not support the rack-mount version (D-110) but should be compatible by the time you read this. The CZ editor is a port of CZ Rider, long available for other personal computers, and it includes the ability to read CZ-Android format patch files.

Keys is a new combination sequencer/notation program aimed at the educational market; it works with or without MIDI. You can enter notes and chords either from the keyboard or by typing them in. The notes are shown onscreen in standard musical notation and can be edited and played back through the computer sound chip and/or MIDI. You can use the program by itself although it's also upwardly compatible with other sequencers and scoring programs from Dr. T.

Intelligent Music, the developers of M and MIDIdraw, has shipped two new programs. The Cartographer is an editor ▶

program for the Mapper—a MIDI data processing device that can convert MIDI commands/data from one type to another (e.g. pitch bend to volume). The second is RealTime, an interactive sequencer based on a rhythmic design similar to their Upbeat program for the Macintosh.

Digidesign continues to supply high-quality MIDI software from C-Lab of Germany. The newest import is X-Alyzer, a high-end graphic patch editor for the Yamaha DX7/DX7II synthesizer series. It can convert the synthesizer patch into a sound file compatible with many samplers, and it uses the sample dump file standard.

Kurzweil, known for their world-class sampler instruments, has ported Object Mover from the Mac over to the ST. Object Mover is a librarian program for their 1000 series of keyboard and expander instruments. Another new face is Performance MIDI Systems, which has released the Pro MIDI Player sequencer and ML-2412 Lighting Controller. This system is designed for live performance and control of stage lighting via MIDI.

Astra continues to dominate the MIDI hard drive market.

Astra System's latest release for the MIDI user is the RM60/120, a 60-megabyte rack-maunt hard drive expandable to 120 megabytes.

Going Up

Steinberg/Jones has announced several upgrades in their Synthworks patch editor series to maintain compatibility with new synthesizer models. The MT-32 editor will now support the Roland D-20, D-10 and D-110; the ESQ-1 editor will support the Ensoniq SQ-80; and the TX81Z editor will support the Yamaha DX11. Also underway is an upgrade to the Soundworks S900 sample editor. Their Mirage sample editor is also marked for updating later this year to add support for the new Ensoniq Performance Sampler plus improved looping and sample manipulation options.

Writing music for video will become easier with Master Tracks Pro 3.0 from Passport Design. This upgrade adds numerous features to marry music with video cues and is the first ST sequencer to feature "controller chasing" for automated mixing applications.

Beam Team Update

As mentioned last month, Steinberg/Jones has acquired the rights to the entire Beam Team software line. They will offer the Transform X-Syn programs as entry-level patch editor programs, complementing their own high-end Synthworks line. Several new X-Syn patch editors will be released to support the Oberheim Xpander, OB-8 and Matrix 6 synthesizers. The companion Beam Team sequencer and scoring programs (Transform X-Track and X-Notes), in development limbo for two years, will not be released.

Beginning of the Finale

Look for Coda, developers of the massive Finale composition/scoring program for the Macintosh, to enter the ST market next year. They are currently assessing the feasibility of porting Finale itself to the ST versus developing a different program based on Finale's underlying technology. The Macintosh version of Finale is *$1,000*; we can only hope that the ST version will be cheaper.

The Wish List

With so much quality MIDI software available for the ST, it might seem that there are few avenues left unexplored. Actually, there are several areas where the ST lags behind.

Let's look at some of these opportunities not yet taken. In a few cases, software already exists on other computers and only needs to be ported over; other programs are on the cutting edge of the ST's capabilities.

To start with, we need better ways to score music to video. While some sequencers are better suited for this than others (because of timing control and interface features), there are no ST programs that can work directly from a cue list to juggle music tempos easily to fit video "hits." Some examples of this are Q-Sheet (Digidesign) and Click Tracks (Passport), both available only for the Mac. Both companies support the ST with other software, so there's hope.

Sample resynthesis is a different challenge that some Mac and PC programs are just starting to address.

Resynthesis lets you start with a digitized sound sample, take it apart, modify it, then put it back together and use it with a sampler. (For example, you could merge two or more samples into some hybrid sound that evolves as it's played.) These manipulations require a great deal of computational power (possibly even a math co-processor), complex algorithms and a well-designed user interface to deal with the process.

Algorithmic editing and composition is a hot topic but still in its infancy. Several such programs are available for the ST, based mostly on pre-defined musical element lists (note, timing, loudness, etc.) called templates. Using them is more like learning to play a new musical instrument than using an editing tool. If these catch on, a cottage industry may grow up around algorithmic templates, much the same as synthesizer patches. The next level is software that can follow your music in real time and improvise with you as you play. Intelligent Music's Jam Factory (Intelligent Music), available only for the Mac so far, is a step in this direction.

Semi-automated music transcription (scoring) is another application in its early stages. All major ST sequencers have companion programs to translate music files into printed scores. While pitches are accurately captured, rhythm is not as easily handled because of individual timing variations. Often, reproducing the rhythm requires considerable editing. Other nuances such as loudness or tempo changes, while contained in the MIDI data, are not attempted in the transcription. Artificial intelligence and pattern recognition techniques may prove effective here. Output options for the ST also need to be improved to use laser printers with the Sonata Postscript or similar fonts or to export score files to desktop publishing systems.

From the grandiose to the pragmatic, how about software for programming drum machines? I would like to see a generic graphical rhythm editor for building drum parts. Ideally, it would produce MIDI-standard format files that could be imported into sequencer programs. Another useful utility would be a MIDI note remapper within sequencers to handle differences in note assignments from one drum machine to another. To my knowledge, Dr. T's KCS Level II is the only Atari sequencer with this feature.

I would like to see a generic graphical rhythm editor for building drum parts.

Finally, the overall music workstation needs to grow into a multi-tasking environment. We need software that lets us flip freely among sequencers, patch editors, scoring programs and librarians. Some software developers are moving in this direction but with proprietary systems that lock out or balk at software from other sources.

Conclusion

I could go on, but that's the major part of my ST MIDI software wish list. I know that forthcoming programs are addressing many of these points—and many more. The ST is a true child of the MIDI generation: we're only beginning to learn what we can do with the ST/MIDI connection. ■

START Contributing Editor Jim Pierson-Perry is a chemical engineer and semi-professional musician. He lives in Elkton, MD.

PRODUCTS MENTIONED

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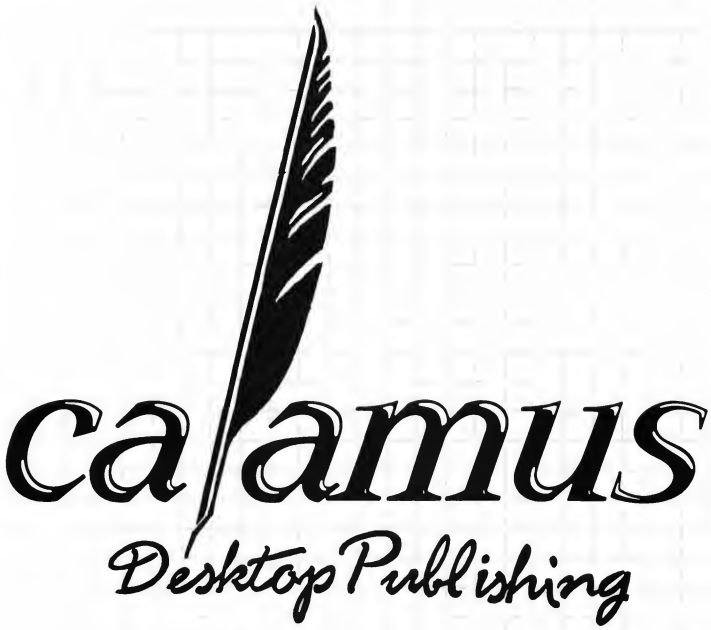

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ON DISK!

STARTKey Revisited

by Wayne G. Longman

Keep your hands on the keyboard with MACRO.ARC on your START disk!

It's not often I'm so impressed with a magazine that I buy two copies of the same issue, but I bought two copies of the Winter 1987 START. Why?

STARTKey.

John H. Jenkins' STARTKey really impressed me. This desk accessory lets you define keyboard equivalents to replace the drop-down menus on any GEM program. In fact, you can define keyboard equivalents for any keystroke combination and manipulate GEM functions by sending messages to programs.

Using the Program

You must have STARTKey to use the macro files on this issue's START disk. To use the macros, copy the file MACRO.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC MACRO.ARC, following the Disk Instructions elsewhere in this issue. These macros define keyboard equivalents for the menu bars in 1st Word version 1.03 (1STWORD.TXT and 1STWORD.MAX) and 1st Word Plus version 2.02 (WORDPLUS.TXT and WORDPLUS.MAX). Refer to the STARTKey documentation in the Winter, 1987 START to see how to load the .MAX files and edit the .TXT files.

By using the macros, you can access some of the characters in the ST's alternate character set. Here's a list of the special characters:

CA-/	ë	A-/	é
SA-/	Ë	A-e	è
CA-e	ê	A-a	à
SA-a	À	CA-a	â
A-i	ï	CA-i	î
CA-o	ô	A-u	ù
SA-u	Ü	CA-u	û
A-c	ç	SA-c	Ç

Note: C- means to hold down the Control key while pressing the character, A- means to hold down the Alternate key while pressing the character and S- means to hold down the Shift key. If the key sequence is, for example, CA-e, you must hold down both the Control and Alternate keys while pressing *e*.

Function Keys of Note

I've used the function keys exclusively for the menu items. Below is a keyboard template for each of these files. Photocopy this page, cut out the two halves of the appropriate template and tape it together. Then, tape it to your ST keyboard above the function keys.

Most of the function keys access the drop-down menus. Refer to the templates for a complete list of function keys and commands. Below are some other helpful Function key definitions:

- CS-F10 goes to the top of the document, SA-F10 goes to the bottom. These keys let you jump back and forth from the beginning to the end of the document very quickly.
- F8 has two macros to change directories; they only work when you have opened a file selector box. (These work with the standard GEM item selector, not the START selector.)
- The F9 functions let you use preformatted documents. This option also works only when the file selector box is already opened. If you have 1st Word Plus, create document formats for letters, memos, ASCII files, etc. and save them in the FORMATS folder using the names FORMAT.LET, FORMAT.MEM, etc. 1st Word owners should create templates and name them NEW.MEM, NEW.LET, etc. and keep them in the same directory as 1st Word. Actually, it isn't possible in 1st Word Plus to create an ASCII Ruler, but it is possible to set the ruler to 80 columns in the WP mode, use it, and then save it in the

ASCII mode—that's how the NEW ASCII option is intended to be used.

When you select a function key equivalent of a menu bar option the menu does not appear, it just executes. The original function key functions still work, and I've left lots of room in the files to add your own macros. In some cases, you can't get entirely away from the mouse because of dialog box buttons.

One note of caution: calling functions when they are normally grayed-out may cause your ST to crash. This is because STARTKey is going behind the word processor's back as it (STARTKey) selects options. For example, 1st Word Plus doesn't check whether the the dictionary has been loaded when you select Browse because normally the menu bar is greyed out *until* you load the dictionary. If you do select Browse (A-F6) without a dictionary in memory, the program will crash.

A major complaint about 1st Word Plus has been its lack of keyboard control. With this added feature, it may well become the best word processor around.

Wrapping Up

I hope you get as much use out of STARTKey Macros as I got from the original STARTKey. Oh yes, why did I buy two issues of START? Well, the first time, I bought the non-disk issue from a newsstand. I didn't even try to take it back! ■

Missing out on STARTKey? You can order the disk and magazine for Winter, 1987 by calling 1-800-234-7001. If you are a CompuServe subscriber, you can download STARTKey from Antic Online's November Software Shelf; log onto CompuServe and type GO ANTIC.

Wayne G. Longman lives in Ontario, Canada and is a contributor to the Bytown Bytes newsletter.

START Key						
CS CA SA	Save As Read File Delete File	WP Mode/ASCII	Cut Block Paste Block Delete Block		Justify Right Reformat
C S A	Open File Print File Layout	Find Repeat Find Replace	Start Block End Block Move Block		Superscript Subscript Restyle

					1ST Word v1.03
Control— **Delete** delete word ▪ next/last word		Set Mark 1 Go to Mark1	New Msg New _____ New _____	Go to Top Go to End	
		CHDIR C:\ CHDIR A:\	New Letter New Memo New ASCII	Save & Quit Quit	

START Key						
CS CA SA	Save As Read File Delete File	WP Mode/ASCII Statistics Hyphenation	Cut Block Paste Block Delete Block	Add Ruler Page Layout Footnote Format	Justify Right Reformat
C S A	Open File Print File Save & Resume	Find Repeat Find Replace	Start Block End Block Move Block	Show Ruler Show Position Add Footnote	Superscript Subscript Restyle

					1ST Word Plus v2.02
Load Dictionary Spell Check End Check	**Shift** ↑↓ screen **Control—** **Delete** delete word ▪ next/last word tcheck next word	Set Mark Go to Mark	New Msg New _____ New _____	Go to Top Go to End	
Continuous Add Word Browse	Graphics Mode Read Picture Delete Picture	CHDIR C:\ CHDIR A:\	New Letter New Memo New ASCII	Save & Quit Quit Quit All	

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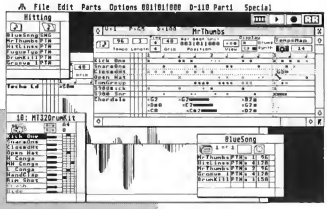

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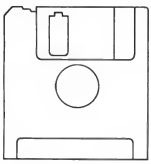

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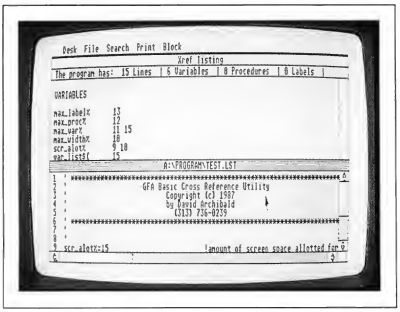
ON DISK!

GFA Cross-Reference

Take the Drudgery out of Debugging

by David Archibald

Cross-reference your program—save hours of debugging time with XREF.ARC on your START disk!



Xref's split-screen display lets you examine and search through your variables, procedure names and labels in the upper window, and study exactly how they are used in the numbered listing of your BASIC program below.

Buying GFA BASIC made me think of all the BASIC programming utilities I've used over the years—some good, some not so good. I think the two programs I found the most useful were a line renumbering utility and a variable-and-label cross-reference program. With GFA BASIC, the first program was obsolete, but I could certainly use the second. I quickly discovered that a cross-reference program did not exist for GFA BASIC, so I decided to write my own. Thus Xref was born.

Xref reads a copy of your BASIC program from disk and compiles a listing of the program's variables, labels and procedure names, along with the line numbers on which they appear. The program is GEM-based and was written using GFA BASIC. It runs in either medium or high resolution.

Preparing Your File for Xref

Xref can only cross-reference a file properly if it's a text file with the BASIC commands in all uppercase and everything else in upper and lower case. Run GFA and load your program. Press the Escape key to go to direct mode and then type DEFLIST0 and press Return. Press the Escape key again and then press Return to get back to the GFA edit screen. Select SAVE,A (Shift F2) and save the file with the extender .LST.

Xref can cross-reference BASIC files as large as 3,500 lines. If you happen to have a file that exceeds this limit or if you run out of memory, you'll need to divide your program into two or more separate files. To do this, first load your program into GFA BASIC. Next, mark a big block of text with the BLK STA (Shift-F5) and BLK END (F5) commands, then save it using the BLOCK (F4) "W" command. Finally, mark the remainder of the program and save it to a separate file.

Running Xref

To run Xref, copy the files XREF.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC the file, following the Disk Instructions elsewhere in this issue. Double-click on XREF.PRG to run the program (the file XREF.RSC must be in the same directory). Xref will come up with a file-selector box; select the file you wish to cross-reference.

Xref will then read and cross-reference the file. It also will provide you with a dialog box to show what ▸

percentage of the file has been read. Xref will then sort the cross-referenced listing and open two GEM windows, one above the other.

The top window displays the cross-reference listing and the bottom window shows the BASIC program with line numbers added. Both windows have vertical sliders and arrow buttons. The program window also has a horizontal slider with arrow buttons for lines longer than 80 characters.

The cross-referenced listing is broken down into three parts. The first shows all your variable names, the second the procedure names and the third the labels. After each name is a list of the line numbers of the program which reference that name.

The program shows the type of variable—either "%", "!" or "$" — and uses an open parenthesis "(" to indicate an array. A procedure or label's line number of origin is marked in the listing with an asterisk ("*").

The Menu Bar

All of the drop-down menu bar commands can be accessed with either the mouse or control-key combinations.

File

Select Open File. . . (Control O) to choose a new file to be cross-referenced. The previous file and its cross-reference listing will be lost if a new file is selected and cross-referencing has begun.

Select Save All of Xref. . . (Control V) and Save Block of Xref. . . (Control F) to save all or part of a cross-reference listing to disk. The listing is saved as a standard ASCII text file that can be loaded with a word processor. It can also be either viewed or printed from the Desktop.

Search

You can scan the cross-reference listing for a particular name or section with the Search. . . (Control S) command.

What do you mean you can't use XREF because you don't have a copy of the GFA BASIC interpreter? You do if you have a START disk! Don't miss out! Call (800) 234-7001 to order START's XREF and GFA BASIC ver. 2.0.

The dialog box that appears will accept a search string up to 30 characters long. A complete name is not required to find a match. For example, you can enter "long" to find "longname" or "t" to find the beginning of the "t" listings. (Note that the search is case sensitive; thus entering an uppercase T, for instance, would not find a lowercase t.)

The search begins at the second line in the cross-reference window and works forward. A dialog box informs you which section of the listing is currently being searched—variables, procedures or labels—and the number remaining to be checked.

If the search is successful an alert box will appear telling you where the string was found. The second window is then reset to display the line with the matching string at the top of the window. If the search fails you'll be told in an alert box.

To move the display to a specific line in the program window, use the Goto Line. . . (Control G) command. Answer the dialog box that appears with a line number and the program listing will be re-displayed with that line at the top of the window. Like the search command, if there aren't enough lines following to fill the window, then the line will be displayed at the bottom of the window.

Print Your Cross Reference

You can send all or part of the cross-reference listing to the printer with the All of Xref (Control P) or Block of Xref (Control B) commands. All of Xref will print the entire listing and Block of Xref will print only a marked section. All or part of the program file can be sent to the printer with the All of File (Control A) and Block of File (Control K) commands.

All of the Print commands have the same output format. A six-line header is printed on the first page in which the first two and last two lines are left blank. The third line has the path and file name of the BASIC program and the fourth line has the date and time of printing. The cross-reference and program listings are printed exactly as they appear in their windows.

Block Commands

To mark a single line, click twice with the left mouse button on the desired line. To mark a block of lines, click on the first line of the block with the cursor anywhere on the line and that line will be highlighted. Now, point the mouse at the last line of the block and click again. The first line, the last line, and all of the lines between will be highlighted. You can mark as many lines as you like but you can have only one block per window.

To unmark a block, select Unmark Block (Control U) from the drop-down menu. If you have lines marked in both windows, only the block in the active window will be unmarked. Using the Save or Print Block commands will also unmark a block for that window.

An Excellent Reference

Ambitious programming is a complicated process—it's easy to add variables early on and then forget exactly where or even if they're being used several versions later. Also, bugs can easily crop up when the same variable name is used in more than one section of the program. Xref isn't a tool you'll use every day but when you do use it you'll thank it for taking the drudgery out of debugging. ■

David Archibald lives in Flint, Michigan where he is on educational leave from General Motors. His CompuServe I.D. is 73256,2640.

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Typhoon Thompson combines excellent animation with an imaginative scenario and fast action—and not just a tiny bit of humor, either.

TYPHOON THOMPSON—SEARCH FOR THE SEA CHILD

Reviewed by Scot Tumlin

An intergalactic transport has disappeared on a distant ocean planet; only a single baby survives. Three rescue parties have gone after him—and have never been heard from again. Now it's up to Typhoon Thompson, reluctant galactic hero, to save the day.

As Typhoon, when you reach the water planet, you'll learn *why* the previous rescue attempts failed: the Sea Sprites that inhabit the planet don't take kindly to strangers. Not only that, but they're crazy about the baby and don't want you taking him away.

Typhoon Thompson is Broderbund's first major ST effort in too long a time, but it's been worth the wait. Add the fact that the program was written by Dan Gorlin of Choplifter! fame and it should be enough to make Typhoon Thompson popular, but the graphics and overall gameplay will make it a winner.

The Spirit Guardians

You're not in this one alone. Spirit Guardians, relics from the planet's long-dead civilization, will provide weapons—as long as *you* provide the magical artifacts they desire. Each artifact is located inside a Treasury Dome at the center of an island village. All you have to do is zip on over in your jet-sled and retrieve the artifact. Sounds easy doesn't it? There's just one catch: the only way to retrieve the artifact is to capture all the Sea Sprites in a village and trade them for the artifact. That's tougher than it sounds, largely because the Sea Sprites have a penchant for high-tech, beweaponed flying machines and aren't afraid to use them. Some flyers inflict minor damage, others can kill you or destroy your jet-sled.

Gameplay

After one of three amusing opening sequences, the Spirits tell Thompson which artifact to retrieve *and* grant him an additional weapon to use. Now head for the ▶

Sea Sprite islands and fire at one of the pods. A direct hit brings one or more flyers from the pod, each manned by an irate Sea Sprite. When you blow up a flyer, the Sea Sprite pilot will tread water briefly, at which time you'll have to grab him and stuff him in a sack. If you're too slow, the Sprite will head toward a pod, skipping over the water like a flying fish (but you can still capture him if you stun him with your laser cannon).

Once you've captured all the Sea Sprites, you go to the Dome, where the Sea Sprite king will emerge, show extreme consternation, then grudgingly give you the artifact you seek in return for his subjects. Return to the Spirits to see which artifact to obtain next. You must retrieve four in all—be happy it's not five!

Wrap Up

Typhoon Thompson is a great arcade game. Controlling the jet-sled is hard at first and takes some getting used to. When things get hot and heavy, you can drop below the surface of the water and catch your breath. Also, you can fire some of your weapons while submerged.

Typhoon Thompson has the best arcade animation I've seen—this alone could keep me addicted to the game. As for the Sea Child, well, I haven't rescued him yet, but I'm going to keep trying.

GLOBAL COMMANDER

Reviewed by David Plotkin

In Datasoft's Global Commander, you're the supreme authority of planet Earth. Sounds like a pretty good job, right? Well, it is and it isn't, considering that your main responsibility is to keep the world from getting blown to bits in a nuclear holocaust. This is a task that takes diplomacy, skillful negotiating, bluffing and just plain luck. But make no bones about it, despite Global Commander's morbid premise, it's a lot of fun to play.

How mony times hove you said to yourself, "If only I ruled the world"? You get your chance in Global Commander.

In the fictional world of Global Commander, Earth consists of 16 nations. Your goals are clear: get along with each nation, help the nations get along with each other, make sure each nation has what it needs and establish military security. (There is also the small matter of finding and disarming the World Organization of Terrorists.) Easy, right? To help you in these Herculean tasks, Datasoft has thoughtfully included a map with small stick-on flags so you can keep track of the (current) alliances.

Global Commander makes you less a dictator than a moderator, a fact which makes your position tenuous at best. If the nations feel that you're doing a good job, they'll let you continue. Otherwise, they may call for a vote of confidence. If you lose that vote, then you must step down and the game is over. That's one way to lose. The other is to allow a nuclear war to occur.

Take a Memo

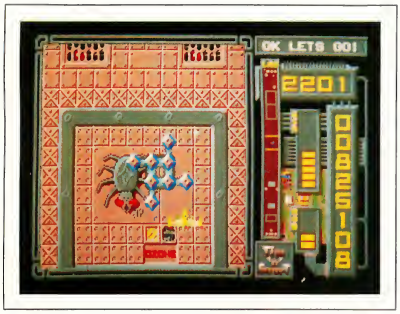
You issue all your orders from your command post, via your control panel. Selecting an option is as simple as clicking on it with the mouse. The first thing to worry about is incoming memos detailing the actions taken by a given nation. You must indicate whether you approve or disapprove of this action or you can ignore it. Your responses to memos tell the nations a lot about you (and your ability to rule the world), so weigh your options carefully.

The Information Center lets you monitor the status of the two primary needs of each nation: resources and technology. The amounts for each nation are shown on a graph, and colors indicate whether a nation is satisfied with the current levels. You can request that countries with more than they need share with countries that have less, though the countries in question might not respond to your request. You can also send letters to nations instructing them to get along (but how effective do you think *that* is?)

Your Powers

Military security is handled in several ways. If a nation feels insecure, it may actually start a war to head off an attack. To enforce security, you can request that a nation increase or decrease its supply of missiles. Again, they may not comply. But an increased supply of missiles could make the nation feel more secure—or more belligerent.

You have three SDI (Strategic Defense Initiative) satellites. These can't protect the whole Earth, so it's up to you to figure out where the next "hot" spots will be and position the satellites to do the most



If you liked Goldrunner, you'll like Goldrunner II—it's as much fun as the originol, but it's a different game oltogether.

good. You also have access to some sophisticated spy satellites that report on the conditions in the countries the satellites are over.

Finally, the services of a powerful, elite commando unit are yours: the UNN Task Force. Wherever you place this unit, that nation tends to behave itself! However, you'll want to move it around, since it will be needed in different places from time to time. Also, if you leave it in one country too long, that country might start feeling oppressed.

You can also use the anti-WOT (World Organization of Terrorists) squad, but only after you figure out where the WOT is hiding. They're a crafty bunch and they'll try to throw you off the track. Once you think you know where they are, you must get permission from the countries to go after them. If permission is granted and you nab the WOT, your prestige and power increase. If you're misled, your prestige takes a nosedive.

Keeping Track

As the Global Commander, your most important job is to keep track of what's going on. In addition to the spy satellites, you can monitor the radio frequencies. This takes some doing because not only are there six bands, each containing multiple frequencies, but often the transmissions are coded. You have eight filters and you must find the right combination of filters to read the messages as they come in. Fortunately, you'll soon learn where to find important messages from the particularly obstreperous nations and figure out how to decode them. There's also an automatic frequency scan within each band to help you find transmissions.

Since Global Commander can take a while to play, you may save games two ways. The more permanent way is to disk, but you can also save them to memory, so that you can go back quickly to a time when radiation wasn't so prevalent! The menu that allows saving a game appears once per week of game time.

The graphics, while adequate, are not one of the game's strongest points. This game is definitely for strategists. The challenge is in trying to guess what is going to happen next, in spite of deliberate misinformation, coded radio messages, memos piling up, brush-fire wars and other distractions. I guarantee that you won't win the first few times, but after a while you'll get the feel of this game and will be able to survive for a long time without destroying our favorite planet. You'll learn when to use force—and when to use diplomacy. By the way: good luck. You'll need it. But ruling the world was never so much fun.

GOLDRUNNER II

Reviewed by David Plothin

If at first you *do* succeed—write a sequel. That's what Microdeal did with Goldrunner II, and if you liked the original, you'll like the follow-up. The smooth, outrageously fast scrolling is still there, as are those tall buildings that plaster your ship. It's still as much fun as ever, however, gameplay is quite different.

Goldrunner II takes place 50 years after the original Goldrunner. The Ring Worlds have been settled by humans, but man is no longer a warrior. Instead, robot pilots defend against attacks by the pirates—that is, until the robot pilots were captured and held prisoner at some unused space research stations. Your mission is to rescue as many robot pilots as you can. Of course, you must accomplish this mission alone and against impossible odds.

Just Me and My Fighter

As in the original Goldrunner, you must be extremely careful in Goldrunner II not to destroy your ship by running into the tall buildings that cast long shadows. The robots are in small vehicles that travel on various tracks on the space station and capturing a robot is an involved affair. First, you must use your laser cannons to destroy the vehicle and free the robot. Unfortunately, you can't land to pick it up; instead, you must wait for a green rescue pod to retrieve it. *Then* you must blast the rescue pod and *catch* the robot before it is falls to its destruction.

Your craft can carry five robots. Once your holds are full, you must bring the robots to a teleport station. Clearing a station of robots, either by capturing them or destroying them, ends that portion of the game. Then a mother ship appears and if you dock successfully, you get bonus points. Either way, you move on to the next space station.

The tall buildings make life difficult enough, but they're nothing compared to the enemy forces: the rescue pods, two kinds of fighters (including a large, nasty ▶

ship which breaks up into fighters) and mines. Collisions and enemy shells can't hurt you *directly*, but hits from the enemy make your ship bounce around—and after several hits in succession, you'll find your ship moving at a considerable velocity, making it even tougher to avoid those dad-blasted buildings. In upper levels, enemy forces *swarm* over you, making life even tougher. Also, tall buildings are much more plentiful in the upper levels.

You're not defenseless, though. You have twin wing-mounted laser cannons and occasionally you can pick up a smart bomb. You can control your fighter by mouse, keyboard or joystick, though I recommend the joystick. Your control panel displays a condensed view of the space station, indicating robots, enemy vehicles and your relative position.

Overall Appearance

The graphics and sound in Goldrunner II are excellent. The bright colors and detail of the space stations make the game more interesting, while the music track and digitized voice are also well done.

Once you get the hang of Goldrunner II, it's very playable. When the included disk of space stations begin to seem too easy, two more data disks with completely different layouts and graphics are available. Data Disk I is a real killer, but Disk II is much more playable.

Complaints? Yes, a few. For one thing, the *right* mouse button is used to fire weapons. This is hard to remember, and since the left mouse button fires your smart bomb, you can waste your bombs if you're not careful. Also, nowhere in the documentation or the on-screen pictures are you shown what the teleport looks like! Perhaps this is intentional, but it would help to know what to look for.

But overall, the exceptional graphics, scrolling and playability of Goldrunner II make it a winner. If you enjoy shoot-em-ups with a few surprises, I recommend Goldrunner II.

In Jet, if your enemy is closer than the minium range of your missiles, your only choice is to take him out with your guns.

JET

Reviewed by Scot Tumlin

Jet puts you in the cockpit of the Air Force F-16 Falcon or Navy F-18 Hornet. It's a good flight simulator, but it would be much better if its response time were better. However, with the multiple scenarios, you'll never get bored and you can play against friends via modem. Jet gives you all the power of a true simulator and lets you place the screen displays wherever you want them.

The first menu lists the 10 simulations available. Items 1 to 4 cover the F-16 and items 5 to 7 cover the F-18. Both types of missions include free-flight, target strike and dogfighting. Item 8 loads a Flight Simulator-compatible scenery disk; item 9 lets you connect two ST's through the serial port for two-player dogfighting; and item 0 runs a demo.

Pre-Flight

Your weapons are AIM-9 Sidewinder and AIM-7 Sparrow air-to-air missiles, AGM-65 Maverick and MK-82 smart bombs and a nose-mounted machine gun. The Sidewinder is a heat-seeking missile that homes in on the exhaust of an enemy aircraft. Its range is five miles and it's best used for dogfighting. The Sparrow uses radar signals to home in on the enemy. Its range is 25 miles and it's most effective for targets just entering radar range.

The bombs are for enemy ground targets. The Maverick, a very accurate bomb with a small blast radius, has a range of 14 miles. It's best used for heavily defended ground targets that you don't want to get too close to. The smart bomb has a larger blast radius but is less accurate, so use it when you require total destruction of your target.

The last weapon is the machine gun. If your enemy is closer than the minium range of your missiles, the only option left is to take him out with your guns.

Takeoff

F-16 scenarios start from a runway and F-18 scenarios start from an aircraft carrier. For F-16 takeoffs, increase throttle, head down the runway and pull back on the joystick. For F-18 takeoffs, increase speed to afterburner—two dials will turn red when afterburner is reached—and press Shift-L to be catapulted off the aircraft carrier's runway.

Flight and Combat

Once airborne, press function keys 3 and 4 to bring up the map and radar screens, which you'll use to locate enemy targets. Use the range circle at the center of the screen to lock onto air targets and denote

targets for your bombs. During a dogfight, the white outlined circle will turn red. The percentage of red denotes the range of the weapon selected. When the circle is completely red, the target is within range. Center the target inside the circle and press the fire button. The missle will do the rest.

Using the gun takes more skill in that the rounds fired from the cannon are affected by gravity, so sometimes you'll have to fire *ahead* of your target to counter the G-forces.

Landing

Landing the F-16 is a breeze. Line up with the runway, lower the landing gear, reduce airspeed and take her in—the softer the landing, the better. The F-18 lands on the deck of an aircraft carrier. Actually, the term "lands" is inaccurate—it's more like a controlled crash! The F-18 has a hook that drops from its fuselage and traps a cable strung across the carrier's deck. As you approach, line up with the deck, reduce your airspeed and drop your gear. The most important thing to do is to hit the deck in front of the cable. If done correctly the hook will catch and the jet will stop immediately. Otherwise, increase power and pull back on the stick, or else you'll end up in the ocean.

Wrap Up

Flying the jets in Jet is difficult, partly because it takes about 1½ seconds before your joystick's input updates the screen. This is unacceptable, especially when dogfighting. SubLogic is known for their realistic scenarios, but when it comes to combat, I don't care how accurate the surroundings are. A wire-frame model would have been adequate and the screen refresh time would have been smoother. But with an increase in screen speed, Jet could be one of the best aircraft simulators ever developed for the Atari ST. ■

David Plotkin is a chemical engineer for Chevron USA and a frequent contributor to START and Antic. Scot Tumlin is Direct Mail Sales and Support Supervisor for Antic Software.

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CompuServe's ST Forum Revisited—and Restructured

by Ron Luks

Online activity within the ST community has increased substantially over the last few years. Because of this increase, CompuServe has begun a major restructuring of its ST-related areas, which will be in effect by the time you read this.

New and Improved Services

Initially, vendors received space in the Atari Developers Forum. With the formation of the Atari *Vendors* Forum, however, the resources available to vendors for product support—as well as the number of participating vendors—has increased significantly. Current vendors include Regent Software, MichTron, Foresight Resources, A.N.A.L.O.G., ICD and Practical Solutions.

Because of the new highs in activity, CompuServe decided recently to split the current message sections and data libraries into two forums, effective October 15. The first is the **Atari ST-Arts Forum**, containing all graphics- and entertainment-related topics and associated data libraries. Messages will cover everything from Atari games, music and MIDI applications to basic and advanced graphics. The Atari ST-Arts Forum will also feature data libraries full of downloadable programs and files for games, music and MIDI, DEGAS and NEOchrome pictures, CAD-3D support, Cyber and other animation files, news and product demos.

The second forum is called the **Atari ST-Productivity Forum** (Atari Pro). With most of the online vendor support now conducted in the Atari Vendors Forum, the remaining sections of the Developers Forum will be relocated to Atari Pro along with message sections and data libraries devoted to utilities and applications programs. Some of the message sections in Atari Pro include telecommunications, operating systems, personal applications, business applications, emulators, BASIC and C programming, and sections for Atari news and forum business. Data libraries include new uploads, programming tools, utilities, desk accessories, printer drivers and new product demos.

Atari Pro now contains the special message section and data library for registered owners of the Atari Developers Kit which was previously in the Atari Developers Forum. Also, a few message sections and data libraries will be used as beta testing or special product sites, which can be used on a special-request basis. (Editor's note: *To reserve one of these areas, please contact Ron Luks, CompuServe I.D. 76703,254.*)

To make life easy for our regular users, each Atari forum will have a New Uploads library. This is a special section in which each new file will make a week-long appearance before the sysop staff moves it into the appropriate library for long-term archiving.

How It All Started

In 1980, CompuServe decided that because of the growing online interest in the Atari 8-bit computer, 8-bit users merited a section of their own on the network. This was called SIG*Atari, for Special Interest Group: Atari. Because customer support from Warner Communications, Atari's former owners, was erratic (to say the least), most of the support came from SIG*Atari, Atari-oriented publications such as Antic Magazine and a vast network of users' groups and bulletin board systems. In the next few years, SIG*Atari became ▶

the single largest source of online support for Atari owners, growing at an exponential rate. The original staff of sysops expanded to include many Atari luminaries and software authors such as Russ Wetmore, Michael Reichmann and Steve Ahlstrom.

Despite many changes in the CompuServe system software, the basic structure of SIG*Atari remained the same. The forum (CompuServe's new name for a SIG) was composed of a series of message bases, data libraries and an online interactive conferencing system. As activity in the forum increased and the membership went over the 20,000 mark, additional sections were defined and old ones renamed to reflect the topics of current interest in the Atari community.

In 1985 a few message sections were set up for coverage of the then-new 68000-based 520ST. Very quickly, activity in these areas threatened to overwhelm all 8-bit subject matter, so CompuServe decided to divide SIG*Atari into three forums: *Atari 8* for the 8-bit machines; *Atari 16* for the ST; and *Atari Developers*, primarily for Atari software and hardware developers. In the early days of the ST, very little developer support was available outside of the bare-bones Developers Kit, so AtariDev soon gained a reputation as *the* place for developers to share programming knowledge.

Although the Atari Forums had been run as an independent source of support, Atari recognized the Atari Developers Forum as the "official" location where purchasers of the Atari Developers Kit could obtain updates and company support. Other commercial systems have Atari areas with varying degrees of official sanction by Atari Corp., but the Developers' Forum has remained *the* site for "official Atari developers' support."

Any Questions?

As you can see, Atari-user support on CompuServe is changing and growing constantly. While I've made every attempt to ensure the accuracy of this information and the various product descriptions, understand that they're subject to change at any time. If you have trouble finding anything discussed in this column, please notify the sysops of the Atari Forums or a member of the Antic Online staff and you'll be directed to the proper location. ■

Ron Luks is the head sysop of the Atari Forums on CompuServe and the original editor of Antic Online.

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ON DISK!

Slither

by Thomas Bürglin

Slimy snakes slither slyly—can you? File SLITHER.ARC on your START disk.

Slither is a snaky way to test your hand/eye coordination. In a series of increasingly difficult levels you must make Spencer the Snake swallow a half-bushel (or so) of apples. Eat all the apples and you advance to the next level. But watch out! Spencer's metabolism has been warped by DDT and the longer he slithers, the longer he grows. Written in Personal Pascal 1.1, Slither runs in both low and high resolutions.

To play Slither, copy the files SLITHER.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC the file following the Disk Instructions elsewhere in this issue. Double-click on SLITHER.PRG and a few seconds later the title screen will appear.

Playing Slither

Press the Space Bar to begin the game. Spencer, your friendly serpent, will slither out from the bottom of the play field. A little red apple, Spencer's favorite (and only) snack, will appear. Use the left and right arrow keys to steer Spencer to the apple. When he swallows it, another one will appear someplace else on the field. The goal is to help Spencer eat all of the apples in a level.

If Spencer rams into a wall or barrier or bites himself, he has to repeat that level. But if he eats all of the apples in a level, he can escape to the next level through an opening that appears at the top of the play field. And the next level is (naturally) even harder.

On the left side of the screen, you'll see the number of apples Spencer must eat in that level and on the right side of the screen you'll see the timer bar. If Spencer doesn't eat an apple before the timer runs out, three extra apples will appear. Sound like heaven to a hungry snake? Well, Spencer grows so fast that if he has to eat too many apples, sometimes he can't get his tail out of the way. And for a snake, that's a tragedy!

Through Spencer's Eyes

The snake controls work from Spencer's point of view. Just put yourself in Spencer's place: to turn left, press the left arrow key. To turn right, press the

In this ST version of a classic video game, you're Spencer the Snake and your goal is to devour apple after apple fast enough to beat the clock. So whether you have a color* or *monochrome monitor, warm up your fingers and cancel your plans for tonight. Spencer needs your help! (Ophidiophobes are strongly urged to steer clear.)

right arrow key. This may seem confusing at first, so it's wise to use the Practice mode (see below) until you get the hang of it. In the Game mode, Spencer only has three lives, but in Practice mode Spencer can be reborn any number of times.

If Spencer is a bit too fast for you, press the 2 key at the title screen to bring Spencer Senior into the fray. He's a little older and a little slower, perfect for magazine editors (and others) with slow reflexes. You can pause the game with the right Shift key; press any other key to resume play. The Alternate key takes you back to the title screen. Finally, press the Escape key at the title screen to quit Slither completely.

Spencer Scores Again!

Slither has 30 levels and each apple is worth 10 points times the level's number. (Level Three's apples are each worth 30 points and Level Five's are worth 50 and so on.) Every time you eat an apple Spencer will grow a little longer and become a little faster, making it more difficult to maneuver. If you're able to complete a level without killing Spencer, you'll be awarded bonus points.

Practice, Practice, Practice

Want to practice a little? Press the 1 key at the title screen. This will take you into the Practice mode. Although you can kill Spencer, he can never be sent permanently to Snake Heaven. And, although Slither won't increase the total number of apples Spencer has to eat in a level, you also don't score.

Creating Levels

If you become bored because you can reach Level 30 in your sleep, wake up! You can load new Slither fields by pressing the 5 key at the title screen. Load the sample file FIELDS.TXT to change the playfields in levels two through five. To restore the original play fields, press the 6 key at the title screen. ▶

ROBERT KOPECKY

Slither is a lot of fun, but harder than it looks . . . until you get to one of the higher levels, like this one, where it *is* as hard as it looks.

You can also create a "fields" file with any word processor that can save a file in ASCII format. The first few lines of FIELDS.TXT are shown here:

```
2 3
128     0     0     0     1
128     0     0     0     1
128     0     0     0     1
128     0     0     0     1
128   255     0   255     1
```

The first number on the first line tells Slither the first level to replace and the second number is the number of levels in the file—the total number of Slither levels cannot exceed thirty. Lines 3 through 41 define the first new play field. There are five numbers on each line separated by spaces. Immediately following, with no empty line inbetween, are the 38 lines that define the next play field, and so on.

Each play field is composed of 38 rows of 38 units per row (40-by-40, including the walls). The third line of the file is the top row inside the play field and the 41st line is the bottom row.

The play field map is stored as five bytes (40 bits) per line. The first decimal number in a line must be equal to or larger than 128 (10000000 binary), because the bit furthest to the left in the eight-place number defines the left wall. Similarly, the last decimal number in a line must be odd, since the rightmost bit defines the right wall.

To define a play field, draw it as a 40-by-40 unit grid on a sheet of graph paper. Place a 1 in every unit where you want a wall or barrier to appear and a 0 into each open space unit, then divide the grid vertically into five columns of eight units. Each row on the grid will then have five groups of eight binary digits. Convert each group of eight units into the equivalent decimal number; these are the decimal numbers for your text file. If you're unfamiliar with binary numbers, study the sample file to see the effects of different numbers.

(Editor's Note: *If you don't want to go through this process, wait a bit—we have a Slither Construction Set in the works for a future issue of START.*)

When you take on the Slither challenge, you're taking on a game that requires skill and patience. You'll probably come across some levels that you'll think impossible to get through (some people think Level One is impossible). My only advice is to keep practicing, and practicing, and practicing . . .

Oh, yes, ophidiophobes are those with an unreasonable fear of snakes. ■

Thomas R. Bürglin is a research scientist in molecular biology. He is in the United States on a two-year sabbatical from Switzerland to finish his Ph.D.

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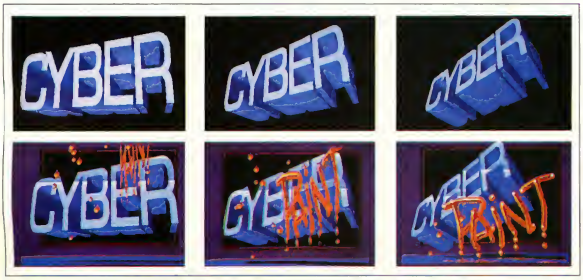

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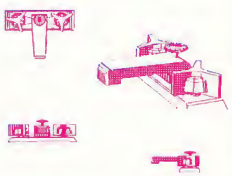

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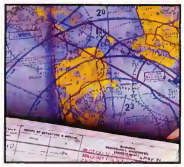

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ST Telecommunications

SHADOW
The multitasking file transfer answer

by Double Click Software

This multitasking file transfer program works independently or with any telecommunications application. Now the Atari ST* can do what could never be done before—multitasking. SHADOW transfers files in the background while using any other program. Imagine, change resolutions, switch monitors, or press system reset—transfers will never be interrupted. No more waiting for file transfers!

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STO402 $24.95

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